

SUBJECT: F410 RDH Finisher system duplex method change  
(manual corrections)

DATE: SEP. 15. '93  
PAGE: 1 of 2

PREPARED BY: S. MANO  
CHECKED BY:

FROM: Copier Technical Support Group

CLASSIFICATION:

Action Required

Troubleshooting

Retrofit Information

Revision of service manual

Information only

Other

MODEL: F410

For the F410, the alternate paper feed system is disabled.

The following is the new method the F410 uses for copying 1 sided originals to 2 sided copies.

Please delete pages 14, 15, and 16 of the RDH section and insert the following explanation.

### 1 SIDED ORIGINAL TO 2 SIDED COPY MODE

When making two-sided copies, first of all, the even pages of the originals placed on the RDH are copied to the paper from the paper tray. They are stored in the duplex tray. Then the originals are recirculated, and the odd pages of the originals are copied to the sheets stored in the duplex tray.

When making two or more sets of copies, the following copy sets are made in the same way as the first set copy.

Therefore, the original recirculates twice for each copy set.

#### **-Operation- (For example)**

Two sets of two-sided copies are made from four one-sided originals.

- 1) When the start key is pressed, the 4th and 2nd originals are scanned then these copies are stacked in the duplex tray. The 3rd and 1st originals have only passed over the exposure glass [Fig. 1].
- 2) Soon after the 1st recirculation is completed, the second recirculation starts. The 4th originals just passes the exposure glass then the 3rd original is scanned. This image is copied onto the copy which has been fed from the duplex tray and is then fed out onto the finisher [Fig. 2].
- 3) The 2nd original just passes the exposure glass and then the 1st original is scanned. The copy from the duplex tray is fed for copying the 1st original and then fed out onto the finisher. At this moment, the duplex tray becomes empty [Fig. 3].
- 4) The following steps repeat steps 1) to 3). [Fig. 4] to [Fig. 6].

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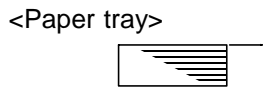
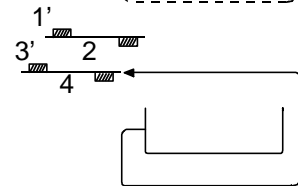
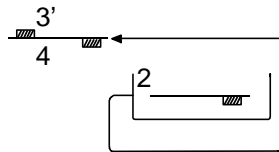
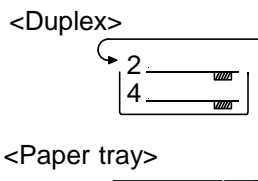
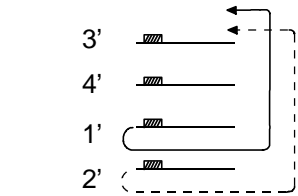
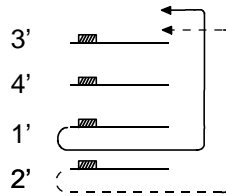
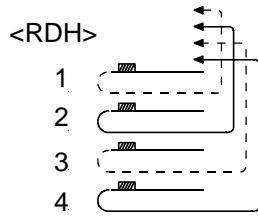


Fig 1

Fig 2

Fig 3

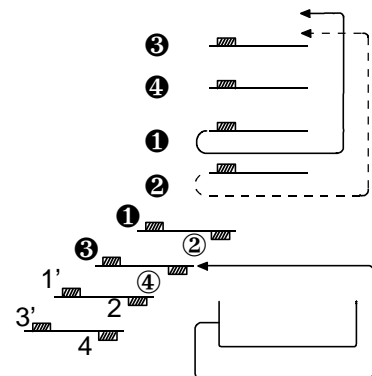
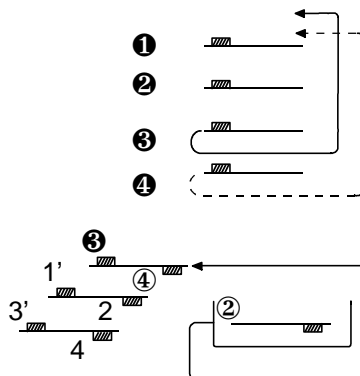
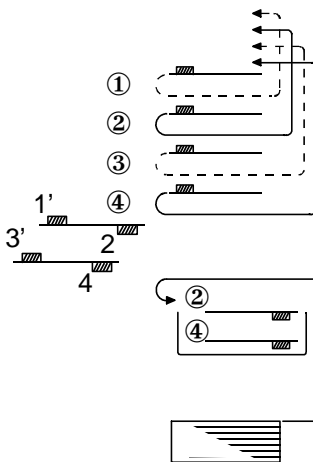


