

NOTES

Scanner

Service Manual

Supported model

- EZ Controller
- QSS-35 PLUS series

Supported scanner

- LS-600
- LS-1100
- HS-1800

HS-1800 will be available at the end of June.

Issued in April, 2007

1.Cautions for Work

2.Replacement and adjustment of parts

3.Mode

4.Troubleshooting

5.Operation sequence

6.Electrical parts

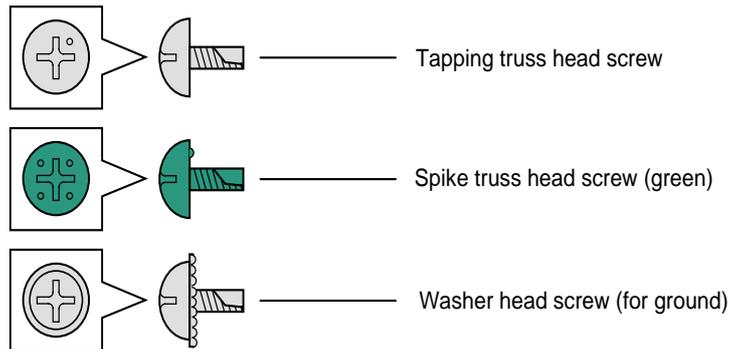
7.Setup for service personnel

8.Appendix

Notes to service personnel

Be sure to read this manual carefully to gain a thorough understanding of the correct procedures before servicing the machine.

The printer processor uses both tapping truss head screws and spike truss head screws. When attaching the screws once removed, make sure they are on their original positions. These screws are used for the place where grounding is required.



SCREW

-
- It is prohibited to show, provide, lend or transfer this manual to the others except the service personnel.
 - The contents of this manual are subject to change without notice.
 - Illustrations in this manual may vary depending on the model or manufacturing lot.
-

Explanation of manual

About the chapters

- 1. Cautions for work
Contains information on how to achieve safety in service operations.
Be sure to read precautions thoroughly and carefully.
- 2. Replacement and adjustment of parts
Describes how to remove or replace component parts and units, and how to adjust each part in replacement.
- 3. Mode
Shows the service personnel mode transition.
- 4. Troubleshooting
This chapter explains the corrective action for trouble.
- 5. Operation sequence
Describes the operation sequence.
- 6. Electrical parts
Describes the PCBs used.
- 7. Setup for service personnel
Describes the setup procedures for service personnel.
- 8. Appendix
Describes the wiring diagram.

Symbols used in this manual

This section explains the definitions of the symbols used in this manual.



This is called the alert symbol.

Text following this symbol contains particularly important information concerning safety. Be sure to heed this information. This symbol is used with the words **DANGER**, **WARNING** or **CAUTION** according to the possible degree of injury to people or damage to physical property.



IMPORTANT

The Important symbol indicates supplementary explanations, operations or procedures that require caution and instructions that must be followed.



The pointing finger symbol indicates the manual or section where you can find additional information.

NOTE

The Note symbol indicates useful information on functions or instructions.

TABLE OF CONTENTS

Notes to service personnel

Explanation of manual	ii
About the chapters	ii
Symbols used in this manual	ii

1. Cautions for Work

Description of warning (signal words)	10010
Description of warnings (signal words)	10010
Location of warning labels	10020
Location of warning labels	10020
For safe operation	10030
For safe operation	10030
Prevention of static electricity when replacing and maintaining the electrical parts	10040
LED Precautions	10060

2. Replacement and adjustment of parts

Removing covers	20030
Removing covers (LS-600/LS-1100)	20030
Removing covers (HS-1800)	20030
Removing covers (film carrier section)	20040
Adjusting belt tension	20130
Adjusting belt tension (film carrier section) [LS-600/LS-1100]	20130
Adjusting belt tension (film carrier section) [HS-1800]	20130
Removing the scanner unit [HS-1800]	20611
Removing the scanner main body unit [LS-600]	20612
Removing the scanner main body unit [LS-1100]	20613
Removing the LED light source unit [HS-1800]	20630
Removing the LED light source unit [LS-600]	20640
Removing the LED light source unit [LS-1100]	20645
Film carrier section	20700
Replacing the film carrier	20700
Removing the advance unit	20710
Replacing and adjusting the film feed motor	20720
Replacing and adjusting the spool key motor	20730
Replacing and adjusting the light lock door drive axis	20740
Replacing and adjusting the light lock door motor	20750
Replacing and adjusting the magnetic head unit	20760
Adjusting the light lock door drive timing	20780
Manual mount carrier section	20850
MMC auto focus section adjustment	20850

Film advance unit	20910
Replacing film advance assembly [LS-600]	20910
Replacing film advance assembly [LS-1100]	20915
Removing the 240 cartridge charging unit [LS-600/LS-1100]	20920
Replacing the HFI unit [LS-600/LS-1100]	20930
negative cleaner	21150
Adjusting the gap of the negative cleaner brush	21150

3. Mode

Mode structure table	31030
Mode structure table [LS-600/LS-1100]	31030
Mode structure table [HS-1800]	31030
Maintenance	35000
Perform the Scanning Position Auto Correction.	35000
Film Carrier Unit Adjustment (120 AFC-II)	35010
Film Carrier Unit Adjustment (110 AFC-II)	35020
Film Carrier Unit Adjustment (135/240 MMC-II)	35030
Film Carrier Unit Adjustment (135/240 AMC-II)	35040
Film Carrier Unit Adjustment (MFC)	35050
Film Carrier Unit Adjustment (135 AFC-II)	35060
Sensor Sensitivity Adjustment (LS-600/LS-1100)	35070
Scan Position Auto Correction (LS-600/LS-1100)	35071
Magnetic Data Reading Result (LS-600/LS-1100)	35072
Input Check [LS-600]	35200
Input Check [LS-1100]	35200
Input Check [HS-1800]	35200
Output Check [LS-600]	35300
Output Check [LS-1100]	35300
Output Check [HS-1800]	35300
Reading and Writing Data [LS-600/LS-1100/LS-1800]	35400
Version Information [LS-600/LS-1100/HS-1800]	35500
Software Upgrade [LS-600/LS-1100/HS-1800]	35600
Machine Specification [LS-600/LS-1100/HS-1800]	35800
Self-diagnostic	35920
Swing and Tilt/Light Axis Adjustment [HS-1800]	37001
Swing and Tilt/Light Axis Adjustment [LS-600/LS-1100]	37002
Focus Adjustment [LS-600/LS-1100]	37020
Focus Adjustment [HS-1800]	37020
Scanner Calibration [LS-600/LS-1100]	37030
Scanner Calibration [HS-1800]	37030
Scanner Sensitivity Check [LS-600/LS-1100/HS-1800]	37040
MFC Area Registration [HS-1800]	37050
Saving log data	37500
Saving log data	37500
Software	39000
Installing the system program [LS-600/LS-1100/HS-1800]	39000
Procedure of installing the digital masking unit software	39010

4. Troubleshooting

Error and attention message regulation	4001
Classification of errors and attention messages	4001
Suffix number	4002
Symptoms caused by wiring connection failure (scanner section) [LS-600]	4210
Diagnosis appendix: (scanner section)	4600
About the scanner adjustment chart	4600
Checking and cleaning the scanner section [LS-600/LS-1100/HS-1800]	4610
Attention message: Scanner	41300
No. 01302 For corrective actions, see EZ Controller Service Manual	41300
No. 01305 Photometry Section may be dirty.	41300
No. 01313 The Focus Adjustment was not completed yet.	41300
No. 01314 Light source evenness is out of allowable range.	41300
No. 01316 Focus Adjustment failed.	41300
No. 01317 Failed to perform the Scan Position Auto Correction.	41300
No. 01318 Close the Scanner Unit Cover.	41300
No. 01320 There may be dust on the AFC opening.	41300
No. 01322 Connect the scanner unit. Check the power supply and connection.	41300
No. 01323 The connected USB device is not supported.	41300

Attention message: Film carrier	41400
No. 01400 Lock the Film Carrier.	41400
No. 01401 Attach the Film Carrier.	41400
No. 01402 Attach the 135/240 AFC.	41400
No. 01403 Undeveloped cartridge. Cannot process.	41400
No. 01404 The IX frame data is incomplete.	41400
No. 01405 Remove the 135 film from the Film Carrier.	41400
No. 01406 Remove the 240 film from the Film Carrier.	41400
No. 01407 Remove the 110 film from the Film Carrier.	41400
No. 01408 Remove the 120 film from the Film Carrier.	41400
No. 01409 Set the lane for the Film Carrier.	41400
No. 01410 Confirm the film stop position in the Film Carrier.	41400
No. 01412 The film is upside down. Would you like to continue processing?	41400
No. 01413 Input the frame number	41400
No. 01414 The FID number was not detected.	41400
No. 01416 Select the 240 lane.	41400
No. 01417 Close the Mount Insertion Cover.	41400
No. 01421 Confirm the stop position of all the frames to be processed.	41400
No. 01422 Select the 135 lane.	41400
No. 01423 Execute Sensor LED Light Intensity Adjustment. Remove the film from the Film Carrier.	41400
No. 01424 Sensor LED Light Intensity Adjustment is being executed.	41400
No. 01425 Sensor LED Light Intensity Adjustment is complete.	41400
No. 01426 Attach the 110 AFC.	41400
No. 01427 Execute Sensor LED Light Intensity Adjustment. If film remains in the Film Carrier, remove it.	41400
No. 01428 Remove the mount from the Film Carrier.	41400
No. 01429 Make sure that the mount is placed correctly.	41400
No. 01430 Confirm the frame size.	41400
No. 01435 Insertion direction of film is different. Insert the film from the rear end (end with largest frame number). 41400	41400
No. 01438 Set the attachment.	41400
No. 01439 Light Source was not updated. Would you like to scan?	41400
No. 01456-01457 See the EZ Controller Service Manual.	41400
Error message: Scanner	46300
No. 06305 Scanner Focus operation error.	46300
No. 06306 Scanner IRIS operation error.	46300
No. 06309 Scanner change of light error.	46300
No. 06321 Focus auto adjustment error.	46300
No. 06322 Scanner input balance error.	46300
No. 06324 F stop value range error.	46300
No. 06327 Scanner Light Source Section temperature adjustment error.	46300
No. 06332 Light Source adjustment error.	46300
No. 06333 The Line Data is out of the Standard Range Error.	46300
No. 06334 Lane change operation error.	46300
No. 06335 The Scanner Unit Cover is open.	46300
No. 06336 Scanner Zoom operation error.	46300
No. 06340 Analog offset adjustment error	46300
No. 06341 Scanner image path error.	46300
No. 06342 Scanner unit was disconnected.	46300

Error message: Film carrier	46400
No. 06400 Perforation Sensor error.	46400
No. 06401 Loading Sensor error.	46400
No. 06402 Ready Sensor error.	46400
No. 06403 135 film has stopped at the Film Carrier.	46400
No. 06404 240 film has stopped at the Film Carrier.	46400
No. 06405 110 film has stopped at the Film Carrier.	46400
No. 06406 120 film has stopped at the Film Carrier.	46400
No. 06407 Spool Key operation error.	46400
No. 06408 The Film Carrier is unlocked.	46400
No. 06409 The 240 Cleaning Leader has stopped.	46400
No. 06410 Film Sensor error.	46400
No. 06411 Film Carrier Sensor Sensitivity Adjustment was not executed.	46400
No. 06412 135 DX Sensor 1 error.	46400
No. 06413 135 DX Sensor 2 error.	46400
No. 06414 135 DX Sensor 3 error.	46400
No. 06415 135 DX Sensor 4 error.	46400
No. 06416 240 DX Sensor 1 error.	46400
No. 06417 240 DX Sensor 2 error.	46400
No. 06423 Auto focus error.	46400
No. 06424 Mount Unit operation error.	46400
No. 06425 Mount detection error.	46400
No. 06426 The lane is out of position.	46400
No. 06429 System error. (AFC / Scanner control PCB)	46400
No. 06431 Auto focus error.	46400
No. 06432 Mount Unit operation error.	46400
No. 06433 Mount detection error.	46400
No. 06434 Mount detection (inlet) error.	46400
No. 06435 Mount insertion operation error.	46400
No. 06436 Mount elevator operation error.	46400
No. 06437 Mount eject operation error.	46400
No. 06438 135 Cleaning Leader has stopped.	46400
No. 06439 The film strip is too short for processing.	46400
No. 06441 The 120 Cleaning Leader has stopped.	46400
No. 06442 The perforation of the film may be broken.	46400
No. 06443 Move Table operation error.	46400
No. 06444 Cartridge is out of position.	46400
No. 06445 End Perforation Sensor error.	46400
No. 06446 Film was set to the incorrect lane.	46400
No. 06463 For corrective actions, see EZ Controller Service Manual	46400

5. Operation sequence

Operation sequence	50010
Scanner Calibration sequence	50010

Film Carrier Section (HS-1800)	51010
Film feed operation (135)	51010
Film feed operation (240)	51110
Film feed operation (120)	51310
Film feed operation (110)	51410
Film feed operation (MMC)	51510
Film advance operation (AMC)	51550
Film feed operation (MFC)	51610
Film advance section	52010
Film feed operation (135 lane)	52010
Film feed operation (240 lane)	52020

6. Electrical parts

Compatibility of PCBs and electrical parts	60100
Compatibility of PCBs and electrical parts [LS-600/LS-1100/HS-1800]	60100
Position of PCBs	62020
Scanner section (positions of PCBs) [HS-1800]	62020
Scanner section (positions of PCBs) [LS-600]	62030
Scanner section (positions of PCBs) [LS-1100]	62040
Position of electrical parts	62070
Scanner section (positions of electrical parts) [HS-1800]	62070
Scanner section (positions of electrical parts) [LS-600]	62080
Scanner section (positions of electrical parts) [LS-1100]	62085
Operation specification	62090
Operation specification of LED light source units and fans [LS-600/LS-1100/HS-1800]	62090
Position of electrical parts (Film Carrier Section)	62100
135/240 AFC-II (positions of PCBs)	62100
135/240 AFC-II (positions of electrical parts)	62150
120 AFC-II (positions of PCBs)	62200
120 AFC-II (positions of electrical parts)	62250
110 AFC-II (positions of PCBs)	62300
110 AFC-II (positions of electrical parts)	62350
135/240 MMC-II (positions of PCBs)	62400
135/240 MMC-II (positions of electrical parts)	62450
135/240 AMC-II (positions of electrical parts)	62500
135/240 AMC-II (positions of electrical parts)	62550
135 AFC-II (positions of PCBs)	62600
135 AFC-II (positions of electrical parts)	62650
MFC (disposition of PCB, PM driver and power supply)	62660
MFC (position and description of electrical parts)	62670
Description of PCB (scanner section)	65000
AFC/scanner control PCB (J391472)	65000
AFC/scanner driver PCB (J391203)	65010
Power supply [HS-1800]	65060
PM driver [HS-1800]	65070

Description of PCB (film carrier section)	65200
Connecting PCB 1 (J391208)	65200
Connecting PCB 2 (J391205)	65210
Connecting PCB 3 (J490358)	65220
Driver PCB 1 (J391204)	65230
Driver PCB 2	65240
Sensor PCB (J391209)	65250
Power PCB (J391207)	65260
Magnetic head PCB (J391211/J391212)	65270
Magnetic head PCB (J390497/J390784)	65270
Connecting PCB 4 (J391206)	65280
Connecting PCB (J391367)	65290
Sensor PCB (J391217)	65300
Connecting PCB (J391216)	65310
Sensor PCB (J391218)	65320
MMC connecting PCB (J391220)	65330
MMC sensor PCB (J391219)	65340
AMC connecting PCB (J391221)	65350
110 AFC connecting PCB (J391366)	65360
135 AFC sensor PCB (J391213)	65370
Magnetic preamplifier PCB unit (W412798/W412797)	65380
Connecting PCB 1 (J391222)	65390
Connecting PCB 2 (J490368)	65400
Descriptions of PCB (LS-600)	66010
Scanner control PCB (J391475)	66010
Scanner driver PCB (J391385)	66020
Magnetic head PCB (J391196)	66070
Power supply [LS-600]	66110
PM driver (I043126)	66210
Descriptions of PCB (LS-1100)	66510
Scanner control PCB (J391473)	66510
Scanner driver PCB (J391480)	66520
Connecting PCB (J391199)	66530
Scanner main PCB (J391249)	66560
Magnetic head PCB (J391196)	66570
Power supply [LS-1100]	66610
PM driver (I043126)	66710
Cables	68100
Precautions for handling the optical fiber cable and LVDS cable	68100
Handling flat cable	68200

7. Setup for service personnel

Setup during installation	70010
Setup during installation	70010

8. Appendix

Periodically replaced parts	80110
List of Maintenance/Periodically replaced parts/Consumable parts (LS-600/LS-1100)	80110
List of Maintenance/Periodically replaced parts/Consumable parts (HS-1800)	80110
Service personnel tool list	80310
Service personnel tool list [LS-600/LS-1100/HS-1800]	80310
Wiring diagram table [LS-600]	89200
Wiring diagram table [LS-1100]	89210
Wiring diagram table [HS-1800]	89220

1. Cautions for Work

Description of warning (signal words) 10010
 Description of warnings (signal words)10010
Location of warning labels 10020
 Location of warning labels10020
For safe operation 10030
 For safe operation10030
 Prevention of static electricity when replacing and maintaining the electrical parts10040
 LED Precautions10060

Description of warnings (signal words)

- Signal words identify the level of injuries that can potentially occur.
- The signal words used in this manual and found on labels, **DANGER**, **WARNING** and **CAUTION**, are assigned according to the level of potential risk.
- Warning labels are located at or near the part of the system that poses the indicated danger. Ignoring a warning may cause death or serious injury, or system malfunction. Be sure to follow the indications in the manuals and on the warning labels.
- The warnings include a signal word, the type and extent of the danger, and information on avoiding the danger.
- Carefully read and understand the warnings included in this manual and on the warning labels before operating the system.

⚠ DANGER

This indicates situations that if not immediately avoided could result in serious injury or death.

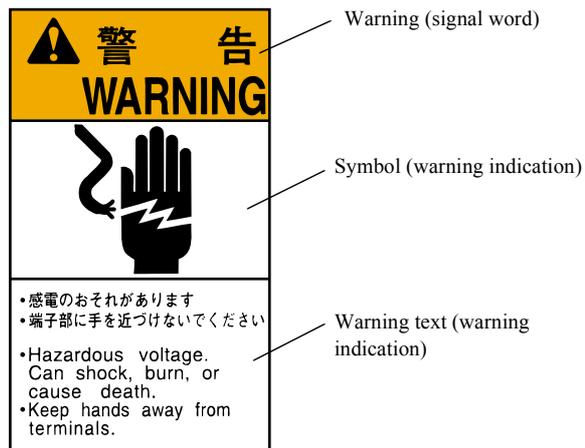
⚠ WARNING

This indicates situations that if not avoided could result in serious injury or death.

⚠ CAUTION

This indicates situations that if not avoided could result in non-life threatening injury. It is also used to indicate situations which may cause damage to physical property.

Example of warning label



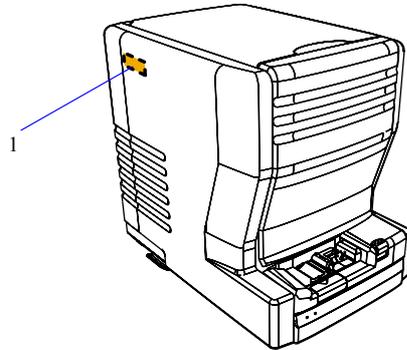
SIGNALWORD

Location of warning labels

The following shows the locations and types of warning labels and the parts number on this machine. Heed the clearly indicated warnings and operate safely without accidents. If the warning labels on the machine become illegible or peel off, contact your place of purchase and exchange them with new labels.

Though the system appearance of some models may be different from figures, locations of warning labels are same as shown in figures.

LS-600



G073162

<p>1</p> <p>A023349-01</p>	<p>2</p> <p>A227560-01</p>
<p>3</p> <p>A031010-01</p>	<p>4</p> <p>A064649-01</p>

For safe operation

● **General precautions**

⚠ WARNING

- Prior to any part replacement or mechanical adjustment, be sure the main power supply is turned off.
- Since the work which uses key operations cannot turn off the circuit breaker, mechanical operation check during it requires particular attention.



IMPORTANT

- Ground wires (green and yellow) are connected to the covers and units of the machine. For reassembly, be sure to connect the ground wires as they were.
- Be sure to perform an operation check after replacing or adjusting any parts (or units).

● **Precautions against electric shock**

⚠ WARNING

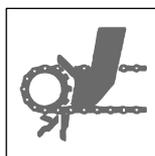
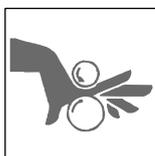
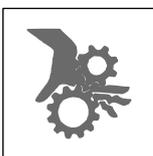
- If any case you have to take care of wiring for the power such as moving the machine, ask a qualified professional electrician for work. Do not forget to ground the machine.
- Pay attention to avoid shocks when performing troubleshooting, wiring checking, or voltage/current measurement.
- When replacing a fuse or PCB, be sure to turn off the circuit breaker and the main power supply. Wait for 10 seconds or more before replacement.



● **Precautions for operating rotary section**

⚠ WARNING

- Be careful for your hands, hair, clothes, etc., not to be caught under the gear, chain, belt, roller, fan and other rotating parts.
Do not remove the cover unless it is specified.
Be sure to turn off the circuit breaker and main power supply of this machine before performing any work.
Keep away your hands from the machine during operation.
If your hand or the like is caught and you cannot move, ask someone around you to turn off the circuit breaker at once.



● Precautions for operating heating section

⚠ WARNING

- The processing solution heater, dryer heater and motor, etc. generate high fever. If you directly touch them during operation or right after operation, you may get burnt. When replacement of parts or maintenance is performed, make sure that the temperature is fully lowered. After temperature fully falls, carry out the operation by turning OFF the circuit breaker and the main power supply. Cooling time, such as the heater section and the motor, changes with work states. Turn off the circuit breaker and main power supply. Then, perform the work after the temperature has become low enough. If you have got burnt, cool the burn with flowing water and contact a physician as soon as possible.



● Precautions for movable units

⚠ WARNING

- There is a danger of hands being caught by the open/close covers or doors, or by the movable units. When opening and closing covers or doors, be sure to hold them firmly. When moving a unit manually, hold the specified parts only. When working with a unit which automatically moves, or when working around the unit, be sure to turn off the circuit breaker and main power supply. If your hand is caught and you cannot move, immediately call for help to turn off the circuit breaker.



LED Precautions

The LED is built into the scanner.

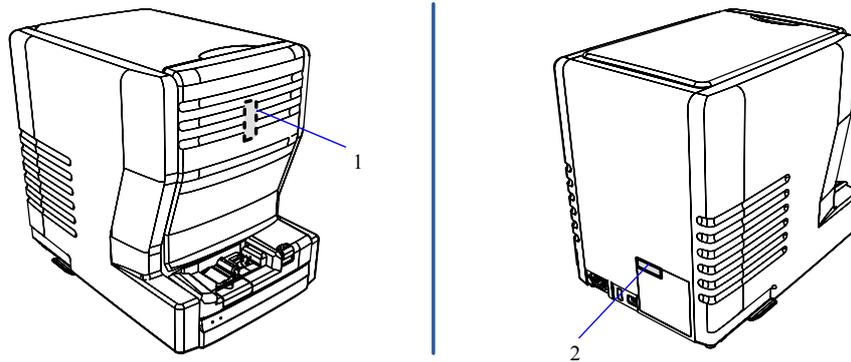
⚠ WARNING

- Follow the instructions to avoid exposing your eyes to LED radiation.
 - Do not remove any parts except specified ones.
 - Do not look at the LED directly using optical instruments.

Location of LED labels

The labels for the LED precautions are placed on this system.
Do not remove those labels.

LS-600



G082936

<p>1</p>  <p>LED放射ビームを のぞき込まないこと。 クラス1M LED製品 LED RADIATION DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS. CLASS 1M LED PRODUCT</p>	<p>2</p>  <p>CLASS 1M LED PRODUCT</p>
--	---

This page is intentionally blank.

2. Replacement and adjustment of parts

Removing covers 20030
 Removing covers (LS-600/LS-1100)20030
 Removing covers (HS-1800)20030
 Removing covers (film carrier section)20040

Adjusting belt tension 20130
 Adjusting belt tension (film carrier section) [LS-600/LS-1100]20130
 Adjusting belt tension (film carrier section) [HS-1800]20130
 Removing the scanner unit [HS-1800]20611
 Removing the scanner main body unit [LS-600]20612
 Removing the scanner main body unit [LS-1100]20613
 Removing the LED light source unit [HS-1800]20630
 Removing the LED light source unit [LS-600]20640
 Removing the LED light source unit [LS-1100]20645

Film carrier section 20700
 Replacing the film carrier20700
 Removing the advance unit20710
 Replacing and adjusting the film feed motor20720
 Replacing and adjusting the spool key motor20730
 Replacing and adjusting the light lock door drive axis20740
 Replacing and adjusting the light lock door motor20750
 Replacing and adjusting the magnetic head unit20760
 Adjusting the light lock door drive timing20780

Manual mount carrier section 20850
 MMC auto focus section adjustment20850

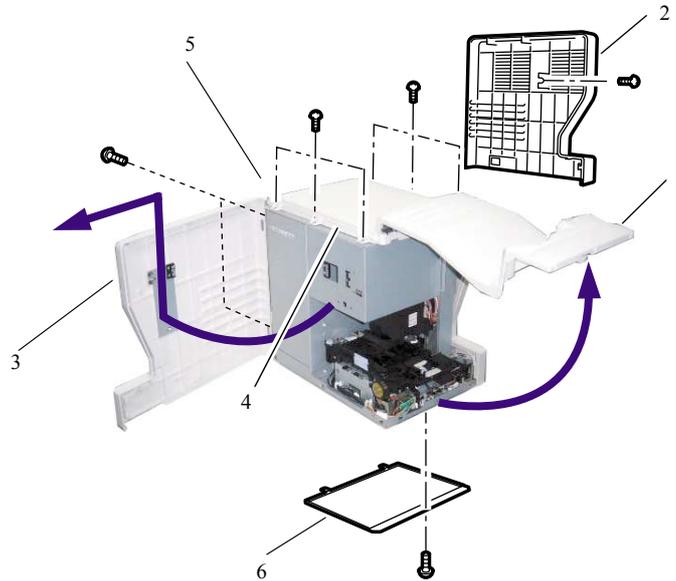
Film advance unit 20910
 Replacing film advance assembly [LS-600]20910
 Replacing film advance assembly [LS-1100]20915
 Removing the 240 cartridge charging unit [LS-600/LS-1100]20920
 Replacing the HFI unit [LS-600/LS-1100]20930

negative cleaner 21150
 Adjusting the gap of the negative cleaner brush21150

Removing covers (LS-600/LS-1100)

Procedure to remove covers is different between LS-600/LS-1100 and HS-1800.

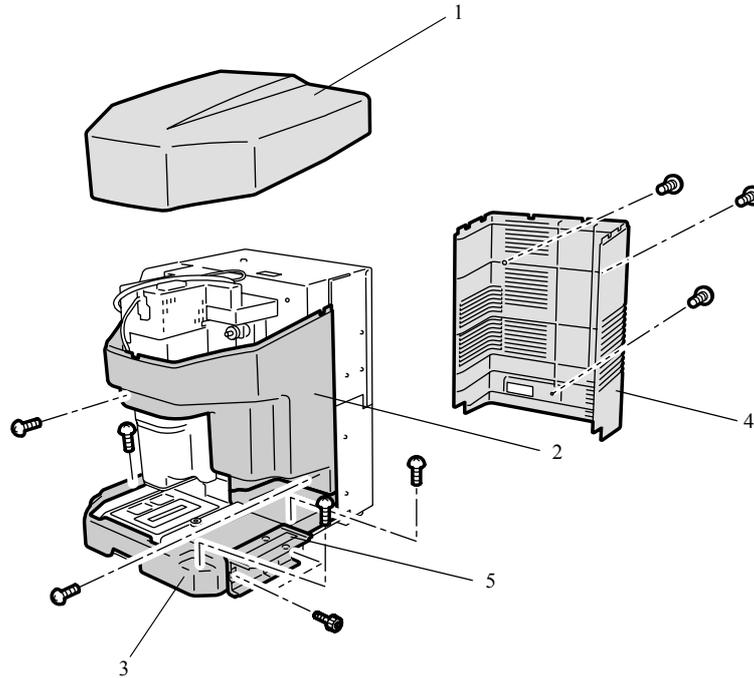
- For details about HS-1800, see [☞ Removing covers \(HS-1800\)](#).



G084993

No.	Name	Screw (Q'ty)	Remarks
1	Front cover	1	Remove the screw that supports the front cover, and remove it with the top cover.
2	Side cover (right)	1	
3	Side cover (left)	-	
4	Top cover	6	
5	Rear cover	2	The rear cover is a door-type cover. Control source and power supply are attached to it.
6	Bottom cover	1	

Removing covers (HS-1800)

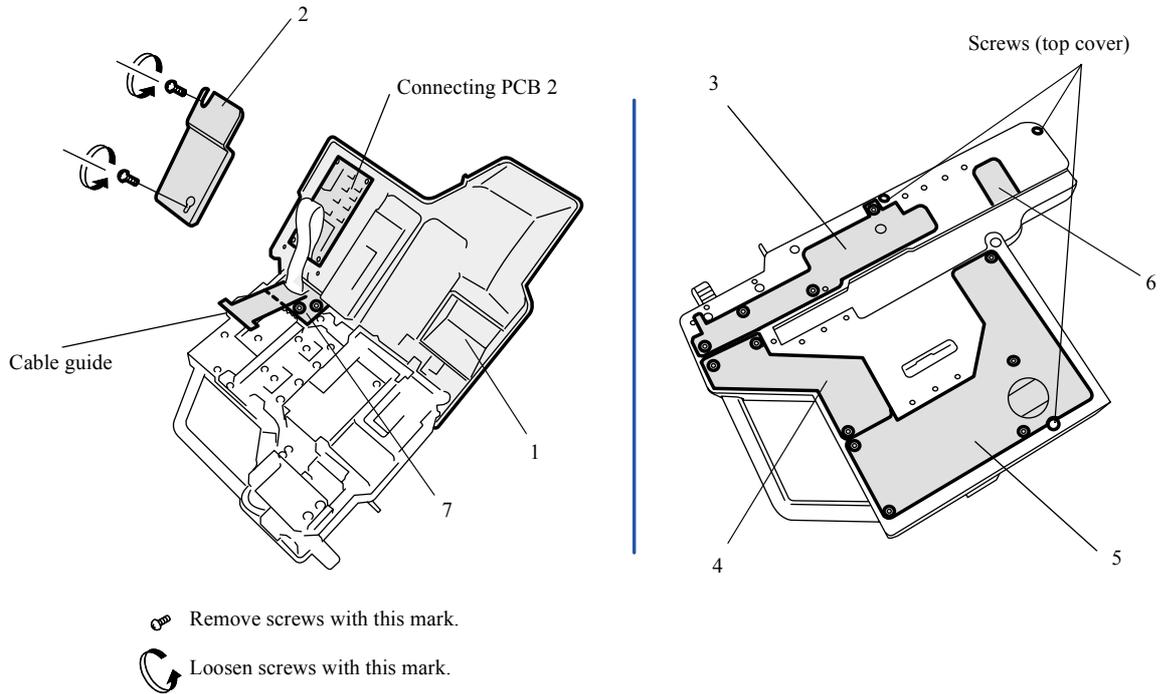


G068522

No.	Name	Screw (Q'ty)	Remarks
1	Scanner top cover		
2	Scanner front cover	2	Remove this after first removing the scanner top cover.
3	Scanner lower cover	3	Remove this after removing the scanner top cover, the scanner front cover and the film cleaner mount.
4	Scanner rear cover	3	Remove this after first removing the scanner top cover.
5	Film cleaner mount	2	

Removing covers (film carrier section)

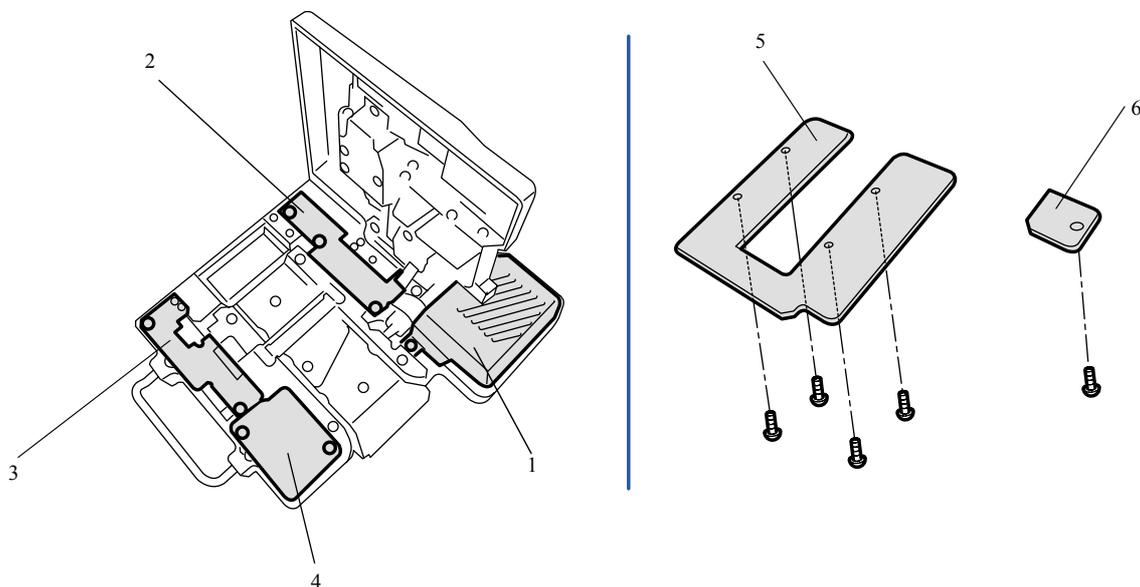
135/240 AFC-II



G057591

No.	Name	Screw (Q'ty)	Remarks
1	Top cover	3	Remove this after removing PCB cover 2 and the flat cable of connecting PCB 2.
2	PCB cover 1	2	
3	Bottom cover 1	4	On some units, bottom covers 1 and 2 are changed into a set form.
4	Bottom cover 2	3	
5	Bottom cover 3	5	
6	Maintenance cover	-	
7	PCB cover 2	2	

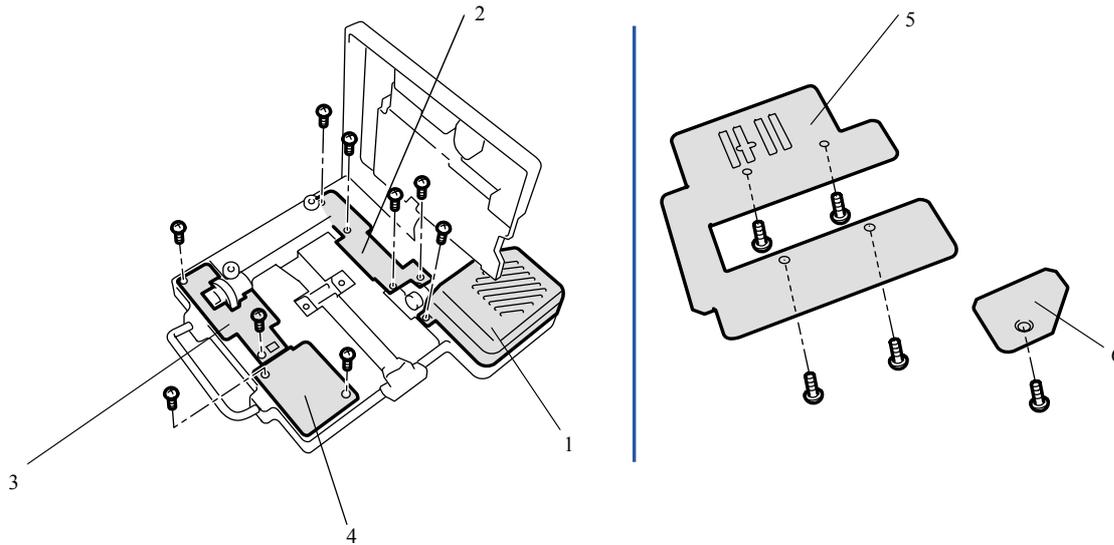
120 AFC-II



G051071

No.	Name	Screw (Q'ty)	Remarks
1	Drive motor cover	1	
2	Belt cover 1	3	
3	Belt cover 2	2	
4	PCB cover	2	
5	Bottom cover 1	4	
6	Bottom cover 2	1	

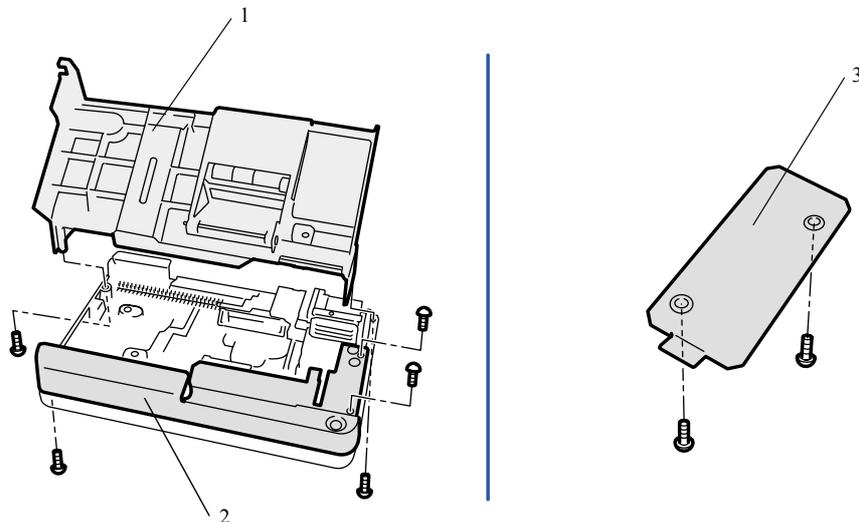
110 AFC-II



G052612

No.	Name	Screw (Q'ty)	Remarks
1	Drive motor cover	1	
2	Belt cover 1	4	
3	Belt cover 2	2	
4	PCB cover	2	
5	Bottom cover 1	4	
6	Bottom cover 2	1	

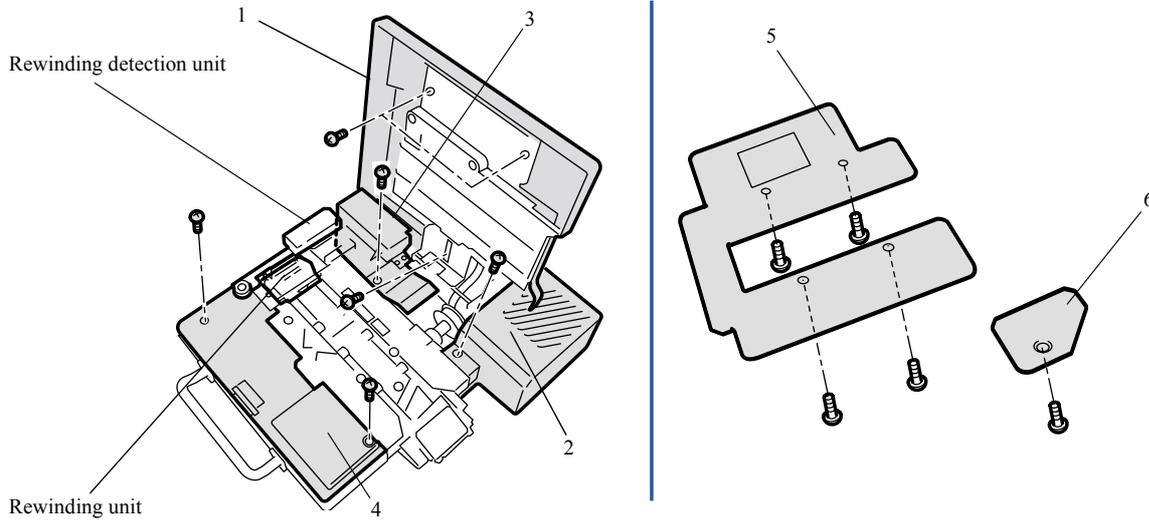
135/240 MMC-II



G052613

No.	Name	Screw (Q'ty)	Remarks
1	Top cover	2	
2	PCB cover	3	
3	Bottom cover	2	

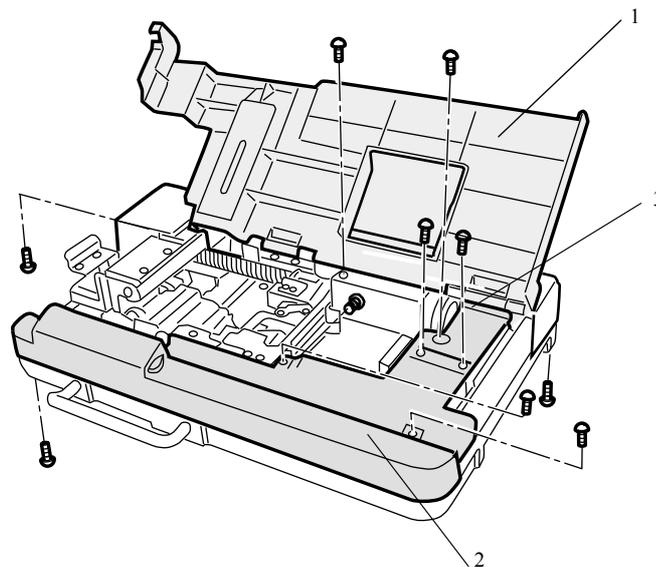
135 AFC-II



G057592

No.	Name	Screw (Q'ty)	Remarks
1	Top cover	3	
2	Drive motor cover	1	
3	Belt cover 1	2	Remove this after removing the rewinding detector unit and the rewinding unit.
4	Belt cover 2	2	Remove this after removing belt cover 1.
5	Bottom cover 1	4	
6	Bottom cover 2	1	

135/240 AMC-II



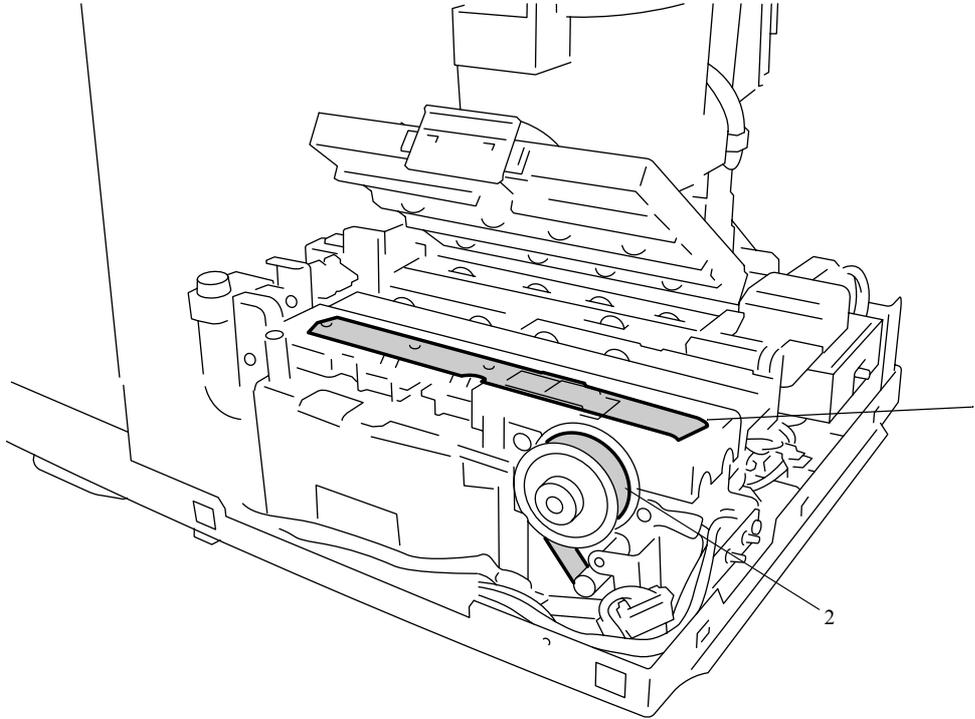
G060694

No.	Name	Screw (Q'ty)	Remarks
1	Top cover	3	
2	Front cover	5	
3	Loading stocker mount cover	2	

Adjusting belt tension (film carrier section) [LS-600/LS-1100]

Procedure to adjust belt tension is different between LS-600/LS-1100 and HS-1800.

- For details about HS-1800, see  Adjusting belt tension (film carrier section) [HS-1800].

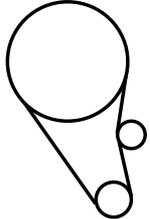


G084994



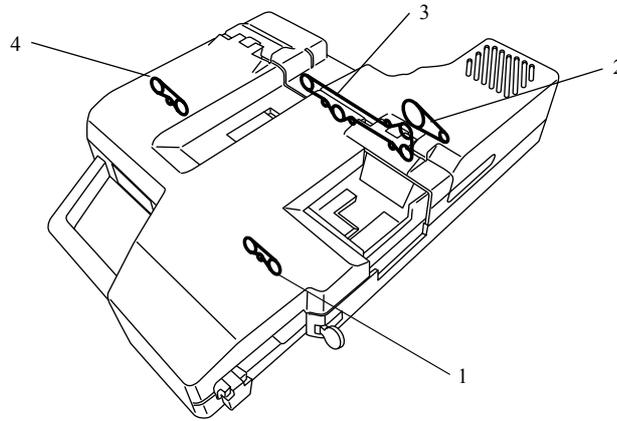
IMPORTANT

- All views of belts are from the side of the side cover (left).

No.	Name	Force	Deflection	Adjusting point	Illustration
1	Film feed belt	The film feed belt and film feed motor drive belt are automatically tensed.			
2	Film feed motor drive belt				

Adjusting belt tension (film carrier section) [HS-1800]

135/240 AFC-II

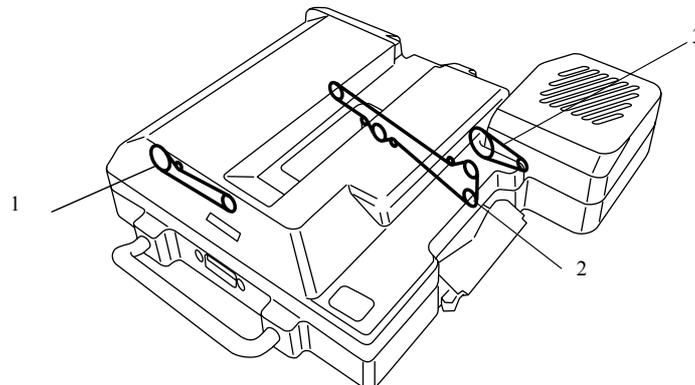


G051066

135/240 AFC-II

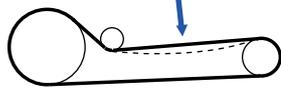
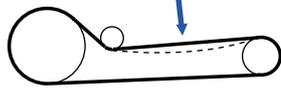
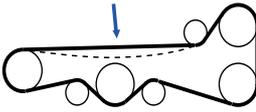
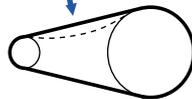
No.	Name	Force	Deflection	Adjusting point	Illustration
1	Film feed belt (135 insertion section)	$0.77 \pm 0.17\text{N}$ ($79 \pm 17\text{ g}$)	0.5 mm	Attaching position of the tension pulley	
2	Film feed motor drive belt	$1.73 \pm 0.39\text{N}$ ($176 \pm 40\text{ g}$)	0.5 mm	Mounting position of the motor	
3	Film feed belt	$0.28 \pm 0.08\text{N}$ ($28.5 \pm 8.3\text{ g}$)	0.5 mm	Attaching position of the tension pulley	
4	Rewinding drive belt	$0.91 \pm 0.05\text{N}$ ($93 \pm 5\text{ g}$)	0.5 mm	Attaching position of the tension pulley	

110 AFC-II, 120 AFC-II

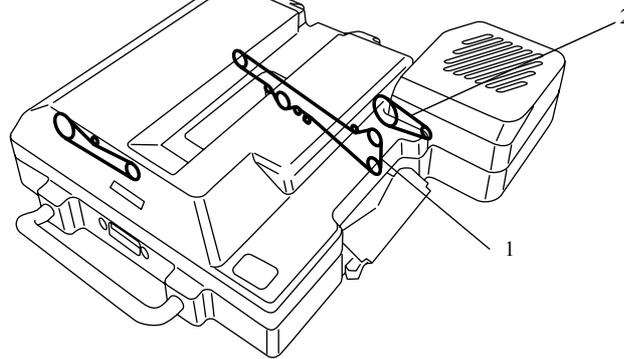


G051067

110 AFC-II, 120 AFC-II

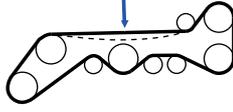
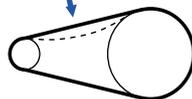
No.	Name	Force	Deflection	Adjusting point	Illustration
1	Winding drive belt (120 AFC-II)	$0.66 \pm 0.15\text{N}$ ($67 \pm 15\text{ g}$)	1.0 mm	Attaching position of the tension pulley	
	Winding drive belt (110 AFC-II)	$0.66 \pm 0.15\text{N}$ ($67 \pm 15\text{ g}$)	1.0 mm	Attaching position of the tension pulley	
2	Film feed belt	$0.27 \pm 0.07\text{N}$ ($28 \pm 7\text{ g}$)	0.5 mm	Attaching position of the tension pulley	
3	Film feed motor drive belt	$1.16 \pm 0.24\text{N}$ ($118 \pm 24.5\text{ g}$)	1.0 mm	Mounting position of the motor	

135 AFC-II

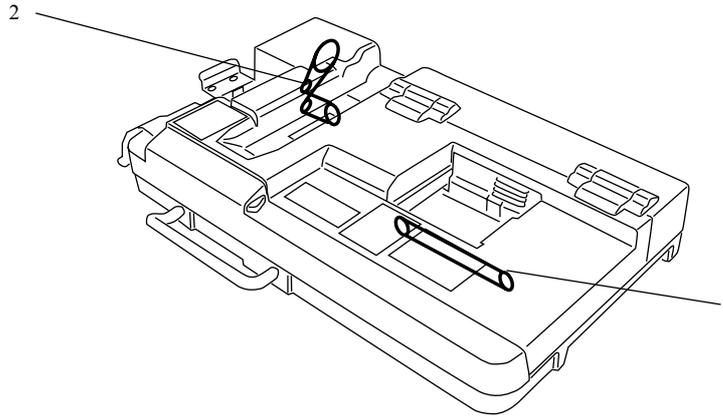


G057664

135 AFC-II

No.	Name	Force	Deflection	Adjusting point	Illustration
1	Film feed belt	$0.28 \pm 0.08\text{N}$ ($28.5 \pm 8.3\text{ g}$)	0.5 mm	Attaching position of the tension pulley	
2	Film feed motor drive belt	$1.16 \pm 0.24\text{N}$ ($118 \pm 24\text{ g}$)	1.0 mm	Mounting position of the motor	

135/240 AMC-II



G060695

135/240 AMC-II

No.	Name	Force	Deflection	Adjusting point	Illustration
1	Loading arm drive belt	$0.083 \pm 0.015\text{N}$ ($8.5 \pm 1.5\text{ g}$)	2.0 mm	Mounting position of the motor	
2	Ejection roller belt	-	-	-	

Removing the scanner unit [HS-1800]

Procedure to remove the scanner unit is different between LS-600, LS-1100 and HS-1800.

Reference	
Removing the scanner main body unit [LS-600]	Removing the scanner main body unit [LS-1100]

● Precautions for scanner unit replacement



IMPORTANT

- If you replaced the scanner unit, items shown below are necessary in returning the defective unit.

Scanner unit	Defective scanner unit
Logdata	All of the data when the problem occurs
Backup data	All of the backup data when the problem occurs

- Save the following data before replacing the scanner unit.
 - Save the all data in **Reading and Writing Data**.
 - Logdata: File in C:\noitsukoki\scanner\Nkscanner00014\Logdata

● Procedure

1. Remove the film carrier.
2. Remove the scanner top cover and the scanner front cover.
 20030
3. Remove the LED light source unit.
 20630
4. Remove the film ready lamp. (One screw)
5. Disconnect the connector(s).
J/P60, 61, 62 (Scanner unit: near top)
J/P67, 68, 69 (Scanner unit: near center)
J16 (Relay connector (AFC): two screws and two spacers)
J17 (Relay connector (AFC): two screws and three spacers)

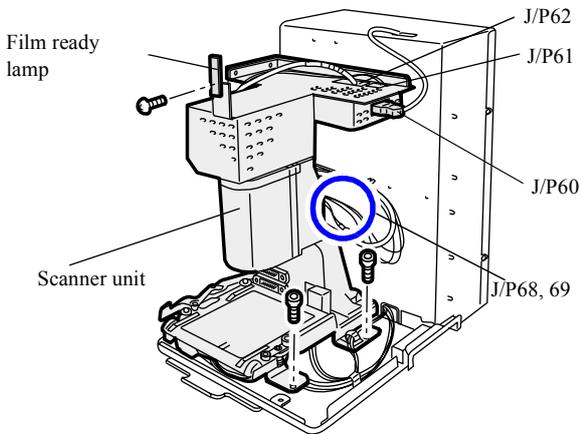


IMPORTANT

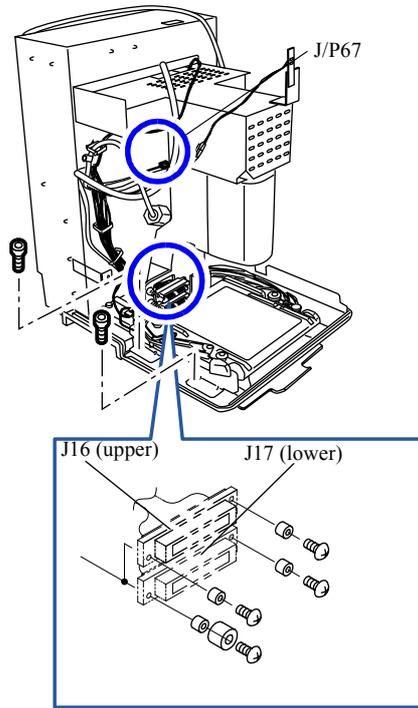
- J16, J17: Connecting the relay connector (AFC) in incorrect location may damage the PCB or AFC.
- Two spacers are attached in order to ground the AFC and scanner main body.
When reattaching J16 and J17 connectors, return the spacers to their original positions.

6. Remove the scanner unit. (four screws)

Viewed from right side



Viewed from left side



G085270

● Adjustment after reattaching

1. Attach the film ready lamp. (One screw)
2. Check that **Light Axis Adjustment** and **Swing and Tilt Adjustment** are in right positions.

☞ 37002

NOTE

- Light Axis Adjustment and Swing and Tilt Adjustment are not necessary for the HS-1800 scanner unit because the scanner unit and its frame are assembled as a unit.

3. Perform **Focus Adjustment**.

☞ 37020

4. Perform the **Scanner Calibration**.

☞ 37030

Removing the scanner main body unit [LS-600]

Procedure to remove the scanner unit is different between LS-600, LS-1100 and HS-1800.

Reference	
Removing the scanner unit [HS-1800]	Removing the scanner main body unit [LS-1100]

● Precautions for scanner unit replacement



IMPORTANT

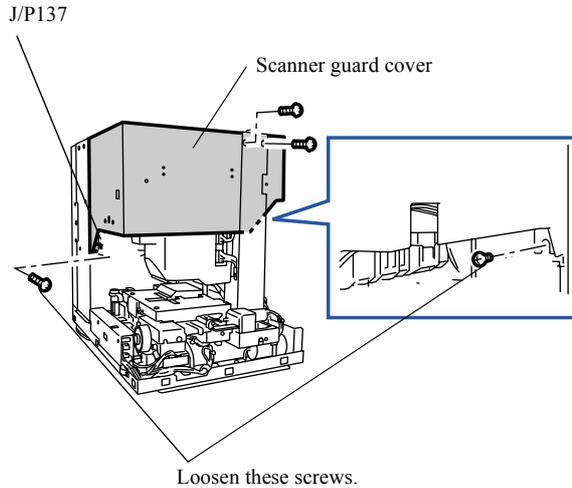
- If you replaced the scanner unit, items shown below are necessary in returning the defective unit.

Scanner unit	Defective scanner unit
Logdata	All of the data when the problem occurs
Backup data	All of the backup data when the problem occurs

- Save the following data before replacing the scanner unit.
 - Save the all data in **Reading and Writing Data**.
 - Logdata: File in C:\noitsukoki\scanner\Nkscanner00013\Logdata

● Removing

1. Remove the front cover, top cover and side covers (left and right).
 20030
2. Remove the scanner guard cover. (Loosen two screws out of four screws. One connector)
J/P137: Interlock switch 1

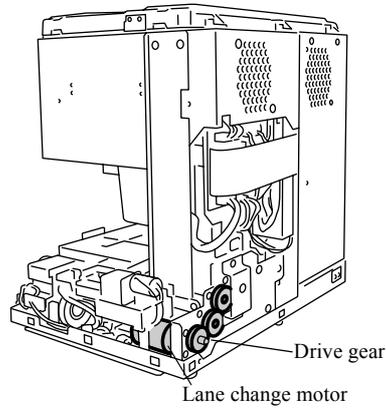


G084995



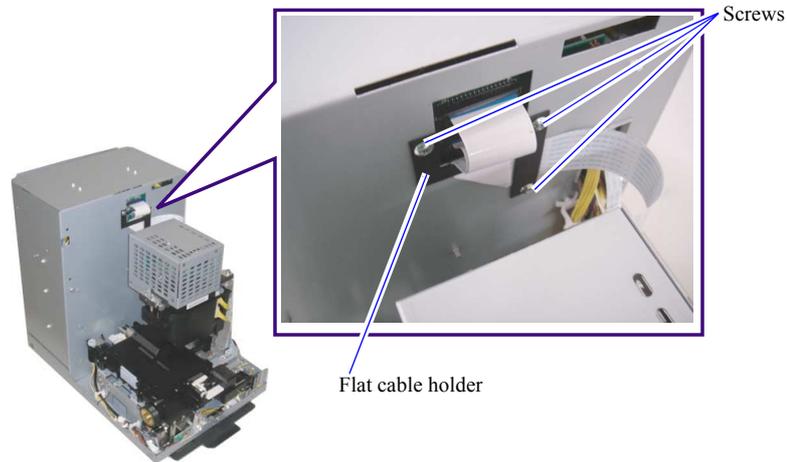
IMPORTANT

- When the scanner is positioned in the 240 lane side, you cannot remove the scanner guard cover. If necessary, rotate the drive gear of the lane change motor manually and move the scanner to the 135 lane side.



G071783

3. Remove the flat cable holder. (three screws)



G084996

4. Disconnect the connector(s).

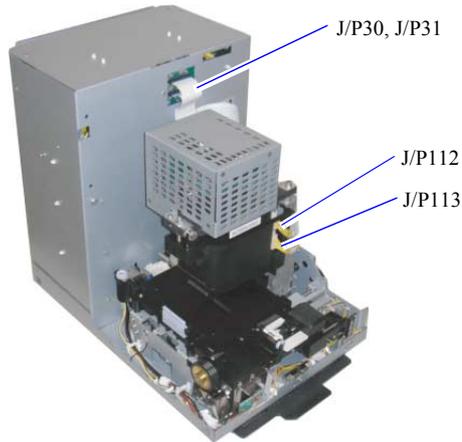
- J/P30: Scanner control PCB
- J/P31: Scanner control PCB
- J/P112: Scanner main body unit
- J/P113: Scanner main body unit



IMPORTANT

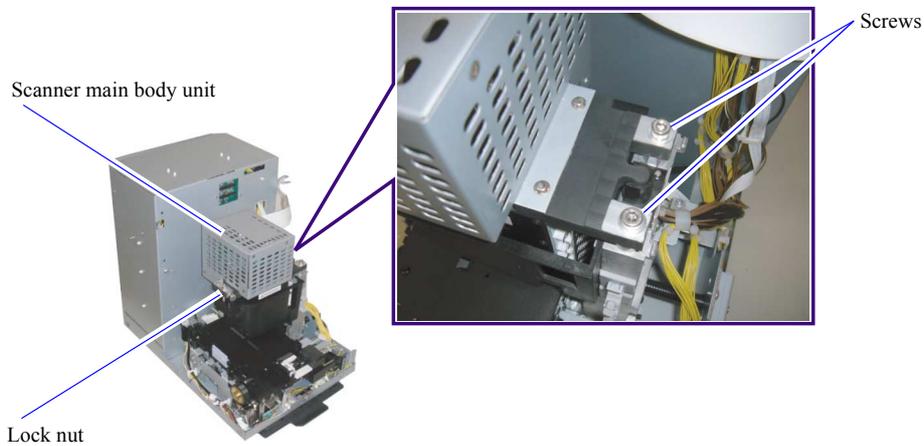
- The flat cable connects to the scanner control PCB. Be sure to read the **Precautions in handling the flat cable** before operation.

☞ 68200



G084997

5. Remove the scanner main body unit. (two screws and a lock nut)



G084998

● Adjustment after reattaching

1. Carry out **Swing and Tilt/Light Axis Adjustment**.
☞ 37002
2. Perform **Focus Adjustment**.
☞ 37020
3. Perform the **Scanner Calibration**.
☞ 37030

Removing the scanner main body unit [LS-1100]

Procedure to remove the scanner unit is different between LS-600, LS-1100 and HS-1800.

Reference	
Removing the scanner unit [HS-1800]	Removing the scanner main body unit [LS-600]

● Precautions for scanner unit replacement



IMPORTANT

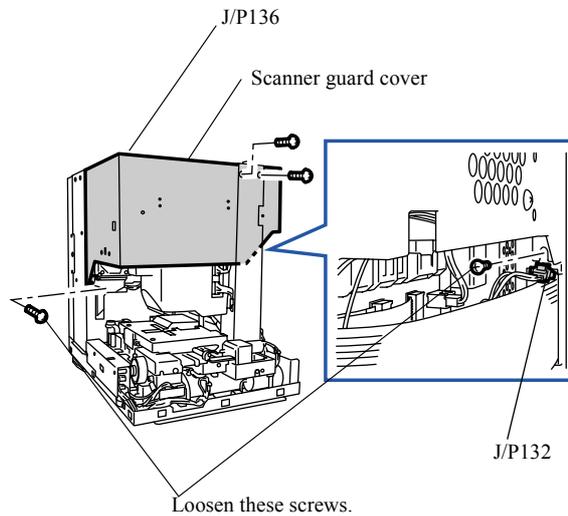
- If you replaced the scanner unit, items shown below are necessary in returning the defective unit.

Scanner unit	Defective scanner unit
Logdata	All of the data when the problem occurs
Backup data	All of the backup data when the problem occurs

- Save the following data before replacing the scanner unit.
 - Save the all data in **Reading and Writing Data**.
 - Logdata: File in C:\noitsukoki\scanner\Nkscanner00015\Logdata

● Removing

1. Remove the front cover, top cover and side covers (left and right).
 20030
2. Remove the scanner guard cover. (Loosen two screws. Two connectors)
J/P132: CCD cooling fan
J/P136: Interlock switch 2

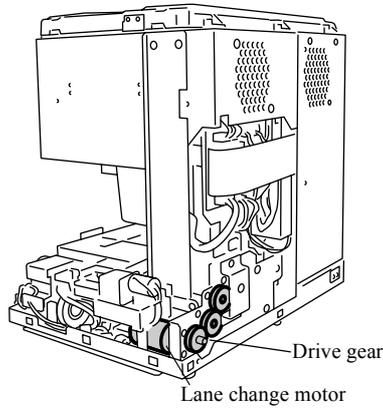


G071740



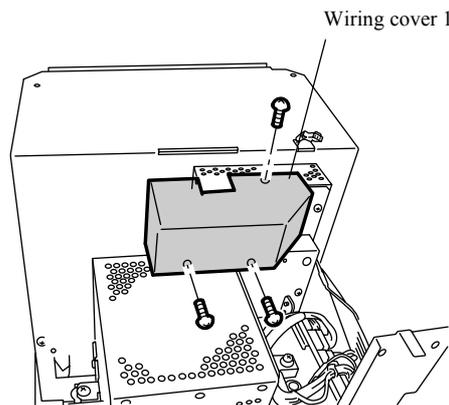
IMPORTANT

- When the scanner is positioned in the 240 lane side, you cannot remove the scanner guard cover. If necessary, rotate the drive gear of the lane change motor manually and move the scanner to the 135 lane side.



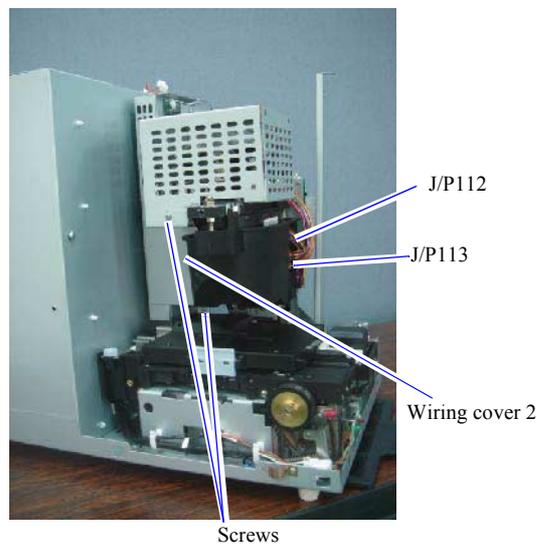
G071783

- Remove wiring cover 1. (Loosen two of the three screws.)



G083049

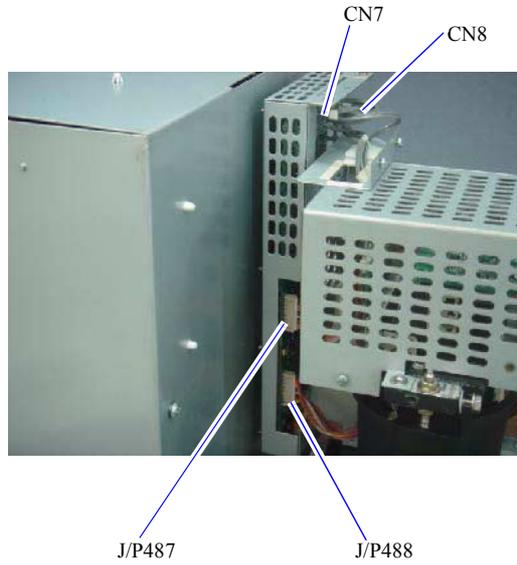
- Remove wiring cover 2. (Loosen one of the two screws.)



G083050

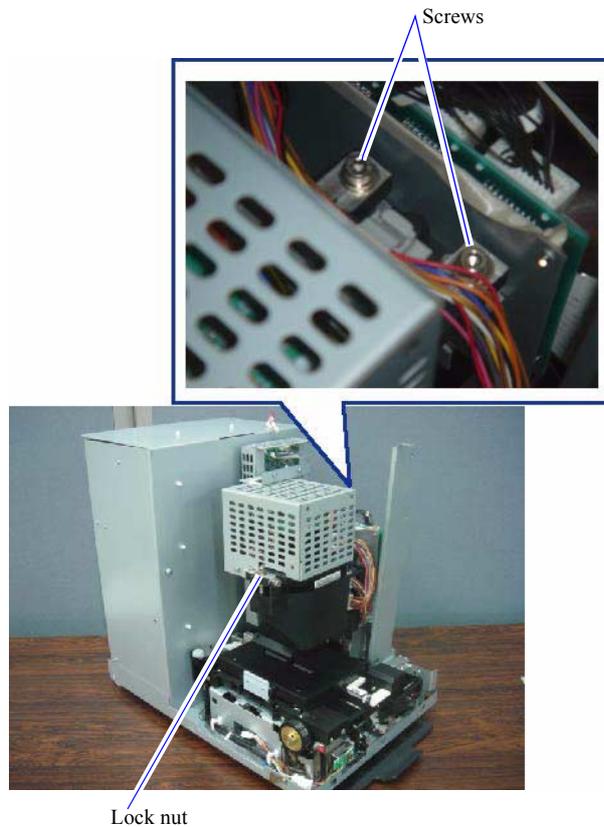
- Disconnect the connector(s).
J/P112: Scanner main body unit

- J/P113: Scanner main body unit
- CN7: Scanner main PCB
- CN8: Scanner main PCB
- J/P487: Scanner main PCB
- J/P488: Scanner main PCB



G083051

6. Remove the scanner main body unit. (two screws and a lock nut)



G083052

● Adjustment after reattaching

1. Carry out **Swing and Tilt/Light Axis Adjustment**.

37002

2. Perform Focus Adjustment.

 37020

3. Perform the Scanner Calibration.

 37030

Removing the LED light source unit [HS-1800]

Procedure to remove the LED light source unit is different between **HS-1800**, **LS-600** and **LS-1100**.

Reference	
Removing the LED light source unit [LS-600]	Removing the LED light source unit [LS-1100]

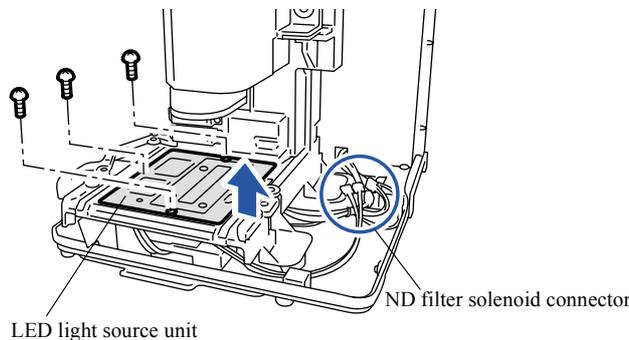


IMPORTANT

- If an electrostatically charged human body touches the LED light source unit, it may adversely affect the built-in electrical parts (LED element).
Use the static-dissipative tool as you work with the electrical parts such as PCBs.
 10040

● **Procedure**

1. Remove the film carrier.
2. Remove the scanner top cover, the scanner front cover and scanner lower cover.
 20030
3. Disconnect the connector(s).
 62020
J/P56, 70, 140, 141, 142, 143, 144 (AFC/scanner driver PCB)
J/P163 (ND filter solenoid connector)
4. Remove two ground wires.
The ground wires are not connected depending on the model.
5. Remove the LED light source unit. (three screws)



G078476

● **Warning when replacing the LED light source unit**

● **If a ground wire is included with the LED light source unit**

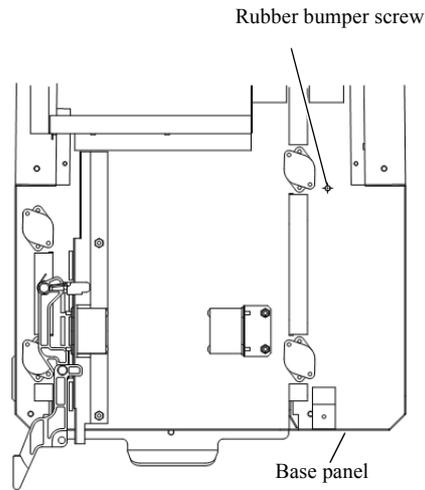
If there are no ground wires to remove in Step 4, follow the operations below.



IMPORTANT

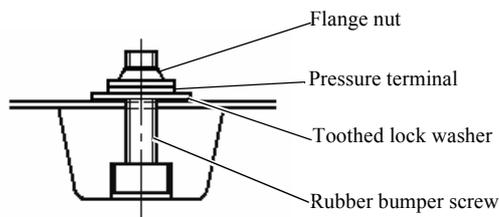
- Be sure to connect the ground wires even if the shield fingers attach to the scanner base panel.

1. Replace one rubber bumper screw with the screw included with the LED light source unit.



G083097

2. Set the following items in order of toothed lock washer (one), pressure terminal of ground wire (two) and flange nut (one) to the screw described in step 1.



G083098

NOTE

- Toothed lock washer (one) and flange nut (one) are included with the LED light source unit.

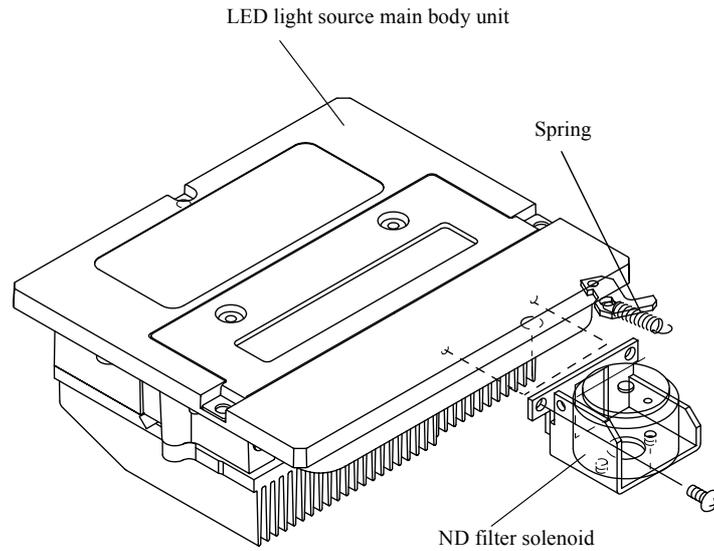
3. Tighten the flange nut.

● **When replacing the LED light source main body unit**

When replacing the LED light source unit without the ND filter solenoid, it is necessary to reattach the ND filter solenoid used last time for the LED light source unit.

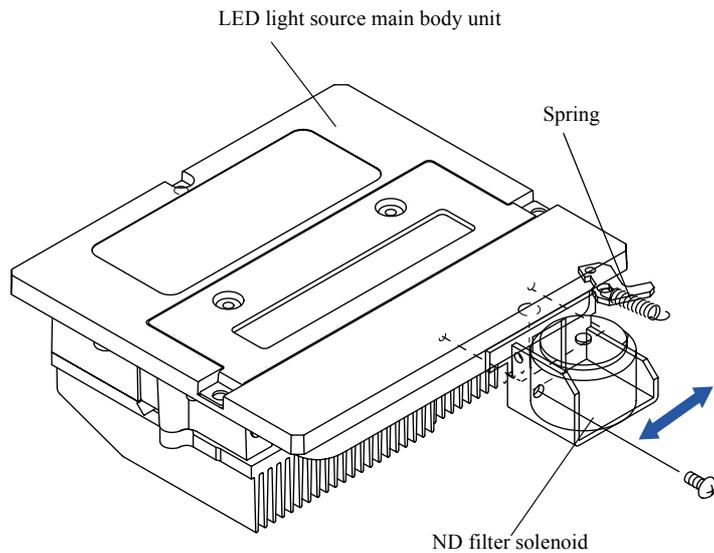
1. Remove the ND filter solenoid from the LED light source unit. (two screws)

2. Remove the spring from the ND filter solenoid.



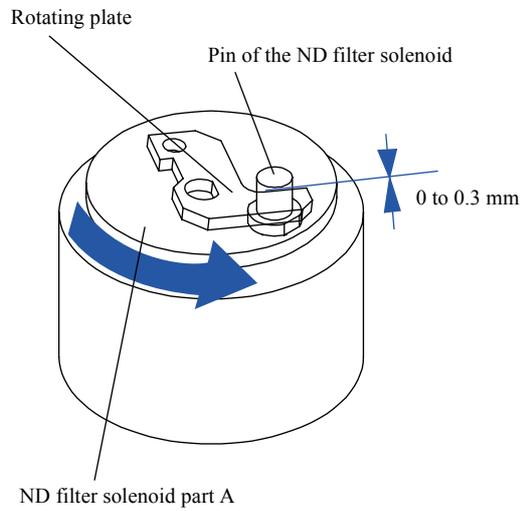
G076395

3. Attach the spring of a new LED light source main body unit to the ND filter solenoid.
4. Attach the ND filter solenoid to the new LED light source main body unit and tighten it up temporarily. (two screws)



G076397

- Adjust the position of the ND filter solenoid while pressing the ND filter solenoid part A in the direction of an arrow. Then, adjust the clearance between the rotating plate and the ND filter solenoid pin to become 0 to 0.3 mm. (two screws)

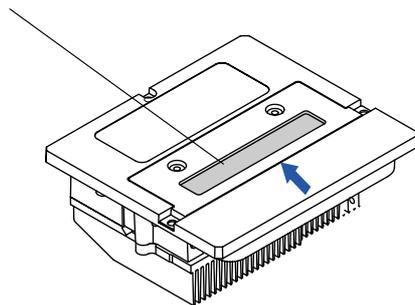


G076398

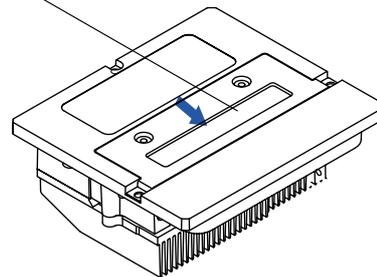
- Check that the ND filter turns ON/OFF correctly by Output Check.

☞ 35300

ND filter: ON



ND filter: OFF



G076399

● Adjustment after reattaching

- Perform **Focus Adjustment**.
☞ 37020
- Perform the **Scanner Calibration**.
☞ 37030

Removing the LED light source unit [LS-600]

Procedure to remove the LED light source unit is different between **HS-1800**, **LS-600** and **LS-1100**.

Reference	
Removing the LED light source unit [HS-1800]	Removing the LED light source unit [LS-1100]

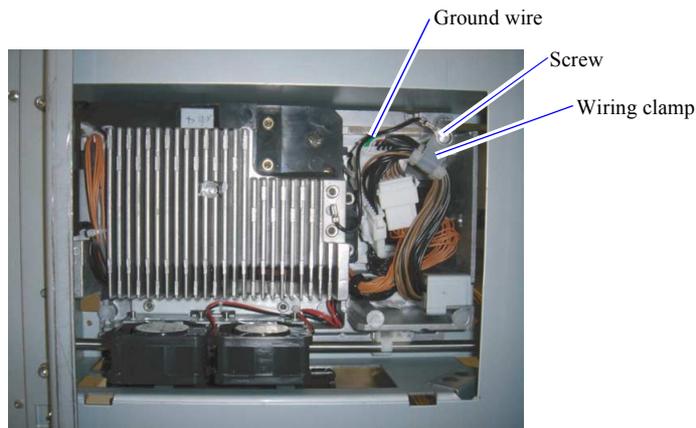


IMPORTANT

- If an electrostatically charged human body touches the LED light source unit, it may adversely affect the built-in electrical parts (LED element).
Use the static-dissipative tools as you work with the electrical parts such as PCBs.
 10040

● Removing

1. Lay the back of the film scanner down.
2. Remove the filter.
3. Remove the lower cover.
 20030
4. Disconnect the ground wire and wiring clamp. (One screw)

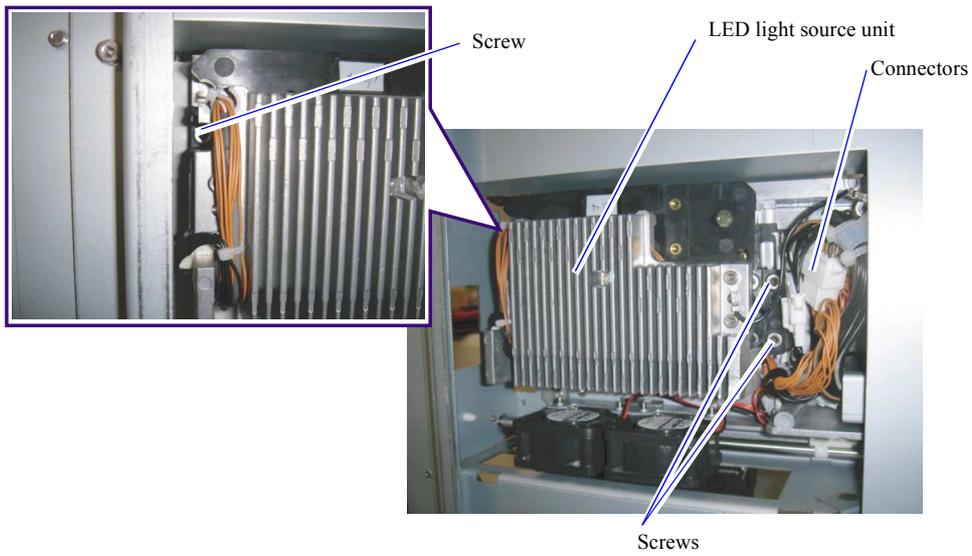


In the above figure, the lower cover is removed.

5. Disconnect the connector.

J/P150: Relay connector
J/P151: Relay connector
J/P152: Relay connector

G084999

6. Remove the LED light source unit. (three screws)

G085000

● Adjustment after reattaching

1. Perform **Focus Adjustment**.
☞ 37020
2. Perform the **Scanner Calibration**.
☞ 37030

Removing the LED light source unit [LS-1100]

Procedure to remove the LED light source unit is different between HS-1800, LS-600 and LS-1100.

Reference	
 Removing the LED light source unit [HS-1800]	 Removing the LED light source unit [LS-600]

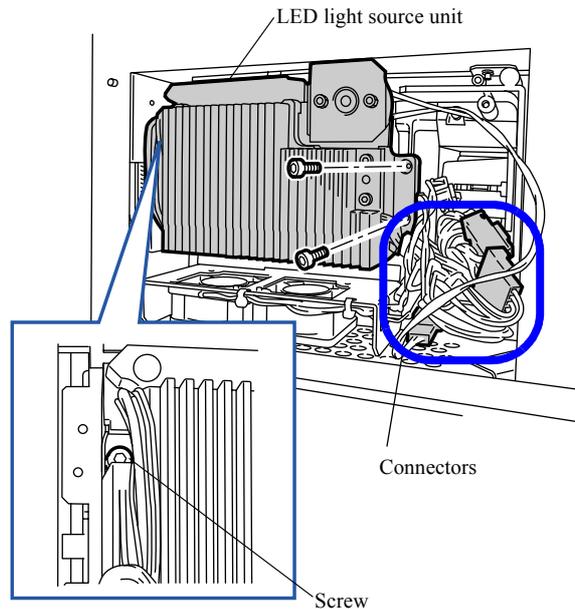


IMPORTANT

- If an electrostatically charged human body touches the LED light source unit, it may adversely affect the built-in electrical parts (LED element).
Use the static-dissipative tools as you work with the electrical parts such as PCBs.
 10040

● **Removing**

1. Lay the back of the film scanner down.
2. Remove the lower cover.
 20030
3. Disconnect the connector.
J/P150: Relay connector
J/P151: Relay connector
J/P152: Relay connector
J/P124: Relay connector
4. Remove the LED light source unit. (three screws)



G071745

● **Warning when replacing the LED light source unit**

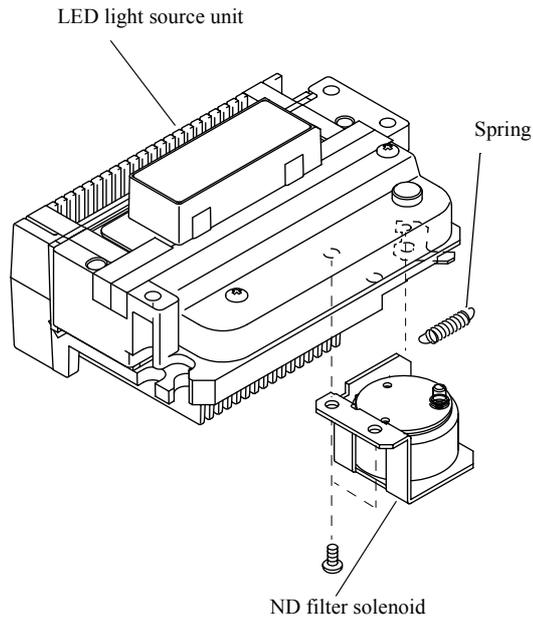


IMPORTANT

- When replacing the LED light source unit without the ND filter solenoid, it is necessary to reattach the ND filter solenoid used last time for the LED light source unit.

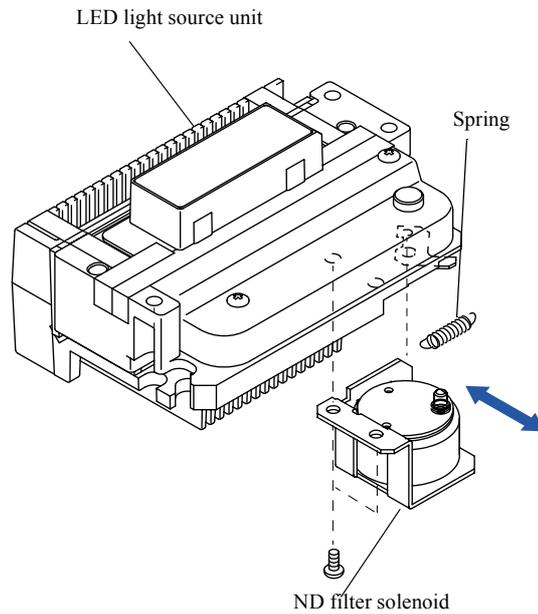
1. Remove the ND filter solenoid from the LED light source unit. (two screws)

2. Remove the spring from the ND filter solenoid.



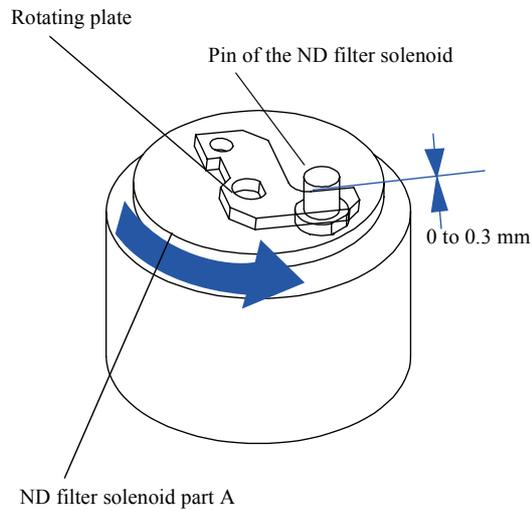
G071790

3. Attach the spring of a new LED light source unit to the ND filter solenoid.
4. Attach the ND filter solenoid to the new LED light source unit and tighten it up temporarily. (two screws)



G071791

- Adjust the position of the ND filter solenoid while pressing the ND filter solenoid part A in the direction of an arrow. Then, adjust the clearance between the rotating plate and the ND filter solenoid pin to become 0 to 0.3 mm. (two screws)

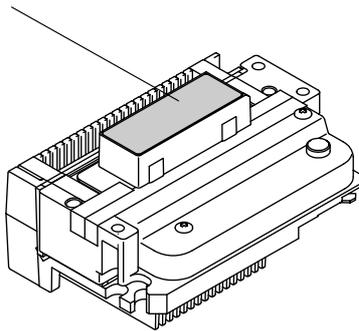


G076398

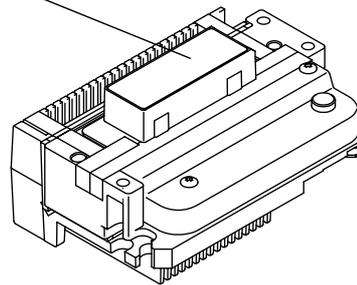
- Check that the ND filter turns ON/OFF correctly by Output Check.

35300

ND filter: ON



ND filter: OFF



G071792

● Adjustment after reattaching

- Perform **Focus Adjustment**.
 37020
- Perform the **Scanner Calibration**.
 37030

Replacing the film carrier

● Replacing the 135/240 AFC-II



IMPORTANT

- Perform the adjustments below for both 135 and 240 lanes.

1. Attach the 135/240 AFC-II.
2. Perform the Sensor Sensitivity Adjustment.
☞ 35000
3. Perform the DX Sensor Standard Adjustment.
☞ 35000
4. Perform the Focus Adjustment.
☞ 37020



IMPORTANT

- For the 135/240 AFC-II, perform the Focus Adjustment for each magnification rate.

5. Perform the Scanner Calibration.
☞ 37030
6. Perform the Scanning Position Auto Correction.
☞ 35000
7. Check the operation of the 135/240 AFC-II.

● Replacing the 120 AFC-II

1. Attach the 120 AFC-II.
2. Configure the system so that it can "see" the 120 AFC-II diffuser.
3. Perform the Sensor Sensitivity Adjustment.
☞ 35010
4. Perform the Focus Adjustment.
☞ 37020
5. Perform the Scanner Calibration.
☞ 37030
6. Perform the Scanning Position Auto Correction.
☞ 35010
7. Check the operation of the 120 AFC-II.

● Replacing the 110 AFC-II

1. Attach the 110 AFC-II.
2. Perform the Sensor Sensitivity Adjustment.
☞ 35020
3. Perform the Focus Adjustment.
☞ 37020



IMPORTANT

- For the 110 AFC-II, carry out the focus adjustment for each magnification rate.

4. Perform the Scanner Calibration.
☞ 37030

5. Perform the Scanning Position Auto Correction.

☞ 35020

6. Check the operation of the 110 AFC-II.

● Replacing the 135/240 MMC-II and the 135/240 AMC-II

1. Attach the 135/240 MMC-II or AMC-II.

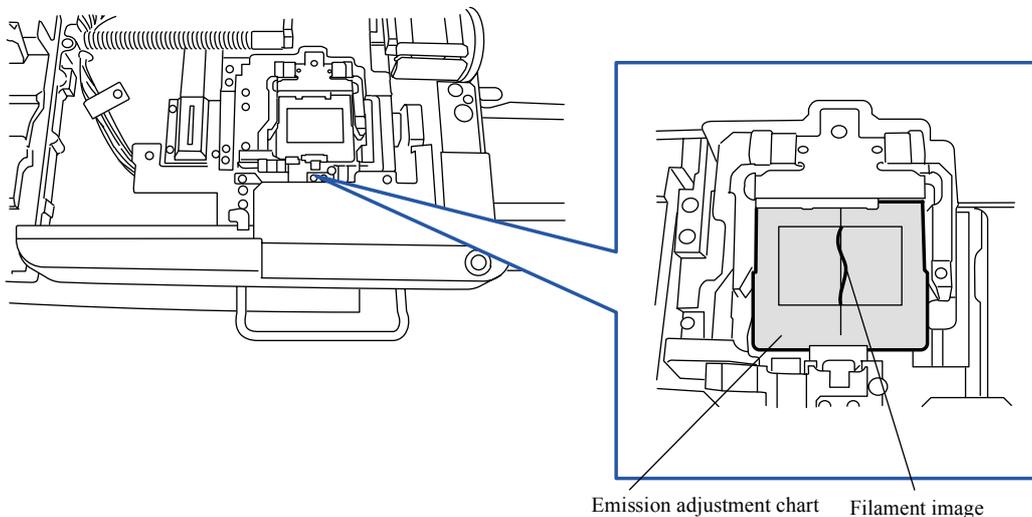
2. Check the Emission Lamp and Detection Sensor Position Adjustment.

☞ 35030

☞ 35040

NOTE

- Check if the filament image on the emission adjustment chart is in the center of the emission adjustment chart. When the filament image is in the center, the adjustment is not necessary.



G052617

3. Perform the Focus Adjustment.

☞ 37020



IMPORTANT

- For the 135/240 MMC-II and 135/240 AMC-II, perform the Focus Adjustment for each magnification rate.

4. Perform the Scanner Calibration.

☞ 37030

5. Perform the Scanning Position Auto Correction.

☞ 35030

☞ 35040

6. Check the operation of the 135/240 MMC-II and the 135/240 AMC-II.

● Replacing the 135 AFC-II

1. Attach the 135 AFC-II.

2. Perform the Sensor Sensitivity Adjustment.

☞ 35060

3. Perform the DX Sensor Standard Adjustment.

☞ 35060

4. Perform the Focus Adjustment.

☞ 37020



IMPORTANT

- For the 135 AFC-II, carry out the focus adjustment for the magnification rate.

5. Perform the Scanner Calibration.

37030

6. Perform the Scanning Position Auto Correction.

35060

7. Check the operation of the 135 AFC-II.

● Replacing the MFC

1. Attach the MFC.

2. Perform the MFC Area Registration.

37050



IMPORTANT

- If using the attachment other than MFC crop card, carry out Area Registration for each attachment.

3. Perform the Focus Adjustment.

37020



IMPORTANT

- For the MFC, perform the Focus Adjustment for each magnification rate.

4. Perform the Scanner Calibration.

37030

5. Perform the Scanning Position Auto Correction.

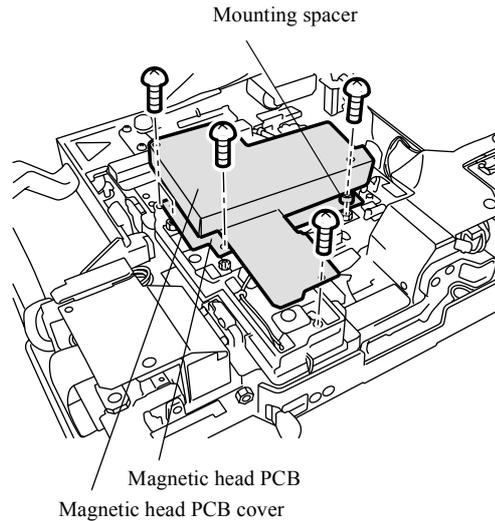
35050

6. Check the operation of the MFC.

Removing the advance unit

● Procedure

1. Remove the top cover.
☞ 20040
2. Remove the magnetic head PCB cover. (three screws)
3. Remove the magnetic head PCB. (two screws and one mounting spacer)



G068370

4. Disconnect the connector(s).

- J/P1040 (Magnetic head PCB)
- J/P1041 (Magnetic head PCB)
- J/P1042 (Magnetic head PCB)
- J/P1043 (Magnetic head PCB)

NOTE

- Depending on the unit, J/P1041, J/P1042 and J/P1043 may not exist.

5. Remove the driver PCB 2 attaching plate. (two screws)

6. Remove the driver PCB 2 cover. (two screws)

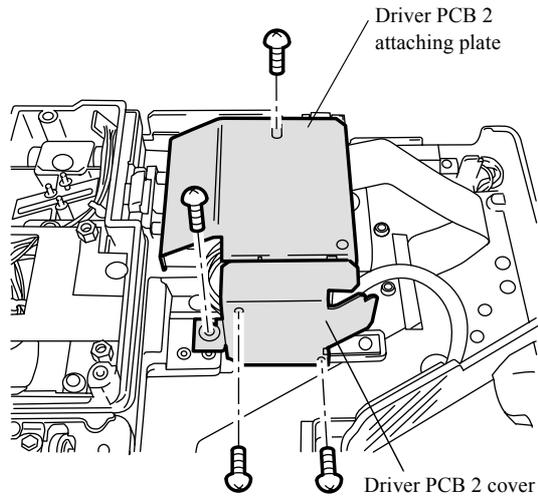
NOTE

- The cover may be united with the driver PCB 2 attaching plate.
In such a case, disregard this task.

7. Disconnect the connector(s).

- J/P1032 (Driver PCB 2)
- J/P1033 (Driver PCB 2)

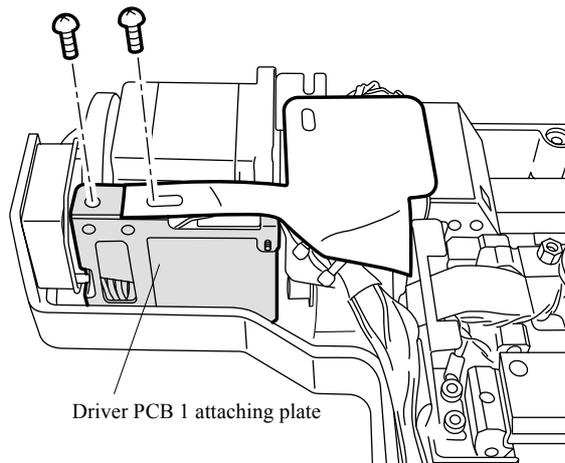
- J/P1034 (Driver PCB 2)



G068371

NOTE

- According to the system, the shape of each part or the positions of the screws may vary.

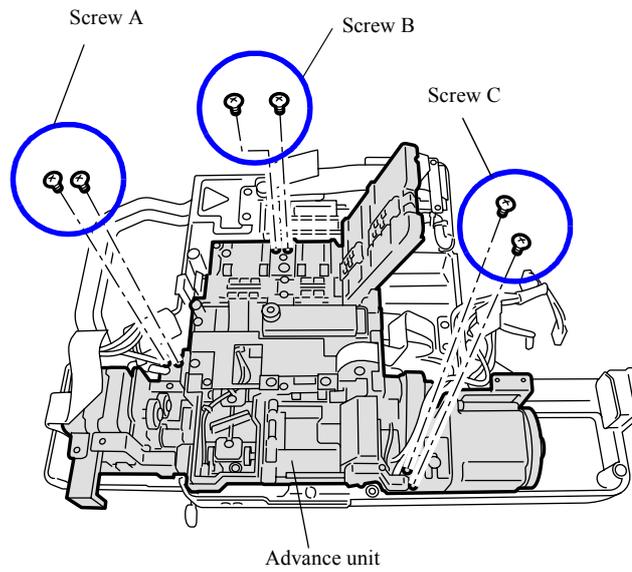
8. Remove the driver PCB 1 attaching plate. (two screws)

G070721

9. Disconnect the connector(s).

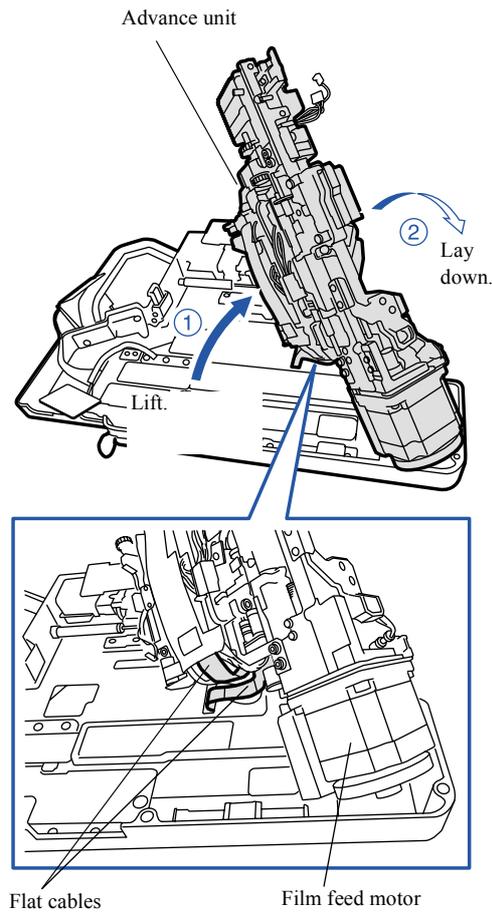
- J/P1027 (Driver PCB 1)
- J/P1028 (Driver PCB 1)
- J/P1029 (Driver PCB 1)
- J/P1030 (Driver PCB 1)
- J/P1056 (Relay connector)

10. Remove the advance unit. (six screws)



G068373

11. Turn over the advance unit with the film feed motor on.



G054661



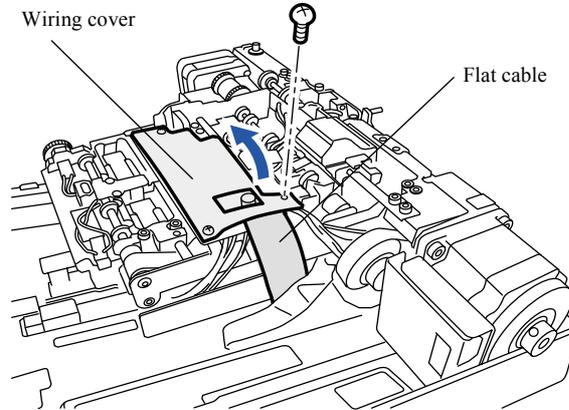
IMPORTANT

- When the advance unit is turned over, be careful not to apply excessive load to the flat cable.

