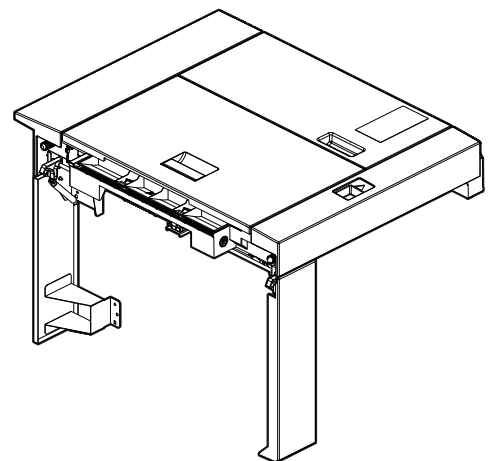


TOSHIBA

SERVICE MANUAL

LCF Connector

KN-9000



Model: KN-9000
Publish Date: November 2022
File No. SME210049A0
R220421Z1500-TTEC
Ver01 F 2023-02

Trademarks

- MOLYKOTE® is a trademark of DDP SPECIALTY ELECTRONIC MATERIALS US, INC..
- Other company names and product names in this manual are the trademarks of their respective companies.

© 2022, 2023 Toshiba Tec Corporation All rights reserved

Under the copyright laws, this manual cannot be reproduced in any form without the prior written permission of Toshiba Tec Corporation.

General Precautions for Installation, Servicing and Maintenance for this Option

The installation and service shall be done by a qualified service technician.

1. When installing this option to the MFP, be sure to follow the instructions described in the “Unpacking/Set-Up Procedure for the Equipment” booklet which comes with this option.
2. This option should be installed by an authorized or qualified service technician.
3. This option weighs approx. 7.0 kg (15.4 lb), therefore pay full attention when handling it.
4. Before starting installation, servicing or maintenance work, be sure to unplug the power cable of the MFP first.
5. The MFP with this option connected shall be installed near the socket outlet and shall be easily accessible.
6. Be sure to fix and plug in the power cable securely after the installation so that no one trips over it.
7. When servicing or maintaining the MFP with this option connected, be careful about the rotating or operating sections such as gears, pulleys, sprockets, cams, belts, etc.
8. When the parts of this option are disassembled, reassembly is the reverse of disassembly unless otherwise noted in this manual or other related documents.
Be careful not to install small parts such as screws, washers, pins, E-rings, star washers, harnesses in the wrong places.
9. Basically, the MFP with this option connected should not be operated with any parts removed or disassembled.
10. When servicing the MFP with this option connected while the power is turned ON, be sure not to touch live sections and rotating/operating sections.
11. Delicate parts for preventing safety hazard problems (such as fuses, thermofuses, door switches, sensors, etc. if any) should be handled, installed and adjusted correctly.
12. Tools and instruments
 - Use designated jigs and tools.
 - Use recommended measuring instruments or equivalents.
13. During servicing or maintenance work, be sure to check the nameplate and other cautionary labels (if any) to see if they are clean and firmly stuck. If not, take appropriate actions.
14. The ICs on the PC boards tend to be damaged by static electricity. Therefore, the PC boards must be stored in an anti-electrostatic bag and handled carefully using an antistatic wristband.
Before using the wristband, unplug the power cable of the MFP and make sure that there are no charged objects which are not insulated in the vicinity.
15. Regarding the recovery and disposal of the MFP with this option connected, supplies, packing materials, follow the relevant local regulations or rules.
16. Return the MFP with this option connected to the original state and check the operation when the service is finished.

17. Unplug the power cable and clean the area around the prongs of the plug and socket outlet once a year or more. A fire may occur when dust lies on this area.
18. Check the procedures and perform them as described in the Service Manual.
19. Make sure you do not lose your balance.
20. Avoid exposure to your skin and wear protective gloves as needed.
21. Do not leave plastic bags where children can get at them. This may cause an accident such as suffocation if a child puts his/her head into a bag. Plastic bags of options or service parts must be brought back.

CONTENTS

1. SPECIFICATIONS	1-1
2. OVERVIEW	2-1
2.1 Sectional View.....	2-1
2.2 Electric Parts Layout	2-2
2.3 Symbols and Functions of Various Components	2-2
3. OPERATION DESCRIPTION	3-1
3.1 Overview	3-1
3.2 Drive System.....	3-2
4. DISASSEMBLY AND REPLACEMENT	4-1
4.1 Disassembly Procedure	4-1
4.1.1 LCF Connector entrance transport sensor (SLC1)	4-1
4.1.2 LCF Connector intermediate transport sensor (SLC2)	4-2
4.1.3 LCF Connector paper exit sensor (SLC3)	4-4
4.1.4 Paper exit roller.....	4-4
4.1.5 Transport belt.....	4-5
4.1.6 Intermediate transport roller.....	4-5
4.1.7 Entrance transport roller	4-6
4.1.8 Drive unit.....	4-7
4.1.9 LCF Connector transport clutch (CLC1), LCF Connector paper exit clutch (CLC2).....	4-9
4.1.10 LCF Connector cover switch (SWLC1).....	4-10
4.1.11 LCF Connector board (LCB).....	4-11
4.2 Lubrication.....	4-12
4.2.1 Grease list.....	4-12
5. ELECTRIC CIRCUIT	5-1
5.1 Diagram.....	5-1
REVISION RECORD	1

1. SPECIFICATIONS

Item	KN-9000	Remarks
Paper size	A4, LT	
Paper weight	60 g/m ² to 300 g/m ² (16 lb. Bond to 110 lb. Cover)	
External dimensions	W 518.5 ± 12 × H 68 ± 2.42 × D 610.4 ± 12 (mm)	Dimensions of the transport section (Excluding the connecting bracket and the blind cover between the MFP and LCF)
Weight	Approx. 7.0 kg (15.4 lb.)	Including rails and accessories
Appearance color	Jet black	
Accessories	<ul style="list-style-type: none"> • LCF Connector (1 unit) • Front top cover (between the LCF Connector and MFP) (1 pc.) • Rear cover (between the LCF Connector and MFP) (1 pc.) • Attachment base (1 pc.) • Caster bracket (1 pc.) • LCF corner cover (1 pc.) • Switch pusher (1 pc.) • Jam release cover (1 pc.) • M4x8 screw (9 pcs.) • M4x8 screw (black) (2 pcs.) • M3x7 screw (1 pc.) • Transport guide (1 pc.) • Transport guide attachment plate (front) (1 pc.) • Transport guide attachment plate (rear) (1 pc.) • Transport guide metal plate (1 pc.) • M3x8 screw (4 pcs.) • M3x6 screw (black) (2 pcs.) 	
PM parts	None	