Fig 4

Fig 5

Fig 6

1 2 3 4: 1st recirculated  
 1' 2' 3' 4': 2nd recirculated  
 ① ② ③ ④: 3rd recirculated  
 ❶ ❷ ❸ ❹: 4th recirculated  
 - - - - - : Without exposing  
 (for RDH)

SUBJECT: MANUAL CORRECTIONS

DATE: Jan. 31,'94  
PAGE: 9 of 13**Page 6-19 1.15**

- Incorrect

**1.15 DUAL JOB FEEDER**

Definition: [Level:B]

Encoder pulse is not detected by the DJF main board.....

Possible causes

DJF feed motor defectiveDJF transport motor defectiveDJF feed out motor defectiveDJF inverter motor defective

- Correct

**1.15 DUAL JOB FEEDER/RECIRCULATING DOCUMENT HANDLER**

Definition: [Level:B]

Encoder pulse is not detected by the DJF/RDH main board.....

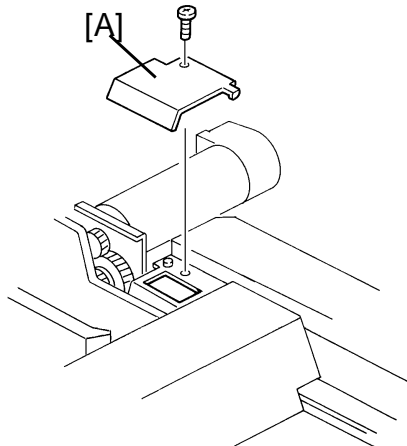
Possible causes

DJF/RDH feed motor defectiveDJF/RDH transport motor defectiveDJF/RDH feed out motor defectiveRDH inverter motor defective

## Page 35 of RDH step #2

Since there is no LED cover, delete the cover [A] from the illustration and correct the following sentence.

- Incorrect  
Close the RDH and remove the LED cover [A] (1 screw).
- Correct  
Close the RDH.



SUBJECT: RDH Original Size Misdetection

DATE:  
February. 15,1994  
PAGE: 1 of 10

PREPARED BY: S. MANO  
CHECKED BY:

FROM: Copier Technical Support Section

CLASSIFICATION:

Action Required

Troubleshooting

Retrofit Information

Revision of service manual

Information only

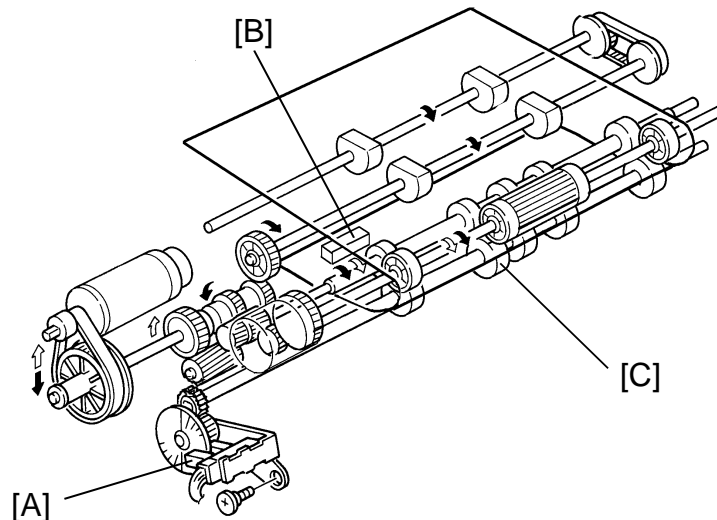
Other

MODEL:

RDH for F410

When the RDH detects different original sizes on successive jobs, the RDH stops the operation and indicates an original jam.