12. Open the sensor PCB wiring cover to the direction indicated by the arrow, and remove the flat cable. (Loosen one screw out of three.)

NOTE

- The end of the wiring cover can be opened by removing a screw out of three.



G054662

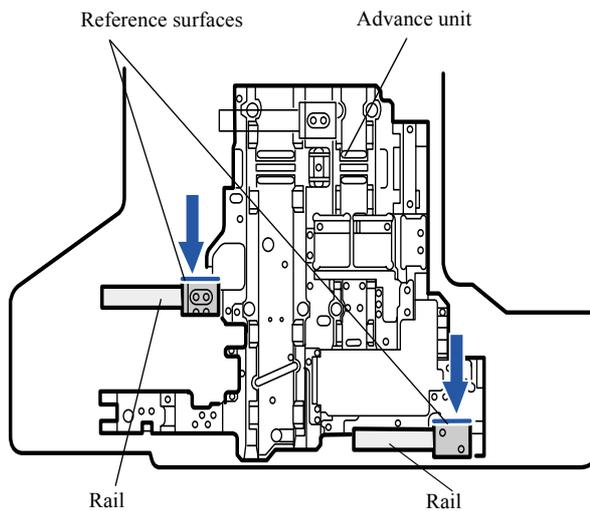
● **Precautions when reattaching**

- Reattach the flat cable carefully to the correct direction. [☞ 68200](#)
- Reattach the advance unit by turning over it with the advance motor on. Be careful not to give pressure to the flat cable.
- When reattaching the advance unit, reattach it while pushing it to the arrow direction (the reference surfaces).



IMPORTANT

- The lengths of the advance unit screws are different. Be sure to attach the appropriate screw. See [☞ 10](#).
 - Screw A (Socket head bolt M3 × 4)
 - Screw B (Socket head bolt M3 × 8)
 - Screw C (Socket head bolt M3 × 6)



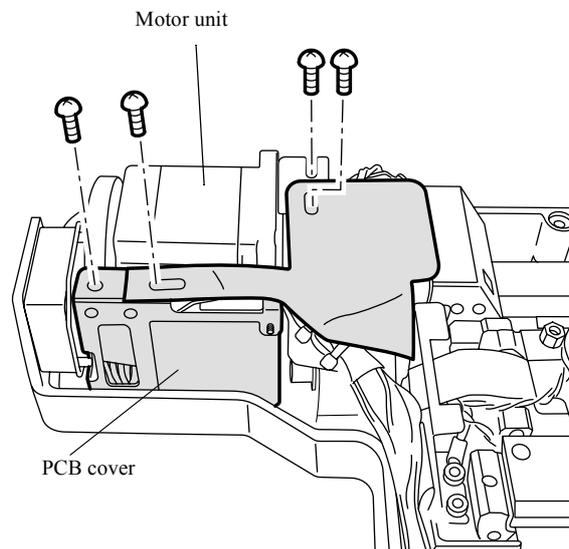
G068377

- After reattaching it, check that the lane is switched smoothly. Also check that the wiring is not caught in the lane.

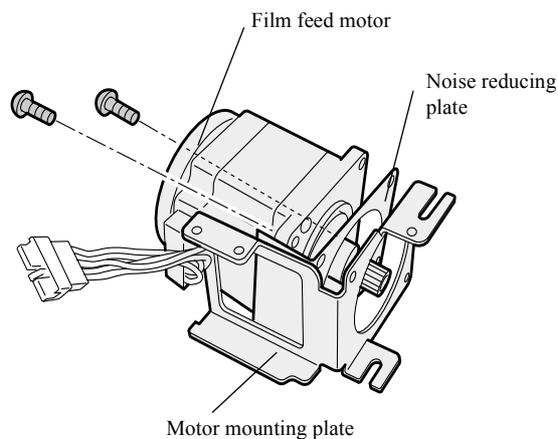
Replacing and adjusting the film feed motor

● Procedure

1. Remove the top cover.
☞ 20040
2. Remove the PCB cover. (two screws)
3. Disconnect the connector(s).
 - J/P1027 (Driver PCB 1)
 - J/P1028 (Driver PCB 1)
 - J/P1029 (Driver PCB 1)
 - J/P1030 (Driver PCB 1)
 - J/P1056 (Relay connector)
4. Remove the motor unit. (two screws)



5. Remove the film feed motor. (four screws)



G068372

G057593

● Precautions when reattaching

- Reattach the motor mounting plate and the noise reducing plate in the order shown in the figure above.

- **Adjustment after the replacement**

1. Adjust the drive belt tension.

[↩ 20130](#)

2. Using **Output Check**, check that the **Film Feed Motor** operates.

[↩ 35300](#)

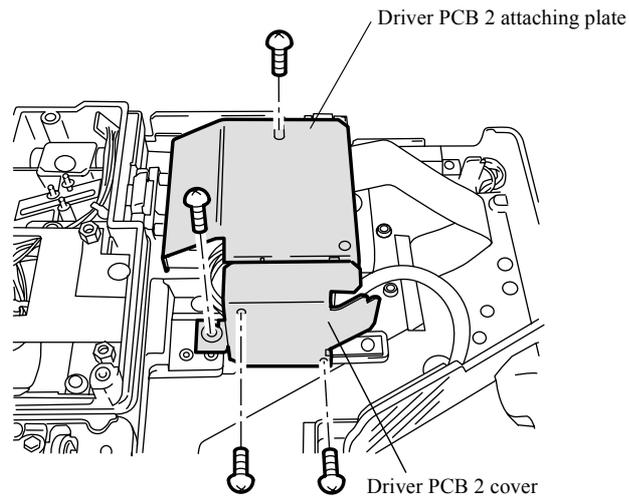
Replacing and adjusting the spool key motor

● Procedure

1. Remove the PCB attaching plate. (two screws)
2. Remove the PCB cover. (two screws)

NOTE

- The cover may be united with the driver PCB 2 attaching plate. In such a case, disregard this task.

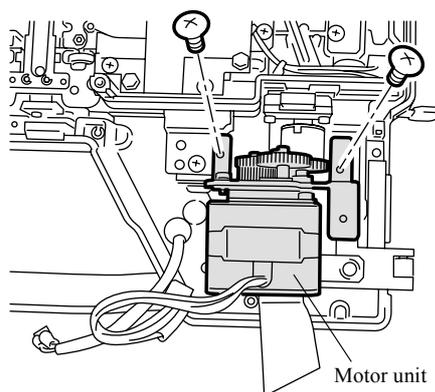


G068371

NOTE

- According to the system, the shape of each part or the positions of the screws may vary.

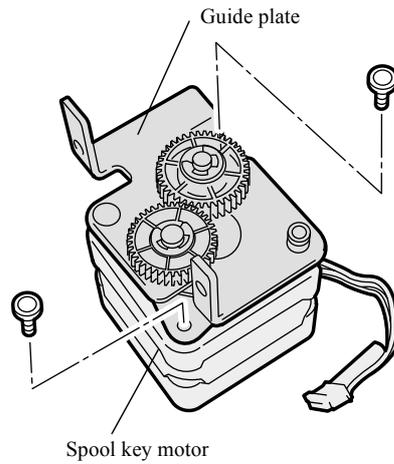
3. Disconnect the connector(s).
 - J/P1034 (Driver PCB 2)
4. Remove the motor unit. (two screws)



G068374

5. Remove the spool key motor. (two screws)

6. Remove the guide plate. (two screws)



G057594

● **Adjustment after the replacement**

1. When mounting the motor unit, adjust the position of the motor mounting plate so that the drive transfer gear operates smoothly.
2. Using **Output Check**, check that the **Spool Key Motor** rotates smoothly.

 35300

Replacing and adjusting the light lock door drive axis

● Procedure

1. Remove the top cover.

☞ 20040

2. Remove the advance unit.

☞ 20710

3. Disconnect the connector.

J/P1029 (Driver PCB 1)

4. Remove the powder limiter. (two screws)

5. Remove the cartridge limit switch. (One screw)



IMPORTANT

- When removing the cartridge limit switch, be careful not to lose the detection pin.

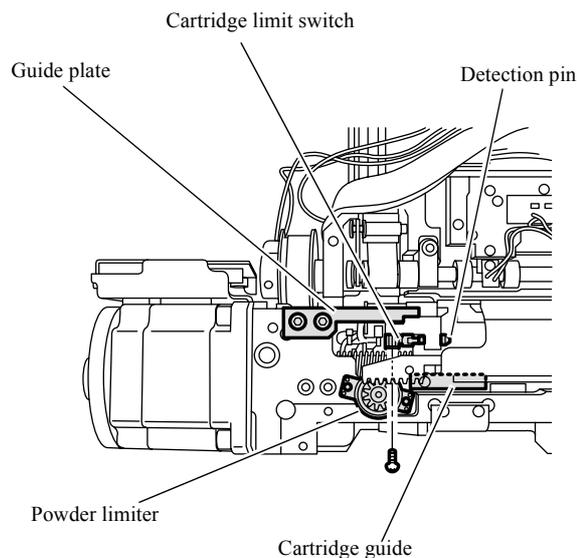
6. Remove the guide plate. (two screws)

7. Remove the cartridge guide. (two screws)

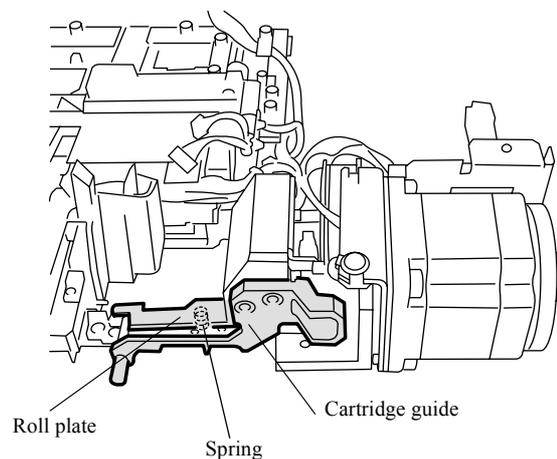


IMPORTANT

- When removing the cartridge guide, be careful not to lose the spring for the lock plate.



G074328



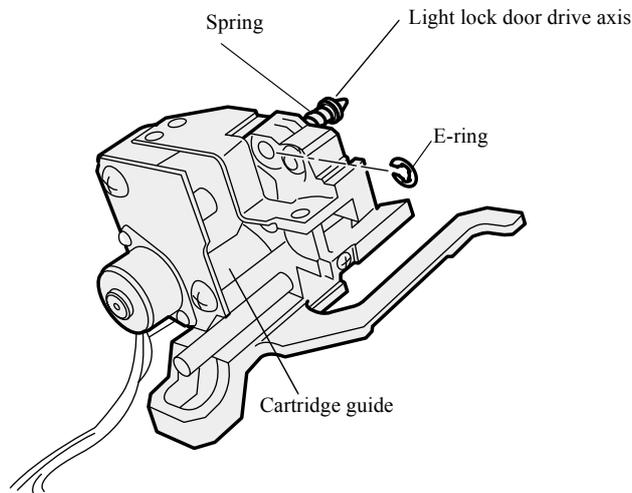
G051098

8. Remove the light lock door drive axis. (one E-ring)



IMPORTANT

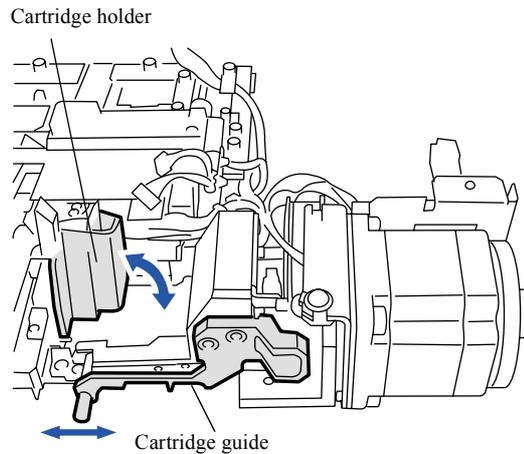
- When removing the light lock door drive axis, be careful not to lose the spring.



G051099

● Precautions when reattaching

1. When reattaching the cartridge guide, check that the cartridge guide slides smoothly and the cartridge holder can be opened and closed smoothly.

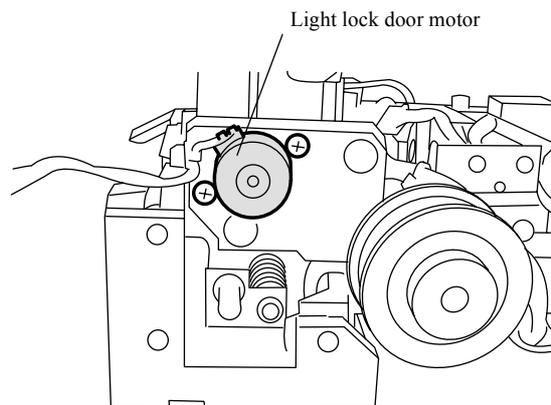


G053517

Replacing and adjusting the light lock door motor

● Procedure

1. Remove the top cover.
☞ 20040
2. Disconnect the connector(s).
 - J/P1029 (Driver PCB 1)
3. Remove the film feed motor unit.
☞ 20720
4. Remove the light lock door motor. (two screws)



G052463

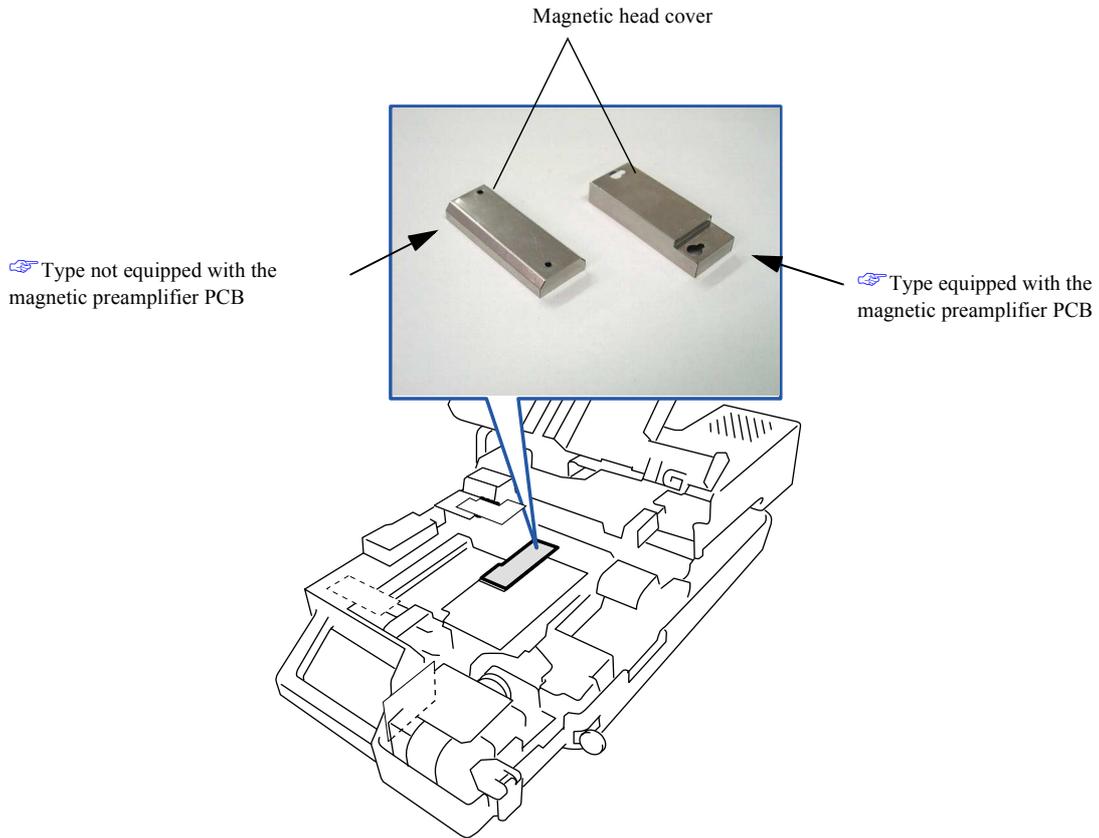
● Adjustment after the replacement

1. Adjust the tension on the film feed motor drive belt.
☞ 20130
2. Using **Output Check**, check that the **Light Lock Door Motor** operates.
☞ 35300

Replacing and adjusting the magnetic head unit

● Precautions for replacement

- As for the following two kinds of magnetic head units, the content of the replacement and the replacement procedures are different.
- Shape of the magnetic head cover is different when magnetic head units are different.



G078467

● Type not equipped with the magnetic preamplifier PCB

IMPORTANT

- The type not equipped with the magnetic preamplifier PCB is no longer manufactured. To replace this type of magnetic head unit, it is necessary to replace it with the magnetic head unit which is equipped with the magnetic preamplifier PCB.
- For replacing the magnetic head unit which is not equipped with the magnetic preamplifier PCB, prepare all the parts as detailed below and replace all of them completely.

	Description	Part No.	Quantity
135/240 AFC-II (R/W)	HFI unit (R/W)	Z023309	1
	PCB attaching plate (1)	A081369	1
	Shield plate	A075824	1
135/240 AFC-II (R)	HFI unit (R)	Z023307	1
	PCB attaching plate (1)	A081369	1
	Shield plate	A075824	1

● Replacing the type of unit which is not equipped with the magnetic preamplifier PCB

NOTE

- Replacing methods are different between the R/W type and the R type.
For the R/W type, refer to For 135/240 AFC-II (R/W).

For the R type, refer to [☞](#) 135/240 AFC-II (R).

● Type equipped with the magnetic preamplifier PCB

- If the magnetic head unit is equipped with the magnetic preamplifier PCB, replace the HFI unit only.

	Description	Part No.	Quantity
135/240 AFC-II (R/W)	HFI unit (2)	Z023310	1
135/240 AFC-II (R)	HFI unit (1)	Z023308	1

● Replacing the type of unit which is equipped with the magnetic preamplifier PCB

- See [☞](#) Replacing the type of unit which is equipped with the magnetic preamplifier PCB.

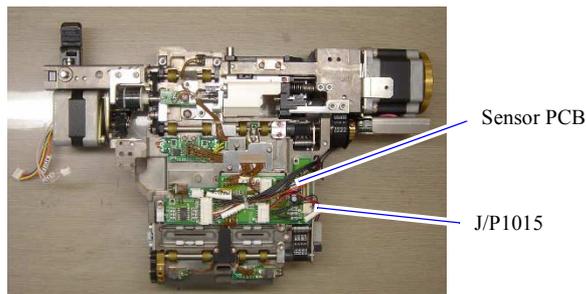
● Replacing the type of unit which is not equipped with the magnetic preamplifier PCB

● For 135/240 AFC-II (R/W)

1. Remove the advance unit.

See [☞](#) 20710.

2. Unplug the connector (J/P1015) of the writing head from the sensor PCB.



G078329

3. Remove the magnetic head PCB attaching plate. (three screws)



IMPORTANT

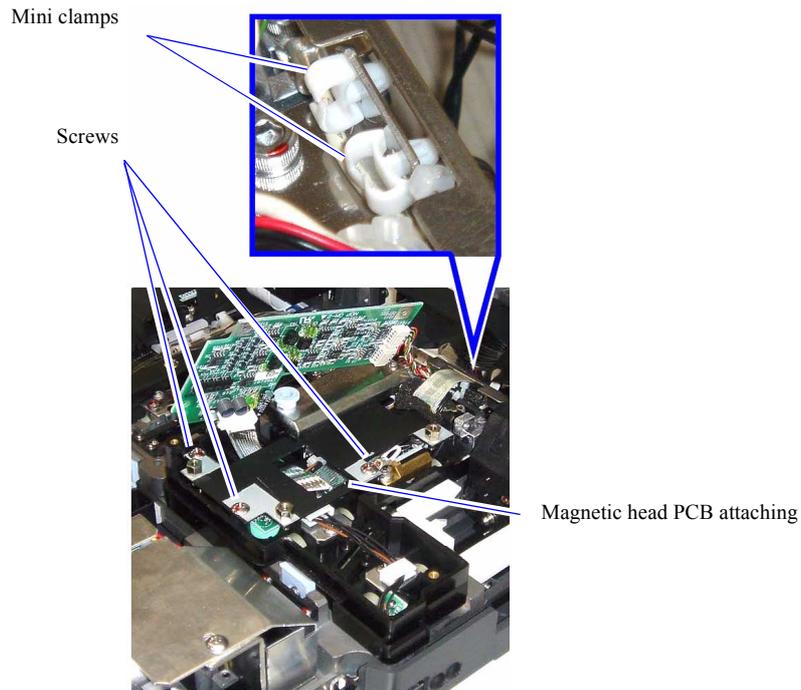
- The magnetic head PCB attaching plate must be replaced in reassembling.

4. Remove the two mini clamps.



IMPORTANT

- The removed mini clamps are not used in reassembling.
- When reassembling, wiring must be fixed to the holes (which were used for mounting the mini clamps) with the mini band. See [☞](#) Precautions when reattaching.



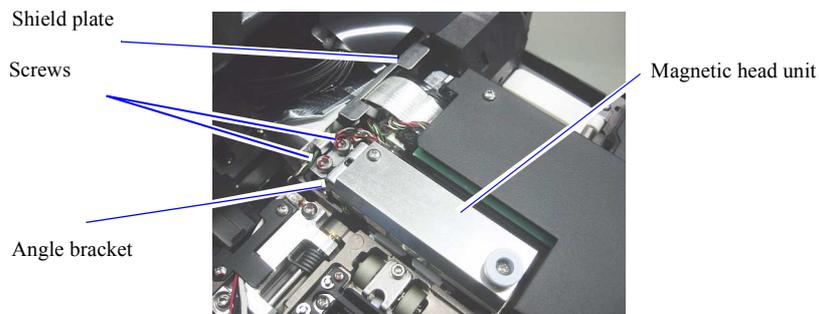
G078330

5. Remove the shield plate. (two screws)

- IMPORTANT**
- In reassembling, the shield plate must be replaced.

6. Remove the magnetic head unit together with the angle bracket. (two screws)

- IMPORTANT**
- The magnetic head unit and the angle bracket must be replaced as a set in reassembling.
 - For assembly, refer to Precautions when reattaching.



G067399

7. Reassemble by reversing the above-mentioned procedure.

- IMPORTANT**
- The parts below must be replaced in reassembling.
 - Magnetic head PCB
 - Magnetic head PCB attaching plate
 - Shield plate
 - Magnetic head unit and angle bracket (assembly)
 - When attaching the advance unit, connect the connectors (J/P1040 and J/P1043) to the magnetic head PCB.

● 135/240 AFC-II (R)

NOTE

- You do not need to remove the advance unit because it has no write head.

1. Remove the upper guide (1) cover. (three screws)
2. Unplug the connectors (J/P1040 and J/P1042) of the magnetic head PCB and remove the magnetic head PCB. (two screws, one coupling nut)

IMPORTANT

- The flat cable is connected to the connector (J/P1040) on the magnetic head PCB. Be sure to read **Handling the flat cable** described in Service Manual chapter 6., then work properly.
- The magnetic head PCB must be replaced in reassembling.
- When assembling, connect the connectors (J/P1040 and J/P1043) to the magnetic head PCB.

3. Remove the magnetic head PCB attaching plate. (three screws)

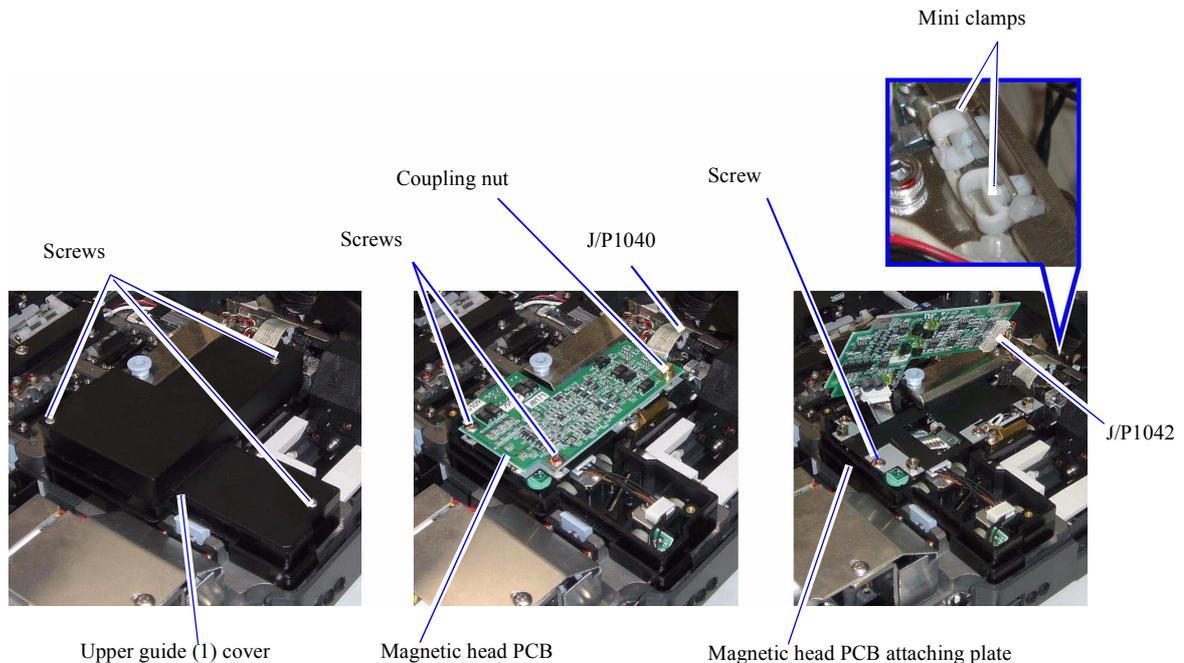
IMPORTANT

- The magnetic head PCB attaching plate must be replaced in reassembling.

4. Remove the two mini clamps.

IMPORTANT

- The removed mini clamps are not used in reassembling.
- When reassembling, wiring must be fixed to the holes (which were used for mounting the mini clamps) with the mini band. See  Precautions when reattaching.



G078327

5. Remove the shield plate. (two screws)

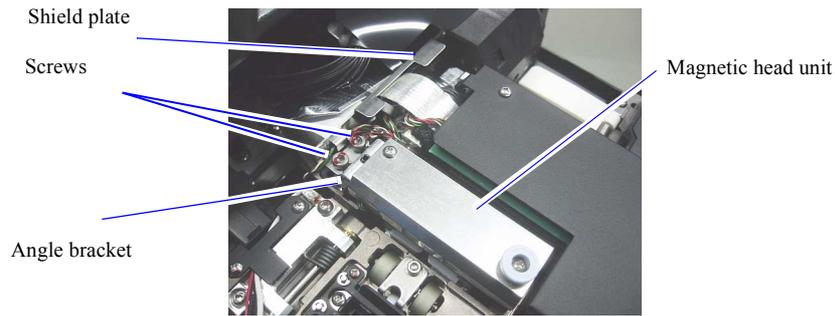
IMPORTANT

- In reassembling, the shield plate must be replaced.

6. Remove the magnetic head unit together with the angle bracket. (two screws)

IMPORTANT

- The magnetic head unit and the angle bracket must be replaced as a set in reassembling.
- For assembly, refer to  Precautions when reattaching.



G067399

7. Reassemble by reversing the above-mentioned procedure.

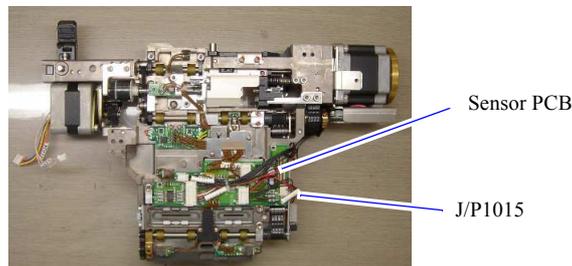


IMPORTANT

- The parts below must be replaced in reassembling.
 - Magnetic head PCB
 - Magnetic head PCB attaching plate
 - Shield plate
 - Magnetic head unit and angle bracket (assembly)

● **Replacing the type of unit which is equipped with the magnetic preamplifier PCB**

1. Remove the advance unit. (Only for 135/240 AFC-II (R/W)
See 20710.
2. Unplug the connector (J/P1015) of the writing head from the sensor PCB. (Only for 135/240 AFC-II (R/W))



G078329

3. Remove the magnetic head cover and the magnetic preamplifier PCB. (two screws)

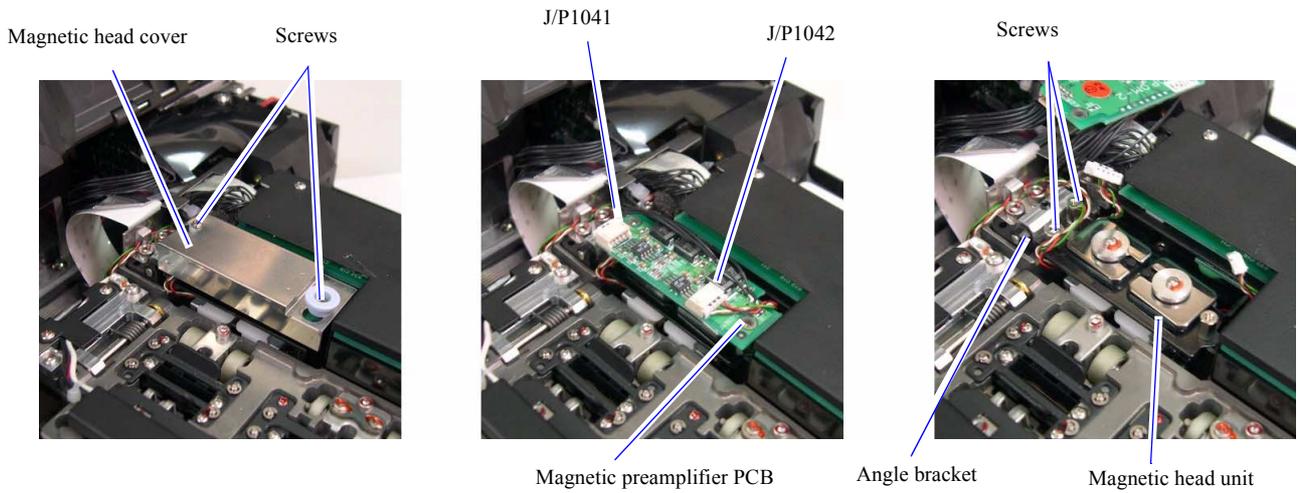


IMPORTANT

- Be careful not lose small parts.

4. Unplug the connectors (J/P1041 and J/P1042) of the magnetic preamplifier PCB. [There is no J/P1041 in 135/240 AFC-II (R).]

5. Remove the magnetic head unit. (two screws)



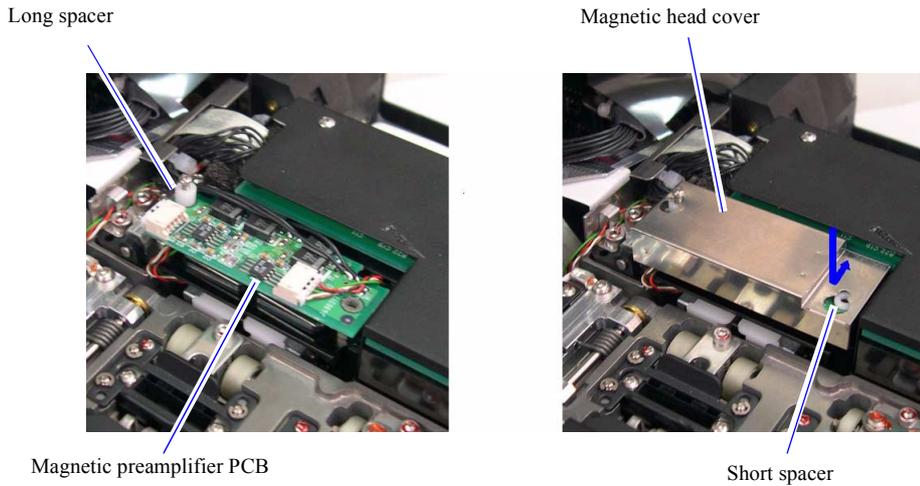
G078326

6. Reassemble by reversing the above-mentioned procedure.



IMPORTANT

- Attach the magnetic preamplifier PCB temporarily with the long spacer and screw, and attach the magnetic head cover. After attaching the magnetic head cover, insert the short spacer in the direction of the arrow and fix it with the screw.

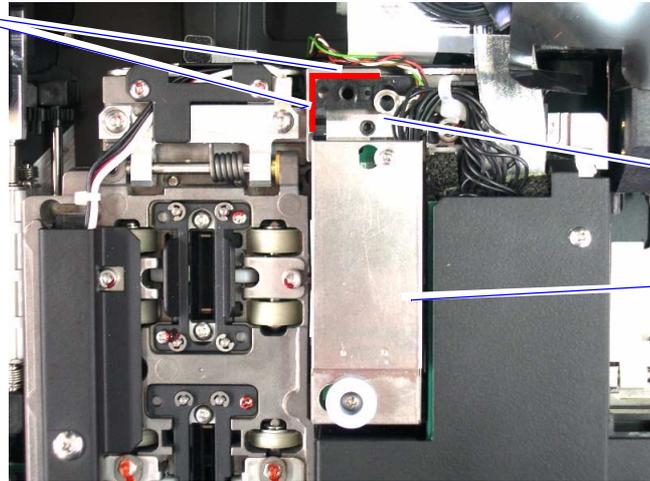


G078328

● Precautions when reattaching

- When reattaching the magnetic head unit, push it on the reference surface.

Reference surfaces



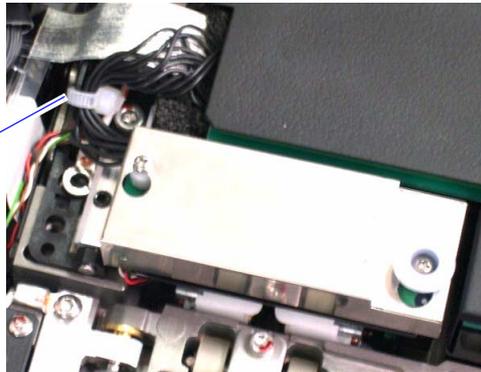
Angle bracket

Magnetic head unit

G078325

- Fix the wiring of connector (J/P1043) to the hole (which was used for mounting the mini clamp) with the mini band.

Mini band



G078323

Adjusting the light lock door drive timing

● **Procedure**

1. Remove the top cover.

☞ 20040

2. Remove the advance unit.

☞ 20710

3. Remove the cartridge guide.

☞ 20740

4. Remove the holder. (One screw)

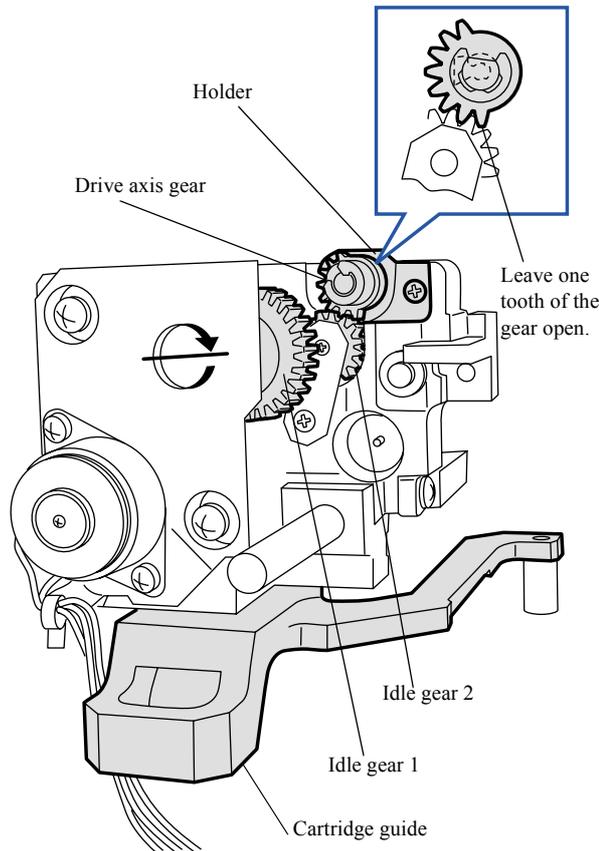


IMPORTANT

- When removing the holder, be careful not to lose the nut.

5. Turn idle gear 1 in the direction indicated by the arrow until it touches the baffle.

6. While idle gear 1 is in contact with the baffle, engage idle gear 2 with the drive axis gear and leave as only one tooth is unengaged.



G051100

7. Reattach the holder. (One screw)



IMPORTANT

- Reattach it carefully not to change the gear engagement position.

MMC auto focus section adjustment



IMPORTANT

- Carry out this adjustment when the auto focus error occurs, or if the worm wheel does not swing within the tolerance level of 4 mm (\pm one tooth) after adjusting the position of the emission lamp and detection sensor.

● Procedure

● Worm wheel adjustment

1. Bring up **Film Carrier Unit Adjustment** display.

NOTE

- Bring up **Film Carrier Unit Adjustment** display before removing the top cover, or **Mount operation error** appears and adjustment cannot be performed correctly.

Bringing up the display

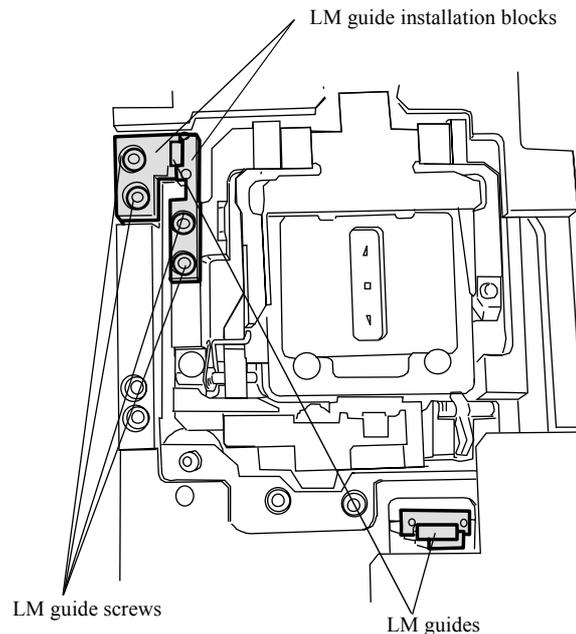
Menu: 2260 → Film Carrier Unit Adjustment

35030

2. Remove the top cover, and set the MMC.

20040

3. If the worm wheel does not swing within the tolerance level of 4 mm (\pm one tooth), carry out the auto focus operation in Detection Sensor Position Adjustment and loosen the screws of the LM guide installation block. (four screws)



G060702

4. While checking the swing of the worm wheel, fix the LM guide installation block so that the swing is within the tolerance level. (four screws)



IMPORTANT

- Adjust the LM guide installation block so as not to give pressure to the LM guide.

5. After adjusting it within the tolerance level, carry out the focus adjustment.

37020

6. To check the operation, scan the mount in normal process.

● **If it cannot be adjusted**

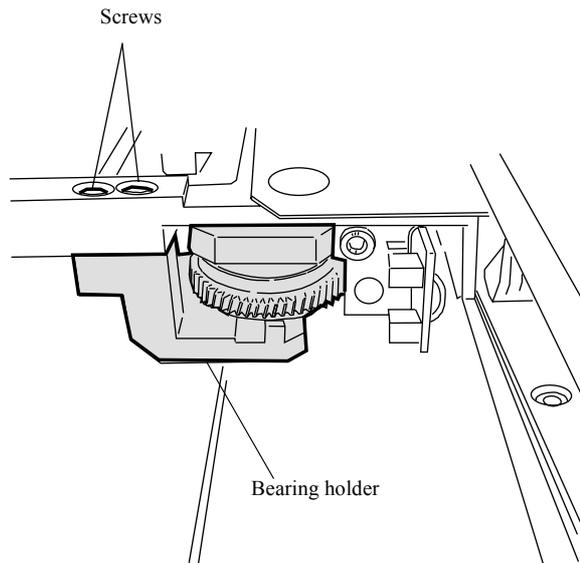
1. Operate AF Motor via Output Check.

☞ 35300

NOTE

- When the worm wheel operates, check that it moves smoothly near the upper and lower death point.

2. Loosen the screws of the LM guide installation block. (four screws)
3. Adjust the installation position of the bearing holder so that the worm wheel moves smoothly. (two screws)



G060704

4. Repeat the procedure 1 to 3 in **Worm wheel adjustment**.
5. Carry out Film Carrier Unit Adjustment (MMC).
☞ 35030
6. Carry out the focus adjustment.
☞ 37020
7. To check the operation, scan the mount in normal process.

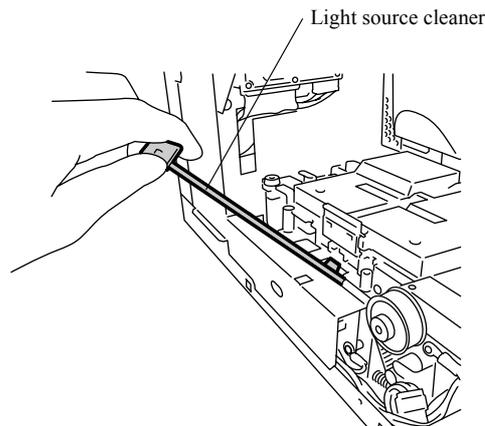
Replacing film advance assembly [LS-600]

Procedure to replace the film advance assembly is different between LS-600 and LS-1100.

Reference
☞ Replacing film advance assembly [LS-1100]

● Removing

1. Open the front cover and side cover (left), then remove the side cover (right).
☞ 20030
2. Remove the light source cleaner.

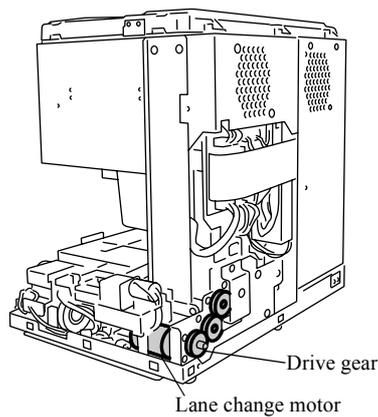


G071782



IMPORTANT

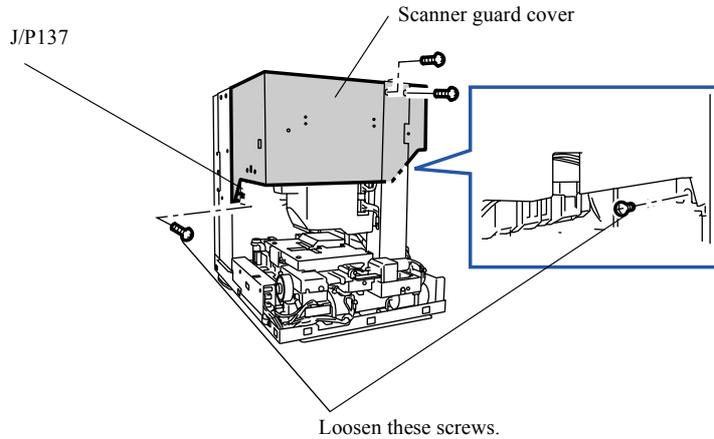
- When the scanner is positioned in the 135 lane side, you cannot remove the light source cleaner. If necessary, manually rotate the drive gear of the lane change motor and move the scanner to the 240 lane side.



G071783

3. Remove the scanner guard cover. (Loosen two screws out of four screws. One connector)

J/P137: Interlock switch 1

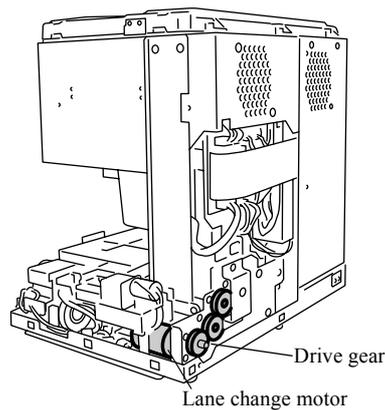


G084995



IMPORTANT

- When the scanner is positioned in the 240 lane side, you cannot remove the scanner guard cover. If necessary, rotate the drive gear of the lane change motor manually and move the scanner to the 135 lane side.



G071783

4. Open the rear cover and disconnect the connectors. (two screws)

J/P38: Control PCB

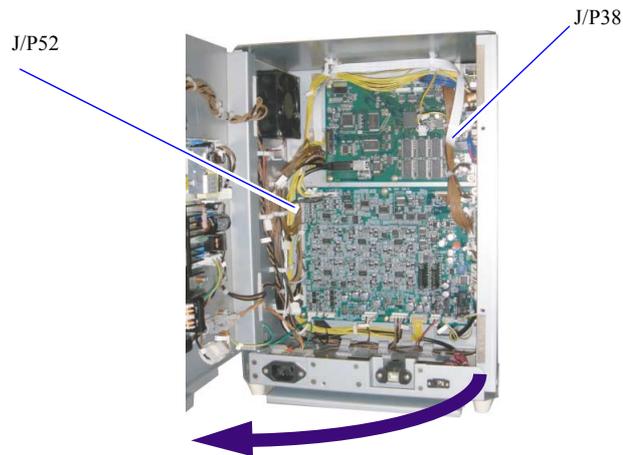
J/P52: Scanner driver PCB



IMPORTANT

- The flat cable connects to the scanner control PCB. Be sure to read the **Precautions in handling the flat cable** before operation.

68200



G085001

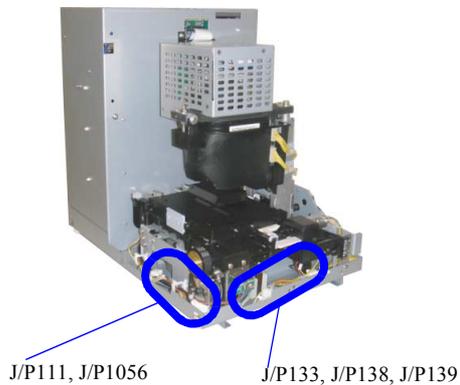
5. Disconnect the connector.

- J/P111: Relay connector
- J/P133: Relay Connector
- J/P138: Relay connector
- J/P139: Relay connector
- J/P1056: Relay connector



IMPORTANT

- Remove the ground wire connected to the exterior frame from the film advance motor attaching frame.



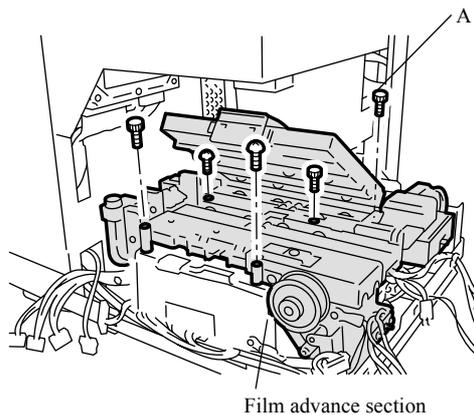
G085002

6. Remove the film advance section. (five screws)



IMPORTANT

- If the scanner is positioned in the 135 lane side, you cannot remove the film advance unit. If necessary, manually rotate the drive gear of the lane change motor and move the scanner to the 240 lane side.

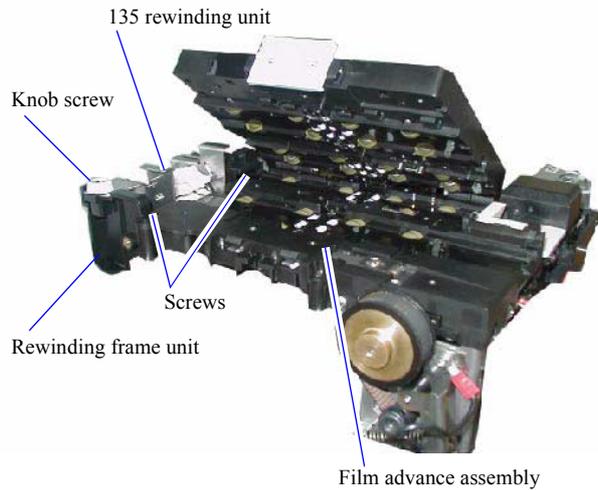


G083053

**IMPORTANT**

- Use M3×4 screw at the A in the figure.
If the long screw is used, the lane may not be changed.

7. Remove the 135 rewinding unit. (one knob screw)
8. Remove the rewinding frame unit. (two screws)



G084562

NOTE

- The assembly that the 135 rewinding unit and rewinding frame unit are removed from the film advance section is the film advance assembly.

● Works after replacing the unit

1. Perform the **Sensor Sensitivity Adjustment**.
☞ 35070
2. Check **Lane Stop Position** .
☞ 37002
3. Check the **Focus Adjustment**.
☞ 37020
4. Perform the **Scanner Calibration**.
☞ 37030
5. Perform the **Scanning Position Auto Correction**.
☞ 35071

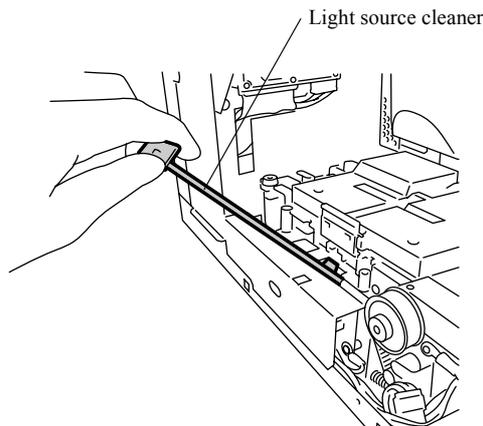
Replacing film advance assembly [LS-1100]

Procedure to replace the film advance assembly is different between LS-600 and LS-1100.

Reference
☞ Replacing film advance assembly [LS-600]

● Removing

1. Remove the front cover and side covers (left and right).
☞ 20030
2. Remove the light source cleaner.

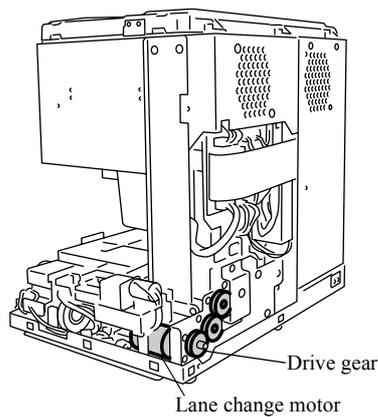


G071782



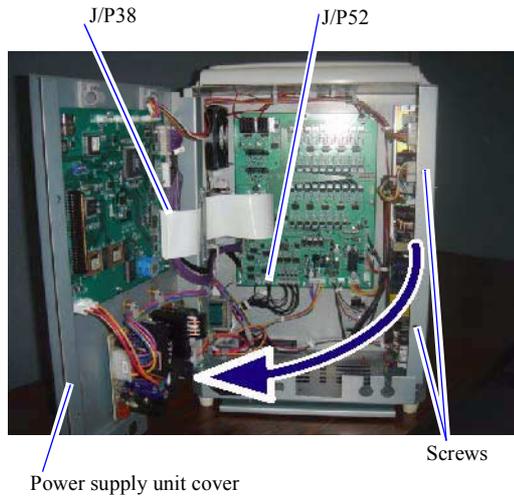
IMPORTANT

- When the scanner is positioned in the 135 lane side, you cannot remove the light source cleaner. If necessary, manually rotate the drive gear of the lane change motor and move the scanner to the 240 lane side.



G071783

3. Open the power supply unit cover. (two screws)



G083054

4. Disconnect the connector.

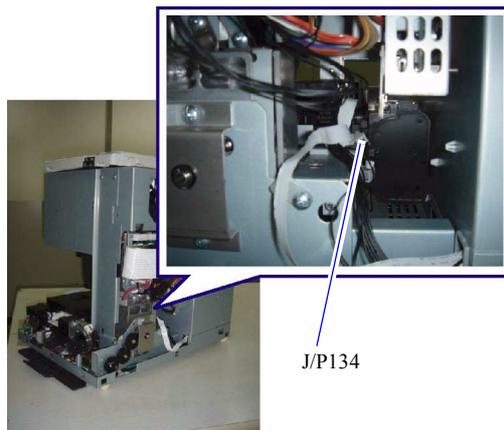
- J/P38: Control PCB
- J/P52: Scanner driver PCB
- J/P111: Relay connector
- J/P133: Relay Connector
- J/P134: Relay Connector
- J/P138: Relay connector
- J/P139: Relay connector
- J/P1056: Relay connector



IMPORTANT

- It is necessary to remove the ground wire connected to the film feed motor attaching frame and to the exterior frame and the ground wire connected to the film feed unit upper section and to the scanner driver PCB.
- The flat cable connects to the scanner control PCB. Be sure to read the **Precautions in handling the flat cable** before operation.

🔗 68200



G083062



J/P111, J/P133, J/P1056

J/P138, J/P139

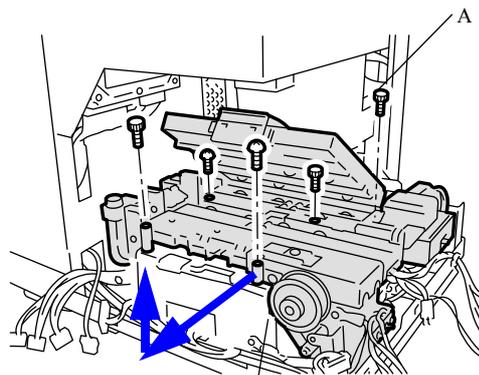
G083055

5. Remove the film feed section by sliding it in the direction of the arrow. (five screws)



IMPORTANT

- If the scanner is positioned in the 135 lane side, you cannot remove the film advance unit. If necessary, manually rotate the drive gear of the lane change motor and move the scanner to the 240 lane side.



Film advance section

G083053

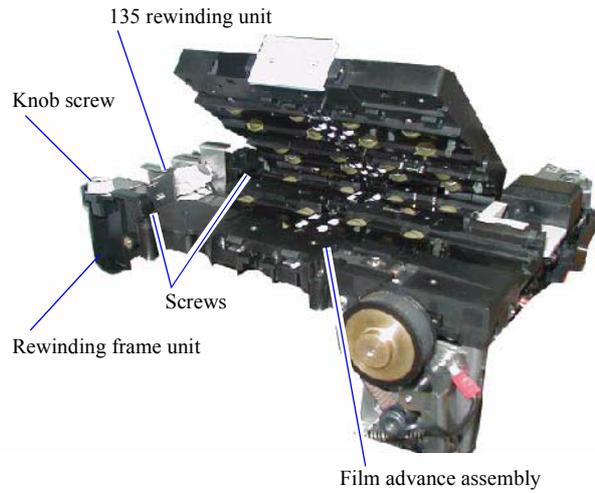


IMPORTANT

- Use M3×4 screw at the A in the figure.
If the long screw is used, the lane may not be changed.

6. Remove the 135 rewinding unit. (one knob screw)

7. Remove the rewinding frame unit. (two screws)



G084562

NOTE

- The assembly that the 135 rewinding unit and rewinding frame unit are removed from the film advance section is the film advance assembly.

● Works after replacing the unit

1. Perform the **Sensor Sensitivity Adjustment**.
☞ 35070
2. Check **Lane Stop Position** .
☞ 37002
3. Check the **Focus Adjustment**.
☞ 37020
4. Perform the **Scanner Calibration**.
☞ 37030
5. Perform the **Scanning Position Auto Correction**.
☞ 35071

Removing the 240 cartridge charging unit [LS-600/LS-1100]

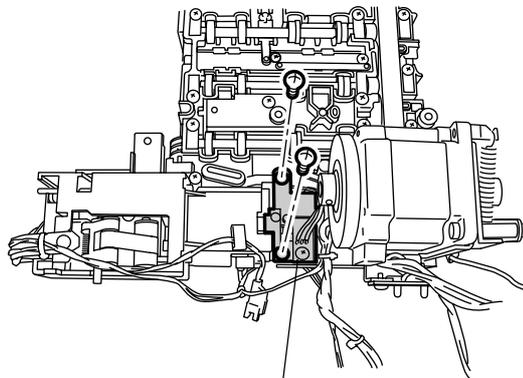


IMPORTANT

- Replace the 240 cartridge charging unit in the film advance assembly.
 20910

● Removing

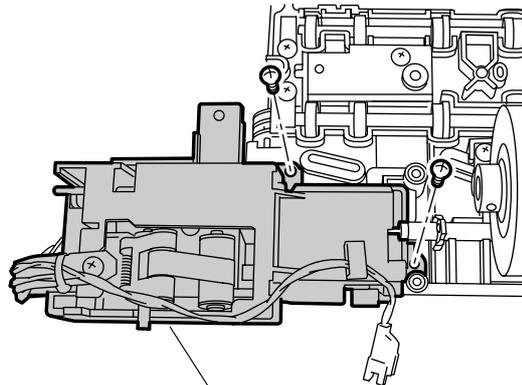
1. Remove the film advance section.
 20910
2. Remove the cartridge holder.
3. Remove the 240 sensor attaching plate. (two screws)



240 sensor attaching plate

G071750

4. Remove the 240 cartridge charging unit. (two screws)



240 cartridge charging unit

G071751

● Works after installing the unit

1. Insert the 240 cartridge and verify that it normally feeds the film.

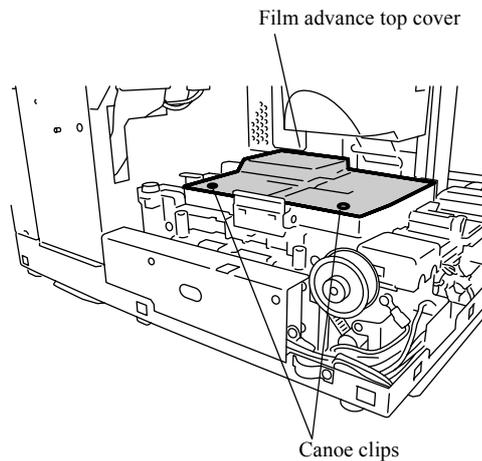
Replacing the HFI unit [LS-600/LS-1100]

● Removing

1. Open the front cover and side cover (left).

 20030

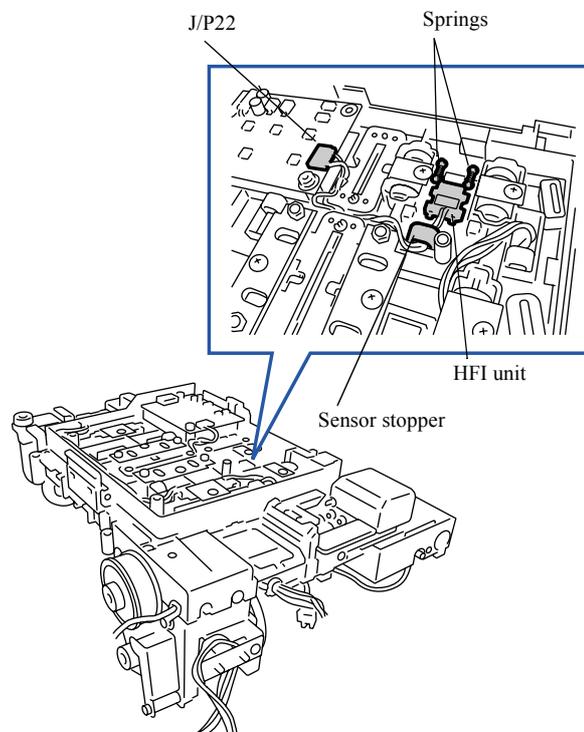
2. Remove the film advance top cover. (two canoe clips)



3. Disconnect the connector(s).

J/P22: Magnetic head PCB

4. Remove the sensor stopper and two springs.



5. Remove the HFI unit.

G071752

G071753

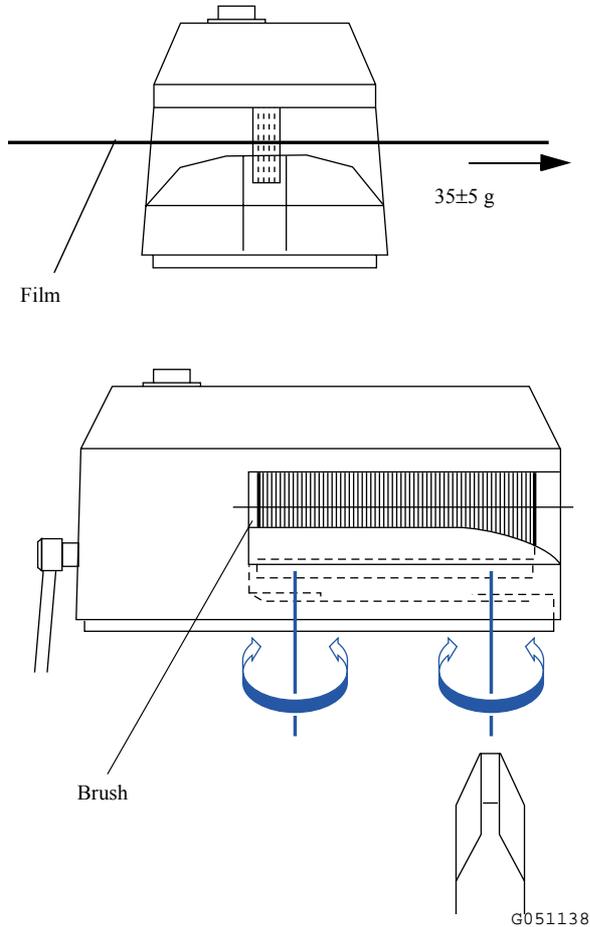
- **Works after installing the unit**

1. Insert the 240 film and verify that magnetic data is normally read.

Adjusting the gap of the negative cleaner brush

● Procedure

1. Remove the negative cleaner.
2. Adjust the position of the negative cleaner brush to set the film advance force to 35 ± 5 g. (Two adjusting screws)



This page is intentionally blank.

3. Mode

Mode structure table	31030
Mode structure table [LS-600/LS-1100]	31030
Mode structure table [HS-1800]	31030
Maintenance	35000
Perform the Scanning Position Auto Correction.	35000
Film Carrier Unit Adjustment (120 AFC-II)	35010
Film Carrier Unit Adjustment (110 AFC-II)	35020
Film Carrier Unit Adjustment (135/240 MMC-II)	35030
Film Carrier Unit Adjustment (135/240 AMC-II)	35040
Film Carrier Unit Adjustment (MFC)	35050
Film Carrier Unit Adjustment (135 AFC-II)	35060
Sensor Sensitivity Adjustment (LS-600/LS-1100)	35070
Scan Position Auto Correction (LS-600/LS-1100)	35071
Magnetic Data Reading Result (LS-600/LS-1100)	35072
Input Check [LS-600]	35200
Input Check [LS-1100]	35200
Input Check [HS-1800]	35200
Output Check [LS-600]	35300
Output Check [LS-1100]	35300
Output Check [HS-1800]	35300
Reading and Writing Data [LS-600/LS-1100/LS-1800]	35400
Version Information [LS-600/LS-1100/HS-1800]	35500
Software Upgrade [LS-600/LS-1100/HS-1800]	35600
Machine Specification [LS-600/LS-1100/HS-1800]	35800
Self-diagnostic	35920
Swing and Tilt/Light Axis Adjustment [HS-1800]	37001
Swing and Tilt/Light Axis Adjustment [LS-600/LS-1100]	37002
Focus Adjustment [LS-600/LS-1100]	37020
Focus Adjustment [HS-1800]	37020
Scanner Calibration [LS-600/LS-1100]	37030
Scanner Calibration [HS-1800]	37030
Scanner Sensitivity Check [LS-600/LS-1100/HS-1800]	37040
MFC Area Registration [HS-1800]	37050
Saving log data	37500
Saving log data	37500
Software	39000
Installing the system program [LS-600/LS-1100/HS-1800]	39000
Procedure of installing the digital masking unit software	39010

Mode structure table [LS-600/LS-1100]

Mode structure table is different between LS-600/LS-1100 and HS-1800.

Reference
Mode structure table [HS-1800]

- **SP1**: Enter the service personnel password (2260) to select this mode.

● LS-600/LS-1100

Item		Reference	
Environment		-	
Menu	Scanner Calibration	37030	
	AFC Cleaning	-	
	Version Information	35500	
	Software Upgrade	35600	
	Input Check	35200	
	Output Check	35300	
	Film Carrier Unit Adjustment	Sensor Sensitivity Adjustment	35070
		Scan Position Auto Correction	35071
		Magnetic Data Reading Result	35072
	Scanner Unit Adjustment (SP1)	Swing and Tilt/Light Axis Adjustment	37002
		Focus Adjustment	37020
		Scanner Calibration	37030
		Scanner Sensitivity Check	37040
	Reading and Writing Data	Writing Data	35400
		Reading Data	
		Data Initialization (SP1)	
	Machine Specification	35800	
Self-diagnostic (SP1)	35920		
Password Registration	-		
Help Display	-		

Mode structure table [HS-1800]

Mode structure table is different between LS-600/LS-1100 and HS-1800.

Reference
Mode structure table [LS-600/LS-1100]

- **SP1**: Enter the service personnel password (2260) to select this mode.

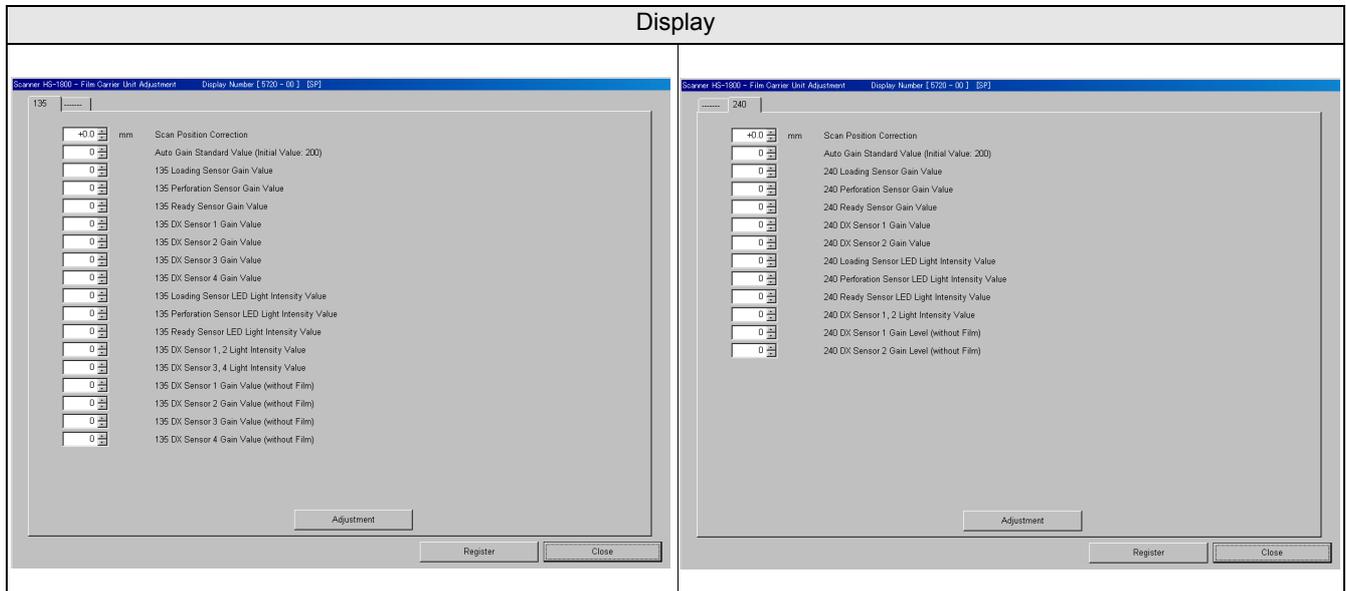
● HS-1800

Item		Reference	
Environment		-	
Menu	Close Down Checks	-	
	Scanner Calibration	37030	
	AFC Cleaning	-	
	Version Information	35500	
	Software Upgrade	35600	
	Input Check	Film Carrier Section	35200
		LED Light Source Unit	
		Scanner Unit	
	Output Check	Film Carrier Section	35300
		LED Light Source Unit	
		Scanner Unit	
	Film Carrier Unit Adjustment	135/240AFC-II	35000
		120 AFC-II	35010
		110 AFC-II	35020
		135/240MMC-II	35030
		135/240AMC-II	35040
		MFC	35050
	Scanner Unit Adjustment (SP1)	135AFC-II	35060
		Swing and Tilt/Light Axis Adjustment	37002
		Focus Adjustment	37020
		Scanner Calibration	37030
	Reading and Writing Data	Scanner Sensitivity Check	37040
		Writing Data	35400
Reading Data			
Data Initialization (SP1)			
Machine Specification		35800	
Self-diagnostic (SP1)		35920	
Password Registration		-	
Help Display		-	

Perform the Scanning Position Auto Correction.

Bringing up the display

Menu: 2260 → Film Carrier Unit Adjustment



NOTE

- Enter the service personnel password (2260) to configure these settings.
- [SP] is displayed by entering the service personnel password.
- Carry out the adjustment with the 135/240 film carrier attached to the machine.
- When the (135) lane is selected for the attached film carrier, the display for adjusting the 135 film carrier appears. If the (240) lane is selected, that for adjusting the 240 film carrier appears.
- When the lane is moved while the display for adjustment is appearing, the display for various adjustments appears.

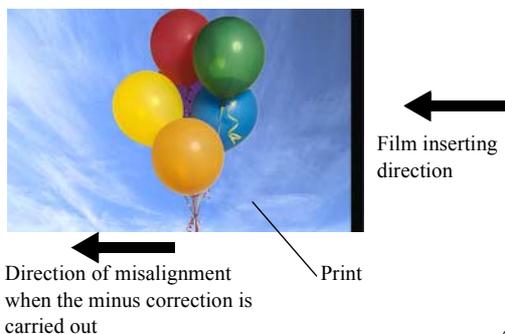
● **Explanation**

● **Scanning Position Correction (Initial value: 0.0 mm) (Input range: -9.9 to 9.9 mm)**

The difference between the prescanning position and the actual scanning position can be corrected.

NOTE

- If black margin is printed on the front end or rear end, the scanning position is automatically corrected with the **Scanning Position Auto Correction** of the **Adjustment** mode.
- When changing the print position for all frames intentionally, input the correction value. For example, when carrying out minus correction, the image moves to left.



G057680

● **Auto Gain Standard Value (Standard value: 200) (Input range: 0 to 255)**

The standard value is used for gain adjustment of the 135 loading sensor, perforation sensor, ready sensor and DX sensor.

- **135 Loading Sensor Gain Value (Input range: 0 to 255)**

The loading sensor sensitivity gain value is displayed.

NOTE

- Only 135 lane has the loading sensor.

- **Perforation Sensor Gain Value (Input range: 0 to 255)**

The perforation sensor sensitivity gain value is displayed.

- **Ready Sensor Gain Value (Input range: 0 to 255)**

The ready sensor sensitivity gain value is displayed.

- **DX Sensor 1, 2, 3, and 4 Gain Values (Input range: 0 to 255)**

DX sensors 1 and 2 or DX sensors 3 and 4 are adjusted so that the two sensors have the same sensitivity respectively.

- **LED Light Intensity Value (Input range: 0 to 255)**

The sensor sensitivity is adjusted to the auto gain standard value at the lightest area on a blank film which is obtained by changing the light intensity value of all DX sensors. Each sensor other than DX sensor is adjusted so that the sensor sensitivity becomes the constant level without negative.

- **DX Sensor Gain Value (without Film) (Input range: 0 to 255)**

The gain value (without film) of each DX sensor is displayed.

- **Adjustment functions**

- **Scanning Position Auto Correction**

Using a film, the difference between the prescanning position and the actual scanning position can automatically be adjusted.

- **Sensor LED Light Intensity Adjustment**

The LED light intensity and sensitivity of each sensor are automatically adjusted.

NOTE

- A film is not used for adjustment.
- Both lanes are adjusted at the same time regardless of the lane which is set.

- **Sensor Sensitivity Adjustment**

Adjustment for the sensitivity at the detection side of each sensor and the sensor LED light intensity can be carried out simultaneously.

- **DX Sensor Standard Adjustment**

The standard adjustment of the 135 DX sensor and 240 DX sensor can be carried out.

- **Adjusting procedure**

- **Scanning Position Auto Correction**

1. Select **Scanning Position Auto Correction**.

This adjustment is automatically carried out.

NOTE

- A film is used for adjustment.

- **Sensor LED Light Intensity Adjustment**

1. Select **Sensor LED Light Intensity Value Adjustment**.

This adjustment is automatically carried out.

NOTE

- A film is not used for adjustment.

● Sensor Sensitivity Adjustment**1. Select Sensor Sensitivity Adjustment.**

This adjustment is automatically carried out.

NOTE

- A film is not used for adjustment.

● DX Sensor Standard Adjustment**1. Select DX Sensor Standard Adjustment.****2. Insert the film into the film carrier.****NOTE**

- Use the film containing two frames or more, of which base density is light.

3. Remove the ejected film.**4. The adjustment is complete, and the correction value is input automatically.****● Result of Reading Magnetic Data****● 135/240 AFC-II (R/W)****1. Prepare IX240 film which magnetic data are written onto all frames by camera.****NOTE**

- If there is a film that magnetic data is written to photofinishing track, skip steps 2 and 3.

2. Insert film into film carrier.**3. Write magnetic data onto photo finishing track.****NOTE**

- Enter **PASS** for all frames.

4. Insert film of step 3 into film carrier.**NOTE**

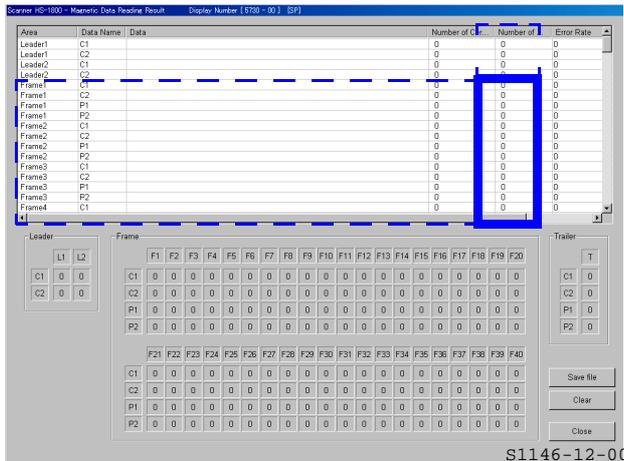
- Press **NO** for all frames to cancel printing.

5. Select Result of Reading Magnetic Data from FUNCTION of Film Carrier Unit Adjustment.**6. Check the result.****● 135/240 AFC-II (R)****1. Prepare IX240 film which magnetic data are written onto all frames by camera.****2. Insert film into film carrier.****NOTE**

- Press **NO** for all frames to cancel printing.

3. Select Result of Reading Magnetic Data from FUNCTION of Film Carrier Unit Adjustment.**4. Check the result.**

● Determination from Reading Result



- Determine by values inside frame of Error Rate column (only frame Area column). Other items are not used.



IMPORTANT

- Error rate may vary depending on film type or camera taken pictures besides trouble of HFI unit. It is recommended to confirm error rate with two or more films that change conditions of films and cameras and to determine it.
- Standard of determination

Error rate	Determination
0	Frame which cannot be read magnetic data
1	Frame which reading magnetic data is unstable
2	It is a readable magnetic data frame.
3	Frame which can be read magnetic data completely

NOTE

- By verifying error rate, you can specify frame which cannot be read magnetic data.
- By verifying error rate, you can determine reading level of magnetic data by three levels.
- Clean magnetic head if error rate is **0** or **1**. For details how to clean, refer to **Maintenance Manual**. However, if error rate **0** or **1** appears for the specific film, it is possible that there is an error in the film or the used camera.
- For 135/240 AFC (R), there is no data for **P1** and **P2** so error rate **0** appears. However, in this case, **0** is not reading result so disregard it.

NOTE

- Data Name **C1** and **C2** is camera track. It is magnetic data input by camera.
Data Name **P1** and **P2** is photofinishing track. It is magnetic data input by the EZ Controller or TWAIN Driver.
- After cleaning magnetic head, read magnetic data again. Then verify improvement effect by cleaning.
- If the reading result is not improved even if magnetic head is cleaned, replace magnetic head unit. For details, refer to 20760.

● Saving Reading Result

- Click **Save File** to save result of reading magnetic data displayed in text format.
- Save result of reading magnetic data in beginning to use film carrier, and compare it with magnetic data reading result by passage of use time. It is a guide for cleaning before attention message **No. 01404 The IX frame data is incomplete.** is shown.

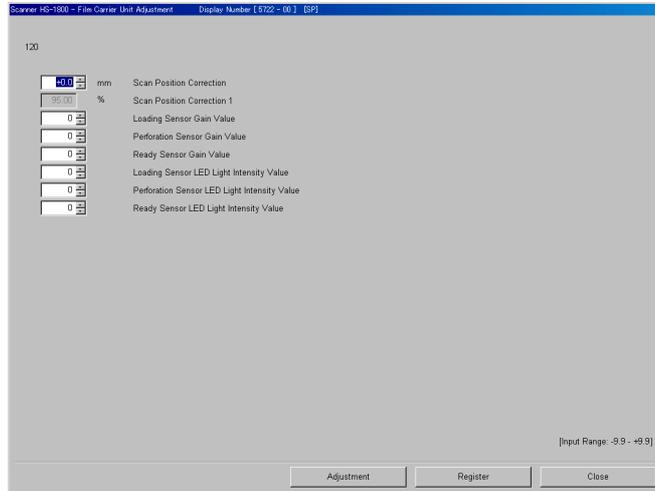
NOTE

- Since the magnetic head directly contacts with the film then the dirt is attached on the magnetic head during the use time, the magnetic data reading becomes unstable. In that case, error rate value decreases gradually.

Film Carrier Unit Adjustment (120 AFC-II)

Bringing up the display

Menu: 2260 → Film Carrier Unit Adjustment



S5722-00-00

NOTE

- Enter the service personnel password (2260) to configure these settings.
- Carry out the adjustment with the 120 film carrier attached to the machine.

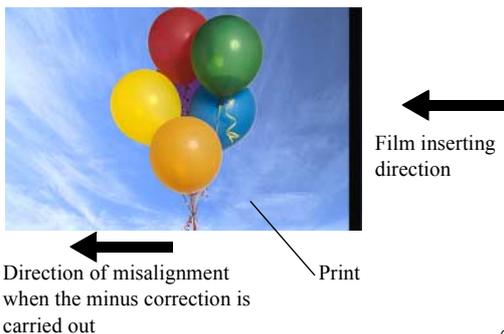
● Explanation

● Scanning Position Correction (Initial value: 0.0 mm) (Input range: -9.9 to 9.9 mm)

The difference between the prescanning position and the actual scanning position can be corrected.

NOTE

- If black margin is printed on the front end or rear end, the scanning position is automatically corrected with the **Scanning Position Auto Correction** of the **Adjustment** mode.
- When changing the print position for all frames intentionally, input the correction value. For example, when carrying out minus correction, the image moves to left.



G057680

● Scanning Position Correction 1 (Initial value: 100 %) (Input range: 95.00 to 105.00 %)

The correction amount of the difference between the prescanning position and the actual scanning position is displayed.

● Loading Sensor Gain Value (Input range: 0 to 255)

The loading sensor sensitivity gain value is displayed.

● Film Sensor Gain Value (Input range: 0 to 255)

The film sensor sensitivity gain value is displayed.

- **Ready Sensor Gain Value (Input range: 0 to 255)**

The ready sensor sensitivity gain value is displayed.

- **LED Light Intensity Value (Input range: 0 to 255)**

The sensor sensitivity is adjusted to the auto gain standard value at the lightest area on a blank film which is obtained by changing the light intensity value of all DX sensors. Each sensor other than DX sensor is adjusted so that the sensor sensitivity becomes the constant level without negative.

- **Adjustment functions**

- **Scanning Position Auto Correction**

Using a film, the difference between the prescanning position and the actual scanning position can automatically be corrected.

- **Sensor LED Light Intensity Adjustment**

The LED light intensity and sensor sensitivity of each sensor are adjusted.

NOTE

- A film is not used for adjustment.

- **Sensor Sensitivity Adjustment**

Adjustment for the sensitivity at the detection side of each sensor and the sensor LED light intensity can be carried out simultaneously.

- **Adjusting procedure**

- **Scanning Position Auto Correction**

1. Select **Scanning Position Auto Correction**.

This adjustment is automatically carried out.

NOTE

- A film is used for adjustment.

- **Sensor LED Light Intensity Adjustment**

1. By selecting the sensor LED light intensity adjustment, the value is automatically adjusted.

NOTE

- A film is not used for adjustment.

- **Sensor Sensitivity Adjustment**

1. By selecting the sensor sensitivity adjustment, the value is automatically adjusted.

NOTE

- A film is not used for adjustment.

Film Carrier Unit Adjustment (110 AFC-II)

Bringing up the display

Menu: 2260 → Film Carrier Unit Adjustment



TBD

NOTE

- Enter the service personnel password (2260) to configure these settings.
- Perform the adjustment with the 110 film carrier attached.

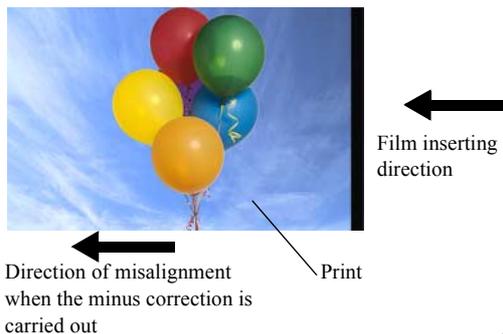
● Explanation

● Scanning Position Correction (Initial value: 0.0 mm) (Input range: -9.9 to 9.9 mm)

The difference between the prescanning position and the actual scanning position can be corrected.

NOTE

- If black margin is printed on the front end or rear end, the scanning position is automatically corrected with the **Scanning Position Auto Correction** of the **Adjustment** mode.
- When changing the print position for all frames intentionally, input the correction value. For example, when carrying out minus correction, the image moves to left.



G057680

● Loading Sensor Gain Value (Standard value: 200) (Input range: 0 to 255)

The loading sensor sensitivity gain value is displayed.

● Perforation Sensor Gain Value (Input range: 0 to 255)

The perforation sensor sensitivity gain value is displayed.

● Ready Sensor Gain Value (Input range: 0 to 255)

The ready sensor sensitivity gain value is displayed.

- **LED Light Intensity Value (Input range: 0 to 255)**

The sensor sensitivity is adjusted to the auto gain standard value at the lightest area on a blank film which is obtained by changing the light intensity value of all DX sensors. Each sensor other than DX sensor is adjusted so that the sensor sensitivity becomes the constant level without negative.

- **Adjustment functions**

- **Scanning Position Auto Correction**

Using a film, the difference between the prescanning position and the actual scanning position can automatically be corrected.

- **Sensor LED Light Intensity Adjustment**

The LED light intensity and sensor sensitivity of each sensor are adjusted.

NOTE

- A film is not used for adjustment.

- **Sensor Sensitivity Adjustment**

Adjustment for the sensitivity at the detection side of each sensor and the sensor LED light intensity can be carried out simultaneously.

- **Adjusting procedure**

- **Scanning Position Auto Correction**

1. Select **Scanning Position Auto Correction**.

This adjustment is automatically carried out.

NOTE

- A film is used for adjustment.

- **Sensor LED Light Intensity Adjustment**

1. By selecting the sensor LED light intensity adjustment, the value is automatically adjusted.

NOTE

- A film is not used for adjustment.

- **Sensor Sensitivity Adjustment**

1. By selecting the sensor sensitivity adjustment, the value is automatically adjusted.

NOTE

- A film is not used for adjustment.

Film Carrier Unit Adjustment (135/240 MMC-II)

Bringing up the display

Menu: 2260 → Film Carrier Unit Adjustment



TBD

NOTE

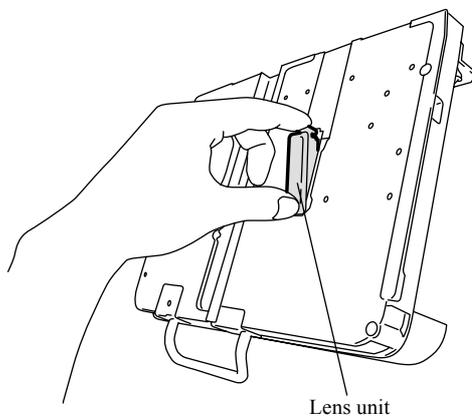
- **Adjustment** is displayed by entering the service personnel password.
- Perform the adjustment with the 135/240 MMC attached.

● Adjustment functions**● Emission Lamp and Detection Sensor Position Adjustment**

Adjust the standard position of the emission lamp and detection sensor for auto focus.

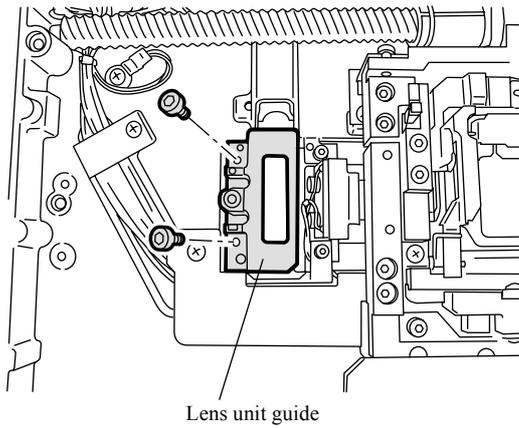
● Adjusting procedure**● Emission Lamp and Detection Sensor Position Adjustment**

1. Remove the top cover.
☞ 20040
2. Remove the condensing lens unit.



G068477

3. Remove the lens unit guide. (two screws)

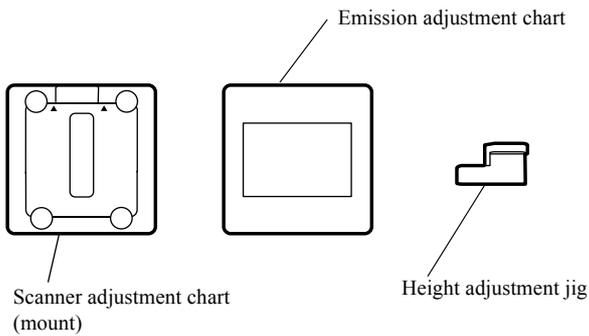


G068478

4. Select Emission Lamp and Detection Sensor Position Adjustment [Remove the Top Cover].

NOTE

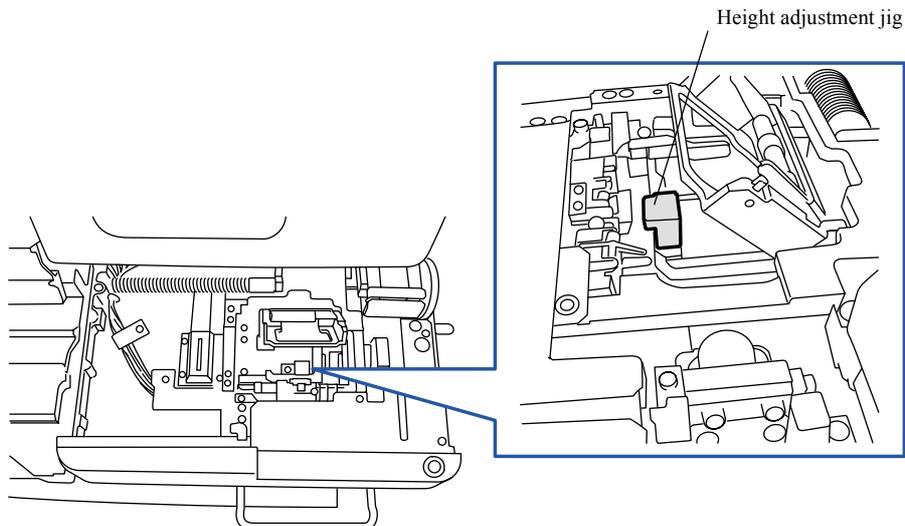
- Use three types of adjustment jigs for Emission Lamp and Detection Sensor Position Adjustment.
- These are the service personnel tools. See the **Service personnel tool list**.
 80310



G052618

5. Adjust a height of the mount carrier.

- (1) Attach the height adjustment jig to the MMC.

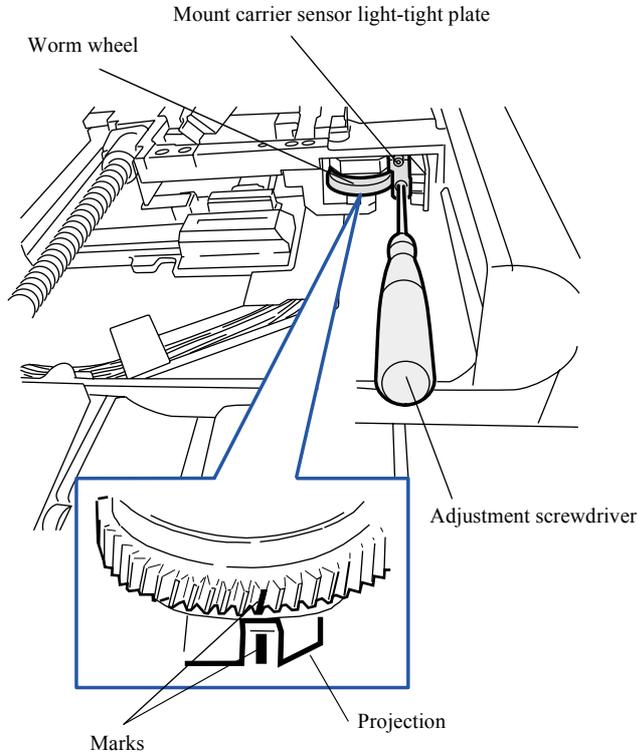


G052615

- (2) Turn the AF motor worm gear through the adjusting hole on the mount carrier sensor light-tight plate, and adjust a height of the mount carrier so that it fits with the height adjustment jig.

NOTE

- Turning the worm gear clockwise moves the mount carrier upward, whereas turning the gear counterclockwise moves it downward.



G052616

- (3) After adjusting the height, mark the adjustment position on the worm wheel.



IMPORTANT

- Mark on the worm wheel which is near the projection.
- Put the marks on the front edge of the worm wheel tooth and on the projection which is right down the tooth.

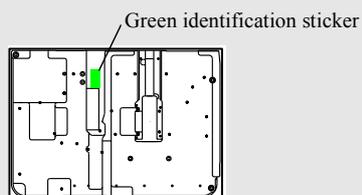
NOTE

- The marks are used for position adjustment of the AF detection sensor.

- (4) Remove the height adjustment jig from the MMC.

6. Adjust the position of the AF emission sensor.

- The position adjustment of the AF emission sensor on the 135/240 MMC-II is different between the RoHS directive compatible one and the non-compatible one.
See Non-compatible with the RoHS directives.
See Compatible with the RoHS directives.
- The RoHS directives compatible 135/240 MMC-II has a green identification sticker on its back.



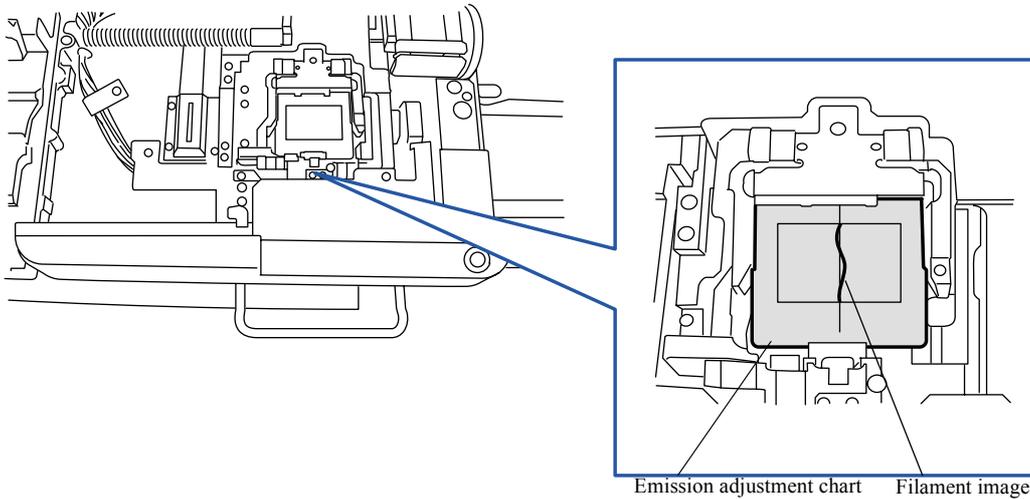
Non-compatible with the RoHS directives

(1) Insert the emission adjustment chart into the MMC.



IMPORTANT

- The emission adjustment chart jolts. Attach the chart so that it comes to the center of the mount carrier.

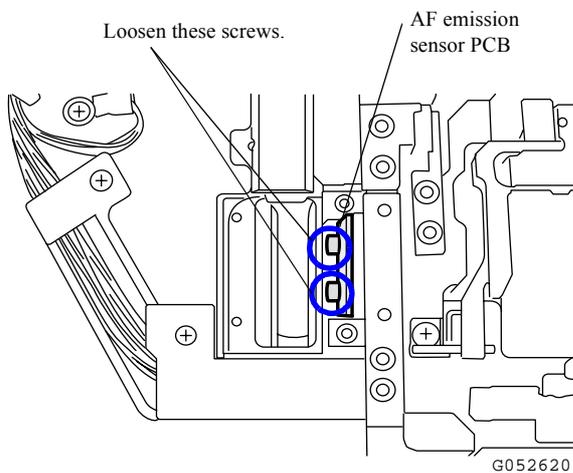


G052617

NOTE

- Check if the filament image on the emission adjustment chart is in the center of the emission adjustment chart. When the filament image is in the center, the adjustment is not necessary.

(2) Adjust the attaching position of the AF emission sensor PCB so that the filament image is in the center. (Loosen two screws.)



G052620

(3) Remove the emission adjustment chart.

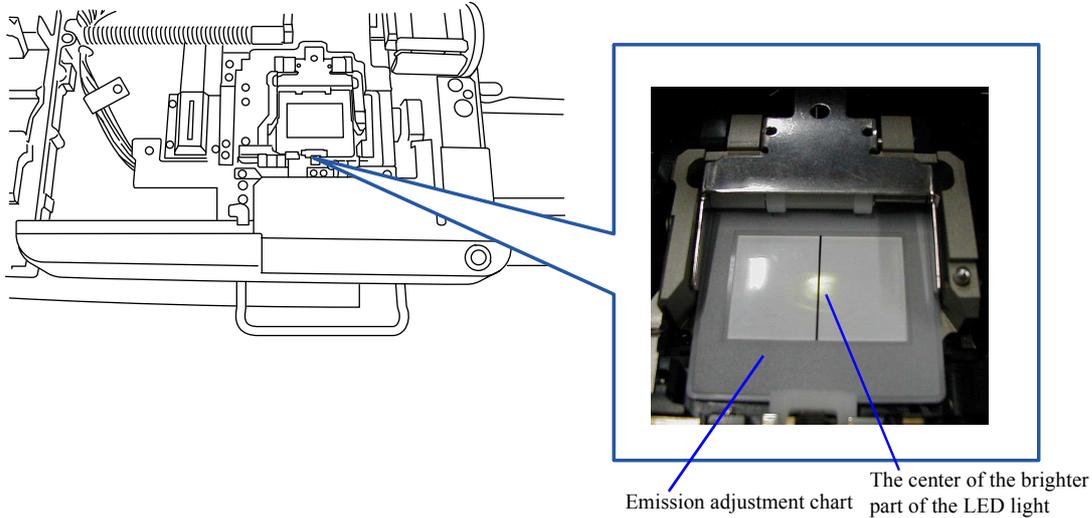
Compatible with the RoHS directives

(1) Insert the emission adjustment chart into the MMC.



IMPORTANT

- The emission adjustment chart jolts. Attach the chart so that it comes to the center of the mount carrier.

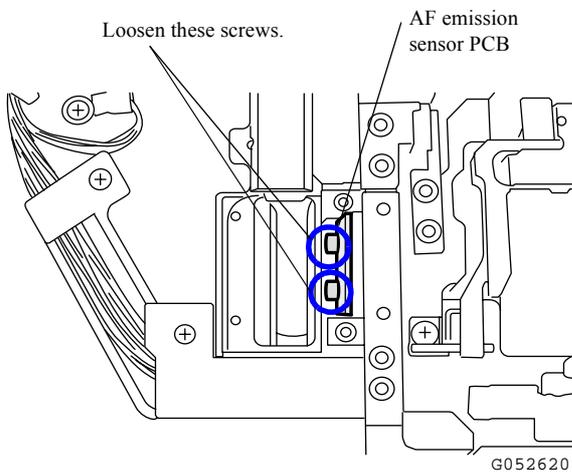


G085908

NOTE

- There is no need to adjust it if the center of the brighter part of the LED light is placed at the center of the emission adjustment chart.

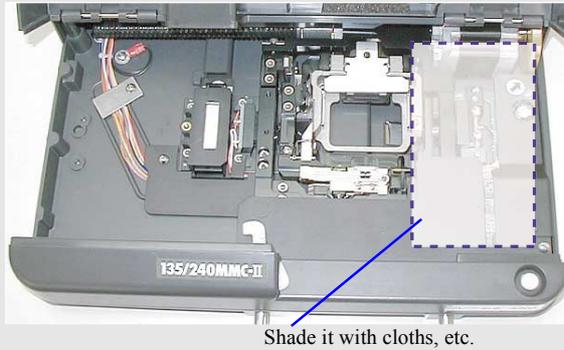
(2) Adjust the position of the AF emission sensor PCB as the brighter part of the LED light comes to the center.
(Loosen two screws.)



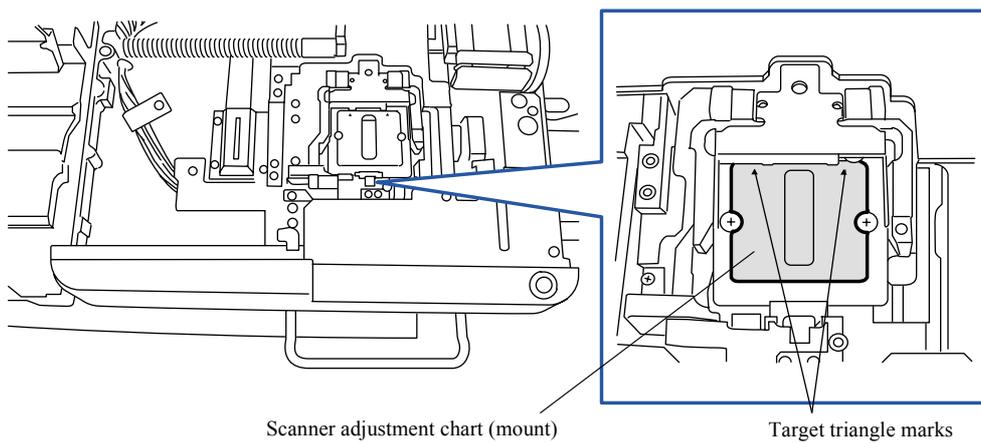
(3) Remove the emission adjustment chart.

7. Adjust the position of the AF detection sensor.

- For adjusting the position of the AF detection sensor compatible with the RoHS directives, shade it with cloths, etc. to block outside light.
If any outside light enters the AF detection sensor, it cannot be adjusted correctly.



(1) Set the scanner adjustment chart to the MMC.