2. OVERVIEW

2.1 Sectional View

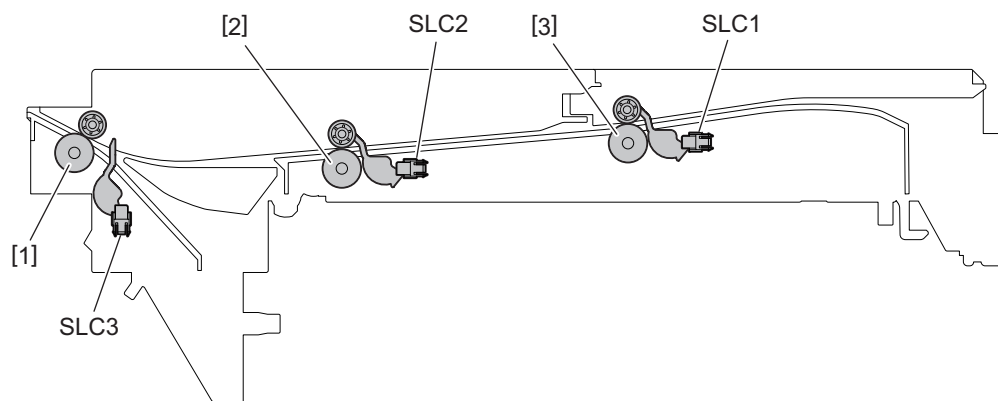


Fig. 2-1

[1] Paper exit roller

[2] Intermediate transport roller

[3] Entrance transport roller

SLC1: LCF Connector entrance transport sensor

SLC2: LCF Connector intermediate transport sensor

SLC3: LCF Connector paper exit sensor

2.2 Electric Parts Layout

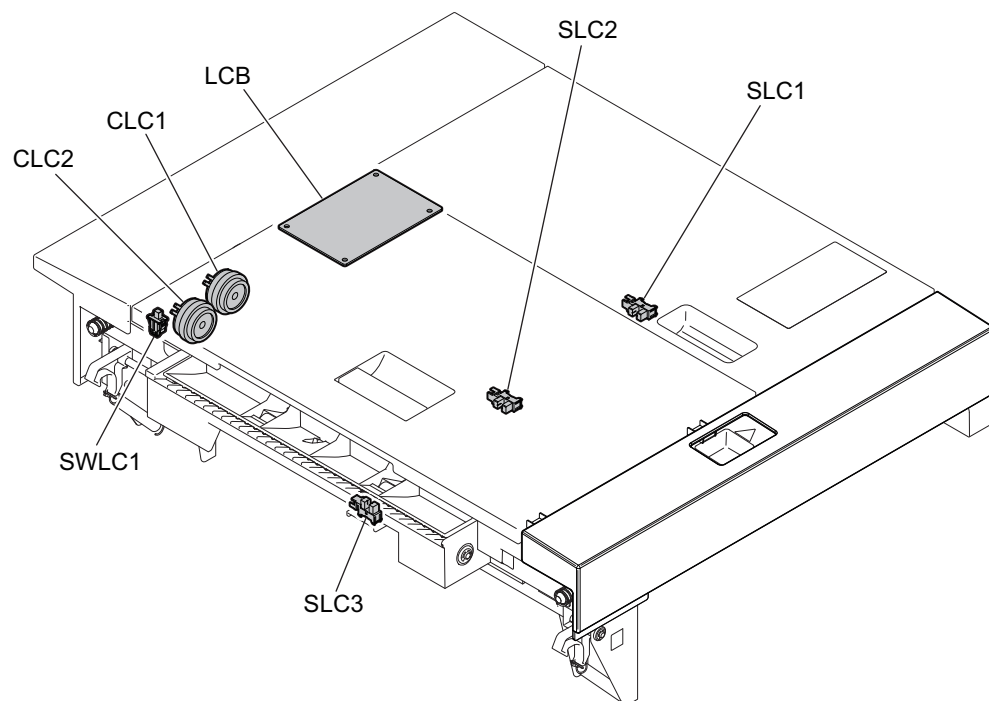


Fig. 2-2

2.3 Symbols and Functions of Various Components

Symbol	Name	Function	P-I
SLC1	LCF Connector entrance transport sensor	Detects paper transported from the Ex-LCF(2.5K).	3-4
SLC2	LCF Connector intermediate transport sensor	Detects paper transportation in the LCF Connector.	3-4
SLC3	LCF Connector paper exit sensor	<ul style="list-style-type: none"> • Detects paper at the exit of the LCF Connector. • Detects paper transported from the Ex-LCF(2.0K). 	3-4
SWLC1	LCF Connector cover switch	Detects the opening and closing status of the LCF Connector cover.	3-18
CLC1	LCF Connector transport clutch	Transmits the drive from the Ex-LCF(2.0K) to the entrance transport roller and intermediate transport roller.	4-3
CLC2	LCF Connector paper exit clutch	Transmits the drive from the Ex-LCF(2.0K) to the paper exit roller.	4-3
LCB	LCF Connector board	Interface of each Ex-LCF and the MFP, driving the LCF Connector transport clutch	6-1

3. OPERATION DESCRIPTION

3.1 Overview

The LCF Connector is a unit to relay paper from the Ex-LCF(2.5K) and Ex-LCF(2.0K).

This unit has 2 clutches. The LCF Connector transport clutch (CLC1) transmits the drive from the Ex-LCF(2.0K) to the entrance transport roller [3] and intermediate transport roller [2]. In a similar manner, the LCF Connector paper exit clutch (CLC2) transmits the drive from the Ex-LCF(2.0K) to the paper exit roller [1].

In addition, this unit has 3 sensors. The LCF Connector entrance transport sensor (SLC1) and LCF Connector intermediate transport sensor (SLC2) detect paper transported from the Ex-LCF(2.5K). The LCF Connector paper exit sensor (SLC3) detects paper transported from the Ex-LCF(2.5K) and Ex-LCF(2.0K), at the exit of the LCF Connector.