### REASON OF THE MISDETECTION



Original length is detected by the pulse generator sensor [A]. the RDH counts pulses from the point where the leading edge of the original activates the registration sensor [B] until the trailing edge of the original de-activates the registration sensor. The pulse count is compared with the reference data which is stored in the ROM to judge the original size.

The pulse generator wheel is driven by the driven pull-out roller [C].

From October to November 1993 production, grease was applied to the four driven roller shaft holders. When this grease on the shaft holders is contaminated with paper dust, it increases the mechanical load to the driven pull- out roller shaft resulting in the slippage between this roller and the original.

Due to the slippage, the pulse count varies. Because of this pulse variation, it is possible that the RDH detect the original length incorrectly.

SUBJECT: RDH Original Size Misdetection

DATE:  
February. 15,1994  
PAGE: 2 of 10**COUNTERMEASURES**

- Software modification-1

To improve the original length size detection accuracy, the pulse number reference data has been corrected. (ROM part number from A3785810C to A3785810D).

- Software modification-2

UK (8" x 10") size lengthwise and GT (8" x 10 1/2") size lengthwise paper are very similar and it is very difficult to distinguish them by the pulse number.

Therefore, the software has been changed to detect as only UK size lengthwise when either of sizes is fed. (By changing the DIP switch combination, RDH can be set to detect GT lengthwise).

Since the mixed size original detection is not necessary for the RDH, this function was eliminated. RDH detects only the first original size for auto paper size selection, (ROM part number from A3785810D to A3785810F).

**NOTE:** The part number A3785810E does not exist.

- Mechanical modification (Driven pull-out roller holders)

To reduce the pulse count variation, four holders of driven pull out roller have been modified. To reduce the friction between the roller shaft and the holders, the inner diameter of the holders has been widened.

- Production procedure change

The grease is not applied.

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**FIELD MACHINE COUNTERMEASURE**

Change the ROM on the RDH main board from A3785810C or A3785810D to A3785810F.

Clean the driven pull-out roller shaft with alcohol.

Replace the four driven pull-out roller holders.

Refer to the countermeasure procedure on the following pages.

The modification has been implemented on mass-production machines from the following serial number:

A378-10 5393120001~

A378-15 4143120001~

A378-17 From the first production machine

A378-22 5343120001~

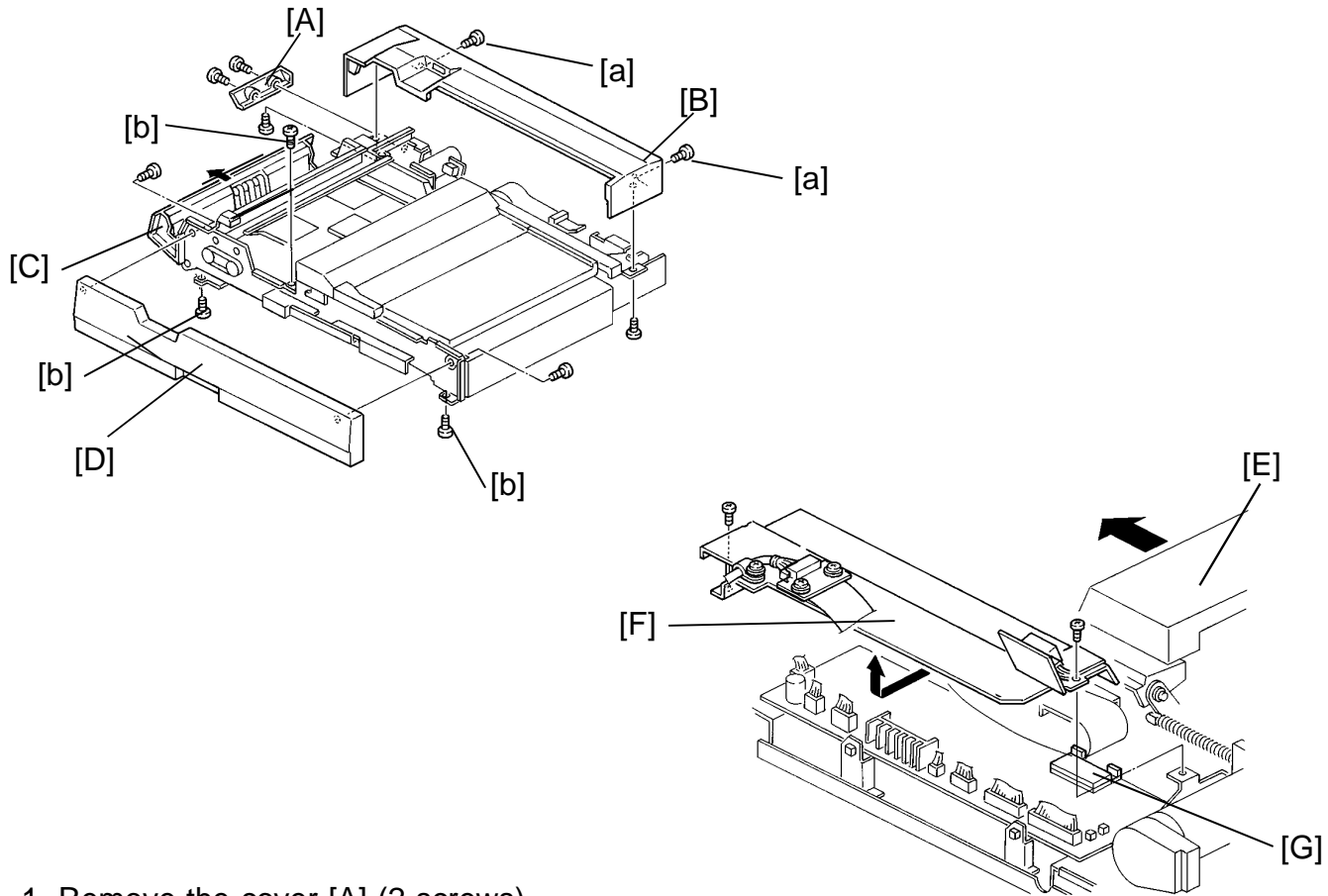
A378-26 3E01230001~

A378-27 A3403120109~

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### REPLACEMENT PROCEDURE



1. Remove the cover [A] (2 screws).
2. Remove the rear cover [B]. (Remove 2 screws, loosen 2 screws [a].)
3. Open the feed guide [C].
4. Remove the front cover [D]. (Remove 2 screws, loosen 3 screws [b].)
5. Slide the exit unit [E] fully to the left.
6. Remove the bracket [F] (2 screws).
7. Replace the ROM [G].
 