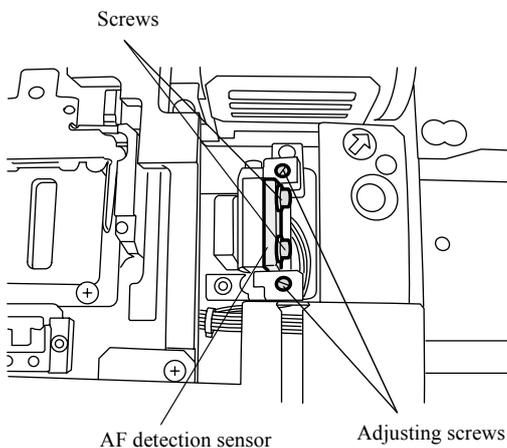
G052621



IMPORTANT

- Attach the scanner adjustment chart (mount) with the target triangle marks at the far side.

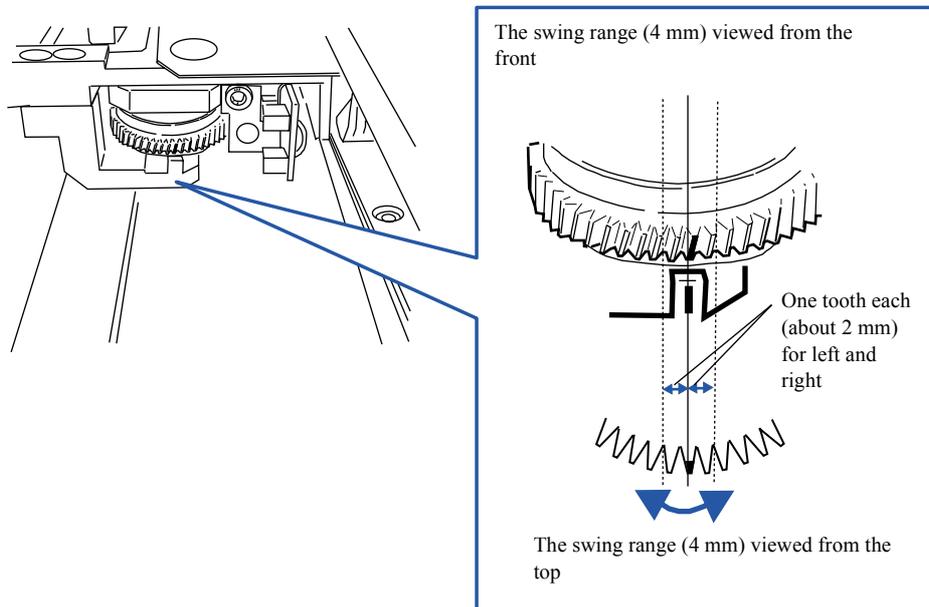
(2) Adjust the attaching position of the AF detection sensor to bring the worm wheel to the position marked when the height of the mount carrier was adjusted. (Loosen two screws. Two adjusting screws)



G052622

**IMPORTANT**

- The tolerance level of swing is about within 4 mm (corresponds to one tooth).



G060701

- Check that the marked tooth of the gear swings 2 mm each for left and right referring to the mark on the projection.
- The worm wheel may come near the marked position due to a rotation of the worm wheel. In this case, return the worm wheel to the position before the rotation.
- Turn the adjusting screws every 180° alternately. Turning one adjusting screw fully at a time may cause the screw to be blocked.
- When the worm wheel does not swing within the tolerance level (about 4 mm), adjust the auto focus section.
☞ 20850

**IMPORTANT**

- The worm wheel may come near the marked position due to a rotation of the worm wheel. In this case, return the worm wheel to the position before the rotation.
- Turn the adjusting screws every 180° alternately. Turning one adjusting screw fully at a time may cause the screw to be blocked.

(3) Remove the scanner adjustment chart (mount) from the MMC-II.

8. Attach the top cover, lens unit and lens unit guide.

Film Carrier Unit Adjustment (135/240 AMC-II)

Bringing up the display

Menu: 2260 → Film Carrier Unit Adjustment

画面後日対応
To be announced

TBD

NOTE

- **Adjustment** is displayed by entering the service personnel password.
- Adjust the 135/240 AMC-II attached to the machine.

● Adjustment functions**● Emission Lamp and Detection Sensor Position Adjustment**

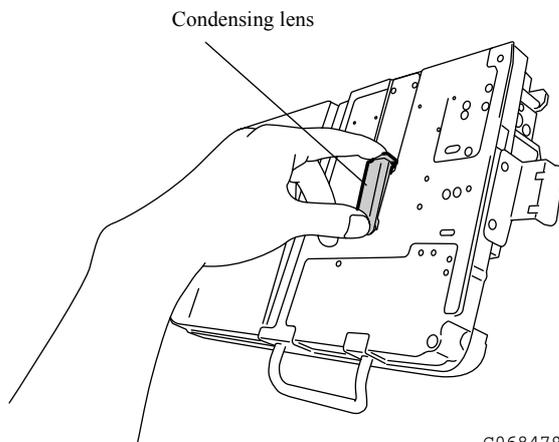
Adjust the standard position of the emission lamp and detection sensor for auto focus.

● Adjusting procedure**● Emission Lamp and Detection Sensor Position Adjustment**

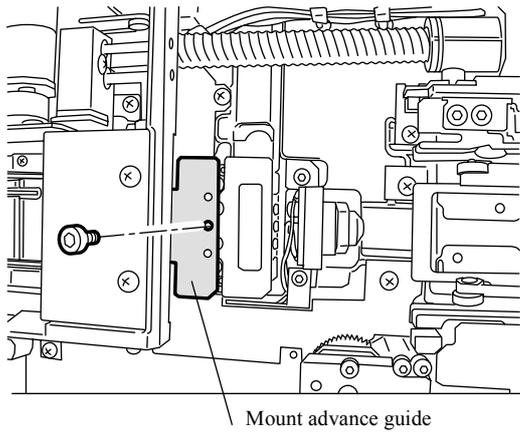
1. Remove the top cover.

☞ 20040

2. Remove the condensing lens.

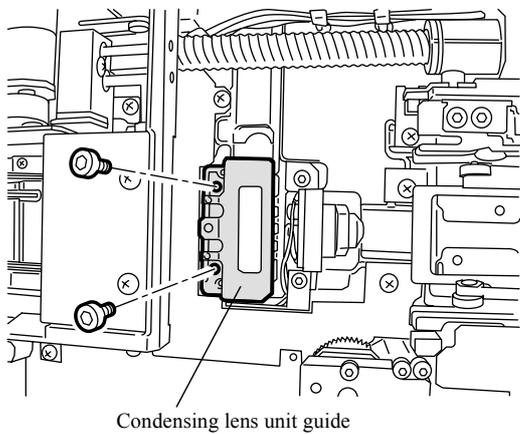


3. Remove the mount advance guide. (One screw)



G068480

4. Remove the condensing lens unit guide. (two screws)



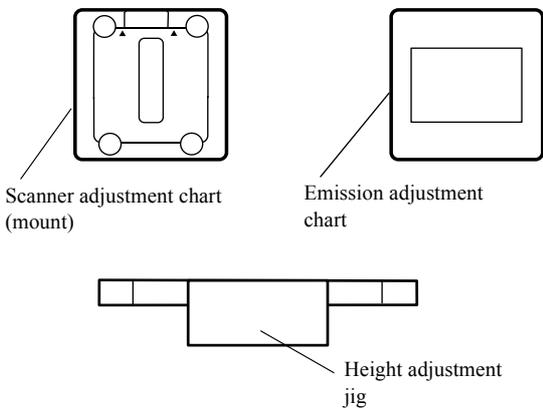
G068481

5. Select Emission Lamp and Detection Sensor Position Adjustment.

NOTE

- Use three types of adjustment jigs for Emission Lamp and Detection Sensor Position Adjustment.
- These are the service personnel tools. See the **Service personnel tool list**.

☞ 80310



G060680

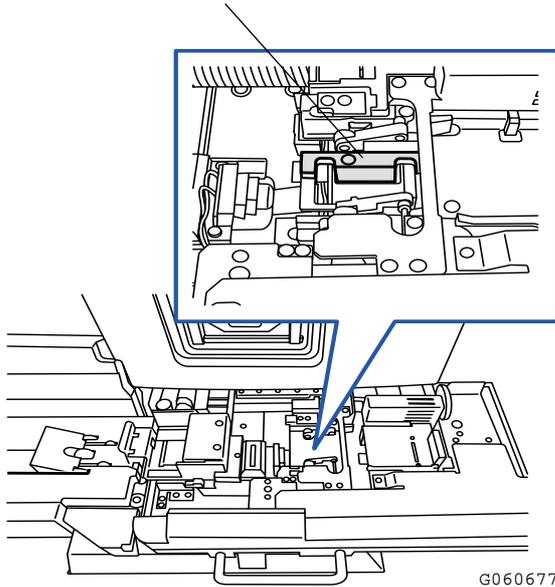
6. Adjust a height of the mount carrier.

NOTE

- There are two types of adjustment jigs for AMC-II and for MMC-II.

- (1) Attach the height adjustment jig to the AMC-II.

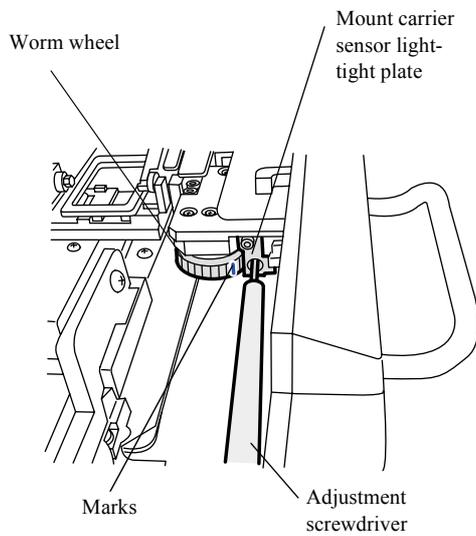
Height adjustment jig for AMC-II



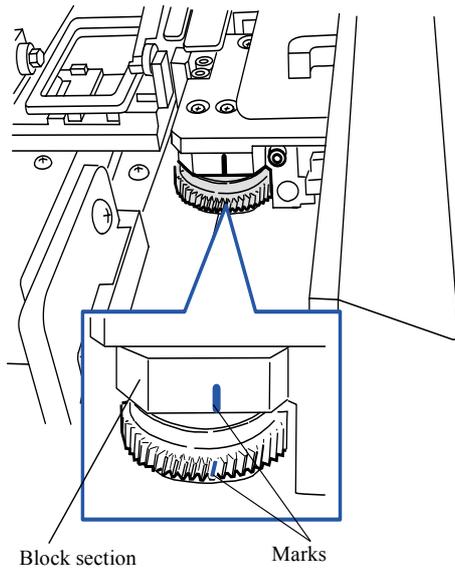
- (2) Turn the AF motor worm gear through the adjusting hole on the mount carrier sensor light-tight plate, and adjust a height of the mount carrier so that it fits with the height adjustment jig.

NOTE

- Turning the worm gear clockwise moves the mount carrier upward, whereas turning the gear counterclockwise moves it downward.



(3) After adjusting the height, mark the adjustment position on the worm wheel.



G060705



IMPORTANT

- Put the mark on the worm wheel as in the illustration.
- Put the marks on the front edge of the worm wheel tooth and on the block section which is above the tooth.

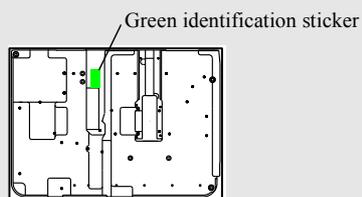
NOTE

- The marks are used for position adjustment of the AF detection sensor.

(4) Remove the height adjustment jig from the AMC-II.

7. Adjust the position of the AF emission sensor.

- The position adjustment of the AF emission sensor on the 135/240 AMC-II is different between the RoHS directive compatible one and the non-compatible one.
See Non-compatible with the RoHS directives.
See Compatible with the RoHS directives.
- The RoHS directives compatible 135/240 AMC-II has a green identification sticker on its back.



Non-compatible with the RoHS directives

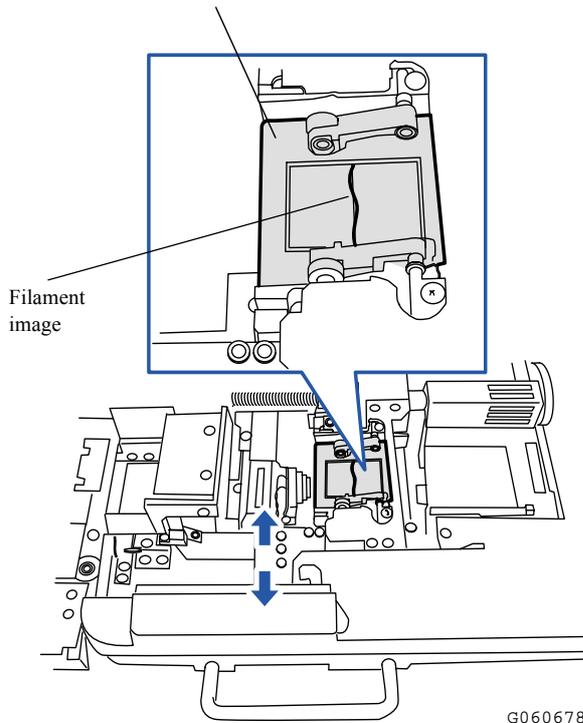
(1) Insert the emission adjustment chart into the AMC-II.



IMPORTANT

- The emission adjustment chart jolts. Attach the chart so that it comes to the center of the mount carrier.

Emission adjustment chart

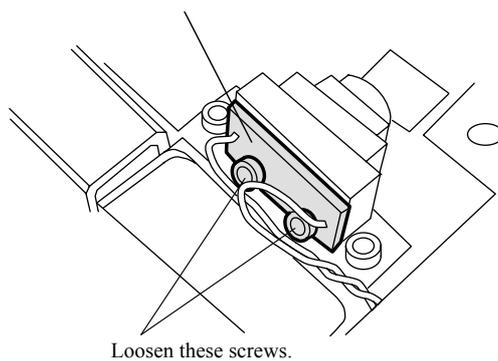


NOTE

- Check if the filament image on the emission adjustment chart is in the center of the emission adjustment chart. When the filament image is in the center, the adjustment is not necessary.

(2) Adjust the attaching position of the AF emission sensor PCB so that the filament image is in the center. (Loosen two screws.)

Emission sensor PCB



Loosen these screws.

(3) Remove the emission adjustment chart.

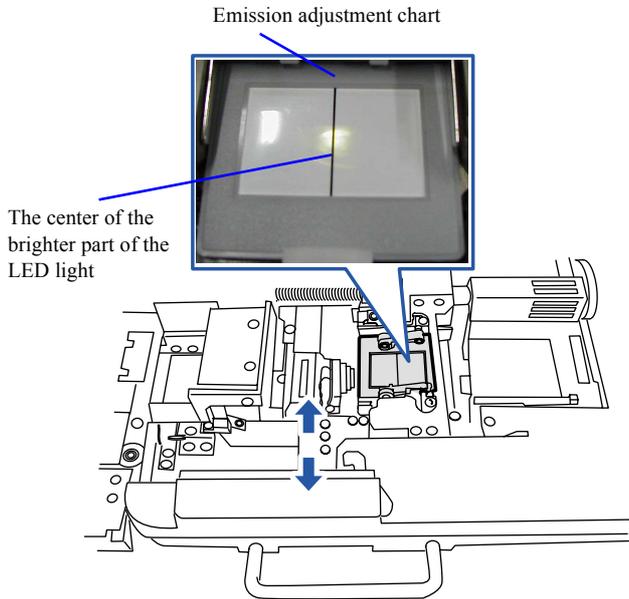
Compatible with the RoHS directives

(1) Insert the emission adjustment chart into the AMC-II.



IMPORTANT

- The emission adjustment chart jolts. Attach the chart so that it comes to the center of the mount carrier.

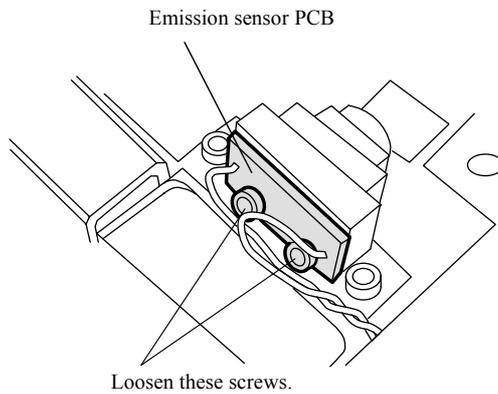


G085906

NOTE

- There is no need to adjust it if the center of the brighter part of the LED light is placed at the center of the emission adjustment chart.

(2) Adjust the position of the AF emission sensor PCB as the brighter part of the LED light comes to the center.
(Loosen two screws.)

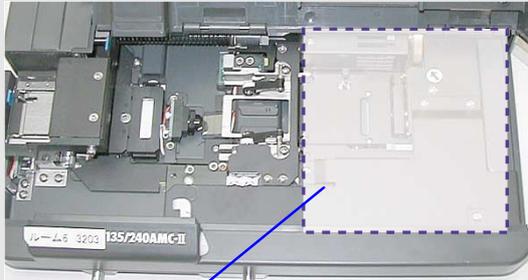


G060682

(3) Remove the emission adjustment chart.

8. Adjust the position of the AF detection sensor.

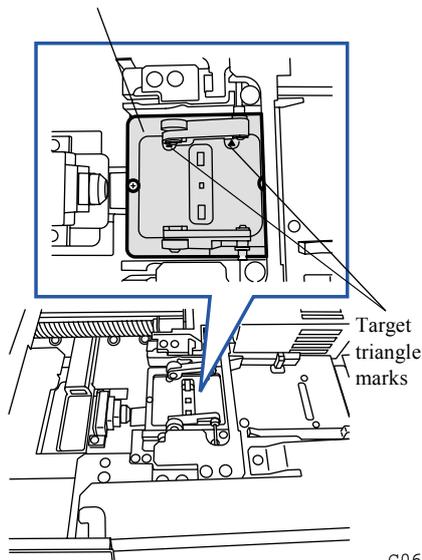
- For adjusting the position of the AF detection sensor compatible with the RoHS directives, shade it with cloths, etc. to block outside light.
If any outside light enters the AF detection sensor, it cannot be adjusted correctly.



Shade it with cloths, etc.

(1) Attach the scanner adjustment chart (mount) to the AMC-II.

Scanner adjustment chart (mount)



G060687

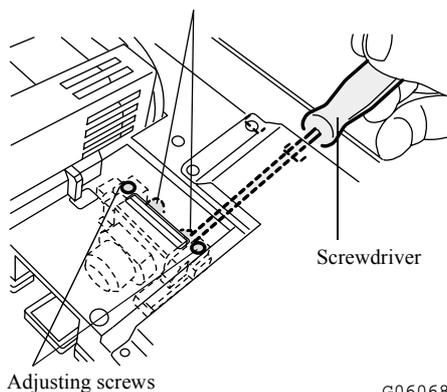


IMPORTANT

- Attach the scanner adjustment chart (mount) with the target triangle marks at the far side.

(2) Adjust the attaching position of the AF detection sensor to bring the worm gear to the position marked when the height of the mount carrier was adjusted. (Loosen two screws. Two adjusting screws)

Loosen these screws.

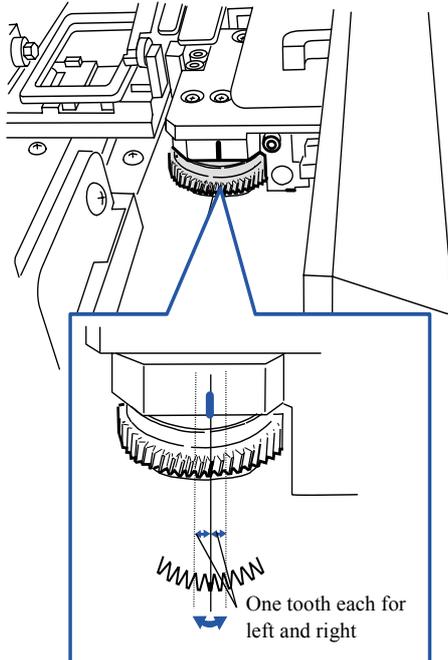


Adjusting screws

G060685

**IMPORTANT**

- The tolerance level of swing is about within 4 mm (corresponds to one tooth).



G060706

- Check that the marked tooth of the gear swings 2 mm each for left and right referring to the mark on the block section.

**IMPORTANT**

- The worm wheel may come near the marked position due to a rotation of the worm wheel. In this case, return the worm wheel to the position before the rotation.
- Turn the adjusting screws every 180° alternately. Turning one adjusting screw fully at a time may cause the screw to be blocked.

(3) Remove the scanner adjustment chart (mount) from the AMC-II.

9. Attach the top cover, condensing lens, mount advance guide, and condensing lens guide.

Film Carrier Unit Adjustment (MFC)

Bringing up the display

Menu: 2260 → Film Carrier Unit Adjustment



TBD

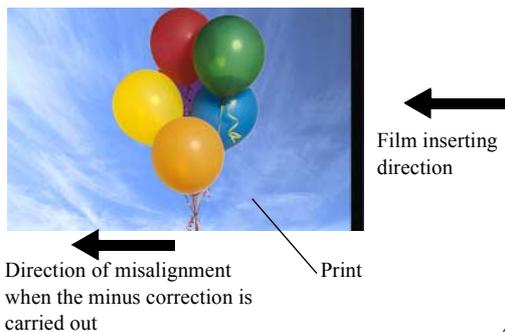
● Explanation

● Scanning Position Correction (Initial value: 0.0 mm) (Input range: -9.9 to 9.9 mm)

The difference between the prescanning position and the actual scanning position can be corrected.

NOTE

- If black margin is printed on the front end or rear end, the scanning position is automatically corrected with the **Scanning Position Auto Correction** of the **Adjustment** mode.
- When changing the print position for all frames intentionally, input the correction value. For example, when carrying out minus correction, the image moves to left.



G057680

● Functions

● Scanning Position Auto Correction

Using a film, the difference between the prescanning position and the actual scanning position can automatically be corrected.

● Adjusting procedure

● Scanning Position Auto Correction

1. Set the attachment to the film carrier.

NOTE

- You can use any attachment.

- A film is used for adjustment.

2. Click **Scanning Position Auto Correction** in **Adjustment**.

3. **Set the film to the attachment and press the Yes key** appears.

NOTE

- Use a film of which the image appears properly.
- Set the film and the machine automatically starts Scanning Position Auto Correction.

4. **Set the film to the attachment and press the Yes key**.

NOTE

- When the machine completes Scanning Position Auto Correction, **Complete** appears.

Film Carrier Unit Adjustment (135 AFC-II)

Bringing up the display

Menu: 2260 → Film Carrier Unit Adjustment



TBD



IMPORTANT

- Because the adjustment mode of the 135 AFC is the same as that of the 135/204 AFC, functions in **Adjustment** for the 240 film carrier are displayed. However, do not use them.

NOTE

- The number of setting items increases when the the service personnel password (2260) is entered.

● Explanation

● Scanning Position Correction (Initial value: 0.0 mm) (Input range: -9.9 to 9.9 mm)

The difference between the prescanning position and the actual scanning position can be corrected.

NOTE

- If black margin is printed on the front end or rear end, the scanning position is automatically corrected with the **Scanning Position Auto Correction** of the **Adjustment** mode.
- When changing the print position for all frames intentionally, input the correction value. For example, when carrying out minus correction, the image moves to left.



G057680

● Auto Gain Standard Value (Standard value: 200) (Input range: 0 to 255)

It is the standard value to adjust the gain of the DX sensor.

● 135 Loading Sensor Gain Value (Input range: 0 to 255)

The loading sensor sensitivity gain value is displayed.

- **Perforation Sensor Gain Value (Input range: 0 to 255)**

The perforation sensor sensitivity gain value is displayed.

- **Ready Sensor Gain Value (Input range: 0 to 255)**

The ready sensor sensitivity gain value is displayed.

- **Film Ejection Sensor Gain Value (Input range: 0 to 255)**

When the 135 AFC-II has already been attached, it is not used.

- **DX Sensor 1, 2, 3, and 4 Gain Values (Input range: 0 to 255)**

DX sensors 1 and 2 or DX sensors 3 and 4 are adjusted so that the two sensors have the same sensitivity respectively.

- **LED Light Intensity Value (Input range: 0 to 255)**

The sensor sensitivity is adjusted to the auto gain standard value at the lightest area on a blank film which is obtained by changing the light intensity value of all DX sensors. Each sensor other than DX sensor is adjusted so that the sensor sensitivity becomes the constant level without negative.

- **DX Sensor Gain Value (without Film) (Input range: 0 to 255)**

The gain value (without film) of each DX sensor is displayed.

- **Functions**

- **Scanning Position Auto Correction**

Using a film, the difference between the prescanning position and the actual scanning position can automatically be corrected.

- **Sensor LED Light Intensity Adjustment**

The LED light intensity and sensitivity of each sensor are automatically adjusted.

NOTE

- A film is not used for adjustment.
- The LED light intensity of each sensor in the following table is adjusted.

Sensors for Sensor LED Light Intensity Value Adjustment	
135 AFC	135 Loading Sensor, 135 Perforation Sensor, 135 Ready Sensor, and 135 DX Sensors 1, 2, 3, and 4

- **Sensor Sensitivity Adjustment**

Adjustment for the sensitivity at the detection side of each sensor and the sensor LED light intensity can be carried out simultaneously.

- **DX Sensor Standard Adjustment**

The 135 DX sensor standard adjustment can be done.

- **DX Code Reading**

The DX Code Reading test can be done.

- **DX Sensor Level Display**

The gain value of each DX sensor is displayed.

● Adjusting procedure

● Scanning Position Auto Correction

1. Select **Scanning Position Auto Correction**.

This adjustment is automatically carried out.

NOTE

- A film is used for adjustment.

● Sensor LED Light Intensity Adjustment

1. Select **Sensor LED Light Intensity Value Adjustment**.

This adjustment is automatically carried out.

NOTE

- A film is not used for adjustment.

● Sensor Sensitivity Adjustment

1. Select **Sensor Sensitivity Adjustment**.

This adjustment is automatically carried out.

NOTE

- A film is not used for adjustment.

● DX Sensor Standard Adjustment

1. Select DX Sensor Standard Adjustment.



TBD

2. Insert the film into the film carrier.

NOTE

- Use the film containing two frames or more, of which base density is light.

3. Remove the ejected film.

4. The adjustment is complete, and the correction value is input automatically.

● DX Code Reading

1. Select DX Code Reading.

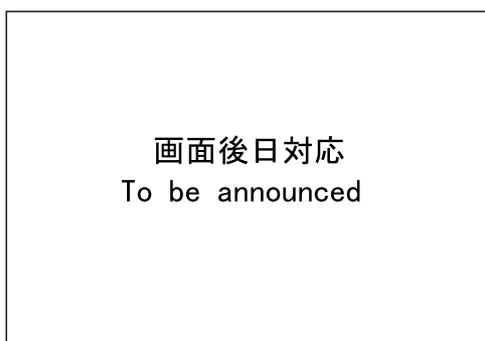
2. Load the film to the film carrier.

3. Remove the ejected film.

4. The reading is complete, and the result is displayed.

NOTE

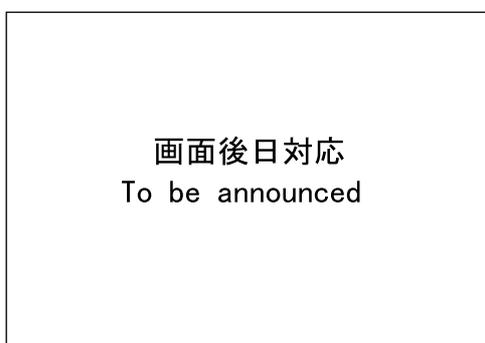
- Only the reading code, reading count and frame No. are displayed.
- The frame code, such as ##E, is displayed as the display frame No.
- A maximum of 80 frames can be displayed. (a maximum of 80 frames for the half size)



TBD

- **DX Sensor Level Display**

1. Select DX Sensor Level Display.



TBD

NOTE

- The A/D value is the gain value detected at real time.
- The gain value (without film) indicates the fixed value obtained by standard adjustment.

Sensor Sensitivity Adjustment (LS-600/LS-1100)

Bringing up the display

Menu: 2260 → Film Carrier Unit Adjustment → Sensor Sensitivity Adjustment

Display	
<p>Scanner LS-600 - Sensor Sensitivity Adjustment Display Number [5215 - 00] [SP]</p> <p>54 135 Loading Sensor Gain Value</p> <p>114 135 Perforation Sensor Gain Value</p> <p>56 135 Ready Sensor Gain Value</p> <p>100 135 Loading Sensor LED Light Intensity Value</p> <p>100 135 Perforation Sensor LED Light Intensity Value</p> <p>100 135 Ready Sensor LED Light Intensity Value</p> <p style="text-align: right;">Auto Adjust Register Close</p>	<p>Scanner LS-600 - Sensor Sensitivity Adjustment Display Number [5215 - 00] [SP]</p> <p>145 240 End Perforation Sensor Gain Value</p> <p>160 240 Perforation Sensor Gain Value</p> <p>100 240 End Perforation Sensor LED Light Intensity Value</p> <p>100 240 Perforation Sensor LED Light Intensity Value</p> <p style="text-align: right;">Auto Adjust Register Close</p>

NOTE

- Enter the service personnel password (2260) to configure these settings.

● Explanation

● Loading Sensor Gain Value (Initial value: 100) (Input range: 0 to 255)

The loading sensor sensitivity gain value is displayed.

NOTE

- Only 135 lane has the loading sensor.

● Perforation Sensor Gain Value (Initial value: 100) (Input range: 0 to 255)

The perforation sensor sensitivity gain value is displayed.

● Ready Sensor Gain Value (Initial value: 100) (Input range: 0 to 255)

The ready sensor sensitivity gain value is displayed.

NOTE

- Only 135 lane has the ready sensor.

● End Perforation Sensor Gain Value (Initial value: 100) (Input range: 0 to 255)

The end perforation sensor sensitivity gain value is displayed.

NOTE

- Only 240 lane has the end perforation sensor.

● Loading Sensor LED Light Intensity Value (Initial value: 90) (Input range: 0 to 255)

The loading sensor LED light intensity value is displayed.

NOTE

- Only 135 lane has the loading sensor.

● Perforation Sensor LED Light Intensity Value (Initial value: 90) (Input range: 0 to 255)

The perforation sensor LED light intensity value is displayed.

- **Ready Sensor LED Light Intensity Value (Initial value: 90) (Input range: 0 to 255)**

The ready sensor LED light intensity value is displayed.

NOTE

- Only 135 lane has the ready sensor.

- **End Perforation Sensor LED Light Intensity Value (Initial value: 90) (Input range: 0 to 255)**

The end perforation sensor LED light intensity value is displayed.

NOTE

- Only 240 lane has the end perforation sensor.

- **Adjusting procedure**

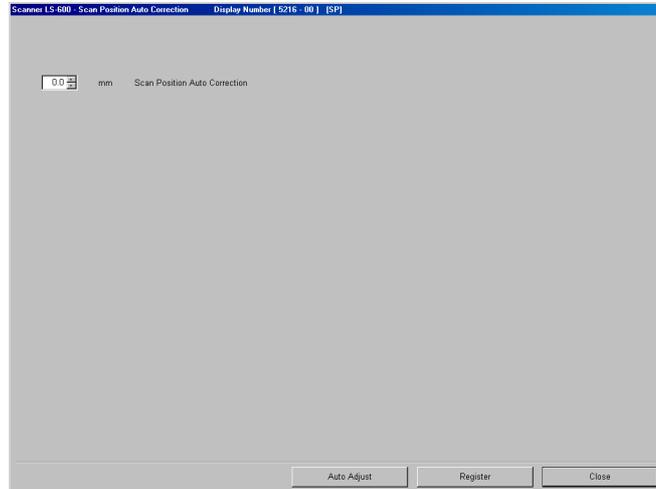
Adjust sensitivity of the receiving side of each sensor and light intensity of the sensor LED using film.

1. Select **Auto Adjust**.
2. Insert film into the film carrier.

Scan Position Auto Correction (LS-600/LS-1100)

Bringing up the display

Menu: 2260 → Film Carrier Unit Adjustment → Scan Position Auto Correction



S5216-00

NOTE

- Enter the service personnel password (2260) to configure these settings.

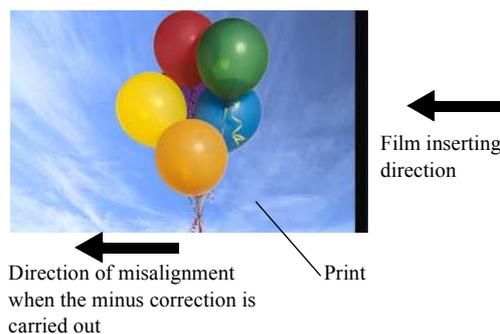
● Explanation

● Scan Position Auto Correction (Initial value: 0.0 mm) (Input range: -9.9 to 9.9 mm)

The difference between the prescanning position and the actual scanning position can be corrected.

NOTE

- If black margin is printed on the front end or rear end, perform **Auto Correction**.
- When changing the print position for all frames intentionally, input the correction value. For example, when carrying out minus correction, the image moves to left.



G057680

● Adjusting procedure

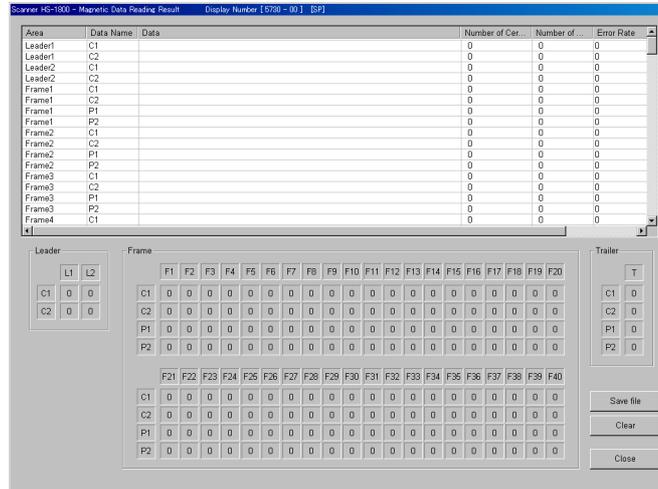
Using a film, the difference between the prescanning position and the actual scanning position can automatically be adjusted.

1. Select **Auto Adjust**.
2. Insert film into the film carrier.

Magnetic Data Reading Result (LS-600/LS-1100)

Bringing up the display

Menu: 2260 → Film Carrier Unit Adjustment → Magnetic Data Reading Result



S1146-12-00

NOTE

- Enter the service personnel password (2260) to configure these settings.

● **Result of Reading Magnetic Data**

● **Explanation**

Shows Result of Reading Magnetic Data of IX240 film.

● **How to read the magnetic data**

1. Prepare IX240 film which magnetic data are written onto all frames by camera.
2. Scan the film.

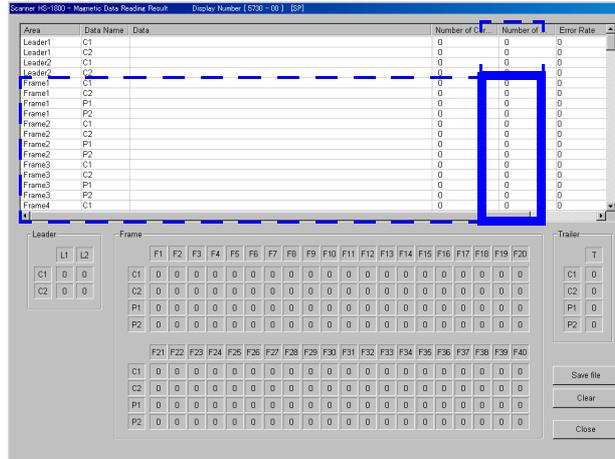
NOTE

- Press **NO** for all frames to cancel printing.

3. Enter the Service Mode, and select **Film Carrier Unit Adjustment** and select **Magnetic Data Reading Result**.
4. Check the result.

3. Mode

● Determination from Reading Result



S1146-12-00

- Determine by values inside frame of Error Rate column (only frame Area column). Other items are not used.



IMPORTANT

- Error rate may vary depending on film type or camera taken pictures besides trouble of HFI unit. It is recommended to confirm error rate with two or more films that change conditions of films and cameras and to determine it.

- Standard of determination

Error rate	Determination
0	Frame which cannot be read magnetic data
1	Frame which reading magnetic data is unstable
2	It is a readable magnetic data frame.
3	Frame which can be read magnetic data completely

NOTE

- By verifying error rate, you can specify frame which cannot be read magnetic data.
- By verifying error rate, you can determine reading level of magnetic data by three levels.
- Clean magnetic head if error rate is 0 or 1. For details how to clean, refer to **Maintenance Manual**. However, if error rate 0 or 1 appears for the specific film, it is possible that there is an error in the film or the used camera.
- There is no data for P1 and P2 so error rate 0 appears. However, in this case, 0 is not reading result so disregard it.

NOTE

- Data Name C1 and C2 is camera track. It is magnetic data input by camera.
Data Name P1 and P2 is photofinishing track. It is magnetic data input by the scanner.
- After cleaning magnetic head, read magnetic data again. Then verify improvement effect by cleaning.
- If the reading result is not improved even if magnetic head is cleaned, replace magnetic head unit. For details, refer to 20930.

● Saving Reading Result

- Click **Save File** to save result of reading magnetic data displayed in text format.
- Save result of reading magnetic data in beginning to use film carrier, and compare it with magnetic data reading result by passage of use time. It is a guide for cleaning before attention message **No.01404 The IX frame data is incomplete.** is shown.

NOTE

- Since the magnetic head directly contacts with the film then the dirt is attached on the magnetic head during the use time, the magnetic data reading becomes unstable. In that case, error rate value decreases gradually.

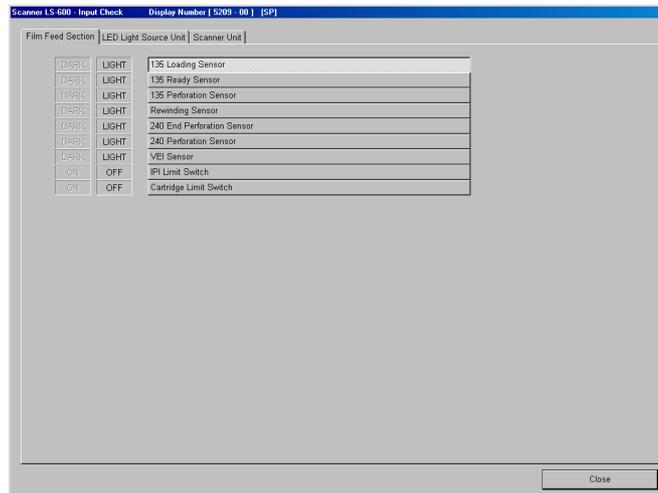
Input Check [LS-600]

Input Check is different between LS-600, LS-1100 and HS-1800.

Reference	
Input Check [LS-1100]	Input Check [HS-1800]

Bringing up the display

Menu → Input Check



S5209-00

● Explanation

A buzzer will sound if sensors, limit switches or other devices at the cursor position turn DARK or ON.



IMPORTANT

- The momentary operation cannot be displayed on the input check display because there is a time lag of approx. 0.5 seconds.

Film advance section

No.	Display		Status	
1	DARK/LIGHT	135 Loading Sensor	DARK	When the film is detected.
2	DARK/LIGHT	135 Ready Sensor	DARK	When the film is detected.
3	DARK/LIGHT	135 Perforation Sensor	DARK	When the perforation is detected.
4	DARK/LIGHT	Rewinding Sensor	DARK	When the film is rewind.
5	DARK/LIGHT	240 End Perforation Sensor	DARK	When the end perforation is detected.
6	DARK/LIGHT	240 Perforation Sensor	DARK	When the perforation is detected.
7	DARK/LIGHT	VEI Sensor	DARK	When the VEI detection plate is detected.
8	ON/OFF	IPI Limit Switch	DARK	When the undeveloped cartridge is attached.
9	ON/OFF	Cartridge Limit Switch	ON	Cartridge is attached (Both the cartridge limit switches 1 and 2 are ON)

LED light source unit

No.	Display		Status
1	##.#°C	LED Thermosensor	Displays the temperature of the LED.

Scanner unit

No.	Display		Status	
1	ON/OFF	Interlock Switch	ON	When the cover is closed.
2	DARK/LIGHT	135 Lane Sensor	DARK	When the 135 lane is detected.
3	DARK/LIGHT	240 Lane Sensor	DARK	When the 240 lane is detected
4	DARK/LIGHT	Focus Home Sensor	DARK	Home position
5	DARK/LIGHT	IRIS Home Sensor	DARK	Home position
6	##.#°C	Scanner Thermosensor	Displays the temperature of the scanner.	

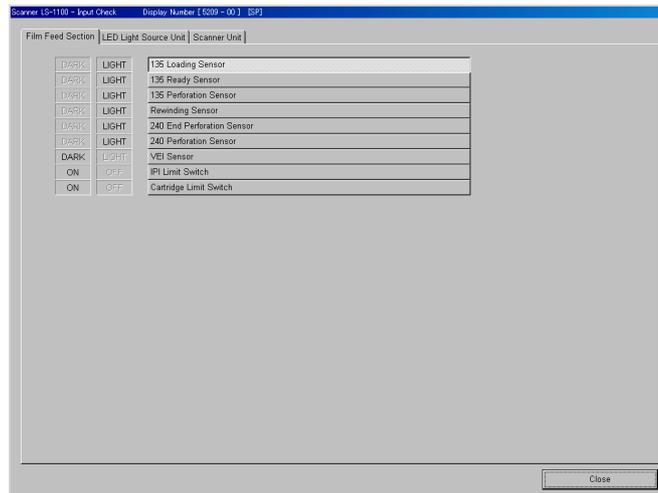
Input Check [LS-1100]

Input Check is different between LS-600, LS-1100 and HS-1800.

Reference	
Input Check [LS-600]	Input Check [HS-1800]

Bringing up the display

Menu → Input Check



S5209-00-01

● Explanation

A buzzer will sound if sensors, limit switches or other devices at the cursor position turn DARK or ON.



IMPORTANT

- The momentary operation cannot be displayed on the input check display because there is a time lag of approx. 0.5 seconds.

Film advance section

No.	Display		Status	
1	DARK/LIGHT	135 Loading Sensor	DARK	When the film is detected.
2	DARK/LIGHT	135 Ready Sensor	DARK	When the film is detected.
3	DARK/LIGHT	135 Perforation Sensor	DARK	When the perforation is detected.
4	DARK/LIGHT	Rewinding Sensor	DARK	When the film is rewound.
5	DARK/LIGHT	240 End Perforation Sensor	DARK	When the end perforation is detected.
6	DARK/LIGHT	240 Perforation Sensor	DARK	When the perforation is detected.
7	DARK/LIGHT	VEI Sensor	DARK	When the VEI detection plate is detected.
8	ON/OFF	IPI Limit Switch	DARK	When the undeveloped cartridge is attached.
9	ON/OFF	Cartridge Limit Switch	ON	Cartridge is attached (Both the cartridge limit switches 1 and 2 are ON)

LED light source unit

No.	Display		Status
1	##.#°C	LED Thermosensor	Displays the temperature of the LED.

Scanner unit

No.	Display		Status	
1	ON/OFF	Interlock Switch	ON	When the cover is closed.
2	DARK/LIGHT	135 Lane Sensor	DARK	When the 135 lane is detected.
3	DARK/LIGHT	240 Lane Sensor	DARK	When the 240 lane is detected
4	DARK/LIGHT	Focus Home Sensor	DARK	Home position
5	DARK/LIGHT	IRIS Home Sensor	DARK	Home position
6	##.#°C	Scanner Thermosensor	Displays the temperature of the scanner.	

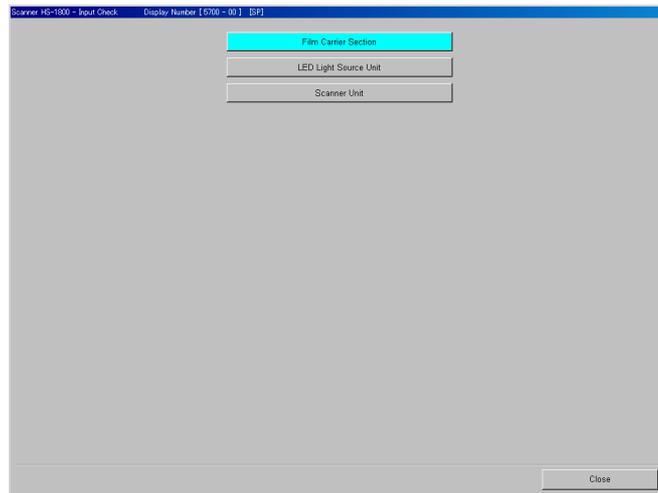
Input Check [HS-1800]

Input Check is different between LS-600, LS-1100 and HS-1800.

Reference	
Input Check [LS-600]	Input Check [LS-1100]

Bringing up the display

Menu → Input Check



S5700-00-01

● Explanation

A buzzer will sound if sensors, limit switches or other devices at the cursor position turn DARK or ON.



IMPORTANT

- The momentary operation cannot be displayed on the input check display because there is a time lag of approx. 0.5 seconds.

NOTE

- For the Stand Alone Printer, film carrier section, LED light source unit and scanner unit are not equipped.

Film Carrier Section (135/240 AFC-135)

No.	Display		Status	
1	ON/OFF	135 Lane Limit Switch	ON	When the 135 lane is detected.
2	ON/OFF	Film Carrier Code Detector 1	When the film carrier is attached.*1	
3	ON/OFF	Film Carrier Code Detector 2		
4	ON/OFF	Film Carrier Code Detector 3		
5	ON/OFF	Film Carrier Code Detector 4		
6	ON/OFF	Film Carrier Lock Sensor	ON	When the film carrier is locked.
7	DARK/LIGHT	Rewinding Sensor	LIGHT	When the film jam is detected.
8	DARK/LIGHT	135 Loading Sensor	DARK	When the film is detected.
9	DARK/LIGHT	135 Ready Sensor	DARK	When the film is detected.
10	DARK/LIGHT	135 Perforation Sensor	LIGHT	When the perforation is detected.
11	DARK/LIGHT	135 DX Sensor 1	DARK	When the DX code is detected.*2
12	DARK/LIGHT	135 DX Sensor 1 (Film Detection)	DARK	When the film is detected.*2
13	DARK/LIGHT	135 DX Sensor 2	DARK	When the DX code is detected.
14	DARK/LIGHT	135 DX Sensor 3	DARK	When the DX code is detected.*2
15	DARK/LIGHT	135 DX Sensor 3 (Film Detection)	DARK	When the film is detected.*2
16	DARK/LIGHT	135 DX Sensor 4	DARK	When the DX code is detected.
17	###	Attached Film Carrier	Displays the attached film carrier.	

*1. Film Carrier Code Detector

Film carrier	Film carrier code detector 1	Film carrier code detector 2	Film carrier code detector 3	Film carrier code detector 4
135/240 AFC	OFF	ON	OFF	OFF
Not attached	ON	ON	ON	ON

*2. This one sensor detects both the **DX code** and the **Film**.

Film carrier section (135/240 AFC-240)

No.	Display		Status	
1	ON/OFF	240 Lane Limit Switch	ON	When the 240 lane is detected
2	ON/OFF	Film Carrier Code Detector 1	When the film carrier is attached.* ¹	
3	ON/OFF	Film Carrier Code Detector 2		
4	ON/OFF	Film Carrier Code Detector 3		
5	ON/OFF	Film Carrier Code Detector 4		
6	ON/OFF	Film Carrier Lock Sensor	DARK	When the film is detected.
7	DARK/LIGHT	Rewinding Sensor	LIGHT	When the film jam is detected.
8	DARK/LIGHT	240 Loading Sensor	DARK	When the film is detected.
9	DARK/LIGHT	240 Ready Sensor	DARK	When the film is detected.
10	DARK/LIGHT	240 Perforation Sensor	LIGHT	When the perforation is detected.
11	DARK/LIGHT	VEI Sensor	LIGHT	When the VEI is at the fourth position
12	ON/OFF	IPI Limit Switch	ON	When the undeveloped cartridge is attached.
13	ON/OFF	Cartridge Limit Switch	ON	When the cartridge is attached. (Turns ON when both switches 1 and 2 detect the cartridge.)
14	DARK/LIGHT	240 DX Sensor 1	DARK	When the DX code is detected.* ²
15	DARK/LIGHT	240 DX Sensor 1 (Film Detection)	DARK	When the film is detected.* ²
16	DARK/LIGHT	240 DX Sensor 2	DARK	When the DX code is detected.
17	###	Attached Film Carrier	Displays the attached film carrier.	

*1. Film Carrier Code Detector

Film carrier	Film Carrier Code Detector 1	Film Carrier Code Detector 2	Film Carrier Code Detector 3	Film Carrier Code Detector 4
135/240 AFC	OFF	ON	OFF	OFF
Not attached	ON	ON	ON	ON

*2. This one sensor detects both the **DX code** and the **Film**.

Film Carrier Section (120 AFC)

No.	Display		Status	
1	ON/OFF	Film Carrier Code Detector 1	When the film carrier is attached.* ¹	
2	ON/OFF	Film Carrier Code Detector 2		
3	ON/OFF	Film Carrier Code Detector 3		
4	ON/OFF	Film Carrier Code Detector 4		
5	ON/OFF	Film Carrier Lock Sensor	ON	When the film carrier is locked.
6	DARK/LIGHT	Loading Sensor	DARK	When the film is detected.
7	DARK/LIGHT	Ready Sensor	DARK	When the film is detected.
8	DARK/LIGHT	Film Feed Sensor	DARK	When the film is detected.
9	DARK/LIGHT	Film Sensor	DARK	Turns DARK/LIGHT repeatedly while the film is advanced.
10	###	Attached Film Carrier	Displays the attached film carrier.	

*1. Film Carrier Code Detector

Film carrier	Film carrier code detector 1	Film carrier code detector 2	Film carrier code detector 3	Film carrier code detector 4
120 AFC	OFF	OFF	ON	ON
Not attached	ON	ON	ON	ON

Film Carrier Section (110 AFC)

No.	Display		Status	
1	ON/OFF	Film Carrier Code Detector 1	When the film carrier is attached.*1	
2	ON/OFF	Film Carrier Code Detector 2		
3	ON/OFF	Film Carrier Code Detector 3		
4	ON/OFF	Film Carrier Code Detector 4		
5	ON/OFF	Film Carrier Lock Sensor	ON	When the film carrier is locked.
6	DARK/LIGHT	Loading Sensor	DARK	When the film is detected.
7	DARK/LIGHT	Ready Sensor	DARK	When the film is detected.
8	DARK/LIGHT	Perforation Sensor	LIGHT	When the perforation is detected.
9	###	Attached Film Carrier	Displays the attached film carrier.	

*1. Film Carrier Code Detector

Film carrier	Film carrier code detector 1	Film carrier code detector 2	Film carrier code detector 3	Film carrier code detector 4
110 AFC	ON	ON	OFF	ON
Not attached	ON	ON	ON	ON

Film Carrier Section (135/240 MMC)

No.	Display		Status	
1	ON/OFF	Film Carrier Code Detector 1	When the film carrier is attached.*1	
2	ON/OFF	Film Carrier Code Detector 2		
3	ON/OFF	Film Carrier Code Detector 3		
4	ON/OFF	Film Carrier Code Detector 4		
5	DARK/LIGHT	Mount Carrier Home Sensor	DARK	When the mount carrier is detected.
6	ON/OFF	Mount Insertion Cover Open Switch	ON	When the switch is pressed.
7	ON/OFF	Film Carrier Lock Sensor	ON	When the film carrier is locked.
8	DARK/LIGHT	Mount Carrier Sensor (Upper)	DARK	When the mount carrier is detected.
9	DARK/LIGHT	Mount Carrier Sensor (Lower)	DARK	When the mount carrier is detected.
10	DARK/LIGHT	Mount Insertion Cover Sensor	DARK	When the mount insertion cover is closed.
11	ON/OFF	Mount Sensor	ON	When the mount is detected.
12	###	Attached Film Carrier	Displays the attached film carrier.	

*1. Film Carrier Code Detector

Film carrier	Film carrier code detector 1	Film carrier code detector 2	Film carrier code detector 3	Film carrier code detector 4
135/240 MMC	ON	OFF	ON	ON
Not attached	ON	ON	ON	ON

3. Mode

Film Carrier Section (135/240 AMC-II)

No.	Display		Status	
1	ON/OFF	Film Carrier Code Detector 1	When the film carrier is attached.* ¹	
2	ON/OFF	Film Carrier Code Detector 2		
3	ON/OFF	Film Carrier Code Detector 3		
4	DARK/LIGHT	Mount Carrier Home Sensor	DARK	When the mount carrier is detected.
5	ON/OFF	Film Carrier Lock Sensor	ON	When the film carrier is locked.
6	DARK/LIGHT	Mount Carrier Sensor (Upper)	DARK	When the mount carrier is detected.
7	DARK/LIGHT	Mount Carrier Sensor (Lower)	DARK	When the mount carrier is detected.
8	ON/OFF	Mount Sensor	ON	When the mount is detected.
9	DARK/LIGHT	Insertion Sensor 1	DARK	When the mount is not set.
10	DARK/LIGHT	Insertion Sensor 2	DARK	When the mount is not set.
11	ON/OFF	Mount Sensor (Inlet)	ON	When the mount is detected.
12	DARK/LIGHT	Mount Elevator Sensor	DARK	When the mount carrier is detected.
13	ON/OFF	Ejection Sensor	ON	When the mount is detected.
14	###	Attached Film Carrier	Displays the attached film carrier.	

*1. Film Carrier Code Detector

Film carrier	Film carrier code detector 1	Film carrier code detector 2	Film carrier code detector 3
135/240 AMC-II	OFF	ON	ON
Not attached	ON	ON	ON

Film Carrier Section (135 AFC)

No.	Display		Status	
1	ON/OFF	Film Carrier Code Detector 1	When the film carrier is attached.* ¹	
2	ON/OFF	Film Carrier Code Detector 2		
3	ON/OFF	Film Carrier Code Detector 3		
4	ON/OFF	Film Carrier Code Detector 4		
5	ON/OFF	Film Carrier Lock Sensor	ON	When the film carrier is locked.
6	DARK/LIGHT	Rewinding Sensor	LIGHT	When the film jam is detected.
7	DARK/LIGHT	135 Loading Sensor	DARK	When the film is detected.
8	DARK/LIGHT	135 Ready Sensor	DARK	When the film is detected.
9	DARK/LIGHT	135 Perforation Sensor	LIGHT	When the perforation is detected.
10	DARK/LIGHT	135 DX Sensor 1	DARK	When the DX code is detected.* ²
11	DARK/LIGHT	135 DX Sensor 1 (Film Detection)	DARK	When the film is detected.* ²
12	DARK/LIGHT	135 DX Sensor 2	DARK	When the DX code is detected.
13	DARK/LIGHT	135 DX Sensor 3	DARK	When the DX code is detected.* ²
14	DARK/LIGHT	135 DX Sensor 3 (Film Detection)	DARK	When the film is detected.* ²
15	DARK/LIGHT	135 DX Sensor 4	DARK	When the DX code is detected.
16	###	Attached Film Carrier	Displays the attached film carrier.	

*1. Film Carrier Code Detector

Film carrier	Film carrier code detector 1	Film carrier code detector 2	Film carrier code detector 3	Film carrier code detector 4
135/240 AFC	ON	OFF	OFF	OFF
Not attached	ON	ON	ON	ON

*2. This one sensor detects both the **DX code** and the **Film**.

Film Carrier Section (MFC)

No.	Display		Status	
1	ON/OFF	Film Carrier Code Detector 1	When the film carrier is attached.*1	
2	ON/OFF	Film Carrier Code Detector 2		
3	ON/OFF	Film Carrier Code Detector 3		
4	ON/OFF	Film Carrier Code Detector 4		
5	ON/OFF	Attachment Detection Switch 1	When the attachment is installed.*2	
6	ON/OFF	Attachment Detection Switch 2		
7	ON/OFF	Attachment Detection Switch 3		
8	ON/OFF	Attachment Detection Switch 4		
9	ON/OFF	Attachment Detection Switch 5		
10	ON/OFF	Film Carrier Lock Sensor	ON	When the film carrier is locked.
11	ON/OFF	Film Pressure Switch	ON	When the film pressure holder is attached.
12	DARK/LIGHT	Table Home Sensor	DARK	When the move table is home position.
13	###	Attached Film Carrier	Displays the attached film carrier.	

*1. Film Carrier Code Detector

Film carrier	Film carrier code detector 1	Film carrier code detector 2	Film carrier code detector 3	Film carrier code detector 4
MFC	ON	ON	ON	OFF
Not attached	ON	ON	ON	ON

*2. Attachment Detection Switch

Attachment	Attachment Detection Switch 1	Attachment Detection Switch 2	Attachment Detection Switch 3	Attachment Detection Switch 4	Attachment Detection Switch 5
135F	ON	OFF	OFF	OFF	OFF
135P	OFF	ON	OFF	OFF	OFF
135H	ON	ON	OFF	OFF	OFF
135FP	ON	ON	OFF	ON	OFF
135FW	OFF	OFF	ON	ON	OFF
135FPW	ON	OFF	ON	ON	OFF
110	OFF	OFF	ON	OFF	OFF
240	ON	OFF	ON	OFF	OFF
120 (6×4.5)	OFF	ON	ON	OFF	OFF
120 (6×6)	ON	ON	ON	OFF	OFF
120 (6×7)	OFF	OFF	OFF	ON	OFF
120 (6×8)	ON	OFF	OFF	ON	OFF
120 (6×9)	OFF	ON	OFF	ON	OFF
Crop Card	ON	ON	ON	ON	ON
Adjusting Attachment	OFF	ON	ON	ON	ON

LED light source unit

No.	Display		Status
1	##.#°C	LED Thermosensor	Displays the temperature of the LED.

Scanner unit

No.	Display		Status	
1	DARK/LIGHT	Zoom Home Sensor	DARK	Home position
2	DARK/LIGHT	Focus Home Sensor	DARK	Home position
3	##.#°C	Scanner Thermosensor	Displays the temperature of the scanner.	

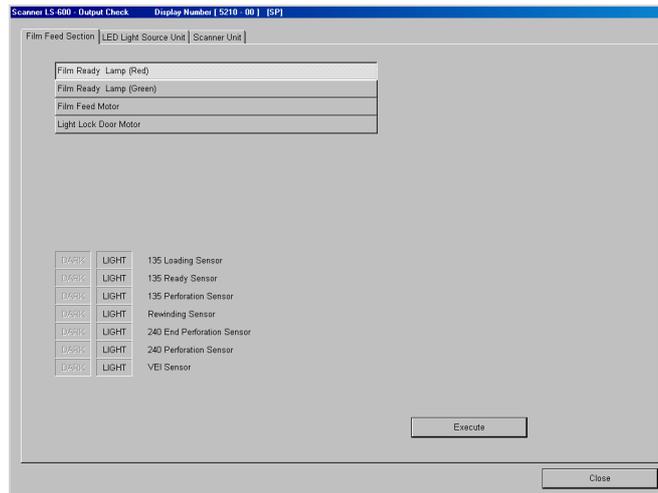
Output Check [LS-600]

Output Check is different between **LS-600**, **LS-1100** and **HS-1800**.

Reference	
Output Check [LS-1100]	Output Check [HS-1800]

Bringing up the display

Menu → Output Check



S5210-00

● Explanation

Check the operation of motors and LEDs, etc.

Film advance section

No.	Display	Operation
1	Film Ready Lamp (Red)	Operates by clicking Execute and stops by clicking Stop .
2	Film Ready Lamp (Green)	Operates by clicking Execute and stops by clicking Stop .
3	Film Feed Motor	Operates by clicking Execute and stops by clicking Stop .
4	Light Lock Door Motor	Operates by clicking Execute and stops by clicking Stop .

LED Light Source Unit

No.	Display	Operation
1	LED Cooling Fan	Operates by clicking Execute and stops by clicking Stop .
2	LED Heater	Operates by clicking Execute and stops by clicking Stop .
3	B LED	Operates by clicking Execute and stops by clicking Stop .
4	G LED	Operates by clicking Execute and stops by clicking Stop .
5	R LED	Operates by clicking Execute and stops by clicking Stop .
6	IR LED	Operates by clicking Execute and stops by clicking Stop .
7	LED Thermosensor	Displays the temperature of the LED unit.

NOTE

- LED Heater, B LED, G LED, R LED, IR LED and LED Thermosensor are built into the LED light source unit.

Scanner Unit

No.	Display	Operation
1	Lane Change Motor	Each time you click Execute , the lane moves from 240 lane → 135 lane → 240 lane .
2	Focus Motor	Operates once by clicking Execute .

No.	Display	Operation
3	IRIS Motor	IRIS Sensor operates once (DARK and LIGHT) by clicking Execute .

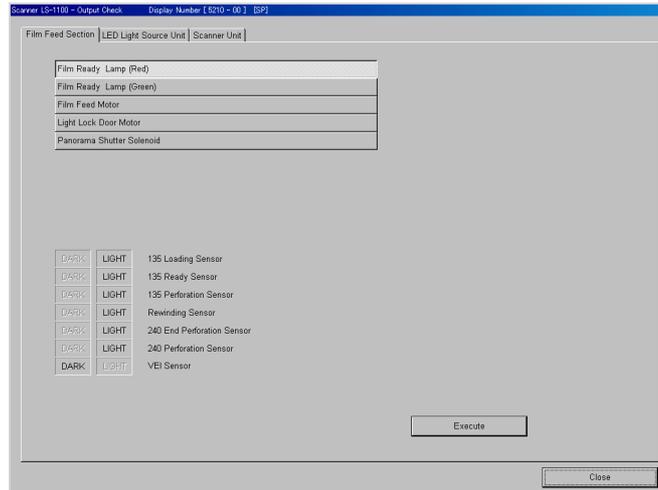
Output Check [LS-1100]

Output Check is different between LS-600, LS-1100 and HS-1800.

Reference	
Output Check [LS-600]	Output Check [HS-1800]

Bringing up the display

Menu → Output Check



S5210-00-01

● Explanation

Check the operation of motors and LEDs, etc.

Film advance section

No.	Display	Operation
1	Film Ready Lamp (Red)	Operates by clicking Execute and stops by clicking Stop .
2	Film Ready Lamp (Green)	Operates by clicking Execute and stops by clicking Stop .
3	Film Feed Motor	Operates by clicking Execute and stops by clicking Stop .
4	Light Lock Door Motor	Operates by clicking Execute and stops by clicking Stop .

LED Light Source Unit

No.	Display	Operation
1	ND Filter Solenoid	Press the YES/START key to start, and the NO/STOP key to stop.
2	LED Cooling Fan	Press the YES/START key to start, and the NO/STOP key to stop.
3	LED Heater (High)	Press the YES/START key to start, and the NO/STOP key to stop.
4	LED Heater (Medium)	Press the YES/START key to start, and the NO/STOP key to stop.
5	LED Heater (Low)	Press the YES/START key to start, and the NO/STOP key to stop.
6	B LED	Press the YES/START key to start, and the NO/STOP key to stop.
7	G LED	Press the YES/START key to start, and the NO/STOP key to stop.
8	R LED	Press the YES/START key to start, and the NO/STOP key to stop.

No.	Display	Operation
9	IR LED	Press the YES/START key to start, and the NO/STOP key to stop.
10	LED Thermosensor	Displays the temperature of the LED unit.

NOTE

- ND Filter Solenoid, LED Cooling Fan, LED Heater (High), LED Heater (Medium), LED Heater (Low), B LED, G LED, R LED, IR LED and LED thermosensor are built in the LED light source unit.
- The heater of the LED light source unit can be changed in the three levels for (H), (M) or (L).

Scanner Unit

No.	Display	Operation
1	Lane Change Motor	Each time you click Execute , the lane moves from 240 lane → 135 lane → 240 lane .
2	Focus Motor	Operates once by clicking Execute .
3	IRIS Motor	IRIS Sensor operates once (DARK and LIGHT) by clicking Execute .

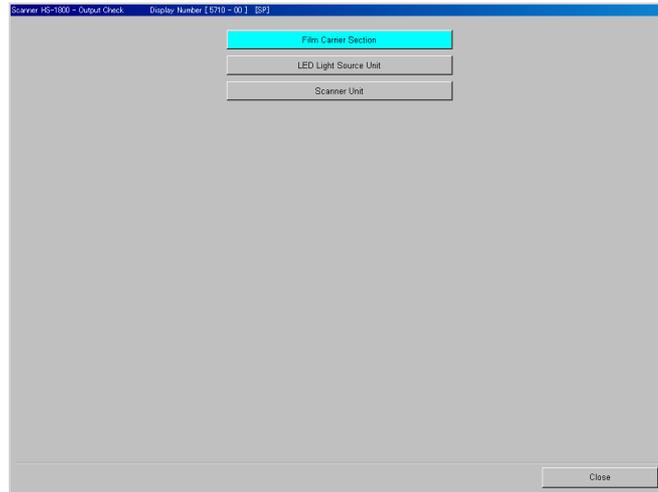
Output Check [HS-1800]

Output Check is different between LS-600, LS-1100 and HS-1800.

Reference	
Output Check [LS-600]	Output Check [LS-1100]

Bringing up the display

Menu → Output Check



S5710-00-01

● Explanation

Check the operation of the motor, buzzer and LED etc. at the cursor.

NOTE

- For the Stand Alone Printer, film carrier section, LED light source unit and scanner unit are not equipped.

Film Carrier Section (135/240 AFC-135)

No.	Display	Operation
1	Film Ready Lamp (Red)	Press the YES/START key to start, and the NO/STOP key to stop.
2	Film Ready Lamp (Green)	Press the YES/START key to start, and the NO/STOP key to stop.
3	Film Feed Motor	Press the YES/START key to start, and the NO/STOP key to stop.
4	Film Feed Motor Cooling Fan	Press the YES/START key to start, and the NO/STOP key to stop.
5	Panorama Shutter Solenoid	Press the YES/START key to start, and the NO/STOP key to stop.

Film Carrier Section (135/240 AFC-240)

No.	Display	Operation
1	Film Ready Lamp (Red)	Press the YES/START key to start, and the NO/STOP key to stop.
2	Film Ready Lamp (Green)	Press the YES/START key to start, and the NO/STOP key to stop.
3	Film Feed Motor	Press the YES/START key to start, and the NO/STOP key to stop.
4	Film Feed Motor Cooling Fan	Press the YES/START key to start, and the NO/STOP key to stop.

No.	Display	Operation
5	Spool Key Motor	Press the YES/START key to start, and the NO/STOP key to stop.
6	Light Lock Door Motor	Press the YES/START key to start, and the NO/STOP key to stop.

Film Carrier Section (120 AFC)

No.	Display	Operation
1	Film Ready Lamp (Red)	Press the YES/START key to start, and the NO/STOP key to stop.
2	Film Ready Lamp (Green)	Press the YES/START key to start, and the NO/STOP key to stop.
3	Film Feed Motor	Press the YES/START key to start, and the NO/STOP key to stop.

Film Carrier Section (110 AFC)

No.	Display	Operation
1	Film Ready Lamp (Red)	Press the YES/START key to start, and the NO/STOP key to stop.
2	Film Ready Lamp (Green)	Press the YES/START key to start, and the NO/STOP key to stop.
3	Film Feed Motor	Press the YES/START key to start, and the NO/STOP key to stop.

Film Carrier Section (135/240 AMC-II)

No.	Display	Operation
1	Film Ready Lamp (Red)	Press the YES/START key to start, and the NO/STOP key to stop.
2	Film Ready Lamp (Green)	Press the YES/START key to start, and the NO/STOP key to stop.
3	Mount Carrier Slide Motor	Press the YES/START key to operate once.
4	AF Motor	Press the YES/START key to operate once.
5	Mount Insertion Motor	Press the YES/START key to operate once.
6	Mount Elevator Motor	Press the YES/START key to operate once.
7	Mount Ejection Solenoid	Press the YES/START key to start, and the NO/STOP key to stop.

Film Carrier Section (135/240 MMC)

No.	Display	Operation
1	Film Ready Lamp (Red)	Press the YES/START key to start, and the NO/STOP key to stop.
2	Film Ready Lamp (Green)	Press the YES/START key to start, and the NO/STOP key to stop.
3	Mount Carrier Slide Motor	Press the YES/START key to operate once.
4	AF Motor	Press the YES/START key to operate once.

Film Carrier Section (135 AFC)

No.	Display	Operation
1	Film Ready Lamp (Red)	Press the YES/START key to start, and the NO/STOP key to stop.
2	Film Ready Lamp (Green)	Press the YES/START key to start, and the NO/STOP key to stop.

No.	Display	Operation
3	Film Feed Motor	Press the YES/START key to start, and the NO/STOP key to stop.
4	Film Feed Motor Cooling Fan	Press the YES/START key to start, and the NO/STOP key to stop.
5	Panorama Shutter Solenoid	Press the YES/START key to start, and the NO/STOP key to stop.

Film Carrier Section (MFC)

No.	Display	Operation
1	Film Ready Lamp (Red)	Press the YES/START key to start, and the NO/STOP key to stop.
2	Film Ready Lamp (Green)	Press the YES/START key to start, and the NO/STOP key to stop.
3	Table Slide Motor	Press the YES/START key to operate once.
4	Film Pressure Magnet	Press the YES/START key to start, and the NO/STOP key to stop.
5	Film Viewer	Press the YES/START key to start, and the NO/STOP key to stop.

LED Light Source Unit

No.	Display	Operation
1	ND Filter Solenoid	Press the YES/START key to start, and the NO/STOP key to stop.
2	LED Cooling Fan	Press the YES/START key to start, and the NO/STOP key to stop.
3	LED Heater (High)	Press the YES/START key to start, and the NO/STOP key to stop.
4	LED Heater (Medium)	Press the YES/START key to start, and the NO/STOP key to stop.
5	LED Heater (Low)	Press the YES/START key to start, and the NO/STOP key to stop.
6	B LED	Press the YES/START key to start, and the NO/STOP key to stop.
7	G LED	Press the YES/START key to start, and the NO/STOP key to stop.
8	R1 LED	Press the YES/START key to start, and the NO/STOP key to stop.
9	IR LED	Press the YES/START key to start, and the NO/STOP key to stop.
10	LED Thermosensor	Displays the temperature of the LED unit.

NOTE

- ND Filter Solenoid, LED Cooling Fan, LED Heater (High), LED Heater (Medium), LED Heater (Low), B LED, G LED, R1 LED, IR LED and LED thermosensor are built in the LED light source unit.
- The heater of the LED light source unit can be changed in the three levels for (H), (M) or (L).

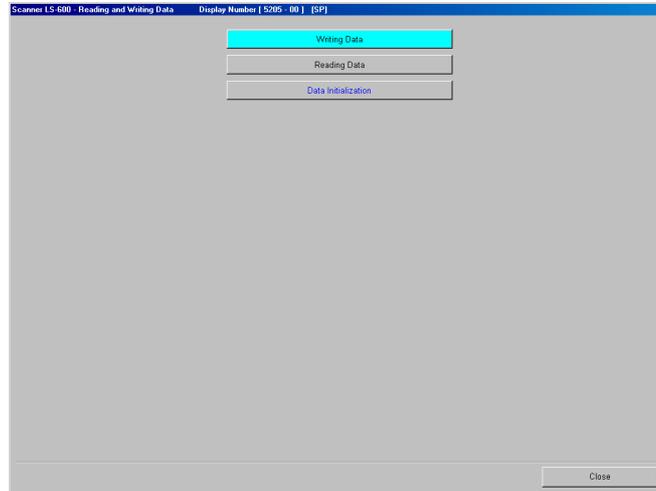
Scanner Unit

No.	Display	Operation
1	Zoom Motor	Pressing the YES/START key makes Zoom Home Sensor repeat DARK/LIGHT .
2	Focus Motor	Press the YES/START key to make the Focus Home Sensor repeat the DARK/LIGHT cycle once.

Reading and Writing Data [LS-600/LS-1100/LS-1800]

Bringing up the display

Menu: 2260 → Reading and Writing Data



S5205-00-00

3. Mode

● Explanation

● Writing Data

Backup data is saved to the specified folder.

Backup data	
LS-600	Scanner.lzh

NOTE

- If backup data has already been saved to the destination, **A file is present in the selected folder. Are you sure you want to delete?** is shown.
- Compressed backup data, **Scanner.lzh** is saved to the folder below.
 - C:\NoritsuKoki\Scanner\Nkscan000##\BkData
- **##** of Nkscan000## varies depending on the scanner model as shown below.
 - Nkscan00013: LS-600
 - Nkscan00014: HS-1800
 - Nkscan00015: LS-1100

● Reading Data

Backup data stored in the specified folder is extracted and loaded.

Same data is loaded regardless of the selection, **All Data** or **INITIAL DATA4**.

● Data Initialization

Data is initialized.



IMPORTANT

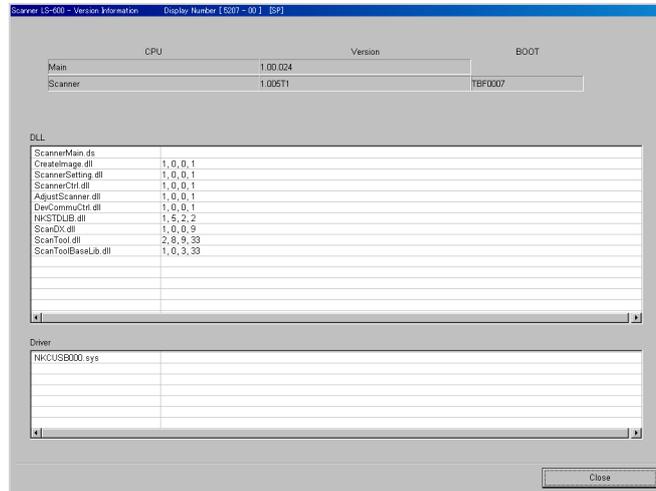
- Before initializing the data, backup the data.
If the data has been initialized by mistake, the data can be restored by loading the backup data.
- All data in the folder below are initialized.
 - C:\NoritsuKoki\Scanner\Nkscan000##\BkData
- **##** of Nkscan000## varies depending on the scanner model as shown below.
 - Nkscan00013: LS-600
 - Nkscan00014: HS-1800
 - Nkscan00015: LS-1100

Backup file name	Mode or data to be initialized	Remarks
ScanCotion	Scanning condition data	
ScanEnv	Environment data	
BkFocus#0	Focus Adjustment data	
BkScanner#0	Data of adjustments other than the Focus Adjustment	
BkScannerMain	Scanner Calibration data	

Version Information [LS-600/LS-1100/HS-1800]

Bringing up the display

Menu: 2260 → Version Information



S5207-00-00

● Explanation

Each software version is displayed.

● Accessories

◆ CPU

The name of each control PCB is displayed.

◆ Version

The system program version number saved on all control PCBs is displayed.

◆ Version (Main)

The system program version is displayed.

NOTE

- The version described in **ScannerInfo.ini** in **Windows system directory\Twain_32\Nkscan000##\Data** is displayed.
- ## of Nkscan000## varies depending on the scanner model as shown below.
 - Nkscan00013: LS-600
 - Nkscan00014: HS-1800
 - Nkscan00015: LS-1100

◆ Version (scanner)

The version of the scanner control PCB is displayed.

◆ BOOT

The version of the boot flash of the scanner control PCB is displayed.

NOTE

- The service personnel password (2260) is required to display this.

● DLL/Driver

The versions of DLL and SYS file (driver) are displayed.

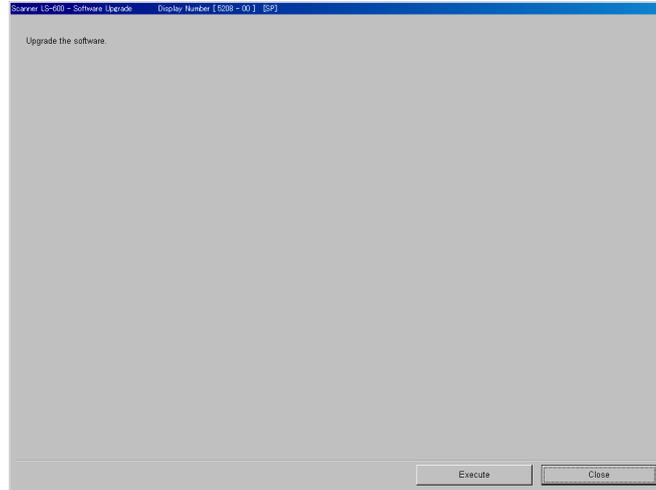
NOTE

- The service personnel password (2260) is required to display this.

Software Upgrade [LS-600/LS-1100/HS-1800]

Bringing up the display

Menu: 2260 → Software Upgrade



S5208-00-00

3. Mode

● Explanation

Upgrade the scanner control PCB using the system program data stored in the directory for software upgrade.

● Operation procedure

1. Before upgrading, backup the system data.

35400



IMPORTANT

- This backup data is stored just in case that the version upgrade would be failed, and used for returning to the previous version.

2. Upgrading is performed.

The scanner control PCB or AFC/scanner control PCB is upgraded.



IMPORTANT

- Data reading after upgrading is not necessary as upgrading does not initialize the system data. Do not read the backup data of the previous version after upgrading is successfully ended as it may malfunction. However, since the procedure differs depending on the versions, be sure to refer to the REPLACEMENT INSTRUCTION for details.

3. Backup the system data after upgrading.

35400



IMPORTANT

- Be sure to backup the system data of the new version, and be careful not to mix the backup data of the previous version with the new one.

● Data

● System file name and upgraded part

When replacing the main control PCB, perform the upgrade.

LS-600

Control PCB	System file name		Remarks
Scanner control PCB	afm0_1.sys	afm1_1.sys	

LS-1100

Control PCB	System file name		Remarks
Scanner control PCB	afm0_3.sys	afm1_3.sys	

HS-1800

Control PCB	System file name		Remarks
Scanner control PCB	afm0_2.sys	afm1_2.sys	

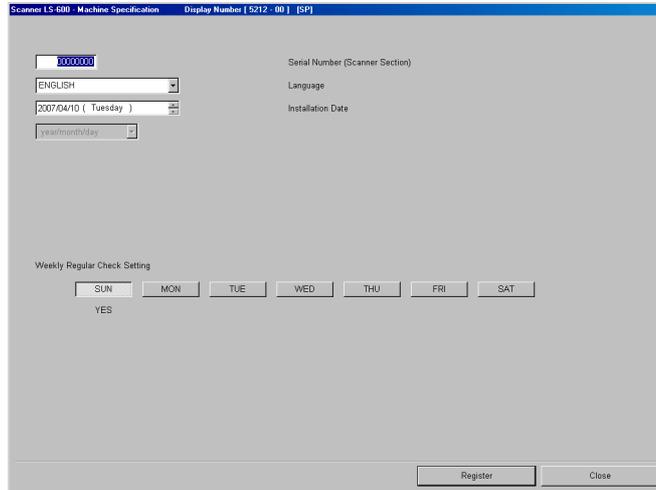
● **The location of the system program**

- C:\NoritsuKoki\Scanner\Nkscan000##\Data\Sys
- ## of Nkscan000## varies depending on the scanner model as shown below.
 - Nkscan00013: LS-600
 - Nkscan00014: HS-1800
 - Nkscan00015: LS-1100

Machine Specification [LS-600/LS-1100/HS-1800]

Bringing up the display

Menu: 2260 → Machine Specification



S5212-00-00

3. Mode

● Explanation

● Serial Number (Scanner Section) (Input range: 00000000 to 99999999)

The Serial Number of the machine can be set or checked.
At the installation, enter the production number.

● Language (initial value: ENGLISH)

The language loaded by the system program can be set.

NOTE

- If EZ Controller software is used, the setting on the EZ Controller is applied.

ENGLISH	KOREAN
JAPANESE	PEKINESE
FRENCH	TAIWANESE
GERMAN	DANISH
ITALIAN	GREEK
SPANISH	DUTCH
PORTUGUESE	FINNISH
RUSSIAN	SWEDISH
INDONESIAN	-

● Installation Date

The installation date of the system can be checked and set.

● 135 Film Carrier (Default setting: 135/240 AFC)

NOTE

- This is displayed only for the HS-1800.

Select the type of the 135 AFC.
Select **135/240AFC** or **135AFC**.

- **120 AFC Diffuser (Default setting: Not in use)**

NOTE

- This is displayed only for the HS-1800.

Select whether to use the 120 AFC diffuser.

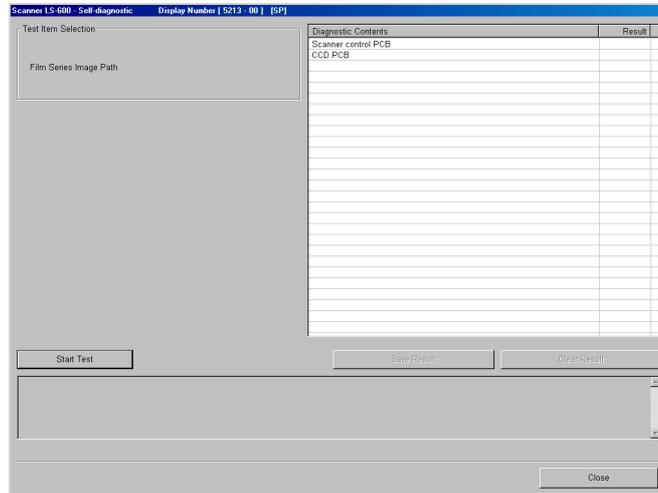
- **Weekly Regular Check Setting**

Select the day to perform the regular check.

Self-diagnostic

Bringing up the display

Menu: 2260 → Self-diagnostic



S5202-00-01

3. Mode

● Explanation

● Film Series Image Path

Use this function if unevenness occurs on scanned images.

● Save Result

The result of **Film Series Image Path** can be saved in a file.



IMPORTANT

- The result is saved to the following folder.
 - C:\NoritsuKoki\Scanner\Nkscan000##\Logdata
- ## of Nkscan000## varies depending on the scanner model as shown below.
 - Nkscan00013: LS-600
 - Nkscan00014: HS-1800
 - Nkscan00015: LS-1100
- Only one file is available to save the result.

● Clear Result

Delete the result of **Film Series Image Path**.

● Result

The result of the test is displayed after **Film Series Image Path** is completed.

● Checking procedure

1. Click **Start Test**.
2. Assumable failed parts are displayed on the Diagnostic Contents column.

Diagnostic Contents
Scanner control PCB
CCD PCB

Swing and Tilt/Light Axis Adjustment [HS-1800]

The procedure for **Swing and Tilt/Light Axis Adjustment** varies between the **HS-1800** and **LS-600/LS-1100**.

Reference
☞ Swing and Tilt/Light Axis Adjustment [LS-600/LS-1100]

Bringing up the display

Menu: 2260 → Scanner Unit Adjustment → Swing and Tilt/Light Axis Adjustment



TBD



IMPORTANT

- After replacing the scanner unit, carry out adjustment following the procedures below.
 1. Perform ☞ Checking the light axis (when only checking).
 2. Perform ☞ Checking the swing and tilt (when only checking).
 3. Perform **Focus Adjustment**.
☞ 37020
 4. Perform the **Scanner Calibration**.
☞ 37030

● Explanation

The scanner's Swing and Tilt/Light Axis are adjustable.



IMPORTANT

- The order of priority of the film carriers which are used for **the swing and tilt adjustment** and **light axis adjustment** is as follows.

Priority	Attached film carrier
1	135/240 AFC-II (135 lane)*1
2	120 AFC-II
3	110 AFC-II

*1. For the 135/240 AFC-II, use the 135 lane to carry out **Swing and Tilt Adjustment**.

● Graph

When the image is scanned, the A/D value of each CCD pixel is graphed out simultaneously.

● Display

Adjust the graph display area.

- ◆ Display Area (Vertical) (Initial value: 3500) (Input range: 1 to 4096)

The display area of the graph vertical-axis can be set. If the display area is narrowed, the vertical-axis is magnified.

◆ **Light Axis Adjustment 2 (initial value: 470) (input range: 1 to 2670)**

The horizontal display area of the light axis adjustment graph can be set. If the display area is narrowed, the horizontal axis is magnified.

◆ **Swing and Tilt Adjustment (initial value: 470) (input range: 1 to 3500)**

The horizontal display area of the swing and tilt adjustment graph can be set. If the display area is narrowed, the horizontal axis is magnified.

◆ **Graph**

Each graph is displayed by selecting the B, G, R or IR check box.



IMPORTANT

- When the **Light Axis Adjustment** and **Swing and Tilt Adjustment** are carried out, be sure to do at G only.

● **Focus value (initial value: 1302) (input range: -245 to +1561)**

If necessary, the focus value can be changed.

● **Light Axis Adjustment**

● **Threshold value (Initial value: 470) (Input range: 0 to 2670)**

For the waveform selected in **Graph of Display**, **Number of Pixels Exceeding the Threshold**, in which the part over the threshold is added up, is displayed.

● **Light Axis Adjustment Check**

You can check G value differences and light axis adjustment at the same time.

NOTE

- Confirm that the difference expressing the **Number of Pixels Exceeding the Threshold** on the left and right of the light axis confirmation graph is within the value indicated in the table below.

Light Axis Confirmation Table	
Attached film carrier	Difference of G values when checking the light axis adjustment
135/240 AFC-II (135 lane)	±37 pixels
120 AFC-II	±28 pixels
110 AFC-II	±28 pixels

● **Result**

The result is displayed as OK or No Good.

NOTE

- Although **No Good** may be displayed onscreen when using the HS-1800, the system is functioning normally as long as the value does not exceed that shown in the Light Axis Adjustment Confirmation Table.

• If the difference of **Number of Pixels Exceeding the Threshold** is larger than the value shown in the **Light Axis Adjustment Confirmation Table**, the **Scanner unit**, the **AFC-II**, and/or the **Scanner adjustment chart** may be defective.

● **Swing and Tilt Adjustment**

● **Swing and Tilt Adjustment Check**

You can check the G value difference and swing and tilt adjustment at the same time.

NOTE

- Change the focus value continuously, check if the focus best positions are equal at the front and rear. After completing, the result is displayed on the pop-up display.

Check the value to see if it has dropped below that shown in the table below.

Swing and Tilt Adjustment Confirmation Table	
Attached film carrier	Difference of G values when checking the swing and tilt adjustment
135/240 AFC-II (135 lane)	51/54 step
120 AFC-II	51/54 step
110 AFC-II	46/54 step

● **Result**

The result is displayed as OK or No Good.

- Although **No Good** may be displayed followed by a message **Turn the Swing and Tilt Adjustment Knob to the left.** or **Turn the Swing and Tilt Adjustment Knob to the right.** while using the HS-1800, the system is functioning normally as long as the value is that shown in the Swing and Tilt Adjustment Confirmation Table or less.
- If the difference is more than the values in the **Swing and tilt adjustment check table, Scanner unit, AFC-II, and Scanner adjustment chart** may be defective.

● **Resolution**

The resolution of the waveform selected in **Graph** of **Display** is calculated and displayed for each B, G, R, and IR.

● **Checking the light axis (when only checking)**



IMPORTANT

- This is the procedure for only checking the light axis of the scanner unit.

1. Adhere the scanner adjustment chart to the 135/240 AFC-II (135 lane).



IMPORTANT

- When you do not have the 135/240 AFC-II, use the 120 AFC-II and the 110 AFC-II for checking.

Priority	Attached film carrier
1	135/240 AFC-II (135 lane)
2	120 AFC-II
3	110 AFC-II



IMPORTANT

- For handling the scanner adjustment chart, refer to 4600.

2. Securely attach the AFC.

3. Display the waveform for Light Axis Adjustment 2 on the graph for Light Axis Adjustment 2 as shown in the figure below.

(1) Adjust the waveform using the scroll bar so that only the waveform for Light Axis Adjustment 2 is shown.



TBD

3. Mode

- Click **Adjustment Confirmation** for Light Axis Adjustment 2, and confirm that the difference of **Number of Pixels Exceeding the Threshold** (for left and for right) is the value as shown in the **Light Axis Confirmation Table** or less.

NOTE

- You need not check the **Light Axis Adjustment** of the 120 AFC-II and 110 AFC-II if the value of the 135/240 AFC-II (135 lane) is less than the value shown on the **Light Axis Adjustment Confirmation Table**.

Light Axis Confirmation Table	
Attached film carrier	Difference of G values when checking the light axis adjustment
135/240 AFC-II (135 lane)	±37 pixels
120 AFC-II	±28 pixels
110 AFC-II	±28 pixels

- If the difference of **Number of Pixels Exceeding the Threshold** is larger than the value shown in the **Light Axis Adjustment Confirmation Table**, the **Scanner unit**, the **AFC-II**, and/or the **Scanner adjustment chart** may be defective.

- Remove the scanner adjustment chart from the AFC.



IMPORTANT

- If the adjustment mode is finished while the scanner adjustment chart is being adhered, the chart gets damaged because the AFC initial-activated operation starts.

● **Checking the swing and tilt (when only checking)**

This procedure confirms whether the swing and tilt of the scanner unit is normal or not.

- Adhere the scanner adjustment chart to the 135/240 AFC-II (135 lane).



IMPORTANT

- When you do not have the 135/240 AFC-II, use the 120 AFC-II and the 110 AFC-II for checking.

Priority	Attached film carrier
1	135/240 AFC-II (135 lane)
2	120 AFC-II
3	110 AFC-II



IMPORTANT

- For handling the scanner adjustment chart, refer to [4600](#).

- Securely attach the AFC.

3. Display the waveform for Swing and Tilt Adjustment on the graph for Swing and Tilt Adjustment as shown in the figure below.

(1) Adjust the waveform for Swing and Tilt Adjustment using the scroll bar.



3. Mode

TBD



IMPORTANT

- If no waveform is visible, check the position at which the scanner adjustment chart is attached.

4. Carry out **Swing and Tilt Adjustment Check**.

5. Confirm that displayed number of steps is the value shown in the **Swing and Tilt Adjustment Confirmation Table** or less.

NOTE

- You need not check the **Light Axis Adjustment** of the 120 AFC-II and 110 AFC-II if the value of the 135/240 AFC-II (135 lane) is less than the value shown on the **Swing and Tilt Adjustment Confirmation Table**.

Swing and Tilt Adjustment Confirmation Table	
Attached film carrier	Difference of G values when checking the swing and tilt adjustment
135/240 AFC-II (135 lane)	51/54 step
120 AFC-II	51/54 step
110 AFC-II	46/54 step

- Although **No Good** may be displayed followed by a message **Turn the Swing and Tilt Adjustment Knob to the left.** or **Turn the Swing and Tilt Adjustment Knob to the right.** while using the HS-1800, the system is functioning normally as long as the value is that shown in the Swing and Tilt Adjustment Confirmation Table or less.
- If the difference is more than the values in the **Swing and tilt adjustment check table**, **Scanner unit**, **AFC-II**, and **Scanner adjustment chart** may be defective.

6. Remove the scanner adjustment chart from the AFC.



IMPORTANT

- If the adjustment mode is finished while the scanner adjustment chart is being adhered, the chart gets damaged because the AFC initial-activated operation starts.

Swing and Tilt/Light Axis Adjustment [LS-600/LS-1100]

The procedure for **Swing and Tilt/Light Axis Adjustment** varies between the **HS-1800** and **LS-600/LS-1100**.

Reference
☞ Swing and Tilt/Light Axis Adjustment [HS-1800]

This adjustment is performed when adjusting the scanner unit or confirming the adjustment of the scanner unit. The adjustment items include **Light Axis Adjustment 1 (Lane Stop Position Adjustment)**, **Swing and Tilt Adjustment** and **Light Axis Adjustment 2**.

Bringing up the display

Menu → Scanner Unit Adjustment → Swing and Tilt/Light Axis Adjustment

⚠ CAUTION

- Be careful not to get your hand caught. Keep your hands away from the unit during operation.

LS5217-00-00



IMPORTANT

- When you perform [☞ Adjusting the scanner unit](#), be sure to follow the procedure below.
 1. Perform [☞ Light Axis Adjustment 1 \(Lane Stop Position Adjustment\)](#): position adjustment.
 2. Perform [☞ Adjustment of swing and tilt](#) (when replacing or readjusting the scanner unit).
 3. Perform [☞ Light Axis Adjustment 2](#) (when replacing or readjusting the scanner unit).
 4. Perform [☞ Procedure of Confirming Swing and Tilt Adjustment](#).
 5. Perform [☞ Procedure of Light Axis Adjustment 1 \(Lane Stop Position Adjustment\)](#).
 6. Carry out the focus adjustment.
 - [☞ 37020](#)
 7. Perform the Scanner Calibration.
 - [☞ 37030](#)
- When you perform [☞ Adjustment procedure for scanner unit](#), there is no sequence to follow. See the items below.
 - [☞ Procedure of confirming Light Axis Adjustment 1 \(Lane Stop Position Adjustment\)](#)
 - [☞ Confirming the swing and tilt adjustment result](#) (when only checking) (Tolerance: within 12/44 step)
 - [☞ Confirming the result of Light Axis Adjustment 2](#) (when only checking) (Tolerance: within ± 32 pixels)
- Swing and Tilt Adjustment and Light Axis Adjustment 2 always affect the result of each other. Therefore, Swing and Tilt Adjustment and Light Axis Adjustment 2 must be paired when performed. If the results show deviation, perform [☞ Adjusting the scanner unit](#) that has been mentioned above.

On the other hand, Light Axis Adjustment 1 (Lane Stop Position Adjustment) can be performed independently because it does not affect Swing and Tilt Adjustment or Light Axis Adjustment 2. If the result of only Light Axis Adjustment 1 has deviation, perform [☞ Procedure of Light Axis Adjustment 1 \(Lane Stop Position Adjustment\)](#).

● Explanation

Adjust the vertical and horizontal tilt of the scanner unit.

● Graph

When the image is scanned, the A/D value of each CCD pixel is graphed out simultaneously.

● Display Area

Adjust the graph display area.

◆ Display Area (Vertical) (Initial value: 3500) (Input range: 1 to 4096)

The display area of the graph vertical-axis can be set. If the display area is narrowed, the vertical-axis is magnified.

◆ Swing and Tilt Adjustment (initial value: 470) (input range: 1 to 3500)

The horizontal display area of the swing and tilt adjustment graph can be set. If the display area is narrowed, the horizontal axis is magnified.

◆ Light Axis Adjustment 2 (initial value: 470) (input range: 1 to 2670)

The horizontal display area of the light axis adjustment graph can be set. If the display area is narrowed, the horizontal axis is magnified.

◆ Graph

Each graph is displayed by selecting the B, G, R or IR check box.



IMPORTANT

- When performing **Light Axis Adjustment 1**, **Swing and Tilt Adjustment** and **Light Axis Adjustment 2**, be sure to do at G only.

● Focus value (initial value: 1302) (input range: -245 to +1561)

If necessary, the focus value can be changed.

● Swing and Tilt Adjustment

◆ Focus Value

Indicates the maximum value of the waveform (waves at the both ends of the chart) used for Swing and Tilt Adjustment

◆ Adjustment Confirmation button

Perform Swing and Tilt Adjustment Check

NOTE

- Change the focus value continuously, check if the focus best positions are equal at the front and rear. After completing, the result is displayed on the pop-up display.

◆ Result

The result is displayed as OK or No Good.

NOTE

- After performing **Swing and Tilt Adjustment Check**, if the deviation of front and rear focus best position is ± 3 or less, **OK** is shown.

● Light Axis Adjustment 2

◆ Number of Pixels Exceeding the Threshold

The number of pixels exceeding the magenta line (Threshold: the line that indicates the middle level between the wave peak and the trough) is displayed.

◆ Adjustment Confirmation button

Perform light axis adjustment check.

NOTE

- Confirm that the difference between the right and left values of **Number of Pixels Exceeding the Threshold** in the graph for the light axis check is within ± 4 pixels.

◆ **Result**

The result is displayed as OK or No Good.

NOTE

- After performing **Light Axis Adjustment 2 Check**, if the deviation of the light axis is ± 4 pixels or less, **OK** is shown.

● **Adjusting the scanner unit**

Explains procedure of replacing or readjusting the scanner unit.
Perform the adjustment following the procedure below.

● **Light Axis Adjustment 1 (Lane Stop Position Adjustment): position adjustment**

This procedure is performed as a preparation for Swing and Tilt Adjustment and Light Axis Adjustment.



IMPORTANT

- Adjust the position of waves in the middle of the adjustment chart (there are nine waves) so that they are shown in the range between the red lines displayed on the Light Axis Adjustment 1 (Lane Stop Position Adjustment) graph. If the waves fit completely in the range between the red lines, it is not necessary to adjust their position.
- Set the interlock switch to ON intentionally, then confirm the operation with the front cover opened. Do not put into your hands while operating.

1. Prepare for adjustment by removing the cover and positioning the adjustment chart.

☞ Preparation before adjustment

2. Using the scroll bar, adjust the position of the waves in the middle of the adjustment chart so that they can be observed on the Light Axis Adjustment 1 graph.

NOTE

- Setting the **Light Axis Adjustment 2** display area to **100** will make it easier to observe the waveform.
- Adjusting the focus values and amplify the amplitude of the waveform to facilitate observing the waveform.

Waves in the middle of the adjustment chart

Putting the waveform between the red lines

Set to 100.

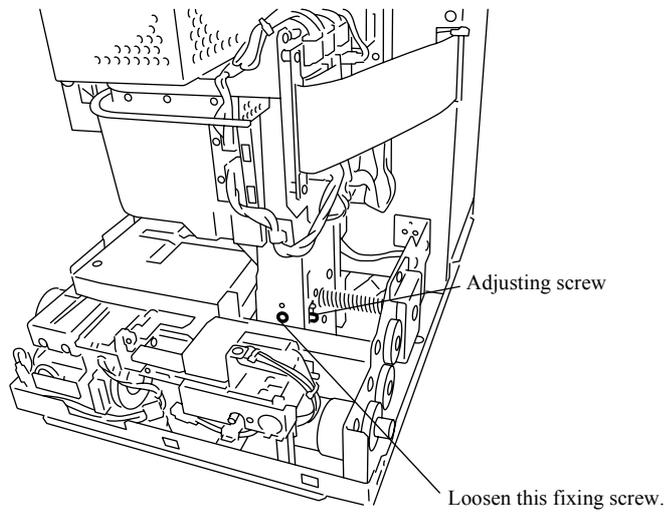
Light Axis Adjustment 1 (Lane position adjustment)

Swing and Tilt Adjustment

Light Axis Adjustment 2

LS5217-00-01

- Adjust the lane stop position so that the waves in the middle of the chart are shown in the range between the red lines.
(one fixing screw, one adjusting screw)



G071778

- Fix the adjusting screw. (one fixing screw)
- Click **Lane Change** to change to 240 lane.
- Using the scroll bar, adjust the position of the waves in the middle of the adjustment chart so that they can be observed on the Light Axis Adjustment 1 graph.

NOTE

- Setting the **Light Axis Adjustment 2** display area to **100** will make it easier to observe the waveform.