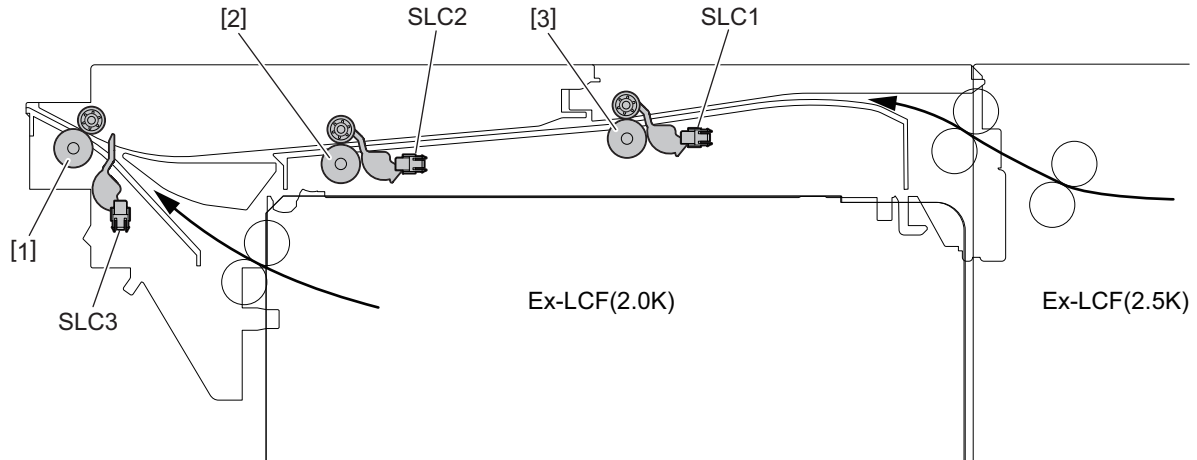


Fig. 3-1

[1] Paper exit roller

[2] Intermediate transport roller

[3] Entrance transport roller

SLC1: LCF Connector entrance transport sensor

SLC2: LCF Connector intermediate transport sensor

SLC3: LCF Connector paper exit sensor

3.2 Drive System

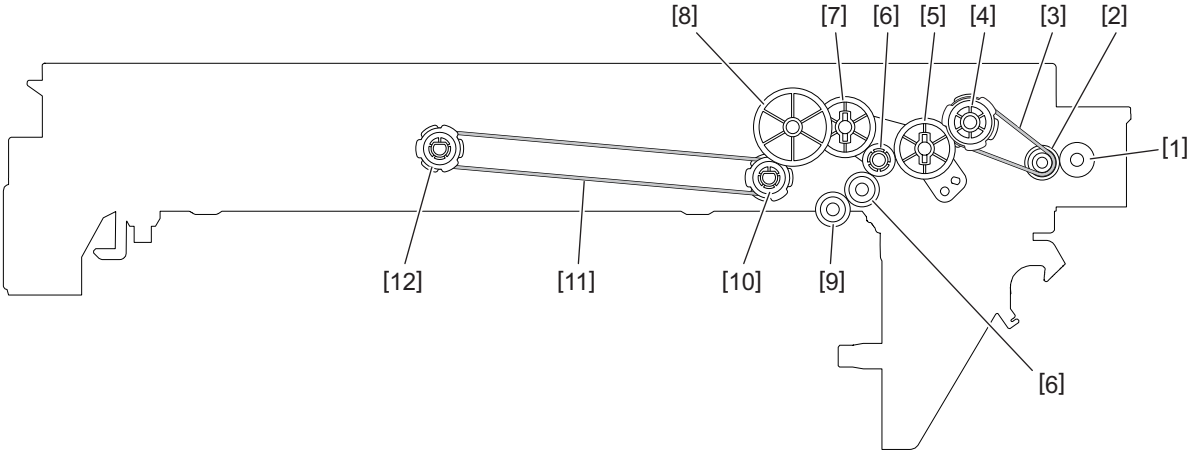


Fig. 3-2

Symbol	Function
1	Drive gear (paper exit roller)
2	Gear
3	Belt
4	Gear
5	Paper exit clutch
6	Gear
7	Transport clutch
8	Drive gear
9	Drive gear (power-ON gear)
10	Drive gear (intermediate transport roller)
11	Transport belt
12	Drive gear (entrance transport roller)

4. DISASSEMBLY AND REPLACEMENT

In this section, illustrations show the operations while removing the LCF Connector from the MFP. However, the operation can be carried out while the LCF Connector is installed in the MFP for some parts. So, check the table below before performing the maintenance.

Item	Parts which can be replaced by removing the LCF Connector from the MFP	Parts which can be replaced while installing the LCF Connector in the MFP
4.1.1 LCF Connector entrance transport sensor (SLC1)	Y	-
4.1.2 LCF Connector intermediate transport sensor (SLC2)	Y	-
4.1.3 LCF Connector paper exit sensor (SLC3)	Y	-
4.1.4 Paper exit roller	Y	-
4.1.5 Transport belt	Y	-
4.1.6 Intermediate transport roller	Y	-
4.1.7 Entrance transport roller	Y	-
4.1.8 Drive unit	-	Y
4.1.9 LCF Connector transport clutch (CLC1), LCF Connector paper exit clutch (CLC2)	-	Y
4.1.10 LCF Connector cover switch (SWLC1)	-	Y
4.1.11 LCF Connector board (LCB)	-	Y

Y: Yes

4.1 Disassembly Procedure

4.1.1 LCF Connector entrance transport sensor (SLC1)

- (1) Remove 2 screws [1] and take off the actuator bracket [2].

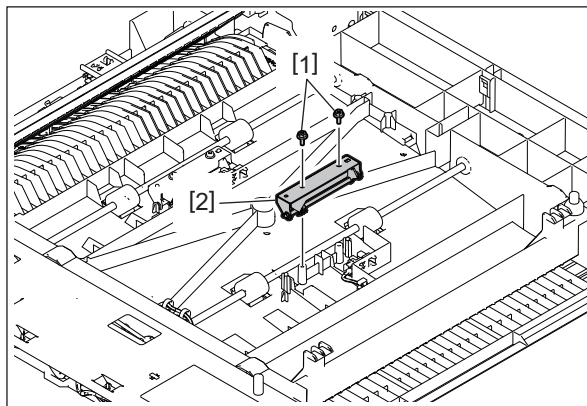


Fig. 4-1

- (2) Remove the actuator [3] and the spring [4].

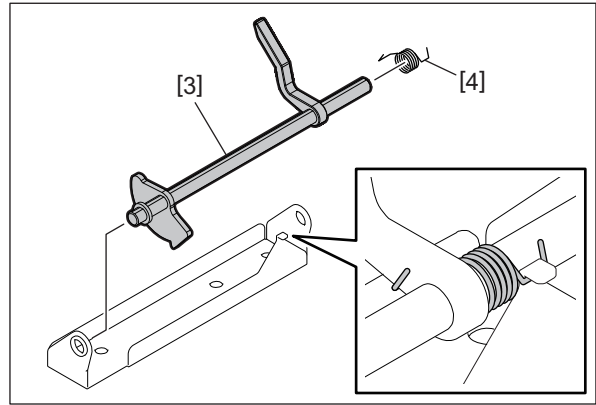


Fig. 4-2

- (3) Disconnect the connector [5] and remove the LCF Connector entrance transport sensor (SLC1) [6].

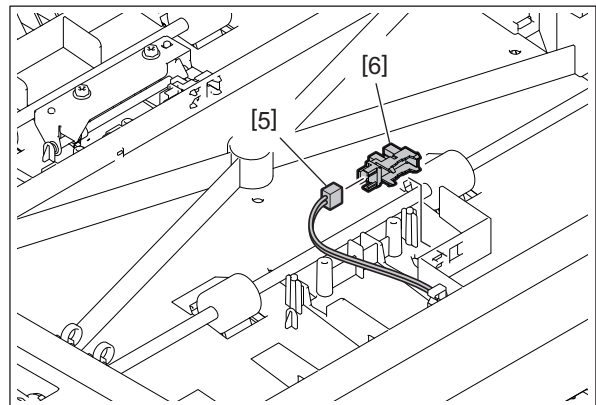


Fig. 4-3

4.1.2 LCF Connector intermediate transport sensor (SLC2)

- (1) Remove 2 screws [1] and take off the actuator bracket [2].

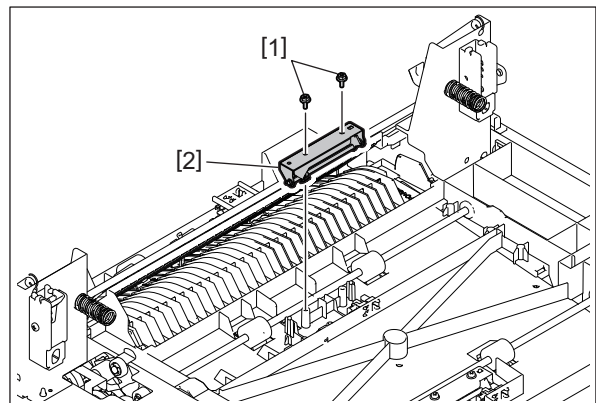


Fig. 4-4

- (2) Remove the actuator [3] and the spring [4].

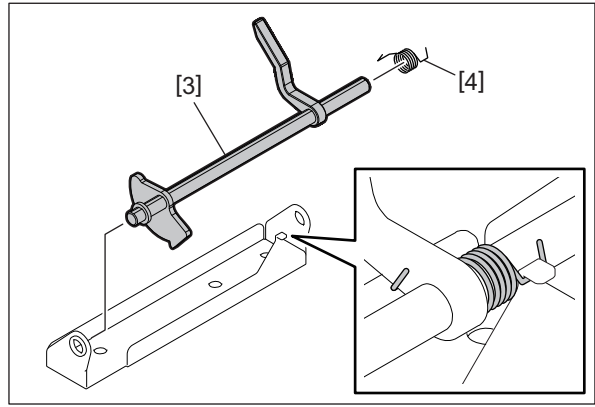


Fig. 4-5

- (3) Disconnect the connector [5] and remove the LCF Connector intermediate transport sensor (SLC2) [6].

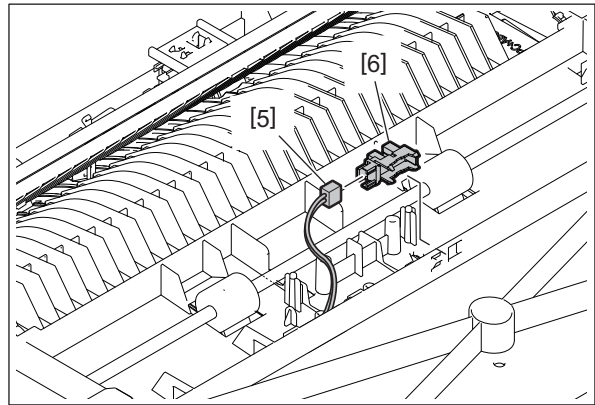



Fig. 4-6

4.1.3 LCF Connector paper exit sensor (SLC3)

- (1) Remove the paper exit roller.
 P. 4-4 "4.1.4 Paper exit roller"
- (2) Remove the actuator [1] and the spring [2].

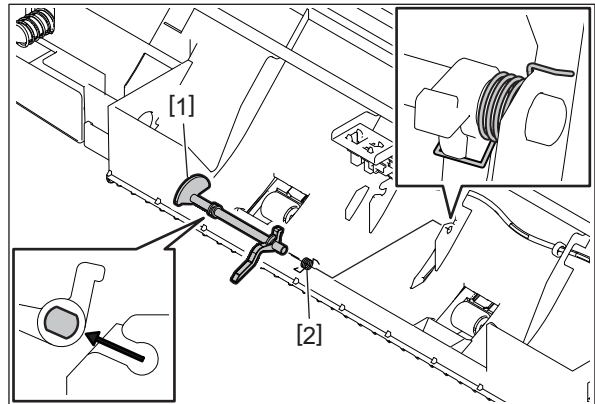


Fig. 4-7

- (3) Disconnect the connector [3] and remove the LCF Connector paper exit sensor (SLC3) [4].

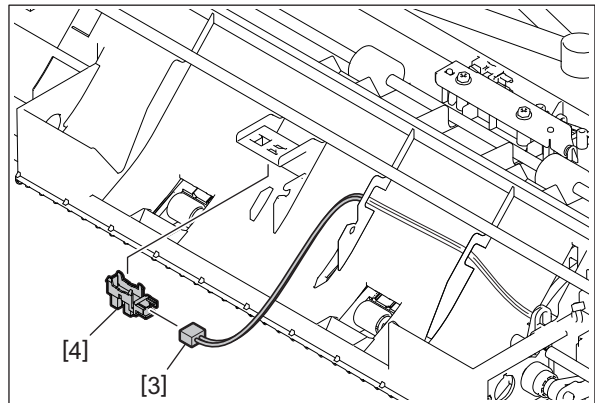


Fig. 4-8

4.1.4 Paper exit roller

- (1) Remove the E-ring [1], gear [2], pin [3] and bearing [4].