Waves in the middle of the adjustment chart

Putting the waveform between the red lines

Light Axis Adjustment 1 (Lane position adjustment)

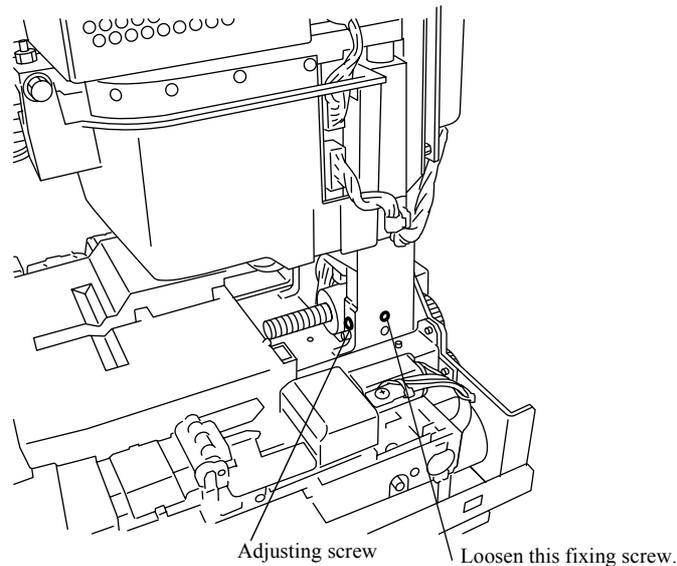
Swing and Tilt Adjustment

Light Axis Adjustment 2

Set to 100.

LS5217-00-02

7. Perform Lane Stop Position Adjustment for 240-lane as same procedures for 135-lane.
(one fixing screw, one adjusting screw)



G071779

8. Fix the adjusting screw. (one fixing screw)
9. After adjusting the 240-lane, change the lane to the 135-lane. There is no problem if the waves are out of the range between the red lines after changing lanes again.
10. Next, perform Adjustment of swing and tilt (when replacing or readjusting the scanner unit).

● **Adjustment of swing and tilt (when replacing or readjusting the scanner unit)**

This is the procedure for replacing or readjusting the scanner unit.
Follow the procedure and adjust the scanner unit until the result becomes **OK**.



IMPORTANT

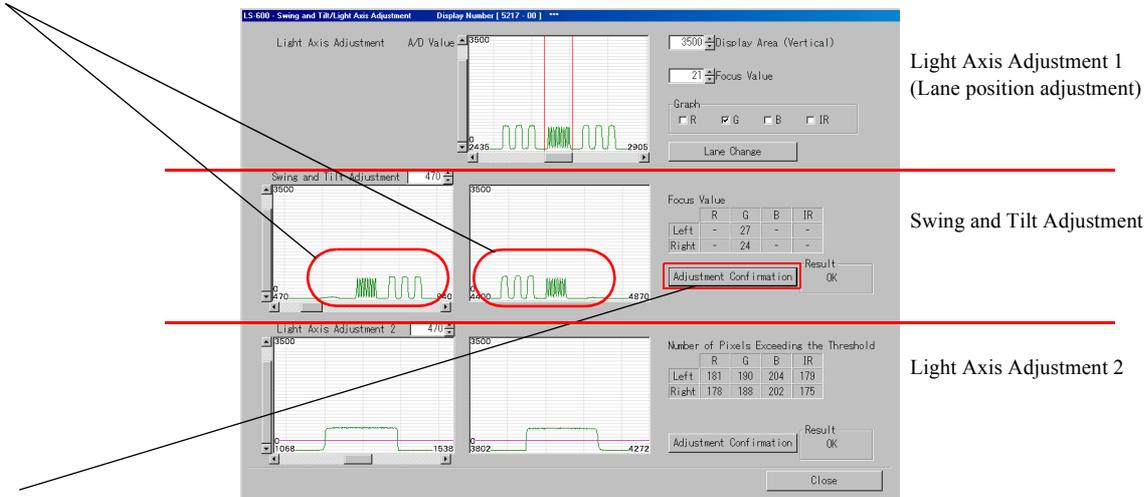
- **OK** appears when the value is 3/44 step or less.
- When only checking the swing and tilt of scanner unit, refer to Confirming the swing and tilt adjustment result (when only checking).
- Set the interlock switch to ON intentionally, then confirm the operation with the front cover opened. Do not put into your hands while operating.

1. Prepare for adjustment by removing the cover and positioning the adjustment chart.

Preparation before adjustment

- Using the scroll bar, display the waveform for Swing and Tilt Adjustment on the graph for Swing and Tilt Adjustment as shown in the figure below.

Waveform for Swing and Tilt Adjustment



Adjustment Confirmation button for Swing and Tilt

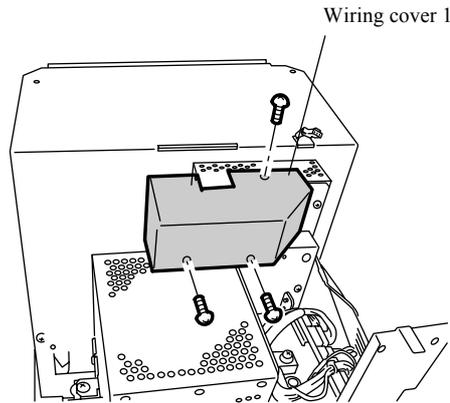
LS5217-00-03



IMPORTANT

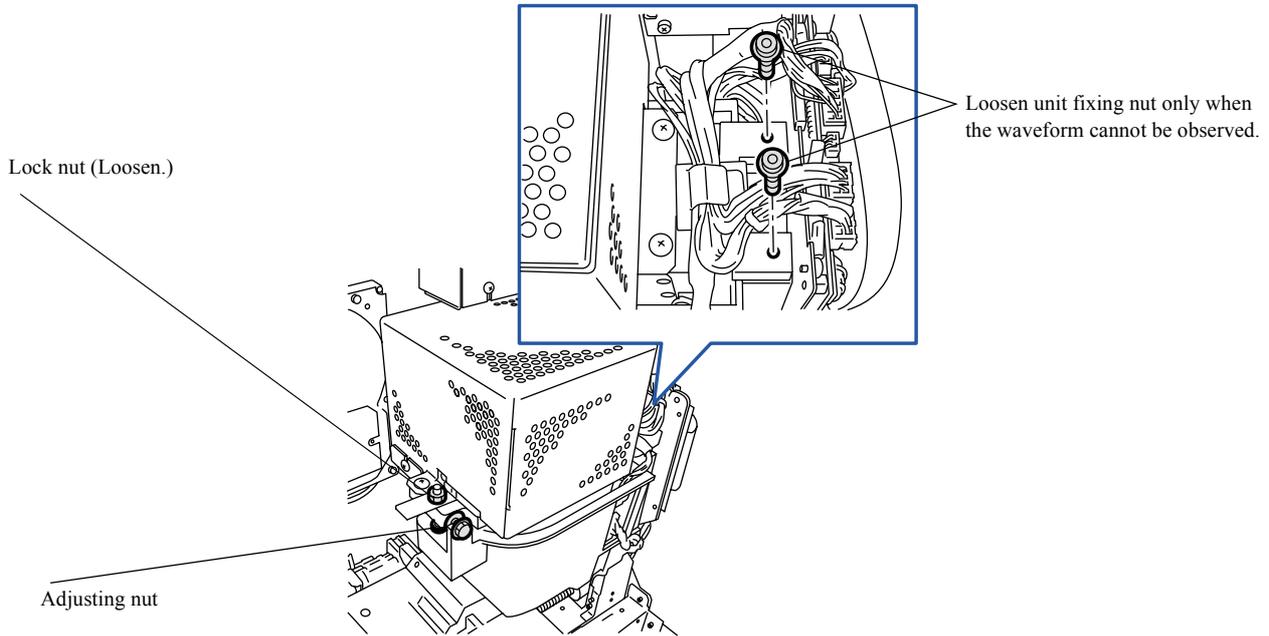
- If no waveform is visible, check the position at which the adjustment chart is attached.

- For LS-1100, loosen the screw of wiring cover 1.
(Loosen three screws.)



G083049

- Using the adjusting nut, adjust the resolution of the right and left graphs to the approximate maximum.
(one lock nut)



G071776



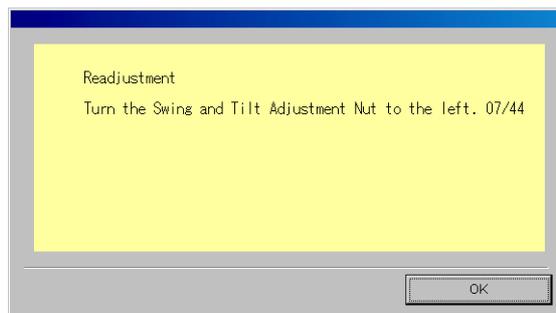
IMPORTANT

- When the waveform cannot be observed, loosen unit fixing nut for adjustment. If the nut is tightened, adjustment may not be performed because of the narrow adjustment range.

- Press the **Adjustment Confirmation** button for Swing and Tilt Adjustment.

NOTE

- When the result is **OK**, the swing and tilt adjustment is completed. When it is **No good**, return to Step 2 to carry out the swing and tilt adjustment according to the instructions on the display. This correction means the rotation of the adjusting screw.



S5217-00-05

- When the result is **OK**, perform Light Axis Adjustment 2 (when replacing or readjusting the scanner unit).

● **Light Axis Adjustment 2 (when replacing or readjusting the scanner unit)**

This is the procedure for replacing or readjusting the scanner unit. Follow the procedure and adjust the scanner unit until the result becomes **OK**.

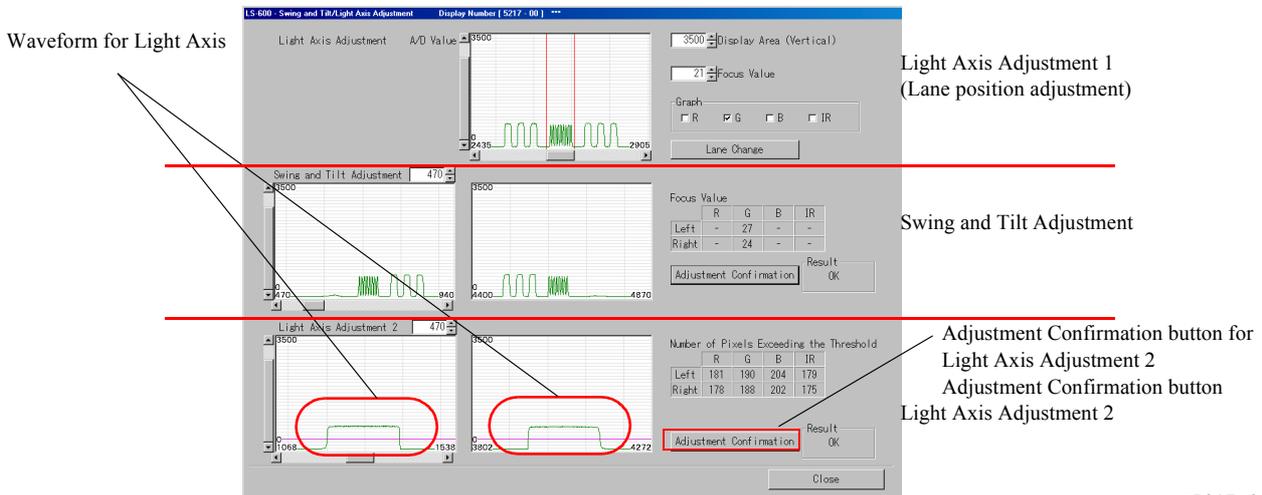


IMPORTANT

- OK** is displayed when the difference between the right and left values of **Number of Pixels Exceeding the Threshold** is within ± 4 pixels.
- When only checking the light axis of scanner unit, refer to Confirming the result of Light Axis Adjustment 2 (when only checking).
- Set the interlock switch to ON intentionally, then confirm the operation with the front cover opened. Do not put into your hands while operating.

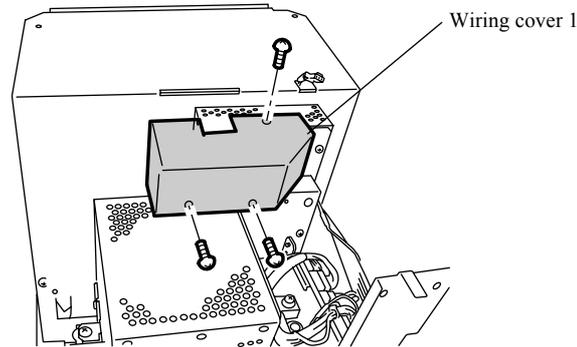
1. Prepare for adjustment by removing the cover and positioning the adjustment chart.
 ☞ Preparation before adjustment
2. Display the waveform for Light Axis Adjustment 2 on the graph for Light Axis Adjustment 2 as shown in the figure below.

(1) Adjust the waveform using the scroll bar so that only the waveform for Light Axis Adjustment 2 is shown.



LS5217-00-03

3. For LS-1100, loosen the screw of wiring cover 1.
 (Loosen three screws.)

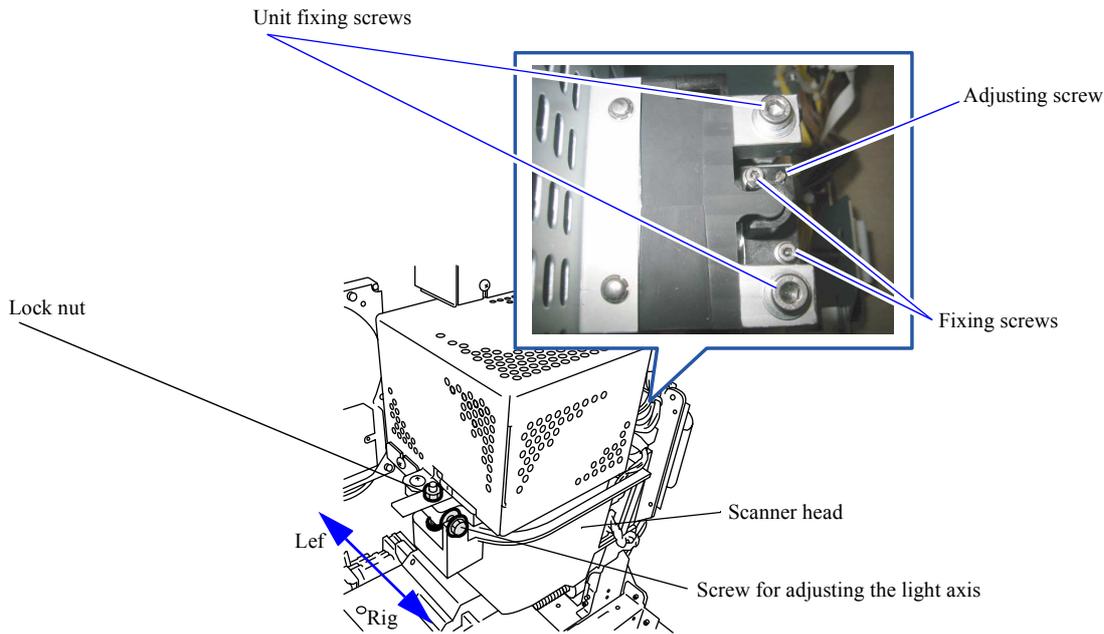


G083049

4. Loosen fixing screws to adjust the number of pixels so that the waveform on the left has more pixels than the waveform on the right.
 (Loosen one lock nut, two unit fixing screws and two screws.)

- IMPORTANT**
- Adjust the number of pixels by turning the adjusting screw and the light axis adjusting screw or by shaking the scanner head to the left or to the right (in the direction indicated by the blue arrow), so that the waveform on the left has approximately 30 more pixels than the waveform on the right. If the right one has more pixels, shake the scanner head left. (To facilitate the adjustment, set the number of pixels of the left waveform approximately to

260 and the right waveform to 230.) If the left waveform has more pixels than the right waveform, turn right the light axis adjusting screw to reduce the difference between left and right.



G085006

■ Point

The number of pixels is displayed in real time. To confirm the result of the adjusted values, press the **Adjustment Confirmation** button.

NOTE

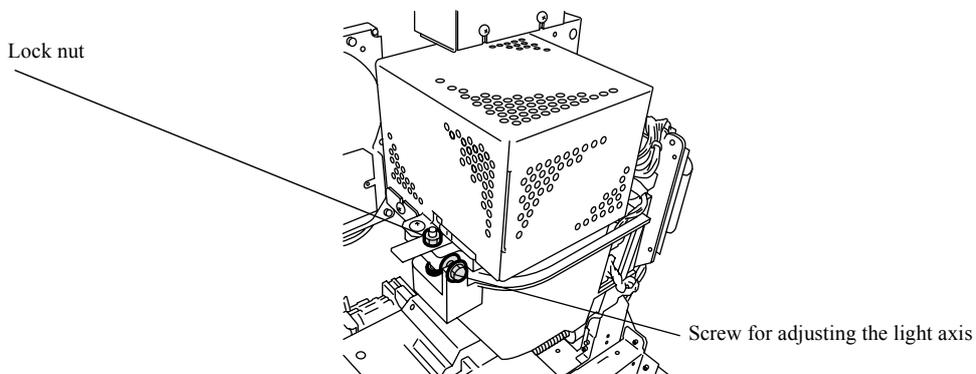
- The adjusting screw works as an eccentric cam so that its rotation can move the position of fulcrum.
- Because the adjusting screw works like an eccentric cam, the moving range is not proportional to the rotation.

5. Tighten fixing screws except the lock nut, then adjust the **Number of Pixels Exceeding the Threshold** by turning the light axis adjusting screw of the scanner unit so that the difference (difference between the number of pixels of the left waveform and the right waveform) is in the range of four pixels. (Tighten two unit fixing screws and two fixing screws.) (When the difference at **Number of Pixels Exceeding the Threshold** is in the range of ± 4 pixels, **Result** shows **OK**.)



IMPORTANT

- After **Result** shows **OK**, tighten the lock nut. After tightening it, press the **Adjustment Confirmation** button again to confirm that the difference is in the range of ± 4 pixels. If it is not in the range of four pixels, shake the scanner head to the left or to the right for fine-adjustment. If the difference is still more than 4 pixels, go to Step 4 to perform adjustment again.



G085007

NOTE

- Press the **Adjustment Confirmation** button so that the magenta line shifts to the automatically detected middle level between the wave peak and the trough.

- After **Result** shows **OK**, confirm that the **Number of Pixels Exceeding the Threshold** is in the range between 19 to 495 pixels both with the 135 and 240 lanes..
 - If the values of both lanes are in the range between 19 and 495 pixels, go to Step 7.
 - If values of both of the lanes are out of the 19 to 495 range, go to Step 4 to adjust the attaching position of the scanner unit on the Fulcrum side.

NOTE

- Use **Lane Change** button to switch the lanes between the 135 lane and the 240 lane.

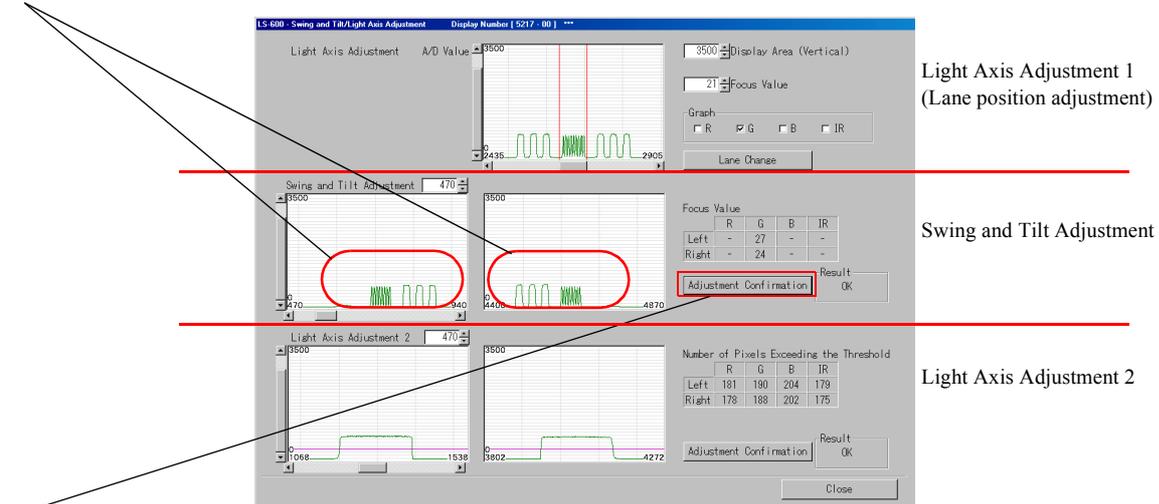
- After performing Light Axis Adjustment 2, perform Procedure of Confirming Swing and Tilt Adjustment.

● **Procedure of Confirming Swing and Tilt Adjustment**

This procedure confirms whether the swing and tilt of the scanner unit is normal or not. Carry out the adjustment again if the result is not normal. If you perform adjustment again, perform Adjustment of swing and tilt (when replacing or readjusting the scanner unit).

- Using the scroll bar, display the waveform for Swing and Tilt Adjustment on the graph for Swing and Tilt Adjustment as shown in the figure below.

Waveform for Swing and Tilt Adjustment



Adjustment Confirmation button for Swing and Tilt Adjustment

LS5217-00-03

IMPORTANT

- If no waveform is visible, check the position at which the adjustment chart is attached.

- Press the **Adjustment Confirmation** button for Swing and Tilt Adjustment.
- Confirm that it is 12/44 step or less.

IMPORTANT

- You can confirm that the result of **Swing and Tilt Adjustment** is OK if it is in the range of 12/44 steps.

- Because the Lane Stop Position deviates after performing Swing and Tilt Adjustment and Light Axis Adjustment 2, perform Procedure of Light Axis Adjustment 1 (Lane Stop Position Adjustment).

● **Procedure of Light Axis Adjustment 1 (Lane Stop Position Adjustment)**

Explains procedure of replacing or readjusting the scanner unit. Perform adjustment following the procedures below.

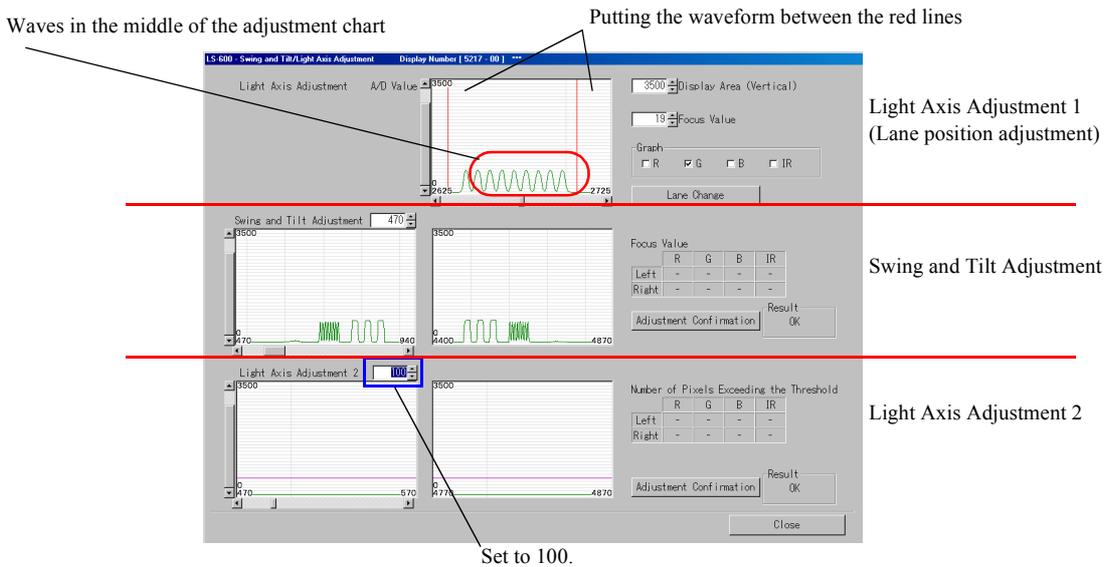
IMPORTANT

- Adjust the position of waves in the middle of the adjustment chart (there are nine waves) so that they are shown in the range between the red lines displayed on the Light Axis Adjustment 1 (Lane Stop Position Adjustment) graph. If the waves fit completely in the range between the red lines, it is not necessary to adjust their position.
- Set the interlock switch to ON intentionally, then confirm the operation with the front cover opened. Do not put into your hands while operating.

1. Prepare for adjustment by removing the cover and positioning the adjustment chart.
If preparation for performing Light Axis Adjustment 1 is complete, this is not necessary.
☞ Preparation before adjustment
2. Using the scroll bar, adjust the position of the waves in the middle of the adjustment chart so that they can be observed on the Light Axis Adjustment 1 graph.

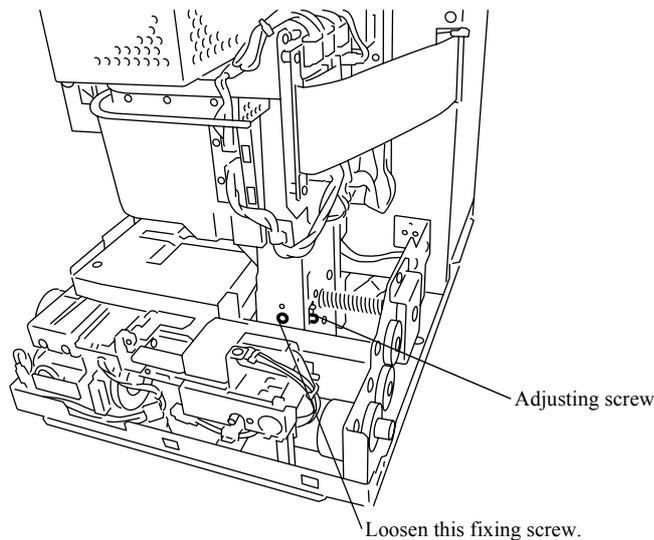
NOTE

- Setting the **Light Axis Adjustment 2** display area to **100** will make it easier to observe the waveform.
- Adjust also the focus values to facilitate observation of the waveform.



LS5217-00-01

3. Adjust the lane stop position so that the waves in the middle of the chart are shown in the range between the red lines.
(one fixing screw, one adjusting screw)

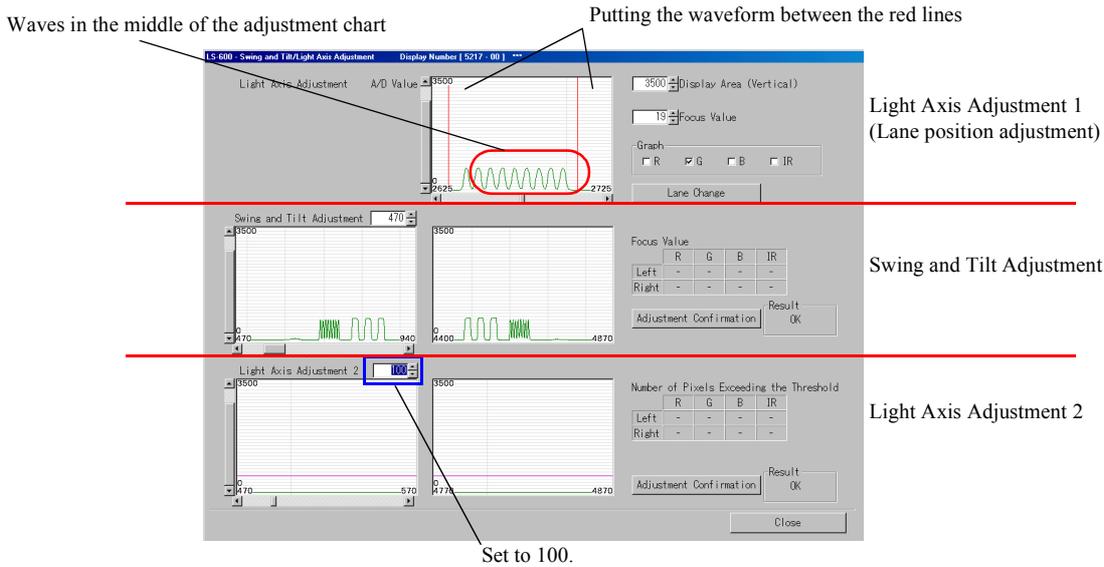


G071778

4. Fix the adjusting screw. (one fixing screw)
5. Click **Lane Change** to change to 240 lane.
6. Using the scroll bar, adjust the position of the waves in the middle of the adjustment chart so that they can be observed on the Light Axis Adjustment 1 graph.

NOTE

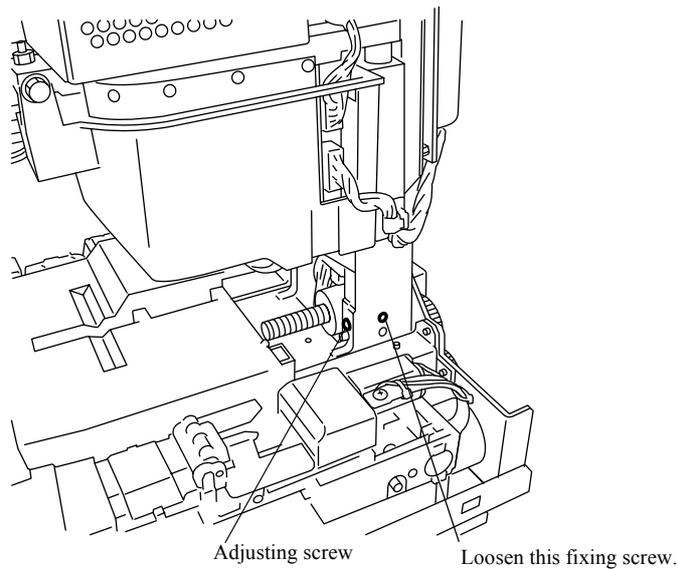
- Setting the **Light Axis Adjustment 2** display area to **100** will make it easier to observe the waveform.



3. Mode

LS5217-00-01

7. Perform Lane Stop Position Adjustment for 240-lane as same procedures for 135-lane. (one fixing screw, one adjusting screw)



G071779

- 8. After completing the 240 lane adjustment, check the 135 lane again. If it is out of position, readjust.
- 9. Remove the adjustment chart from the film feed unit.



IMPORTANT

- If adjustment mode is finished while the adjustment chart is being adhered, the chart gets damaged because of initial-activated operation.

10. Perform **focus adjustment** after you perform **Light Axis Adjustment 1** (Lane Stop Position Adjustment).

37020

11. Perform the **Scanner Calibration**.

37030

● Adjustment procedure for scanner unit

● Procedure of confirming Light Axis Adjustment 1 (Lane Stop Position Adjustment)

This procedure confirms that the swing and tilt of the Light Axis Adjustment 1 (Lane Stop Position Adjustment) is normal or not. Confirm it following the procedure below.

Perform the adjustment if it is not normal. See [Procedure of Light Axis Adjustment 1 \(Lane Stop Position Adjustment\)](#).



IMPORTANT

- Confirm that the position of waves in the middle of the adjustment chart (there are nine waves) are shown in the range between the red lines displayed on the Light Axis Adjustment 1 (Lane Stop Position Adjustment) graph. If the waves fit completely in the range between the red lines, it is not necessary to adjust their position.
- Set the interlock switch to ON intentionally, then confirm the operation with the front cover opened. Do not put into your hands while operating.

1. Feed the adjustment chart on the 135 or 240 lane of the film feed unit.

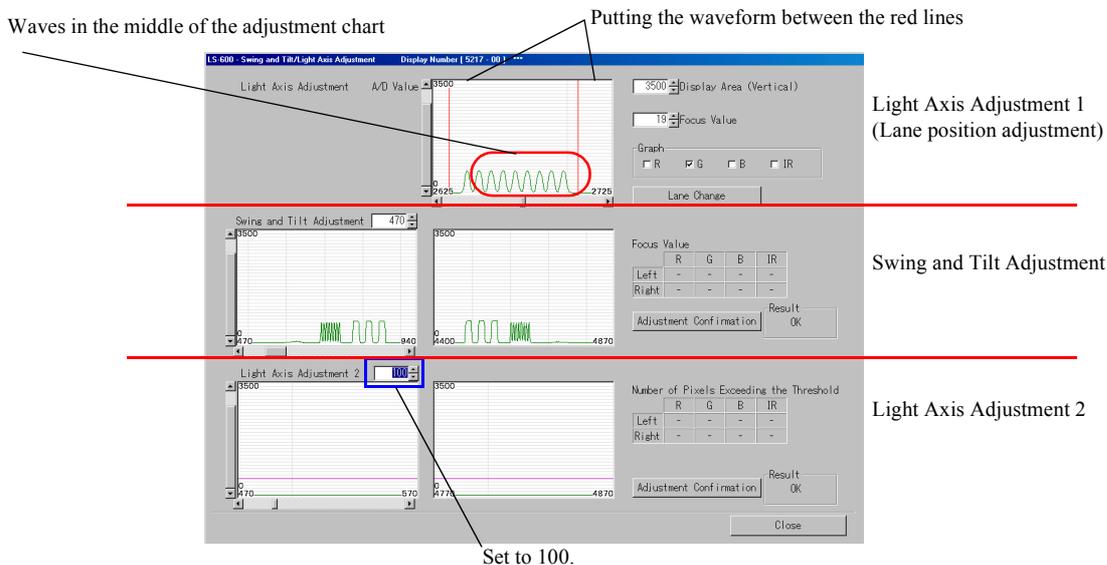
Placing the adjustment chart

2. Using the scroll bar, adjust the position of the waves in the middle of the adjustment chart so that they can be observed on the Light Axis Adjustment 1 graph.

NOTE

- Setting the **Light Axis Adjustment 2** display area to **100** will make it easier to observe the waveform.
- Adjust also the focus values to facilitate observation of the waveform.

3. Confirm that the position of waves in the middle of the adjustment chart (there are nine waves) are shown in the range between the red lines displayed on the Light Axis Adjustment 1 (Lane Stop Position Adjustment) graph. If the waves fit completely in the range between the red lines, it is not necessary to adjust their position.



LS5217-00-01

4. Feed the adjustment chart on the 135 or 240 lane of the film feed unit.

Placing the adjustment chart

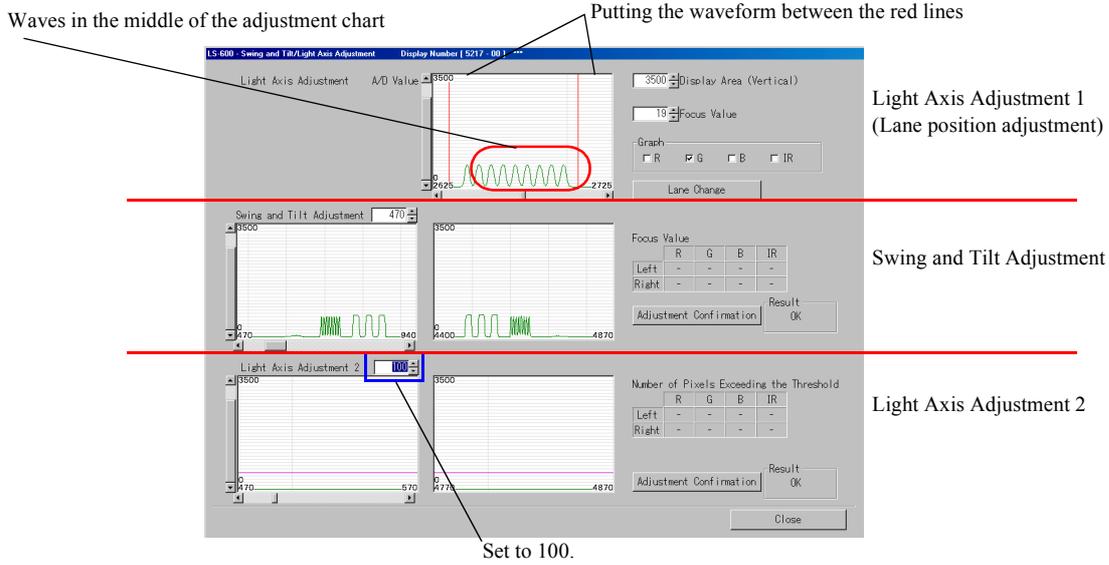
5. Using the scroll bar, adjust the position of the waves in the middle of the adjustment chart so that they can be observed on the Light Axis Adjustment 1 graph.

NOTE

- Setting the **Light Axis Adjustment 2** display area to **100** will make it easier to observe the waveform.
- Adjust also the focus values to facilitate observation of the waveform.

6. Confirm that the position of waves in the middle of the adjustment chart (there are nine waves) are shown in the range between the red lines displayed on the Light Axis Adjustment 1 (Lane Stop Position

Adjustment) graph. If the waves fit completely in the range between the red lines, it is not necessary to adjust their position.



LS5217-00-01

7. Remove the adjustment chart from the film feed unit.



IMPORTANT

- If adjustment mode is finished while the adjustment chart is being adhered, the chart gets damaged because of initial-activated operation.

● **Confirming the swing and tilt adjustment result (when only checking)**

This procedure confirms whether the swing and tilt of the scanner unit is normal or not. Perform the adjustment if the result is not normal. See [Adjustment of swing and tilt \(when replacing or readjusting the scanner unit\)](#).

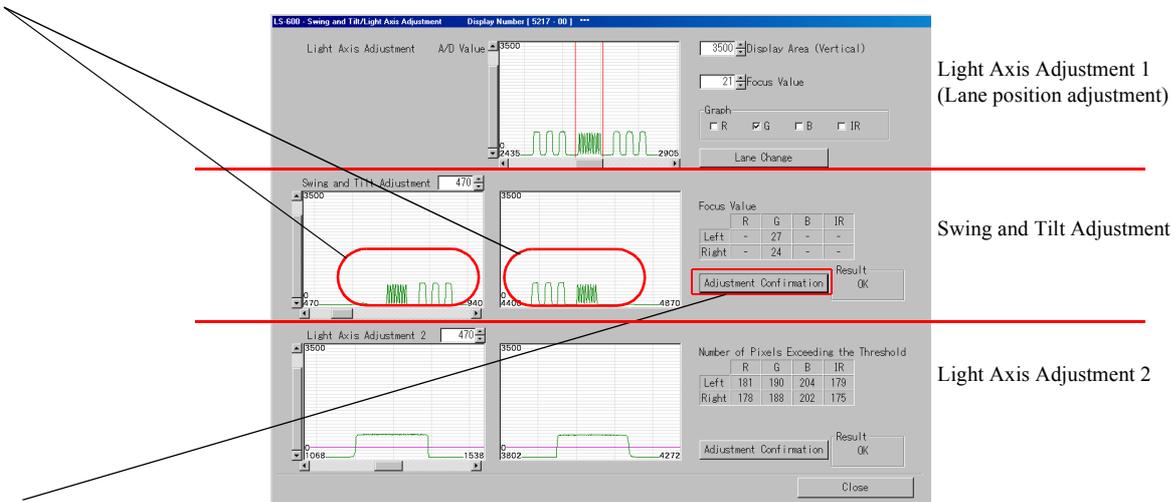
1. Set the adjustment chart on the 135 lane of film feed unit.

[Placing the adjustment chart](#)

2. Display the waveform for Swing and Tilt Adjustment on the graph for Swing and Tilt Adjustment as shown in the figure below.

(1) Adjust the waveform for Swing and Tilt Adjustment using the scroll bar.

Waveform for Swing and Tilt Adjustment



Adjustment Confirmation button for Swing and Tilt Adjustment

LS5217-00-03



IMPORTANT

- If no waveform is visible, check the position at which the scanner adjustment chart is attached.

3. Press the **Adjustment Confirmation** button for Swing and Tilt Adjustment.
4. Confirm that it is 12/44 step or less.
5. Remove the adjustment chart from the film feed unit.



IMPORTANT

- If adjustment mode is finished while the adjustment chart is being adhered, the chart gets damaged because of initial-activated operation.

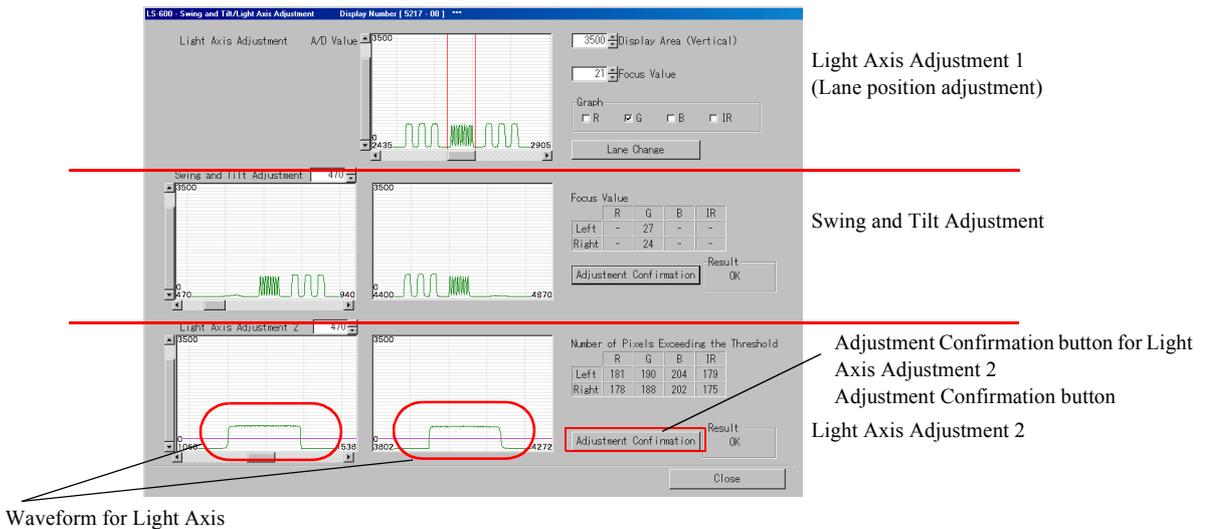
● **Confirming the result of Light Axis Adjustment 2 (when only checking)**

This is the procedure for only checking the light axis of the scanner unit.

Perform the adjustment if the result is not normal. See [Light Axis Adjustment 2 \(when replacing or readjusting the scanner unit\)](#). Confirm also the result of Swing and Tilt Adjustment. If the result has deviation, readjust the swing and tilt first. See [Adjustment of swing and tilt \(when replacing or readjusting the scanner unit\)](#).

1. Set the adjustment chart on the 135 lane of film feed unit.
[Placing the adjustment chart](#)
2. Display the waveform for Light Axis Adjustment 2 on the graph for Light Axis Adjustment 2 as shown in the figure below.

(1) Adjust the waveform using the scroll bar so that only the waveform for Light Axis Adjustment 2 is shown.



LS5217-00-03

3. Press the **Adjustment Confirmation** button for Light Axis Adjustment 2, and confirm that the difference of **Number of Pixels Exceeding the Threshold** (for left and for right) is in the range of ± 32 pixels.

NOTE

- Press the **Adjustment Confirmation** button so that the magenta line shifts to the automatically detected middle level between the wave peak and the trough.

4. Remove the adjustment chart from the film feed unit.



IMPORTANT

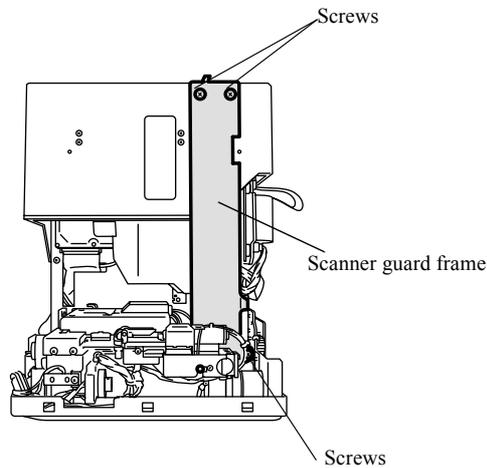
- If adjustment mode is finished while the adjustment chart is being adhered, the chart gets damaged because of initial-activated operation.

● **Preparation before adjustment**

This operation is common to all adjustments.

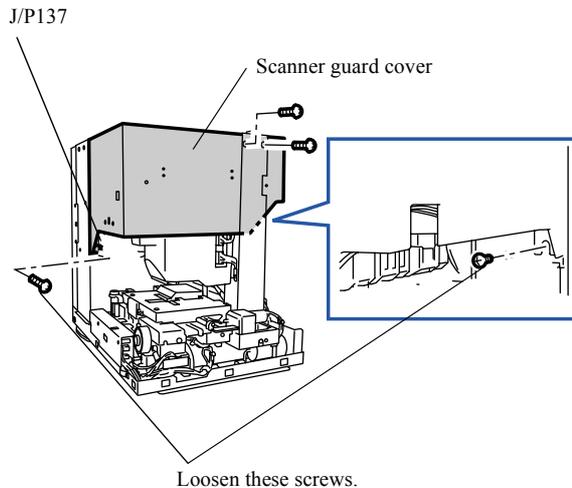
Removing covers

1. Turn off the power supply of the scanner unit.
2. Remove the top cover, front cover, and side covers (left and right).
☞ 20030
3. Remove the scanner guard frame. (three screws)



G071773

4. Remove the scanner guard cover. (Loosen two screws out of four screws. One connector)
J/P137: Interlock switch 1

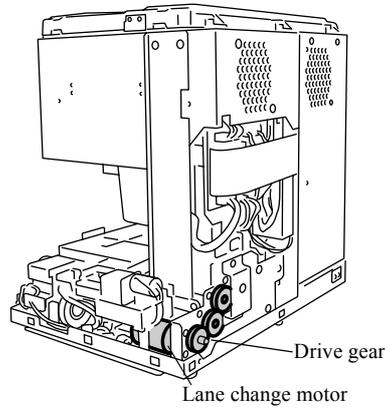


G084995



IMPORTANT

- When the scanner is positioned in the 240 lane side, you cannot remove the scanner guard cover. If necessary, rotate the drive gear of the lane change motor manually and move the scanner to the 135 lane side.



G071783

5. Connect connectors J/P136 and J/P137 of interlock switches 1 and 2. Then remove the interlock switch which is attached to the front and side covers, and attach it using tape to make the status of the interlock switch ON intentionally. (One screw)

Placing the adjustment chart

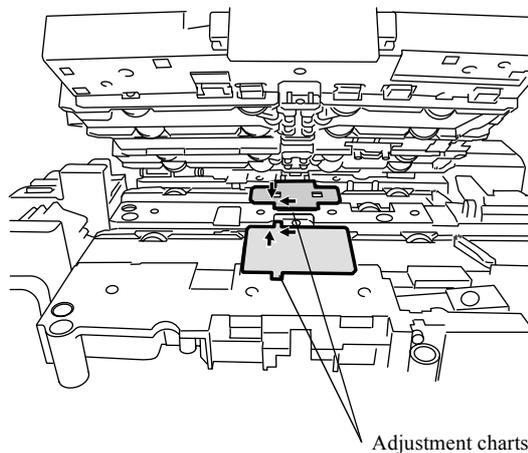
1. Place the adjustment chart on the film feed unit.

Position the adjustment chart on the 240 lane as well to perform light axis adjustment and lane stop position adjustment.



IMPORTANT

- For handling the scanner adjustment chart, refer to 4600.



Adjustment charts

G071777

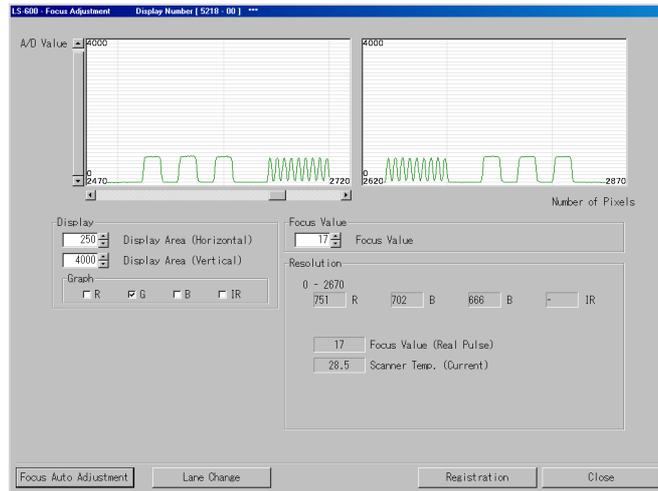
Focus Adjustment [LS-600/LS-1100]

Focus Adjustment is different between LS-600/LS-1100 and HS-1800.

Reference
Focus Adjustment [HS-1800]

Bringing up the display

Menu → Scanner Unit Adjustment → Focus Adjustment



LS5218-00-00

3. Mode

● Explanation

Correct the deviation of the focus differing from the scanning height of film feed unit.
After replacing the film feed unit, the focus adjustment is required.



IMPORTANT

- After performing the **Focus Adjustment**, perform the **Scanner Calibration**.
[37030](#)

● Graph

When the image is scanned, the A/D value of each CCD pixel is graphed out simultaneously.

● Display

Adjust the graph display area.

◆ Display Area (Horizontal) (input range: 1 to 3500)

The display area of the graph horizontal-axis can be set. If the display area is narrowed, the horizontal axis is magnified.

◆ Display Area (Vertical) (input range: 0 to 4095)

The display area of the graph vertical-axis can be set. If the display area is narrowed, the vertical-axis is magnified.

◆ Graph

Each graph is displayed by selecting the B, G, R or IR check box.



IMPORTANT

- When the **Focus Adjustment** is carried out, be sure to do at G only.

● Focus Value (input range: 0 to 290)

Enter the focus value.

- **Resolution**

The resolution of the waveform selected in **Graph of Display** is calculated and displayed for each B, G, R and IR.

- **Auto Focus Adjustment**

Carry out the auto focus adjustment.

- **Lane Change**

Pressing the **Lane Change** key each time shifts **135 lane** → **240 lane/240 lane** → **135 lane**.

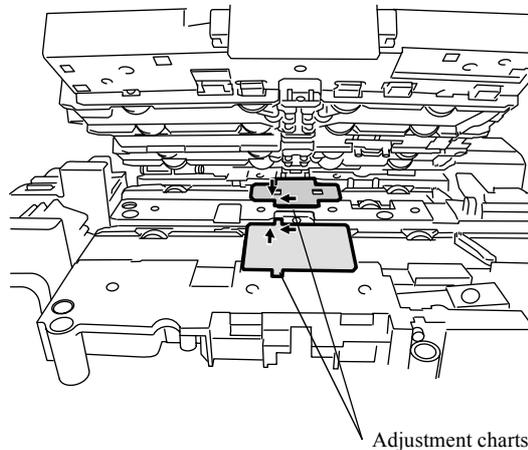
- **Adjusting procedure**

1. Set the adjustment chart on the 135 or 240 lane of the film feed unit.



IMPORTANT

- For handling the scanner adjustment chart, refer to [4600](#).



G071777

2. Use **Lane Change** button to change to the lane needing **Focus Adjustment**.
3. Move the scroll bar right and left, and check whether there is something wrong with the waveform of the graph.
4. Adjust the focus value so that the amplitude of the waveform becomes maximum.
5. Perform the **Focus Auto Adjustment**.

NOTE

- Perform the Focus Adjustment for each lane.

6. Remove the adjustment chart from the film feed unit.



IMPORTANT

- If adjustment mode is finished while the adjustment chart is being adhered, the chart gets damaged because of initial-activated operation.

7. Perform the **Scanner Calibration**.

[37030](#)

Focus Adjustment [HS-1800]

Focus Adjustment is different between LS-600/LS-1100 and HS-1800.

Reference
 Focus Adjustment [LS-600/LS-1100]

Bringing up the display

Menu: 2260 → Scanner Unit Adjustment → Focus Adjustment



TBD

● Explanation

Correct the deviation of the focus caused by the scanning height of each film carrier.
After replacing or adding the film carrier, the focus adjustment is required.



IMPORTANT

- Before carrying out **Focus Adjustment**, **Light Source Registration** or **Area Registration** is required.
- After carrying out **Focus Adjustment**, **Light Source Update** is required.

● Graph

When the image is scanned, the A/D value of each CCD pixel is graphed out simultaneously.

● Display

Adjust the graph display area.

◆ Display Area (Horizontal) (input range: 1 to 3500)

The display area of the graph horizontal-axis can be set. If the display area is narrowed, the horizontal axis is magnified.

◆ Display Area (Vertical) (input range: 1 to 4096)

The display area of the graph vertical-axis can be set. If the display area is narrowed, the vertical-axis is magnified.

◆ Graph

Each graph is displayed by selecting the check boxes of B, G, R, and IR.



IMPORTANT

- When the **Focus Adjustment** is carried out, be sure to do at G only.

● Focus Value (input range: 0 to 290)

Enter the focus value.

- **Resolution**

The resolution of the waveform selected in **Graph** of **Display** is calculated and displayed for each B, G, and R.

- **Functions**

- **Magnification Change**

Changes the magnification rate of the scanner zoom lens.

- **Auto Focus Adjustment**

Carry out the auto focus adjustment.

- **Result Display**

Display the result of the auto focus adjustment.

- **Focus adjustment procedure**

Refer to the following items for focus adjustment procedure of each film carrier.

Reference	
☞ Adjustment procedure (for 135/240AFC-II, 135AFC-II, 120AFC-II and 110AFC-II)	☞ Adjustment procedure (for 135/240 MMC-II and 135/240 AMC-II)
☞ Adjustment procedure (for other than the MFC: crop card attachment)	☞ Adjustment procedure (for the MFC: crop card attachment)

- **Adjustment procedure (for 135/240AFC-II, 135AFC-II, 120AFC-II and 110AFC-II)**

1. Adhere the scanner adjustment chart to the AFC.



IMPORTANT

- For handling the scanner adjustment chart, refer to ☞ 4600.

2. Adjust the scroll bar and **Standard Position** so that the relation between the waveform of the graph and the longitudinal red and blue lines in the graphs is shown as follows.

- (1) Using the scroll bar, adjust the position so that the waveform of graph can be seen.
- (2) Using the **Standard Position** key, carry out adjustment so that the three waveform are between the blue lines and the fine waveform are between the red lines.



3. Adjust the focus value so that the resolution of the graph is approx. maximum.

TBD

4. Perform the **Focus Auto Adjustment**.

NOTE

- Adjust the focus for each film carrier.



IMPORTANT

- If the message **The measurement failed.** appears, carry out the focus adjustment again while the waveform is displayed in the graph.

5. Enter the magnification rate which is not registered to **Focus Auto Adjustment** using **Magnification Change in Functions**.

NOTE

- Perform **Magnification Change** for each film mask.
- The magnification rate which is not registered to **Focus Auto Adjustment** can be checked using **Result in Functions**.
- The focus value is displayed for the magnification rate which is already registered. - is displayed for the magnification rate which is not registered. And nothing appears if there is no need for setting the item.

6. Perform the **Focus Auto Adjustment**.

7. When it takes 20 minutes or more for the focus adjustment of the scanner unit, the ND filter solenoid heats and malfunctions may occur.

When the ND filter solenoid is OFF, cool it about ten minutes, then carry out the light source update.

8. Perform the **Scanner Calibration**.

37030

● **Adjustment procedure (for 135/240 MMC-II and 135/240 AMC-II)**



IMPORTANT

- For the Focus Adjustment of the 135/240 AMC-II and 135/240 MMC-II, magnification rate of $\times 0.621$ and $\times 1.344$ must be adjusted at the same time.
- If you exit the mode or move the stop position of the scanner adjustment chart before adjustment of all magnification rate is finished, perform the adjustment from $\times 0.621$ again.

1. Attach the scanner adjustment chart to the 135/240 AMC-II or 135/240 MMC-II.



IMPORTANT

- For handling the scanner adjustment chart, refer to 4600.

2. Confirm that the magnification rate is $\times 0.621$.

3. Change the value for **Display Area (Horizontal)** of 250 to 1300.

4. Adjust the scroll bar and **Standard Position** so that the relation between the waveform of the graph, the longitudinal red and blue lines, and orange area in the graphs is shown as follows.
- (1) Confirm that each waveform of B, G and R for the Focus Adjustment can be seen and the waveform for light axis checking is in the orange area. If the waveform cannot be seen, or out of the area, adjust it with **Adjust (L)** and **Adjust (R)**.



TBD

**IMPORTANT**

- For the 135/240 MMC-II and 135/240 AMC-II, the waveform may not be shown because the positioning of the scanner adjustment chart (mount) which is attached to the MMC is not decided. In this case, adjust the mount carrier by pressing **Adjust (L)** and **Adjust (R)**.

NOTE

- Adjust (L)** and **Adjust (R)** buttons can be used only when the magnification rate is $\times 0.720$.



TBD

- (2) Restore the value in **Display Area (Horizontal)** to **250** to show only the waveform for the focus adjustment.

- (3) Using the **Standard Position** key, carry out adjustment so that the three waveform are between the blue lines and the fine waveform are between the red lines.



TBD

5. Adjust the focus value so that the resolution of the graph is approx. maximum.

6. Perform the **Focus Auto Adjustment**.



IMPORTANT

- If the message **The measurement failed.** appears, carry out the focus adjustment again while the waveform is displayed in the graph.

7. Select the next magnification rate using **Magnification Change in Functions**.

8. Perform the **Focus Auto Adjustment**.



IMPORTANT

- For the Focus Adjustment of the 135/240 AMC-II and 135/240 MMC-II, magnification rate of $\times 0.621$ and $\times 1.344$ must be adjusted at the same time.

9. When it takes 20 minutes or more for the focus adjustment of the scanner unit, the ND filter solenoid heats and malfunctions may occur.

When the ND filter solenoid is OFF, cool it about ten minutes, then carry out the light source update.

10. Perform the **Scanner Calibration**.

37030

● **Adjustment procedure (for other than the MFC: crop card attachment)**

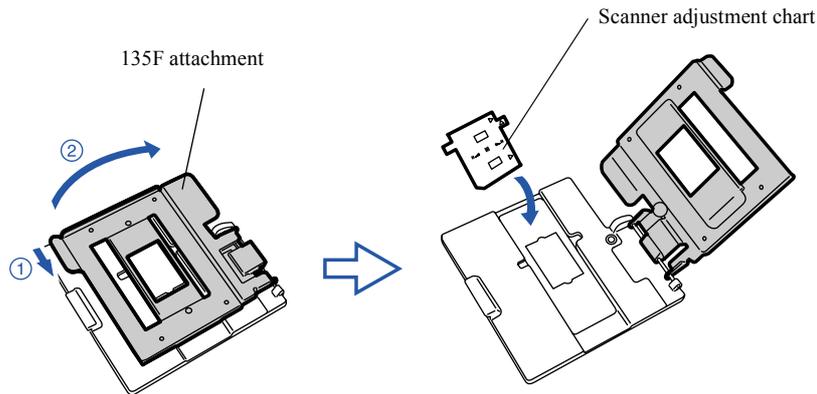


IMPORTANT

- For other than the crop card attachment of MFC, it is always necessary to carry out Area Registration for each attachment before carrying out Focus adjustment. 37050
- For the Focus Adjustment of the MFC, magnification rate of $\times 0.621$ and $\times 1.324$ must be adjusted at the same time.
- If you closed the mode or moved the position of the scanner adjustment chart before finishing the adjustment with all magnification rate, adjust for all again from $\times 0.621$.

1. Attach the MFC to the machine and press **Yes** in the **Focus Adjustment**, and the message "**Place the attachment, then set the Focus Chart.**" appears.

2. Attach the scanner adjustment chart to the MFC:135 F attachment and press **Yes**.



G078433

3. Confirm that the magnification rate is $\times 0.621$.
4. Change the value for **Display Area (Horizontal)** of **250** to **1300**.
5. Adjust the scroll bar and **Standard Position** so that the relation between the waveform of the graph, the longitudinal red and blue lines, and orange area in the graphs is shown as follows.
- (1) Confirm that each waveform of B, G and R for the Focus Adjustment can be seen and the waveform for light axis checking is in the orange area. If the waveform cannot be seen, or out of the area, adjust it with **Adjust (L)** and **Adjust (R)**.



TBD

**IMPORTANT**

- In the case of the MFC:135 F attachment, waveform of the scanner adjustment chart may not appear. In this case, adjust the attachment position by pressing **Adjust (L)** and **Adjust (R)**.

NOTE

- The **Adjust (L)** and **Adjust (R)** buttons can be used only when the magnification rate is $\times 0.621$.

- (2) Using the **Standard Position** key, carry out adjustment so that the three waveform are between the blue lines and the fine waveform are between the red lines.



TBD

4. Adjust the focus value so that the resolution of the graph is approx. maximum.

5. Perform the **Focus Auto Adjustment**.

**IMPORTANT**

- If the message **The measurement failed.** appears, carry out the focus adjustment again while the waveform is displayed in the graph.

6. Perform the **Focus Auto Adjustment**.

7. When it takes 20 minutes or more for the focus adjustment of the scanner unit, the ND filter solenoid heats and malfunctions may occur.

When the ND filter solenoid is OFF, cool it about ten minutes, then carry out the light source update.

8. If other than the **MFC: Crop card** is attached, carry out  Adjustment procedure (for other than the MFC: crop card attachment).

9. Perform the **Scanner Calibration**.

 37030

Scanner Calibration [LS-600/LS-1100]

Scanner Calibration is different between **LS-600/LS-1100** and **HS-1800**.

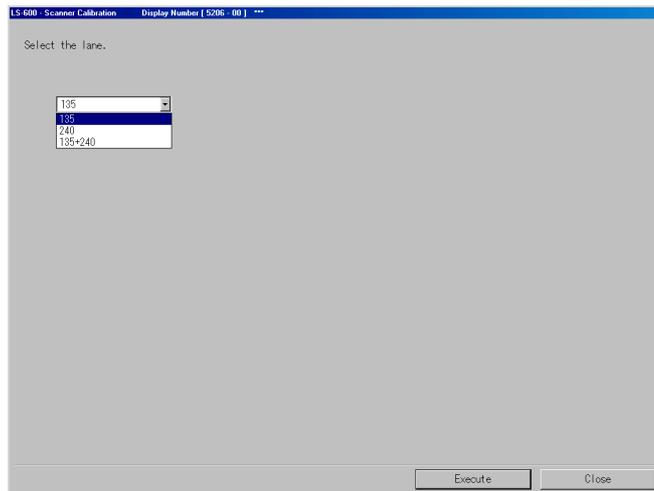
Reference
Scanner Calibration [HS-1800]

Bringing up the display

Menu → Scanner Calibration

Bringing up the display

Menu → Scanner Unit Adjustment → Scanner Calibration



LS5206-00-00

● Explanation

The light source amount changes every day due to the operating environment. Changed light amount can be corrected with the Scanner Calibration.

NOTE

- Be sure to perform the Scanner Calibration after performing the Focus Adjustment for the scanner unit or after loading backup data.

● Select the lane.

Lane	Details
135+240	Scanner Calibration is automatically performed for the 135 lane and 240 lane.
135	Scanner Calibration is performed for the 135 lane.
240	Scanner Calibration is performed for the 240 lane.

● Adjusting procedure

1. Select the lane to perform the **Scanner Calibration**.

NOTE

- If performing the Scanner Calibration for both the 135 lane and the 240 lane, select **135+240**.

2. Click **Execute**.

NOTE

- **Scanner Calibration** automatically starts. After **Scanner Calibration** finishes, **Registered.** is shown.

Scanner Calibration [HS-1800]

Scanner Calibration is different between LS-600/LS-1100 and HS-1800.

Reference
 Scanner Calibration [LS-600/LS-1100]

Bringing up the display

Menu → Scanner Calibration

Bringing up the display

Menu → Scanner Unit Adjustment → Scanner Calibration



TBD

● Explanation

The light source amount changes every day due to the operating environment. Correct the changed light source intensity value in Light Source Update.

NOTE

- Be sure to update the light source after the focus adjustment for the scanner unit or after reading data from the backup FD.

● Attached Film Carrier

The film carrier which is attached is displayed.

When the film carrier is not attached or attached improperly, ----- is displayed.

● Registration

When the film size has already been registered, **ON** is displayed. When it is not registered, **OFF** is displayed.

● Light source updating procedure

For updating light source of each film carrier, refer to the following.

Reference	
 Adjustment procedure (for other than MFC)	 Adjustment procedure (for MFC)

● Adjustment procedure (for other than MFC)

1. Attach the film carrier to perform the **Scanner Calibration**.

NOTE

- For the 135/240 AFC-II, switch the lane to 135 or 240 securely.

2. Click **YES: Enter**.

NOTE

- **Scanner Calibration** automatically starts. After **Scanner Calibration** finishes, **Completed.** is shown.

3. Click **YES: Enter**.

NOTE

- When you continue the operation to set another film carrier, repeat the steps above.

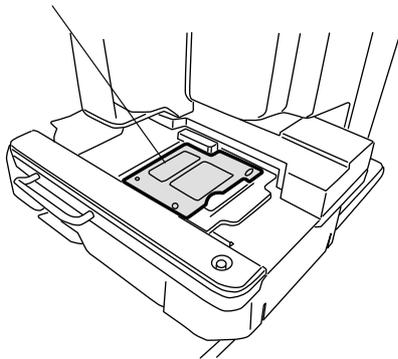
● **Adjustment procedure (for MFC)**



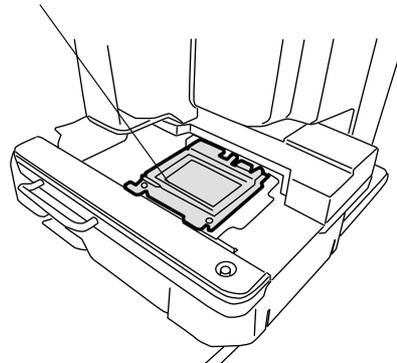
IMPORTANT

- Perform the Scanner Calibration using the adjusting attachment, except for the crop card.
- For the crop card, use the crop card attachment.

Adjusting attachment



Crop card attachment



G083088

1. Set the crop card attachment or adjusting attachment to the MFC.

2. Click **YES: Enter**.

NOTE

- **Scanner Calibration** automatically starts. After **Scanner Calibration** finishes, **Completed.** is shown.

3. Click **YES: Enter**.

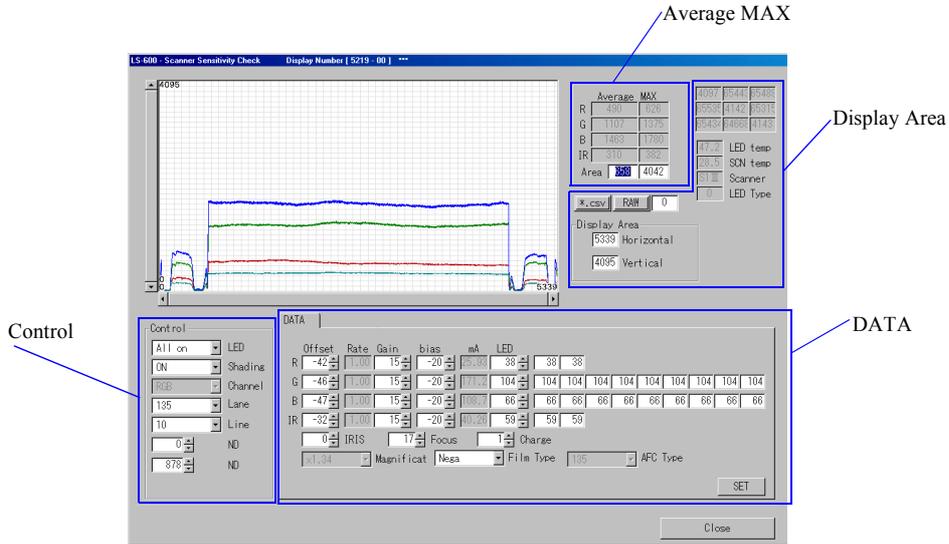
NOTE

- When you continue the operation by setting another attachment, repeat the steps above.

Scanner Sensitivity Check [LS-600/LS-1100/HS-1800]

Bringing up the display

Menu → Scanner Unit Adjustment → Scanner Sensitivity Check



LS5219-00-00

● Explanation

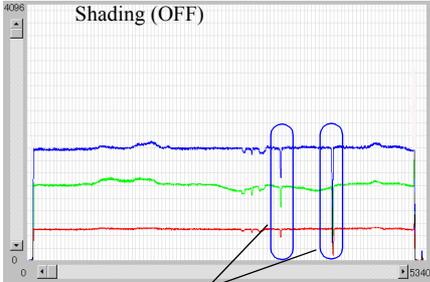
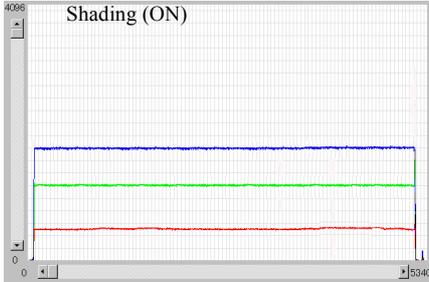
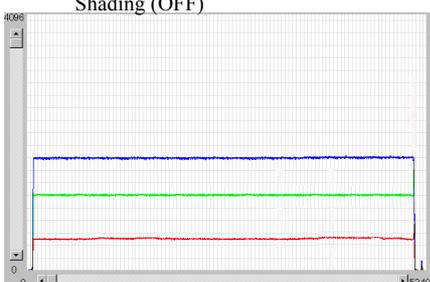
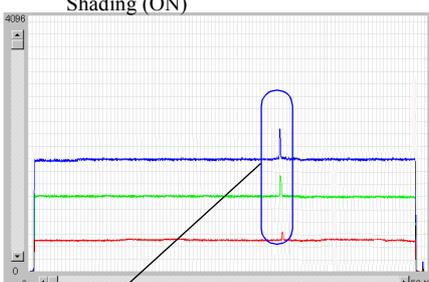
You can check the light source status of the LED light source unit and scanner unit.

Precautions when using Scanner Sensitivity Check

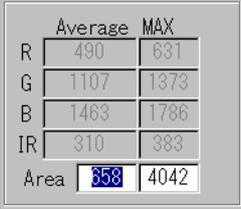
Item	Example: Display appears if the temperature in the LED light source unit has not reached the controlled temperature
<ul style="list-style-type: none"> Waveform of Scanner Sensitivity Check may not normally be displayed if the temperature in the LED light source unit has not reached the controlled temperature, or communication error occurs. 	
<ul style="list-style-type: none"> For 120 AFC, remove 120 AFC diffuser first because the waveforms may not appear normally and then confirm the waveforms. For details about Scanner Sensitivity Check procedures, refer to Scanner Sensitivity Check procedure. 	

● Control

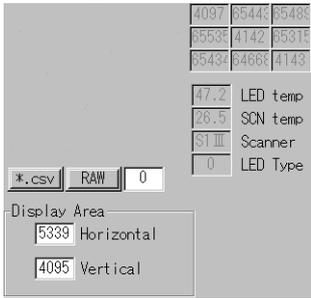
Item	Details
LED	<p>Controls on/off status of the LED light source.</p> <ul style="list-style-type: none"> All on: all the LED light source colors on All off: all the LED light source colors off R on, G on, B on, IR on: single LED light source color on, displayed in chart

Item	Details
<p>Shading Turns ON/OFF shading data.</p> <ul style="list-style-type: none"> • Selecting ON, the shading data becomes valid and waveforms are displayed. • Selecting OFF, the shading data becomes invalid and waveforms are displayed. • Example: In the case below, the status may be improved by removing the dust attached on the light path and then updating the light source. <div style="display: flex; justify-content: space-around;">   </div> <p style="text-align: center;">Example: If all the waveforms of B, G and R fall</p> <ul style="list-style-type: none"> • Example: In the case below, the status may be improved by updating the light source. If updating the light source with a dust adhered, the density of the spot which has dust is lowered. Due to the dust, the correction value of the spot with dust will be high. If the dust is removed, the waveform for Shading (ON) is protrudent because the correction value of the spot with dust is high. <div style="display: flex; justify-content: space-around;">   </div> <p style="text-align: center;">Example: if the waveforms of B, G and R rise</p>	
<p>Channel</p>	<ul style="list-style-type: none"> • RGB: displays the waveform of RGB. • IR: displays the waveform of IR.
<p>Lane</p>	<p>Switches between the 135 lane and 240 lane. (Not displayed for the HS-1800.)</p>
<p>Line</p>	<p>Changes the number of loaded lines.</p>
<p>ND</p>	<p>Switchers between on and off the ND filter of the LED light source unit. (Not used for the LS-600.)</p>

● **Average MAX**

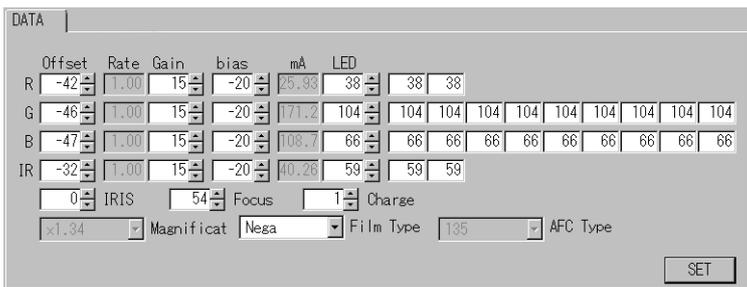
Item	Details
	<div style="text-align: center;">  </div>
<p>Average MAX</p>	<p>The calculation of average value and maximum value is repeated synchronizing with the update of graph data.</p> <p>NOTE</p> <ul style="list-style-type: none"> • The initial display value is Area Registration value of Light Source Registration. When the value displayed in Area is changed, the calculation area of Average MAX can be changed.

● Display Area

Item	Details
	
Display Area	<p>It is possible to enlarge and to reduce the waveform.</p> <ul style="list-style-type: none"> • Horizontal is horizontal axis and Vertical shows the range of vertical axis. If the numerical values of Horizontal and Vertical is changed, the graph can be enlarged or reduced.
LED temp	Displays the temperature of the LED light source unit.
SCN temp	Displays the temperature of the scanner unit.
LED Type	Displays the type of the LED light source unit.
Scanner	Displays the type of the scanner unit.
.csv	<p>The waveform currently displayed can be saved by text format.</p> <ul style="list-style-type: none"> • Saves the test result to C:\NoritsuKoki\#####\NkScan0001\Log_Data.##### is each scanner name. • File name can be saved by sequential numbers and can be saved maximum of 10 files. From scan_wave0.csv to scan_wave9.csv
RAW	<p>The waveform currently displayed can be saved by RAW image.</p> <ul style="list-style-type: none"> • Saves the test result to C:\NoritsuKoki\#####\NkScan0001*\Log_Data.##### is each scanner name. • The data is saved by the file name of scan_wave.raw.

3. Mode

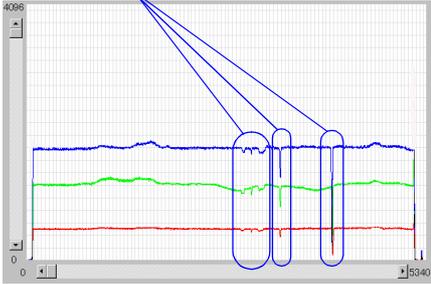
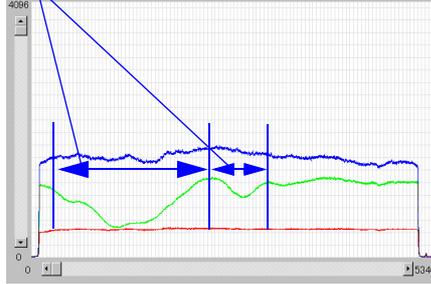
● DATA

Item	Details
	
Offset	Analog offset directive value
Gain	Changes the scanner CCD sensitivity to check the change of waveforms.
LED	Changes the voltages for B LED, G LED and R LED to check the change of waveforms.
IRIS	Changes the aperture to check the change of waveforms. (Not displayed for the HS-1800.)
Focus	Changes the focus value to check the change of waveforms.
Charge	Changes the storage time of scanning to check the change of waveforms.
Magnification	Changes the scanner unit magnification rate to check the change of waveforms.
Film Type	<ul style="list-style-type: none"> • Nega: displays the waveforms when scanning Nega. • Posi: displays the waveforms when scanning Posi.
SET	After configuring each setting and clicking the SET button, each setting becomes valid.

● Scanner Sensitivity Check procedure

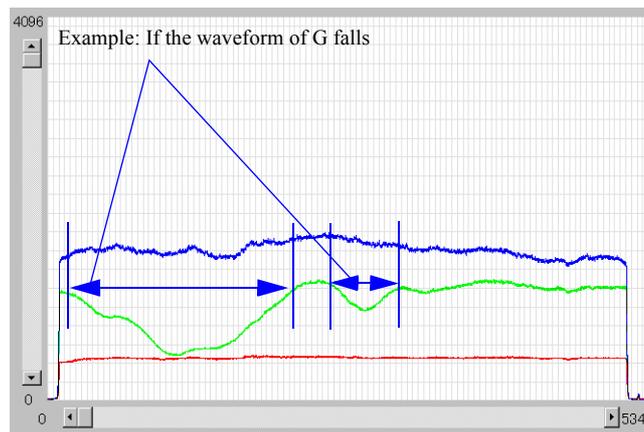
1. Select Scanner Sensitivity Check mode.

2. Check the status of B, G, R and IR waveforms.

Scanner Sensitivity Check judgment flow	
If all the waveforms of B, G, R and IR fall	If either of the waveforms of B, G, R and IR falls
<p>Example: If all the waveforms of B, G, R and IR fall</p> 	<p>Example: If the waveform of G falls</p> 
Do all the waveforms of B, G, R and IR fall?	→ NO
↓YES	See  If either of the waveforms of B, G, R and IR falls.
See  If all the waveforms of B, G, R and IR fall.	

● If either of the waveforms of B, G, R and IR falls

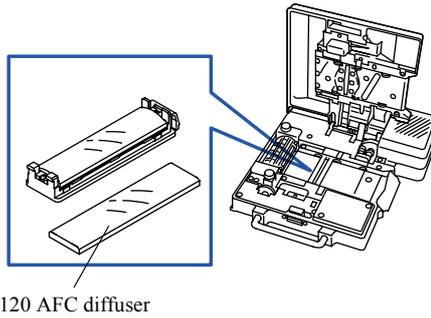
1. If  No. 01314 **Light source evenness is out of allowable range**. occurs and the waveform extremely falls as in the example below, replace the LED light source unit.



G085837

3. Mode

- For 120 AFC, attach 120 AFC diffuser to improve the uniformity only when the range of the waveform fall is narrow.

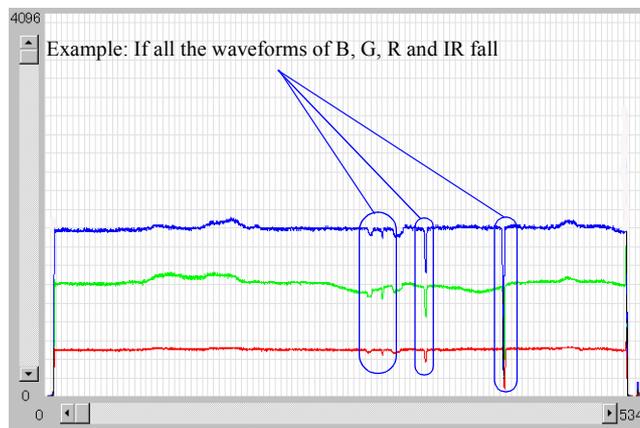


120 AFC diffuser

G082013

● If all the waveforms of B, G, R and IR fall

Reference	
LS-600/LS-1100	HS-1800

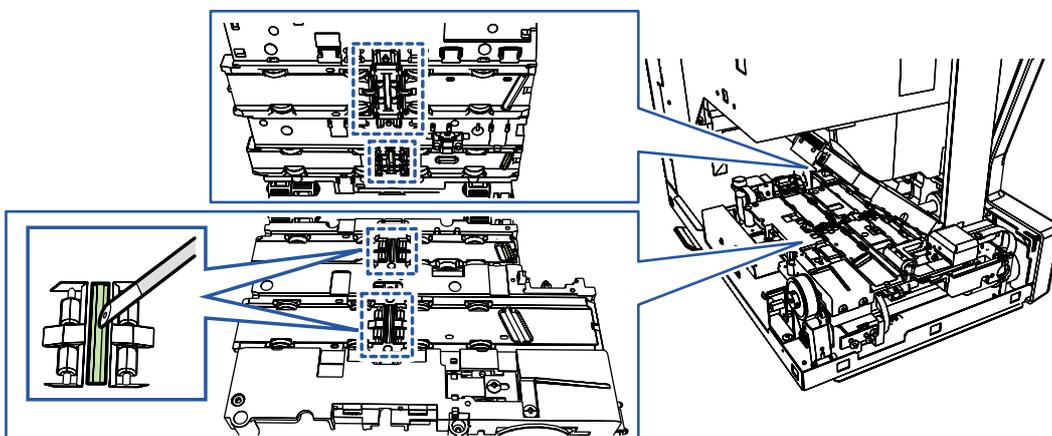


G085838

LS-600/LS-1100

1. Move the lane and check if the falls of waveforms of B, G, R and IR disappear.

- If the falls of waveforms of B, G, R and IR disappear after moving the lane, clean the slot of 135 or 240 lane.
- If the falls of waveforms of B, G, R and IR do not disappear by moving the lane, perform the step 2.

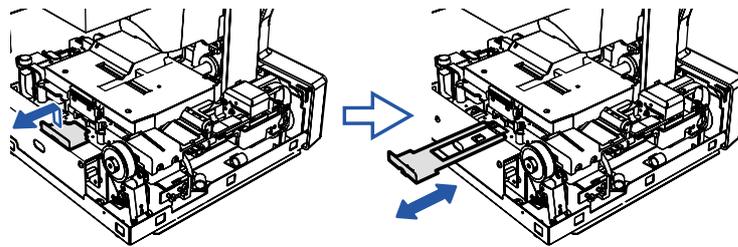
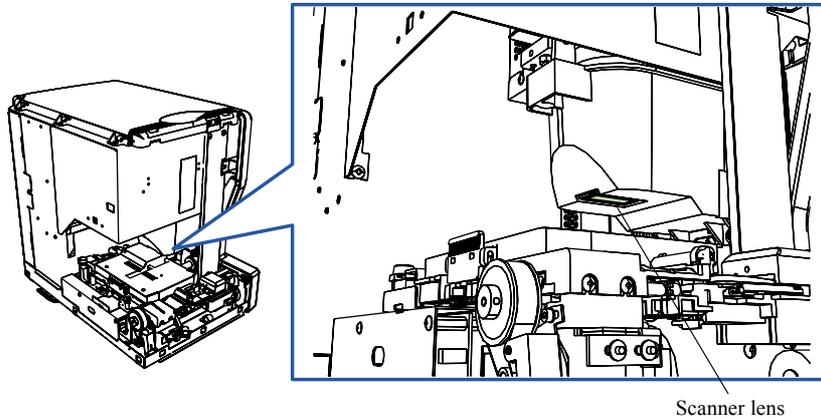


Slots of 135/240 lanes

G083060

- Confirm that the falls of the B, G, R and IR waveforms disappear, and perform the Scanner Calibration.
[☞ 37030](#)

2. Clean the scanner lens and the LED light source unit glass.



Cleaning the LED light source unit

G083061

- After cleaning them, confirm that the falls of the B, G, R and IR waveforms disappear, and perform the Scanner Calibration.
[☞ 37030](#)

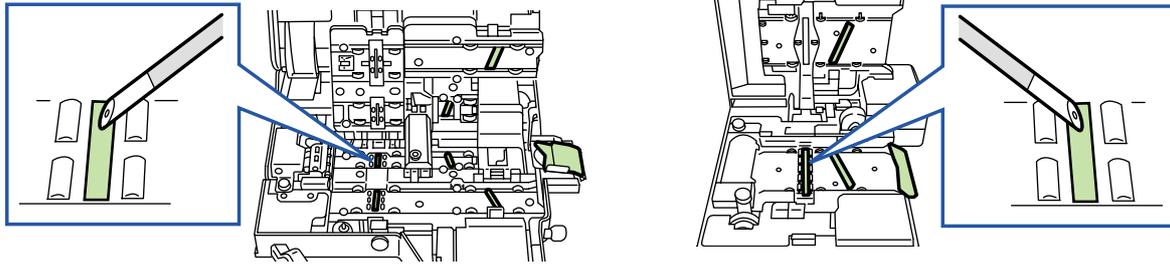
3. If the symptom is not improved after cleaning the film advance unit, scanner and LED light source unit, replace the LED light source unit or scanner unit.

HS-1800

1. Remove the AFC and confirm that the falls of waveforms of B, G and R disappear.

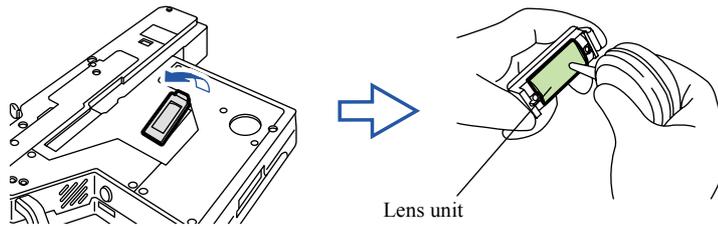
- If the falls of waveforms of B, G and R disappear by removing AFC, clean the AFC.

- If the falls of waveforms of B, G and R do not disappear by removing AFC, perform step  2.



Slot of AFC (135/240 AFC-II)

Slot of AFC (120 AFC-II)



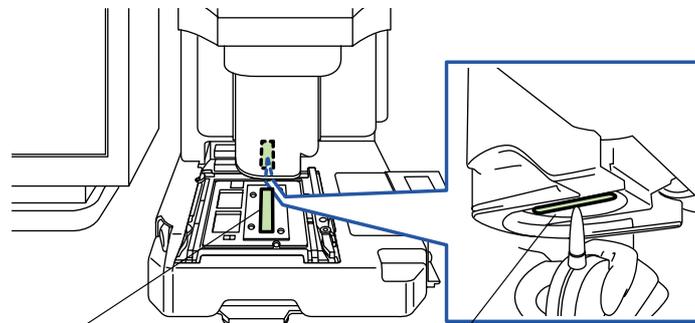
Lens unit

G078470

- Attach AFC and confirm that the falls of waveforms of B, G and R disappear. Then, update the light source.  37030

2. Clean the scanner lens and the LED light source unit glass.

- If the falls of waveforms for B, G and R do not disappear by cleaning scanner lens and LED light source unit glass, perform step  3.



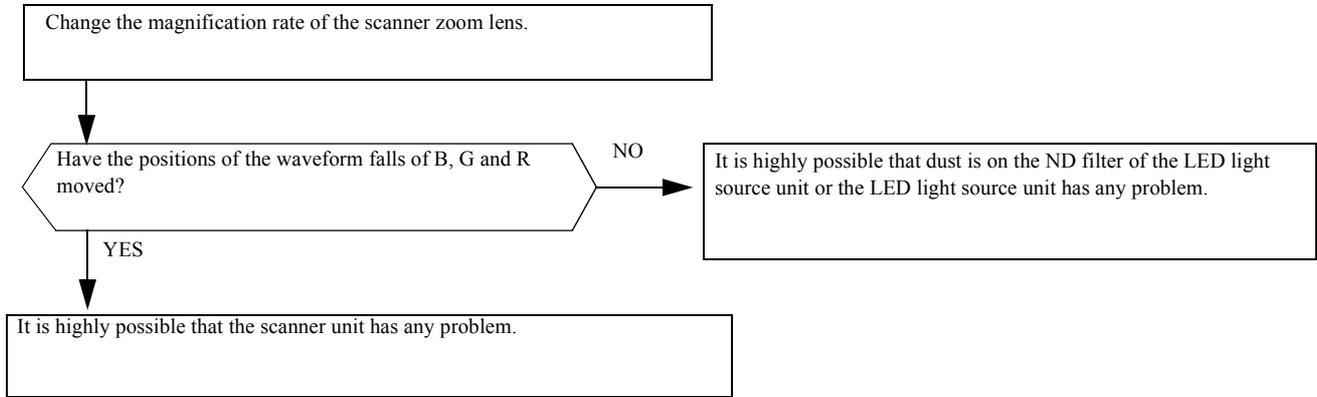
LED light source unit glass

Scanner lens

G078471

- After cleaning, attach AFC and confirm that the falls of waveforms of B, G and R disappear. Then, update the light source.  37030

3. Change the rate of **Magnification** and press **SET** to change the magnification rate of scanner zoom lens.



4. If the symptom is not improved after cleaning the AFC, scanner and LED light source unit, replace the LED light source unit or scanner unit.

MFC Area Registration [HS-1800]

Bringing up the display

Menu: 2260 → Scanner Unit Adjustment → Area Registration



TBD

● Explanation

Register the valid range of CCD.



IMPORTANT

- After carrying out Area Registration, the focus adjustment is required.
☞ 37020

● Attached Film Carrier

The film carrier which is attached is displayed.

When the film carrier is not attached or attached improperly, - - - - is displayed.

● Registration

When the film size has already been registered, **ON** is displayed. When it is not registered, **OFF** is displayed.

● Adjustment procedure (for MFC)

1. Attach the MFC attachment to carry out the **Area Registration**.

NOTE

- For attachments other than the crop card, area is not registered automatically when the Scanner Calibration is performed.
- For the crop card of the MFC, area is automatically registered when the Scanner Calibration is performed.

2. Click **YES: Enter**.

NOTE

- The **Area Registration** starts automatically.

3. When you continue the operation to set another film carrier, repeat the steps above.

4. After carrying out Area Registration, the focus adjustment is required.

☞ 37020

Saving log data

● Explanation

If a problem occurs while the scanner is operating, the operation status when the problem occurs is saved to HDD as a Logdata file.



IMPORTANT

- Usually, the log files are saved automatically. However, they can also be saved manually. Select the files to save as needed.
- The log files are automatically saved in the following conditions.
 - An error occurs.
 - A problem occurs with the system program.

NOTE

- If a problem occurs with the software, obtain the information below with the log data and memory data.
 - Status when the problem occurred
 - Operation performed before the problem occurred
 - With or without an error, its kind
 - Paper used when the problem occurred
 - Any other things you realized

● Saving log data

Keyboard	Destination	Data format	Output data
Alt+Y ^{*1}	C:\Noritsukoki\Log_and_Memory\	Compresses and saves the files shown in the right column as LogData_YYYYMMDDhhmmss.LZH ^{*3}	<ul style="list-style-type: none"> • Log file of the module that uses log output API • Log file of image processing module • Log files of printer and processor • Log file of scanner • Watson log file • Spec log • Event log • Error record file
Alt+L ^{*1}	C:\Noritsukoki\LogData\	Saves the files shown in the right column to the LogData_Main_YYYYMMDDhhmmss folder ^{*3}	<ul style="list-style-type: none"> • Log file of the module that uses log output API • Log file of image processing module
Errors (automatic acquisition) ^{*2}	C:\Noritsukoki>ErrorLog\	Same as when Alt+Y are pressed.	Same data is saved as when Alt+Y are pressed.

*1. Up to 10 log data are stored on the HDD.

If the number of log data exceeds 10, the data is deleted from the oldest one.

*2. Up to 20 log data are stored on the HDD.

If the number of log data exceeds 20, the data is deleted from the oldest one.

*3. YYYYMMDDhhmmss is the date when the data was saved.

Installing the system program [LS-600/LS-1100/HS-1800]



IMPORTANT

- This section explains the basic procedure for installing of the system program. Depending on the version of the software, procedure not mentioned below may be required. For details, see the REPLACEMENT INSTRUCTION of each version.
- Do not connect the PC and scanner before the installation of the system program finishes.

● Installing TWAIN Driver



IMPORTANT

- If you do not use the EZ Controller but use an application supporting TWAIN, install TWAIN Driver with the procedure below.
If you use the EZ Controller, this operation is not necessary.
- TWAIN Driver installation procedure differs depending if installing the software for the first time, or if the software is reinstalled, or if installing the software due to program upgrade.
 - If installing the software for the first time, see [☞ To install newly](#).
 - If reinstalling or upgrading the software, see [☞ Reinstalling or upgrading the software](#).
 - You need to log on with the Administrator authority to install TWAIN Driver.
- To uninstall the TWAIN Driver software, see [☞ Uninstalling TWAIN Driver](#).
- If using TWAIN Driver on a PC prepared by the user on which Windows XP SP2 or later has been installed, changing the Windows Firewall settings is required.
[☞ Configuring the Windows Firewall settings](#)

● To install newly

If installing TWAIN Driver for the first time, installing the following software prior to TWAIN Driver is required.

- Windows Installer 3.1
- VisualC+ + 2005 redistributable module
- Microsoft .Net framework Version 2.0 redistributable package (x 86)
- Postgre SQL 8.1.4
- MSXML 4.0 Service Pack2(Microsoft XML Core Services)
- Hotfix for MSXML 4.0 Service Pack 2 - KB832414
- MSML 6.0 Parser
- Sentinel Protection Installer 7.3.0

1. Insert the TWAIN Driver CD into the DVD drive and start **Setup.exe** in the CD-ROM.
2. When the **InstallShield Wizard** display appears, click **Next**.
3. After the **Select Program Folder** display appears, confirm that **Program Folder (P)** has been set to **EZ Controller** and **Existing Folders (x)** has been set to **Accessories**. Then click **Next**.
4. Installation starts.
5. Installing **Windows Installer 3.1** starts.
 - (1) When **Software Update Installation Wizard** display appears, click **Next**.
 - (2) After the **License Agreement** display appears, select **I agree** and click **Next**.
 - (3) Installation starts.
 - (4) When the **Completing the Windows Installer 3.1...** display appears, select **Do not restart now** then click **Finish**.
6. This starts installing **VisualC+ + 2005**.
 - (1) When the **Please read the following license agreement** display appears, click **Yes**.
 - (2) Installation starts.

7. Installation of **Microsoft .Net framework Version 2.0** starts.

- (1) When the **Welcome to Microsoft .Net Framework 2.0 Setup** display appears, click **Next**.
- (2) When the **End-User License Agreement** display appears, select **I accept terms of the...** then click **Install**.
- (3) Installation starts.
- (4) When the **Setup Complete** display appears, click **Finish**.

8. Installation of **Postgre SQL 8.1.4** starts.

- (1) When the command prompt display appears, enter **0** to **Password:**, then press the **Enter** key.

NOTE

- Password is not displayed on the screen when typed.

9. Installation of the **MSXML 4.0 Service Pack2** starts.

- (1) When the **Welcome to the MSXML 4.0 SP2...** display appears, click **Next**.
- (2) When the **Welcom...** display appears, click **Next**.
- (3) When the **End-User License Agreement** display appears, select **I accept the terms in...** then click **Next**.
- (4) When the **Customer Information** display appears, click **Next**.

NOTE

- Configuring settings for **User Name:** and **Organization:** is not necessary because names already configured on the PC will appear.

- (5) When the **Choose Setup Type** display appears, select **Install Now**.
- (6) Installation starts.
- (7) When **Completing the MSXML 4.0 SP2...** display appears, click **Finish**.

10. The **Hotfix for MSXML 4.0 Service Pack 2 - KB832414** installation starts.

- (1) When the **Please read the following license agreement** display appears, click **Yes**.
- (2) When the **Welcome to the Microsoft Data Access...** display appears, click **OK**.
- (3) Installation starts.
- (4) When the **Setup is complete** display appears, click **OK**.

11. Installation of the **MSXML 6.0 Parser** starts.

- (1) When the **Welcome to the Install Wizard for the MSXML 6.0 Parser** display is shown, click **Next**.
- (2) When the **License Agreement** display is shown, select **I accept the terms in...** then click **Next**.
- (3) When the **Registration Information** display appears, click **Next**.

NOTE

- Configuring settings for **Name:** and **Company:** is not necessary because names already configured on the PC will appear.

- (4) When the **Ready to Install the Program** display appears, click **Install**.
- (5) Installation starts.
- (6) When the **Completing the MSXML 6.0 Parser Setup** display is shown, click **Finish**.

12. Installation of **Sentinel Protection Installer 7.3.0** starts.

- (1) When the **Welcome to the InstallShield Wizard for Sentinel Protection Installer 7.3.0** display is shown, click **Next**.
- (2) When the **License Agreement** display is shown, select **I accept the terms in...** then click **Next**.
- (3) When the **Setup Type** display is shown, select **Complete** then click **Next**.

- (4) When the **Ready to Install the Program** display appears, click **Install**.
- (5) Installation starts.

13. The **TWAIN Driver** installation starts.

- (1) Installation starts automatically.
- (2) When the **InstallShield Wizard Complete** display appears, confirm that **Yes, I want to restart my computer now.** has been selected, then click **Finish**.
- (3) The computer restarts automatically.

● Reinstalling or upgrading the software



IMPORTANT

- The basic procedure is explained here. Depending on the version of the program, procedure not mentioned below may be required. For details, see the REPLACEMENT INSTRUCTION of each version.

1. Backup the data.

 35400

2. Insert the TWAIN Driver CD into the DVD drive and start **Setup.exe** in the CD-ROM.

3. When the **InstallShield Wizard** display appears, click **Next**.

4. After the **Select Program Folder** display appears, confirm that **Program Folder (P)** has been set to **EZ Controller** and **Existing Folders (x)** has been set to **Accessories**. Then click **Next**.

5. Installation starts.

6. When the **InstallShield Wizard Complete** display appears, confirm that **Yes, I want to restart my computer now.** has been selected, then click **Finish**.

7. The computer restarts automatically.

● Uninstalling TWAIN Driver



IMPORTANT

- To uninstall TWAIN Driver, follow the procedure below. If you do not follow the procedure below, you cannot uninstall it normally and OS recovery may become necessary.

1. For Windows XP, select **Control Panel** and select **Add or Remove Programs**.

2. Uninstall the programs specified below by **Change/Remove** or **Remove**.

1. EZ Controller
2. EZ Controller ImgDateProc
3. EZ Controller Common Module
4. Noritsu Publisher
5. Sentinel Protection Installer 7.3.0
6. MSML 6.0 Parser
7. MSXML 4.0 SP2 Parser and SDK
8. PostgreSQL 8.1
After Removing **PostgreSQL8.1**, manually remove the **PostgreSQL** folder that is in the **Program Files** folder.
9. Microsoft .NET Framework 2.0
10. Microsoft Visual C++ 2005 Redistributable
11. Windows Installer 3.1 (KB893803)

● Configuring the Windows Firewall settings



IMPORTANT

- If using TWAIN Driver on a PC prepared by the user on which Windows XP SP2 or later has been installed, changing the Windows Firewall settings is required.

1. On the **Control Panel**, select **Windows Firewall**.

NOTE

- If you are in Category View, select **Security Center** and open **Windows Firewall**.

2. Click the **Exceptions** tab.
3. Click **Add Program** and add the following programs to Exceptions.
 - **Controller.exe** C:\Noritsukoki\EZ_Controller\Controller\Bin
 - **InputController.exe** C:\Noritsukoki\EZ_Controller\InputController\Bin
 - **POM.exe** C:\Noritsukoki\POM\Bin
 - **NoritsuHelper.exe** C:\Noritsukoki\Common\NoritsuHelper\Bin

● Installing the system program



IMPORTANT

- Do not connect the PC and scanner before the installation of the system program finishes.

1. Insert the **#### SYSTEM PROGRAM** CD, and run **Install.exe** in the CD-ROM.

NOTE

- **####** is each scanner name.

2. When the **Welcome to the InstallShield Wizard for ####** display is shown, click **Next**.

NOTE

- **####** is each scanner name.

3. When **Select Program Folder** display is shown, then click **Next**.
4. Installation starts.
5. When the **InstallShield Wizard Complete** display is shown, select **Yes, I want to restart my computer now** and click **Finish**.

● Installing USB driver

NOTE

- When the scanner is connected to the PC for the first time, InstallShield Wizard of USB driver is shown. Then install the USB driver with the procedure below.

1. Connect the scanner and PC with a USB cable, then turn on the power supply.
2. When the **Found New Hardware Wizard (This wizard helps...)** display is shown, select **Install the software automatically (recommended)** and click **Next**.
3. Installation starts.

NOTE

- If **The software has not passed Windows logo testing and will not be installed.** is shown, click **Continue**.