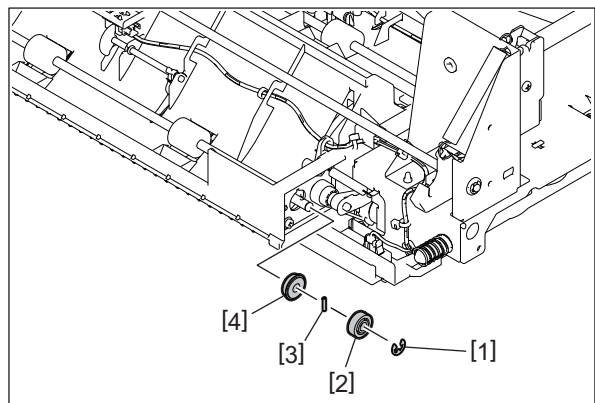


Fig. 4-9

- (2) Remove the E-ring [5] and the bearing [6]. Take off the paper exit roller [7].

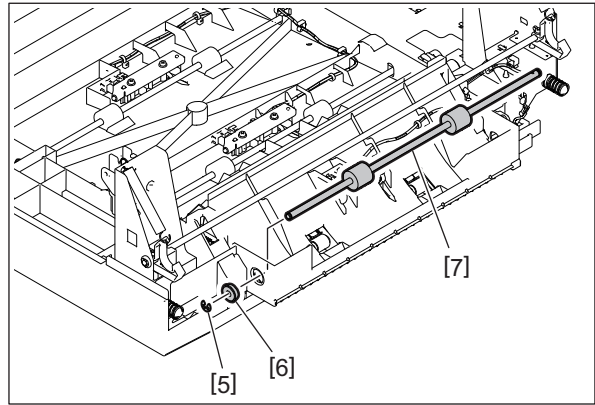



Fig. 4-10

4.1.5 Transport belt

- (1) Take off the drive unit.
 P. 4-7 "4.1.8 Drive unit"
- (2) Remove 2 E-rings [1] and 2 gears [2]. Take off the transport belt [3].

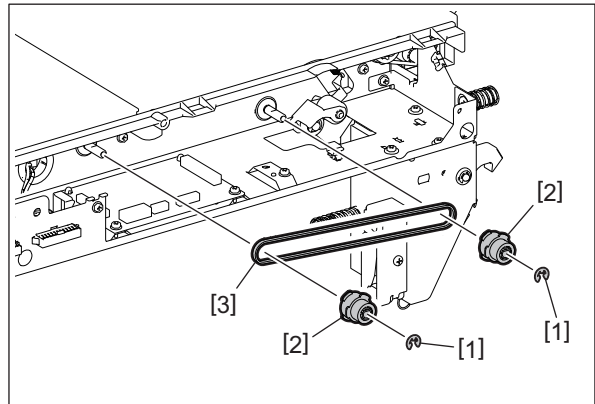



Fig. 4-11

4.1.6 Intermediate transport roller

- (1) Remove the transport belt.
 P. 4-5 "4.1.5 Transport belt"
- (2) Remove the bearing [1].

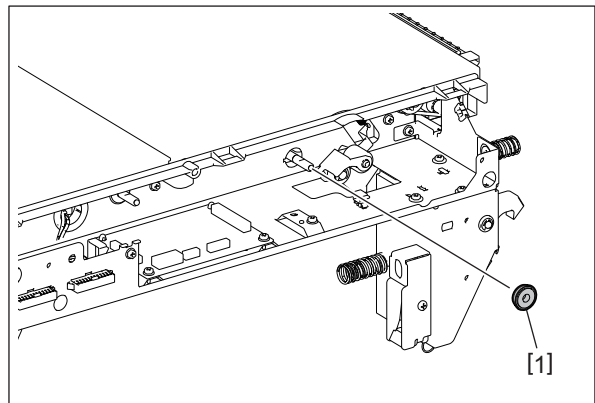


Fig. 4-12

- (3) Remove the E-ring [2] and the bearing [3]. Take off the intermediate transport roller [4].

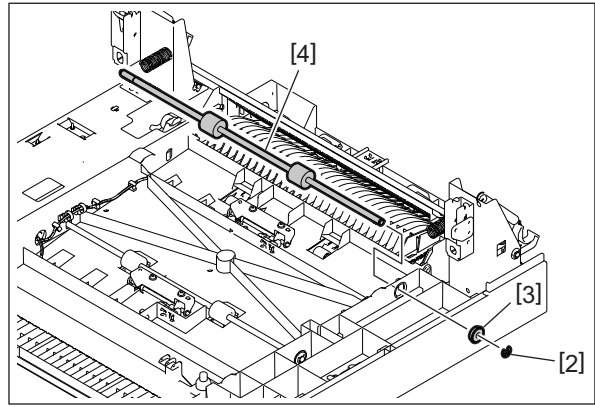


Fig. 4-13

4.1.7 Entrance transport roller

- (1) Remove the transport belt.
P. 4-5 "4.1.5 Transport belt"
- (2) Remove the bearing [1].

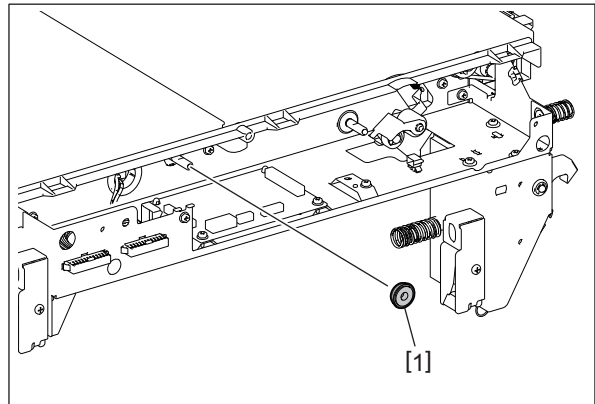


Fig. 4-14

- (3) Remove the E-ring [2] and the bearing [3]. Take off the entrance transport roller [4].