4. When the **Completing the Found New Hardware Wizard** display is shown, click **Finish**.

Procedure of installing the digital masking unit software

● Installation procedures

1. Insert the enclosed CD-ROM into the DVD drive.



IMPORTANT

- Do not touch the recording surface (reverse of the label side) of the disk, nor put a metal item, finger print, scratch, dust or moisture to it. The recorded data may be damaged (erased).

2. Double-click the **My Computer** icon on the display.
3. Double-click the DVD drive icon.
4. Double-click the **SETUP.EXE** file.
The **Install Shield Wizard** display appears.
5. Click **Next**.
The User Information Input Display appears.
6. The **User information input** display appears.
Input the **user name** and **company name**.
Enter the ID number shown on the cover in the CD case to the **Serial Number** and click **Next**.
Installation starts.
7. Click **Finish**.
8. Click × to close the **DIGITAL_MASK** display.
9. Remove the CD from the DVD drive.
10. Restart the PC.

● Confirmation after installation

1. Bring up the **Correction** tab on the **Environment** display.
2. Confirm that **DIGITAL ICE Technology Correction** has been checked.
3. Confirm that **ON (All film types)** is selected for **Digital Masking Function**.
4. Click **OK**.
The digital masking correction is enabled.

This page is intentionally blank.

4. Troubleshooting

Error and attention message regulation	4001
Classification of errors and attention messages	4001
Suffix number	4002
Symptoms caused by wiring connection failure (scanner section) [LS-600]	4210
Diagnosis appendix: (scanner section)	4600
About the scanner adjustment chart	4600
Checking and cleaning the scanner section [LS-600/LS-1100/HS-1800]	4610
Attention message: Scanner	41300
No. 01302 For corrective actions, see EZ Controller Service Manual	41300
No. 01305 Photometry Section may be dirty.	41300
No. 01313 The Focus Adjustment was not completed yet.	41300
No. 01314 Light source evenness is out of allowable range.	41300
No. 01316 Focus Adjustment failed.	41300
No. 01317 Failed to perform the Scan Position Auto Correction.	41300
No. 01318 Close the Scanner Unit Cover.	41300
No. 01320 There may be dust on the AFC opening.	41300
No. 01322 Connect the scanner unit. Check the power supply and connection.	41300
No. 01323 The connected USB device is not supported.	41300

Attention message: Film carrier	41400
No. 01400 Lock the Film Carrier.	41400
No. 01401 Attach the Film Carrier.	41400
No. 01402 Attach the 135/240 AFC.	41400
No. 01403 Undeveloped cartridge. Cannot process.	41400
No. 01404 The IX frame data is incomplete.	41400
No. 01405 Remove the 135 film from the Film Carrier.	41400
No. 01406 Remove the 240 film from the Film Carrier.	41400
No. 01407 Remove the 110 film from the Film Carrier.	41400
No. 01408 Remove the 120 film from the Film Carrier.	41400
No. 01409 Set the lane for the Film Carrier.	41400
No. 01410 Confirm the film stop position in the Film Carrier.	41400
No. 01412 The film is upside down. Would you like to continue processing?	41400
No. 01413 Input the frame number	41400
No. 01414 The FID number was not detected.	41400
No. 01416 Select the 240 lane.	41400
No. 01417 Close the Mount Insertion Cover.	41400
No. 01421 Confirm the stop position of all the frames to be processed.	41400
No. 01422 Select the 135 lane.	41400
No. 01423 Execute Sensor LED Light Intensity Adjustment. Remove the film from the Film Carrier.	41400
No. 01424 Sensor LED Light Intensity Adjustment is being executed.	41400
No. 01425 Sensor LED Light Intensity Adjustment is complete.	41400
No. 01426 Attach the 110 AFC.	41400
No. 01427 Execute Sensor LED Light Intensity Adjustment. If film remains in the Film Carrier, remove it.	41400
No. 01428 Remove the mount from the Film Carrier.	41400
No. 01429 Make sure that the mount is placed correctly.	41400
No. 01430 Confirm the frame size.	41400
No. 01435 Insertion direction of film is different. Insert the film from the rear end (end with largest frame number).	41400
No. 01438 Set the attachment.	41400
No. 01439 Light Source was not updated. Would you like to scan?	41400
No. 01456-01457 See the EZ Controller Service Manual.	41400
Error message: Scanner	46300
No. 06305 Scanner Focus operation error.	46300
No. 06306 Scanner IRIS operation error.	46300
No. 06309 Scanner change of light error.	46300
No. 06321 Focus auto adjustment error.	46300
No. 06322 Scanner input balance error.	46300
No. 06324 F stop value range error.	46300
No. 06327 Scanner Light Source Section temperature adjustment error.	46300
No. 06332 Light Source adjustment error.	46300
No. 06333 The Line Data is out of the Standard Range Error.	46300
No. 06334 Lane change operation error.	46300
No. 06335 The Scanner Unit Cover is open.	46300
No. 06336 Scanner Zoom operation error.	46300
No. 06340 Analog offset adjustment error	46300
No. 06341 Scanner image path error.	46300
No. 06342 Scanner unit was disconnected.	46300

Error message: Film carrier	46400
No. 06400 Perforation Sensor error.	46400
No. 06401 Loading Sensor error.	46400
No. 06402 Ready Sensor error.	46400
No. 06403 135 film has stopped at the Film Carrier.	46400
No. 06404 240 film has stopped at the Film Carrier.	46400
No. 06405 110 film has stopped at the Film Carrier.	46400
No. 06406 120 film has stopped at the Film Carrier.	46400
No. 06407 Spool Key operation error.	46400
No. 06408 The Film Carrier is unlocked.	46400
No. 06409 The 240 Cleaning Leader has stopped.	46400
No. 06410 Film Sensor error.	46400
No. 06411 Film Carrier Sensor Sensitivity Adjustment was not executed.	46400
No. 06412 135 DX Sensor 1 error.	46400
No. 06413 135 DX Sensor 2 error.	46400
No. 06414 135 DX Sensor 3 error.	46400
No. 06415 135 DX Sensor 4 error.	46400
No. 06416 240 DX Sensor 1 error.	46400
No. 06417 240 DX Sensor 2 error.	46400
No. 06423 Auto focus error.	46400
No. 06424 Mount Unit operation error.	46400
No. 06425 Mount detection error.	46400
No. 06426 The lane is out of position.	46400
No. 06429 System error. (AFC / Scanner control PCB)	46400
No. 06431 Auto focus error.	46400
No. 06432 Mount Unit operation error.	46400
No. 06433 Mount detection error.	46400
No. 06434 Mount detection (inlet) error.	46400
No. 06435 Mount insertion operation error.	46400
No. 06436 Mount elevator operation error.	46400
No. 06437 Mount eject operation error.	46400
No. 06438 135 Cleaning Leader has stopped.	46400
No. 06439 The film strip is too short for processing.	46400
No. 06441 The 120 Cleaning Leader has stopped.	46400
No. 06442 The perforation of the film may be broken.	46400
No. 06443 Move Table operation error.	46400
No. 06444 Cartridge is out of position.	46400
No. 06445 End Perforation Sensor error.	46400
No. 06446 Film was set to the incorrect lane.	46400
No. 06463 For corrective actions, see EZ Controller Service Manual	46400

Classification of errors and attention messages

● Attention message

The message that appears to provide information during the normal processing is an attention message.

- If replacing consumable parts is necessary
- If the judgment of operator is necessary
- If a simple operation mistake has been made

● Error

The message that appears to provide information if an abnormal error occurred is an error.

- If there is something wrong with the system
- If a serious operation mistake has been made, performing the operation not allowed to be performed

● Error/Attention message number

Error/Attention message number consists of main and suffix numbers. For 01234-00001, **01234** is the main number and **00001** is the suffix number.

Main number

It identifies the content of Error/Attention message.

Operator takes a corrective action judging from the content and the countermeasure represented by the main number.

	Main number
Attention message	00001 to 04999 10000 to 14999
Error	05000 to 09999 15000 to 19999

Suffix number

It identifies error occurring place and condition.

Service personnel figures out the error occurring condition judging with the content of the suffix number and performs the diagnosis.

NOTE

- For the content of suffix number, refer to **Suffix number**.

 4002

Suffix number

● Types of suffix number

Suffix numbers can be classified to the following three types.

- No suffix numbers
- Suffix number representing the condition
- Suffix number represented by totaled suffix number

● No suffix numbers

If the occurring condition is single

Example 1

Suffix number	Condition
-	The cover is opened.

● Suffix number representing the condition

If the occurring condition is multiple and only one of them is the object of the occurring cause, its suffix number appears in four digits.

Example 2

Suffix number	Condition
00001	The sensor does not detect DARK.
00002	The sensor does not detect LIGHT.

● Suffix number represented by totaled suffix number

If the occurring condition is multiple and more than one of them are possibly be the objects of the occurring cause, the suffix number is represented by the total of the target suffix numbers of the condition.

NOTE

- The totaled suffix number is shown in decimal base.

Example 3

Suffix number (bit)	Condition
00001	Sensor 1 does not detect.
00002	Sensor 2 does not detect.
00004	Sensor 3 does not detect.
00008	Sensor 4 does not detect.
00016	Sensor 5 does not detect.

NOTE

- If the sensors 1 and 3 of example 3 are the objects, 00005 is shown. When all the sensors are the objects, 00031 is shown.

Symptoms caused by wiring connection failure (scanner section) [LS-600]

● Scanner section

Reference	
☞ Scanner control PCB	☞ Scanner driver PCB
☞ Control source (PS-1)	☞ Power supply (PS2)
☞ PM driver (film feed motor) (PMD1)	☞ Lens connecting PCB
☞ Magnetic head PCB	

● Scanner control PCB

See the electrical circuit diagram ☞ 89200.

Connector No.	Symptom
J/P30	Connects to the IR-CCD. After scanner temperature is adjusted, One moment please is shown.
J/P31	Connects to the BGR-CCD. After scanner temperature is adjusted, One moment please is shown.
J/P32	Connects to USB. No. 01322 Connect the scanner unit. is shown.
J/P34	Connects to the lens connecting PCB (J/P112). The film ready lamp blinks in red. No. 06429-00001 System error. (AFC / Scanner control PCB) is shown.
J/P35	Connects to the PM driver (J/P110). The film ready lamp blinks in red. No. 06407-00003 Spool Key operation error. is shown.
J/P36	Connects to the scanner driver PCB (J/P50). No. 01318 Close the Scanner Unit Cover. is shown.
J/P37	Connects to the scanner driver PCB (J/P51). The film ready lamp blinks in red. No. 06334-00005 Lane change operation error. is shown. No. 01405-00135 Remove the 135 film from the Film Carrier. is shown. No. 01406-00005 Remove the 240 film from the Film Carrier. is shown.
J/P38	Connects to the magnetic head PCB (J/P21). Magnetic data of the scanned 240 film is not read and then the size is taken for H for all frames.
J/P39	Connects to the control source (J/P101). No. 01322 Connect the scanner unit. is shown.
J/P40	Connects to the scanner driver PCB (J/P66). When scanning a 135-type film, all images are shown as over-exposed images. When scanning an IX240-type film, No. 01414 The FID number was not detected. is shown and all images are shown as over-exposed images. Problematic prints are output.

● Scanner driver PCB

See the electrical circuit diagram ☞ 89200.

Connector No.	Symptom
J/P48	Connected to the relay connector of the VEI sensor and the IPI sensor. The film ready lamp blinks in red. No. 01406-00064 Remove the 240 film from the Film Carrier. is shown.
J/P49	Connects to the cartridge limit switch. Does not start scanning the 240 film cartridge though it is attached.
J/P50	Connects to the scanner control PCB (J/P36). No. 01318 Close the Scanner Unit Cover. is shown.
J/P51	Connected to the scanner control PCB (J/P37). The film ready lamp blinks in red. No. 06334-00005 Lane change operation error. is shown. No. 1405-87 Remove the 135 film from the Film Carrier. is shown. No. 1406-05 Remove the 240 film from the Film Carrier. is shown.
J/P53	Connects to the control source (J/P101). No. 06334-00005 Lane change operation error. is shown. No. 06305-00002 Scanner Focus operation error. is shown. No. 06407-00003 Spool Key operation error. is shown.

Connector No.		Symptom
J/P54	Connects to the film ready lamp.	The film ready lamp turns off.
J/P55	Connects to the power supply (J/P105, J/P106).	The film ready lamp blinks in red. No. 01318 Close the Scanner Unit Cover. is shown.
J/P58	Connects to the control box cooling fan.	The control box cooling fan does not rotate.
J/P59	Connects to the film cleaner (option)	The film cleaner does not operate.
J/P60	Connects to the PM driver (J/P108).	The film ready lamp blinks in red. No. 06407-00003 Spool Key operation error. is shown.
J/P61	Connects to the light lock door motor.	When scanning an IX240-type film, the light lock door of the film does not open. Then, film may be folded in the cartridge. After scanning operation, No. 06404-0001 240 film has stopped at the Film Carrier. is shown.
J/P62	Connects to the lane change motor.	The film ready lamp blinks in red. No. 06334-00002 Lane change operation error. is shown.
J/P63	Connects to interlock switches 1 and 2.	No. 01318 Close the Scanner Unit Cover. is shown.
J/P64	Connects to the rewinding sensor.	The film ready lamp blinks in red. No. 01405-00128 Remove the 135 film from the Film Carrier. is shown.
J/P66	Connects to the scanner control PCB (J/P40).	When scanning a 135-type film, all images are shown as over-exposed images. When scanning an IX240-type film, No. 01414 The FID number was not detected. is shown and all images are shown as over-exposed images.
J/P67	Connects to the connecting unit (J/P163).	Unspecified
J/P72	Connects to the lens connecting PCB (J/P113).	The film ready lamp blinks in red. No. 06305-00002 Scanner Focus operation error. is shown.
J/P74	Connects to LED cooling fan 1 and 2 (J/P125 and J/P126).	The LED cooling fan does not rotate.
J/P76	Connects to the LED thermosensor (J/P150).	LED Light Source Standby is shown.
J/P77	Connects to 135 lane sensor and 240 lane sensor.	The film ready lamp blinks in red. No. 06334-00005 Lane change operation error. is shown.
J/P81	Connects to the BG LED (J/P150).	Blue-tone prints are output.
J/P82	Connects to the BG LED (J/P151).	Green-tone prints are output.
J/P83	Connects to the R LED (J/P152).	Red-tone prints are output.

● Control source (PS-1)

See the electrical circuit diagram  89200.

Connector No.		Symptom
J/P100	AC power supply connecting	Scanner unit is not connected. is shown.
J/P101	Connected to the scanner control PCB (J/P39) and the scanner driver PCB (J/P53).	Scanner unit is not connected. is shown.

● Power supply (PS2)

See the electrical circuit diagram  89200.

Connector No.		Symptom
J/P104	AC power supply connecting	The film ready lamp blinks in red. No. 01318 Close the Scanner Unit Cover. is shown.
J/P105	Connects to the scanner driver PCB and connecting unit (J/P55 and J/P162).	The film ready lamp blinks in red. No. 01318 Close the Scanner Unit Cover. is shown.
J/P106	Connects to the scanner driver PCB and connecting unit (J/P55 and J/P162).	The film ready lamp blinks in red. No. 01318 Close the Scanner Unit Cover. is shown.

● PM driver (film feed motor) (PMD1)

See the electrical circuit diagram  89200.

Connector No.		Symptom
J/P108	Connects to the scanner driver PCB (J/P60).	The film ready lamp blinks in red. No. 06407-00003 Spool Key operation error. is shown.
J/P109	Connects to the film feed motor.	The film ready lamp blinks in red. No. 06407-00003 Spool Key operation error. is shown.
J/P110	Connects to the scanner control PCB (J/P35).	The film ready lamp blinks in red. No. 06407-00003 Spool Key operation error. is shown.

● Lens connecting PCB

See the electrical circuit diagram  89200.

Connector No.		Symptom
J/P112	Connects to the scanner control PCB (J/P34).	The film ready lamp blinks in red. No. 06429-00001 System error. (AFC / Scanner control PCB) is shown.
J/P113	Connects to the scanner driver PCB (J/P72).	The film ready lamp blinks in red. No. 06305-00002 Scanner Focus operation error. is shown.

● Magnetic head PCB

See the electrical circuit diagram  89200.

Connector No.		Symptom
J/P21	Connects to the scanner control PCB (J/P38).	Magnetic data of the scanned 240 film is not read and then the size is taken for H for all frames.
J/P22	Connects to the magnetic head.	Magnetic data of the scanned 240 film is not read and then the size is taken for H for all frames.

● Checking condition of wiring connection failure

In the table below, it explains the errors and symptoms seen when the power supply of this system is turned **ON** with each connector unplugged (for example, the monitor is not turned on, the lamp does not light, the fan does not rotate, or the like).



IMPORTANT

- This only describes the symptoms resulted from blowout of fuse when the connectors to each PCB are not plugged.
- When any malfunction does not occur in turning **ON** the power supply of the system on condition that a connector is unplugged from each PCB, **Any malfunction does not occur on this condition.** is mentioned for the connector in the list.
- Several errors may occur at the same time with a single connector.

About the scanner adjustment chart

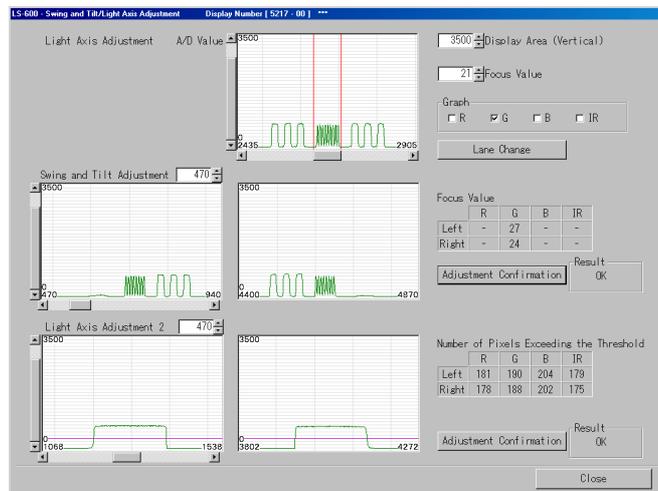


IMPORTANT

- When the scanner adjustment chart itself is abnormal, if **Swing and Tilt/Light Axis Adjustment** or **Focus Adjustment** is performed, fault may occur. Furthermore, since it cannot adjust normally, it may adversely affect the print quality.
- When you use the scanner adjustment chart, check whether there are any abnormalities in the scanner adjustment chart referring to the display indicated below and the illustration of scanner adjustment chart.
- For handling the scanner adjustment chart, refer to [Precautions for handling the scanner adjustment chart](#), [Precautions for handling the scanner adjustment chart](#) (for the 135/240 MMC-II and the 135/240 AMC-II).

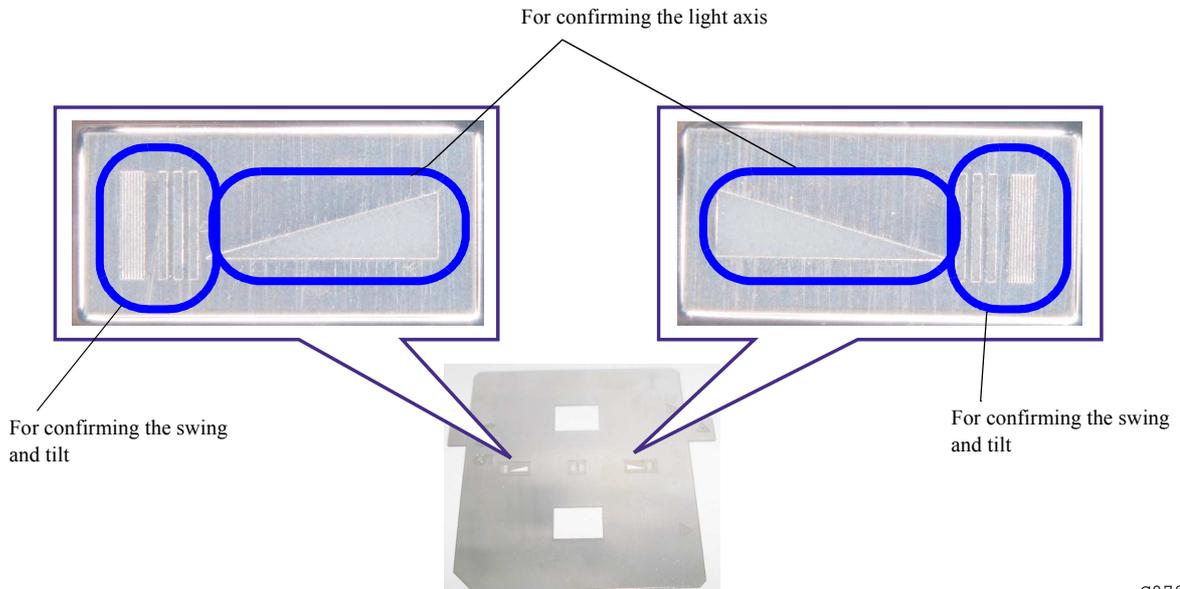
● Normal scanner adjustment chart and display (swing and tilt/light axis adjustment)

Swing and Tilt/Light Axis Adjustment display



LS5217-00-03

Scanner adjustment chart



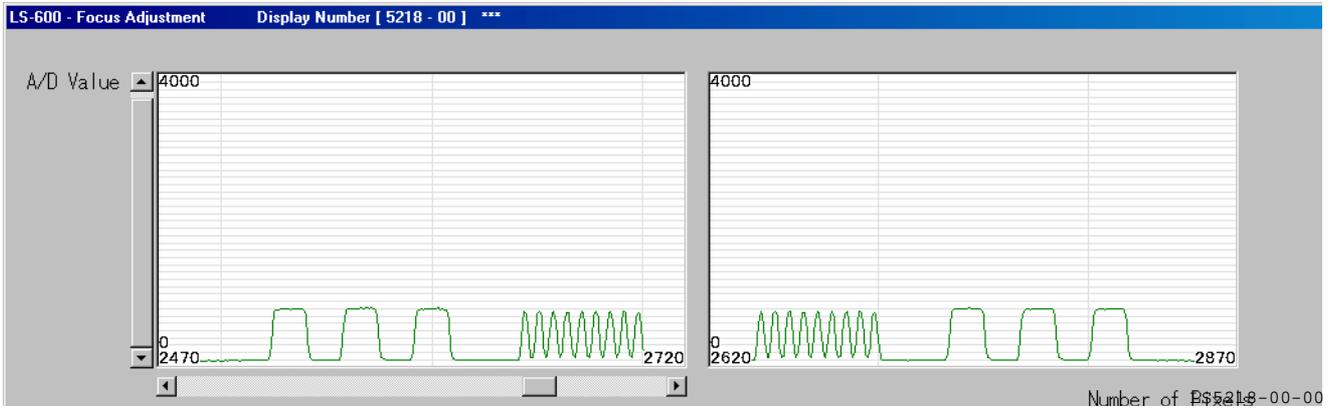
G078399

● Explanation

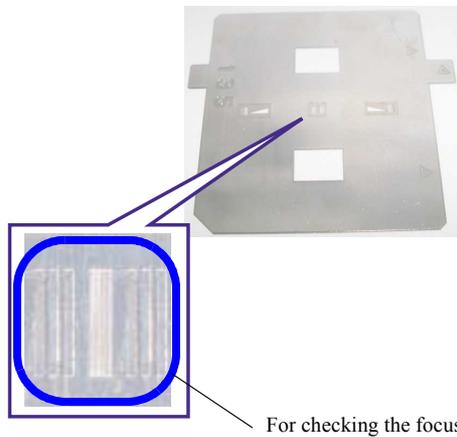
- As for the normal scanner adjustment chart, eight about 20μm slots and three about 100μm slots are contained for the swing and tilt, and the triangle slot for the light axis is contained in the inner side.

● Normal scanner adjustment chart and display (focus adjustment)

Focus Adjustment display



Scanner adjustment chart



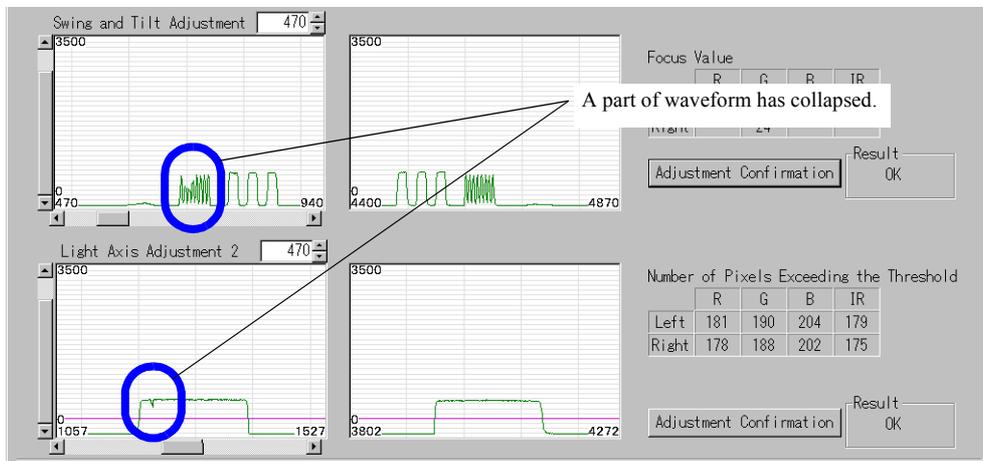
G071789

● Explanation

- As for the normal scanner adjustment chart, three about 100μm slots, eight about 20μm slots and three about 100μm slots are contained for the focus adjustment.

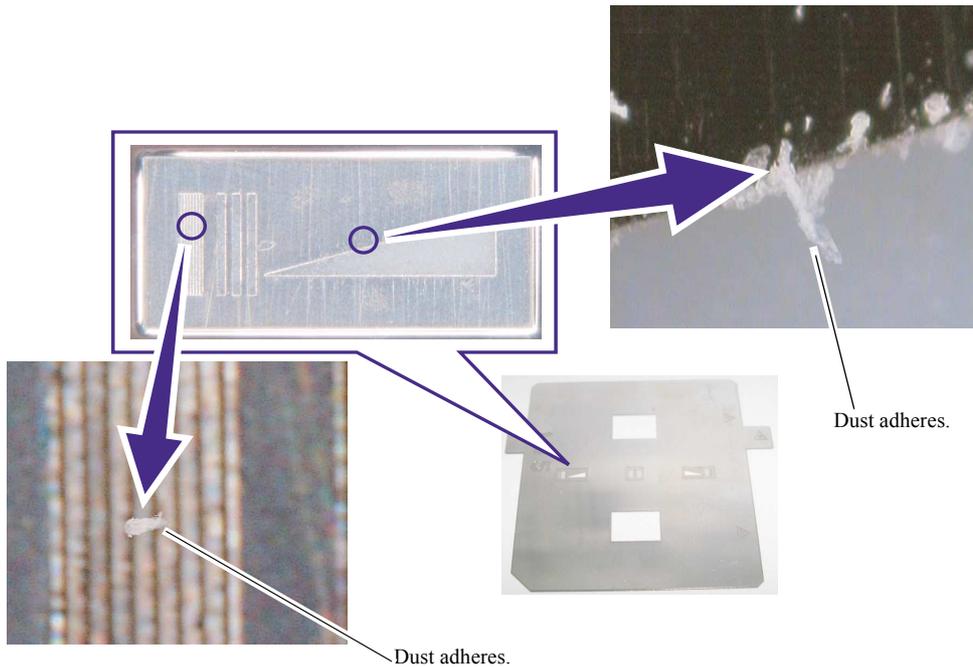
● When dust adheres on the scanner adjustment chart:

Swing and Tilt/Light Axis Adjustment display



LS5217-00-05

Scanner adjustment chart



G078401



IMPORTANT

- Above sample image may be different from the actual one.

● **Explanation**

- Since dust has adhered to the slot section, a part of waveform has collapsed.

● **When the scanner adjustment chart is damaged:**

Swing and Tilt/Light Axis Adjustment display

Since the slot is damaged, the mountain of waveform has decreased.

	R	G	B	IR
Left	-	27	-	-
Right	-	24	-	-

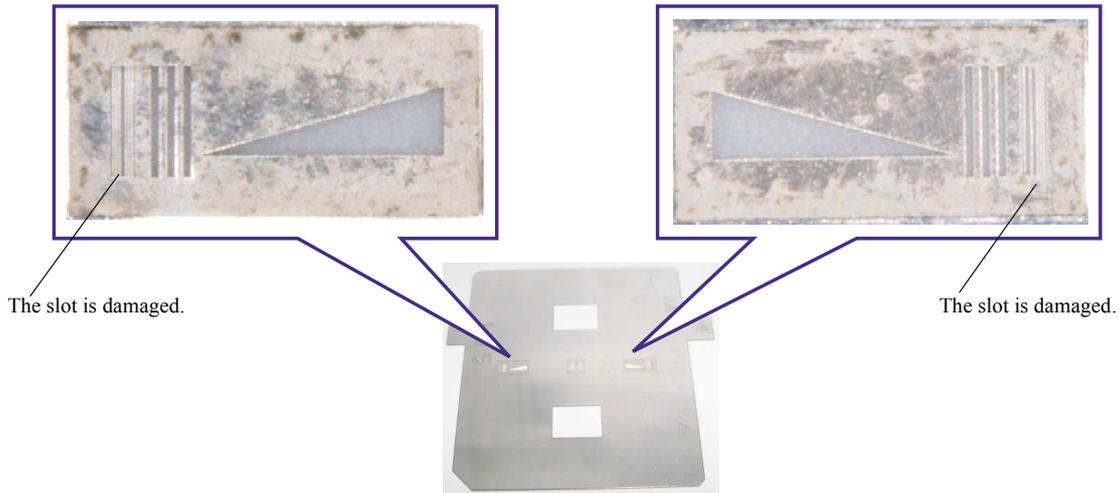
Adjustment Confirmation:

Number of Pixels Exceeding the Threshold

	R	G	B	IR
Left	181	190	204	179
Right	178	188	202	175

LS5217-00-06

Scanner adjustment chart



G078400



IMPORTANT

- Above sample image may be different from the actual one.

● **Explanation**

- Since the 20µm slot section for the Swing and Tilt confirmation is damaged, the mountain of waveform has decreased.

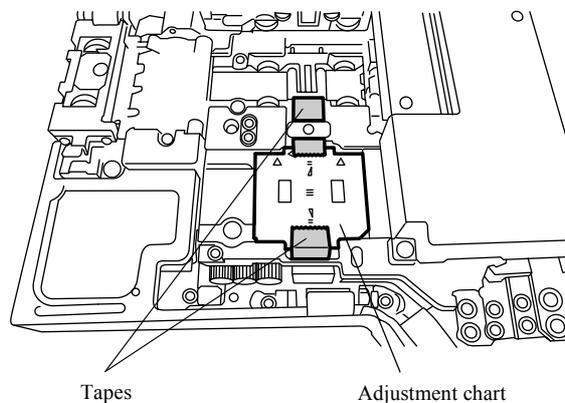
● **Precautions for handling the scanner adjustment chart**



IMPORTANT

- Check if dust adheres on the scanner adjustment chart. If dust adheres, remove it with a blower brush before attaching.
- Do not fold the scanner adjustment chart as it is thin.
- Position the scanner adjustment chart correctly. Otherwise, the scanner unit cannot be adjusted properly. Be sure to press the upper and left parts of the chart to the AFC as shown below and secure the upper and lower parts using tapes.
- Do not use the scanner adjustment chart wrong side out. Place the scanner adjustment chart so that the stamp mark of the film size can be read.
- After using the scanner adjustment chart, put it into a card case.
- The scanner adjustment chart is a service personnel tool. See the **Service personnel tool list**.

🔗 80310



G050982

● **Precautions for handling the scanner adjustment chart (for the 135/240 MMC-II and the 135/240 AMC-II)**

**IMPORTANT**

- Check if dust adheres on the scanner adjustment chart. If dust adheres, remove it with a blower brush before attaching.
- Do not fold the scanner adjustment chart as it is thin.
- Do not use the scanner adjustment chart wrong side out. Place the scanner adjustment chart so that the stamp mark of the film size can be read.
- Set the scanner adjustment chart (mount) for 135/240 MMC-II and adjust it.
- For the 135/240 AMC-II, attach the single adaptor and ejection stocker, then set the scanner adjustment chart (mount) to adjust.
- The scanner adjustment chart is a service personnel tool. See the **Service personnel tool list**.
 80310

Checking and cleaning the scanner section [LS-600/LS-1100/HS-1800]

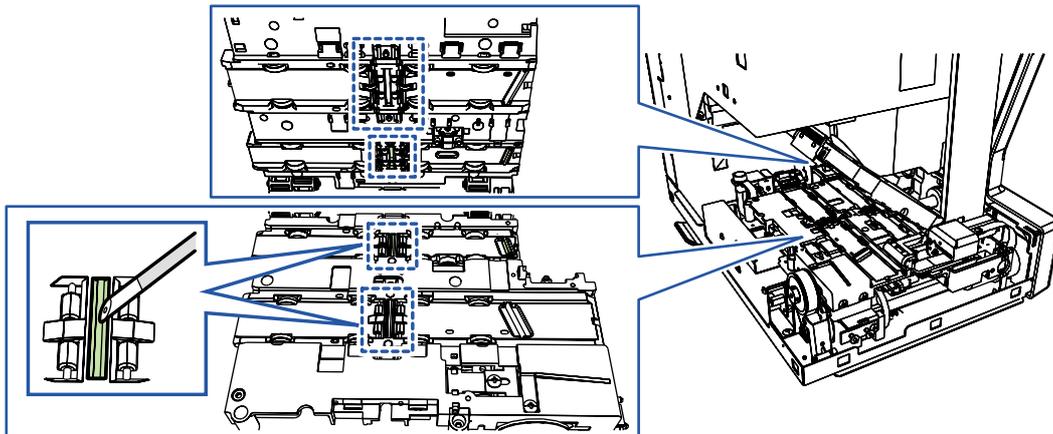
● **Explanation**

If an attention/error appears regarding the scanner section and cleaning is necessary, clean the scanner by following the procedure below.

Reference	
☞ LS-600/LS-1100	☞ HS-1800

● **LS-600/LS-1100**

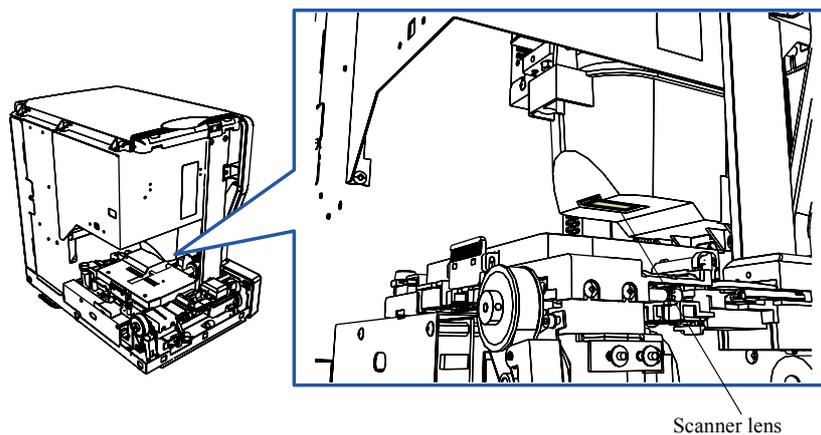
Film advance unit



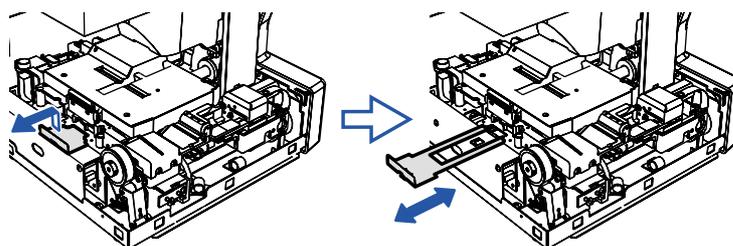
Slots of 135/240 lanes

G083060

Scanner and LED light source unit



Scanner lens

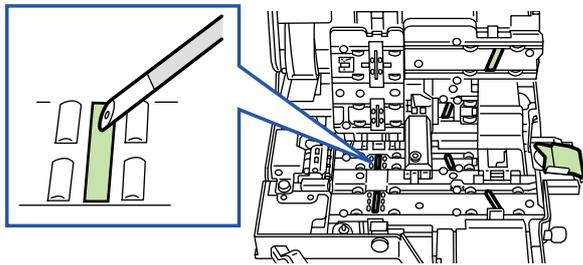


Cleaning the LED light source unit

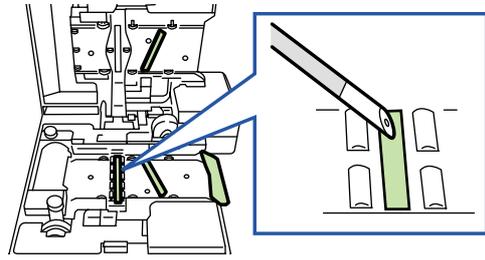
G083061

● HS-1800

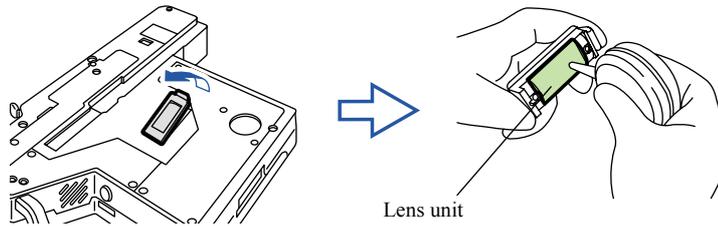
AFC



Slot of AFC (135/240 AFC-II)



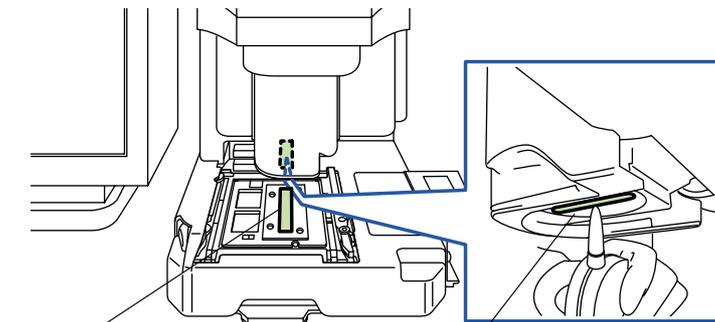
Slot of AFC (120 AFC-II)



Lens unit

G078470

Scanner and LED light source unit



LED light source unit

Scanner lens

G078471

No. 01302

For corrective actions, see EZ Controller Service Manual

Condition



IMPORTANT

- Attention messages not explained in this Scanner Service Manual are shown in the table below.
For corrective actions, see the **EZ Controller Service Manual**.

Attention message (Scanner)

Attention message table	
No. 01302-00000	Would you like to stop scanning?

NOTE

- In the Attention message table, the attention message No.s that are not used currently may be described.

No. 01305**Photometry Section may be dirty.**

Countermeasure message

Confirm the parts in the Light Source and the Photometry sections, and clean them if necessary. Especially clean the AFC slit section by the maintenance stick intensively. For details, refer to the manual. After cleaning, execute the Scanner Change of Light with Scanner Setup Mode.

Attention message release

YES

NOTE

- If the above attention message appears, the lane with dusts are displayed in the second line.

Condition

Condition
When the Scanner Calibration is performed, the data sent from CCD has problems.

Suffix number	Display of the dust detection lane	Remarks
00001	Nothing displayed	HS-1800
00002	135 lane	LS-600/LS-1100
00003	240 lane	LS-600/LS-1100

Check PointLS-600/LS-1100/HS-1800

		Manual No.
1	By displaying the display with Scanner Sensitivity Check and checking the chart status, it can be possible to specify occurring causes.	 37040
2	Check and clean the scanner section.	 4610
3	Perform the Scanner Calibration .	 37030

NOTE

- Bring up **Swing and Tilt/Light Axis Adjustment** display without attaching the scanner adjustment chart. By checking the condition of the graph, you may specify the occurring cause.

DiagnosisLS-600

Failed parts	Manual No.
Scanner main body unit	 20612
Scanner control PCB	 66010
Scanner driver PCB	 66020

LS-1100

Failed parts	Manual No.
Scanner main body unit	 20613
Scanner main PCB	 66560
Connecting PCB	 66530
Scanner control PCB	 66510
Scanner driver PCB	 66520

HS-1800

Failed parts	Manual No.
Scanner main body unit	👉 20611
AFC/scanner control PCB	👉 65000
AFC/scanner driver PCB	👉 65010

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01313

The Focus Adjustment was not completed yet.

Attention message release

YES

NOTE

- If the Focus Adjustment has not been performed, scanning cannot be performed even though the message is closed.

Condition

Suffix number	Condition
00000	Film is scanned although the Focus Adjustment has not finished.

Check Point

LS-600/LS-1100/HS-1800

		Manual No.
1	Carry out the focus adjustment.	 37020

NOTE

- The status of the Focus Adjustment for each carrier is saved in **BkScannerMain.dat**.

No. 01314**Light source evenness is out of allowable range.**

Countermeasure message

Clean the parts in the Light Source Section and Photometry Section. For details, refer to the manual. After cleaning, execute the Scanner Change of Light in Daily Setup.

Attention message release

YES

Condition

Suffix number	Condition
00000	When the Scanner Calibration is performed, the degree of light source unevenness exceeds the allowable range.

Check PointLS-600/LS-1100/HS-1800

		Manual No.
1	By displaying the display with Scanner Sensitivity Check and checking the chart status, it can be possible to specify occurring causes.	 37040
2	Confirm and clean the scanner section.	 4610
3	Perform the Scanner Calibration again.	 37030

DiagnosisLS-600

Failed parts	Manual No.
LED light source unit	 62080
Scanner main body unit	 20612
Scanner control PCB	 66010
Scanner driver PCB	 66020

LS-1100

Failed parts	Manual No.
LED light source unit	 62085
ND filter solenoid	 62085
Scanner main body unit	 20613
Scanner main PCB	 66560
Connecting PCB	 66530
Scanner control PCB	 66510
Scanner driver PCB	 66520

HS-1800

Failed parts	Manual No.
LED light source unit	 62070
ND filter solenoid	 62070
Scanner unit	 20611
Scanner control PCB	 65000
Scanner driver PCB	 65010

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01316**Focus Adjustment failed.****Attention message release**

YES

Condition

Suffix number	Condition
00001	Focus Auto Adjustment did not finished normally.
00002	Focus Auto Adjustment cannot be performed normally because of bad focus.
00003	Focus Auto Adjustment cannot be performed normally because the adjusting chart has problems.

Check PointLS-600/LS-1100/HS-1800

		Manual No.
1	Confirm and clean the scanner section.	 4610
2	Manually adjust the focus value to some extent, and perform the Focus Adjustment again.	 37020
3	Check whether the scanner adjustment chart is dirty or there is any distortion and also check the attachment state.	 4600
4	Carry out the focus adjustment again.	 37020

No. 01317**Failed to perform the Scan Position Auto Correction.**

Countermeasure message

Check whether the film is appropriate. For details, refer to the manual.

Attention message release

YES

Condition

Suffix number	Condition
00000	The image was not detected properly when carrying out the Scanning Position Auto Correction.

Check Point

LS-600/LS-1100/HS-1800

1	Check that the appropriate film is used which is including the normal display with clear edges.
---	---

No. 01318**Close the Scanner Unit Cover.****Attention message release**

YES

Condition

Suffix number	Condition
00000	The interlock switch turned off except while film processing.

Check Point

LS-600/LS-1100/HS-1800

1	Verify that the front and the side (left) covers are closed.
---	--

DiagnosisLS-600

Failed parts	Manual No.
interlock switches 1, 2	62080
Scanner control PCB	66010
Scanner driver PCB	66020
Power supply	66110

LS-1100

Failed parts	Manual No.
interlock switches 1, 2	62085
Scanner control PCB	66510
Scanner driver PCB	66520
Power supply	66610

◆ Symptoms due to the wiring connection failure

Failed part(s) [LS-600]
See Scanner control PCB 4210 .
See Scanner driver PCB 4210 .
See Power supply (PS2) 4210 .

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01320**There may be dust on the AFC opening.**

Countermeasure message

Confirm the parts in the Light Source and the Photometry sections, and clean them if necessary. Especially clean the AFC slit section by the maintenance stick intensively. For details, refer to the manual. After cleaning, execute the Scanner Change of Light with Scanner Setup Mode.

Attention message release

YES

Condition

Suffix number	Condition
00000	The attention message is given when all the following conditions are fulfilled. <ol style="list-style-type: none"> Dust Detection is selected (<input checked="" type="checkbox"/>) in Environment→Correction. Film is scanned with dust between the scanner unit and ED light source unit. After the above film is scanned, another film is inserted.

Check Point

LS-600/LS-1100/HS-1800

		Manual No.
1	By displaying the display with Scanner Sensitivity Check and checking the chart status, it can be possible to specify occurring causes.	 37040
2	Confirm and clean the scanner section.	 4610
3	Perform the Scanner Calibration .	 37030

No. 01322**Connect the scanner unit. Check the power supply and connection.****Attention message release**

YES

Condition

Suffix number	Condition
00000	When the scanner maintenance software is singularly activated, the scanner unit is not connected.

Check PointLS-600/LS-1100/HS-1800

1	Check whether the power supply of the scanner is turned on.
2	Check whether the USB cable of the scanner is normally connected.

DiagnosisLS-600

Failed parts	Manual No.
Scanner control PCB	 66010

LS-1100

Failed parts	Manual No.
Scanner control PCB	 66510

HS-1800

Failed parts	Manual No.
AFC/scanner control PCB	 65000

◆ Symptoms due to the wiring connection failure

Failed part(s) [LS-600]
See USB connection 4210.
See  Scanner control PCB 4210.
See  Control source (PS-1) 4210.

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01323**The connected USB device is not supported.****Attention message release**

YES

Condition

Suffix number	Condition
00000	The scanner and PC is connected with USB1.1.

Check PointLS-600/LS-1100/HS-1800

1	Check whether the USB standard of the connected PC is USB 2.0.
---	--

DiagnosisLS-600

Failed parts	Manual No.
Scanner control PCB	 66010

LS-1100

Failed parts	Manual No.
Scanner control PCB	 66510

HS-1800

Failed parts	Manual No.
AFC/scanner control PCB	 65000

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01400

Lock the Film Carrier.

Attention message release

YES or automatic release

- This attention message will be automatically released when you lock the film carrier.

Condition

Suffix number	Condition
00000	When the film is not processed with the film carrier, the film carrier lock sensor turns LIGHT.

Check Point

HS-1800

1	Check that the film ready lamp of the film carrier does not blink in red.
2	Check the sensor status via input check.

NOTE

- If the film carrier is not in position, the ready lamp blinks.

Diagnosis

HS-1800

Failed parts	Manual No.
Film carrier lock sensor	 62070
AFC/scanner control PCB	 65000
AFC/scanner driver PCB	 65010
Multi power supply	 65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01401**Attach the Film Carrier.****Attention message release**

YES or automatic release

- This attention message will be automatically released when you lock the film carrier.

Condition

Suffix number	Condition
00000	When the film is not processed, all the film carrier code detection turns OFF.

Check PointHS-1800

1	Check the carrier code detector via input check with the film carrier attached.
2	If there is an optional film carrier besides the current one, attach it and specify the error caused by the film carrier or main body.

DiagnosisHS-1800

Film carrier

Failed parts	Manual No.
Relay PCB 1 (135/240 AFC-II)	 65200
135 AFC connecting PCB	 65360
Connecting PCB (120 AFC-II)	 65290
Connecting PCB (110 AFC-II)	 65310
Connecting PCB (135/240 AMC-II)	 65350
MMC connecting PCB	 65330

Scanner

Failed parts	Manual No.
AFC/scanner control PCB	 65000
Multi power supply	 65060
AFC/scanner driver PCB	 65010
Scanner power supply 1	 65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01402**Attach the 135/240 AFC.****Attention message release**

YES or automatic release

- This attention message will be automatically released when you attach the film carrier.

Condition

Suffix number	Condition
00000	A film carrier other than the 135/240 AFC-II is attached when cleaning the 135/240 AFC-II at the close down check.

Check PointHS-1800

1	Check that the 135/240 AFC-II is securely attached.
2	Check the carrier code detector via input check with the film carrier attached.

DiagnosisHS-1800

135/240 AFC-II

Failed parts	Manual No.
Connecting PCB 1	65200
AFC/scanner control PCB	65000
Multi power supply	65060
Power PCB	
AFC/scanner driver PCB	65010
Scanner power supply 1	65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01403**Undeveloped cartridge. Cannot process.**

Countermeasure message

Confirm the Film Cartridge.

Attention message release

YES

Condition

Suffix number	Condition
00000	When the 240 cartridge is inserted into the film carrier, the IPI sensor turns ON.

Check PointLS-600/LS-1100/HS-1800

1	Check if the IPI pawl of the 240 film cartridge is folded back.
2	Check that the pin of the IPI sensor moves smoothly.
3	Check the sensor status via input check.

DiagnosisLS-600

Failed parts	Manual No.
IPI sensor	 62080
Scanner control PCB	 66010
Scanner driver PCB	 66020
Control source	 66110

LS-1100

Failed parts	Manual No.
IPI sensor	 62085
Scanner control PCB	 66510
Scanner driver PCB	 66520
Multi power supply	 66610

HS-1800

135/240 AFC-II

Failed parts	Manual No.
IPI sensor	 62150
Sensor PCB	 65250
Connecting PCB 1	 65200
AFC/scanner control PCB	 65000
Multi power supply	 65060
Power supply	
AFC/scanner driver PCB	 65010
Scanner power supply 1	 65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01404**The IX frame data is incomplete.**

Countermeasure message

Press the [YES] key to scan again. If this error recurs, clean the Magnetic Head. For details, refer to the manual.

Attention message release

YES or NO

- Select **YES** to scan it again.
- Select **NO** to process the film.

NOTE

- When the above attention message appears, the frame numbers which could not be read are displayed in the second line.

Condition

Suffix number	Condition
00000	Some frames cannot be read when the read head (camera track or photo finishing track) reads the IX data.

Check PointLS-600/LS-1100/HS-1800

1	Check Result of Reading Magnetic Data in Film Carrier Unit Adjustment . For the LS600/LS-1100, see ☞ 35072 . For the HS-1800, see ☞ 35000 .
2	Clean the magnetic head.

DiagnosisLS-600

Failed parts	Manual No.
Read head	☞ 62080
Magnetic head PCB	☞ 66070
Scanner control PCB	☞ 66010
Scanner driver PCB	☞ 66020
Control source	☞ 66110

LS-1100

Failed parts	Manual No.
Read head	☞ 62085
Magnetic head PCB	☞ 66570
Scanner control PCB	☞ 66510
Scanner driver PCB	☞ 66520
Multi power supply	☞ 66610

HS-1800

135/240 AFC-II

Failed parts	Manual No.
Read head	 62150
Magnetic head PCB	 65270
Connecting PCB 1	 65200
AFC/scanner control PCB	 65000
Multi power supply	 65060
Power PCB	
AFC/scanner driver PCB	 65010
Scanner power supply 1	 65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01405

Remove the 135 film from the Film Carrier.

Attention message release

YES

Condition

Condition
When the power supply is turned ON or the system is initialized after the error cancellation, the film carrier sensor turns DARK.
The machine detects an error in the sensor while checking at the beginning of film processing.

Suffix number	Condition
00001	135 loading sensor
00002	135 ready sensor
00004	135 perforation sensor
00008	DX sensor 1
00016	DX sensor 3
00128	Rewinding sensor
32768	Film needs to be removed due to reason not applicable to any of the above sensor detection

NOTE

- Suffix number is displayed with the total of the bit operation.
For details about how to determine the condition, refer to **Suffix number display**.
[☞ 4002](#)

Check Point

LS-600/LS-1100/HS-1800

1	Confirm that each sensor is not soiled.
2	Perform the Sensor LED Light Intensity Value Adjustment.
3	Check the status of the sensors via input check.

Diagnosis

LS-600

Adjustment failure point	Manual No.
Failure of Sensor Sensitivity Adjustment	☞ 35070

Failed parts	Manual No.
135 perforation sensor	☞ 62080
135 ready sensor	
135 loading sensor	
Rewinding sensor	
Scanner control PCB	☞ 66010
Scanner driver PCB	☞ 66020
Control source	☞ 66110
Power supply	

LS-1100

Adjustment failure point	Manual No.
Failure of Sensor Sensitivity Adjustment	☞ 35070

Failed parts	Manual No.
135 perforation sensor	 62085
135 ready sensor	
135 loading sensor	
Rewinding sensor	
Scanner control PCB	 66510
Scanner driver PCB	 66520
Multi power supply	 66610
Power supply	

HS-1800

135/240 AFC-II

Adjustment failure point	Manual No.
Failure of Sensor Sensitivity Adjustment	 35000
Failure of DX Sensor Standard Adjustment	

Failed parts	Manual No.
135 loading sensor	 62150
135 ready sensor	
135 perforation sensor	
135 DX sensor 1	
135 DX sensor 3	
Rewinding sensor	
Sensor PCB	 65250
Connecting PCB 2	 65210
Connecting PCB 4	 65280
Connecting PCB 1	 65200
AFC/scanner control PCB	 65000
Multi power supply	 65060
Power PCB	
AFC/scanner driver PCB	 65010
Scanner power supply 1	 65060

135 AFC-II

Adjustment failure point	Manual No.
Failure of Sensor Sensitivity Adjustment	 35060
Failure of DX Sensor Standard Adjustment	

Failed parts	Manual No.
135 loading sensor	👉 62650
135 ready sensor	
135 perforation sensor	
135 DX sensor 1	
135 DX sensor 3	
Rewinding sensor	
135 AFC sensor PCB	👉 65370
135 AFC connecting PCB	👉 65360
AFC/scanner driver PCB	👉 65000
AFC/scanner control PCB	👉 65010
Multi power supply	👉 65060
Power PCB	👉 65260
AFC/scanner driver PCB	👉 65000
Scanner power supply 1	👉 65060

◆ Symptoms due to the wiring connection failure

Failed part(s) [LS-600]
See 👉 Scanner control PCB 4210.
See 👉 Scanner driver PCB 4210.

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01406**Remove the 240 film from the Film Carrier.****Attention message release**

YES

Condition

Condition
When the power supply is turned ON or the system is initialized after the error cancellation, the film carrier sensor turns DARK.
The machine detects an error in the sensor while checking at the beginning of film processing.

Suffix number	Condition
00001	240 end perforation sensor (LS-600/LS-1100) 240 loading sensor (HS-1800)
00002	240 ready sensor (HS-1800)
00004	240 perforation sensor
00008	DX sensor 1
00064	Cartridge limit switch 1, 2

NOTE

- Suffix number is displayed with the total of the bit operation.
For details about how to determine the condition, refer to **Suffix number display**.
 4002

Check Point**LS-600/LS-1100/HS-1800**

1	Confirm that each sensor is not soiled.
2	Perform the Sensor LED Light Intensity Value Adjustment.
3	Check the status of the sensors via input check.

Diagnosis**LS-600**

Adjustment failure point	Manual No.
Failure of Sensor Sensitivity Adjustment	 35070

Failed parts	Manual No.
240 perforation sensor	 62080
240 end perforation sensor	
Cartridge limit switch	
Scanner control PCB	 66010
Scanner driver PCB	 66020
Control source	 66110
Power supply	

LS-1100

Adjustment failure point	Manual No.
Failure of Sensor Sensitivity Adjustment	 35070

Failed parts	Manual No.
240 perforation sensor	 62085
240 end perforation sensor	
Cartridge limit switch	
Scanner control PCB	 66510
Scanner driver PCB	 66520
Multi power supply	 66610
Power supply	

HS-1800

135/240 AFC-II

Adjustment failure point	Manual No.
Failure of Sensor Sensitivity Adjustment	 35000
Failure of DX Sensor Standard Adjustment	

Failed parts	Manual No.
240 loading sensor	 62150
240 ready sensor	
240 perforation sensor	
240 DX sensor 1	
Cartridge limit switch 1, 2	
Sensor PCB	 65250
Connecting PCB 2	 65210
Connecting PCB 4	 65280
Connecting PCB 1	 65200
AFC/scanner control PCB	 65000
Multi power supply	 65060
Power PCB	
AFC/scanner driver PCB	 65010
Scanner power supply 1	 65060

◆ Symptoms due to the wiring connection failure

Failed part(s) [LS-600]
See  Scanner control PCB 4210.
See  Scanner driver PCB 4210.

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01407**Remove the 110 film from the Film Carrier.****Attention message release**

YES

Condition

Condition
When the power supply is turned ON or the system is initialized after the error cancellation, the film carrier sensor turns DARK.
The machine detects an error in the sensor while checking at the beginning of film processing.

Suffix number	Condition
00001	Loading sensor
00002	Ready sensor
00004	Perforation sensor

NOTE

- Suffix number is displayed with the total of the bit operation.
For details about how to determine the condition, refer to **Suffix number display**.
[☞ 4002](#)

Check Point**HS-1800**

1	Confirm that each sensor is not soiled.
2	Perform the Sensor LED Light Intensity Value Adjustment.
3	Check the status of the sensors via input check.

Diagnosis**HS-1800****110 AFC-II**

Adjustment failure point	Manual No.
Failure of Sensor Sensitivity Adjustment	☞ 35020

Failed parts	Manual No.
Loading sensor	☞ 62350
Ready sensor	
Perforation sensor	
Sensor PCB	☞ 65320
Connecting PCB	☞ 65310
AFC/scanner driver PCB	☞ 65000
AFC/scanner control PCB	☞ 65010
Multi power supply	☞ 65060
Scanner power supply 1	

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01408**Remove the 120 film from the Film Carrier.****Attention message release**

YES

Condition

Condition
When the power supply is turned ON or the system is initialized after the error cancellation, the film carrier sensor turns DARK.
The machine detects an error in the sensor while checking at the beginning of film processing.

Suffix number	Condition
00001	Loading sensor
00002	Ready sensor
00004	Film sensor

NOTE

- Suffix number is displayed with the total of the bit operation.
For details about how to determine the condition, refer to **Suffix number display**.
[☞ 4002](#)

Check Point**HS-1800**

1	Confirm that each sensor is not soiled.
2	Perform the Sensor LED Light Intensity Value Adjustment.
3	Check the status of the sensors via input check.

Diagnosis**HS-1800****120 AFC-II**

Adjustment failure point	Manual No.
Failure of Sensor Sensitivity Adjustment	☞ 35010

Failed parts	Manual No.
Loading sensor	☞ 62250
Ready sensor	
Film sensor	
Sensor PCB	☞ 65290
Connecting PCB	☞ 65300
AFC/scanner control PCB	☞ 65000
Multi power supply	☞ 65060
AFC/scanner driver PCB	☞ 65010
Scanner power supply 1	☞ 65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01409**Set the lane for the Film Carrier.****Attention message release**

YES

NOTE

- This message will be displayed only when the 135/240 AFC is attached.

Condition

Suffix number	Condition
00000	The lane of 135/240 AFC-II is selected to neither 135 nor 240.

Check PointHS-1800

1	Check that the lane is correctly selected.
2	Check the limit switch status via input check.

DiagnosisHS-1800

135/240 AFC-II

Failed parts	Manual No.
135 lane limit switch	 62150
240 lane limit switch	
Driver PCB 2	 65240
Connecting PCB 3	 65220
AFC/scanner control PCB	 65000
Multi power supply	 65060
Power PCB	
AFC/scanner driver PCB	 65010
Scanner power supply 1	 65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01410**Confirm the film stop position in the Film Carrier.**

Countermeasure message

Adjust the film stop position by using the cursor keys. When you change the frame size, select the desirable frame size and press the [YES] key.

Attention message release**PASS, YES or NO**

- Select **PASS** to skip the frame and restart scanning from the next frame.
- Select **YES** to start film scanning.
- Select **NO** to eject the film.

Condition

Suffix number	Condition
00000	The scanner cannot recognize the frames included in the scanned data as proper images.

NOTE

- The film stop position in the film carrier is not checked.
- The whole roll of a film is scanned from the leading edge to the rear edge and the image data is read.
- Then, the images which are recognized as frames by the scanner are displayed on the screen sequentially.
- This attention message will appear when the image data of frames which has unclear boundary between exposed area and unexposed one is displayed on the screen.

Check Point**LS-600/LS-1100/HS-1800**

1	Insert the film in the reverse direction to check that it stops at the same position.
2	Carry out the Scanning Position Correction.
3	Perform the Scanner Calibration.

Diagnosis**LS-600**

Failed parts	Manual No.
Scanner main body unit	 20612
Scanner control PCB	 66010
Scanner driver PCB	 66020
Film feed motor	 62080
PM driver (film feed motor)	 66210
LED light source unit	 20640
Control source	 66110
Power supply	

LS-1100

Failed parts	Manual No.
Scanner main body unit	👉 20613
Scanner main PCB	👉 66560
Connecting PCB	👉 66530
Scanner control PCB	👉 66510
Scanner driver PCB	👉 66520
Film feed motor	👉 62085
PM driver (film feed motor)	👉 66710
LED light source unit	👉 20645
Multi power supply	👉 66610
Power supply	

HS-1800

135/240AFC-II, 120AFC-II, 110AFC-II, 135AFC-II

Failed parts	Manual No.
Scanner unit	👉 20611
AFC/scanner driver PCB	👉 65000
AFC/scanner control PCB	👉 65010
Film feed motor (135/240 AFC-II)	👉 62150
Film feed motor cooling fan	
Film feed motor (135 AFC-II)	👉 62650
Film feed motor (120 AFC-II)	👉 62250
Film feed motor (110 AFC-II)	👉 62350
PM driver (film feed motor)	👉 65070
LED light source unit	👉 20630
LED cooling fan 1	👉 62070
LED cooling fan 2	
Multi power supply	👉 65060
Scanner power supply 1	
Scanner power supply 2	

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01412

The film is upside down. Would you like to continue processing?

Attention message release

YES or NO

- Select **YES** to start film scanning.
- Select **NO** to eject the film.

Condition

Suffix number	Condition (LS-600/LS-1100)
00000	When detecting the DX code on the scanner unit, it is detected that the film is upside down.

Suffix number	Condition (HS-1800)
00000	When 135 DX sensor 1, 2, 3, or 4 detects the film DX code, it detects that the film is upside down.

Check Point

LS-600/LS-1100/HS-1800

		Manual No.
1	Check if the DX sensor is not soiled.	
2	Perform the Sensor LED Light Intensity Value Adjustment.	
3	Check the status of the sensors via input check.	
4	Confirm and clean the scanner section.	 4610

Diagnosis

LS-600

Failed parts	Manual No.
Scanner main body unit	 20612
Scanner control PCB	 66010
Scanner driver PCB	 66020
Control source	 66110
Power supply	

LS-1100

Failed parts	Manual No.
Scanner main body unit	 20613
Scanner main PCB	 66560
Connecting PCB	 66530
Scanner control PCB	 66510
Scanner driver PCB	 66520
Multi power supply	 66610
Power supply	

HS-1800

135/240AFC-II, 135AFC-II

Adjustment failure point	Manual No.
Failure of DX sensor standard adjustment (135/240 AFC-II)	 35000
Failure of DX sensor standard adjustment (135 AFC-II)	 35060

Failed parts	Manual No.
135 DX sensors 1, 2, 3, or 4 (135/240 AFC-II)	👉 62150
135 DX sensors 1, 2, 3, or 4 (135 AFC-II)	👉 62650
Sensor PCB (135/240 AFC-II)	👉 65250
135 AFC sensor PCB	👉 65370
Relay PCB 2 (135/240 AFC-II)	👉 65210
Relay PCB 4 (135/240 AFC-II)	👉 65280
Relay PCB 1 (135/240 AFC-II)	👉 65200
135 AFC connecting PCB	👉 65360
AFC/scanner control PCB	👉 65000
Multi power supply	👉 65010
Power PCB (135/240 AFC-II)	👉 65260
AFC/scanner driver PCB	👉 65010
Scanner power supply 1	👉 65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01413**Input the frame number****Attention message release**

YES or NO

- Select **YES** to input the frame numbers.
- Select **NO** to start scanning without reading the frame numbers.

Condition

Suffix number	Condition (LS-600/LS-1100)
00000	When processing 135 film, two or more frame numbers cannot be detected by the scanner unit.

Suffix number	Condition (HS-1800)
00000	The frame number cannot be detected by 135 DX sensors 1, 2, 3, and 4 while processing 135 film. Or, two or more frame number cannot be detected.

NOTE

- This attention message is shown only when **Manual** is selected for **Frame No. Detect Error Correction** in the **Film Carrier** tab on the **Environment** display.

Check PointLS-600/LS-1100/HS-1800

		Manual No.
1	Check that the DX code area of the film is not fogged.	
2	Check that the film without the DX code is not used.	
3	Check if the DX sensor is not soiled.	
4	Carry out the Sensor LED Light Intensity Value Adjustment.	
5	Check the status of the sensors via input check.	
6	Confirm and clean the scanner section.	 4610

DiagnosisLS-600

Failed parts	Manual No.
Scanner main body unit	 20612
Scanner control PCB	 66010
Scanner driver PCB	 66020
Control source	 66110
Power supply	

LS-1100

Failed parts	Manual No.
Scanner main body unit	 20613
Scanner main PCB	 66560
Connecting PCB	 66530
Scanner control PCB	 66510
Scanner driver PCB	 66520
Multi power supply	 66610
Power supply	

HS-1800

135/240AFC-II, 135AFC-II

Adjustment failure point	Manual No.
Failure of DX sensor standard adjustment (135/240 AFC-II)	👉 35000
Failure of DX sensor standard adjustment (135 AFC-II)	👉 35060

Failed parts	Manual No.
135 DX sensors 1, 2, 3, or 4 (135/240 AFC-II)	👉 62150
135 DX sensors 1, 2, 3, or 4 (135 AFC-II)	👉 62650
Sensor PCB (135/240 AFC-II)	👉 65250
135 AFC sensor PCB	👉 65370
Relay PCB 2 (135/240 AFC-II)	👉 65210
Relay PCB 4 (135/240 AFC-II)	👉 65280
Relay PCB 1 (135/240 AFC-II)	👉 65200
135 AFC connecting PCB	👉 65360
AFC/scanner control PCB	👉 65000
Multi power supply	👉 65060
AFC/scanner driver PCB	👉 65010
Power PCB (135/240 AFC-II)	👉 65260
Scanner power supply 1	👉 65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01414**The FID number was not detected.**

Countermeasure message

Input the FID number then press the [START] key to print the FID number.

Attention message release

YES or NO

- Select **YES** to input the FID manually.
- Select **NO** to start scanning without reading the FID number.

Condition

Suffix number	Condition (LS-600/LS-1100)
00000	The FID code of the film was not detected by the scanner unit.

Suffix number	Condition (HS-1800)
00000	240 DX sensor 1 or 2 cannot the FID code of the film.

Check PointLS-600/LS-1100/HS-1800

		Manual No.
1	Check whether the 240 DX sensor is dirty.	
2	Perform the Sensor LED Light Intensity Value Adjustment.	
3	Check the status of the sensors via input check.	
4	Confirm and clean the scanner section.	 4610

DiagnosisLS-600

Failed parts	Manual No.
Scanner main body unit	 20612
Scanner control PCB	 66010
Scanner driver PCB	 66020
Control source	 66110
Power supply	

LS-1100

Failed parts	Manual No.
Scanner main body unit	 20613
Scanner main PCB	 66560
Connecting PCB	 66530
Scanner control PCB	 66510
Scanner driver PCB	 66520
Multi power supply	 66610
Power supply	

HS-1800

135/240 AFC-II

Adjustment failure point	Manual No.
Failure of DX Sensor Standard Adjustment	 35000

Failed parts	Manual No.
240 DX sensor 1 or 2	👉 62150
Sensor PCB	👉 65250
Relay PCB 2 (135/240 AFC-II)	👉 65210
Relay PCB 4 (135/240 AFC-II)	👉 65280
Relay PCB 1 (135/240 AFC-II)	👉 65200
AFC/scanner control PCB	👉 65000
Multi power supply	👉 65060
Power PCB (135/240 AFC-II)	👉 65260
AFC/scanner driver PCB	👉 65010
Scanner power supply 1	👉 65060

◆ Symptoms due to the wiring connection failure

Failed part(s) [LS-600]
See 👉 Scanner control PCB 4210.
See 👉 Scanner driver PCB 4210.

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01416**Select the 240 lane.****Attention message release**

YES

NOTE

- This message appears only when the 135/240 AFC-II is attached.

Condition

Suffix number	Condition
00000	240 lane limit switch does not turn ON when cleaning the 240 lane for the AFC cleaning in the close down checks.
	240 lane limit switch does not turn ON when updating the 240 light source.

Check PointHS-1800

1	Check whether the 240 lane is correctly selected.
2	Check the lane limit switch status via input check.

DiagnosisHS-1800

135/240 AFC-II

Failed parts	Manual No.
240 lane limit switch	 62150
135 lane limit switch	
Driver PCB 2	 65240
Connecting PCB 3	 65220
AFC/scanner control PCB	 65000
Multi power supply	 65060
Power PCB	 65260
AFC/scanner driver PCB	 65010
Scanner power supply 1	 65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01417**Close the Mount Insertion Cover.****Attention message release**

YES or automatic release

- This message will be released automatically when the mount insertion cover is closed.

NOTE

- This message will be displayed only when the 135/240 MMC-II is attached.

Condition

Suffix number	Condition
00000	When the power supply is turned ON or the system is initializing after the error cancellation, the mount insertion cover sensor turns LIGHT.

Check PointHS-1800

1	Check that the mount insertion cover is closed.
2	Check the status of the mount insertion cover sensor via input check.

DiagnosisHS-1800

135/240 MMC-II

Failed parts	Manual No.
Mount insertion cover sensor	 62450
MMC connecting PCB	 65330
AFC/scanner control PCB	 65000
Multi power supply	 65060
AFC/scanner driver PCB	 65010
Scanner power supply 1	 65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01421**Confirm the stop position of all the frames to be processed.**

Countermeasure message

Adjust the film stop position by using the cursor keys. When you change the frame size, select the desirable frame size and press the [YES] key.

Attention message release

N, YES or NO

- Select **N** to skip the displayed frame and continue scanning of following frames.
- Select **YES** to start film scanning.
- Select **NO** to eject the film.

Condition

Suffix number	Condition
00000	The film is inserted pressing the N key of the operation keyboard or pressing the F4 key of the full keyboard to check the frame stop position manually.

NOTE

- When scanning the film, the machine cannot recognize the frame properly, adjust the stop position manually.

No. 01422**Select the 135 lane.****Attention message release**

YES

NOTE

- This message appears only when the 135/240 AFC-II is attached.

Condition

Suffix number	Condition
00000	135 lane is not selected when cleaning the 135 lane for the AFC cleaning in the close down checks.

Check PointHS-1800

1	Check whether the 135 lane is correctly selected.
2	Check the lane limit switch status via input check.

DiagnosisHS-1800

135/240 AFC-II

Failed parts	Manual No.
135 lane limit switch	62150
240 lane limit switch	
Driver PCB 2	65240
Connecting PCB 3	65220
AFC/scanner control PCB	65000
Multi power supply	65060
Power PCB	65260
AFC/scanner driver PCB	65010
Scanner power supply 1	65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01423

Execute Sensor LED Light Intensity Adjustment. Remove the film from the Film Carrier.

No. 01424

Sensor LED Light Intensity Adjustment is being executed.

No. 01425

Sensor LED Light Intensity Adjustment is complete.

Attention message release

YES

NOTE

- This message will be displayed only when the positive film is inserted.

Condition

Suffix number	Condition
00000	A positive film is inserted into the auto film carrier when two or more hours passed after finishing the previous sensor LED light source intensity adjustment.

NOTE

- If the attention message No. 01423 is closed by removing the film and clicking **YES**, the Sensor LED Light Intensity Adjustment is automatically performed.
Attention messages No. 01424 and 01425 is shown during the above operation.
After the sensor LED light intensity adjustment is completed, the attention message is released automatically.

No. 01426

Attach the 110 AFC.

Attention message release

YES or automatic release

- This attention message will be automatically released when you attach the film carrier.

Condition

Suffix number	Condition
00000	A film carrier other than 110 AFC-II has been attached when carrying out the setup for 110 in the Daily Setup or Area Registration.

Check Point

HS-1800

Step	Check Point
1	Check if the 110 AFC-II is attached securely.

Diagnosis

HS-1800

110 AFC-II

Failed parts	Manual No.
110 connecting PCB	65310
AFC/scanner control PCB	65000
Multi power supply	65060
AFC/scanner driver PCB	65010
Scanner power supply 1	65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01427

Execute Sensor LED Light Intensity Adjustment. If film remains in the Film Carrier, remove it.

Attention message release

YES or NO

- Select **YES** to carry out the light intensity adjustment.
- Select **NO** to stop the light intensity adjustment.

Condition

Suffix number	Condition
00000	If a specified amount of time has elapsed since the intensity of the sensor LED light source was previously adjusted and the sensor LED light source's intensity must be readjusted, but a light source update is not necessary:

No. 01428**Remove the mount from the Film Carrier.****Attention message release**

YES

Condition

Suffix number	Condition
00001	When the power supply is turned ON or the system is initializing after the error cancellation, the mount sensor turns ON.
00002	When the power supply is turned ON or the system is initializing after the error cancellation, the ejection sensor turns ON.

NOTE

- This attention message appears when the 135/240 AMC-II is attached.

Check Point**HS-1800**

1	Check if no mounts are left in the mount unit and the mount stocker.
2	Check the status of the sensors via input check.

Diagnosis**HS-1800****135/240 AMC-II**

Failed parts	Manual No.
Mount sensor	62550
Ejection sensor	
MMC sensor PCB	65340
AMC connecting PCB	65350
AFC/scanner control PCB	65000
Multi power supply	65060
AFC/scanner driver PCB	65010
Scanner power supply 1	65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01429**Make sure that the mount is placed correctly.****Attention message release**

YES

Condition

Suffix number	Condition
00000	When the mount is inserted for the first time, the mount sensor does not turn ON.

NOTE

- This attention message appears when the 135/240 AMC-II is attached.

Check PointHS-1800

1	Check if no mounts are left in the mount unit and the mount stocker.
2	Check the status of the mount sensor and mount sensor (inlet) via input check.

DiagnosisHS-1800

135/240 AMC-II

Failed parts	Manual No.
Mount sensor	62550
Mount sensor (inlet)	
MMC sensor PCB	65340
AMC connecting PCB	65350
AFC/scanner control PCB	65000
Multi power supply	65060
AFC/scanner driver PCB	65010
Scanner power supply 1	65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01430**Confirm the frame size.****Attention message release**

YES

Condition

Suffix number	Condition
00000	A frame film which size is smaller than 120 frame size (6×6/6×7/6×8/6×9) selected in Machine Status of order display.

NOTE

- This attention message appears when the 120 AFC-II is attached.

Check Point**HS-1800**

1	Check that the frame size (6×6/6×7/6×8/6×9) selected in Machine Status of order display is as same as one inserted 120 frame size.
2	Check that the loading sensor, the ready sensor and the film sensor are not soiled.
3	Perform the Sensor LED Light Intensity Value Adjustment.
4	Check the status of the sensors via input check.

Diagnosis**HS-1800****120 AFC-II**

Adjustment failure point	Manual No.
Sensitivity adjustment failure in the loading sensor, ready sensor, or film sensor	 35010

Failed parts	Manual No.
Loading sensor	 62250
Ready sensor	
Film sensor	
Film feed motor	 65070
PM driver (film feed motor)	
Sensor PCB	 65300
Connecting PCB	 65290
AFC/scanner control PCB	 65000
Multi power supply	 65060
AFC/scanner driver PCB	 65010
Scanner power supply 1	 65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01435

Insertion direction of film is different. Insert the film from the rear end (end with largest frame number).

Attention message release

YES or NO

- Select **YES** to eject the film.
- Select **NO** to continue film processing from the front end.

Condition

Suffix number	Condition (LS-600/LS-1100)
00000	The scanner unit detected that the film had been inserted from the front end.

Suffix number	Condition (HS-1800)
00000	The 135 DX sensor detected that the film had been inserted from the front end.

NOTE

- This attention message is shown only when **ON** is selected for **135 Negative Film Inserting Direction Detection Function** in the **Film Carrier** tab on the **Environment** display.

Check PointLS-600/LS-1100/HS-1800

1	Check whether the 135 DX sensor is dirty.	
2	Perform the Sensor LED Light Intensity Value Adjustment.	
3	Check the 135 DX sensor status via input check.	
4	Confirm and clean the scanner section.	 4610

DiagnosisLS-600

Failed parts	Manual No.
Scanner main body unit	 20612
Scanner control PCB	 66010
Scanner driver PCB	 66020
Control source	 66110
Power supply	

LS-1100

Failed parts	Manual No.
Scanner main body unit	 20613
Scanner main PCB	 66560
Connecting PCB	 66530
Scanner control PCB	 66510
Scanner driver PCB	 66520
Multi power supply	 66610
Power supply	

HS-1800

135/240AFC-II, 135AFC-II

Failed parts	Manual No.
135 DX sensor 1 or 2 (135/240 AFC-II)	62150
Sensor PCB	65250
Connecting PCB 2	65210
Connecting PCB 4	65280
Connecting PCB 1	65200
135 DX sensor 1 or 2 (135 AFC-II)	62650
135 AFC sensor PCB	65370
135 AFC connecting PCB 2	65360
AFC/scanner control PCB	65000
Multi power supply	65060
AFC/scanner driver PCB	65260
Power PCB (135/240 AFC-II)	65010
Scanner power supply 1	65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01438 Set the attachment.

Attention message release

Install the attachment for adjustment and press **YES**.

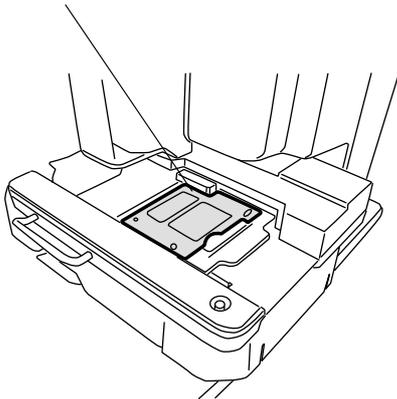
Condition

Suffix number	Condition
00033	The attachment other than the attachment for adjustment is installed when registering and updating the light source. Or the attachment for adjustment is not installed.
00034	When START is clicked on the Order Display, an attachment other than the adjusting attachment is attached. If not, any attachment is not attached. An attachment other than the attachment for adjustment has been attached when carrying out Area Registration, Focus Adjustment and Film Carrier Adjustment. Or the attachment for adjustment is not installed.
00035	On the Input Media Selection display, any attachment is not attached.

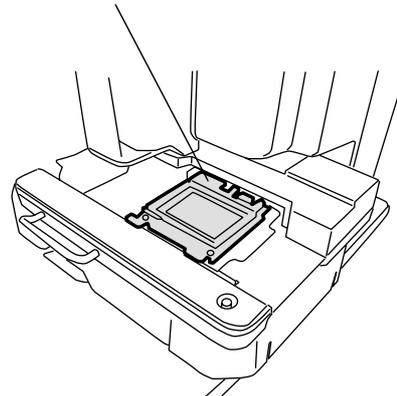
NOTE

- This attention message appears when the multi film carrier is attached.
- Crop card attachment is available for the use as the attachment for adjustment.

Adjusting attachment



Crop card attachment



G078428

Check Point

HS-1800

1	When the above attention message appears even though the attachment for adjustment is installed, check the detected status of the attachment for adjustment.	35200
---	--	-----------------------

Diagnosis

HS-1800

MFC

Failed parts	Manual No.
Attachment Detection Switch	62670
AFC/scanner control PCB	65000

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 01439**Light Source was not updated. Would you like to scan?**

Attention message release

Pressing **YES** scans without updating the light source.

Pressing **NO** ejects film without scanning.

Condition

Suffix number	Condition
00000	The film is inserted in the film carrier without updating the light source.

Check PointLS-600/LS-1100/HS-1800

1	Update the light source by each film carrier.
---	---

No. 01456–01457
See the EZ Controller Service Manual.

Condition



IMPORTANT

- Attention messages not explained in this Scanner Service Manual are shown in the table below. For corrective actions, see the **EZ Controller Service Manual**.

Attention message (Film carrier)

Attention message table	
No. 01456-00000	Could not start the scanner.
No. 01457-00000	The scanner has canceled processing. Processing will quit.

NOTE

- In the Attention message table, the attention message No.s that are not used currently may be described.

No. 06305**Scanner Focus operation error.**

Countermeasure message

Clear the error. If the error recurs, restart the scanner.

Alarm release

NO

Error message release

NO

Condition

Suffix number	Condition
00001	During initial operation, pulse motor moved clockwise for specified distance, but focus home sensor did not allow light to permeate lens.
00002	During initial operation, pulse motor moved counterclockwise for specified distance, but focus home sensor did not block light.
00003	During initial operation, pulse motor moved clockwise for specified distance after focus home sensor blocked light, but focus home sensor did not subsequently allow light to permeate lens.

DiagnosisLS-600

Failed parts	Manual No.
Scanner main body unit	☞ 20612
Scanner control PCB	☞ 66010
Scanner driver PCB	☞ 66020
Control source	☞ 66110
Power supply	

LS-1100

Failed parts	Manual No.
Scanner main body unit	☞ 20613
Scanner main PCB	☞ 66560
Connecting PCB	☞ 66530
Scanner control PCB	☞ 66510
Scanner driver PCB	☞ 66520
Multi power supply	☞ 66610
Power supply	

HS-1800

Failed parts	Manual No.
Scanner unit	☞ 20611
AFC/scanner driver PCB	☞ 65000
AFC/scanner control PCB	☞ 65010
Scanner power supply 1	☞ 65060
Scanner power supply 2	
Multi power supply	

◆ Symptoms due to the wiring connection failure

Failed part(s) [LS-600]
See Scanner driver PCB 4210 .
See Lens connecting PCB 4210 .

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06306**Scanner IRIS operation error.**

Countermeasure message

Clear the error. If the error recurs, restart the scanner.

Alarm release

NO

Error message release

NO

Condition

Suffix number	Condition
00001	The IRIS sensor does not turn DARK even though the zoom lens operated for a specified pulse clockwise in its initial operation.
00002	The IRIS sensor does not turn LIGHT even though the zoom lens operated for a specified pulse counterclockwise in its initial operation.
00003	IRIS sensor does not turn DARK even though the zoom lens operated for a specified pulse clockwise after the IRIS sensor turned LIGHT in its initial operation.

DiagnosisLS-600

Failed parts	Manual No.
Scanner main body unit	👉 20612
Scanner control PCB	👉 66010
Scanner driver PCB	👉 66020
Control source	👉 66110
Power supply	

LS-1100

Failed parts	Manual No.
Scanner main body unit	👉 20613
Scanner main PCB	👉 66560
Connecting PCB	👉 66530
Scanner control PCB	👉 66510
Scanner driver PCB	👉 66520
Multi power supply	👉 66610
Power supply	

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06309
Scanner change of light error.

Countermeasure message

Clear this error. If this error recurs, contact us or your place of purchase.

**IMPORTANT**

- When this error occurs, the daily setup has not been completed properly. After troubleshooting, carry out the daily setup again.

Alarm release

NO

Error message release

NO

Condition

Suffix number	Condition
00005	The Light Source Update was carried out with the film carrier which is not registered the light source.

Check Point

LS-600/LS-1100/HS-1800

1	Register the light source.
---	----------------------------

No. 06321

Focus auto adjustment error.

Countermeasure message

Refer to the manual for corrective action.

Alarm release

NO

Error message release

YES



IMPORTANT

- When this error occurs, the **Focus Auto Adjustment** has not been completed normally. After troubleshooting, carry out the **Focus Auto Adjustment** again. 37020

Condition

Suffix number	Condition
Other than below	There is a problem with internal operation values, such as arguments and variables.
627	For 135/240 AMC-II or 135/240 MMC-II, the focus chart is inserted incorrectly.
644	The assigned magnification is considerably different from the magnification calculated from the scanned image.
661	Shading is abnormal.
694	The slot of the focus chart cannot be detected correctly because of the dust on the focus chart or the damage of the focus chart.
711	The triangular slot of the focus chart cannot be detected correctly because of the dust on the focus chart or the damage of the focus chart.
728	The focus chart cannot be detected correctly because of the dust on the focus chart or the damage of the focus chart.
805	The CCD for scanner IR and the CCD for image scanning are out of positions.
1189	The light axis of the scanner is out of position.
1573	The scanner is considerably out of focus.
2657	The light axis of the scanner is out of position or the lens of the scanner is on a slant.
3362	For 135/240 AMC-II or 135/240 MMC-II, the Focus Auto Adjustment is performed when the waveform cannot be recognized or is not in the normal range.
3412	The triangular slot of the focus chart cannot be detected correctly because of the dust on the focus chart or the damage of the focus chart.
3415	The triangular slot of the focus chart cannot be detected correctly because of the dust on the focus chart or the damage of the focus chart.
3620	The scanner is considerably out of focus.

Check Point

LS-600/LS-1100/HS-1800

		Manual No.
1	Confirm and clean the scanner section.	4610
2	Check whether the scanner adjustment chart is dirty or there is any distortion and also check the attachment state.	4600
3	Carry out the focus adjustment again.	37020
4	Check whether the ND filter solenoid normally operates with the Output Check function. (LS-1100/HS-1800)	35300



IMPORTANT

- For the LS-1100 or HS-1800, if the above error occurs during the focus adjustment, the ND filter solenoid may heat up and cause operation failure.
After cooling the ND filter solenoid for about ten minutes at OFF, carry out the focus adjustment again.

NOTE

- For confirming the scanner adjustment chart, refer to [4600](#).

Diagnosis**LS-600**

Adjustment failure point	Manual No.
Carry out light axis adjustment.	37002

NOTE

- This error may occur if the **Number of Pixels Exceeding the Threshold** checked in the Light Axis Adjustment is not between 19 and 495 pixels for either of the 135 lane and 240 lane.

Failed parts	Manual No.
Scanner main body unit	20612
Scanner control PCB	66010
Scanner driver PCB	66020
LED light source unit	20640
Control source	66110
Power supply	

LS-1100

Adjustment failure point	Manual No.
Carry out light axis adjustment.	37002

NOTE

- This error may occur if the **Number of Pixels Exceeding the Threshold** checked in the Light Axis Adjustment is not between 19 and 495 pixels for either of the 135 lane and 240 lane.

Failed parts	Manual No.
Scanner main body unit	20613
Scanner main PCB	66560
Connecting PCB	66530
Scanner control PCB	66510
Scanner driver PCB	66520
LED light source unit	62085
Multi power supply	66610
Power supply	

HS-1800

Failed parts	Manual No.
Scanner unit	20611
LED light source unit	20630
AFC/scanner driver PCB	65000
AFC/scanner control PCB	65010
Scanner power supply 1	65060
Scanner power supply 2	
Multi power supply	

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06322

Scanner input balance error.

Countermeasure message

Clear this error. If this error recurs, contact us or your place of purchase.

Alarm release

NO

Error message release

NO

Condition

Suffix number	Condition
00001	Each gain value of R became out of range during the light source registration.
00002	Each gain value of G became out of range during the light source registration.
00003	Each gain value of B became out of range during the light source registration.
00004	Each gain value of IR became out of range during the light source registration.

For details of operation specification, refer to [50010](#).

Check Point

LS-600/LS-1100/HS-1800

		Manual No.
1	By displaying the display with Scanner Sensitivity Check and checking the chart status, it can be possible to specify occurring causes.	37040
2	Confirm and clean the scanner section.	4610
3	Check whether the scanner adjustment chart is dirty or there is any distortion and also check the attachment state.	4600
4	Check whether the ND filter solenoid normally operates with the Output Check function. (LS-1100/HS-1800)	35300
5	If the above error occurs only when the 120 AFC is used, check whether the 120 AFC diffuser is installed. (HS-1800)	-



IMPORTANT

- For the LS-1100 or HS-1800, if the above error occurs during the focus adjustment, the ND filter solenoid may heat up and cause operation failure.
After cooling the ND filter solenoid for about ten minutes at OFF, carry out the focus adjustment again.

Diagnosis

LS-600

Failed parts	Manual No.
Scanner main body unit	20612
Scanner control PCB	66010
Scanner driver PCB	66020

LS-1100

Failed parts	Manual No.
Scanner main body unit	👉 20613
Scanner main PCB	👉 66560
Connecting PCB	👉 66530
Scanner control PCB	👉 66510
Scanner driver PCB	👉 66520

HS-1800

Failed parts	Manual No.
Scanner unit	👉 20611
LED light source unit	👉 20630
AFC/scanner driver PCB	👉 65000
AFC/scanner control PCB	👉 65010

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06324

F stop value range error.

Countermeasure message

Clear this error. If this error recurs, contact us or your place of purchase.

Alarm release

NO

Error message release

NO



IMPORTANT

- If this error occurs, the **Scanner Calibration** has not finished normally. After troubleshooting, perform the **Scanner Calibration** again.

Condition

Suffix number	Condition
00000	Although the aperture is adjusted during the Scanner Calibration, the standard light intensity cannot be obtained.

Check Point

LS-600/LS-1100/HS-1800

1	Check that the LED light source section is neither damaged nor soiled.
2	Reset the power supply.

Diagnosis

LS-600

Failed parts	Manual No.
Scanner main body unit	👉 20612
Scanner control PCB	👉 66010
Scanner driver PCB	👉 66020
Control source	👉 66110
Power supply	

LS-1100

Failed parts	Manual No.
Scanner main body unit	👉 20613
Scanner main PCB	👉 66560
Connecting PCB	👉 66530
Scanner control PCB	👉 66510
Scanner driver PCB	👉 66520
Multi power supply	👉 66610
Power supply	

HS-1800

Failed parts	Manual No.
Scanner unit	👉 20611
AFC/scanner driver PCB	👉 65000
AFC/scanner control PCB	👉 65010
Scanner power supply 1	👉 65060
Scanner power supply 2	
Multi power supply	

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06327

Scanner Light Source Section temperature adjustment error.

Countermeasure message

Clear this error. If this error recurs, contact us or your place of purchase.

Alarm release

NO

Error message release

NO

Condition

Suffix number	Condition
00002	The temperature of LED light source section has exceeded the alarm upper limit.
00003	The temperature of LED light source has fallen below the alarm lower limit range in stand-by temperature.

Scanner unit type	LS-600	LS-1100	HS-1800
LED light source unit type	-	-	-
Switching temperature of the heating-up operation	46.9°C	44.0°C	47.8°C
Completed temperature of the heating-up operation	47.6°C	44.4°C	48.8°C
Standby temperature	47.0±2.0°C	44.0±1.0°C	48.0±1.0°C
Alarm upper limit	52.0°C	49.0°C	53.0°C
Alarm lower limit	42.0°C	39.0°C	43.0°C

Check Point

LS-600/LS-1100/HS-1800

1	Check that the room temperature is 15 to 30 degrees C.
2	Clean the scanner filter.
3	Check the LED cooling fan rotation.



IMPORTANT

- If the above message is shown when starting up the scanner, the temperature may be out of the operation temperature range (15 to 30°C) of the scanner unit (LED light source unit).
For the operation specification of the LED light source unit, refer to [62090](#).
- In the above case, each electrical part of the scanner is normal.
Update the scanner light source after the operation temperature of the scanner unit (LED light source unit) is within the specified range.

Diagnosis

LS-600

Failed parts	Manual No.
LED cooling fan 1 or 2	62080
LED light source unit	62080
Scanner control PCB	66010
Scanner driver PCB	66020
Control source	66110
Power supply	

LS-1100

Failed parts	Manual No.
LED cooling fan 1 or 2	62085
LED light source unit	62085
Connecting PCB	66530
Scanner control PCB	66510
Scanner driver PCB	66520
Multi power supply	66610
Power supply	

HS-1800

Failed parts	Manual No.
LED cooling fan 1 or 2	62070
LED light source unit	20630
AFC/scanner driver PCB	65000
AFC/scanner control PCB	65010
Scanner power supply 2	65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06332

Light Source adjustment error.

Countermeasure message

Clear this error. If this error recurs, contact us or your place of purchase.

Alarm release

NO

Error message release

NO

Condition

Condition
The Scanner Calibration does not finish normally because of failure of the light source or scanner.

Suffix number	Condition
00001	Adjustment failure (The measurement value does not converge on the target value.)
00002	Measurement value abnormal
00003	Data calculation error
00004	Lack of pixels
00005	Zoom value abnormal
00006	Incorrect image position (The light axis is out of position.)
00007	The RGB target value is out of range.
00008	Aperture value failure
00009	The dark level cannot be adjusted.
00010	The AFC was removed or the lane of the AFC was changed during the Scanner Calibration.
00011	The Scanner Calibration was forcibly stopped.
00012	The adjustment value cannot be measured.
00013	Problems were found in the DX code measurement area.

For details of operation specification, refer to [50010](#).



IMPORTANT

- If the message **No. 06332-0007** is shown, operation failure of the ND filter solenoid in the LED light source unit may occur. Check the ND filter solenoid operates via Output Check.

Check Point

LS-600/LS-1100/HS-1800

		Manual No.
1	By displaying the display with Scanner Sensitivity Check and checking the chart status, it can be possible to specify occurring causes.	37040
2	Confirm and clean the scanner section.	4610
3	Perform the Scanner Calibration .	37030

Diagnosis

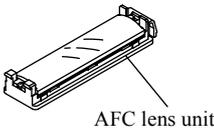
LS-600

Failed parts	Manual No.
Scanner main body unit	20612
LED light source unit	62080
Scanner control PCB	66010
Scanner driver PCB	66020

LS-1100

Failed parts	Manual No.
Scanner main body unit	👉 20613
LED light source unit	👉 62085
Scanner main PCB	👉 66560
Connecting PCB	👉 66530
Scanner control PCB	👉 66510
Scanner driver PCB	👉 66520

HS-1800

00006	Check the attaching condition of the AFC lens unit.	-
 <p>AFC lens unit</p>		

Failed parts	Manual No.
LED light source unit	👉 20630
ND filter solenoid	👉 62070
Scanner unit	👉 20611
AFC/scanner driver PCB	👉 65000
AFC/scanner control PCB	👉 65010

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06333**The Line Data is out of the Standard Range Error.**

Countermeasure message

Clear the error. If the error recurs, restart the scanner.

Alarm release

NO

Error message release

NO

Condition

Condition
The Scanner Calibration did not finish normally because of problematic scanning data caused by contact failure of PCBs and connectors.

Suffix number	Condition
00001	The same line scanning data as in the previous time was entered.
00002	The photometry value is too small.
00003	The dark level is not adjustable.
00004	Scanning problem
00005	Waveform problem
00006	Data calculation error
00007	The Scanner Calibration was forcibly stopped.

For details of operation specification, refer to [50010](#).

Suffix number	Point
00003	If the suffix number is 00003, perform Film Series Image Path in Self-diagnostic .

Check PointLS-600/LS-1100/HS-1800

		Manual No.
1	By displaying the display with Scanner Sensitivity Check and checking the chart status, it can be possible to specify occurring causes.	37040
2	Confirm and clean the scanner section.	4610
3	Perform the Scanner Calibration .	37030

DiagnosisLS-600

Failed parts	Manual No.
Scanner main body unit	20612
LED light source unit	62080
Scanner control PCB	66010
Scanner driver PCB	66020

LS-1100

Failed parts	Manual No.
Scanner main body unit	👉 20613
LED light source unit	👉 62085
Scanner main PCB	👉 66560
Connecting PCB	👉 66530
Scanner control PCB	👉 66510
Scanner driver PCB	👉 66520

HS-1800

Failed parts	Manual No.
Scanner unit	👉 20611
AFC/scanner control PCB	👉 65000
AFC/scanner driver PCB	👉 65010

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06334**Lane change operation error.**

Countermeasure message

Clear the error. If the error recurs, restart the scanner.

Alarm release

NO

Error message release

NO

Condition

Suffix number	Condition
00001	The 135 lane sensor does not turn LIGHT from DARK even though a specified time has elapsed after starting the lane change operation.
00002	The 240 lane sensor does not turn LIGHT from DARK even though a specified time has elapsed after starting the lane change operation.
00003	The 240 lane sensor does not turn DARK at lane change operation even though specified time has passed after the 135 lane sensor turned LIGHT.
00004	The 135 lane sensor does not turn DARK at lane change operation even though specified time has passed after the 240 lane sensor turned LIGHT.
00005	Both the 135 lane sensor and the 240 lane sensor are DARK when starting the lane change operation.

DiagnosisLS-600

Failed parts	Manual No.
Lane change motor	☞ 62080
135 lane sensor	
240 lane sensor	
Scanner control PCB	☞ 66010
Scanner driver PCB	☞ 66020
Control source	☞ 66110
Power supply	

LS-1100

Failed parts	Manual No.
Lane change motor	☞ 62085
135 lane sensor	
240 lane sensor	
Connecting PCB	☞ 66530
Scanner control PCB	☞ 66510
Scanner driver PCB	☞ 66520
Multi power supply	☞ 66610
Power supply	

◆ Symptoms due to the wiring connection failure

Failed part(s) [LS-600]
See ☞ Scanner control PCB 4210.
See ☞ Scanner driver PCB 4210.

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06335

The Scanner Unit Cover is open.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00000	The interlock switch turned off while film processing.

Check Point

LS-600/LS-1100

1	Verify that the front and the side (left) covers are closed.
---	--

Diagnosis

LS-600

Failed parts	Manual No.
interlock switches 1, 2	62080
Scanner driver PCB	66020
Power supply	66110

LS-1100

Failed parts	Manual No.
interlock switches 1, 2	62085
Scanner driver PCB	66520
Power supply	66610

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06336**Scanner Zoom operation error.**

Countermeasure message

Clear this error. If this error recurs, contact us or your place of purchase.

Alarm release

NO

Error message release

NO

Condition

Suffix number	Condition
00001	During initial operation, pulse motor moved counterclockwise for specified distance, but zoom home sensor did not block light.
00002	During initial operation, pulse motor moved clockwise for specified distance, but zoom home sensor did not allow light to permeate lens.
00003	During initial operation, pulse motor moved counterclockwise for specified distance after zoom home sensor allowed light to permeate lens, but zoom home sensor did not then block light.

Diagnosis**HS-1800**

Failed parts	Manual No.
Scanner unit	👉 20611
AFC/scanner control PCB	👉 65000
AFC/scanner driver PCB	👉 65010
Scanner power supply 1	👉 65060
Scanner power supply 2	
Multi power supply	

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06340**Analog offset adjustment error**

Countermeasure message

Clear the error. If the error recurs, restart the scanner.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00001	Although the analog offset adjustment is performed again, the adjustment value is farther from the desired value than that of the previous adjustment.
00002	Although the analog offset adjustment is performed with using the minimum value -255, the adjustment value exceeds the allowable range.
00003	Although the analog offset adjustment is performed with using the maximum value +255, the adjustment value exceeds the allowable range.

Diagnosis**LS-600**

Failed parts	Manual No.
LED light source unit	62080
Scanner main body unit	20612

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06341**Scanner image path error.**

Countermeasure message

Clear the error. If the error recurs, restart the scanner.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00001	Although a given length of time has passed after the scanning finished, receiving images does not finish.
00002	Although transferring image data finished, the data remains in the receive buffer.
00003	Transferring image data stops for a given length of time. If not so, software is restarted during the image data transmission.
00004	Although transferring image data finished, transmission of another data cannot be started.

Check PointLS-600/LS-1100/HS-1800

1	Verify that the USB cable is properly connected.
---	--

DiagnosisLS-600

Failed parts	Manual No.
LED light source unit	62080
Scanner main body unit	20612
Scanner control PCB	66010

LS-1100

Failed parts	Manual No.
LED light source unit	62085
Scanner main body unit	20613
Scanner control PCB	66510

HS-1800

Failed parts	Manual No.
LED light source unit	20630
Scanner unit	20611
AFC/scanner control PCB	65000

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06342**Scanner unit was disconnected.**

Countermeasure message

Clear the error. If the error recurs, restart the scanner.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00000	The scanner unit was disconnected during process.

Check PointLS-600/LS-1100/HS-1800

1	Check whether the power supply of the scanner is turned on.
2	Check whether the USB cable of the scanner is normally connected.

DiagnosisLS-600

Failed parts	Manual No.
Scanner control PCB	 66010

LS-1100

Failed parts	Manual No.
Scanner control PCB	 66510

HS-1800

Failed parts	Manual No.
AFC/scanner control PCB	 65000

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06400**Perforation Sensor error.**

Countermeasure message

Clean the sensor with a blower brush. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition (LS-600/LS-1100)
00001	When adjusting the sensor sensitivity, although the perforation sensor sensitivity gain value and light intensity level have been changes below the specified value without inserting the film, the system does not detect "without film".
00002	When adjusting the sensor sensitivity, although the perforation sensor sensitivity gain value and light intensity level have been changes above the specified value with inserting the film, the system detects "without film".
00003	When adjusting the sensor sensitivity, although the perforation sensor sensitivity gain value and light intensity level have been changes below the specified value with inserting the film, the system does not detect "without film".

Suffix number	Condition (HS-1800)
00001	Although the standard voltage set to 7.5 V and the light source level is set to 255, the sensor does not detect LIGHT.
00002	For the light source level adjusted with the standard level 7.5 V, although the standard voltage is changed to 4.5 V, the sensor does not detect LIGHT.
00003	Although the standard voltage set to 7.5 V and the light source level is set to 0, the sensor does not detect DARK.
00004	When the light source level is set to 10 (initial value) and the gain value is set to 80 (initial value), the sensor detects LIGHT.

NOTE

- The name of the film carrier will be displayed on the second line.
135, 240, 110

Check Point**LS-600/LS-1100/HS-1800**

1	Check that the perforation sensor is not soiled.
2	Perform the Sensor Sensitivity Adjustment.

Diagnosis**LS-600**

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the perforation sensor	 35070

Failed parts	Manual No.
135 perforation sensor	 62080
240 perforation sensor	 62080
Scanner control PCB	 66010
Scanner driver PCB	 66020
Control source	 66110
Power supply	

LS-1100

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the perforation sensor	 35070

Failed parts	Manual No.
135 perforation sensor	 62085
240 perforation sensor	 62085
Scanner control PCB	 66510
Scanner driver PCB	 66520
Multi power supply	 66610
Power supply	

HS-1800

135/240 AFC-II, 110 AFC-II

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the perforation sensor	 35000
	 35020

Failed parts	Manual No.
135 perforation sensor	 62150
240 perforation sensor	 62150
110 perforation sensor	 62350
Sensor PCB (135/240 AFC-II)	 65250
Sensor PCB (110 AFC-II)	 65320
Connecting PCB 2 (135/240 AFC-II)	 65210
Connecting PCB 4 (135/240 AFC-II)	 65280
Connecting PCB 1 (135/240 AFC-II)	 65200
Connecting PCB (110 AFC-II)	 65310
AFC/scanner control PCB	 65000
Multi power supply	 65060
Power PCB	 65260
AFC/scanner driver PCB	 65010
Scanner power supply 1	 65060

135 AFC-II

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the perforation sensor	 35060

Failed parts	Manual No.
135 perforation sensor	 62650
135 AFC sensor PCB	 65370
135 AFC connecting PCB	 65360
AFC/scanner driver PCB	 65010
AFC/scanner control PCB	 65000
Multi power supply	 65060
Power PCB	 65060
Scanner power supply 1	

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06401

Loading Sensor error.

Countermeasure message

Clean the sensor with a blower brush. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition (LS-600/LS-1100)
00001	When adjusting the sensor sensitivity, although the loading sensor sensitivity gain value and light intensity level have been changes below the specified value without inserting the film, the system does not detect "without film".
00002	When adjusting the sensor sensitivity, although the loading sensor sensitivity gain value and light intensity level have been changes above the specified value with inserting the film, the system detects "without film".
00003	When adjusting the sensor sensitivity, although the loading sensor sensitivity gain value and light intensity level have been changes below the specified value with inserting the film, the system does not detect "without film".

Suffix number	Condition (HS-1800)
00001	Although the standard voltage set to 7.5 V and the light source level is set to 255, the sensor does not detect LIGHT.
00002	For the light source level adjusted with the standard level 7.5 V, although the standard voltage is changed to 4.5 V, the sensor does not detect LIGHT.
00003	Although the standard voltage set to 7.5 V and the light source level is set to 0, the sensor does not detect DARK.
00004	When the light source level is set to 10 (initial value) and the gain value is set to 80 (initial value), the sensor detects LIGHT.

NOTE

- The name of the film carrier will be displayed on the second line.
135, 240, 110, 120

Check Point

LS-600/LS-1100/HS-1800

1	Check that the loading sensor is not soiled.
2	Perform the Sensor Sensitivity Adjustment.

Diagnosis

LS-600

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the loading sensor	 35070

Failed parts	Manual No.
135 loading sensor	 62080
Scanner control PCB	 66010
Scanner driver PCB	 66020
Control source	 66110
Power supply	

LS-1100

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the loading sensor	 35070

Failed parts	Manual No.
135 loading sensor	 62085
Scanner control PCB	 66510
Scanner driver PCB	 66520
Multi power supply	 66610
Power supply	

HS-1800

135/240 AFC-II, 120 AFC-II, 110 AFC-II

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the loading sensor	 35000
	 35010
	 35020

Failed parts	Manual No.
135 loading sensor	 62150
240 loading sensor	 62150
120 loading sensor	 62250
110 loading sensor	 62350
Sensor PCB (135/240 AFC-II)	 65250
Sensor PCB (120 AFC-II)	 65300
Sensor PCB (110 AFC-II)	 65320
Connecting PCB 2 (135/240 AFC-II)	 65210
Connecting PCB 4 (135/240 AFC-II)	 65280
Connecting PCB 1 (135/240 AFC-II)	 65200
Connecting PCB (120 AFC-II)	 65290
Connecting PCB (110 AFC-II)	 65310
AFC/scanner control PCB	 65000
Multi power supply	 65060
Power PCB	 65260
AFC/scanner driver PCB	 65010
Scanner power supply 1	 65060

135 AFC-II

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the loading sensor	 35060

Failed parts	Manual No.
135 loading sensor	 62650
135 AFC sensor PCB	 65370
135 AFC connecting PCB	 65360
AFC/scanner driver PCB	 65010
AFC/scanner control PCB	 65000
Multi power supply	 65060
Scanner power supply 1	

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06402**Ready Sensor error.**

Countermeasure message

Clean the sensor with a blower brush. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition (LS-600/LS-1100)
00001	When adjusting the sensor sensitivity, although the ready sensor sensitivity gain value and light intensity level have been changes below the specified value without inserting the film, the system does not detect "without film".
00002	When adjusting the sensor sensitivity, although the ready sensor sensitivity gain value and light intensity level have been changes above the specified value with inserting the film, the system detects "without film".
00003	When adjusting the sensor sensitivity, although the ready sensor sensitivity gain value and light intensity level have been changes below the specified value with inserting the film, the system does not detect "without film".

Suffix number	Condition (HS-1800)
00001	Although the standard voltage set to 7.5 V and the light source level is set to 255, the sensor does not detect LIGHT.
00002	For the light source level adjusted with the standard level 7.5 V, although the standard voltage is changed to 4.5 V, the sensor does not detect LIGHT.
00003	Although the standard voltage set to 7.5 V and the light source level is set to 0, the sensor does not detect DARK.
00004	When the light source level is set to 10 (initial value) and the gain value is set to 80 (initial value), the sensor detects LIGHT.

NOTE

- The name of the film carrier will be displayed on the second line of the message.
135, 240, 110, 120

Check Point**LS-600/LS-1100/HS-1800**

1	Check that the ready sensors are not soiled.
2	Perform the Sensor Sensitivity Adjustment.

Diagnosis**LS-600**

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the ready sensor	 35070

Failed parts	Manual No.
135 ready sensor	 62080
Scanner control PCB	 66010
Scanner driver PCB	 66020
Control source	 66110
Power supply	

LS-1100

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the ready sensor	 35070

Failed parts	Manual No.
135 ready sensor	 62085
Scanner control PCB	 66510
Scanner driver PCB	 66520
Multi power supply	 66610
Power supply	

HS-1800

135/240 AFC-II, 120 AFC-II, 110 AFC-II

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the ready sensor	 35000
	 35010
	 35020

Failed parts	Manual No.
135 ready sensor	 62150
240 ready sensor	 62150
120 ready sensor	 62250
110 ready sensor	 62350
Sensor PCB (135/240 AFC-II)	 65250
Sensor PCB (120 AFC-II)	 65300
Sensor PCB (110 AFC-II)	 65320
Connecting PCB 2 (135/240 AFC-II)	 65210
Connecting PCB 4 (135/240 AFC-II)	 65280
Connecting PCB 1 (135/240 AFC-II)	 65200
Connecting PCB (120 AFC-II)	 65290
Connecting PCB (110 AFC-II)	 65310
AFC/scanner control PCB	 65000
Multi power supply	 65060
Power PCB	 65260
AFC/scanner driver PCB	 65010
Scanner power supply 1	 65060

135 AFC-II

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the ready sensor	 35060

Failed parts	Manual No.
135 ready sensor	👉 62650
135 AFC sensor PCB	👉 65370
135 AFC connecting PCB	👉 65360
AFC/scanner driver PCB	👉 65010
AFC/scanner control PCB	👉 65000
Multi power supply	👉 65060
Power PCB	👉 65260
Scanner power supply 1	👉 65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06403**135 film has stopped at the Film Carrier.**

Countermeasure message

Remove the film. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00001	Even when a specified length of film has been fed after the loading sensor turned DARK when processing from the connection unit, the ready sensor does not turn DARK.
00002	Even when the specified length has been fed after the ready sensor turned DARK, the perforation sensor does not detect the perforation.
00003	Although the film is advanced for a specified length after the ready sensor detects DARK, the ready sensor does detect LIGHT. (The film rear end is not fed.)
00005	Although a specified length of film has been fed when film ejecting operation, the ready sensor does not turn DARK.
00006	Even when a specified length of film has been fed after the ready sensor turned DARK while film ejecting operation, the loading sensor does not turn DARK.
00009	Although the film is advanced for a specified length after the perforation sensor detects DARK, the film ejection sensor does not detect DARK.
00012	Although the film is advanced for a specified length after the ready sensor detects LIGHT, the film ejection sensor does not detect LIGHT.
00014	Even when a specified length has been fed after the perforation sensor turned DARK while film ejecting operation, the ready sensor does not turn LIGHT.
00017	The rewinding sensor detected the film jam.

Check PointLS-600/LS-1100/HS-1800

1	Check if the loading sensor, ready sensor and perforation sensor are not soiled.
2	Perform the Sensor Sensitivity Adjustment.

Suffix number	Countermeasure
00017	If the connecting unit is connected to the LS-600/LS-1100 <ul style="list-style-type: none"> Confirm if no splice tape is remained on films. For details, refer to 37500 in the Connecting Unit Service Manual.

DiagnosisLS-600

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the loading sensor, ready sensor and perforation sensor	 35070

Failed parts	Manual No.
135 loading sensor	☞ 62080
135 perforation sensor	
135 ready sensor	
Rewinding sensor	
Scanner control PCB	☞ 66010
Scanner driver PCB	☞ 66020
Control source	☞ 66110
Power supply	

LS-1100

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the loading sensor, ready sensor and perforation sensor	☞ 35070

Failed parts	Manual No.
135 loading sensor	☞ 62085
135 perforation sensor	
135 ready sensor	
Rewinding sensor	
Scanner control PCB	☞ 66510
Scanner driver PCB	☞ 66520
Multi power supply	☞ 66610
Power supply	

HS-1800

135/240 AFC-II

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the loading sensor, ready sensor and perforation sensor	☞ 35000

Failed parts	Manual No.
135 loading sensor	☞ 62150
135 ready sensor	
135 perforation sensor	
Rewinding sensor	
Film feed motor	
PM driver (film feed motor)	☞ 65070
Sensor PCB (135/240 AFC-II)	☞ 65250
Connecting PCB 2 (135/240 AFC-II)	☞ 65210
Connecting PCB 4 (135/240 AFC-II)	☞ 65280
Connecting PCB 1 (135/240 AFC-II)	☞ 65200
AFC/scanner control PCB	☞ 65000
Multi power supply	☞ 65060
Power PCB	☞ 65260
AFC/scanner driver PCB	☞ 65010
Scanner power supply 1	☞ 65060

135 AFC-II

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the loading sensor, ready sensor and perforation sensor	☞ 35060

Failed parts	Manual No.
135 loading sensor	👉 62650
135 ready sensor	
135 perforation sensor	
Rewinding sensor	
Film feed motor	
PM driver (film feed motor)	👉 65070
135 AFC sensor PCB	👉 65370
135 AFC connecting PCB	👉 65360
AFC/scanner driver PCB	👉 65010
AFC/scanner control PCB	👉 65000
Multi power supply	👉 65060
Power PCB	👉 65260
Scanner power supply 1	👉 65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06404

240 film has stopped at the Film Carrier.

Countermeasure message

Remove the film. For details, refer to the manual.

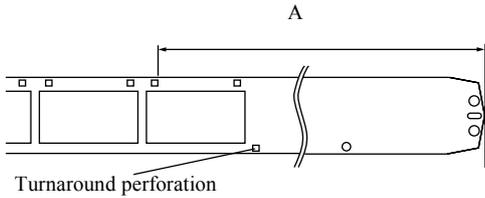
Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00001	Even when a specified length is fed after the film front end was fed from the cartridge, the loading sensor does not detect the film front end.
00002	Even when the specified length is fed after the loading sensor detected the film front end, the ready sensor does not turn DARK.
00004	Even when a specified length is fed after the ready sensor turned DARK, the perforation sensor does not turn DARK.
00005	Even when a specified length is fed after the perforation sensor turned DARK, the sensor cannot detect the first perforation.
00006	Even when a specified length is fed after the perforation sensor turned DARK, the sensor cannot detect the end perforation. <ul style="list-style-type: none"> • Confirm that the processed film is not fed with the wrong side up.
00008	Even when the specified length is rewound when rewinding the film, the ready sensor does not turn LIGHT.
00009	Even when the specified length is rewound when rewinding the film, the loading sensor does not turn LIGHT.
00010	Even when the specified length of the film has been rewound on rewinding the film, the detection of the VEI sensor did not change.
00011	The rewinding sensor detected the film jam.
00012-00013	When pre-scanning is carried out, although a specified length is fed after the perforation sensor turned DARK, the sensor cannot detect the next perforation.
00014-00015	When scanning is carried out, although a specified length is fed after the perforation sensor turned DARK, the sensor cannot detect the next perforation.
00016	<ul style="list-style-type: none"> • The perforation sensor detected the turn round perforation before it detected perforation of the first frame. • Check that the size A of the processed film indicated below is not 125 mm or less. <div style="text-align: center;">  <p style="text-align: center;">Turnaround perforation</p> </div>

Check Point

LS-600/LS-1100/HS-1800

1	Check if the loading sensor, ready sensor and perforation sensor are not soiled.
2	Perform the Sensor Sensitivity Adjustment.
3	Check if the VEI sensor and the rewinding sensor are not soiled.

DiagnosisLS-600

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the perforation sensor and the end perforation sensor	 35070

Failed parts	Manual No.
240 end perforation sensor	 62080
240 perforation sensor	
Cartridge limit switch	
VEI sensor	
Scanner control PCB	 66010
Scanner driver PCB	 66020
Control source	 66110
Power supply	

LS-1100

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the perforation sensor and the end perforation sensor	 35070

Failed parts	Manual No.
240 end perforation sensor	 62085
240 perforation sensor	
Cartridge limit switch	
VEI sensor	
Scanner control PCB	 66510
Scanner driver PCB	 66520
Multi power supply	 66610
Power supply	

HS-1800

135/240 AFC-II

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the loading sensor, ready sensor and perforation sensor	 35000

Failed parts	Manual No.
Loading sensor	👉 62150
Ready sensor	
Perforation sensor	
VEI sensor	
Rewinding sensor	
Spool key motor	
Film feed motor	
PM driver (film feed motor)	👉 65070
Sensor PCB (135/240 AFC-II)	👉 65250
Driver PCB 2	👉 65240
Connecting PCB 3 (135/240 AFC-II)	👉 65220
Connecting PCB 2 (135/240 AFC-II)	👉 65210
Connecting PCB 4 (135/240 AFC-II)	👉 65280
Connecting PCB 1 (135/240 AFC-II)	👉 65200
AFC/scanner control PCB	👉 65000
Multi power supply	👉 65060
Power PCB	👉 65260
AFC/scanner driver PCB	👉 65010
Scanner power supply 1	👉 65060

◆ Symptoms due to the wiring connection failure

Failed part(s) [LS-600]
See 👉 Scanner driver PCB 4210.

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06405**110 film has stopped at the Film Carrier.**

Countermeasure message

Remove the film. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00002	Even when a specified length is fed after the ready sensor turned DARK, the perforation sensor cannot detect the first perforation.
00003	Even when one or more film is fed after the ready sensor turned DARK, the ready sensor cannot detect the film rear end.
00004	While the film is being fed, the perforation sensor between the specified length cannot detect the continuous signals of DARK and LIGHT.
00005	After pre-scanning, although the specified length is fed after the film feed started to the scanning direction, the ready sensor does not turn DARK.
00006	While the film is being fed to the scanning direction, although the specified length is fed after the ready sensor has turned DARK, the loading sensor does not turn DARK.
00007	While the film is being fed to the scanning direction, although the specified length is fed after the perforation sensor has turned LIGHT, the ready sensor does not turn LIGHT.

Check PointHS-1800

1	Check if the loading sensor, ready sensor and perforation sensor are not soiled.
2	Carry out the Sensor LED Light Intensity Value Adjustment.

DiagnosisHS-1800

110 AFC-II

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the loading sensor, ready sensor and perforation sensor	 35020

Failed parts	Manual No.
Loading sensor	 62350
Ready sensor	
Perforation sensor	
Film feed motor	
PM driver (film feed motor)	 65070
Connecting PCB (110 AFC-II)	 65310
Sensor PCB (110 AFC-II)	 65320
AFC/scanner control PCB	 65000
Multi power supply	 65060
Power PCB	 65260
AFC/scanner driver PCB	 65010
Scanner power supply 1	 65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06406**120 film has stopped at the Film Carrier.**

Countermeasure message

Remove the film. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00002	Even when a specified length is fed after the ready sensor turned DARK, the film sensor does not turn DARK.
00003	Even when a specified length of film has been fed after the ready sensor turned DARK, the ready sensor does not detect the film rear end.
00004	Although a specified length of film has been fed with the film sensor DARK, the input status (rotation detection) of the film feed sensor does not change.
00005	After pre-scanning, although the specified length is fed after the film feed started to the scanning direction, the ready sensor does not turn DARK.
00006	While the film is being fed to the scanning direction, although the specified length is fed after the ready sensor has turned DARK, the loading sensor does not turn DARK.
00007	While the film is being fed to the scanning direction, although the specified length is fed after the film sensor has turned LIGHT, the ready sensor does not turn LIGHT.

Check Point**HS-1800**

1	Check that the loading sensor, the ready sensor and the film sensor are not soiled.
---	---

Diagnosis**HS-1800****120 AFC-II**

Adjustment failure point	Manual No.
Sensitivity adjustment failure in the loading sensor, ready sensor, or film sensor	 35010

Failed parts	Manual No.
Loading sensor	 62250
Ready sensor	
Film sensor	
Film feed sensor	
Film feed motor	
PM driver (film feed motor)	 65070
Connecting PCB (120 AFC-II)	 65290
Sensor PCB (120 AFC-II)	 65300
AFC/scanner control PCB	 65000
Multi power supply	 65060
Power PCB	 65260
AFC/scanner driver PCB	 65010
Scanner power supply 1	 65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06407**Spool Key operation error.**

Countermeasure message
Confirm the Film Cartridge.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00001	Unused
00002	
00003	Even though the spool key motor has been rotated by the specified angle, the VEI sensor does not detect the rotation.

Check PointLS-600/LS-1100/HS-1800

1	Check that the VEI sensor is not soiled.
---	--

DiagnosisLS-600

Failed parts	Manual No.
VEI sensor	 62080
Scanner control PCB	 66010
Scanner driver PCB	 66020
Control source	 66110
Power supply	

LS-1100

Failed parts	Manual No.
VEI sensor	 62085
Scanner control PCB	 66510
Scanner driver PCB	 66520
Multi power supply	 66610
Power supply	

HS-1800

Failed parts	Manual No.
VEI sensor	👉 62150
Spool key motor	
Sensor PCB (135/240 AFC-II)	👉 65250
Driver PCB 2	👉 65240
Connecting PCB 3 (135/240 AFC-II)	👉 65220
Connecting PCB 2 (135/240 AFC-II)	👉 65210
Connecting PCB 4 (135/240 AFC-II)	👉 65280
Connecting PCB 1 (135/240 AFC-II)	👉 65200
AFC/scanner control PCB	👉 65000
Multi power supply	👉 65060
Power PCB	👉 65260
AFC/scanner driver PCB	👉 65010
Scanner power supply 1	👉 65060

◆ Symptoms due to the wiring connection failure

Failed part(s) [LS-600]
See 👉 Scanner control PCB 4210.
See 👉 Scanner driver PCB 4210.
See 👉 PM driver (film feed motor) (PMD1) 4210.

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06408**The Film Carrier is unlocked.****Alarm release**

NO

Error message release

YES

Condition

Suffix number	Condition
00000	The AFC lock sensor turns OFF when the film is in the AFC.

Diagnosis**HS-1800**

Failed parts	Manual No.
Film carrier lock sensor	 62070
AFC/scanner driver PCB	 65010
AFC/scanner control PCB	 65000
Multi power supply	 65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06409 **The 240 Cleaning Leader has stopped.**

Countermeasure message

Remove the cleaning leader. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00002	Although the ready sensor is shaded and the cleaning leader is advanced for 200 mm, the perforation sensor does not detect DARK.
00006	When ejecting the cleaning leader, although the leader is fed for a specified length, the perforation sensor does not turn LIGHT.
00007	Even when the specified length has been fed after the perforation sensor turned LIGHT, the ready sensor does not turn LIGHT.
00008	The rewinding sensor detected rewinding failure.
00009	When ejecting the cleaning leader, the loading sensor turns RIGHT immediately after the ready sensor detected the cleaning leader. (The cleaning leader is too short.)

Check Point

LS-600/LS-1100/HS-1800

1	Check that the cleaning leader is not defective.
2	Check if the ready sensor, perforation sensor and film ejection sensor are soiled.
3	Clean the film feed route.
4	Perform the Sensor Sensitivity Adjustment.

Diagnosis

LS-600

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the perforation sensor and the end perforation sensor	 35070

Failed parts	Manual No.
240 end perforation sensor	 62080
240 perforation sensor	
Cartridge limit switch	
VEI sensor	
Scanner control PCB	 66010
Scanner driver PCB	 66020
Control source	 66110
Power supply	

LS-1100

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the perforation sensor and the end perforation sensor	 35070

Failed parts	Manual No.
240 end perforation sensor	62085
240 perforation sensor	
Cartridge limit switch	
VEI sensor	
Scanner control PCB	66510
Scanner driver PCB	66520
Multi power supply	66610
Power supply	

HS-1800

135/240 AFC-II

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the loading sensor, ready sensor and perforation sensor	35000

Failed parts	Manual No.
Loading sensor	62150
Ready sensor	
Perforation sensor	
VEI sensor	
Rewinding sensor	
Film feed motor	
PM driver (film feed motor)	65070
Sensor PCB (135/240 AFC-II)	65250
Connecting PCB 2 (135/240 AFC-II)	65210
Connecting PCB 4 (135/240 AFC-II)	65280
Connecting PCB 1 (135/240 AFC-II)	65200
AFC/scanner control PCB	65000
Multi power supply	65060
Power PCB	65260
AFC/scanner driver PCB	65010
Scanner power supply 1	65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06410

Film Sensor error.

Countermeasure message

Clean the sensor with a blower brush. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00001	In the sensor sensitivity adjustment, although the standard voltage of the film sensor and light intensity level were changed to the upper limit, the input status did not turn LIGHT.
00002	When adjusting the sensor sensitivity, the standard voltage is lowered without changing the light intensity level of the film sensor, the input status does not turn LIGHT.
00003	When adjusting the sensor sensitivity, although the standard voltage of the film sensor has been fixed at the upper limit and light intensity level has been changed to lower limit, the input status does not turn DARK.
00004	When the standard voltage and the light intensity level of the film sensor were set to initial value, the input status turns LIGHT.

NOTE

- The name of the film carrier will be displayed on the second line.
120

Check Point

HS-1800

1	Check that the film sensor is not soiled.
2	Carry out the Sensor LED Light Intensity Value Adjustment.

Diagnosis

HS-1800

120 AFC-II

Adjustment failure point	Manual No.
Failure of the film sensitivity adjustment	👉 35010

Failed parts	Manual No.
120 film sensor	👉 62250
Sensor PCB (120 AFC-II)	👉 65300
Connecting PCB (120 AFC-II)	👉 65290
AFC/scanner control PCB	👉 65000
Multi power supply	👉 65060
Power PCB	👉 65260
AFC/scanner driver PCB	👉 65010
Scanner power supply 1	👉 65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06411**Film Carrier Sensor Sensitivity Adjustment was not executed.**

Countermeasure message

Execute the sensor sensitivity adjustment. If the error recurs, restart the scanner.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00001	The sensor sensitivity of the 135 lane has not been adjusted.
00002	The sensor sensitivity of the 240 lane has not been adjusted.
00003	135 DX sensors 1, 2, 3, 4, 240 DX sensors 1 and 2 are not adjusted.
00004	The loading sensors (135 and 240), ready sensors (135 and 240), and perforation sensors (135 and 240) are not adjusted.
00005	The 135 DX sensors 1, 2, 3, and 4, loading sensors (135 and 240), ready sensors (135 and 240), and perforation sensors (135 and 240) are not adjusted.
00006	The 240 DX sensors 1 and 2, loading sensors (135 and 240), ready sensors (135 and 240), and perforation sensors (135 and 240) are not adjusted.
00007	The 135 DX sensors 1, 2, 3, and 4, 240 DX sensors 1 and 2, loading sensors (135 and 240), ready sensors (135 and 240), and perforation sensors (135 and 240) are not adjusted.
00008	The sensitivity of the 110 film sensor has not been adjusted.
00010	The sensitivity of the 120 film sensor has not been adjusted.

NOTE

- This error message will be displayed at the following cases. Refer to the diagnosis if the error message recurs even though the sensitivity adjustment was carried out.
 - The scanner control PCB was replaced.
 - There is no backup data of the scanner control PCB.
 - The sensor standard adjustments have not been completed properly.
- Name of the film carrier and the sensor to be adjust will be displayed on the second line of the message.

Check PointLS-600/LS-1100/HS-1800

1	Perform the Sensor Sensitivity Adjustment.
---	--

DiagnosisLS-600

Adjustment failure point	Manual No.
Failure of sensor sensitivity calibration	 35070

Failed parts	Manual No.
Scanner control PCB	 66010

LS-1100

Adjustment failure point	Manual No.
Failure of sensor sensitivity calibration	 35070

Failed parts	Manual No.
Scanner control PCB	 66510

HS-1800

135/240 AFC-II

Adjustment failure point	Manual No.
Failure of Sensor Sensitivity Adjustment	 35000
Failure of DX Sensor Standard Adjustment	

Failed parts	Manual No.
AFC/scanner control PCB	 65000

110 AFC-II, 120 AFC-II

Adjustment failure point	Manual No.
Failure of Sensor Sensitivity Adjustment	 35010
	 35020

Failed parts	Manual No.
AFC/scanner control PCB	 65000

135 AFC-II

Adjustment failure point	Manual No.
Failure of Sensor Sensitivity Adjustment	 35060
Failure of DX Sensor Standard Adjustment	

Failed parts	Manual No.
AFC/scanner control PCB	 65000

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06412

135 DX Sensor 1 error.

No. 06413

135 DX Sensor 2 error.

No. 06414

135 DX Sensor 3 error.

No. 06415

135 DX Sensor 4 error.

Countermeasure message

Clean the sensor with a blower brush. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00001	When adjusting the DX sensor standard, the value of A/D exceeds 204 with minimum LED Light Intensity Value.
00002	When adjusting the DX sensor standard, the value of A/D does not exceed 204 with maximum LED Light Intensity Value.
00003	When adjusting the DX sensor standard, the adjusted gain value exceeds 255.
00004	When adjusting the DX sensor standard, none negative level calculated from inserting negative exceeds 255.
00005	When adjusting the sensor LED light intensity, the value does not reach until none negative level although the light intensity value has been maximum.

Check Point

HS-1800

1	Check whether the 135 DX sensor is dirty.
2	Carry out the Sensor LED Light Intensity Value Adjustment.

Diagnosis

HS-1800

135/240 AFC-II

Adjustment failure point	Manual No.
Failure of the film sensitivity adjustment	☞ 35000
Failure of 135 DX sensor standard adjustment	

Failed parts	Manual No.
135 DX sensor	☞ 62150
Sensor PCB (135/240 AFC-II)	☞ 65250
Connecting PCB 2 (135/240 AFC-II)	☞ 65210
Connecting PCB 4 (135/240 AFC-II)	☞ 65280
Connecting PCB 1 (135/240 AFC-II)	☞ 65200
AFC/scanner control PCB	☞ 65000
Multi power supply	☞ 65060

Failed parts	Manual No.
Power PCB	 65260
AFC/scanner driver PCB	 66520
Scanner power supply 1	 65060

135 AFC-II

Adjustment failure point	Manual No.
Failure of the film sensitivity adjustment	 35060
Failure of 135 DX sensor standard adjustment	

Failed parts	Manual No.
135 DX sensor	 62650
135 AFC sensor PCB	 65370
135 AFC connecting PCB	 65360
AFC/scanner control PCB	 65000
Multi power supply	 66520
Power PCB	 65260
AFC/scanner driver PCB	 65010
Scanner power supply 1	 66520

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06416**240 DX Sensor 1 error.****No. 06417****240 DX Sensor 2 error.**

Countermeasure message

Clean the sensor with a blower brush. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00001	When adjusting the DX sensor standard, the value of A/D exceeds 204 with minimum LED Light Intensity Value.
00002	When adjusting the DX sensor standard, the value of A/D does not exceed 204 with maximum LED Light Intensity Value.
00003	When adjusting the DX sensor standard, the adjusted gain value exceeds 255.
00004	When adjusting the DX sensor standard, none negative level calculated from inserting negative exceeds 255.
00005	When adjusting the sensor LED light intensity, the value does not reach until none negative level although the light intensity value has been maximum.

Check PointHS-1800

1	Check whether the 240 DX sensor is dirty.
2	Carry out the Sensor LED Light Intensity Value Adjustment.

DiagnosisHS-1800

135/240 AFC-II

Adjustment failure point	Manual No.
Failure of 240 DX sensor standard adjustment	 35000

Failed parts	Manual No.
240 DX sensor	 62150
Sensor PCB (135/240 AFC-II)	 65250
Connecting PCB 2 (135/240 AFC-II)	 65210
Connecting PCB 4 (135/240 AFC-II)	 65280
Connecting PCB 1 (135/240 AFC-II)	 65200
AFC/scanner control PCB	 65000
Multi power supply	 65060
Power PCB	 65260
AFC/scanner driver PCB	 65010
Scanner power supply 1	 65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06423**Auto focus error.**

Countermeasure message

Clean the sensor with a blower brush. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00000	Even though the auto focus adjustment had been performed against the mount for a specified time, the adjustment is failure.

NOTE

- This message appears only when the 135/240 MMC-II is attached.

Check Point**HS-1800**

1	Check that the film is placed on the mount.
2	Check that the AF sensor and mirror is not soiled.
3	Check that the scanner adjustment chart, emission adjustment chart and the mount which is processed normally are not damaged.
4	Check that the mount is processable with MMC.

NOTE

- For confirming the scanner adjustment chart, see [4600](#).

Diagnosis**HS-1800****135/240 MMC-II**

Adjustment failure point	Manual No.
Check that the light axis of the AF sensor is correctly positioned.	35030
When adjusting the height of the mount carrier, check that the worm wheel swings within the tolerance range of 4 mm (\pm one tooth).	20850

Failed parts	Manual No.
AF sensor	62450
AF motor	62450
<ul style="list-style-type: none"> If the AF motor is not activated when DC24 V is outputted between pins 1 and 2 of the AF motor connector, the AF motor is defective. 	
MMC sensor PCB	65340
MMC connecting PCB	65330
AFC/scanner control PCB	65000
Multi power supply	65060
Power PCB	65260
AFC/scanner driver PCB	65010
Scanner power supply 1	65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06424**Mount Unit operation error.**

Countermeasure message

Clean the sensor with a blower brush. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00001	When an attempt has been made to move the mount carrier to the home position, the mount carrier home sensor does not turn DARK even after the mount carrier slide motor has rotated for a specified time.
00002	When an attempt has been made to move the mount carrier from the home position, the mount carrier home sensor does not turn LIGHT even after the mount carrier slide motor has rotated for a specified time.
00003	When the mount is to be ejected, the mount insertion cover is not opened.

NOTE

- This message appears only when the 135/240 MMC-II is attached.

Check Point**HS-1800**

1	Check that the mount carrier home sensor or the mount insertion cover sensor is not soiled.
2	Check if the mount unit slides smoothly.

Diagnosis**HS-1800****135/240 MMC-II**

Failed parts	Manual No.
Mount carrier home sensor	 62450
Mount carrier slide motor	
PM driver (film feed motor)	 65070
MMC connecting PCB	 65330
AFC/scanner control PCB	 65000
Multi power supply	 65060
Power PCB	 65260
AFC/scanner driver PCB	 65010
Scanner power supply 1	 65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06425**Mount detection error.**

Countermeasure message

Clean the sensor with a blower brush. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00001	When the mount insertion cover sensor is ON, the mount sensor does not turn ON.
00002	When the mount is to be ejected, the mount sensor does not turn OFF.

NOTE

- This message appears only when the 135/240 MMC-II is attached.

Check Point**HS-1800**

1	Check that the mount insertion cover sensor or the mount sensor is not soiled.
---	--

Diagnosis**HS-1800****135/240 MMC-II**

Failed parts	Manual No.
Mount insertion cover sensor	 62450
Mount sensor	
MMC sensor PCB	 65340
MMC connecting PCB	 65330
AFC/scanner control PCB	 65000
Multi power supply	 65060
Power PCB	 65260
AFC/scanner driver PCB	 65010
Scanner power supply 1	 65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06426

The lane is out of position.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00000	The 135 or 240 lane limit switch turns OFF while the film is being processed using the 135/240 AFC.

Check Point

HS-1800

1	Check that the lever is set securely and the lane limit switch is pressed.
---	--

Diagnosis

HS-1800

135/240 AFC-II

Failed parts	Manual No.
Lane limit switch	 62150
<ul style="list-style-type: none"> If there is no conduction between pins 1 and 2 (135) or between pins 1 and 3 (240) on the connector when the lane limit switch is pressed, the lane limit switch is defective. 	
Driver PCB 2	 65240
Connecting PCB 3	 65220
AFC/scanner control PCB	 65000

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06429**System error. (AFC / Scanner control PCB)**

Countermeasure message

Clear the error. If the error recurs, restart the scanner.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00001	When the scanner control PCB is started up, the ICs on the PCB have problems.
00500	Overflow of the main transmission buffer
00501	Overflow of the interrupting transmission buffer
01000	The scanner status is BUSY when checking at startup.
03003	The IRIS operation of scanner unit is abnormal.
03004	Focus movement range is mathematically abnormal.
04002	The specified main scanning start position is not correct.
04005	<ul style="list-style-type: none"> If the leader processed next is detected by film sensor 1 while feeding the film in the connection unit If the film less than 505 mm is detected (Occurs only when the connecting unit is connected to the LS-600/LS-1100.)

Check PointLS-600/LS-1100/HS-1800

		Manual No.
1	When an error occurs due to communication error among the suffix numbers above, upgrade the system.	 39000

LS-600/LS-1100

Suffix number	Countermeasure
04005	The connecting unit is connected to the LS-600 or LS-1100. <ul style="list-style-type: none"> Confirm that the film is fed in the connecting unit normally.

DiagnosisLS-600

Failed parts	Manual No.
Scanner main body unit	 20612
Scanner control PCB	 66010
Scanner driver PCB	 66020

LS-1100

Failed parts	Manual No.
Scanner main body unit	 20613
Scanner main PCB	 66560
Connecting PCB	 66530
Scanner control PCB	 66510
Scanner driver PCB	 66520

HS-1800

Blown fuses		Manual No.
F28	AFC/scanner driver PCB	👉 65010

Failed parts		Manual No.
Scanner unit		👉 20611
AFC/scanner control PCB		👉 65000
AFC/scanner driver PCB		👉 65010

◆ Symptoms due to the wiring connection failure

Failed part(s) [LS-600]
See 👉 Scanner control PCB 4210.
See 👉 Lens connecting PCB 4210.

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06431**Auto focus error.**

Countermeasure message

Remove the film. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00000	Even though the auto focus adjustment had been performed against the mount for a specified time, the adjustment is failure.

NOTE

- This message appears only when the 135/240 AMC-II is attached.

Check Point**HS-1800**

1	Check that the film is placed on the mount.
2	Check that the AF sensor and mirror is not soiled.
3	Check that the scanner adjustment chart, emission adjustment chart and the mount which is processed normally are not damaged.
4	Check that the mount is processable with AMC.

NOTE

- For confirming the scanner adjustment chart, see [4600](#).

Diagnosis**HS-1800****135/240 AMC-II**

Adjustment failure point	Manual No.
Check that the light axis of the AF sensor is correctly positioned.	35040
When adjusting the height of the mount carrier, check that the worm wheel swings within the tolerance range of 4 mm (\pm one tooth).	

Failed parts	Manual No.
AF sensor	62550
AF motor	
<ul style="list-style-type: none"> If the AF motor is not activated when DC24 V is outputted between pins 1 and 2 of the AF motor connector, the AF motor is defective. 	
MMC sensor PCB	65340
AMC connecting PCB	65350
AFC/scanner control PCB	65000
Multi power supply	65060
Power PCB	65260
AFC/scanner driver PCB	65010
Scanner power supply 1	65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06432**Mount Unit operation error.**

Countermeasure message

Remove the film. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00001	When an attempt has been made to move the mount carrier to the home position, the mount carrier home sensor does not turn DARK even after the mount carrier slide motor has rotated for a specified time.
00002	When an attempt has been made to move the mount carrier from the home position, the mount carrier home sensor does not turn LIGHT even after the mount carrier slide motor has rotated for a specified time.

NOTE

- This message appears only when the 135/240 AMC-II is attached.

Check PointHS-1800

1	Check if the mount carrier sensor is soiled.
2	Check if the mount unit slides smoothly.

DiagnosisHS-1800

135/240 AMC-II

Failed parts	Manual No.
Mount carrier home sensor	62550
Mount carrier slide motor	
PM driver (film feed motor)	65070
MMC sensor PCB	65340
AMC connecting PCB	65350
AFC/scanner control PCB	65000
Multi power supply	65060
Power PCB	65260
AFC/scanner driver PCB	65010

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06433**Mount detection error.**

Countermeasure message

Remove the film. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00001	Although the mount is fed to the mount carrier from insert stocker, the mount sensor does not turn ON. Or, the mount sensor (inlet) is ON in spite of there is no mount.
00002	Although the mount is fed to the ejection stocker, the mount sensor does not turn OFF.

NOTE

- This message appears only when the 135/240 AMC-II is attached.

Check PointHS-1800

1	Check that the mounts are correctly inserted in the mount stocker.
2	Check that the weight of the mount stocker is attached.

DiagnosisHS-1800

135/240 AMC-II

Failed parts	Manual No.
Mount sensor (inlet)	62550
MMC sensor PCB	65340
AMC connecting PCB	65350
AFC/scanner control PCB	65000
Multi power supply	65060
Power PCB	65260
AFC/scanner driver PCB	65010

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06434**Mount detection (inlet) error.**

Countermeasure message

Remove the film. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00001	Although the mount sensor (inlet) is not turned ON when the mount is fed to the mount carrier, the mount sensor turns ON.

NOTE

- This message appears only when the 135/240 AMC-II is attached.

Check Point**HS-1800**

1	Check that the mounts are correctly inserted in the mount stocker.
2	Check that the weight of the mount stocker is attached.

Diagnosis**HS-1800****135/240 AMC-II**

Failed parts	Manual No.
Mount sensor (inlet)	62550
Mount sensor	
Mount carrier home sensor	
Mount carrier slide motor	
PM driver (film feed motor)	65070
MMC sensor PCB	65340
AMC connecting PCB	65350
AFC/scanner control PCB	65000
Multi power supply	65060
Power PCB	65260
AFC/scanner driver PCB	65010

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06435**Mount insertion operation error.**

Countermeasure message

Remove the film. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00001	Although the mount insertion motor has rotated for a specified time to return the mount insertion arm to the home position, the insertion sensor 1 does not turn DARK.
00002	Although the mount insertion arm has been moved for a specified time from the home position, the insertion sensor 1 does not turn LIGHT.
00003	Although the mount insertion arm has been moved to the set position, the insertion sensor 2 does not turn DARK.
00004	Although the mount insertion arm has been moved for a specified time to return to the home position from the set position, the insertion sensor 2 does not turn LIGHT.

NOTE

- This message appears only when the 135/240 AMC-II is attached.

Diagnosis**HS-1800****135/240 AMC-II**

Failed parts	Manual No.
Loading sensor 1	 62550
Loading sensor 2	
Mount carrier home sensor	
Mount carrier slide motor	
PM driver (film feed motor)	 65070
AMC connecting PCB	 65350
AFC/scanner control PCB	 65000
Multi power supply	 65060
Power PCB	 65260
AFC/scanner driver PCB	 65010

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06436**Mount elevator operation error.**

Countermeasure message

Remove the film. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00001	The mount elevator sensor does not turn DARK even though the mount elevator motor revolves for a specified time.
00002	The mount elevator sensor does not turn LIGHT even though the mount elevator motor revolves for a specified.

NOTE

- This message appears only when the 135/240 AMC-II is attached.

Diagnosis**HS-1800****135/240 AMC-II**

Failed parts	Manual No.
Mount elevator sensor	62550
Mount elevator motor	
AMC connecting PCB	65350
AFC/scanner control PCB	65000
Multi power supply	65060
Power PCB	65260
AFC/scanner driver PCB	65010

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06437**Mount eject operation error.**

Countermeasure message

Remove the film. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00001	The ejection sensor does not turn ON even though the mount ejection solenoid operated and the mount moved to the ejection position.
00002	The ejection sensor does not turn OFF even though the mount elevator motor revolved and the mount got out to the ejection stocker.

NOTE

- This message appears only when the 135/240 AMC-II is attached.

Check Point**HS-1800**

1	Check if no mounts are left in the mount carrier.
2	Confirm the state of the mount stocker.
3	Clean the mount ejection roller.

Diagnosis**HS-1800****135/240 AMC-II**

Failed parts	Manual No.
Ejection sensor	62550
Mount ejection solenoid	
AMC connecting PCB	65350
AFC/scanner control PCB	65000
Multi power supply	65060
Power PCB	65260
AFC/scanner driver PCB	65010

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06438

135 Cleaning Leader has stopped.

Countermeasure message

Remove the cleaning leader. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00002	Although the cleaning leader is fed for a specified length after the ready sensor detected the leader, the perforation sensor does not turn DARK.
00007	When ejecting the leader, although the leader is fed for a specified length, the perforation sensor does not turn LIGHT.
00008	When ejecting the leader, although the leader is fed for a specified length after the perforation sensor turned LIGHT, the ready sensor does not turn LIGHT.
00009	When the leader is ejected, although the leader is fed for a specified length after the perforation sensor turned DARK, the ready sensor does not turn DARK. (Unspecified cleaning leader is used.)
00010	When the leader is ejected, although the leader is fed for a specified length after the ready sensor turned DARK, the loading sensor does not turn DARK. (Unspecified cleaning leader is used.)
00011	The rewinding sensor detected the film jam.

Check Point

LS-600/LS-1100/HS-1800

1	Check if the loading sensor, ready sensor, perforation sensor, and film ejection sensor are not soiled.
2	Perform the Sensor Sensitivity Adjustment.

Diagnosis

LS-600

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the loading sensor, ready sensor and perforation sensor	 35070

Failed parts	Manual No.
135 loading sensor	 62080
135 perforation sensor	
135 ready sensor	
Rewinding sensor	
Scanner control PCB	 66010
Scanner driver PCB	 66020
Control source	 66110
Power supply	

LS-1100

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the loading sensor, ready sensor and perforation sensor	 35070

Failed parts	Manual No.
135 loading sensor	 62085
135 perforation sensor	
135 ready sensor	
Rewinding sensor	
Scanner control PCB	 66510
Scanner driver PCB	 66020
Multi power supply	 66610
Power supply	

HS-1800

135/240 AFC-II

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the loading sensor, ready sensor and perforation sensor	 35000

Failed parts	Manual No.
Loading sensor	 62150
Ready sensor	
Perforation sensor	
Rewinding sensor	
Film feed motor	
PM driver (film feed motor)	 65070
Sensor PCB (135/240 AFC-II)	 65250
Connecting PCB 2 (135/240 AFC-II)	 65210
Connecting PCB 4 (135/240 AFC-II)	 65280
Connecting PCB 1 (135/240 AFC-II)	 65200
AFC/scanner control PCB	 65000
Multi power supply	 65060
Power PCB	 65260
AFC/scanner driver PCB	 65010
Scanner power supply 1	 65060

135 AFC-II

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the loading sensor, ready sensor and perforation sensor	 35060

Failed parts	Manual No.
135 loading sensor	👉 62650
135 ready sensor	
135 perforation sensor	
Rewinding sensor	
Film feed motor	
PM driver (film feed motor)	👉 65070
135 AFC sensor PCB	👉 65370
135 AFC connecting PCB	👉 65360
AFC/scanner control PCB	👉 65000
Multi power supply	👉 65060
Power PCB	👉 65260
AFC/scanner driver PCB	👉 65010
Scanner power supply 1	👉 65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06439

The film strip is too short for processing.

Countermeasure message

Remove the film from the cartridge and proceed by strip. The film length is shorter than prescribed. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00001	When processing the stripped film, the end perforation sensor turned LIGHT for a specified time before the perforation sensor detect the detach perforation after the film feeding started.
00002	The end perforation sensor detected the detach perforation before the last frame of the film is scanned.

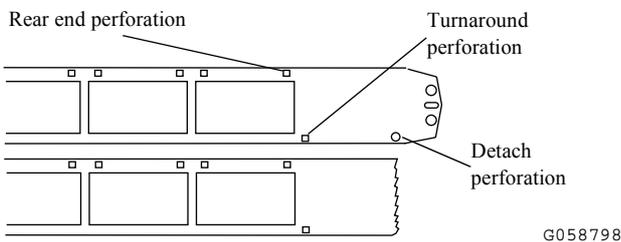
NOTE

- This error occurs when the length of the IX240 film rear edge is shorter than that is required for scanning.

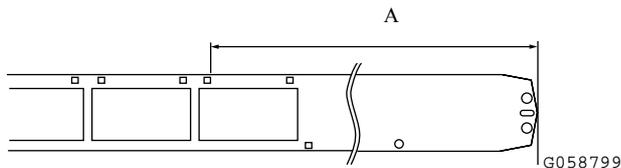
Check Point

LS-600/LS-1100/HS-1800

1	Check that the processed film has not the detach perforation near the rear edge or the detach perforation has not cut.
2	Check that the size A of the processed film indicated below is not 125 mm or less.



G058798



G058799



IMPORTANT

- Process the stripped IX240 cartridge film. For details, refer to the Troubleshooting Manual.
- If the size A is 125 mm or more, all the frames in the film can be printed by stripping the film.
- The last few frames of film cannot be printed if the film size is less than 125 mm.

No. 06441 **The 120 Cleaning Leader has stopped.**

Countermeasure message

Remove the cleaning leader. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00001	Although the cleaning leader is fed for a specified length since the ready sensor detected the cleaning leader, the film sensor does not turn DARK.
00002	Since the film sensor turned DARK, the signal of the film feed sensor (motion detection) does not change while the cleaning leader is being fed for a specified length.
00003	Although a specified length of leader has been fed when ejecting, the film sensor does not turn DARK.
00004	Although a specified length of leader has been fed since the film sensor turned LIGHT, the ready sensor does not turn LIGHT.
00005	Although a specified length of leader has been fed since ejecting the leader started, the ready sensor does not turn DARK. (Unspecified cleaning leader is used.)
00006	When ejecting, although a specified length of leader has been fed since the ready sensor turned DARK, the loading sensor does not turn DARK. (Unspecified cleaning leader is used.)

NOTE

- The specified length of 120 cleaning leader is 400 mm.
- Any cleaning leader which is out of the specification (170 mm or less) will cause errors. The suffix number of the possible error is 05.
- Any cleaning leader which is out of the specification (180 mm or less) will cause errors. The suffix number of the possible error is 05 or 06.
- Any cleaning leader which is out of the specification (223 mm) will cause errors. The suffix number of the possible error is 06.

Check Point

HS-1800

1	Check that the loading sensor, ready sensor, film sensor, and film feed sensor are not soiled.
2	Carry out the Sensor LED Light Intensity Value Adjustment.

Diagnosis

HS-1800

120 AFC-II

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the loading sensor, ready sensor, film sensor, and film feed sensor	 35010

Failed parts	Manual No.
Loading sensor	👉 62250
Ready sensor	
Film sensor	
Film feed sensor	
Film feed motor	
PM driver (film feed motor)	👉 65070
Connecting PCB (120 AFC-II)	👉 65290
Sensor PCB (120 AFC-II)	👉 65300
AFC/scanner control PCB	👉 65000
Multi power supply	👉 65060
Power PCB	👉 65260
AFC/scanner driver PCB	👉 65010
Scanner power supply 1	👉 65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06442**The perforation of the film may be broken.**

Countermeasure message

Remove the film and check the perforations and other film condition. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00001	The perforation sensor does not change when a specified length of film is being fed in the pre-scanning direction.
00002	The perforation sensor does not change when a specified length of film is being fed in the scanning direction.

Check PointLS-600/LS-1100/HS-1800

1	Check that the perforation sensor is not soiled.
2	Perform the Sensor Sensitivity Adjustment.

DiagnosisLS-600

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the perforation sensor	 35070

Failed parts	Manual No.
135 perforation sensor	 62080
Scanner control PCB	 66010
Scanner driver PCB	 66020
Control source	 66110
Power supply	

LS-1100

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the perforation sensor	 35070

Failed parts	Manual No.
135 perforation sensor	 62085
Scanner control PCB	 66510
Scanner driver PCB	 66520
Multi power supply	 66610
Power supply	

HS-1800

135/240 AFC-II

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the perforation sensor	 35000

Failed parts	Manual No.
135 perforation sensor	 62150
Sensor PCB (135/240 AFC-II)	 65250
Connecting PCB 2 (135/240 AFC-II)	 65210
Connecting PCB 4 (135/240 AFC-II)	 65280
Connecting PCB 1 (135/240 AFC-II)	 65200
AFC/scanner control PCB	 65000
Multi power supply	 65060
Power PCB	 65260
AFC/scanner driver PCB	 65010
Scanner power supply 1	 65060

135 AFC-II

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the perforation sensor	 35060

Failed parts	Manual No.
135 perforation sensor	 62650
135 AFC sensor PCB	 65370
135 AFC connecting PCB	 65360
AFC/scanner control PCB	 65000
Multi power supply	 65060
Power PCB	 65260
AFC/scanner driver PCB	 65010
Scanner power supply 1	 65060

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06443**Move Table operation error.**

Countermeasure message

Remove the film. For details, refer to the manual.

Attention message release

YES/START

NOTE

- Start initial operation after release.

Condition

Suffix number	Condition
00001	Although it was going to return the move table of MFC to the home position, even if it carried out fixed distance movement, the move table home sensor does not turn DARK.
00002	Although fixed distance movement of the move table of MFC was carried out from the home position, the move table home sensor does not turn LIGHT.
00003	During the move table of MFC operates (during processing the film), the attachment (mask) code is not detected.

NOTE

- This attention message appears when MFC is attached.
- For details, see [51610 Film feed operation \(MFC\)](#).

Check Point**HS-1800**

Suffix number		Manual No.
00001, 00002	Check the status of Table Home Sensor via Input Check.	35200
	Check the operation of Table Slide Motor via Output Check.	35300
00003	Check the Attachment Detection Switch status via input check.	35200

Diagnosis**HS-1800****MFC**

Failed parts	Manual No.
Table home sensor	62670
Table slide motor	
PM driver	
Connecting PCB 2	62660
AFC/scanner control PCB	65000
AFC/scanner driver PCB	65010

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06444**Cartridge is out of position.**

Countermeasure message

Remove the film. For details, refer to the manual.

Attention message release

YES/START

NOTE

- Start initial operation after release.

Condition

Suffix number	Condition
00000	The cartridge limit switch (cartridge limit switches 1 and 2) turns OFF while the 240 film is being processed.

Check Point

LS-600/LS-1100/HS-1800

		Manual No.
1	Check the status of the cartridge limit switch by input check.	35200

Diagnosis

LS-600

Failed parts	Manual No.
Cartridge limit switch 1, 2	62080
Scanner control PCB	66010
Scanner driver PCB	66020

LS-1100

Failed parts	Manual No.
Cartridge limit switch 1, 2	62085
Scanner control PCB	66510
Scanner driver PCB	66520

HS-1800

135/240 AFC-II

Failed parts	Manual No.
Cartridge limit switch 1, 2	62150
Sensor PCB	65250

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06445**End Perforation Sensor error.**

Countermeasure message

Clean the sensor with a blower brush. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00001	When adjusting the sensor sensitivity, although the end perforation sensor sensitivity gain value and light intensity level have been changes below the specified value without inserting the film, the system does not detect "without film".
00002	When adjusting the sensor sensitivity, although the end perforation sensor sensitivity gain value and light intensity level have been changes above the specified value with inserting the film, the system does not detect "without film".
00003	When adjusting the sensor sensitivity, although the end perforation sensor sensitivity gain value and light intensity level have been changes below the specified value with inserting the film, the system does not detect "without film".

Check PointLS-600/LS-1100

1	Check if the end perforation sensor is soiled.
2	Perform the Sensor Sensitivity Adjustment.

DiagnosisLS-600

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the end perforation sensor	 35070

Failed parts	Manual No.
240 end perforation sensor	 62080
Scanner control PCB	 66010
Scanner driver PCB	 66020
Control source	 66110
Power supply	

LS-1100

Adjustment failure point	Manual No.
Sensitivity adjustment failure of the end perforation sensor	 35070

Failed parts	Manual No.
240 end perforation sensor	 62085
Scanner control PCB	 66510
Scanner driver PCB	 66520
Multi power supply	 66610
Power supply	

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06446

Film was set to the incorrect lane.

Countermeasure message

Remove the film. For details, refer to the manual.

Alarm release

NO

Error message release

YES

Condition

Suffix number	Condition
00001	A film is detected on the 240 lane during film scanning on the 135 lane.
00002	A film is detected on the 135 lane during film scanning on the 240 lane.

Check Point

LS-600/LS-1100

No.	Check Point
1	Confirm that each sensor is not soiled.
2	Perform the Sensor Sensitivity Adjustment.

Diagnosis

LS-600

Adjustment failure point	Manual No.
Failure of sensor sensitivity calibration	 35070

Failed parts	Manual No.
135 loading sensor	 62080
135 perforation sensor	
135 ready sensor	
Rewinding sensor	
240 end perforation sensor	
240 perforation sensor	
Scanner control PCB	 66010
Scanner driver PCB	 66020
Control source	 66110
Power supply	

LS-1100

Adjustment failure point	Manual No.
Failure of sensor sensitivity calibration	 35070

Failed parts	Manual No.
135 loading sensor	👉 62085
135 perforation sensor	
135 ready sensor	
Rewinding sensor	
240 end perforation sensor	
240 perforation sensor	
Scanner control PCB	👉 66510
Scanner driver PCB	👉 66520
Multi power supply	👉 66610
Power supply	

NOTE

- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

No. 06463

For corrective actions, see EZ Controller Service Manual

Condition



IMPORTANT

- Error messages not explained in this **Scanner Service Manual** are listed in the table below.
For corrective actions, see the **EZ Controller Service Manual**.

Error message (Film carrier)

Attention message table	
No. 06463-00000	Scanner data receive error

NOTE

- In the Error message table, error message numbers that are not used currently may be listed.

5. Operation sequence

Operation sequence 50010
 Scanner Calibration sequence50010
Film Carrier Section (HS-1800) 51010
 Film feed operation (135)51010
 Film feed operation (240)51110
 Film feed operation (120)51310
 Film feed operation (110)51410
 Film feed operation (MMC)51510
 Film advance operation (AMC)51550
 Film feed operation (MFC)51610
Film advance section 52010
 Film feed operation (135 lane)52010
 Film feed operation (240 lane)52020

Scanner Calibration sequence

- This section explains the operation flow of the Scanner Calibration.

1. The power supply is turned on or **Execute** is clicked on the Scanner Calibration display.

2. When the power supply is turned on, the analog offset adjustment is automatically performed, if necessary.

The adjustment is performed by scanning the LED light source in the scanning condition for the analog offset adjustment.

If dark level cannot be adjusted during the analog offset adjustment

- ☞ No. 06332-00009 Light Source adjustment error.

NOTE

- The adjustment is performed for both negative and positive.

3. LED current characteristic adjustment, area registration and light intensity adjustment are performed.

The LED current characteristic adjustment is performed by scanning the LED light source in the scanning condition for the adjustment. Then, area registration is performed by scanning the LED light source in the scanning condition for the area registration.

If the photometry value of the scanner is too high during the LED light source adjustment

- ☞ No. 06332-00002 Light Source adjustment error.

If the aperture value of the scanner exceeds the allowable range during the LED light source adjustment

- ☞ No. 06332-00008 Light Source adjustment error.

If the analog gain value exceeds the allowable range during the analog gain adjustment

- ☞ No. 06322-##### Scanner input balance error.

If the area registration cannot be normally performed

- ☞ No. 06332-00004, -00005, -00006 Light Source adjustment error.

If the light intensity adjustment is not correctly performed

- ☞ No. 06332-00001 Light Source adjustment error.

NOTE

- The adjustments are performed for negative (RGB), negative (IR), positive (RGB) and negative (IR).

4. The digital offset adjustment is performed.

The adjustment is performed by scanning the LED light source in the scanning condition for the digital offset adjustment.

If dark level cannot be adjusted during the digital offset adjustment

- ☞ No. 06333-00003 The Line Data is out of the Standard Range Error.

NOTE

- The adjustment is performed for both negative and positive.

5. The CCD linearity adjustment is performed.

The adjustment is performed by scanning the LED light source in the scanning condition for the CCD linearity adjustment.

If problems occur with LED light emission during the CCD linearity adjustment.

- ☞ No. 06332-00014 Light Source adjustment error.

If the CCD linearity adjustment is not performed normally

- ☞ No. 06333-00008 The Line Data is out of the Standard Range Error.

NOTE

- The adjustment is performed for R, G, B and IR.

6. Bad coloration is removed.

The operation is performed by scanning the LED light source in the scanning condition for removing bad coloration. Coefficient to remove bad coloration is created for each pixel from scanning images of the digital offset adjustment and linearity adjustment.

If bad coloration is not removed normally

-  No. 06332-00015 Light Source adjustment error.

NOTE

- The adjustments are performed for negative (RGB), negative (IR), positive (RGB) and negative (IR).

7. The digital gain adjustment is performed.

The adjustment is performed by scanning the LED light source in the scanning condition for the digital gain adjustment. The digital gain adjustment is performed with scanning images of the digital offset adjustment, CCD linearity adjustment and bad coloration removal.

If the digital gain adjustment is not performed normally

-  No. 06332-00013 Light Source adjustment error.
-  No. 06333-00004 The Line Data is out of the Standard Range Error.

NOTE

- The adjustments are performed for negative (RGB), negative (IR), positive (RGB) and negative (IR).

Film feed operation (135)

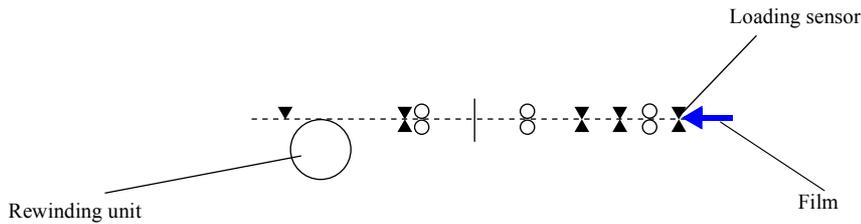
This section explains the process of the film being loaded, pre-scanned, scanned and ejected.

● **Flowchart**

1. The film is inserted.

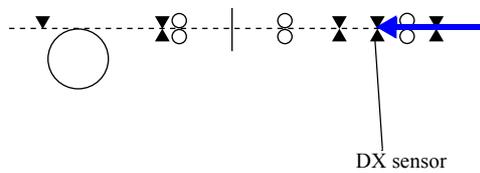
2. The film has passed the loading sensor.

- Film feed motor: ON



G068353

3. Reading of the DX code starts.



G068353

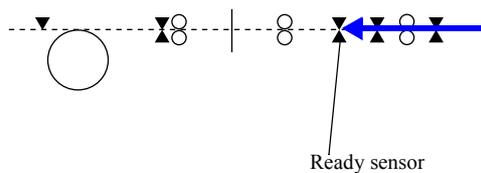
4. The film has passed the ready sensor.

When the ready sensor does not detect the film though the specified length advances with the loading sensor turned DARK:

- No. 06403
135 film has stopped at the Film Carrier.

When the ready sensor does not detect the film though the specified length advances after loading sensor turned LIGHT with the film undetected by the ready sensor:

- Film feed motor: reverse
- The film is ejected, because the minimum required length is not detected.



G068353

5. Operation sequence

5. The film is fed.

When the **135 Negative Film Inserting Direction Detection Function** is set to ON in the Operator Selections:

- Go to Step 6.

When the **135 Negative Film Inserting Direction Detection Function** is set to OFF in the Operator Selections:

- Go to Step 8.

6. The film is fed for a specified length from the ready sensor.

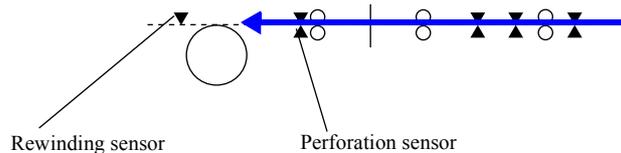
- Film feed motor: OFF

When the DX code sensor detects the film's front end (end with the small frame number):

-  No. 01435
Insertion direction of film is different. Insert the film from the rear end (end with largest frame number).

When the perforation sensor does not detect the film:

-  No. 06403
135 film has stopped at the Film Carrier.



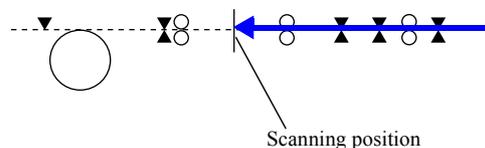
G068353

7. The film is fed.

- Film feed motor: ON (reverse)

8. The film is fed just before the scanning position.

- Film feed motor: OFF



G068353

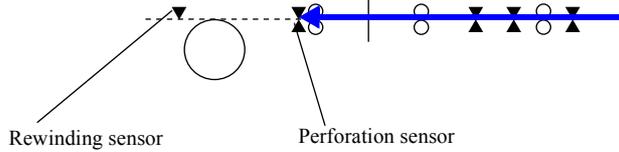
9. Pre-scanning starts.

- LED light source: ON
- Film feed motor: ON

10. The film has passed the perforation sensor.

When the perforation sensor does not detect the film:

-  No. 06403
135 film has stopped at the Film Carrier.



G068353

11. The front end of the film enters the rewinding unit.

When the rewinding sensor detects film jam:

- No. 06405
135 film has stopped at the Film Carrier.

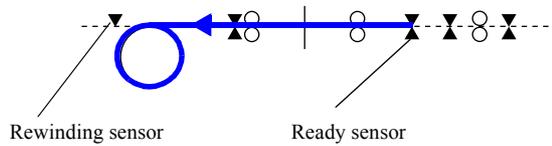
12. The rear end of the film has passed the ready sensor.

When the ready sensor does not detect the rear end of the film:

- No. 06403
135 film has stopped at the Film Carrier.

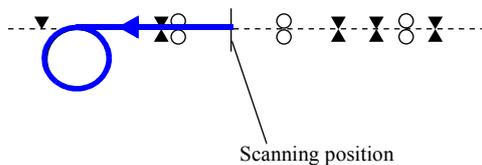
NOTE

- This error message appears when the ready sensor detected the film and a specified length of film was fed, but the ready sensor did not turn LIGHT.



G068353

13. The rear end of the film passes the scanning position.



G068353

14. The pre-scanning is completed.

- Film feed motor: OFF

When the scanning cannot be started even if one minute have passed after prescanning:

- LED light source : OFF

15. Scanning starts.

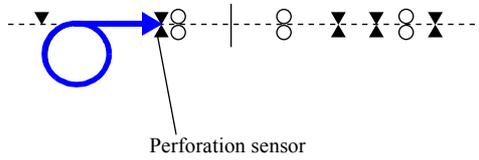
- Film feed motor: ON (reverse)

When LED light source is OFF

- LED light source: ON

When the scanning cannot be started:

- The rear end of the film waits before the scanning position until HDD process finishes.

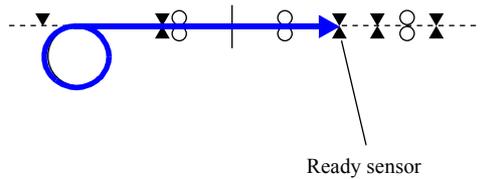


G068353

16. The rear end of the film has passed the ready sensor.

When the ready sensor does not detect the film:

- No. 06403
135 film has stopped at the Film Carrier.

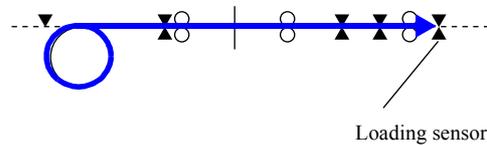


G068353

17. The rear end of the film has passed the loading sensor.

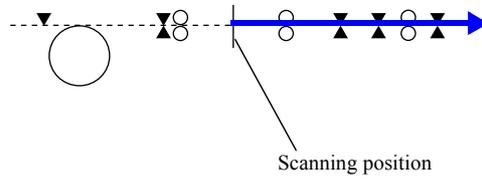
If the loading sensor does not detect the film:

- No. 06403
135 film has stopped at the Film Carrier.



G068353

18. The final frame of the film has passed the scanning position.



G068353

19. Scanning is completed.

20. The film is ejected.

- Film feed motor: OFF

If the next film is not processed even if one minute has passed:

- LED light source : OFF

Film feed operation (240)

This section explains the process of the film being loaded, scanned and ejected.

● Flowchart

1. A film cartridge is set.

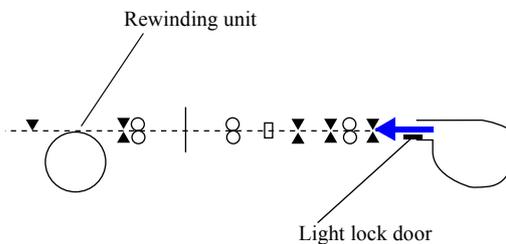
- Cartridge limit switches 1 and 2: ON

If the IPI sensor recognizes that the film is undeveloped

- No. 01403
Undeveloped cartridge. Cannot process.

2. The light lock door is opened.

- Light lock door motor: ON/OFF



G068354

3. The film is rewound by 1.5 revolution (spool key spindle).

- Film feed motor: ON (reverse)
- Spool key motor: ON (reverse)

4. The film front end is fed.

- Film feed motor: ON (forward)
- Spool key motor: ON (forward)

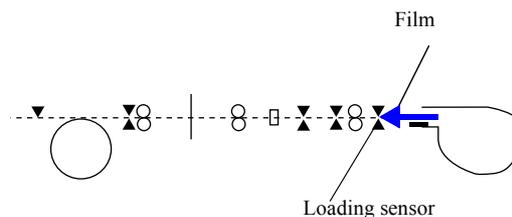
5. The front end of the film has passed the loading sensor.

If the loading sensor does not detect the film front end:

- Operation goes back to Step 3 and the film is rewound (retry).

If the loading sensor cannot detect the front end of the film after retrying:

- No. 06404
240 film has stopped at the Film Carrier.



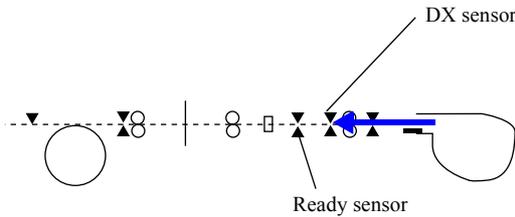
G068354

6. The front end of the film has passed the ready sensor.

- Spool key motor: OFF

If the ready sensor does not detect the film front end:

-  No. 06404
240 film has stopped at the Film Carrier.



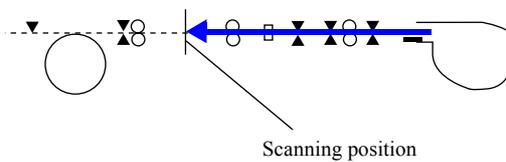
G068354

7. DX sensor starts reading the data other than the magnetic data.

NOTE

- The data other than the magnetic data are the DX code, frame numbers and FID.

8. The front end of the film passes the scanning position.



G068354

9. Pre-scanning starts.

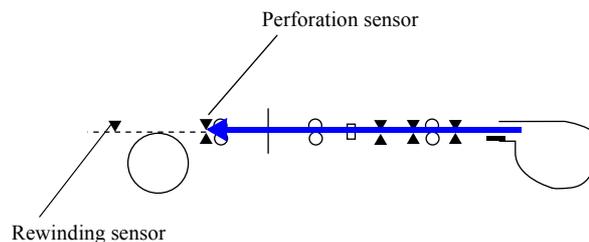
- LED light source: ON
- Film feed motor: ON (forward)

10. Reading of the the magnetic data starts.

11. The front end of the film has passed the perforation sensor.

If the perforation sensor does not detect the film advance:

-  No. 06404
240 film has stopped at the Film Carrier.



G068354

12. Rewinding of the film front end starts.

When the rewinding sensor detects film jam:

- No. 06404
240 film has stopped at the Film Carrier.

13. The turn round perforation has passed the ready sensor.

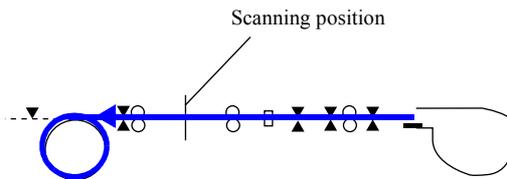
14. The turn round perforation passes the scanning position.

- Film feed motor: OFF

15. Check the read magnetic data.

When the magnetic data has not been read:

- No. 01404
The IX frame data is incomplete.
- If scanning is selected again, the magnetic data is read again after rewinding of the film.



G068354

16. Pre-scanning is completed.

- Film feed motor: OFF

When the scanning cannot be started even if one minute have passed after prescanning:

- LED light source : OFF

17. Scanning starts.

- Spool key motor: ON (reverse)
- Film feed motor: ON (reverse)

When LED light source is OFF

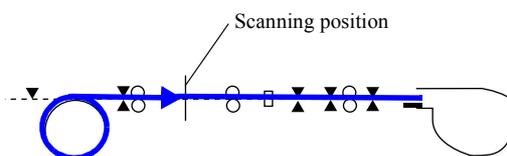
- LED light source: ON

When the scanning cannot be started:

- The rear end of the film waits before the scanning position until HDD process finishes.

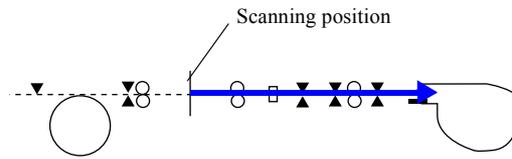
When the perforation sensor cannot detect film rewinding or rotation detection by VEI sensor does not change

- No. 06404
240 film has stopped at the Film Carrier.



G068354

18. The final frame of the film passes the scanning position.



G068354

19. Scanning is completed.

- Film feed motor: OFF

20. The film is fed.

- Film feed motor: ON (forward)

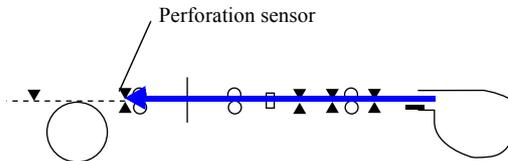
When the magnetic data is not written:

- Go to Step 26.

21. The front end of the film passes the perforation sensor.

When the perforation sensor does not detect the film:

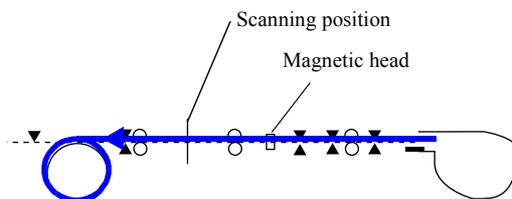
- No. 06404
240 film has stopped at the Film Carrier.



G068354

22. The turn round perforation passes the scanning position.

- Film feed motor: OFF



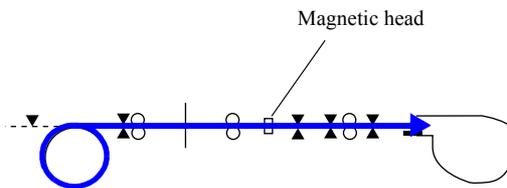
G068354

23. Magnetic data writing starts.

NOTE

- It waits until the writing data has been sent from the personal computer.

24. The leading edge of the film passes the magnetic head.

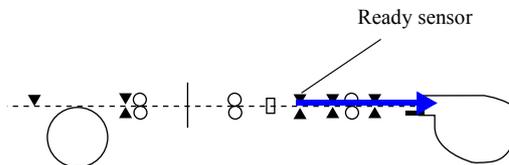


G068354

25. Writing of the magnetic data is completed.

- Film feed motor: OFF

26. The front end of the film has passed the ready sensor.



G068354

When the ready sensor does not detect the film:

- No. 06404
240 film has stopped at the Film Carrier.

27. A specified length of the film is rewound.

- Film feed motor: OFF
- Spool key motor: ON

28. The VEI of the cartridge is set to the "Processed".

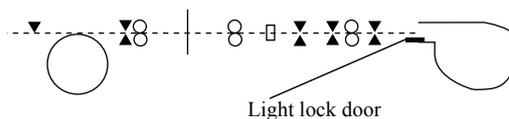
- Spool key motor: ON/OFF

When 3 revolutions of the spool key spindle does not make VEI set position detectable

- No. 06407
Spool Key operation error.

29. The light lock door is closed.

- Light lock door motor: ON



G068354

30. Remove the cartridge.

If the next film is not processed even if one minute has passed:

- LED light source : OFF

Film feed operation (120)

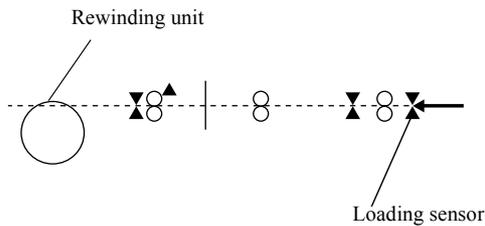
This section explains the process of the film being loaded, pre-scanned, scanned and ejected.

● Flowchart

1. The film is inserted.

2. The front end of the film has passed the loading sensor.

- Film feed motor: ON



G050826

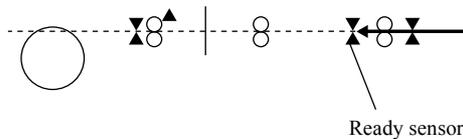
3. The front end of the film has passed the ready sensor.

When the ready sensor does not detect the film:

- No. 06406
120 film has stopped at the Film Carrier.

When the loading sensor turns LIGHT before the specified length of the film advances after the ready sensor detected the film:

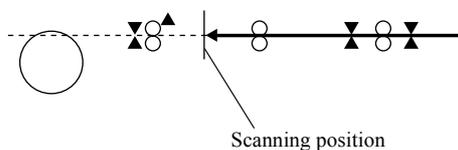
- Film feed motor: reverse
- The film is ejected, because the minimum required length is not detected.



G050827

4. The front end of the film has passed the scanning position.

- LED light source: ON



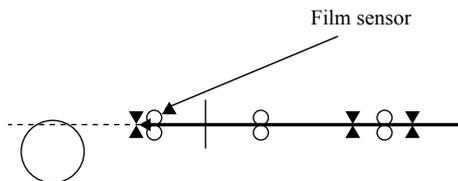
G050854

5. Pre-scanning starts.

6. The film sensor detects film advance.

When the film sensor does not detect the film advance:

- No. 06406
120 film has stopped at the Film Carrier.

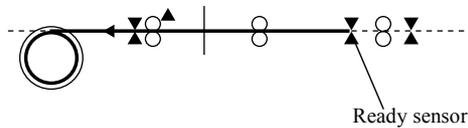


G050828

7. The rear end of the film has passed the ready sensor.

When the ready sensor does not detect the film:

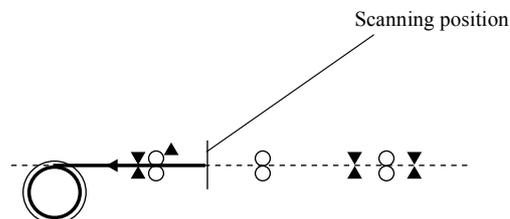
- No. 06406
120 film has stopped at the Film Carrier.



G050829

8. The rear end of the film passes the scanning position.

- Film feed motor: OFF



G050830

9. Pre-scanning is completed.

When the scanning cannot be started even if one minute have passed after prescanning:

- LED light source : OFF

10. Scanning starts.

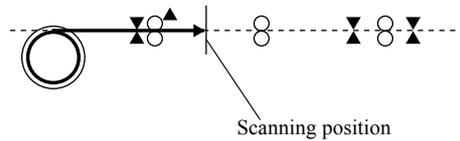
- Film feed motor: ON (reverse)

When LED light source is OFF

- LED light source: ON

When the scanning cannot be started:

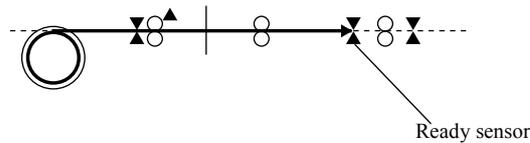
- The rear end of the film waits before the scanning position until HDD process finishes.



G050831

11. The rear end of the film has passed the ready sensor.When the ready sensor does not detect the rear end of the film:

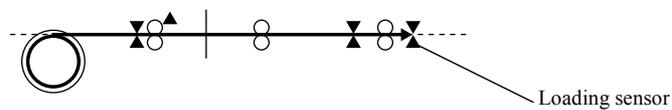
- No. 06406
120 film has stopped at the Film Carrier.



G050832

12. The rear end of the film has passed the loading sensor.If the loading sensor does not detect the film:

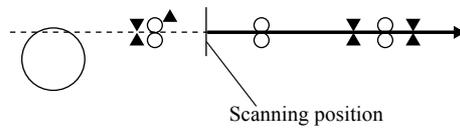
- No. 06406
120 film has stopped at the Film Carrier.



G069968

13. The front end of the film passes the scanning position.

- Film feed motor: OFF



G050833

14. Scanning is completed.

15. The film is fed at a high speed.

- Film feed motor: ON (high speed)

16. Film is ejected.

- Film feed motor: OFF

If the next film is not processed even if one minute has passed:

- LED light source : OFF

Film feed operation (110)

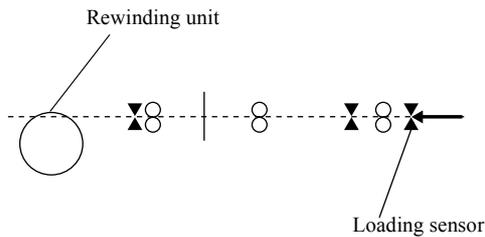
This section explains the process of the film being loaded, pre-scanned, scanned and ejected.

● Flowchart

1. The film is inserted.

2. The front end of the film has passed the loading sensor.

- Film feed motor: ON



G050837

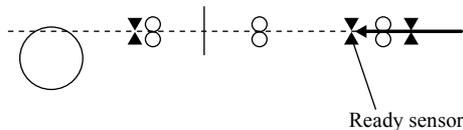
3. The front end of the film has passed the ready sensor.

When the ready sensor does not detect the film:

- No. 06405
110 film has stopped at the Film Carrier.

When the loading sensor turns LIGHT before the specified length of the film advances after the ready sensor detected the film:

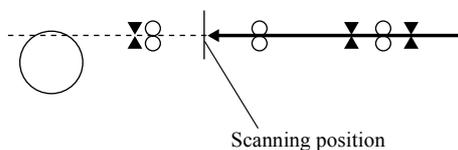
- Film feed motor: reverse
- The film is ejected, because the minimum required length is not detected.



G050838

4. The front end of the film has passed the scanning position.

- LED light source: ON



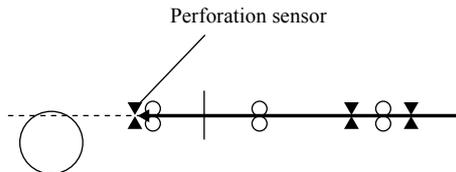
G050855

5. Pre-scanning starts.

6. The front end of the film has passed the perforation sensor.

When the perforation sensor does not detect the film:

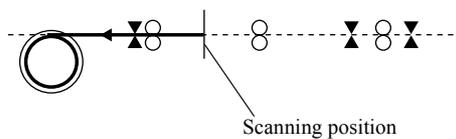
- No. 06405
110 film has stopped at the Film Carrier.



G050839

7. The rear end of the film passes the scanning position.

- Film feed motor: OFF



G050856

8. Pre-scanning is completed.

When the scanning cannot be started even if one minute have passed after prescanning:

- LED light source : OFF

9. Scanning starts.

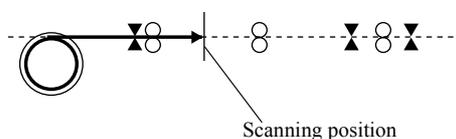
- Film feed motor: ON (reverse)

When LED light source is OFF

- LED light source: ON

When the scanning cannot be started:

- The rear end of the film waits before the scanning position until HDD process finishes.



G050840

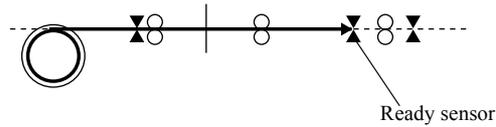
If the perforation sensor does not detect the film advance:

-  No. 06405
110 film has stopped at the Film Carrier.

10. The rear end of the film has passed the ready sensor.

When the ready sensor does not detect the film:

-  No. 06405
110 film has stopped at the Film Carrier.

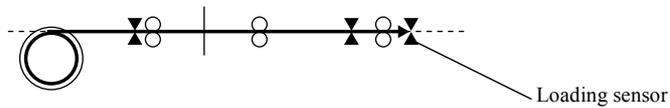


G050841

11. The rear end of the film has passed the loading sensor.

If the loading sensor does not detect the film:

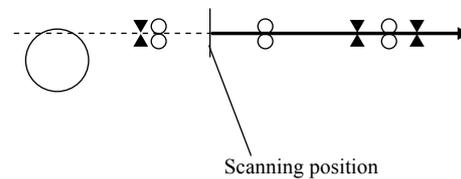
-  No. 06405
110 film has stopped at the Film Carrier.



G069969

12. The front end of the film passes the scanning position.

- Film feed motor: OFF



G050842

13. Scanning is completed.

14. The film is fed at a high speed.

- Film feed motor: ON (reverse)

15. Film is ejected.

- Film feed motor: OFF

If the next film is not processed even if one minute has passed:

- LED light source : OFF

Film feed operation (MMC)

This section explains the process of the mount insertion cover being opened and the mount being ejected.

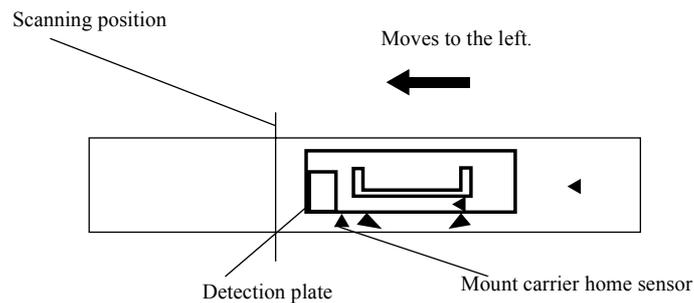
NOTE

- When the mount insertion cover is not open, it opens after returning the carrier to its home position.

● Flowchart

1. The mount carrier moves to the left. (The mount insertion cover is closed.)

- Mount carrier slide motor: ON (forward)



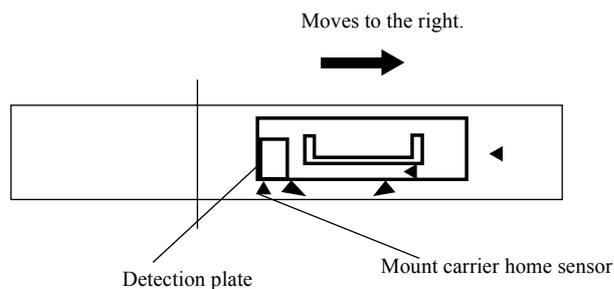
G052535

When the mount carrier home sensor is not LIGHT: (mount carrier does not move)

- ☞ No. 06424
Mount Unit operation error.

2. The mount carrier moves to the home position.

- Mount carrier slide motor: ON (reverse)



G052534

When the mount carrier home sensor is not DARK: (mount carrier does not move)

- ☞ No. 06424
Mount Unit operation error.

3. The mount insertion cover is open.

When the mount insertion cover sensor is not LIGHT: (mount insertion cover does not open)

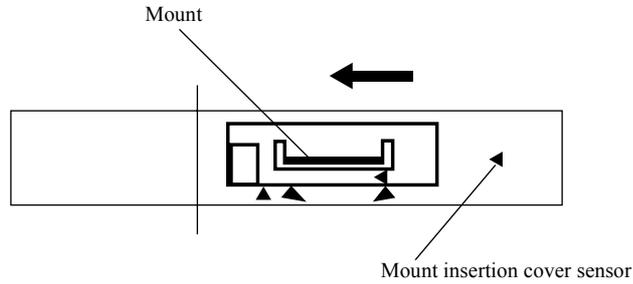
- ☞ No. 06424
Mount Unit operation error.

4. After inserting the mount, close the mount insertion cover.

- Mount insertion cover sensor: DARK
- Mount sensor: DARK

5. The mount carrier is moved to the position of the focus adjustment.

- Mount carrier slide motor: ON (forward)



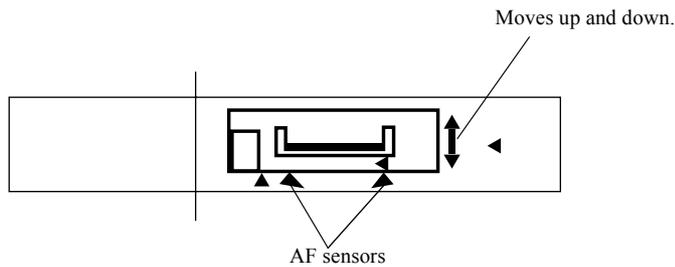
G052536

6. The auto focus is adjusted.

- AF motor: ON (forward/reverse)

When the auto focus adjustment is not finished:

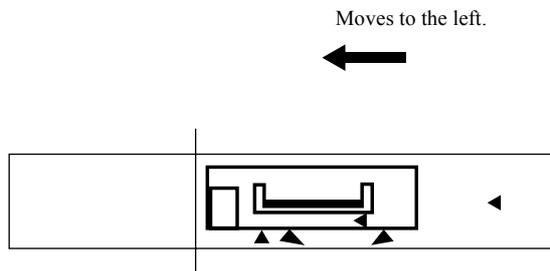
- No. 06423
Auto focus error.



G052537

7. Pre-scanning starts.

- LED light source: ON
- Mount carrier slide motor: ON (forward)



G052696

8. Pre-scanning finishes and the mount carrier stops at the scanning start position.

- Mount carrier slide motor: OFF

When the scanning cannot be started even if one minute have passed after prescanning:

- LED light source : OFF

9. Scanning starts.

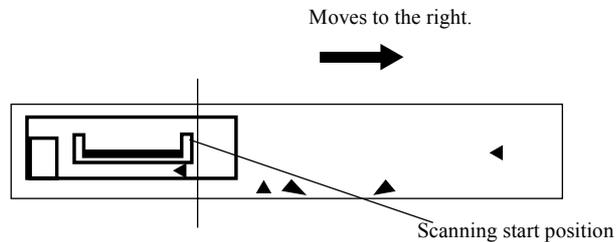
- Mount carrier slide motor: ON (reverse)

When LED light source is OFF

- LED light source: ON

When the scanning cannot be started:

- The rear end of the film waits before the scanning position until HDD process finishes.



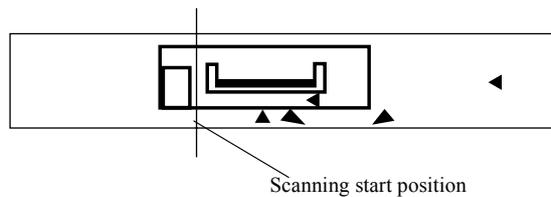
G052539

10. Scanning is completed.

- Mount carrier slide motor: OFF

If the next film is not processed even if one minute has passed:

- LED light source : OFF



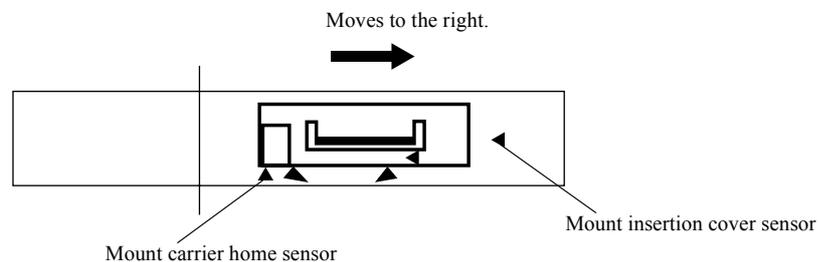
G052540

11. The mount carrier moves to the home position.

- Mount carrier slide motor: ON (reverse)

When the mount carrier home sensor is not DARK: (mount carrier does not move)

- No. 06424
Mount Unit operation error.



G052542

12. The mount insertion cover is open.When the mount insertion cover sensor is not LIGHT: (mount insertion cover does not open)

- No. 06424
Mount Unit operation error.

13. The mount is ejected.

Film advance operation (AMC)

This section explains the process of the mount insertion and the mount ejection.

NOTE

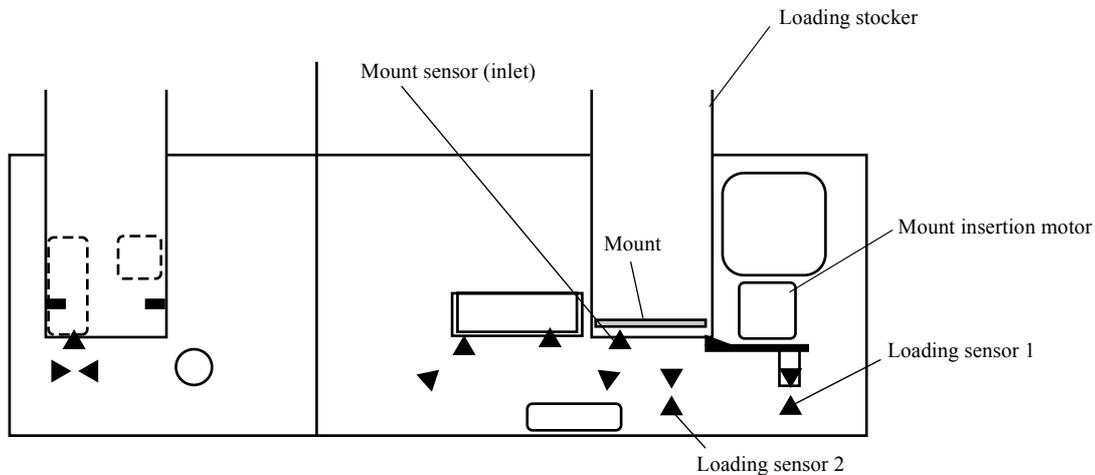
- If the mount carrier is not in the home position, move it to the home position before the operation.

● Flowchart

1. The loading stocker is set to the AMC.

When the mount sensor (inlet) does not turn DARK after pressing the YES/START key:

- ☞ No. 01429
Make sure that the mount is placed correctly.



G058785

2. Move the mount from the loading stocker to the mount carrier.

- Mount loading motor: ON (reverse)/OFF

If mount sensor 1 does not allow light to penetrate or mount sensor 2 does not block light (mount ejector pin does not move into loading position) during mount loading:

- ☞ No. 06435
Mount insertion operation error.

When the mount sensor is not DARK:

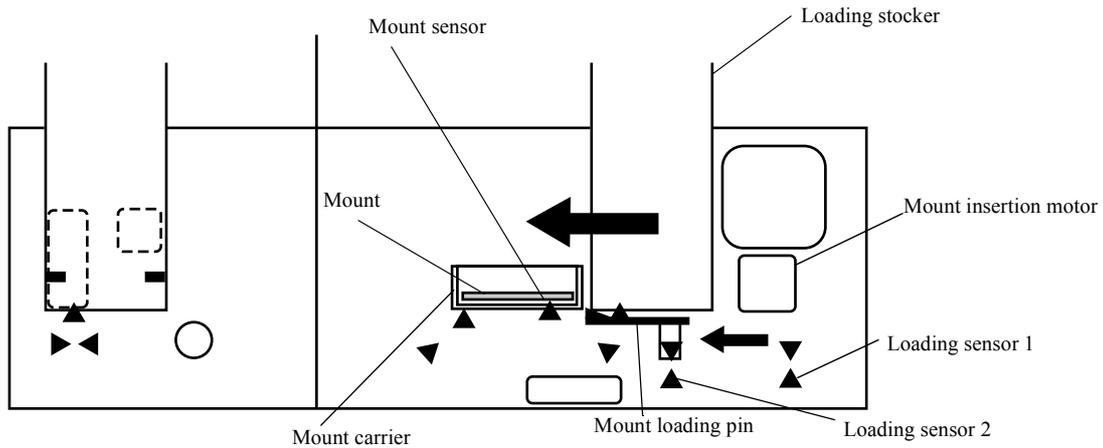
- ☞ No. 06433
Mount detection error.

When the mount sensor turns DARK after the mount sensor (inlet) turned DARK starting with LIGHT:

- Dummy mount is detected.
After the dummy mounts are ejected, the mount sensor get back to the home position to start processing the following order.

When the mount sensor stays LIGHT after the mount sensor (inlet) started with LIGHT

- The loading stocker is empty.
It gets back to the home position and stops processing.



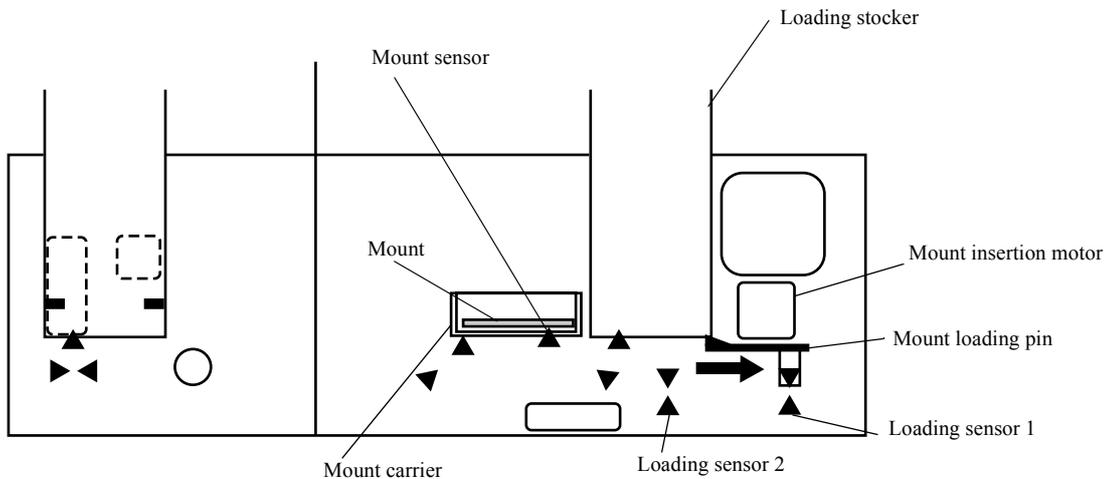
G058793

3. Move the mount loading pin to the home position.

- Mount loading motor: ON (forward)/OFF

When the loading sensor 2 does not turn LIGHT or the loading sensor 1 does not turn DARK when the mount loading pin is moving to the home position after the mount is loaded (the mount loading pin does not move to the home position):

- No. 06435
Mount insertion operation error.



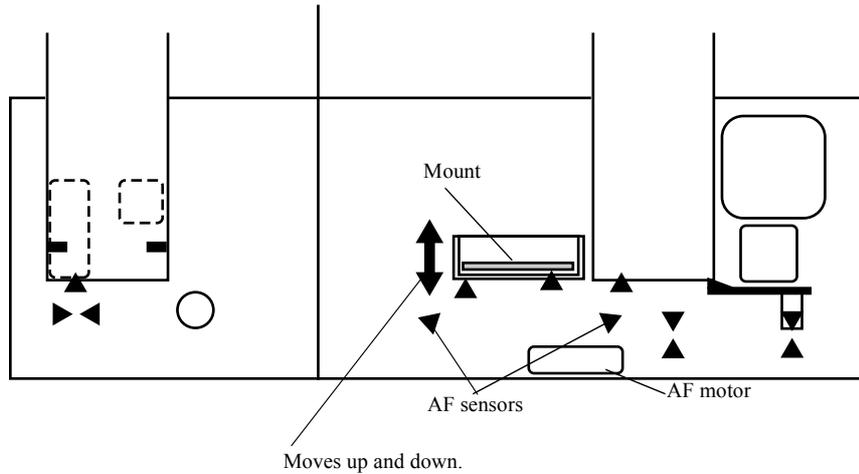
G058792

4. Auto focus adjustment

- AF motor: ON (forward/reverse)

When the auto focus adjustment is not finished:

- No. 06431
Auto focus error.