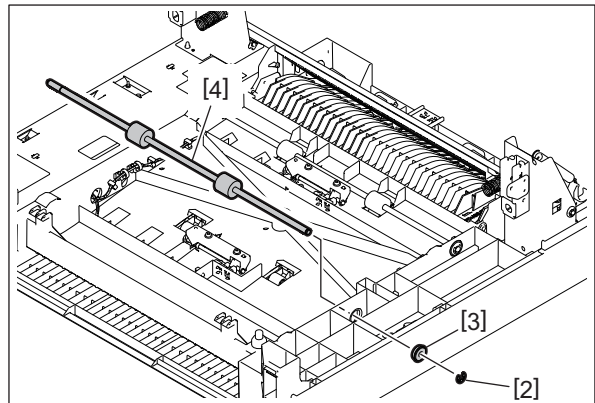


Fig. 4-15

4.1.8 Drive unit

- (1) Disconnect the connector [1] and release the harness from 2 harness clamps [2].

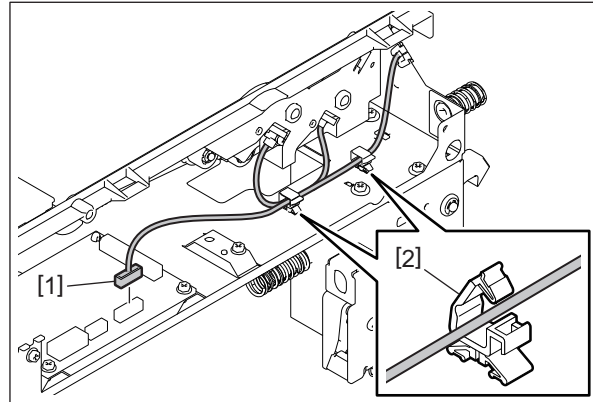


Fig. 4-16

- (2) Remove 1 harness clamp [2].

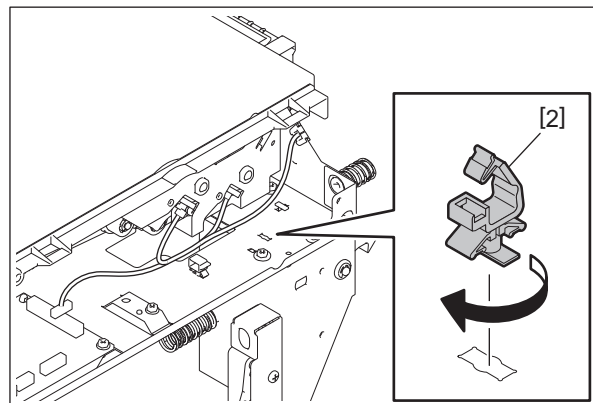


Fig. 4-17

- (3) Remove 4 screws [5] and take off the drive unit [3]. Disconnect 2 connectors [4].

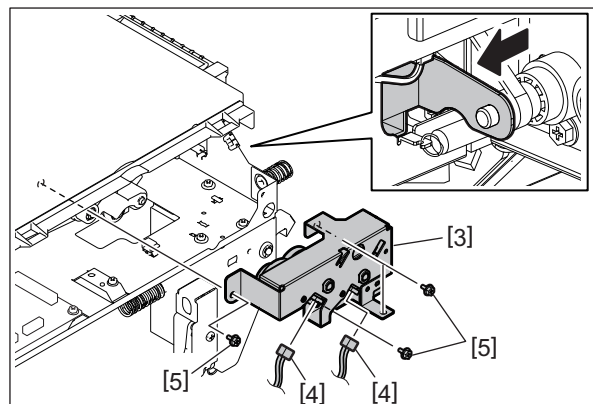


Fig. 4-18

(4) Remove the gear [6].

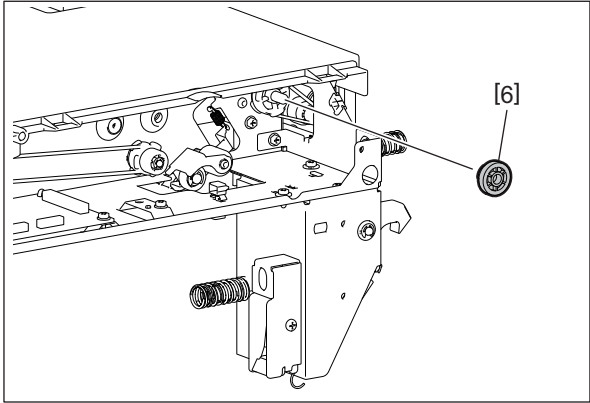


Fig. 4-19

(5) Remove the gear [7], belt [8] and gear [9].

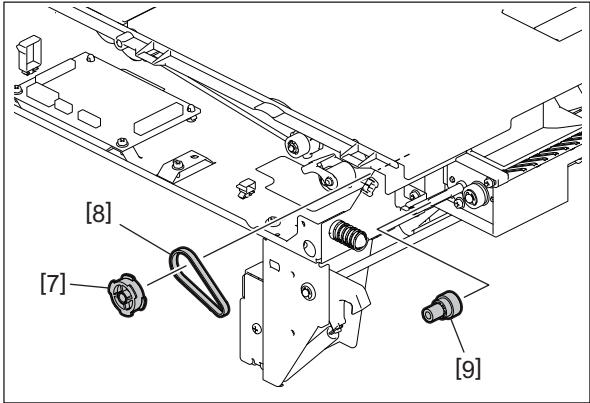


Fig. 4-20

4.1.9 LCF Connector transport clutch (CLC1), LCF Connector paper exit clutch (CLC2)

- (1) Take off the drive unit.
📖 P. 4-7 “4.1.8 Drive unit”
- (2) Remove the screw [1], bracket [2] and 2 bushings [3].

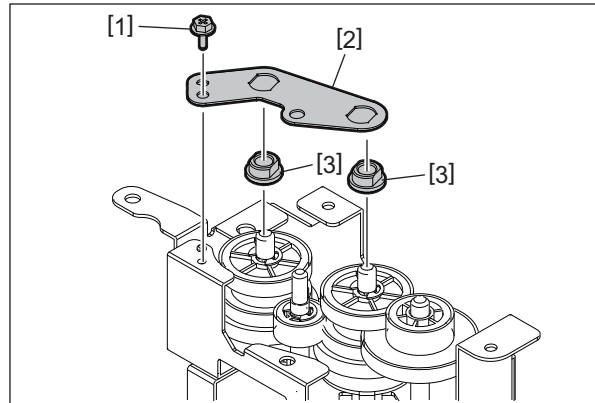


Fig. 4-21

- (3) Remove 2 shafts [4] and the gear [5].