G058786

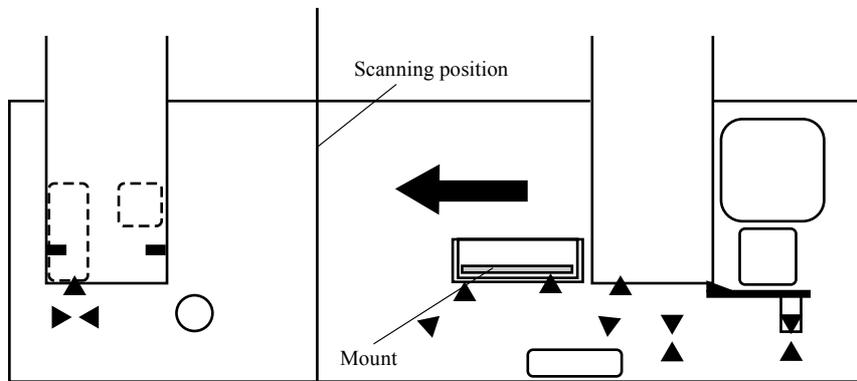
5. Pre-scanning starts.

- LED light source: ON
- Mount carrier slide motor: ON (forward)



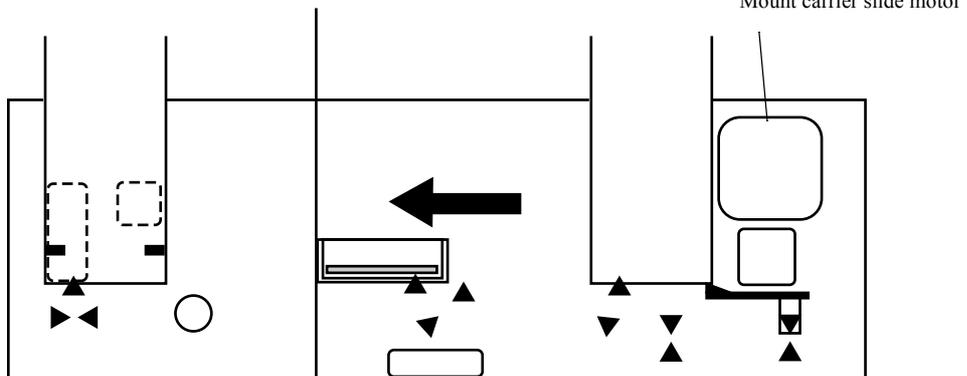
IMPORTANT

- The mount carrier moves to the pre-scanning start position at high speed.
 - The mount carrier moves at middle speed after starting pre-scanning.
- The mount carrier moves to the pre-scanning start position at high speed.



G057568

- The mount carrier moves at middle speed after starting pre-scanning.



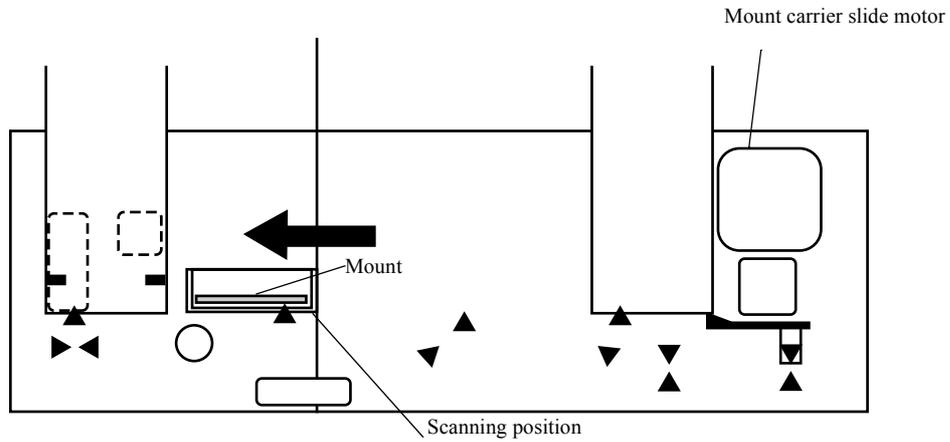
G058787

6. Pre-scanning finishes and the mount carrier stops after the scanning position.

- Mount carrier slide motor: OFF

When the scanning cannot be started even if one minute have passed after prescanning:

- LED light source : OFF



G058788

7. Scanning starts.

- Mount carrier slide motor: ON (reverse)



IMPORTANT

- The mount carrier moves to the scanning start position at high speed.
- The mount carrier moves at low speed after starting scanning.

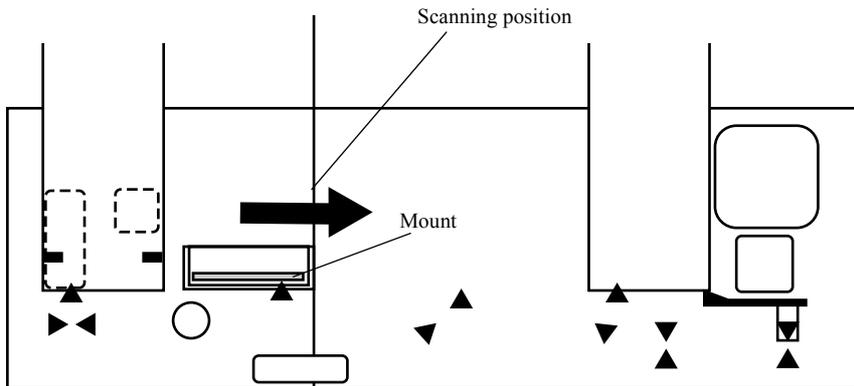
When LED light source is OFF

- LED light source: ON

When the scanning cannot be started:

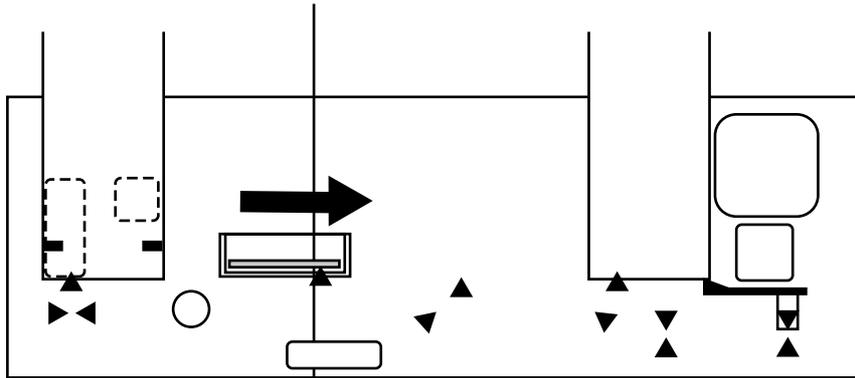
- The rear end of the film waits before the scanning position until HDD process finishes.

- The mount carrier moves to the scanning start position at high speed.



G057565

- The mount carrier moves at low speed after starting scanning.



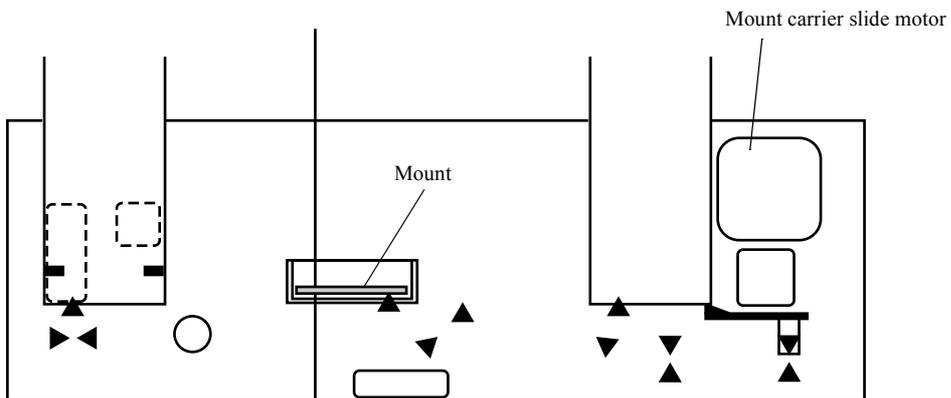
G057567

8. Scanning is completed.

- Mount carrier slide motor: OFF

If the next film is not processed even if one minute has passed:

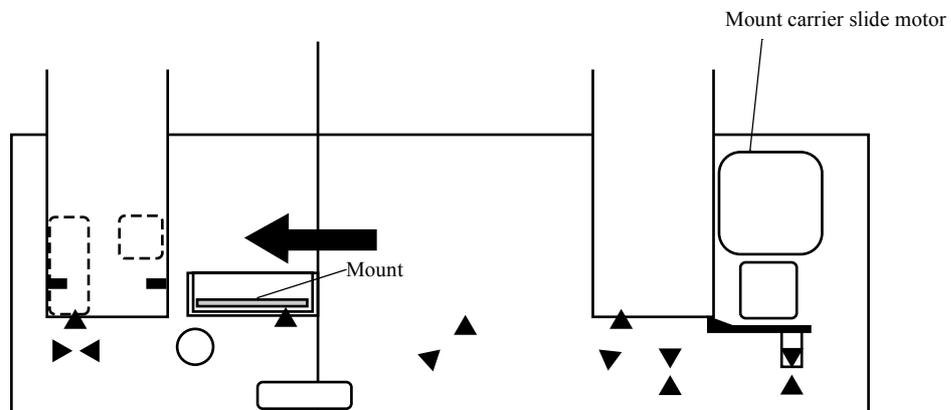
- LED light source : OFF



G057566

9. The mount carrier moves to the ejection side at high speed.

- Mount carrier slide motor: ON (forward)



G058788

10. The mount moves to the ejection position.

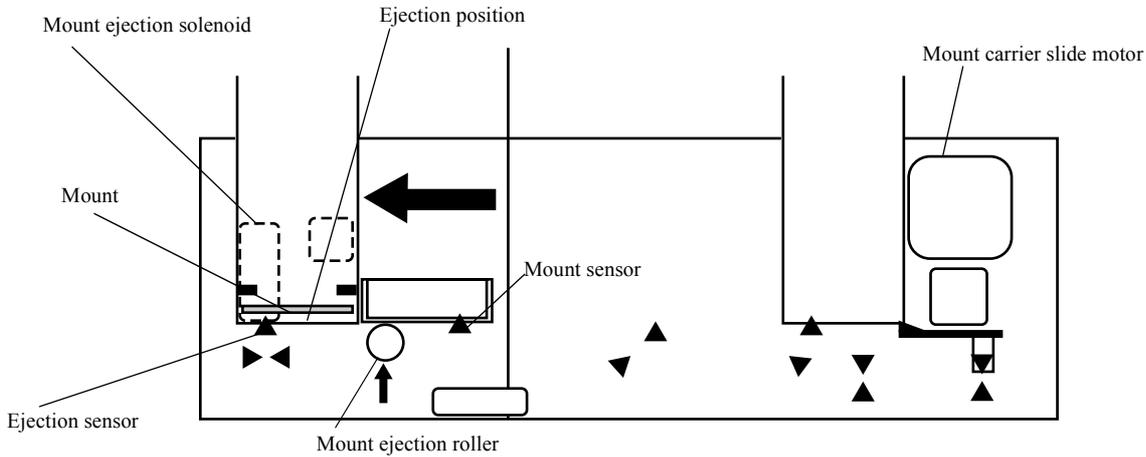
- Mount carrier slide motor: ON (forward)
- Mount ejection solenoid: ON/OFF

When the mount sensor does not turn LIGHT:

- No. 06433
Mount detection error.

When the ejection sensor does not turn DARK:

- No. 06437
Mount eject operation error.



G058789

11. The mount moves to the ejection stocker.

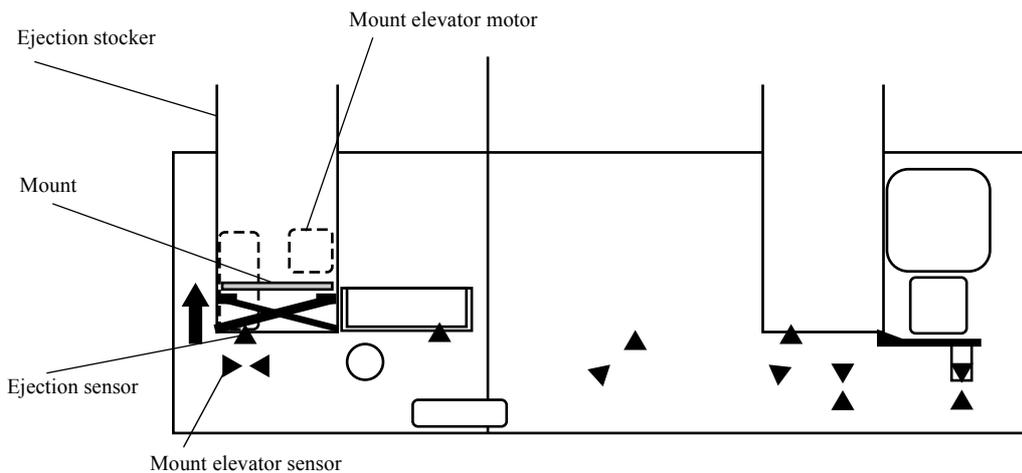
- Mount elevator motor: ON/OFF

When the mount elevator sensor does not turn DARK -> LIGHT -> DARK:

- No. 06436
Mount elevator operation error.

When the ejection sensor does not turn LIGHT:

- No. 06437
Mount eject operation error.



G058790

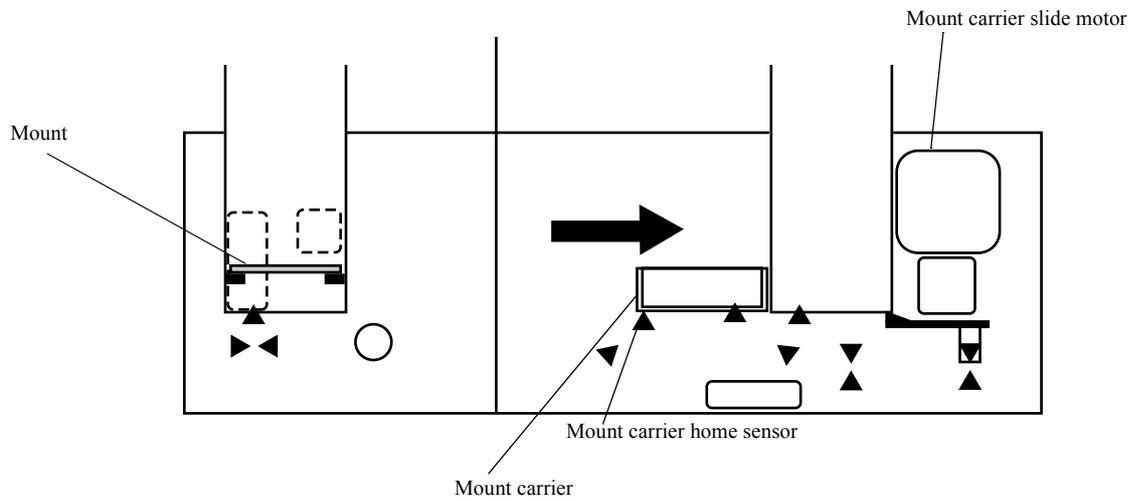
12. The mount is ejected.

13. The mount carrier moves to the home position.

- Mount carrier slide motor: ON (reverse)/OFF

When the mount carrier home sensor is not DARK:

-  No. 06432
Mount Unit operation error.



G058791

14. The following mount is processed.

- Back to Step 2.

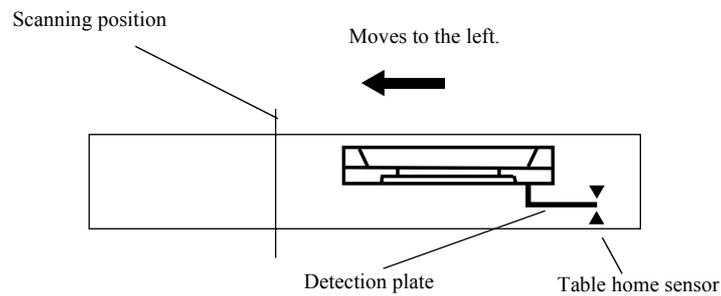
Film feed operation (MFC)

Operation	Details
☞ Initial operation	Describes the initial operation of MFC.
☞ Scanning operation	This section explains a sequence of operation from film feeding, prescanning and scanning to removing film.

● Initial operation

1. The move table moves to the left.

- Film pressure magnet: ON
- Table slide motor: ON (forward)



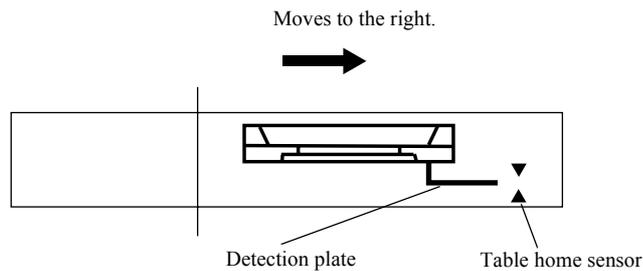
G080333

When the table home sensor does not turn LIGHT (table does not move)

- ☞ No. 06443-00002
Move Table operation error.

2. The move table moves to the home position.

- Table slide motor: ON (reverse)



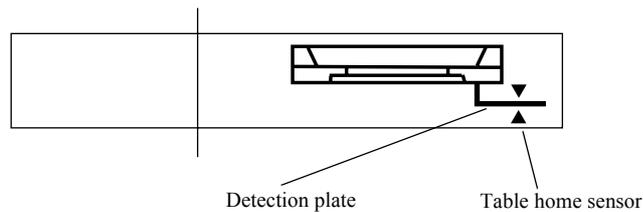
G080334

When the table home sensor does not turn DARK (table does not move)

- ☞ No. 06443-00001
Move Table operation error.

3. The move table stops at the home position.

- Table slide motor: OFF
- Film pressure magnet: OFF



G080335

● Scanning operation

1. Attach the film to the attachment.

2. Press the film pressure switch.

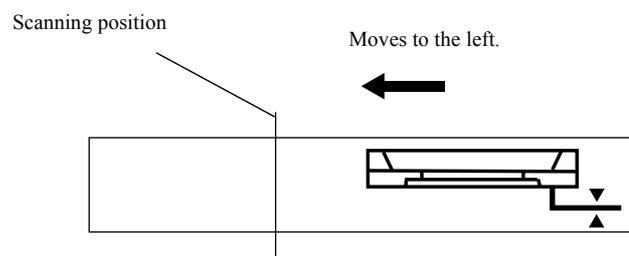
- Film pressure magnet: ON

NOTE

- The film pressure magnet is applied ON manually by pressing **Start**.

3. The move table moves to the scanning start position.

- Table slide motor: ON (forward)
- LED light source: ON



G080340

No attachment or attachment for adjustment

- No. 01438
Set the attachment.

When the table home sensor does not turn LIGHT (table does not move)

- No. 06443-00002
Move Table operation error.

If the attachment (mask) code is not detected during the move table of MFC operates (during processing the film)

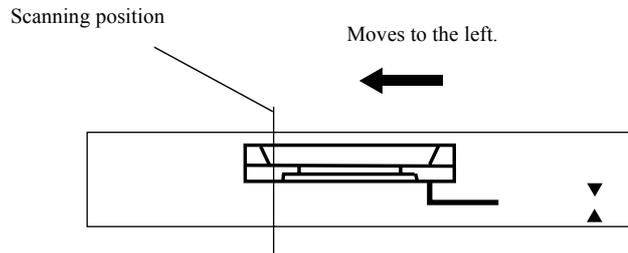
- No. 06443-00003
Move Table operation error.

4. The move table stops at the prescanning start position.

- Table slide motor: OFF

5. Pre-scanning starts.

- Table slide motor: ON (forward)



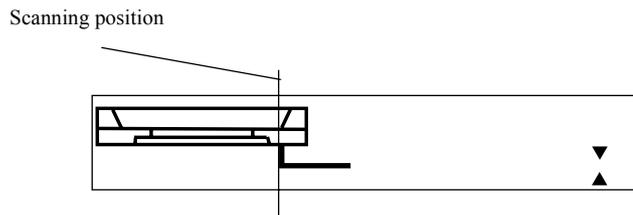
G080336

6. Pre-scanning is completed.

- Table slide motor: OFF

NOTE

- If the next scanning does not start even when one minute has passed after the completion of scanning, turn off the LED light source.



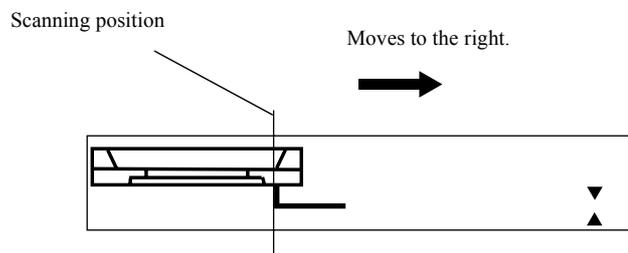
G080338

7. Press **Start** and then scanning start.

- Table slide motor: ON (reverse)

When LED light source is OFF

- LED light source: ON



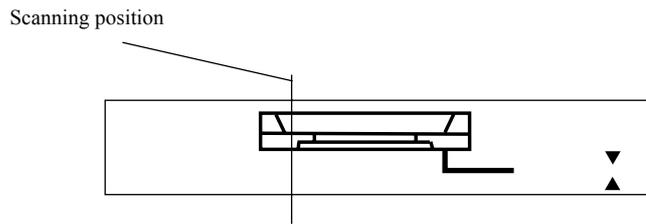
G080337

8. Scanning is completed.

- Table slide motor: OFF

NOTE

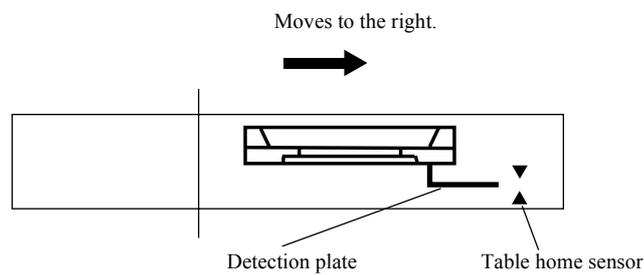
- If the next scanning does not start even when one minute has passed after the completion of scanning, turn off the LED light source.



G080339

9. The move table moves to the home position.

- Table slide motor: ON (reverse)



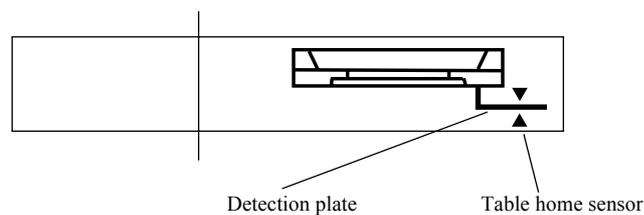
G080334

When the table home sensor does not turn DARK (table does not move)

-  No. 06443-00001
Move Table operation error.

10. The move table stops at the home position.

- Table slide motor: OFF
- Film pressure magnet: OFF



G080335

11. Remove the film from the attachment.

Film feed operation (135 lane)

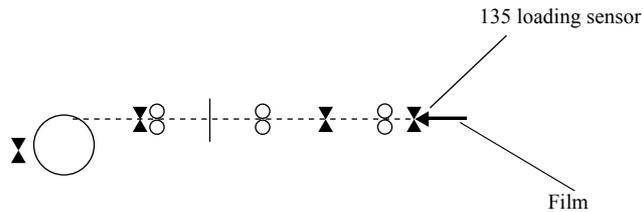
This section explains the process of the film being loaded, pre-scanned, scanned and ejected.

● Flowchart

1. The film is inserted.

2. The film has passed 135 loading sensor.

- Film feed motor: ON (forward)



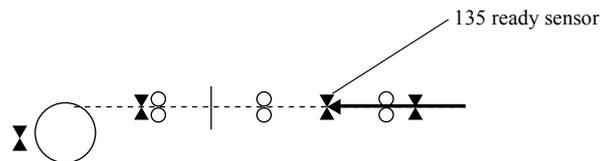
G071754

3. The film has passed 135 ready sensor.

- When LED light source is OFF
LED light source: ON
- When 135 lane sensor is LIGHT
Lane change motor: ON (135 lane)

When 135 ready sensor does not detect the film

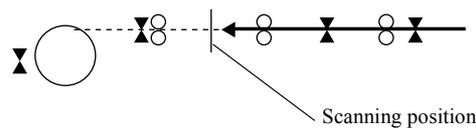
- Waiting film insertion



G071755

4. The film was fed just before the scanning position.

- Film feed motor: OFF



G071756

5. Pre-scanning starts.

- Film feed motor: ON (forward)

NOTE

- The film waits at the pre-scanning position until the LED light source stabilizes after moving to 135 lane.

- The DX code is read from the pre-scanning image.

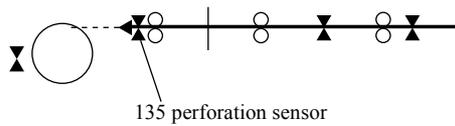
6. The film has passed 135 perforation sensor.

If the 135 perforation sensor cannot detect the film

- No. 06403
135 film has stopped at the Film Carrier.

When 135 perforation sensor does not change even though the film is fed for a specified length

- No. 06442
The perforation of the film may be broken.



G071757

7. The front end of the film enters the rewinding unit.

When the rewinding sensor detects film jam:

- No. 06403
135 film has stopped at the Film Carrier.



IMPORTANT

- This error message appears even in the other timing, if the rewinding sensor detects the film jam.

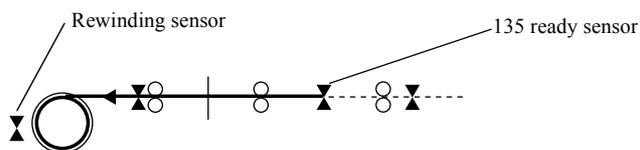
8. The film rear end has passed 135 ready sensor.

When 135 ready sensor does not detect the film rear end

- No. 06403
135 film has stopped at the Film Carrier.

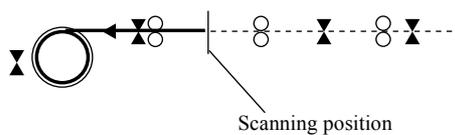
NOTE

- This error message appears when the ready sensor detected the film and a specified length of film was fed, but the ready sensor did not turn LIGHT.



G071758

9. The rear end of the film passed the scanning position.



G071759

10. Pre-scanning is completed.

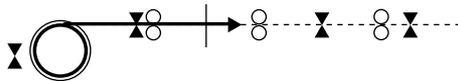
- Film feed motor: OFF

11. Scanning starts.

- Film feed motor: ON (reverse)
- Panorama (LS-1100 only)
Panorama shutter solenoid: ON
- When LED light source is OFF
LED light source: ON

NOTE

- If any operation is not performed one minute, the LED light source automatically turns off.

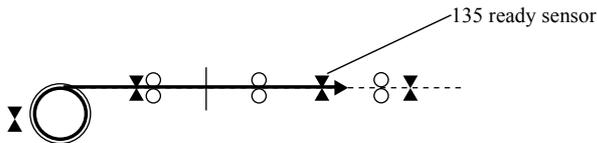


G071760

12. The film rear end has passed 135 ready sensor.

When 135 ready sensor does not detect the film

- No. 06403
135 film has stopped at the Film Carrier.

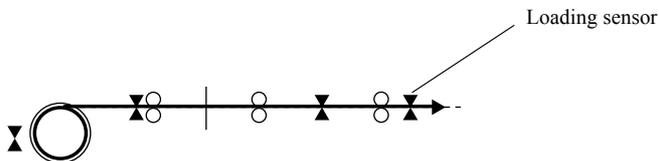


G071761

13. The film rear end has passed the 135 loading sensor.

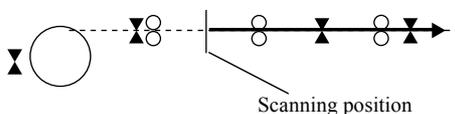
When 135 loading sensor does not detect the film

- No. 06403
135 film has stopped at the Film Carrier.



G071762

14. The final frame of the film has passed the scanning position.



G071763

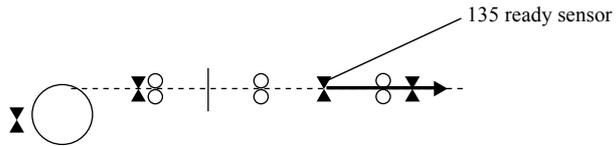
15. Scanning is completed.

16. The film is ejected.

- Film feed motor: OFF

When 135 ready sensor does not detect the film front end

-  No. 06403
135 film has stopped at the Film Carrier.



G071764

Film feed operation (240 lane)

This section explains the process of the film being loaded, scanned and ejected.

● Flowchart

1. Set the film cartridge.

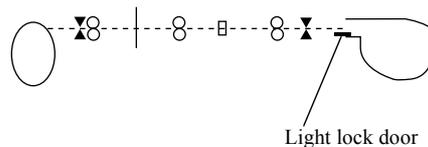
- Cartridge limit switches 1 and 2: ON
- IPI sensor: DARK
- When LED light source is OFF
LED light source: ON
- When 240 lane sensor is OFF
Lane change motor: ON (240 lane)

If the IPI sensor recognizes that the film is undeveloped

-  No. 01403
Undeveloped cartridge. Cannot process.

2. The light lock door is opened.

- Light lock door motor: ON/OFF



G071765

3. The film is rewound by 1.5 revolution (spool key spindle).

- Film feed motor: ON/OFF (reverse)

4. The film front end is fed.

- Film feed motor: ON (forward)

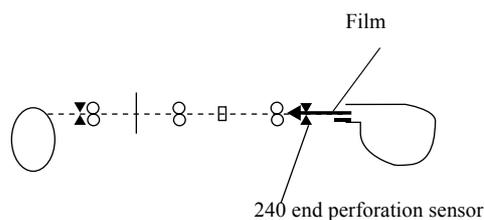
5. The film front end has passed 240 perforation sensor.

When 240 perforation sensor does not detect the film front end

- Operation goes back to Step 3 and the film is rewound (retry).

When 240 end perforation sensor cannot detect the film front end after retrying

-  No. 06404
240 film has stopped at the Film Carrier.



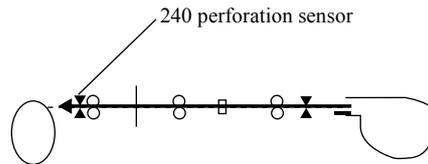
G071766

6. The film front end has passed 240 perforation sensor.

- Film feed motor: OFF
- When 240 lane sensor is OFF
Lane change motor: ON (240 lane)

If the 240 perforation sensor cannot detect the film

-  No. 06404
240 film has stopped at the Film Carrier.



G071767

7. Reading the magnetic data starts.

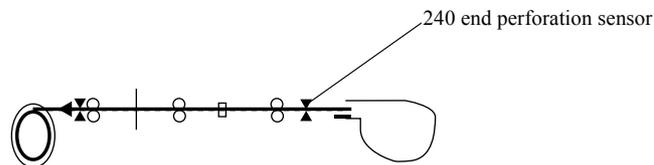
- Film feed motor: ON (forward)

8. 240 end perforation sensor has detected the end perforation.

- Film feed motor: OFF

NOTE

- The film is fed for a specified length after detecting the end perforation.



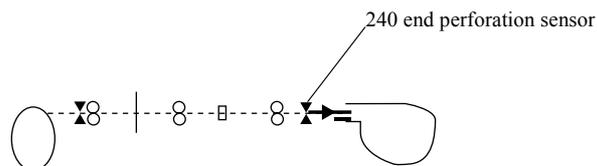
G071768

9. Reading the magnetic data again with the film rewind

- Film feed motor: ON (reverse)

10. The film front end has passed 240 perforation sensor.

- Film feed motor: OFF



G071771

When 240 perforation sensor does not detect the film

-  No. 06404
240 film has stopped at the Film Carrier.

11. Checking the read magnetic data starts.

When the magnetic data has not been read:

-  No. 01404
The IX frame data is incomplete.
- When rewinding the film, reading the magnetic data is carried out again.

12. Pre-scanning starts.

- Film feed motor: ON (forward)
- When LED light source is OFF
LED light source: ON

NOTE

- The film waits at the pre-scanning position until the LED light source stabilizes after changing to 240 lane.

When 240 perforation sensor does not detect the film feed

-  No. 06404
240 film has stopped at the Film Carrier.

13. Pre-scanning is completed.

- Film feed motor: OFF

14. Scanning starts.

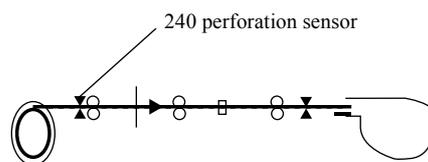
- Film feed motor: ON (reverse)
- When LED light source is OFF
LED light source: ON

NOTE

- If any operation is not performed one minute, the LED light source automatically turns off.

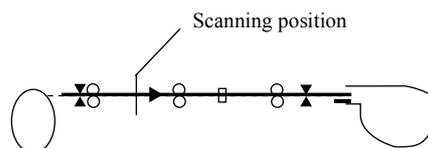
When 240 perforation sensor does not detect the film feed

-  No. 06404
240 film has stopped at the Film Carrier.



G071769

15. The final frame of the film passed the scanning position.



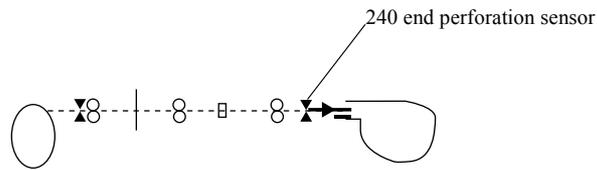
G071770

16. Scanning is completed.

17. The film is fed.

- Film feed motor: ON (reverse)

18. The film front end has passed 240 perforation sensor.



G071771

When 240 perforation sensor does not detect the film

- No. 06404
240 film has stopped at the Film Carrier.

19. A specified length of the film is rewound.

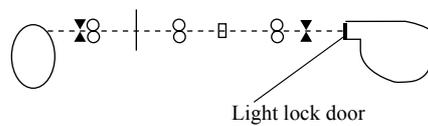
- Film feed motor: ON/OFF

20. The VEI of the cartridge is set to the "Processed".

- Film feed motor: ON/OFF

21. The light lock door is closed.

- Film feed motor: ON/OFF



G071772

22. Remove the cartridge.

This page is intentionally blank.

6. Electrical parts

Compatibility of PCBs and electrical parts	60100
Compatibility of PCBs and electrical parts [LS-600/LS-1100/HS-1800]	60100
Position of PCBs	62020
Scanner section (positions of PCBs) [HS-1800]	62020
Scanner section (positions of PCBs) [LS-600]	62030
Scanner section (positions of PCBs) [LS-1100]	62040
Position of electrical parts	62070
Scanner section (positions of electrical parts) [HS-1800]	62070
Scanner section (positions of electrical parts) [LS-600]	62080
Scanner section (positions of electrical parts) [LS-1100]	62085
Operation specification	62090
Operation specification of LED light source units and fans [LS-600/LS-1100/HS-1800]	62090
Position of electrical parts (Film Carrier Section)	62100
135/240 AFC-II (positions of PCBs)	62100
135/240 AFC-II (positions of electrical parts)	62150
120 AFC-II (positions of PCBs)	62200
120 AFC-II (positions of electrical parts)	62250
110 AFC-II (positions of PCBs)	62300
110 AFC-II (positions of electrical parts)	62350
135/240 MMC-II (positions of PCBs)	62400
135/240 MMC-II (positions of electrical parts)	62450
135/240 AMC-II (positions of electrical parts)	62500
135/240 AMC-II (positions of electrical parts)	62550
135 AFC-II (positions of PCBs)	62600
135 AFC-II (positions of electrical parts)	62650
MFC (disposition of PCB, PM driver and power supply)	62660
MFC (position and description of electrical parts)	62670
Description of PCB (scanner section)	65000
AFC/scanner control PCB (J391472)	65000
AFC/scanner driver PCB (J391203)	65010
Power supply [HS-1800]	65060
PM driver [HS-1800]	65070

Description of PCB (film carrier section)	65200
Connecting PCB 1 (J391208)	65200
Connecting PCB 2 (J391205)	65210
Connecting PCB 3 (J490358)	65220
Driver PCB 1 (J391204)	65230
Driver PCB 2	65240
Sensor PCB (J391209)	65250
Power PCB (J391207)	65260
Magnetic head PCB (J391211/J391212)	65270
Magnetic head PCB (J390497/J390784)	65270
Connecting PCB 4 (J391206)	65280
Connecting PCB (J391367)	65290
Sensor PCB (J391217)	65300
Connecting PCB (J391216)	65310
Sensor PCB (J391218)	65320
MMC connecting PCB (J391220)	65330
MMC sensor PCB (J391219)	65340
AMC connecting PCB (J391221)	65350
110 AFC connecting PCB (J391366)	65360
135 AFC sensor PCB (J391213)	65370
Magnetic preamplifier PCB unit (W412798/W412797)	65380
Connecting PCB 1 (J391222)	65390
Connecting PCB 2 (J490368)	65400
Descriptions of PCB (LS-600)	66010
Scanner control PCB (J391475)	66010
Scanner driver PCB (J391385)	66020
Magnetic head PCB (J391196)	66070
Power supply [LS-600]	66110
PM driver (I043126)	66210
Descriptions of PCB (LS-1100)	66510
Scanner control PCB (J391473)	66510
Scanner driver PCB (J391480)	66520
Connecting PCB (J391199)	66530
Scanner main PCB (J391249)	66560
Magnetic head PCB (J391196)	66570
Power supply [LS-1100]	66610
PM driver (I043126)	66710
Cables	68100
Precautions for handling the optical fiber cable and LVDS cable	68100
Handling flat cable	68200

Compatibility of PCBs and electrical parts [LS-600/LS-1100/HS-1800]

● Explanation

- The PCB and the parts No. used in the PCB installed on scanner differs depending on the type.
- The corrective actions after replacing the PCBs differ depending on scanner though the parts No. of PCB is same in the list. Be sure to confirm the explanation of each PCB when replacing the parts.

NOTE

- ✓ is used and – is unused.
- (J# # # # #) in the list stands for that the part is no more available.

● PCB

Name	Part No.	LS-600	LS-1100	HS-1800				Manual No.
Scanner control PCB	J391475	✓	-	-				66010
	J391473	-	✓	-				66510
Scanner driver PCB	J391385	✓	-	-				66020
	J391480	-	✓	-				66520
Magnetic head PCB	J391196	✓	✓	-				66070
	J391153* ¹							66570
Control source	I038404	✓	-	-				66110
Power supply	I038405	✓	-	-				
PM driver (film feed motor)	I043126	✓	✓	-				66210
								66710
Connecting PCB	J391199	-	✓	-				66530
	J391094* ¹							
Scanner main PCB	J391249	-	✓	-				66560
	J391173* ¹							
Multi power supply	I038371	-	✓	-				66610
Power supply	I038405	-	✓	-				
		I038402	-	✓	-			
AFC/scanner control PCB	J391472	-	-	✓				65000
AFC/scanner driver PCB	J391106	-	-	✓				65010
	J391203	-	-	✓				
Multi power supply	I038373	-	-	✓				65060
Scanner power supply 1	I038379* ¹	-	-	✓				
	I038409	-	-	✓				
Scanner power supply 2	I038263* ¹	-	-	✓				
	I038403	-	-	✓				
PM driver (film feed motor)	I043111	-	-	✓				65070

*1. Not complying with the RoHS Directive

● Electrical parts

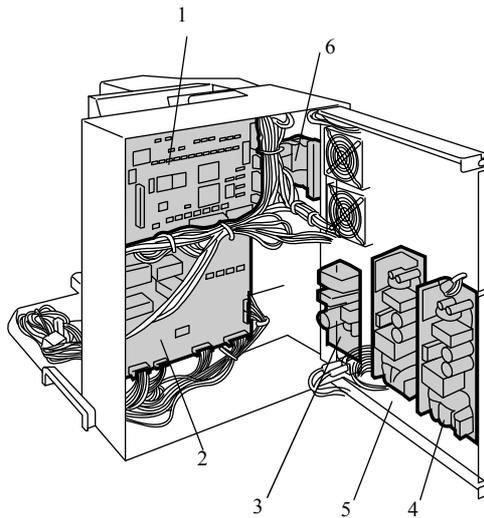
Name	Part No.	LS-600	LS-1100	HS-1800				Remarks
LED light source unit	Z026393	✓	-	-				
LED light source unit	Z024431	-	✓	-				
LED light source unit	Z026385	-	-	✓				

Scanner section (positions of PCBs) [HS-1800]

Position of PCBs is different between HS-1800, LS-600 and LS-1100.

Reference	
Scanner section (positions of PCBs) [LS-600]	Scanner section (positions of PCBs) [LS-1100]

● **Position (back face) [HS-1800]**



G078475

Scanner Section (Back face) [HS-1800]

No.	Name	Symbol	Manual No.	Remarks
1	AFC/scanner control PCB		65000	
2	AFC/scanner driver PCB		65010	
3	Multi power supply (scanner)	PS3	65060	
4	Scanner power supply 1	PS1		
5	Scanner power supply 2	PS2		
6	PM driver (film feed motor)	PMD1	65070	

NOTE

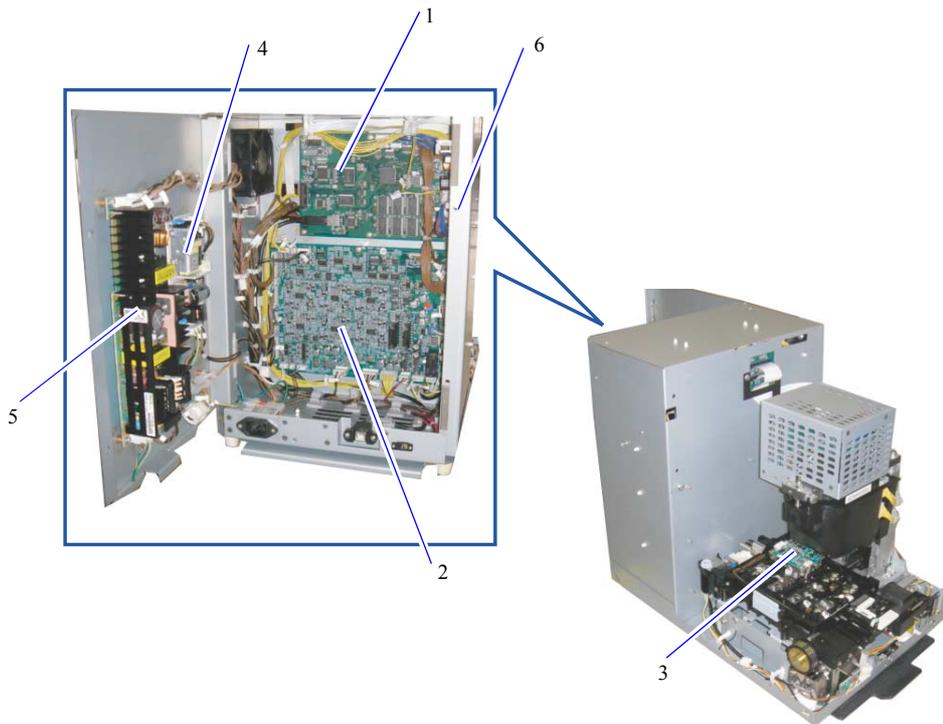
- For details about the parts No. for each PCB, see [60100](#).

Scanner section (positions of PCBs) [LS-600]

Position of PCBs is different between HS-1800, LS-600 and LS-1100.

Reference	
Scanner section (positions of PCBs) [HS-1800]	Scanner section (positions of PCBs) [LS-1100]

● Layout diagram



G085005

Scanner [LS-600]

No.	Name	Symbol	Manual No.	Remarks
1	Scanner control PCB		66010	
2	Scanner driver PCB		66020	
3	Magnetic head PCB		66070	
4	Control source	PS1	66110	
5	Power supply	PS2		
6	PM driver (film feed motor)	PMD1	66210	

NOTE

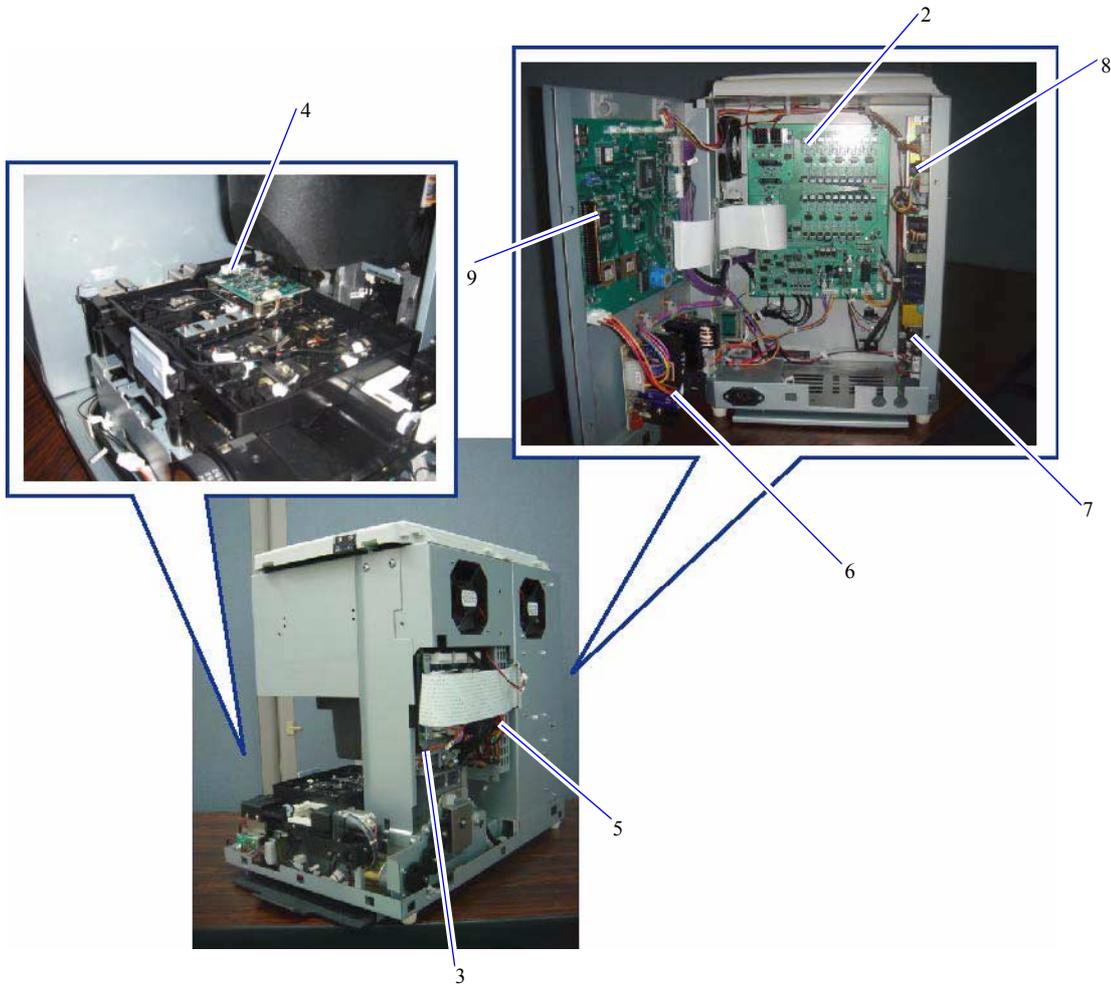
- For details about the parts No. for each PCB, see [60100](#).

Scanner section (positions of PCBs) [LS-1100]

Position of PCBs is different between HS-1800, LS-600 and LS-1100.

Reference	
Scanner section (positions of PCBs) [HS-1800]	Scanner section (positions of PCBs) [LS-600]

● Layout diagram



G082857

Scanner [LS-1100]

No.	Name	Symbol	Manual No.	Remarks
1	Scanner control PCB		66510	
2	Scanner driver PCB		66520	
3	Connecting PCB		66530	
4	Magnetic head PCB		66570	
5	Scanner main PCB		66560	
6	Multi power supply	PS1	66610	
7	Power supply	PS2		
8	PM driver (film feed motor)	PMD1	66710	

NOTE

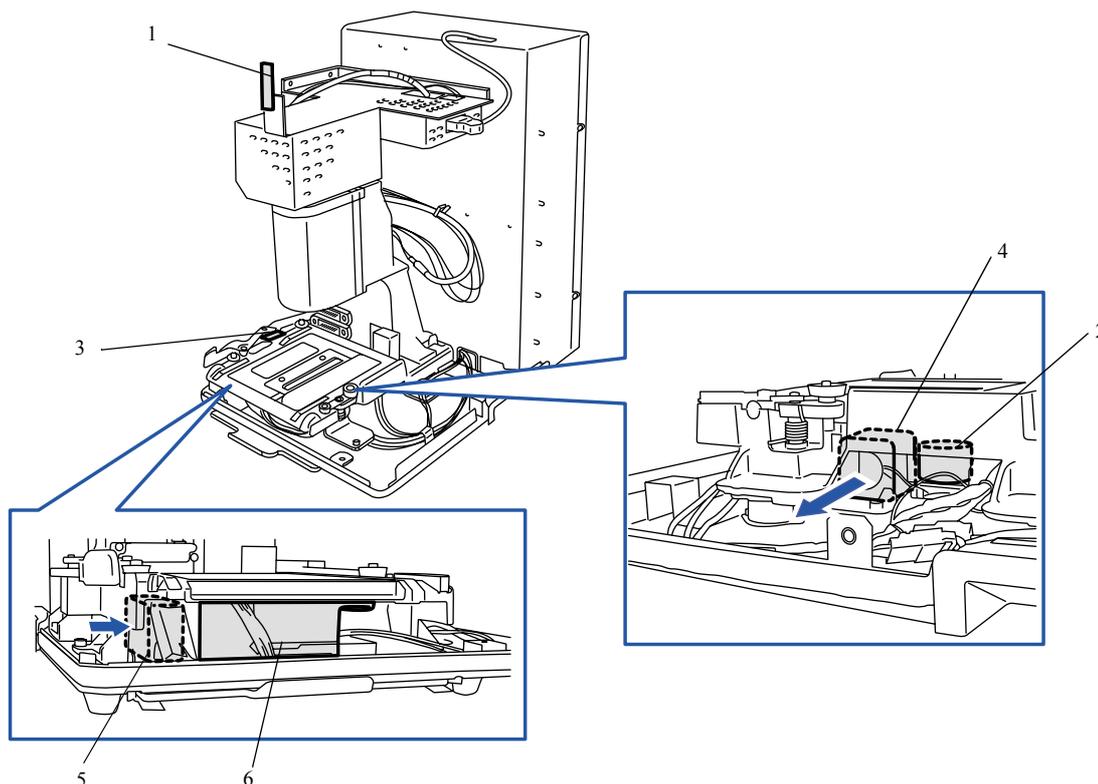
- For details about the parts No. for each PCB, see 60100.

Scanner section (positions of electrical parts) [HS-1800]

Position of electrical parts is different between HS-1800, LS-600 and LS-1100.

Reference	
Scanner section (positions of electrical parts) [LS-600]	Scanner section (positions of electrical parts) [LS-1100]

● Position (front) [HS-1800]



G085271

Scanner Section (front) [HS-1800]

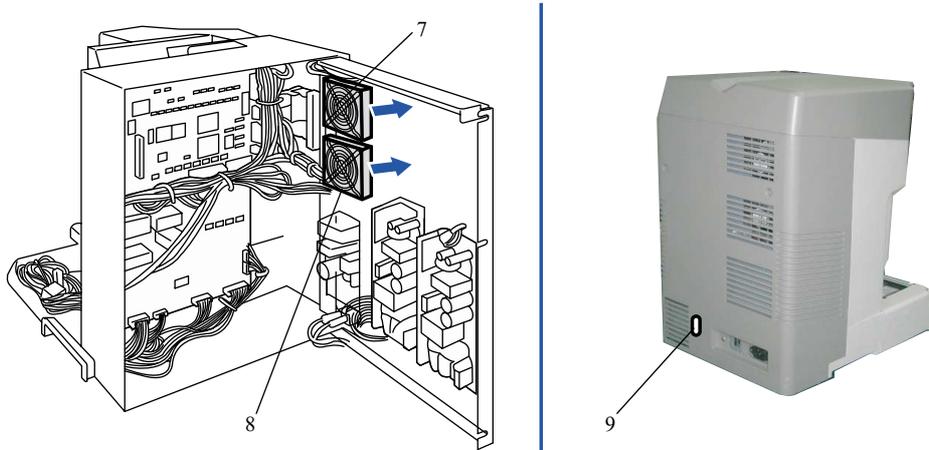
No.	Name	Symbol	Part No.	Remarks
1	Film ready lamp	LED1	W410409	
2	ND filter solenoid	SOL2		Inside of LED light source unit
3	Film carrier lock sensor	SE51		
4	LED cooling fan 1	FAN1		Exhaust ^{*1}
5	LED cooling fan 2	FAN2		Blowing ^{*1}
6	LED light source unit			

*1. For details of operation specification for the LED light source unit and the fan (scanner section), refer to 62090.

NOTE

- For details about how to remove the LED light source unit, refer to the following.
 20630
- ND Filter Solenoid, LED Cooling Fan, LED Heater (High), LED Heater (Medium), LED Heater (Low), B LED, G LED, R1 LED, IR LED and LED thermosensor are built in the LED light source unit.
- The heater of the LED light source unit can be changed in the three levels for (H), (M) or (L).

● Position (back face) [HS-1800]



G085273

Scanner Section (back face) [HS-1800]

No.	Name	Symbol	Part No.	Remarks
7	Control box cooling fan	FAN4		Exhaust*1
8	Power supply cooling fan	FAN3		
9	Transfer switch	SW		

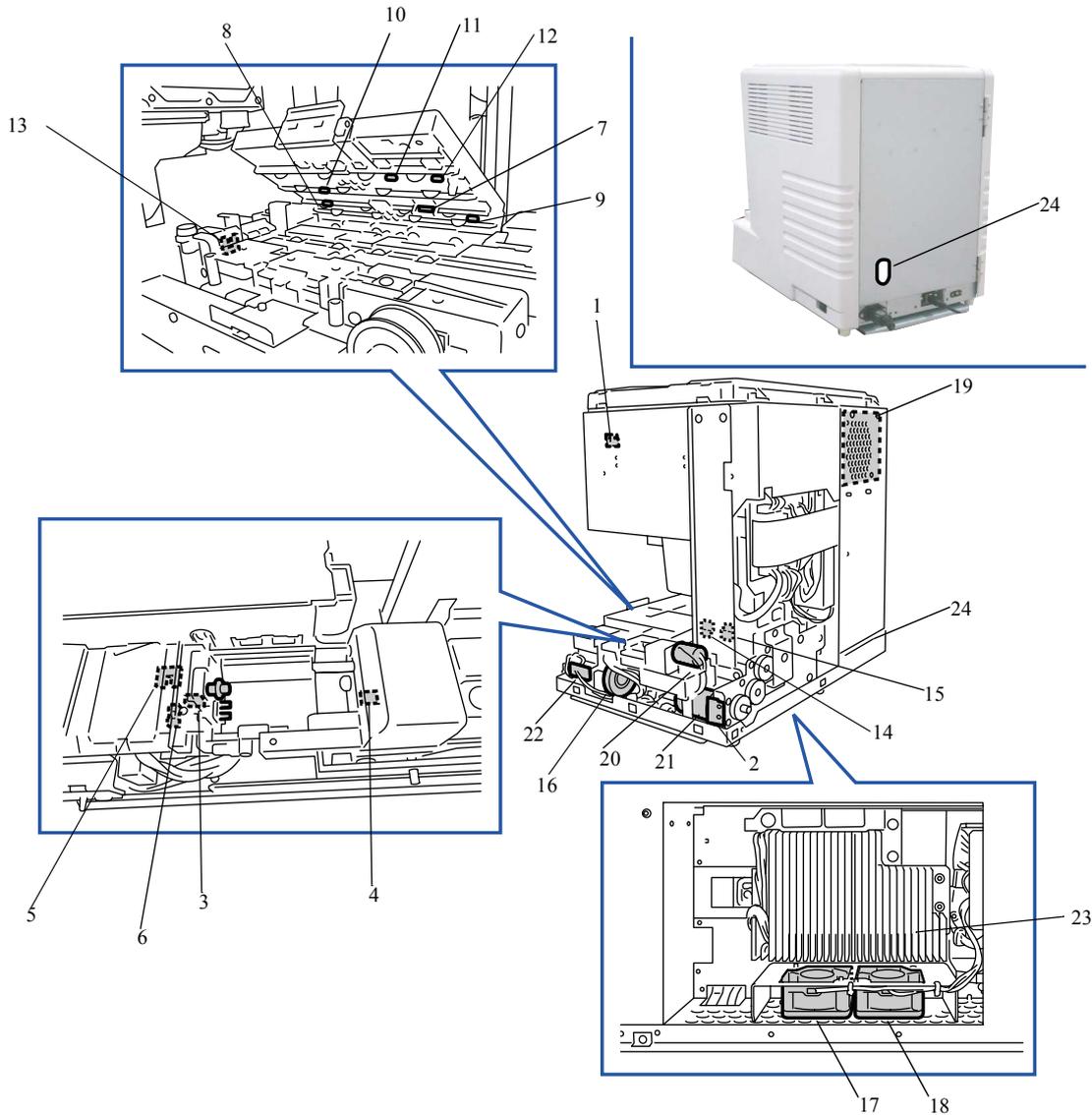
*1. For details of operation specification for the LED light source unit and the fan (scanner section), refer to [62090](#).

Scanner section (positions of electrical parts) [LS-600]

Position of electrical parts is different between HS-1800, LS-600 and LS-1100.

Reference	
Scanner section (positions of electrical parts) [HS-1800]	Scanner section (positions of electrical parts) [LS-1100]

● **Layout diagram**



G085003

Scanner section (front face) [LS-600]

No.	Name	Symbol	Remarks
1	Interlock switch 2	LM4	
2	Interlock switch 1	LM1	
3	Cartridge limit switch 1	LM2	
4	Cartridge limit switch 2	LM3	
5	VEI sensor	SE5	
6	IPI sensor	SE6	
7	Read head (camera track)	-	
8	240 perforation sensor	SE3	
9	240 end perforation sensor	SE4	

No.	Name	Symbol	Remarks
10	135 perforation sensor	SE7	
11	135 ready sensor	SE8	
12	135 loading sensor	SE9	
13	Rewinding sensor	SE10	
14	135 lane sensor	SE11	
15	240 lane sensor	SE12	
16	Film feed motor	PM3	When the interlock switch 1 and 2 are OFF, not in operation.
17	LED cooling fan 1	FAN1	Blows the LED light source. *1
18	LED cooling fan 2	FAN2	Blows the LED light source. *1
19	Control box cooling fan	FAN3	Exhaust *1
20	Light lock door motor	M1	
21	Lane change motor	M2	When the interlock switch 1 and 2 are OFF, not in operation.
22	Film ready lamp	LED1	
23	LED light source unit	-	
24	Transfer switch	SW	

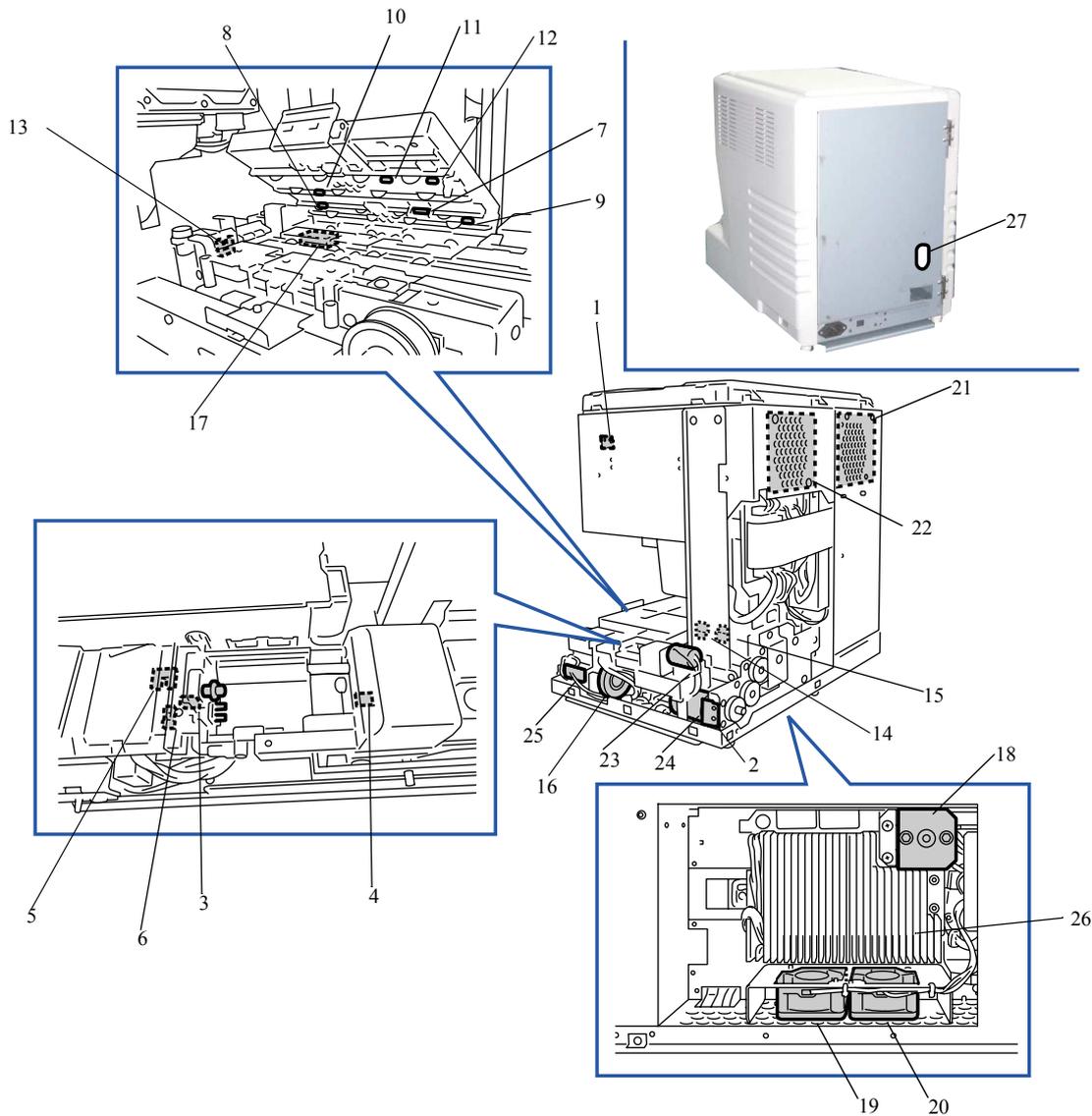
*1. For details of operation specification for the LED light source unit and the fan (scanner section), refer to [62090](#).

Scanner section (positions of electrical parts) [LS-1100]

Position of electrical parts is different between HS-1800, LS-600 and LS-1100.

Reference	
Scanner section (positions of electrical parts) [HS-1800]	Scanner section (positions of electrical parts) [LS-600]

● **Layout diagram**



6. Electrical parts

G085037

Scanner section (front face) [LS-1100]

No.	Name	Symbol	Remarks
1	Interlock switch 2	LM4	
2	Interlock switch 1	LM1	
3	Cartridge limit switch 1	LM2	
4	Cartridge limit switch 2	LM3	
5	VEI sensor	SE5	
6	IPI sensor	SE6	
7	Read head (camera track)	-	
8	240 perforation sensor	SE3	

No.	Name	Symbol	Remarks
9	240 end perforation sensor	SE4	
10	135 perforation sensor	SE7	
11	135 ready sensor	SE8	
12	135 loading sensor	SE9	
13	Rewinding sensor	SE10	
14	135 lane sensor	SE11	
15	240 lane sensor	SE12	
16	Film feed motor	PM3	When the interlock switch 1 and 2 are OFF, not in operation.
17	Panorama shutter solenoid	SOL1	
18	ND filter solenoid	SOL2	
19	LED cooling fan 1	FAN1	Blows the LED light source. *1
20	LED cooling fan 2	FAN2	Blows the LED light source. *1
21	Control box cooling fan	FAN3	Exhaust *1
22	CCD cooling fan	FAN4	Exhaust *1
23	Light lock door motor	M1	
24	Lane change motor	M2	When the interlock switch 1 and 2 are OFF, not in operation.
25	Film ready lamp	LED1	
26	LED light source unit	-	
27	Transfer switch	SW	

*1. For details of operation specification for the LED light source unit and the fan (scanner section), refer to [62090](#).

Operation specification of LED light source units and fans [LS-600/LS-1100/HS-1800]

● Operation specification of the LED light source unit and the fan

LS-600

Name	Symbol	Operation condition
LED light source unit	-	Controlled temperature: 47.0±2.0°C
LED cooling fan 1	FAN1	If the LED thermosensor is 47.6°C or more: Fan ON
LED cooling fan 2	FAN2	If the LED thermosensor is 46.9°C or less: Fan OFF
Control box cooling fan	FAN3	When power supply is ON, the fan is always ON.

LS-1100

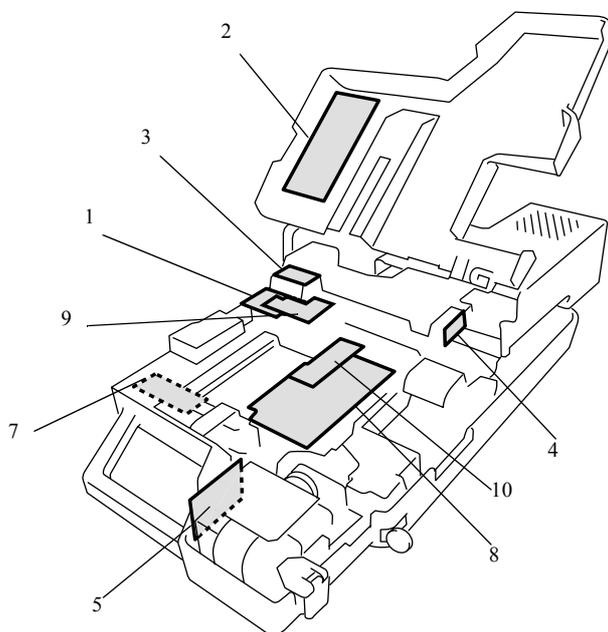
Name	Symbol	Operation condition
LED light source unit	-	Controlled temperature: 44.0±1.0°C
LED cooling fan 1	FAN1	If the LED thermosensor is 44.4°C or more: Fan ON
LED cooling fan 2	FAN2	If the LED thermosensor is 44.0°C or less: Fan OFF
Control box cooling fan	FAN3	When power supply is ON, the fan is always ON.
CCD cooling fan	FAN4	

HS-1800

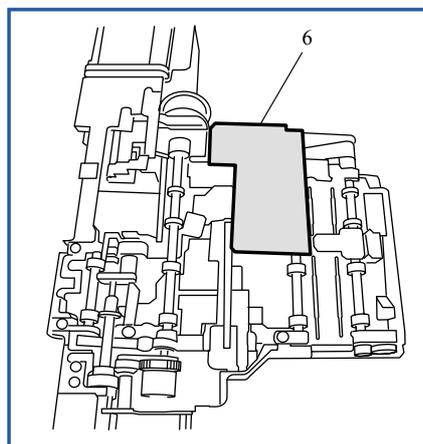
Name	Symbol	Operation condition
LED light source unit	-	Controlled temperature: 48.0±1.0°C
LED cooling fan 1	FAN1	If the LED thermosensor is 48.8°C or more: Fan ON
LED cooling fan 2	FAN2	If the LED thermosensor is 47.8°C or less: Fan OFF
Power supply cooling fan	FAN3	When scanner power supply 2 is ON, the fan is always ON.
Control box cooling fan 1	-	
Control box cooling fan 2	-	
Control box cooling fan	FAN4	

135/240 AFC-II (positions of PCBs)

● Layout diagram



The advance unit which is removed and turned over



G051054

135/240 AFC-II

No.	Name	Part No.	Manual No.	Remarks
1	Connecting PCB 1	J391208 J390756*2	☞ 65200	
2	Connecting PCB 2	J391205 J390482*2	☞ 65210	
3	Connecting PCB 3	J490358 J490255*2	☞ 65220	
4	Driver PCB 1	J391204 J390368*2	☞ 65230	
5	Driver PCB 2	J391210 J390519*2 J391115*2	☞ 65240	One of the two types of PCBs is installed in this system. The two types of PCBs are not compatible.
6	Sensor PCB	J391209 J390757*2	☞ 65250	The PCB cannot be replaced.
7	Power PCB	J391207 J390755*2	☞ 65260	
8	Magnetic head PCB	J391211 J391050*2 (J390497)	☞ 65270	Type R/W only The part in parentheses is no longer available.
		J391212 J391051*2 (J390784)		Type R only The part in parentheses is no longer available.
9	Connecting PCB 4	J391206 J390579*2	☞ 65280	
10	Magnetic preamplifier PCB unit*1	W412798 W411413*2	☞ 65380	Type R/W only
		W412797 W411414*2		Type R only

*1. Unnecessary when using the magnetic head PCB (J390497) (J390784).

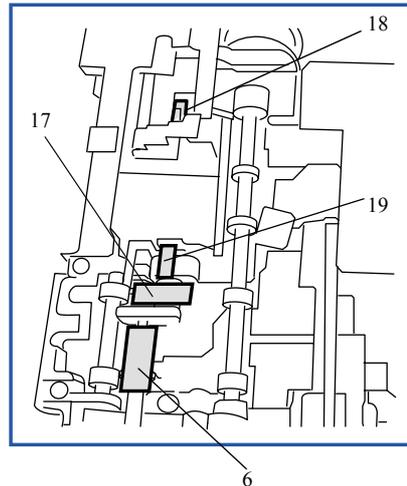
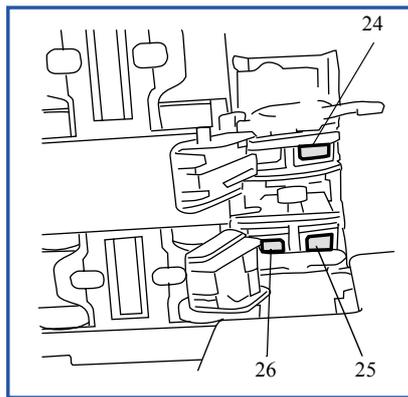
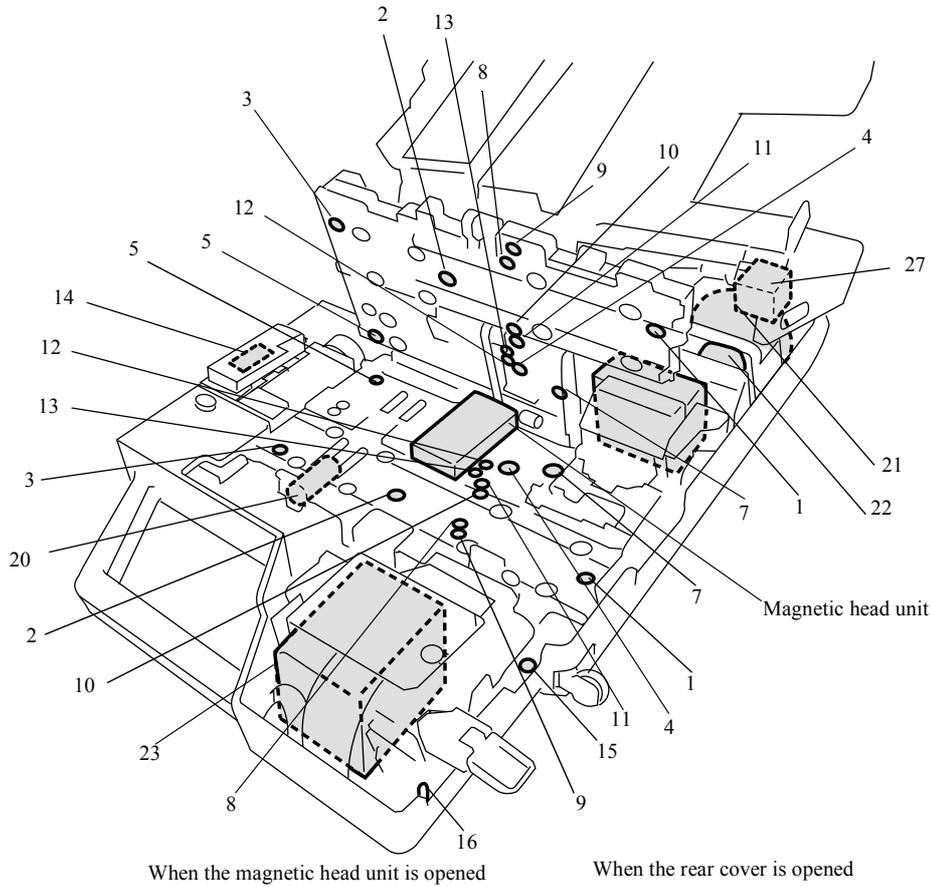
*2. Not compatible with RoHS directives

62150

Position of electrical parts (Film Carrier Section)

135/240 AFC-II (positions of electrical parts)

● Layout diagram



6. Electrical parts

G057595

135/240 AFC-II

No.	Name	Symbol	Remarks
1	135 loading sensor	SE52	
2	135 ready sensor	SE53	
3	135 perforation sensor	SE54	
4	240 ready sensor	SE55	
5	240 perforation sensor	SE56	

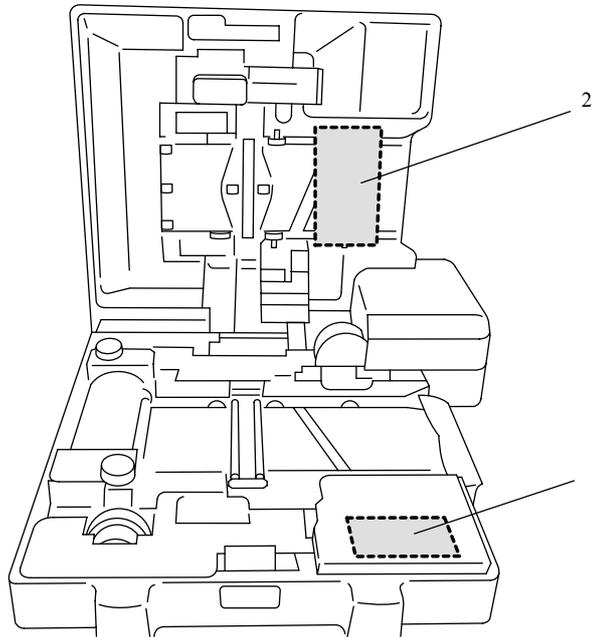
62150

Position of electrical parts (Film Carrier Section)

No.	Name	Symbol	Remarks
6	VEI sensor	SE57	
7	240 loading sensor	SE62	
8	135 DX sensor 1	SE147	Uses for Film Detection as well.
9	135 DX sensor 2	SE148	
10	135 DX sensor 3	SE149	Uses for Film Detection as well.
11	135 DX sensor 4	SE150	
12	240 DX sensor 1	SE151	Uses for Film Detection as well.
13	240DX sensor 2	SE152	
14	Rewinding sensor	SE78	
15	135 lane limit switch	LM1	
16	240 lane limit switch	LM2	
17	IPI sensor	SE79	
18	Cartridge limit switch 1	LM4	
19	Cartridge limit switch 2	LM5	
20	Panorama shutter solenoid	SOL5	
21	Film feed motor	PM1	
22	Light lock door motor	PM2	
23	Spool key motor	PM3	
24	Read head (camera track)		Type R
24	Read head (camera track)		Type R/W
25	Read head (photo finishing track)		
26	Write head (photo finishing track)		
27	Film feed motor cooling fan	FAN31	Exhaust Some models are not equipped with this.

120 AFC-II (positions of PCBs)

● Layout diagram



G051055

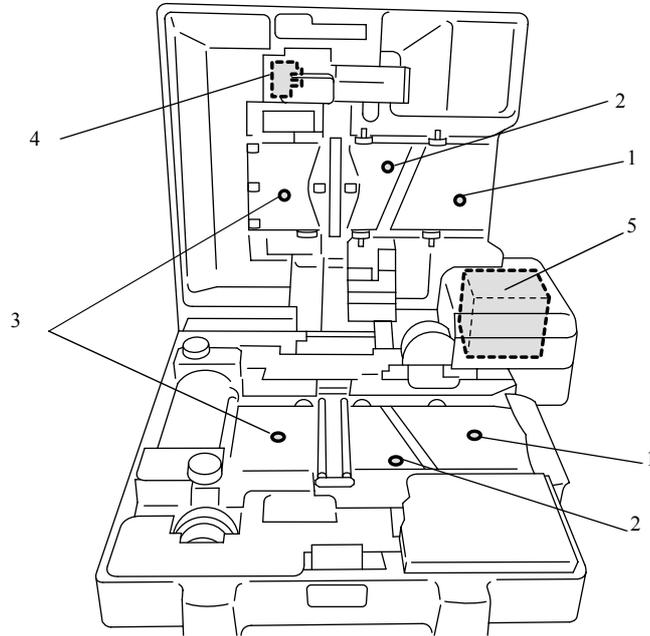
120 AFC-II

No.	Name	Symbol	Part No.	Manual No.	Remarks
1	Connecting PCB		J391367 J390371*1	☞ 65290	
2	Sensor PCB		J391217 J390385*1	☞ 65300	

*1. Not compatible with RoHS directives

120 AFC-II (positions of electrical parts)

● Layout diagram



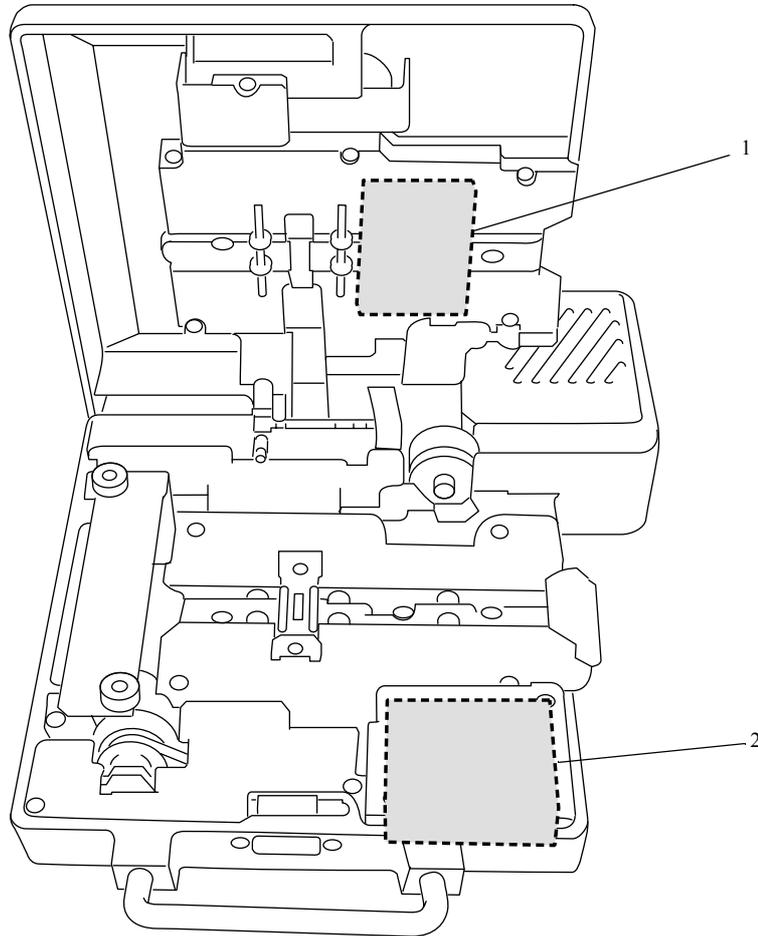
G051034

120 AFC-II

No.	Name	Symbol	Remarks
1	Loading sensor	SE64	
2	Ready sensor	SE65	
3	Film sensor	SE66	
4	Film feed sensor	SE67	
5	Film feed motor	PM10	

110 AFC-II (positions of PCBs)

● Layout diagram



G052691

6. Electrical parts

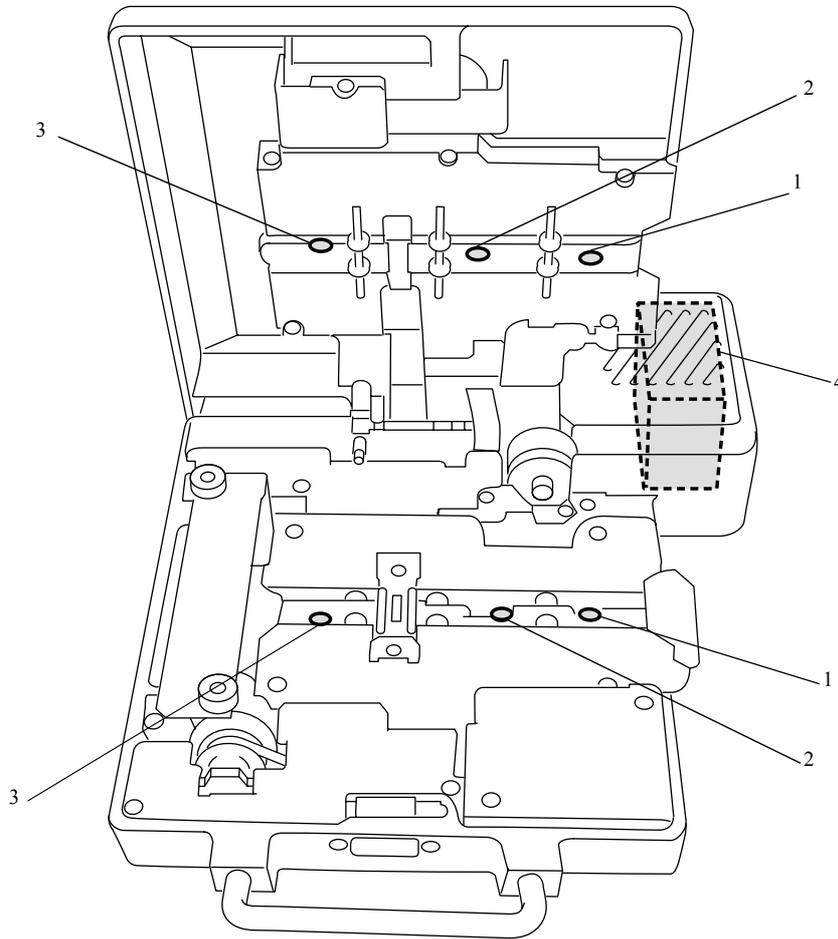
110 AFC-II

No.	Name	Symbol	Part No.	Manual No.	Remarks
1	Connecting PCB		J391216 J390372*1	65310	
2	Sensor PCB		J391218 J390394*1	65320	

*1. Not compatible with RoHS directives

110 AFC-II (positions of electrical parts)

● Layout diagram



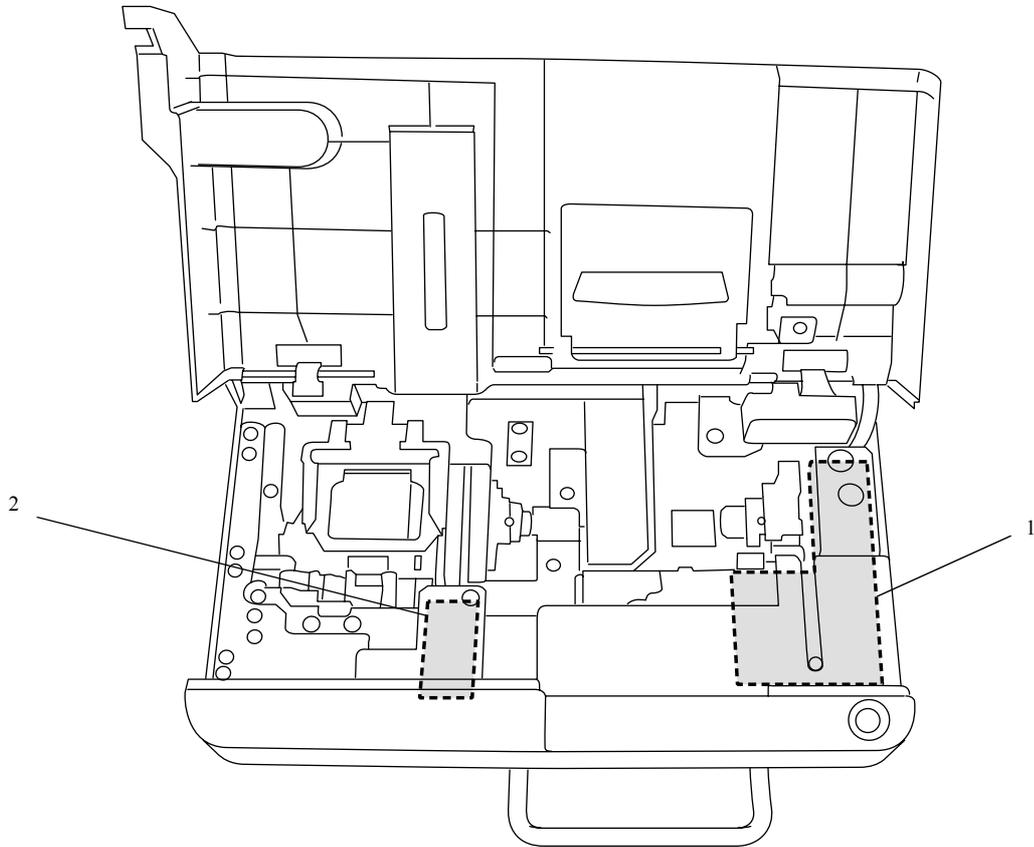
G052690

110 AFC-II

No.	Name	Symbol	Remarks
1	Loading sensor	SE90	
2	Ready sensor	SE91	
3	Perforation sensor	SE92	
4	Film feed motor	PM10	

135/240 MMC-II (positions of PCBs)

● Layout diagram



G052688

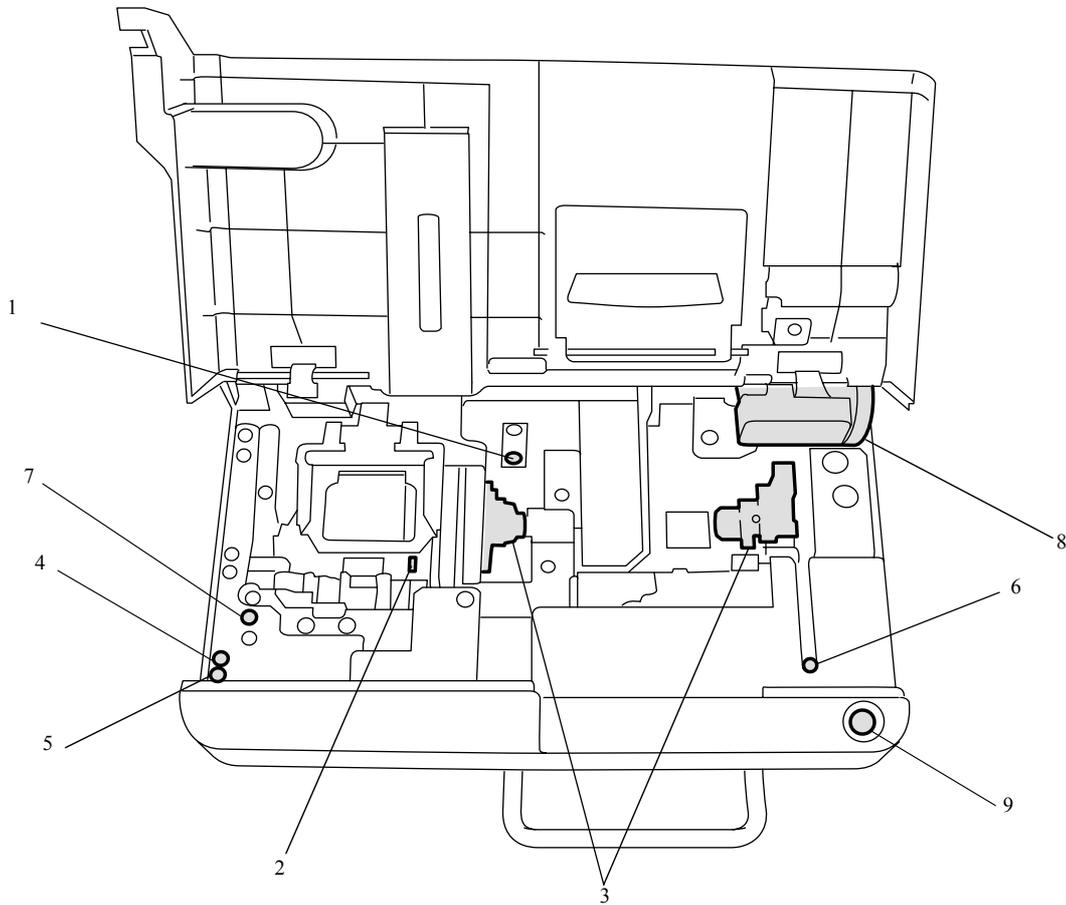
135/240 MMC-II

No.	Name	Symbol	Part No.	Manual No.	Remarks
1	MMC connecting PCB		J391220 J390483*1	65330	
2	MMC sensor PCB		J391219 J390389*1	65340	

*1. Not compatible with RoHS directives

135/240 MMC-II (positions of electrical parts)

● Layout diagram



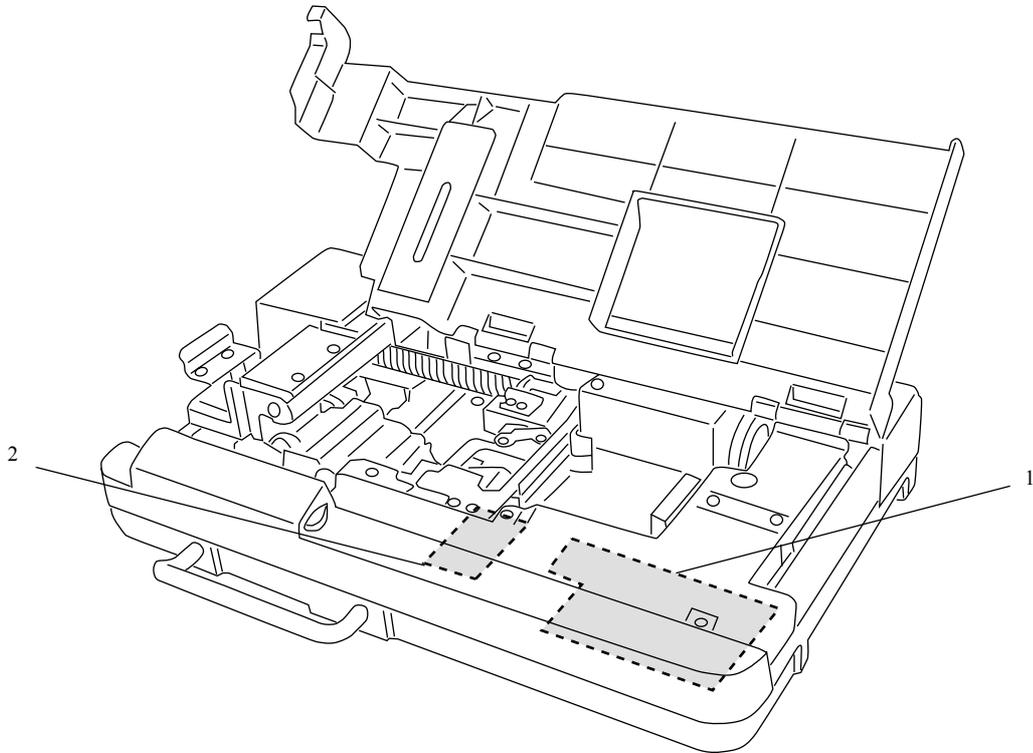
G052686

135/240 MMC-II

No.	Name	Symbol	Remarks
1	Mount carrier home sensor	SE68	
2	Mount sensor	SE70	
3	AF sensor	SE72	
4	Mount carrier sensor (upper)	SE73	
5	Mount carrier sensor (lower)	SE74	
6	Mount insertion cover sensor	SE77	
7	AF motor	DM9	
8	Mount carrier slide motor	PM11	
9	Mount insertion cover open switch	SM3	

135/240 AMC-II (positions of electrical parts)

● Layout diagram



G058784

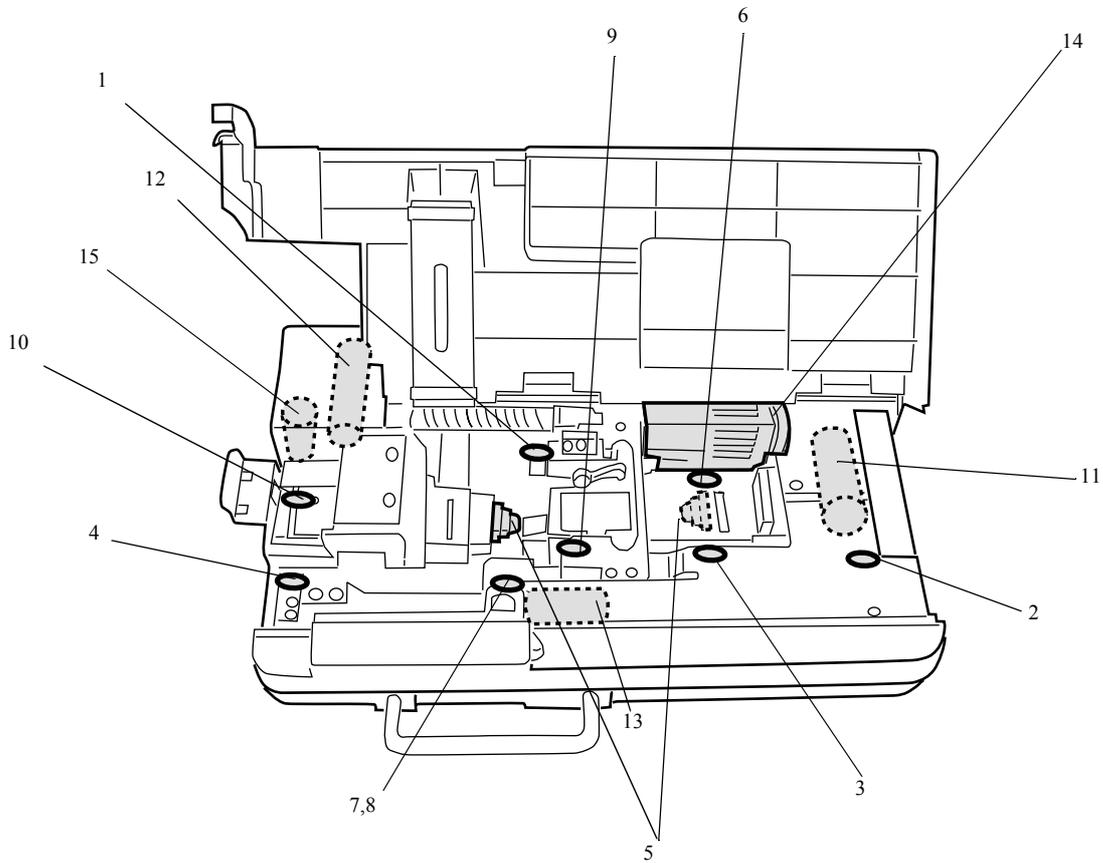
135/240 AMC-II

No.	Name	Symbol	Part No.	Manual No.	Remarks
1	AMC connecting PCB		J391221 J390700*1	65350	
2	MMC sensor PCB		J391219 J390389*1	65340	

*1. Not compatible with RoHS directives

135/240 AMC-II (positions of electrical parts)

● Layout diagram



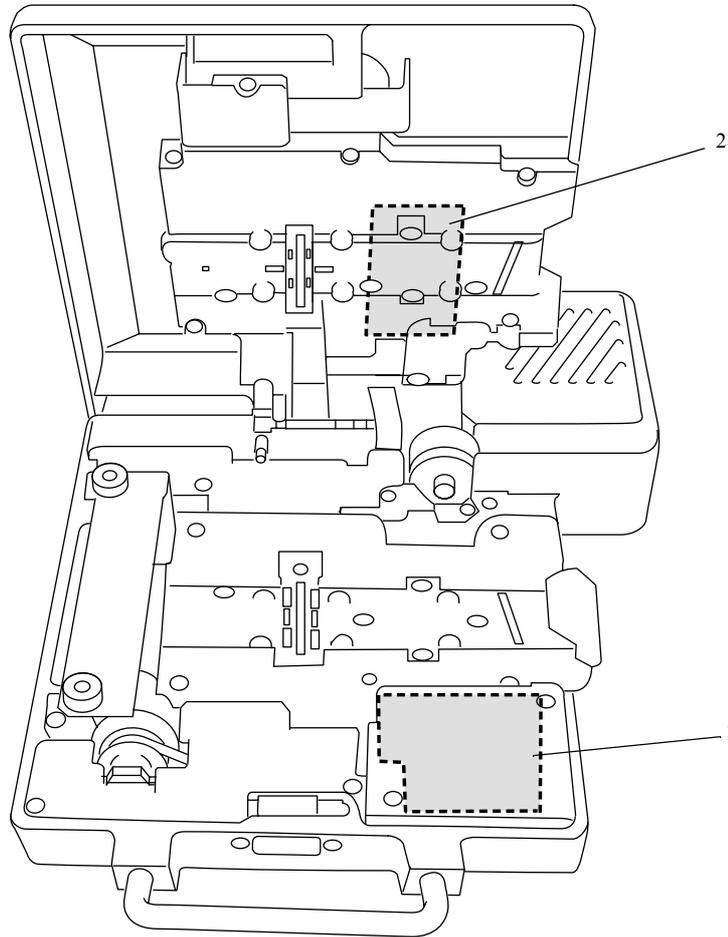
G060697

135/240 AMC-II

No.	Name	Symbol	Remarks
1	Mount carrier home sensor	SE156	
2	Loading sensor 1	SE157	
3	Loading sensor 2	SE158	
4	Mount elevator sensor	SE159	
5	AF sensor	SE160	
6	Mount sensor (inlet)	SE161	
7	Mount carrier sensor (lower)	SE162	
8	Mount carrier sensor (upper)	SE163	
9	Mount sensor	SE164	
10	Ejection sensor	SE165	
11	Mount insertion motor	DM14	
12	Mount elevator motor	DM15	
13	AF motor	DM16	
14	Mount carrier slide motor	PM17	
15	Mount ejection solenoid	SOL26	

135 AFC-II (positions of PCBs)

● Layout diagram



G057668

6. Electrical parts

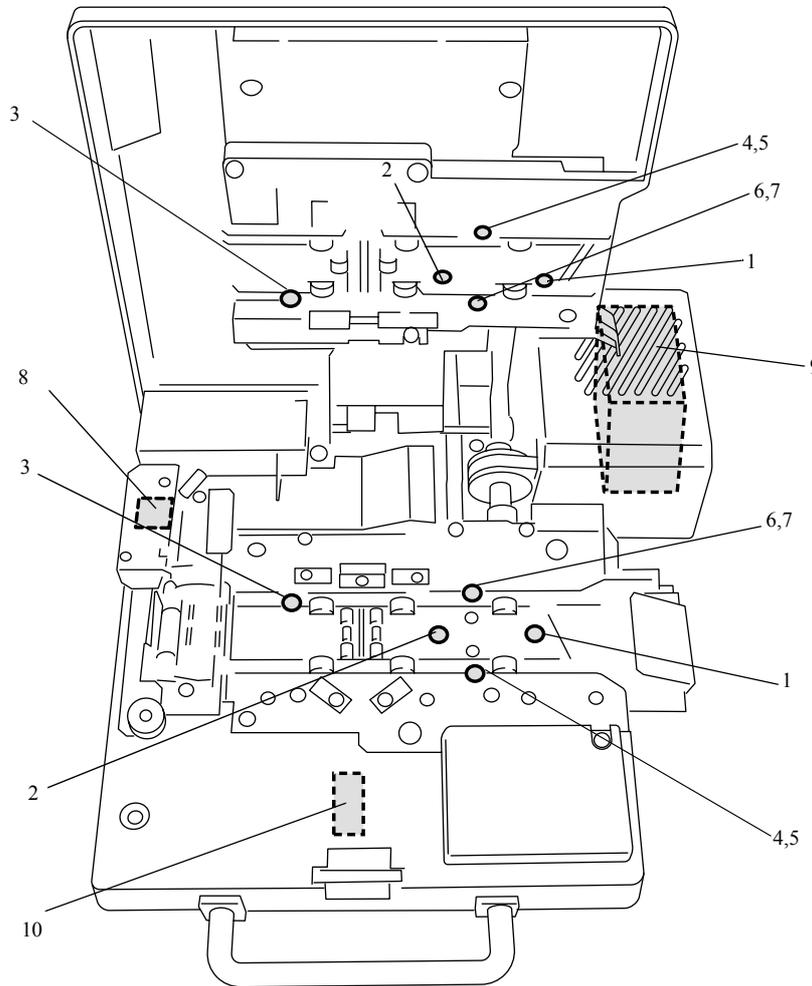
135 AFC-II

No.	Name	Symbol	Part No.	Manual No.	Remarks
1	135 AFC connecting PCB		J391366 J390779*1	65360	
2	135 AFC sensor PCB		J391213 J390709*1	65370	

*1. Not compatible with RoHS directives

135 AFC-II (positions of electrical parts)

● Layout diagram



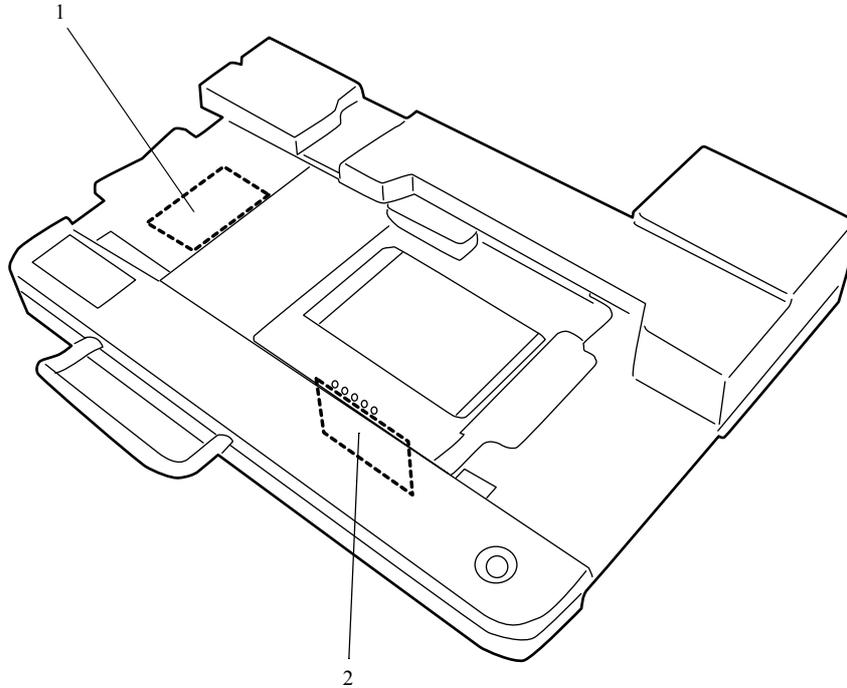
G057597

135 AFC-II

No.	Name	Symbol	Remarks
1	135 loading sensor	SE52	
2	135 ready sensor	SE53	
3	135 perforation sensor	SE54	
4	135 DX sensor 1	SE147	Uses for Film Detection as well.
5	135 DX sensor 2	SE148	
6	135 DX sensor 3	SE149	Uses for Film Detection as well.
7	135 DX sensor 4	SE150	
8	Rewinding sensor	SE78	
9	Film feed motor	PM1	
10	Panorama shutter solenoid	SOL5	

MFC (disposition of PCB, PM driver and power supply)

● Layout diagram



G071630

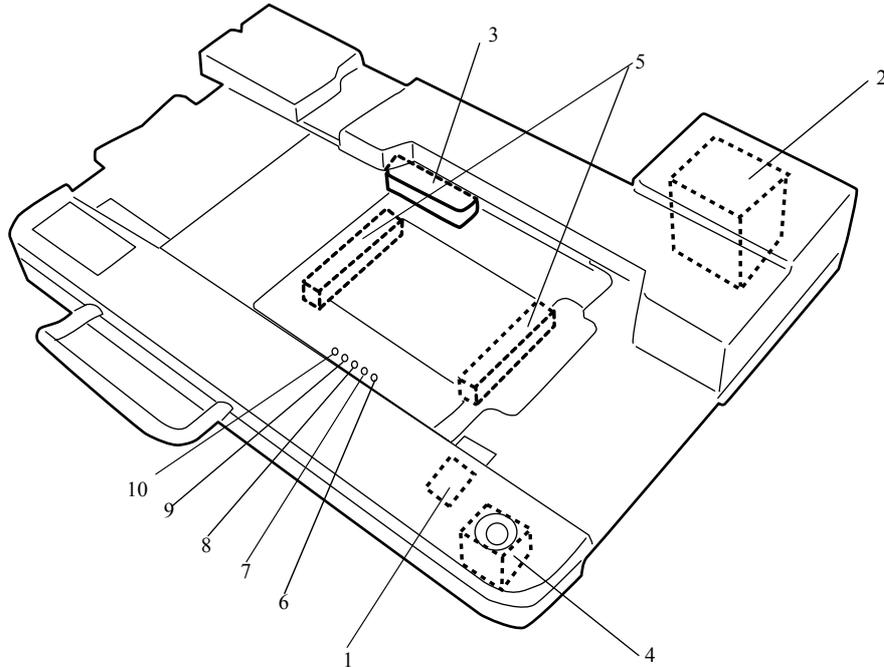
MFC

No.	Name	Symbol	Part No.	Manual No.
1	Connecting PCB 1		J391222 J390783*1	65390
2	Connecting PCB 2		J490368 J490291*1	65400

*1. Not compatible with RoHS directives

MFC (position and description of electrical parts)

● Layout diagram

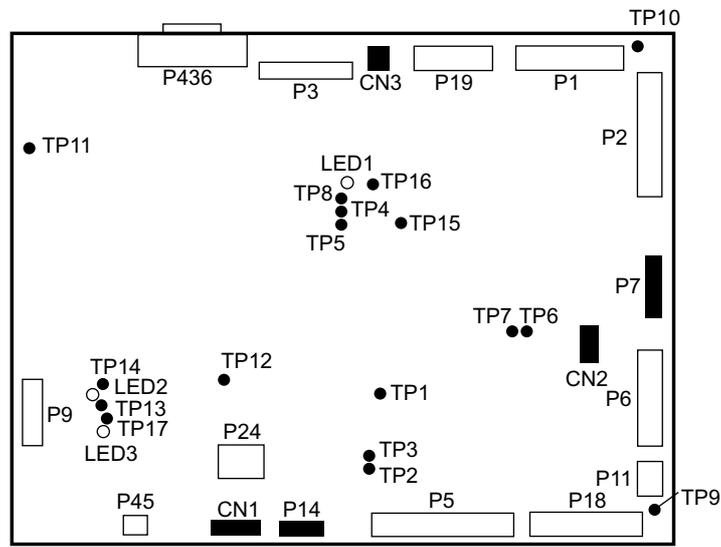


G071629

MFC

No.	Name	Symbol	Remarks
1	Table home sensor	SE116	
2	Table slide motor	PM20	
3	Film pressure magnet	MH1	
4	Film pressure switch	SW8	
5	Film viewer	L8	
6	Attachment Detection Switch 1	LM21	These switches are positioned at connecting PCB 2. 65400
7	Attachment Detection Switch 2	LM22	
8	Attachment Detection Switch 3	LM23	
9	Attachment Detection Switch 4	LM24	
10	Attachment Detection Switch 5	LM25	

AFC/scanner control PCB (J391472)



G085039

● **Function**

- Controls each AFC.
- Controls the scanner unit and LED light source unit.
- Receives the image data from the scanner main PCB.
- USB communication

● **Adjustments and precautions for PCB replacement**

● **1. Position**

☞ 62020

● **2. Precautions for replacement**

- Back up the system data.
☞ 35400



IMPORTANT

- LVDS cable is connected to connector P436 on this PCB. Be sure to read the **Precautions when handling the LVDS cable**, then work correctly. ☞ 68100

● **3. Adjustment after replacement**

- Load the system program.
☞ 35600
- Read the system data.
☞ 35400
- Carry out the sensor standard adjustment for each AFC.