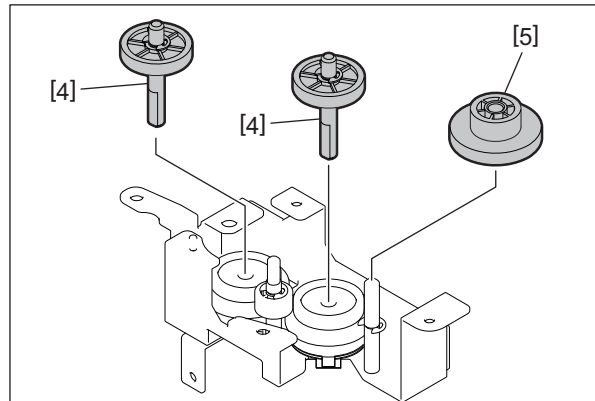


Fig. 4-22

- (4) Remove the LCF Connector paper exit clutch [6], LCF Connector transport clutch [7] and 2 bushings [8].

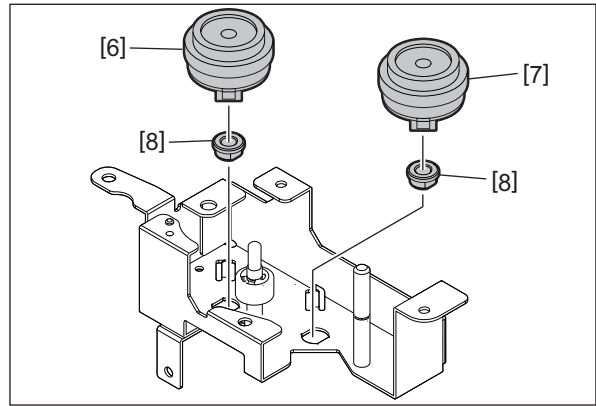


Fig. 4-23

Notes:

When installing, align the latches [9] to the position as shown in the figure.

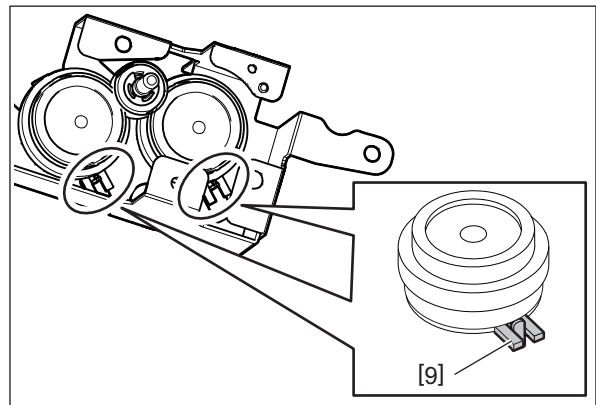


Fig. 4-24

4.1.10 LCF Connector cover switch (SWLC1)

- (1) Open the cover. Remove the cover switch [1] and disconnect the connector [2].

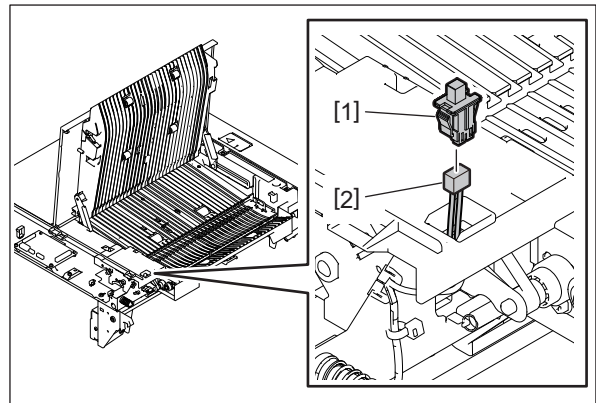


Fig. 4-25

4.1.11 LCF Connector board (LCB)

- (1) Disconnect 5 connectors.

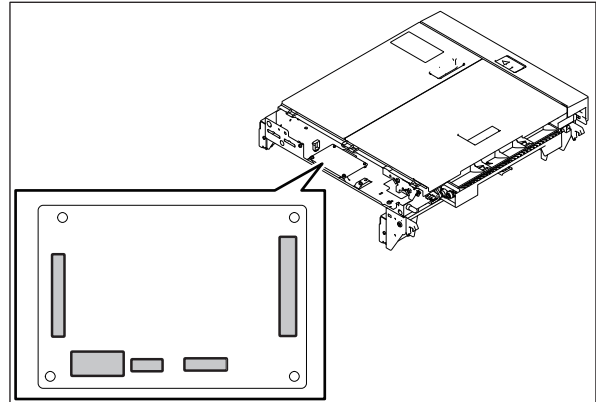


Fig. 4-26

- (2) Remove 2 screws [1]. Release 2 clamps [2] and take off the LCF Connector board [3].

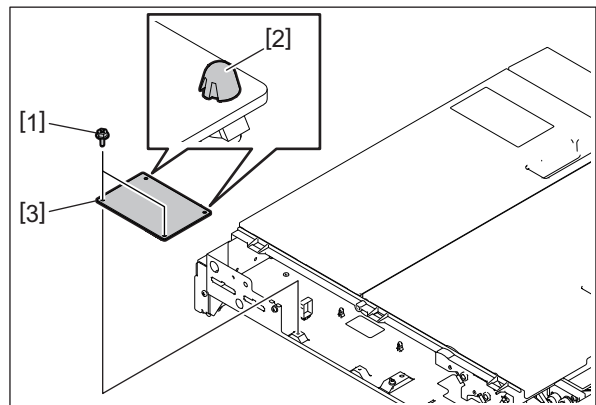


Fig. 4-27

4.2 Lubrication

When the parts in the drive unit are replaced or the gear in the paper exit roller is replaced, perform lubrication.

4.2.1 Grease list

Lubrication/Coating	Item	
W1: White grease (Molykote EM-30L)	[1]	Drive gear (tooth face)
	[2]	Drive shaft (slide area)
L: Launa 40	[3]	Drive bushing

Coating instruction

- (1) Apply white grease (Molykote EM-30L) around the drive gear (tooth face) [1] and drive shaft (slide area) [2]. Apply Launa 40 to the contact point [3] of the drive bushing.

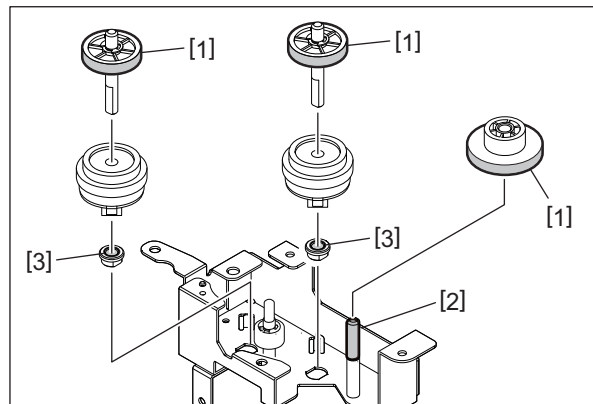


Fig. 4-28

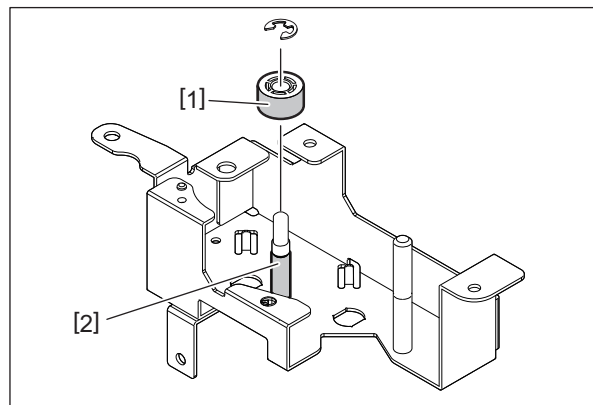


Fig. 4-29

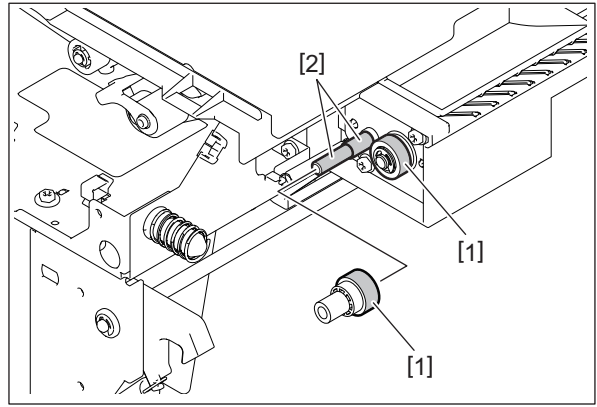


Fig. 4-30

5. ELECTRIC CIRCUIT

5.1 Diagram

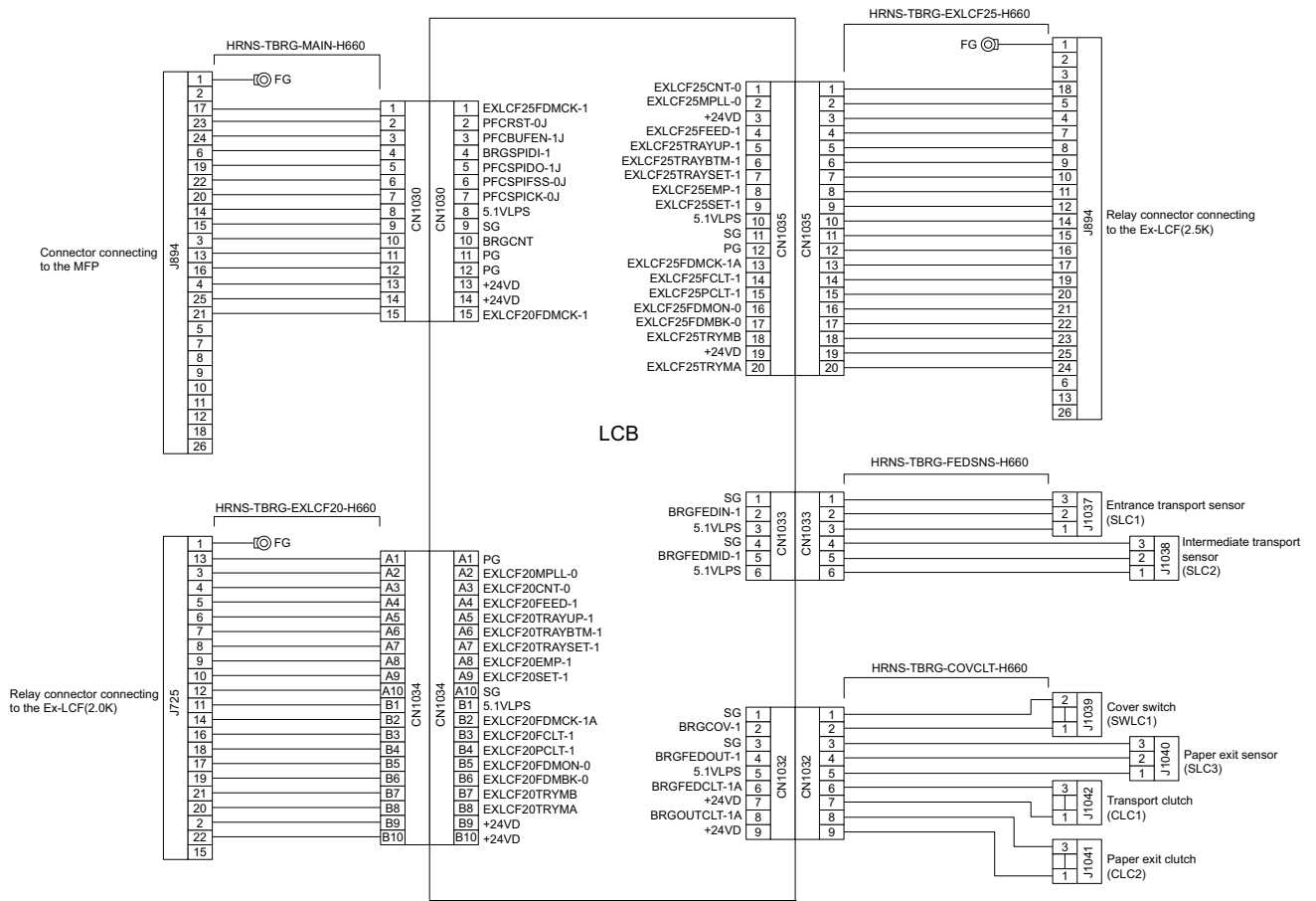


Fig.5-1

REVISION RECORD

Ver01

Ver01 <2023/2/28>	
Page	Contents
2-2	The numbers for P-I have been added.

Ver00

Ver00 <2022/11/22>	
Page	Contents
	Initial release

TOSHIBA

Toshiba Tec Corporation

1-11-1, OSAKI, SHINAGAWA-KU, TOKYO, 141-8562, JAPAN