135/240 AFC-II	120 AFC-II	110 AFC-II	135 AFC-II
Sensor Sensitivity Adjustment	Sensor Sensitivity Adjustment	Sensor Sensitivity Adjustment	Sensor Sensitivity Adjustment
DX Sensor Standard Adjustment			DX Sensor Standard Adjustment
☞ 35000	☞ 35010	☞ 35020	☞ 35060

● Unused connector

Connector No.	Purpose and remarks
P7	Unused
P14	Unused
CN1	Unused
CN2	Unused
CN3	Unused

● Component parts table



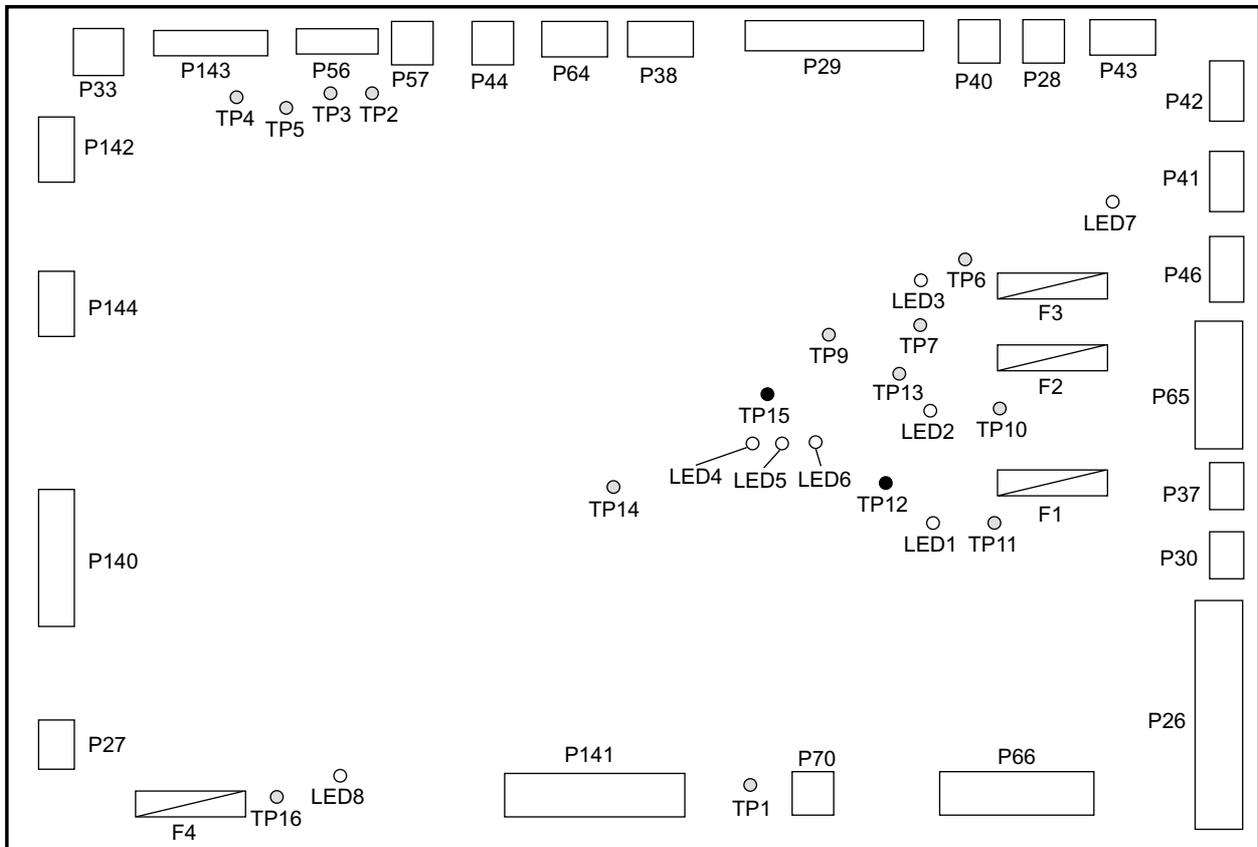
IMPORTANT

- Although sometimes the test pins are unmounted, the test points can be used for the measurement.

LED No.	Purpose	Status
LED1	DC5 V input check	On when the power supply is turned on.
LED2	DC12 V input check	On when the power supply is turned on.
LED3	DC24 V input check	On when the power supply is turned on.

Test point No.	Purpose	Measurement with voltmeter	Remarks
TP1	3.3 VA voltage check	Possible	
TP2	1.5 V-3 voltage check	Possible	
TP3	3.3 V-3 voltage check	Possible	
TP4	1.5 V-2 voltage check	Possible	
TP5	3.3 V-2 voltage check	Possible	
TP6	1.5 V-1 voltage check	Possible	
TP7	3.3 V-1 voltage check	Possible	
TP8	Ground	Possible	
TP9	Ground	Possible	
TP10	Ground	Possible	
TP11	Ground	Possible	
TP12	Ground	Possible	
TP13	Ground	Possible	
TP14	5 V voltage check	Possible	
TP15	5 VA voltage check	Possible	
TP16	12 VA voltage check	Possible	
TP17	24 V voltage check	Possible	

AFC/scanner driver PCB (J391203)



● Not mounted

G081994

NOTE

- AFC/scanner driver PCB (J391106) does not comply with the RoHS Directive.

● **Function**

- Controls motors of the scanner section and relays sensors.
- Supplies the power to the film carrier and the film cleaner.
- Controls the LED electric current, temperature, filter solenoid of LED light source unit.

● **Adjustments and precautions for PCB replacement**

● **1. Position**

🔗 62020

● **2. Precautions for replacement**

- None

● **3. Adjustment after replacement**

- None

● Unused connector

- None

● Component parts table

LED No.	Purpose	Status
LED1	DC+5 V input check	On when the power supply is turned on.
LED2	DC+24 V input check	On when the power supply is turned on.
LED3	DC+36 V input check	On when the power supply is turned on.
LED4	Heater high range check	ON when heater high range is set
LED5	Heater middle range check	ON when heater middle range is set
LED6	Heater low range check	ON when heater low range is set
LED7	Used when verifying DC+36V (AFC) power output	ON when the power is supplied to AFC.
LED8	DC+36 V input check	On when the power supply is turned on.



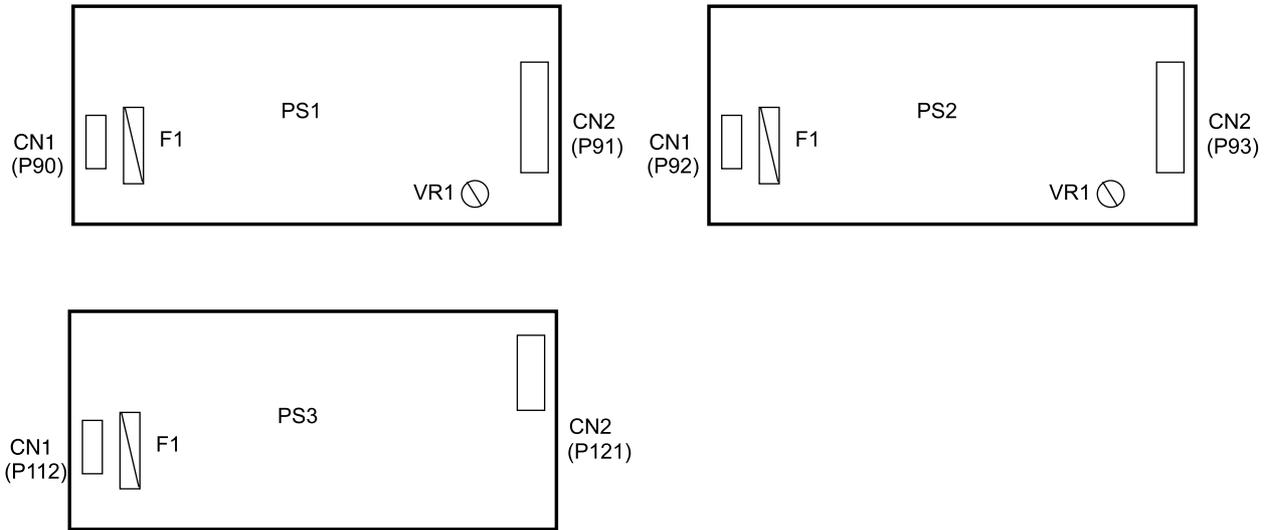
IMPORTANT

- Although sometimes the test pins are unmounted, the test points can be used for the measurement.

Test point No.	Purpose	Measurement with voltmeter	Remarks
TP1	Ground	Possible	
TP2	G heater voltage measurement	Possible	Approx. 18 V (When the LED4 is goes on in standby state)
TP3	B heater voltage measurement	Possible	Approx. 16 V (When the LED4 is goes on in standby state)
TP4	R eater voltage measurement	Possible	Approx. 16 V (When the LED4 is goes on in standby state)
TP5	Ground	Possible	
TP6	DC+36 V voltage measurement	Possible	
TP7	Ground	Possible	
TP8	DC+12 V voltage measurement	Possible	
TP9	Ground	Possible	
TP10	DC+24 V voltage measurement	Possible	
TP11	DC+5 V voltage measurement	Possible	
TP12	Ground	Possible	
TP13	Ground	Possible	
TP14	DC-12 V voltage measurement	Possible	
TP15	Ground	Possible	
TP16	DC+36 V voltage measurement	Possible	

Fuse No.	Rating	Purpose	Remarks
F1	T3.15A/125 V	DC+5 V power supply protection	
F2	T6.3A/125 V	DC+24 V power supply protection	
F3	T3.15A/125 V	DC+36 V power supply protection	
F4	T3.15A/125 V	DC+36 V power supply protection	

Power supply [HS-1800]



G068416

● **Function**

Symbol	Name	Part No.	Function	
PS1	Scanner power supply 1	I038379*1 I038409	Power supply to AFC/scanner driver PCB.	DC+36 V
PS2	Scanner power supply 2	I038263*1 I038403	Power supply to the AFC/scanner control PCB, AFC/scanner driver PCB.	DC+24 V
PS3	Multi power supply (scanner)	I038373	Power supply to the AFC/scanner control PCB(DC +5 V), AFC/Scanner driver PCB (DC+5 V, +15 V), and scanner unit(DC+15V).	DC+5 V, DC+15 V

*1. Not complying with the RoHS Directive



IMPORTANT

- Each power supply is equipped with the overvoltage and overheat protection functions. If the functions operate, turn off the circuit breaker of the system and wait for a while, then turn on again. If the overheat protection function is operated, check if each cooling fan is in operation.

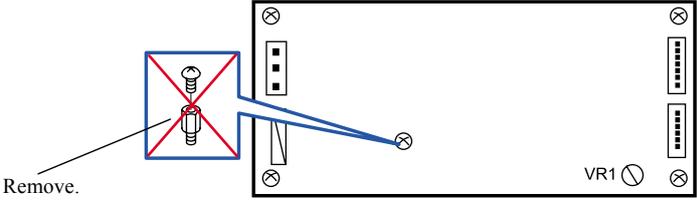
● **Adjustments and precautions for PCB replacement**

● **1. Position**

📄 62020

● **2. Precautions for replacement**

Do not change each volume that has already been adjusted by the manufacturer before shipping.

Power supply	Precautions for replacement
Scanner power supply 1 Scanner power supply 2	<ul style="list-style-type: none"> In the following, be sure to remove the PCB spacer, because the number of screws is changed from five to four. If the PCB spacer is not removed, there will be a short circuit to the PCB. Changing from scanner power supply 1 I038379 to I038409 Changing from scanner power supply 2 I038263 to I038403 

● **3. Adjustment after replacement**

- None

● **Unused connector**

- None

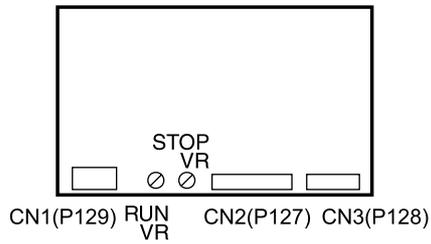
● **Component parts table**

Fuse

Power supply	Fuse No.	Rating	Purpose	Remarks
Scanner power supply 1	F1	T5 AH/250 V	AC 200-240 V power supply protection	-
Scanner power supply 2	F1	T5 AH/250 V	AC 200-240 V power supply protection	-
Multi power supply (scanner)	F1	T2.5AH/250 V	AC 200-240 V power supply protection	-

PM driver [HS-1800]

PMD1



G068412

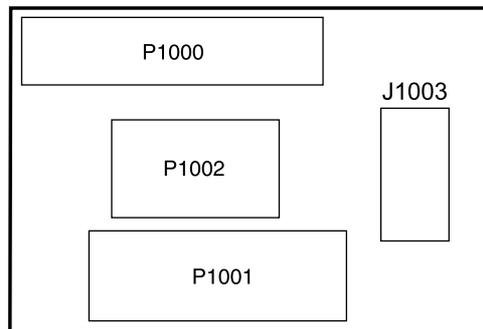
● **Function**

Symbol	Name	Part No.	Function	Adjustments and precautions for PCB replacement	Remarks
PMD1	PM driver (film feed motor)	I043111	Controls the film feed motor.	Do not touch each potentiometer which has been adjusted by the manufacturer before shipping.	All connectors are used.

● **Layout diagram**

62020

Connecting PCB 1 (J391208)



G057586

NOTE

- Connecting PCB 1 (J390756) does not comply with the RoHS Directive.

● Function

- Relays the AFC/scanner control PCB, the sensor PCB and the magnetic head PCB.

● Adjustments and precautions for PCB replacement**● 1. Position**[🔗 62100](#)**● 2. Precautions for replacement****IMPORTANT**

- The flat cables connect to connectors P1001 and P1002 on this PCB. Be sure to read the **Precautions when handling the flat cable**, then work properly. [🔗 68200](#)

● 3. Adjustment after replacement

- None

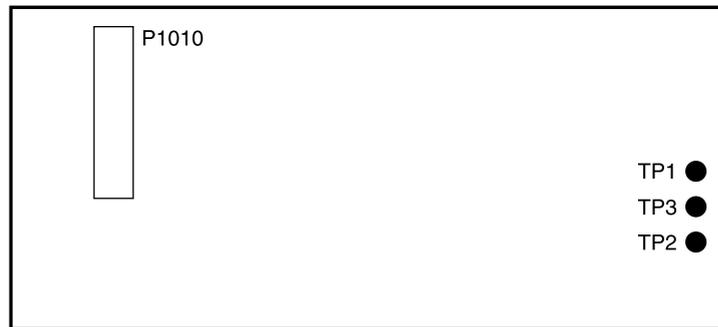
● Unused connector

- None

● Component parts table

- None

Connecting PCB 2 (J391205)



G051012

NOTE

- Connecting PCB 2 (J390482) does not comply with the RoHS Directive.

● Function

- Changes the sensor of the film feed route when 135 and 240 lanes are switched.

● Adjustments and precautions for PCB replacement

● 1. Position

[62100](#)

● 2. Precautions for replacement



IMPORTANT

- The flat cable is connected to connector P1010 on this PCB. Be sure to read the **Precautions when handling the flat cable**, then work properly. [68200](#)

● 3. Adjustment after replacement

- None

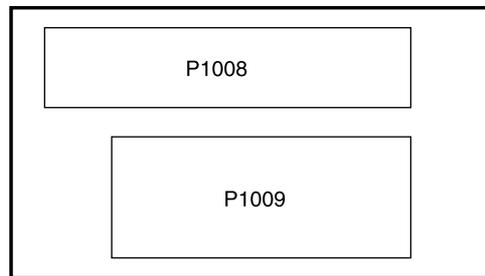
● Unused connector

- None

● Component parts table

Test point No.	Purpose	Measurement with voltmeter	Remarks
TP1	DC+5 V voltage measurement	Possible	The test point may not be mounted.
TP2	DC+12 V voltage measurement	Possible	
TP3	DC+36 V voltage measurement	Possible	

Connecting PCB 3 (J490358)



G051013

NOTE

- Connecting PCB 3 (J490255) does not comply with the RoHS Directive.

● Function

- Relays the AFC/scanner control PCB and driver PCB 2.

● Adjustments and precautions for PCB replacement**● 1. Position**

 62100

● 2. Precautions for replacement**IMPORTANT**

- The flat cable is connected to connector P1009 on this PCB. Be sure to read the **Precautions when handling the flat cable**, then work properly.  68200

● 3. Adjustment after replacement

- None

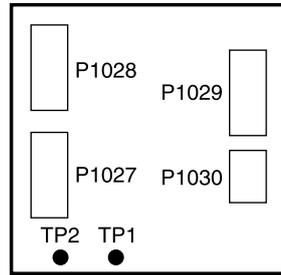
● Unused connector

- None

● Component parts table

- None

Driver PCB 1 (J391204)



G051014

NOTE

- Driver PCB 1 (J390368) does not comply with the RoHS Directive.

● **Function**

- Controls the light lock door motor and the film feed motor cooling fan.

● **Adjustments and precautions for PCB replacement**

● **1. Position**

👉 62100

● **2. Precautions for replacement**

- None

● **3. Adjustment after replacement**

- None

● **Unused connector**

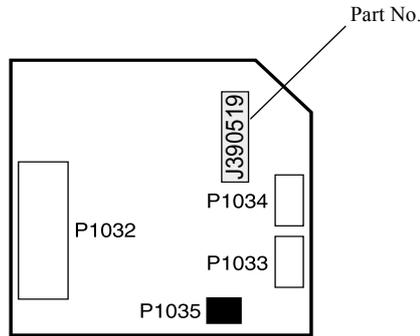
- None

● **Component parts table**

Test point No.	Purpose	Measurement with voltmeter	Status
TP1	DC+12 V voltage measurement	Possible	The test point may not be mounted.
TP2	DC+12 V voltage measurement	Possible	

Driver PCB 2

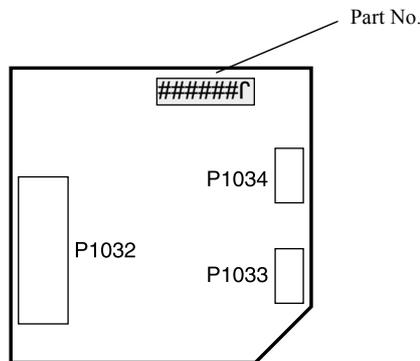
Driver PCB 2 (J390519)



 Unused

G068378

Driver PCB 2 (J391115), (J391210)



G082023

IMPORTANT

- J390519 and, J391115 and J391210 are incompatible due to the different installation methods. Confirm the parts number and be sure to judge the PCB type.

NOTE

- Driver PCB 2 (J390519, J391115) does not comply with the RoHS Directive.

● Function

- Controls the spool key motor.
- Inputs the limit switch of 135 or 240 lane.

● Adjustments and precautions for PCB replacement

● 1. Position

 62100

● 2. Precautions for replacement

IMPORTANT

- The flat cable is connected to connector P1032 on this PCB. Be sure to read the **Precautions when handling the flat cable**, then work properly.  68200

● 3. Adjustment after replacement

- None

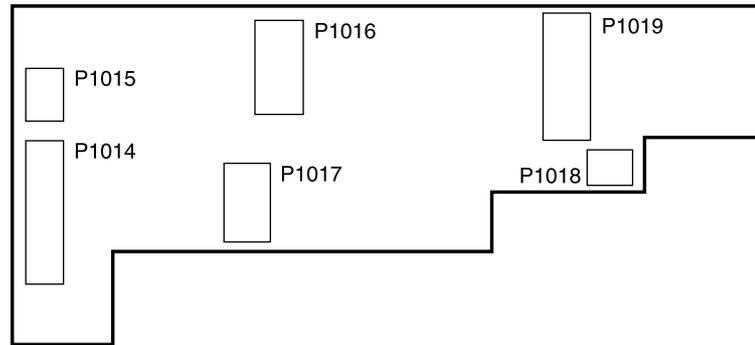
● Unused connector

Connector No.	Purpose	Remarks
P1035	Unused	J391115 and J391210 are not equipped with this connector.

● Component parts table

- None

Sensor PCB (J391209)



G051016

NOTE

- Sensor PCB (J390757) does not comply with the RoHS Directive.

● Function

- Amplifies the input signal of the film feed route and relays the other sensors.
- Writes the magnetic data.

● Handling the PCB**IMPORTANT**

- This sensor PCB cannot be replaced.
Because the wires connected to each DX sensor and the LED PCB are being soldered and the wiring is complicated and difficult to return it to the original condition.
- The flat cable is connected to connector P1014 on this PCB. Be sure to read the **Precautions when handling the flat cable**, then work properly. [☞ 68200](#)

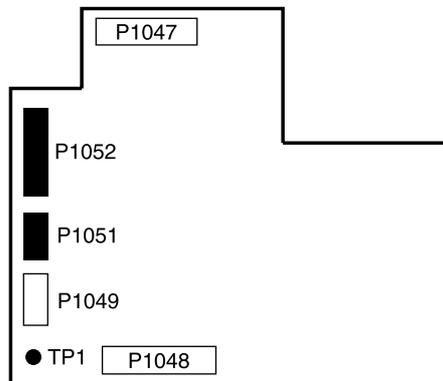
● Layout diagram[☞ 62100](#)**● Unused connector**

- None

● Component parts table

- None

Power PCB (J391207)



 Unused

G068379

NOTE

- Power PCB (J390755) does not comply with the RoHS Directive.

● Function

- Generates the power supply of DC+5 V and +12 V.
- Controls the panorama shutter solenoid.

● Adjustments and precautions for PCB replacement

● 1. Position

 62100

● 2. Precautions for replacement

- None

● 3. Adjustment after replacement

- None

● Unused connector

Connector No.	Purpose	Remarks
P1051	Unused	
P1052	Unused	The connector may not be mounted.

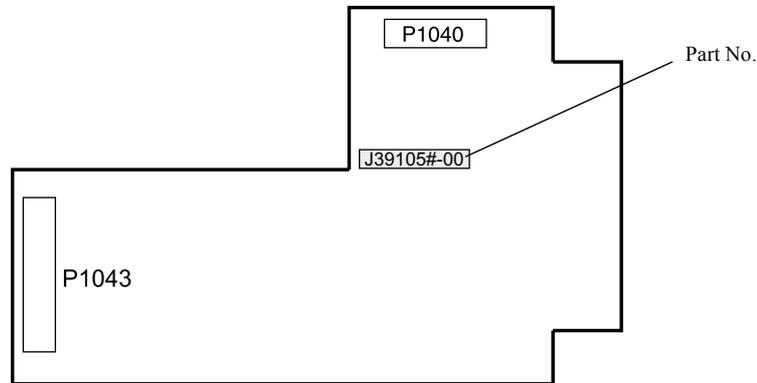
● Component parts table

Test point No.	Purpose	Measurement with voltmeter	Remarks
TP1	Ground	Possible	The test point may not be mounted.

Magnetic head PCB (J391211/J391212)

When the magnetic head unit is not equipped the magnetic preamplifier PCB, refer to [Magnetic head PCB \(J390497/J390784\)](#).

J391050 and J391211 [135/240 AFC-II (R/W) only], J391051 and J391212 [135/240 AFC-II (R) only]



G075908



IMPORTANT

- Although the form of J391050, J391211 and J391051, J391212 is the same, they are not compatible. Confirm the parts number and be sure to judge the PCB type.

NOTE

- Magnetic head PCBs (J391050, J391051) do not comply with the RoHS Directive.

● Function

- Reads and writes the magnetic data.

● Adjustments and precautions for PCB replacement

● 1. Position

[62100](#)

● 2. Precautions for replacement



IMPORTANT

- The flat cable is connected to connector P1040 on this PCB. Be sure to read the **Precautions when handling the flat cable**, then work properly. [68200](#)

● 3. Adjustment after replacement

- None

● Unused connector

- None

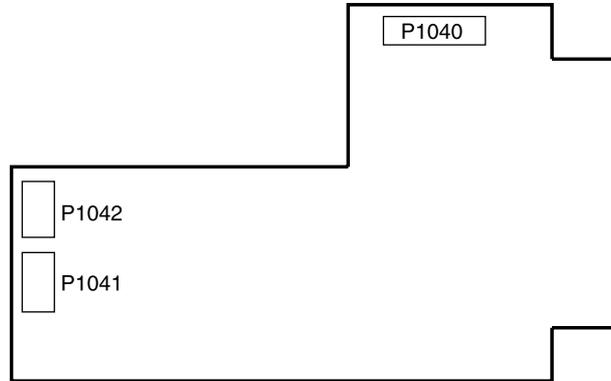
● Component parts table

- None

Magnetic head PCB (J390497/J390784)

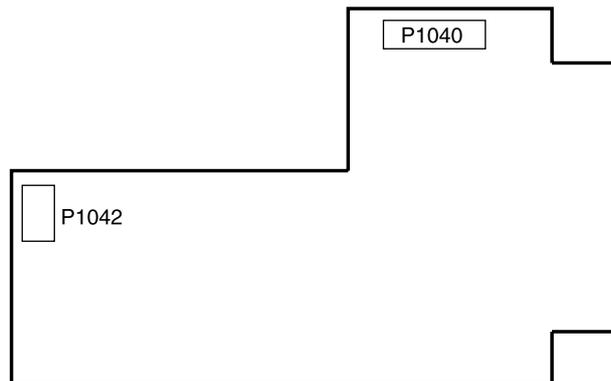
When the magnetic head unit is equipped the magnetic preamplifier PCB, refer to [Magnetic head PCB \(J391211/J391212\)](#).

J390497 [135/240 AFC and 135/240 AFC-II (R/W) only]



G051018

J390784 [135/240 AFC-II (R) only]



G057590

NOTE

- Magnetic head PCBs (J390497, J390784) do not comply with the RoHS Directive.

● Function

- Reads and writes the magnetic data.

● Adjustments and precautions for PCB replacement

● 1. Position

[62100](#)

● 2. Precautions for replacement



IMPORTANT

- This magnetic head PCB needs to be replaced at the same time with the magnetic head unit. See [20760](#). It is because manufacture of PCB is stopped and it is incompatible with a substitute PCB [[Magnetic head PCB \(J391211/J391212\)](#)].

● 3. Adjustment after replacement

- None

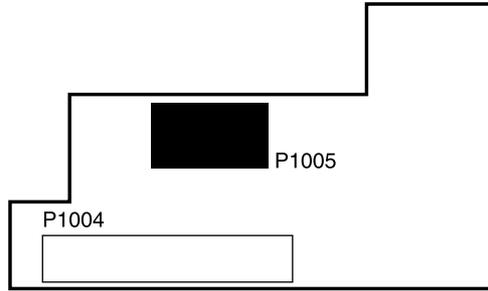
- **Unused connector**

- None

- **Component parts table**

- None

Connecting PCB 4 (J391206)



 Unused

G068380

NOTE

- Connecting PCB 4 (J390579) does not comply with the RoHS Directive.

● **Function**

- Relays the AFC/scanner control PCB and connecting PCB 2.

● **Adjustments and precautions for PCB replacement**

● **1. Position**

 62100

● **2. Precautions for replacement**



IMPORTANT

- The flat cable is connected to connector P1004 on this PCB. Be sure to read the **Precautions when handling the flat cable**, then work properly.  68200

● **3. Adjustment after replacement**

- None

● **Unused connector**

Connector No.	Purpose	Remarks
P1005	Unused	

● **Component parts table**

- None

Connecting PCB (J391367)



G051020

NOTE

- Connecting PCB (J390371) does not comply with the RoHS Directive.

● Function

- Relays the AFC/scanner control PCB and 120 AFC sensor PCB.
- Generates the power supply, DC+5 V and +12 V.

● Adjustments and precautions for PCB replacement

● 1. Position

62200

● 2. Precautions for replacement

- None

● 3. Adjustment after replacement

- None

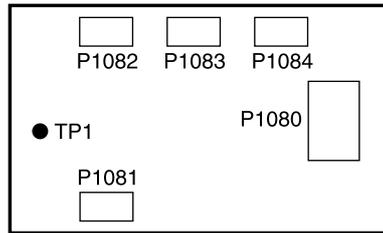
● Unused connector

- None

● Component parts table

Test point No.	Purpose	Measurement with voltmeter	Remarks
TP1	Ground	Possible	The test point may not be mounted.

Sensor PCB (J391217)



G051021

NOTE

- Sensor PCB (J390385) does not comply with the RoHS Directive.

● Function

- Relays the input signals of the film feed route.

● Adjustments and precautions for PCB replacement

● 1. Position

 62200

● 2. Precautions for replacement

- None

● 3. Adjustment after replacement

- None

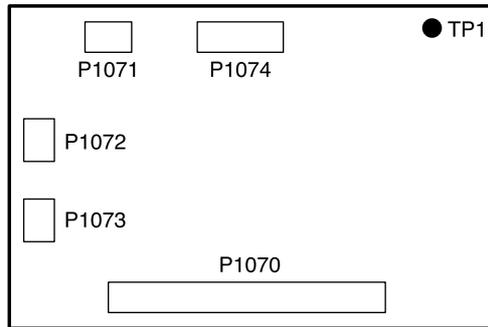
● Unused connector

- None

● Component parts table

Test point No.	Purpose	Measurement with voltmeter	Remarks
TP1	Ground	Possible	The test point may not be mounted.

Connecting PCB (J391216)



G052692

NOTE

- Connecting PCB (J390372) does not comply with the RoHS Directive.

● Function

- Relays the sensor signals of the 110 AFC.
- Generates the power supply of DC+5 V and +12 V.

● Adjustments and precautions for PCB replacement

● 1. Position

👉 62300

● 2. Precautions for replacement

- None

● 3. Adjustment after replacement

- None

● Unused connector

- None

● Component parts table

Test point No.	Purpose	Measurement with voltmeter	Remarks
TP1	Ground	Possible	

Sensor PCB (J391218)



 Unused

G068381

NOTE

- Sensor PCB (J390394) does not comply with the RoHS Directive.

● **Function**

- Detects the sensor of the 110 AFC.

● **Adjustments and precautions for PCB replacement**

● **1. Position**

 62300

● **2. Precautions for replacement**

- None

● **3. Adjustment after replacement**

- None

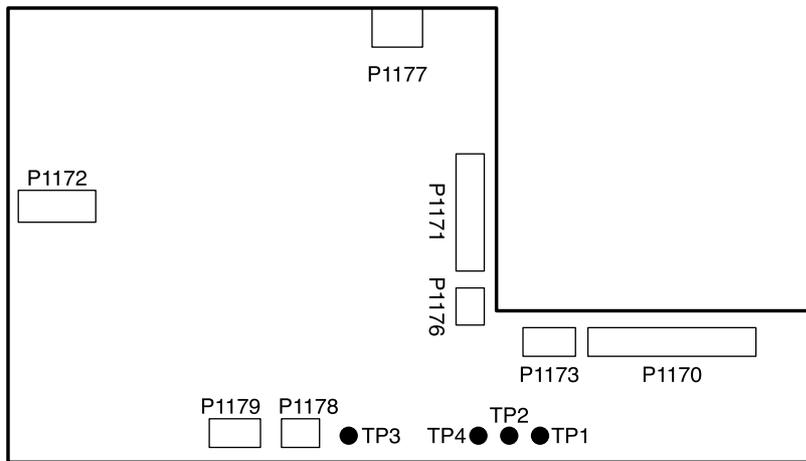
● **Unused connector**

Connector No.	Purpose	Remarks
P1084	Unused	

● **Component parts table**

Test point No.	Purpose	Measurement with voltmeter	Remarks
TP1	Ground	Possible	

MMC connecting PCB (J391220)



G052687

NOTE

- MMC connecting PCB (J390483) does not comply with the RoHS Directive.

● Function

- Detects the MMC sensor.
- Controls (other than output checks) and drives of the AF motor.
- Generates the power supply of DC+5 V and + 24 V.

● Adjustments and precautions for PCB replacement

● 1. Position

🔗 62400

● 2. Precautions for replacement

- None

● 3. Adjustment after replacement

- None

● Unused connector

- None

● Component parts table

Test point No.	Purpose	Measurement with voltmeter	Remarks
TP1	DC+36 V voltage measurement	Possible	
TP2	DC+24 V voltage measurement	Possible	
TP3	DC+5 V voltage measurement	Possible	
TP4	Ground	Possible	

MMC sensor PCB (J391219)



G052689

NOTE

- MMC sensor PCB (J390389) does not comply with the RoHS Directive.

● Function

- Relays the signal to the AMC or MMC sensor.
- Relays the output signal to the AMC or MMC motor.

● Adjustments and precautions for PCB replacement

● 1. Position

135/240 MMC

[62400](#)

135/240 AMC

[62500](#)

● 2. Precautions for replacement

- None

● 3. Adjustment after replacement

- None

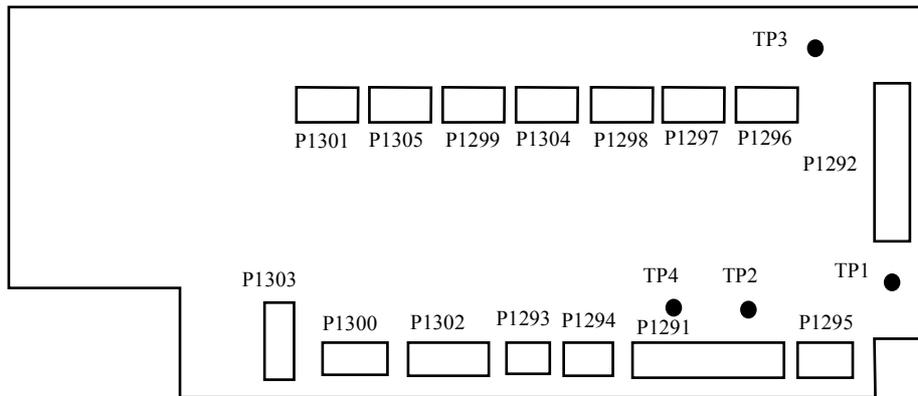
● Unused connector

- None

● Component parts table

Test point No.	Purpose	Measurement with voltmeter	Remarks
TP1	Ground	Possible	

AMC connecting PCB (J391221)



G060696

NOTE

- AMC Connecting PCB (J390700) does not comply with the RoHS Directive.

● **Function**

- Relays the signal to the AMC sensor.
- Relays the output signals to the AMC motor.

● **Adjustments and precautions for PCB replacement**

● **1. Position**

🔗 62500

● **2. Precautions for replacement**

- None

● **3. Adjustment after replacement**

- None

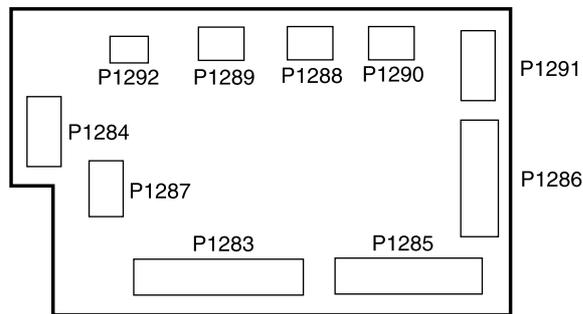
● **Unused connector**

- None

● **Component parts table**

Test point No.	Purpose	Measurement with voltmeter	Remarks
TP1	DC+36 V voltage measurement	Possible	
TP2	DC+20 V voltage measurement	Possible	
TP3	DC+5 V voltage measurement	Possible	
TP4	Ground	Possible	

110 AFC connecting PCB (J391366)



G057589

NOTE

- 135 AFC connecting PCB (J390779) does not comply with the RoHS Directive.

● Function

- Generates the power supply of DC+5 V and +12 V.
- Controls the sensors (emission side) of the film feed route and relays the input signal.
- Controls the panorama shutter solenoid.

● Adjustments and precautions for PCB replacement

● 1. Position

62600

● 2. Precautions for replacement



IMPORTANT

- The flat cable is connected to connector P1292 on this PCB. Be sure to read the **Precautions when handling the flat cable**, then work properly. 68200

● 3. Adjustment after replacement

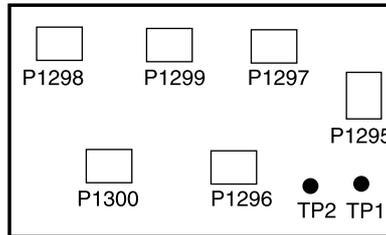
- None

● Unused connector

- None

● Component parts table

- None

135 AFC sensor PCB (J391213)

G057666

NOTE

- 135 AFC sensor PCB (J390709) does not comply with the RoHS Directive.

- **Function**

- Amplifies the input signals of the film feed route.

- **Adjustments and precautions for PCB replacement**

- **1. Position**

☞ 62600

- **2. Precautions for replacement**

**IMPORTANT**

- The flat cable is connected to connector P1295 on this PCB. Be sure to read the **Precautions when handling the flat cable**, then work properly. ☞ 68200

- **3. Adjustment after replacement**

- None

- **Unused connector**

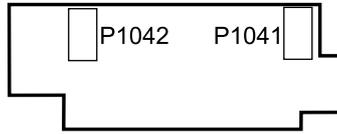
- None

- **Component parts table**

Test point No.	Purpose	Measurement with voltmeter	Remarks
TP1	DC+12 V voltage measurement	Possible	The test point may not be mounted.
TP2	Ground	Possible	

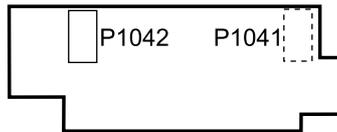
Magnetic preamplifier PCB unit (W412798/W412797)

W411413, W412798 (135/240 AFC-II (R/W) only)



G071640

W411414, W412797 (135/240 AFC-II (R) only)



G071641

● Function

- Amplification of the magnetic head signal



IMPORTANT

- W411413 and W412798 correspond to reading of both a camera track and a photo finishing track. W411414 and W412797 correspond only to reading of a camera track.

● Adjustments and precautions for PCB replacement

● 1. Position

62100

● 2. Precautions for replacement

- None

● 3. Adjustment after replacement

- None

● Unused connector

W411413, W412798

- None

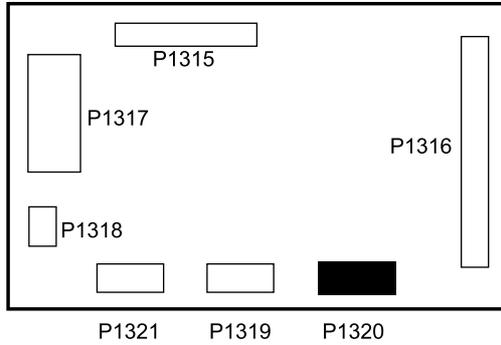
W411414, W412797

Connector No.	Purpose	Remarks
P1041	Unused	Not mounted

● Component parts table

- None

Connecting PCB 1 (J391222)



 Unused

G071631

NOTE

- Connecting PCB 1 (J390783) does not comply with the RoHS Directive.

● **Function**

- Generates the power supply of DC+5 V and DC+12 V.
- Controls the film pressure magnet.
- Controls the film viewer.
- Relays the sensors and switches.

● **Adjustments and precautions for PCB replacement**

● **1. Position**

 62660

● **2. Precautions for replacement**

- None

● **3. Adjustment after replacement**

- None

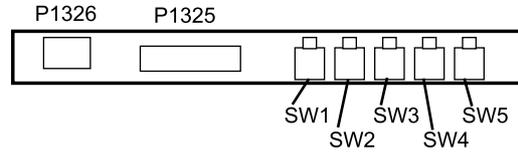
● **Unused connector**

Connector No.	Purpose	Remarks
P1320	Unused	

● **Component parts table**

- None

Connecting PCB 2 (J490368)



G071632

NOTE

- Connecting PCB 2 (J490291) does not comply with the RoHS Directive.

● Function

1. Detects each attachment.
2. Relays the film pressure magnet.

● Adjustments and precautions for PCB replacement

● 1. Position

[62660](#)

● 2. Precautions for replacement

- None

● 3. Adjustment after replacement

- None

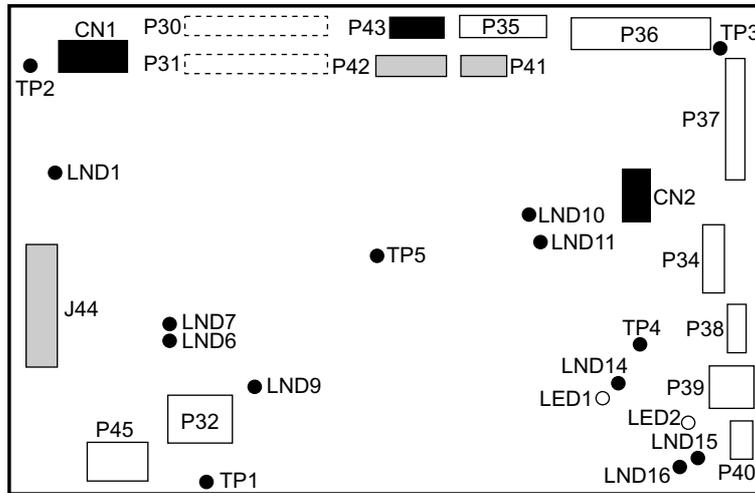
● Unused connector

- None

● Component parts table

Switch No.	Name	Purpose
SW1	Attachment Detection Switch 1	Detects each attachment. 62670
SW2	Attachment Detection Switch 2	
SW3	Attachment Detection Switch 3	
SW4	Attachment Detection Switch 4	
SW5	Attachment Detection Switch 5	

Scanner control PCB (J391475)



 Unused

 Unused depending on the conditions

G084991

● Function

- Controls the scanner section.
- Controls the LED light source.
- Controls the film advance section.
- Controls the connection unit.
- Controls USB communication.

● Adjustments and precautions for PCB replacement

● 1. Position

 62030

● 2. Precautions for replacement

- Back up the system data.



IMPORTANT

- Flat cables are connected to connectors P30, P31 and P34 on this PCB. Be sure to read the **Precautions in handling the flat cable** before operation.

 68200

NOTE

- After connecting flat cables to connectors P30 and P31, measure the resistance of TP1–LND7, TP1–LND14 and TP1–LND15. If the resistance is approximate 0 ohm, short circuit may occur to the connector of the flat cable. Check the connection again.

● 3. Work after replacement

- Load the system program.
 35600
- Read the system data.
 35400
- Carry out the sensor standard adjustment.
 35070

● **Unused connector**

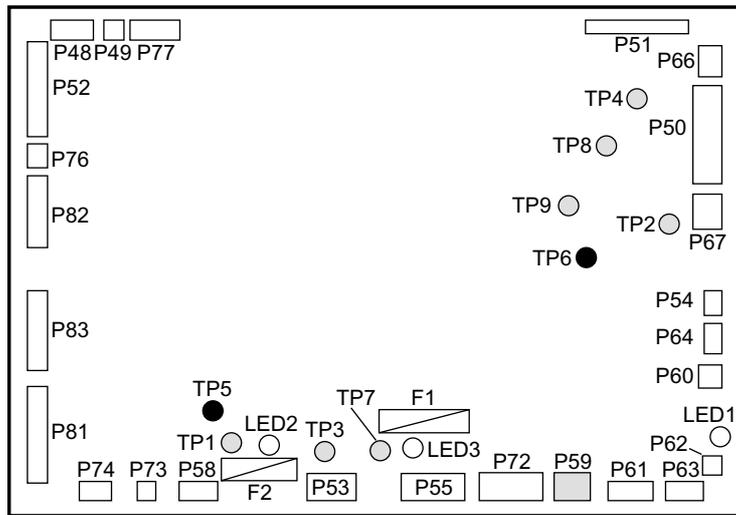
Connector No.	Purpose	Remarks
P41, P42, J44	Connection Unit	Option
P43	Unused	

● **Component parts table**

LED No.	Purpose	Status
LED1	DC+5 V input check	On when the power supply is turned on.
LED2	DC+15 V input check	On when the power supply is turned on.

Test point No.	Purpose	Measurement with voltmeter	Remarks
TP1	DC+5 V voltage measurement	Possible	Not mounted
TP2	DC+15 V voltage measurement	Possible	Not mounted
TP3	DC+12 V voltage measurement	Possible	Not mounted
TP4	DC+3.3 V voltage measurement	Possible	Not mounted
TP5	DC+2.5 V voltage measurement	Possible	Not mounted
TP6	Ground	Possible	
TP7	Ground	Possible	Not mounted
TP8	Ground	Possible	Not mounted
TP9	Ground	Possible	Not mounted
TP10	Ground	Possible	Not mounted
TP11	Unused	Impossible	Not mounted
TP12	Unused	Impossible	Not mounted
TP13	DC+5 V-1 voltage measurement	Possible	Not mounted

Scanner driver PCB (J391385)



Unused depending on the conditions
 Not mounted

G084990

● **Function**

- Controls the scanner section.
- Controls the LED light source section.
- Controls the film advance section.

● **Adjustments and precautions for PCB replacement**

● **1. Position**

👉 62030

● **2. Precautions for replacement**

- None

● **3. Work after replacement**

- None

● **Unused connector**

Connector No.	Purpose	Remarks
P59	Film cleaner power supply connection	Option

● **Component parts table**

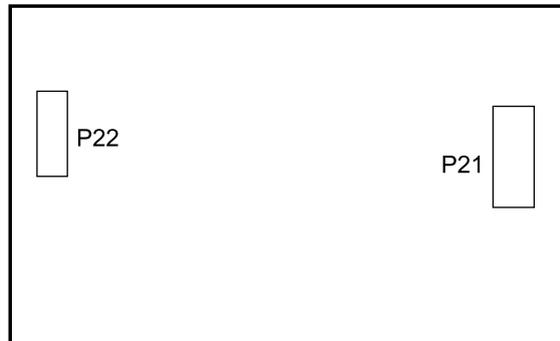
LED No.	Purpose	Status
LED1	Relay X1 operation check (Interlock relay)	ON during operation
LED2	DC+5 V power supply check	On when the power supply is turned on.
LED3	DC+24 V power supply check	On when the power supply is turned on.

Test point No.	Purpose	Measurement with voltmeter	Remarks
TP1	+5 V voltage measurement	Possible	Not mounted

Test point No.	Purpose	Measurement with voltmeter	Remarks
TP2	+15 V voltage measurement	Possible	Not mounted
TP3	+24 V voltage measurement	Possible	Not mounted
TP4	A5 V voltage measurement	Possible	Not mounted
TP5	Ground	Possible	
TP6	Ground	Possible	
TP7	Ground	Possible	Not mounted
TP8	Ground	Possible	Not mounted

Fuse No.	Rating	Purpose	Remarks
F1	T5A/125 V	DC+24 V power supply protection	
F2	T3.15A/125 V	DC+5 V power supply protection	

Magnetic head PCB (J391196)



G071728

● Function

- Amplifies the magnetic signal.

● Adjustments and precautions for PCB replacement**● 1. Position**

 62030

● 2. Precautions for replacement

- None

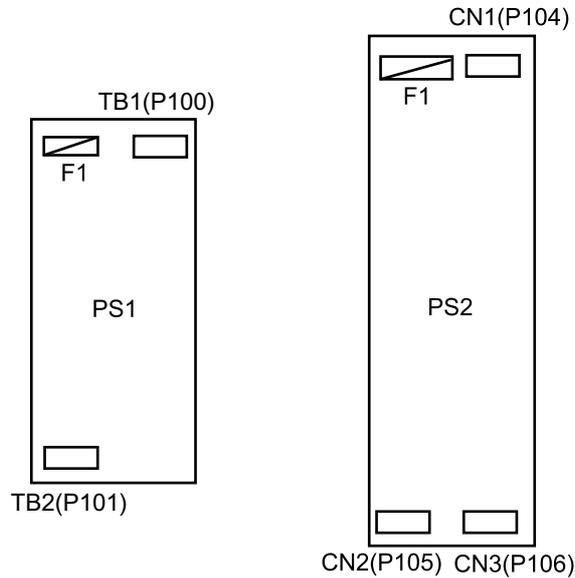
● 3. Work after replacement

- None

● Unused connector

- None

Power supply [LS-600]



G084992

● Function

Symbol	Name	Part No.	Function	Cooling fan
PS1	Control source	I038404	Supplies the power to the scanner control PCB, scanner driver PCB, magnetic head PCB, the scanner unit and I/O extension PCB (connection unit).	DC+5 V
PS2	Power supply	I038405	Supplies the power to the scanner control PCB, scanner driver PCB, PM driver (Film feed motor) and I/O extension PCB (connection unit).	DC+24 V



IMPORTANT

- Each power supply is equipped with the overvoltage and overheat protection functions. If the functions operate, turn off the circuit breaker of the system and wait for a while, then turn on again. If the overheat protection function is operated, check if the power supply cooling fan is in operation.

● Adjustments and precautions for PCB replacement

● 1. Position

☞ 62030

● 2. Precautions for replacement

Power supply	Precautions for replacement
Control source	None
Power supply	None

- **3. Adjustment after replacement**

- None

- **Unused connector**

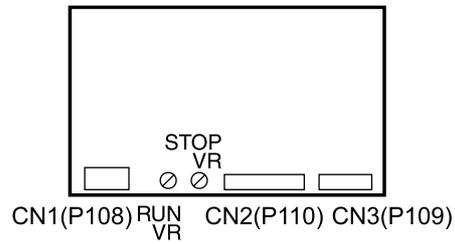
Power supply	Connector No.	Purpose	Remarks
Control source	None		
Power supply	None		

- **Component parts table**

Fuse

Power supply	Fuse No.	Rating	Purpose	Remarks
Control source	F1	T2A/250 V	AC 100-240 V power supply protection	
Power supply	F1	T5.0AH/250 V	AC 100-240 V power supply protection	

PM driver (I043126)



G071729

- **Function**

- Controls the film feed motor.

- **Adjustments and precautions for PCB replacement**

- **1. Position**

62030

- **2. Precautions for replacement**



IMPORTANT

- Do not touch each potentiometer which has been adjusted by the manufacturer before shipping.

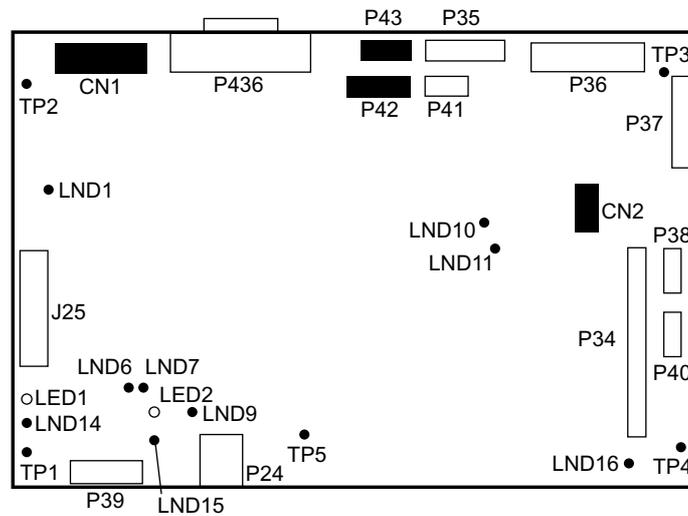
- **3. Work after replacement**

- None

- **Unused connector**

- None

Scanner control PCB (J391473)



 Unused

G085038

● Function

- Controls the scanner section.
- Controls the LED light source.
- Controls the film advance section.
- Controls the connection unit.
- Controls USB communication.

● Adjustments and precautions for PCB replacement

● 1. Position

 62040

● 2. Precautions for replacement

- Back up the system data.
 35400



IMPORTANT

- LVDS cable is connected to connector P436 on this PCB. Be sure to read the **Precautions when handling the LVDS cable**, then work correctly.  68100
- The flat cable connects to connector P34 on this PCB. Be sure to read the **Precautions in handling the flat cable** before operation.  68200

● 3. Work after replacement

- Load the system program.
 35600
- Read the system data.
 35400
- Carry out the sensor standard adjustment.
 35070

● **Unused connector**

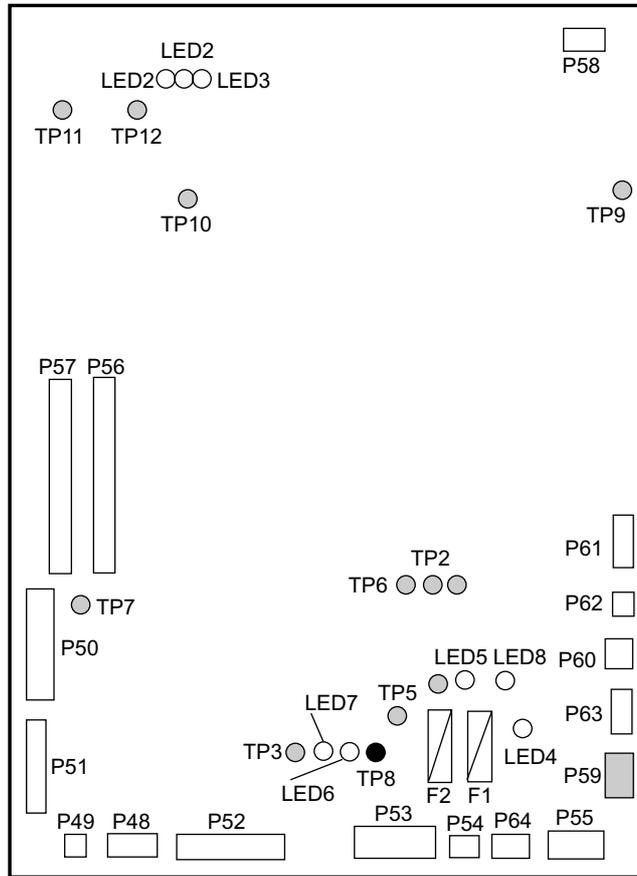
Connector No.	Purpose	Remarks
P42	Unused	
P43	Unused	
CN1	Unused	
CN2	Unused	

● **Component parts table**

LED No.	Purpose	Status
LED1	5 V input check	On when the power supply is turned on.
LED2	15 V input check	On when the power supply is turned on.

Test point No.	Purpose	Measurement with voltmeter	Remarks
TP1	Ground	Possible	
TP2	Ground	Possible	
TP3	Ground	Possible	
TP4	Ground	Possible	
TP5	Ground	Possible	
LND1	3.3 V A voltage measurement	Possible	
LND6	1.5 V-1 voltage measurement	Possible	
LND7	3.3 V-1 voltage measurement	Possible	
LND9	Ground	Possible	
LND10	1.5 V-2 V voltage measurement	Possible	
LND11	3.3 V-2 V voltage measurement	Possible	
LND14	5 V voltage measurement	Possible	
LND15	15 V voltage measurement	Possible	
LND16	12 V voltage measurement	Possible	

Scanner driver PCB (J391480)



Unused depending on the conditions
 Not mounted

G082854

6. Electrical parts

● **Function**

- Controls the scanner section.
- Controls the LED light source section.
- Controls the film advance section.

● **Adjustments and precautions for PCB replacement**

● **1. Position**

👉 62040

● **2. Precautions for replacement**



IMPORTANT

- The flat cables connect to connectors P56 and P57 on this PCB. Be sure to read the **Precautions in handling the flat cable** before operation. 👉 68200

● **3. Work after replacement**

- None

● **Unused connector**

Connector No.	Purpose	Remarks
P59	Film cleaner power supply connection	Option

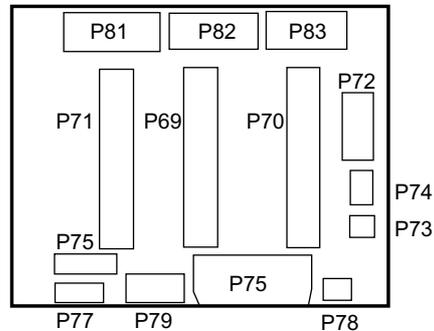
● **Component parts table**

LED No.	Purpose	Status
LED1	Heater low range check	On during Heater Low
LED2	Heater middle range check	On during Heater Middle
LED3	Heater high range check	On during Heater High
LED4	Relay X1 operation check (Interlock relay)	ON during operation
LED5	DC+15 V input check	On when the power supply is turned on.
LED6	DC-15 V input check	On when the power supply is turned on.
LED8	DC+24 V input check	On when the power supply is turned on.

Test point No.	Purpose	Measurement with voltmeter	Remarks
TP1	DC+5 V voltage measurement	Possible	Not mounted
TP2	DC+15 V voltage measurement	Possible	Not mounted
TP3	DC-15 V voltage measurement	Possible	Not mounted
TP4	DC+24 V voltage measurement	Possible	Not mounted
TP5	DC+5 V-1 voltage measurement	Possible	Not mounted
TP6	DC-5 V voltage measurement	Possible	Not mounted
TP7	Ground	Possible	Not mounted
TP8	Ground	Possible	
TP9	Ground	Possible	Not mounted
TP10	Ground	Possible	Not mounted
TP11	Unused	Impossible	Not mounted
TP12	Unused	Impossible	Not mounted

Fuse No.	Rating	Purpose	Remarks
F1	T5A/125 V	DC+24 V power supply protection	
F2	T3.15A/125 V	DC+5 V power supply protection	

Connecting PCB (J391199)



G082855

● Function

- Relays power supply and the signals for the scanner control PCB and the scanner driver PCB.
- Relays power supply and the signals for the scanner unit.
- Relays the signal for LED light source unit.

● Adjustments and precautions for PCB replacement

● 1. Position

62040

● 2. Precautions for replacement



IMPORTANT

- The flat cable is connected to connectors P69, P70, and P71 on this PCB. Be sure to read the **Precautions in handling the flat cable** before operation. 68200

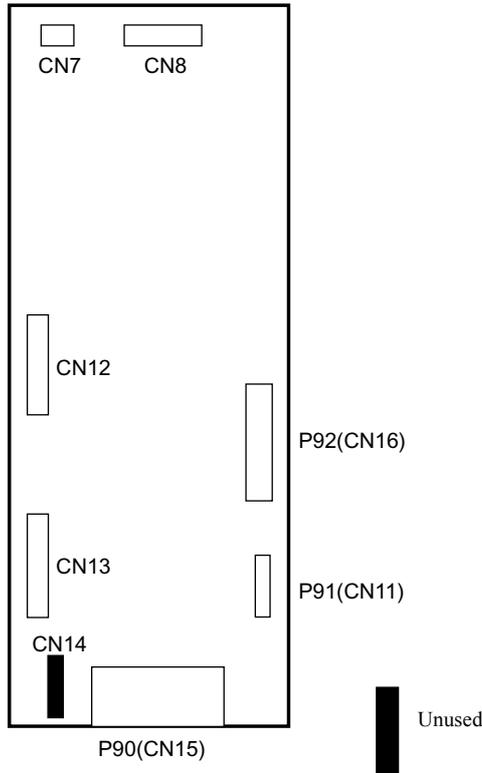
● 3. Work after replacement

- None

● Unused connector

- None

Scanner main PCB (J391249)



G083059

● **Function**

- Controls the CCD section.
- Converts the image signal.

● **Adjustments and precautions for PCB replacement**

● **1. Position**

☞ 62040

● **2. Precautions for replacement**



IMPORTANT

- The LVDS cable connects to connector P90 on this PCB. Be sure to read the **Precautions when handling the LVDS cable**, then work correctly. ☞ 68100

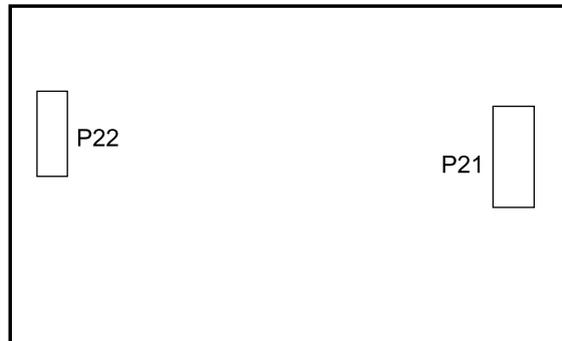
● **3. Work after replacement**

- Perform **Focus Adjustment**.
☞ 37020
- Perform the **Scanner Calibration**.
☞ 37030

● **Unused connector**

Connector No.	Purpose	Remarks
CN14	Unused	

Magnetic head PCB (J391196)



G071728

● Function

- Amplifies the magnetic signal.

● Adjustments and precautions for PCB replacement**● 1. Position**

 62040

● 2. Precautions for replacement

- None

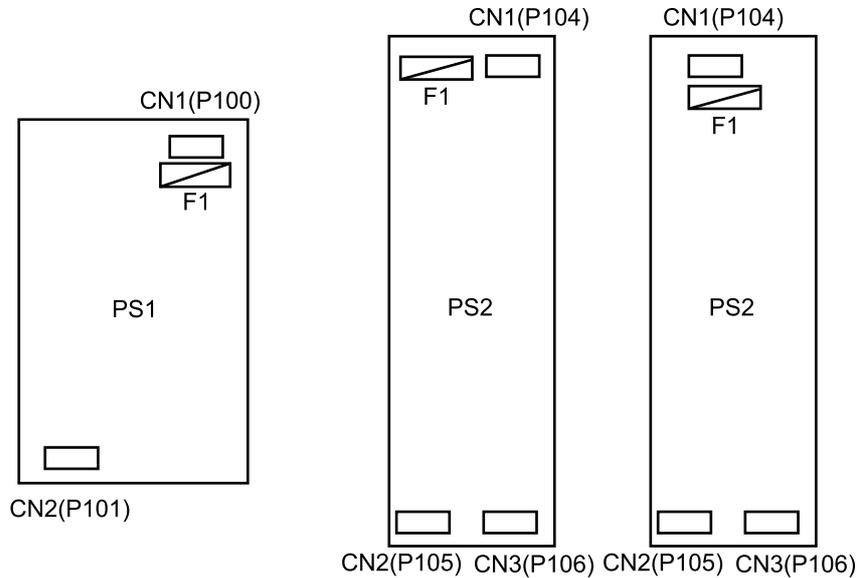
● 3. Work after replacement

- None

● Unused connector

- None

Power supply [LS-1100]



G082856

● **Function**

Symbol	Name	Part No.	Function	Cooling fan	
PS1	Multi power supply	I038371	Supplies the power to the scanner control PCB, scanner driver PCB, magnetic head PCB, the scanner unit and I/O extension PCB (connection unit).	DC+5 V, DC+15 V	Power supply cooling fan
PS2	Power supply *1	I038405 I038402	Supplies the power to the scanner control PCB, scanner driver PCB, PM driver (Film feed motor) and I/O extension PCB (connection unit).	DC+24 V	

*1. For power supply, either I038405 or I038402 is installed. I038405 and I038402 are compatible to each other and have the same function and the same performance.



IMPORTANT

- Each power supply is equipped with the overvoltage and overheat protection functions. If the functions operate, turn off the circuit breaker of the system and wait for a while, then turn on again. If the overheat protection function is operated, check if the power supply cooling fan is in operation.

● **Adjustments and precautions for PCB replacement**

● **1. Position**

☞ 62040

● **2. Precautions for replacement**

Power supply	Precautions for replacement
Multi power supply	None
Power supply	None

- **3. Adjustment after replacement**

- None

- **Unused connector**

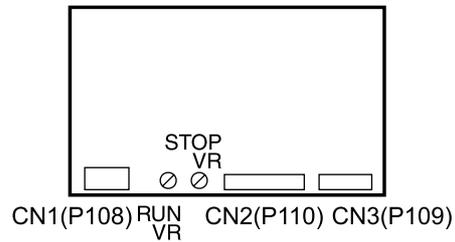
Power supply	Connector No.	Purpose	Remarks
Multi power supply	None		
Power supply	None		

- **Component parts table**

Fuse

Power supply	Fuse No.	Rating	Purpose	Remarks
Multi power supply	F1	T3.15AH/250 V	AC 100-240 V power supply protection	
Power supply	F1	T5.0AH/250 V	AC 100-240 V power supply protection	

PM driver (I043126)



G071729

- **Function**

- Controls the film feed motor.

- **Adjustments and precautions for PCB replacement**

- **1. Position**

 62040

- **2. Precautions for replacement**



IMPORTANT

- Do not touch each potentiometer which has been adjusted by the manufacturer before shipping.

- **3. Work after replacement**

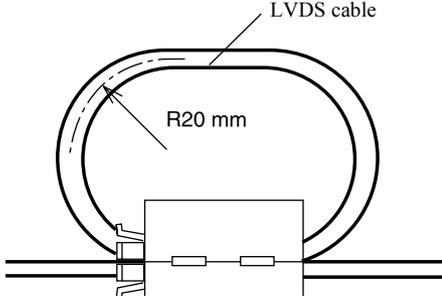
- None

- **Unused connector**

- None

Precautions for handling the optical fiber cable and LVDS cable

● PCBs and unit to which the LVDS cable has been connected

PCB Name	Manual No.	Precautions when handling the LVDS cable
Scanner control PCB (P436) (LS-1100)	 66510	<p>Do not bend the LVDS cable by R20 mm or less. Lay the cable with a bending radius of at least R50 mm.</p> 
Scanner main PCB (P90) (LS-1100)	 66560	
Scanner unit (P90) (HS-1800)	-	
AFC/scanner control PCB (P436) (HS-1800)	 65000	

Handling flat cable

● PCBs to which the flat cable has been connected

For the connector is insertion type

PCB Name	Connector No. on the PCB	Manual No.	Remarks
Connecting PCB 1	P1002	 65200	135/240 AFC-II
Connecting PCB 3	P1009	 65220	135/240 AFC-II
Driver PCB 2	P1032	 65240	135/240 AFC-II
Magnetic head PCB	P1040	 65270	135/240 AFC-II
Connecting PCB	P1074	 65290	120 AFC-II
Sensor PCB	P1080	 65300	120 AFC-II
Connecting PCB	P1074	 65310	110 AFC-II
Sensor PCB	P1080	 65320	110 AFC-II
MMC connecting PCB	P1172	 65330	135/240 MMC-II
MMC sensor PCB	P1181	 65340	135/240 MMC-II 135/240 AMC-II
AMC connecting PCB	P1303	 65350	135/240 AMC-II
Magnetic head PCB	P21	 66070	LS-600
Scanner control PCB	P34, P38	 66510	LS-1100
Scanner driver PCB	P56, P57	 66520	LS-1100
Connecting PCB	P69, P70, P71	 66530	LS-1100
Magnetic head PCB	P21	 66570	LS-1100

For the connector is sandwich type (A)

PCB Name	Connector No. on the PCB	Manual No.	Remarks
Connecting PCB 1	P1001	 65200	135/240 AFC-II
Connecting PCB 2	P1010	 65210	135/240 AFC-II
Connecting PCB 4	P1004	 65280	135/240 AFC-II
Sensor PCB	P1014	 65250	135/240 AFC-II
135 AFC connecting PCB	P1292	 65360	135/240 AFC-II
135 AFC sensor PCB	P1295	 65370	135/240 AFC-II

Connector lock type

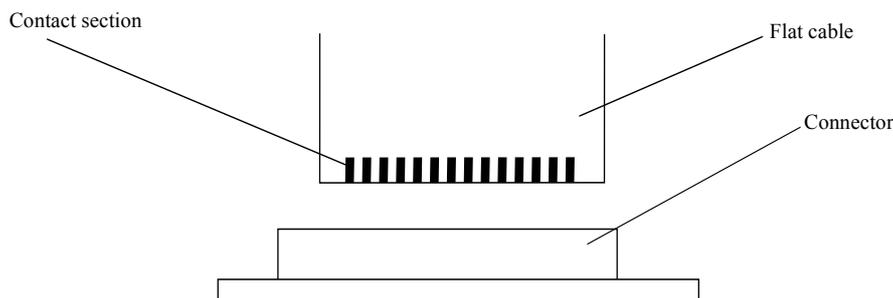
PCB Name	Connector No. on the PCB	Manual No.	Remarks
Scanner control PCB	P30, P31, P38	 66010	LS-600

● Precautions in handling the flat cable

For the connector is insertion type

1. Insert the flat cable straight.

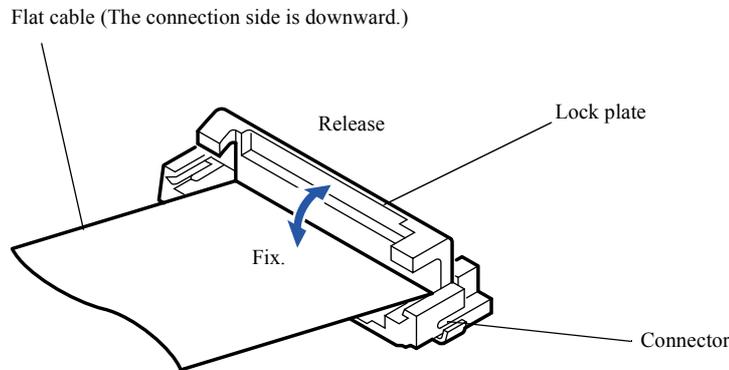
Pay attention that the connection of the cable may peel off. Turning on main power of the system while connecting a cable of which the contact section is detached will damage the PCB and the cable.



2. Be sure to insert the flat cable as far as it will go. If the main power supply of the system is turned on with the cable inserted insufficiently, the PCB and cable are damaged.
3. Check the insertion direction of the flat cable and then proceed operation.

For the connector is sandwich type (A)

1. When removing the flat cable, open the lock plate of the connector, and then remove the flat cable. If the flat cable is pulled out while the lock plate is not opened, the lock plate is damaged.



G054665

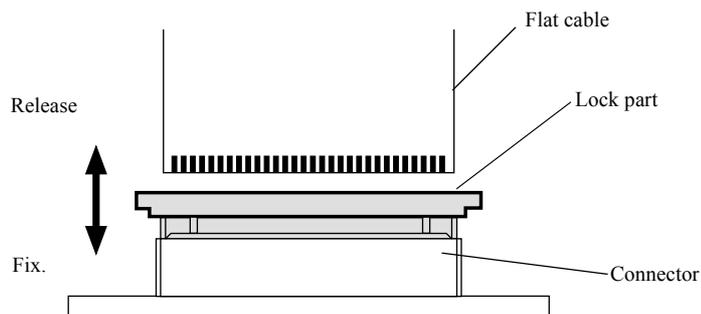
2. When connecting the flat cable to the connector, do not allow the cable to be tilted. Pay attention that the connection of the cable may peel off. Turning on main power of the system while connecting a cable of which the contact section is detached will damage the PCB and the cable.
3. Be sure to insert the flat cable as far as it will go and lock it with a lock plate. If the main power supply of the system is turned on with the cable being locked insufficiently, the PCB and cable are damaged.
4. Insert the flat cable with the connection side downward.

For the connector lock type



IMPORTANT

- For the connector lock type, insert the flat cable to the connector and push down the lock part to fix.
1. When removing the flat cable, release the lock part, and then remove the flat cable. Pulling out the flat cable without releasing the lock will damage the connector part.



G073682

2. When connecting the flat cable, connect it straight. Handle with care so that the contact section of the cable will not become detached. Turning on main power of the system while connecting a cable of which the contact section is detached will damage the PCB and the cable.
3. Be sure to insert the flat cable as far as it will go, and then lock it. If the main power supply of the system is turned on with the cable being locked insufficiently, the PCB and cable are damaged.
4. Check the insertion direction of the flat cable and then proceed operation.

7. Setup for service personnel

Setup during installation 70010
 Setup during installation70010



Setup during installation

See the Installation Manual.

8. Appendix

Periodically replaced parts 80110
 List of Maintenance/Periodically replaced parts/Consumable parts (LS-600/LS-1100)80110
 List of Maintenance/Periodically replaced parts/Consumable parts (HS-1800)80110
Service personnel tool list 80310
 Service personnel tool list [LS-600/LS-1100/HS-1800]80310
 Wiring diagram table [LS-600]89200
 Wiring diagram table [LS-1100]89210
 Wiring diagram table [HS-1800]89220

List of Maintenance/Periodically replaced parts/Consumable parts (LS-600/LS-1100)

List of Maintenance/Periodically replaced parts/Consumable parts is different between LS-600/LS-1100 and HS-1800.

Reference
 List of Maintenance/Periodically replaced parts/Consumable parts (HS-1800)

The list below shows maintenance items and parts required to be performed or replaced by user or service personnel to keep the system quality.



IMPORTANT

- For the maintenance parts, regularly check them and replace them if necessary. Some parts need to be replaced according to the processing time or the number of processed prints. The replacement timing varies depending on the operating condition of the system. Since the replacement timing is the rough standard, you need not necessarily replace the parts on the specified timing.
- For the periodically replaced parts, replace them when the processing time or the number of prints processed reaches the specified value regardless of the condition of the parts.
- The numerical values below do not show any warranty period.

● List for maintenance

For the procedure of maintenance by users, refer to **Maintenance Manual**.

● Light source section

Parts or checking items	U/S	Description for maintenance	Part No.	Timin g	Standard replacem ent timing	Q ua nti ty	Reason for maintenance/replacem ent
Cleaning the dust prevention glass in the LED light source unit	U	Clean the light source cleaner if necessary.	-	As needed	-	-	If dust is not removed from the dust prevention glass, it may adversely affect the print quality.
Light source cleaner	U	Clean the dust on the tip using a blower brush.	-	As needed	-	-	If the dust is not removed, the dust prevention glass in the LED light source unit cannot be cleaned properly.

U: User, S: Service personnel

● Scanner section

Parts or checking items	U/S	Description for maintenance	Part No.	Timin g	Standard replacem ent timing	Q ua nti ty	Reason for maintenance/replacem ent
Cleaning the scanner dust prevention glass	U	Clean it using the blower brush.	-	1 month	-	-	If dust is not removed from the dust prevention glass, it may adversely affect the print quality.
		Clean with the cleaning sheet or the like if necessary.	-	As needed	-	-	

U: User, S: Service personnel

● Film advance section

Parts or checking items	U/S	Description for maintenance	Part No.	Timin g	Standard replacem ent timing	Q ua nti ty	Reason for maintenance/replace ment
Film advance guide	U	Wipe with the firmly squeezed damp cloth.	-	1 month	-	-	If dust is not removed from the film path, it may adversely affect the print quality as dust appears on the print or the image data. It also damages the film. Be sure to remove dust. The film advance performance may decrease and the message Film has stopped. may appear.
Cleaning the film advance roller	U	Clean with the cleaning leader. Wipe with the firmly squeezed damp cloth.	-	1 week 1 month	-	-	
Cleaning the magnetic head	U	Clean with the cleaning leader.	-	1 week	-	-	The magnetic data on the film may not be read.
		Clean with the cotton swab dipped in isopropyl alcohol.	-	1 month	-	-	
Cleaning the brush (upper and lower ones)	U	Clean it using the blower brush.	-	1 month	-	-	It damages the film. Be sure to remove dust.
Cleaning the slot of the film advance unit	U	Clean it using the blower brush. If the dust cannot be removed, clean it using the maintenance stick.	-	As needed	-	-	If dust is not removed from the light path, it may adversely affect the print quality.
Cleaning the 135 rewinding unit	U	Wipe with the firmly squeezed damp cloth. If the dirt cannot be removed, clean it using a cotton swab dipped in isopropyl alcohol.	-	1 month	-	-	Be sure to remove dust since it may damage the film or may cause defective winding.
Cleaning the film inlet of the 240 winding box	U	Clean it using the blower brush.	-	1 month	-	-	
Cleaning each sensor	U	Clean it using the blower brush.	-	As needed	-	-	The error related to the sensors of the film feed section such as Film has stopped at the Film Carrier. may occur.
Cleaning the rubber section of the maintenance stick ASSY	U	Wash the rubber section under running water or with neutral detergent, and firmly squeeze and dry it completely.	A051259	As needed	-	-	Dust adheres on the light path, and it may adversely affect the print quality.

U: User, S: Service personnel

● **Frame section**

Parts or checking items	U/S	Description for maintenance	Part No.	Timing	Standard replacement timing	Quantity	Reason for maintenance/replacement
Cleaning the air filter	U	Remove the air filter at the bottom of the scanner section, and vacuum the dust using a vacuum cleaner. If the dirt cannot be removed, turn the side with dust down and wash it with running water.	B018546	1 month	-	-	If flow of air is not good because of dirt on the air filter, temperature in the control section may increase and it may damage each PCB.

U: User, S: Service personnel

● **List of periodically replaced parts**

None

● **List of consumable parts**

None

List of Maintenance/Periodically replaced parts/Consumable parts (HS-1800)

List of Maintenance/Periodically replaced parts/Consumable parts is different between LS-600/LS-1100 and HS-1800.

Reference
 List of Maintenance/Periodically replaced parts/Consumable parts (LS-600/LS-1100)

The list below shows maintenance items and parts required to be performed or replaced by user or service personnel to keep the system quality.

Check the actual processing hours and number of prints using the hour meter and the print counter.



IMPORTANT

- For the maintenance parts, regularly check them and replace them if necessary. Some parts need to be replaced according to the processing time or the number of processed prints. The replacement timing varies depending on the operating condition of the system. Since the replacement timing is the rough standard, you need not necessarily replace the parts on the specified timing.
- For the periodically replaced parts, replace them when the processing time or the number of prints processed reaches the specified value regardless of the condition of the parts.
- The numerical values below do not show any warranty period.

NOTE

- The hour meter and the print counter are optional on the systems which are to be shipped outside Japan.

● List for maintenance

For the procedure of maintenance by users, refer to **Maintenance Manual**.

● LED light source unit

Parts or checking items	U/S	Description for maintenance	Part No.	Timin g	Stand ard replac ement timing	Q ua n ti ty	Reason for maintenance/replac ement
Cleaning the dust prevention glass in the LED light source unit	U	Clean it using the blower brush. If the dust cannot be removed, wipe it using a cleaning cloth.	-	Close down	-	-	If dust is not removed from the dust prevention glass, it may adversely affect the print quality.

U: User, S: Service personnel

● Scanner unit

Parts or checking items	U/S	Description for maintenance	Part No.	Timin g	Stand ard replac ement timing	Q ua n ti ty	Reason for maintenance/replac ement
Cleaning the scanner dust prevention glass	U	Clean it using the blower brush. If the dust cannot be removed, wipe it using a cleaning cloth.	-	Close down	-	-	If dust is not removed from the dust prevention glass, it may adversely affect the print quality.

U: User, S: Service personnel

● Main body frame unit

Parts or checking items	U/S	Description for maintenance	Part No.	Timin g	Stand ard replac ement timin g	Q ua n ti ty	Reason for maintenance/replac ement
Cleaning the brush for the film cleaner	U	Use a vacuum cleaner and so on.	-	Close down	-	-	It damages the film. Be sure to remove dust.
Cleaning the film carrier mount rail and the peripheral area	U	Wipe it using a cloth.	-	1 week	-	-	To prevent dust accumulates on the lens unit of the film carrier and the dust prevention glass in the LED light source unit.
Cleaning the air filter	U	Remove the air filter at the bottom of the scanner section, and vacuum the dust using a vacuum cleaner. If the dirt cannot be removed, turn the side with dust down and wash it with running water.	-		-	-	If the air does not flow smoothly due to the dust accumulated on the air filter, the temperature in the control box may increase and it may cause malfunction of the PCBs.
Cleaning the discharge terminal section of the film cleaner	U	Clean the discharge terminal section with a cotton swab. Remove the dust by rubbing both brushes.	-		-	-	If dust accumulates at the discharge terminal section, it makes impossible to remove static electricity and the dust cannot be removed in result.

U: User, S: Service personnel

● 135/240 AFC-II, 135 AFC-II, 120 AFC-II, 110 AFC-II

Parts or checking items	U/S	Description for maintenance	Part No.	Timin g	Stand ard replac ement timin g	Q ua n ti ty	Reason for maintenance/replac ement
Cleaning the film path surface	U	Wipe it using the firmly squeezed damp cloth. Dry it up after wiping each part.	-	Close down 1 week	-	-	If dust is not removed from the film path, it may adversely affect the print quality as dust appears on the print or the image data. It also damages the film. Be sure to remove dust.
Cleaning each sensor	U	Clean it using the blower brush.	-	Close down	-	-	The error related to the sensors of the film carrier such as Film has stopped at the Film Carrier. may occur.
Cleaning the film advance roller	U	Clean it using the cleaning leader.	-	Close down	-	-	Remove the dust on the film path, otherwise the film advance rollers may slip and a black margin may appear on the printed image. Also, the message Film has stopped at the Film Carrier. may occur.
		Wipe it using the firmly squeezed damp soft cloth while rotating the roller. Dry it up after wiping each part.	-	1 week			

Parts or checking items	U/S	Description for maintenance	Part No.	Timin g	Stand ard replac ement timin g	Q ua n ti ty	Reason for maintenance/replac ement
Cleaning the magnetic head *1	U	Clean it using the cleaning leader.	-	Close down	-	-	The message No. 01404: The IX frame data is incomplete. may appear.
		Wipe it using the firmly squeezed damp cloth. If the dirt cannot be removed, wipe it using a cotton swab dipped in isopropyl alcohol.	-	1 week			
Cleaning the dummy head *1	U	Clean it using the cleaning leader. Wipe it using the firmly squeezed damp cloth. If the dirt cannot be removed, wipe it using a cotton swab dipped in isopropyl alcohol.	-	Close down			
Cleaning the brush (upper and lower ones)	U	Clean it using the blower brush.	-		-	-	It damages the film. Be sure to remove dust.
Cleaning the slot at the scanner opening	U	Clean by the blower brush. If dust cannot be removed, wipe it with the maintenance stick.	-		-	-	If dust is not removed from the light path, it may adversely affect the print quality.
Cleaning the film inlet	U	Clean it using the blower brush.	-				
Cleaning the rewinding unit	U	Wipe it using the firmly squeezed damp cloth. If the dirt cannot be removed, wipe it using a cotton swab dipped in isopropyl alcohol. Dry it up after wiping each part.	-		-	-	Be sure to remove dust since it may damage the film or may cause defective winding.
Cleaning the lens unit	U	Clean the both sides using the blower brush or air spray.	-		-	-	Remove the dust from the light path, otherwise, it may adversely affect the print quality as dust appears on the print or the image data. In addition, unevenness of the scanner light source may occur when updating the light source.
Cleaning the bottom side of AFC	U	Wipe it using a cloth.	-	1 week	-	-	It is to prevent dust accumulates on the dust prevention glass in the LED light source unit.
Maintenance stick	U	Wash the rubber section under running water or with neutral detergent, and firmly squeeze and dry it completely.	-	As needed	-	-	Dust adheres on the light path, and it may adversely affect the print quality.

*1. Not equipped with 135 AFC-II, 120 AFC-II and 110 AFC-II.

U: User, S: Service personnel

● 135/240 AMC-II 135/240 MMC-II

Parts or checking items	U/S	Description for maintenance	Part No.	Timing	Standard replacement timing	Quantity	Reason for maintenance/replacement	
Loading stocker ^{*1}	U	Clean the inside of it using the firmly-squeezed damp cloth or the blower brush.	-	Close down	-	-	It is to prevent dust accumulates on the each section of the mount and the film carrier.	
Ejection stocker ^{*1}	U		-					
Mount ejection roller ^{*1}	U		Clean it using the firmly squeezed damp cloth.					-
Mount carrier ^{*1}	U		Clean it using the blower brush.					-
Ejection stocker mount ^{*1}	U		-					
Cleaning the reflection mirror	U	Clean it using a moistened cotton swab with water or a blower brush. Wipe it using a dry cotton swab not to make unevenness.	-				The message No. 06423 Auto focus error. may be shown.	
Cleaning each sensor	U	Clean it using the blower brush.	-				If each sensor may get dirt, Mount detection error or Mount operation error may occur.	
Lens unit	U	Clean the both sides using the blower brush or air spray.	-				Remove the dust from the light path, otherwise, it may adversely affect the print quality as dust appears on the print or the image data. In addition, unevenness of the scanner light source may occur when updating the light source.	

*1. Not equipped on 135/240 MMC-II.

U: User, S: Service personnel

● **MFC**

Parts or checking items	U/S	Description for maintenance	Part No.	Timing	Standard replacement timing	Quantity	Reason for maintenance/replacement
Film viewer	U	Clean it using the blower brush. If the dirt cannot be removed, wipe it using the firmly-squeezed damp cloth.	-	At closing down*1	-	-	It is to prevent dust from adhering each part.
Surface of the move table	U		-				
Lens unit	U	Clean the both sides using the blower brush or air spray. If the dust cannot be removed, wipe it using a cleaning cloth.	-				Remove the dust from the light path, otherwise, it may adversely affect the print quality as dust appears on the print or the image data. In addition, unevenness of the scanner light source may occur when updating the light source.
Cleaning the attachment (film setting side, film pressure side)	U	Clean the both sides using the blower brush or air spray.	-				Remove the dust, otherwise it may adversely affect the print quality as it appears on the print or the image data.

*1. Wipe the part or item once a week using the firmly-squeezed damp cloth.

U: User, S: Service personnel

● **List of periodically replaced parts**

None

● **List of consumable parts**

None

Service personnel tool list [LS-600/LS-1100/HS-1800]

Tool	Part No.	Explanation
Scanner adjustment chart (135)	Z019786-01	Used for the scanner adjustment such as swing and tilt adjustment, light axis adjustment, focus adjustment (including the card case). *1
Scanner adjustment chart (240)	Z019039-01	
Scanner adjustment chart (120)	Z019787-01	
Scanner adjustment chart (110)	Z019041-01	
Scanner adjustment chart (mount)	Z019668-01	Used to adjust the focus (with the color soft clear case). *1
Scanner adjustment chart (crop card)	Z022046-01	Used to adjust focus for the crop card attachment of MFC
Height adjustment jig	A064841-01	Used to adjust the position of the emission lamp and detection sensor of the 135/240 AMC.
Height adjustment jig	A060553-01	Used to adjust the position of the emission lamp and detection sensor of the 135/240 MMC.
AMC emission adjustment chart	Z808669-01	Used to adjust the position of the emission lamp and detection sensor of the 135/240 AMC or MMC.

*1. Since the scanner adjustment chart is very thin, keep it in the case when handling.

Wiring diagram table [LS-600]

- **Wiring diagram table** is different between **LS-600**, **LS-1100** and **HS-1800**.
- To access the wiring diagrams, click **Wiring diagrams** in Bookmarks.

Reference	
Wiring diagram table [LS-1100]	Wiring diagram table [HS-1800]

● Wiring diagram

Block No.	Item	Diagram No.
S1-1	AC power supply connecting	J310147
S1-2	DC power supply connecting	J310148
S2-1	Around scanner unit	J310143
S2-2	Around film feed section	J310144
S2-3	Around LED light source	J310145
S2-4	Frame section/cooling fan	J310146

● Detailed diagram

Block No.	Item	Diagram No.
LS-600-01	DC power supply connecting diagram	SEQ0016
LS-600-02	Scanner unit	SEQ0017
LS-600-03	Light source section (1)	SEQ0018
LS-600-04	Light source section (2)	SEQ0019
LS-600-05	Lane change unit	SEQ0020
LS-600-06	Frame section	SEQ0021
LS-600-07	Film advance section (1)	SEQ0022
LS-600-08	Film advance section (2)	SEQ0023
LS-600-09	Film feed section (3)	SEQ0024
LS-600-10	Film advance section (4)	SEQ0025

Wiring diagram table [LS-1100]

Wiring diagram table is different between LS-600, LS-1100 and HS-1800.

Reference	
Wiring diagram table [LS-600]	Wiring diagram table [HS-1800]

● Wiring diagram

Block No.	Item	Diagram No.
S1-1	AC power supply connecting	J310434
S1-2	DC power supply connecting	J310435
S2-1	Around scanner unit	J310530
S2-2	Around film feed unit	J310531
S2-3	Around LED light source	J310532
S2-4	Frame section/cooling fan	J310533

● Detailed diagram

Block No.	Item	Diagram No.
LS-1100-01	DC power supply connecting diagram	SEQ0071
LS-1100-02	Scanner unit	SEQ0072
LS-1100-03	Light source section (1)	SEQ0073
LS-1100-04	Light source section (2)	SEQ0074
LS-1100-05	Lane change unit	SEQ0075
LS-1100-06	Frame section	SEQ0076
LS-1100-07	Film advance section (1)	SEQ0077
LS-1100-08	Film advance section (2)	SEQ0078
LS-1100-09	Film feed section (3)	SEQ0079
LS-1100-10	Film advance section (4)	SEQ0080

Wiring diagram table [HS-1800]

Wiring diagram table is different between LS-600, LS-1100 and HS-1800.

Reference	
 Wiring diagram table [LS-600]	 Wiring diagram table [LS-1100]

● Wiring diagram

Block No.	Item	Diagram No.
S1-1	AC power supply connecting	J310436
S1-2	DC power supply connecting	J310437
S1-3	Around scanner mount	J310438
S1-4	Around scanner unit	J310439
S1-5	Around AFC/scanner driver PCB (1)	J310535
S1-6	Around AFC/scanner driver PCB (2)	J310536
S1-8	135/240 AFC-II Power supply circuit diagram	J310537
S1-9	135 AFC-II Power supply circuit diagram	J310538
S1-10	120 AFC-II Power supply circuit diagram	J310539
S1-11	110 AFC-II Power supply circuit diagram	J310540
S1-12	135/240 AMC-II Power supply circuit diagram	J310541
S1-13	135/240 MMC-II power supply circuit diagram	J310542
S1-14	MFC power supply circuit diagram	J310543
S4-1	135/240 AFC-II (1)	J310544
S4-2	135/240 AFC-II (2)	J310545
S5-1	135 AFC-II	J310546
S6-1	120 AFC-II	J310547
S8-1	135/240 AMC-II (1)	J310548
S8-2	135/240 AMC-II (2)	J310549
S9-1	135/240 MMC-II (1)	J310550
S9-2	135/240 MMC-II (2)	J310551

● Detailed diagram

Block No.	Item	Diagram No.
HS-1800-01	Scanner mount section/cooling fan	SEQ0081
HS-1800-02	Around scanner unit	SEQ0082
HS-1800-03	Around LED light source unit (1)	SEQ0083
HS-1800-04	Around LED light source unit (2)	SEQ0084
HS-1800-05	Around LED light source unit (3)	SEQ0085
HS-1800-06	Around LED light source unit (4)	SEQ0086
HS-1800-07	135/240 AFC-II (1)	SEQ0087
HS-1800-08	135/240 AFC-II (2)	SEQ0088
HS-1800-09	135/240 AFC-II (3)	SEQ0089
HS-1800-10	135/240 AFC-II (4)	SEQ0090
HS-1800-11	135/240 AFC-II (5)	SEQ0091
HS-1800-12	135/240 AFC-II (6)	SEQ0092
HS-1800-13	135/240 AFC-II (7)	SEQ0093
HS-1800-14	135/240 AFC-II (8)	SEQ0094
HS-1800-15	135 AFC-II (1)	SEQ0095
HS-1800-16	135 AFC-II (2)	SEQ0096
HS-1800-17	120 AFC-II	SEQ0097

Block No.	Item	Diagram No.
HS-1800-18	110 AFC-II	SEQ0098
HS-1800-19	135/240 AMC-II (1)	SEQ0099
HS-1800-20	135/240 AMC-II (2)	SEQ0100
HS-1800-21	135/240 AMC-II (3)	SEQ0101
HS-1800-22	135/240 MMC-II (1)	SEQ0102
HS-1800-23	135/240 MMC-II (2)	SEQ0103
HS-1800-24	MFC (1)	SEQ0104
HS-1800-25	MFC (2)	SEQ0105