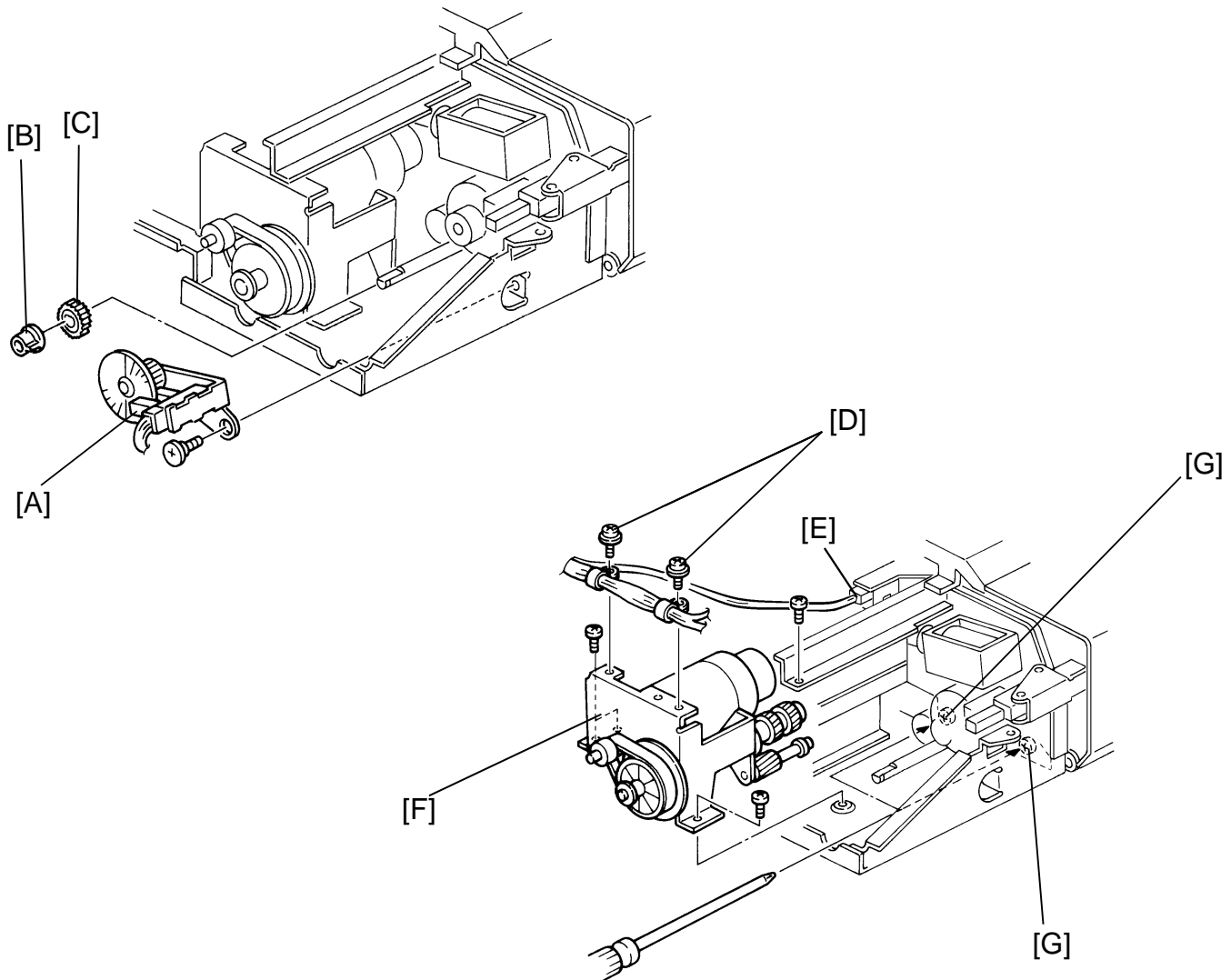
**NOTE:** Be sure the ROM is set in correct direction. Confirm whether all ROM legs are set in the socket correctly.
8. Turn on the DIP SW 1-1. (Other DIP SWs should be still off)
 

**NOTE:** If in this condition either UK (8" x 10") lengthwise or GT (8" x 10 1/2") lengthwise size originals are set, RDH recognizes them as UK lengthwise size. If DIP SW 1-1 is still off, the RDH recognizes them as GT lengthwise size.
9. Install the bracket [F].



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10. Remove the encoder assembly [A] (1 stepped screw).

11. Remove the bushing [B].

12. Remove the gear [C].

13. Remove the two screws [D] fixing the wire clamps.

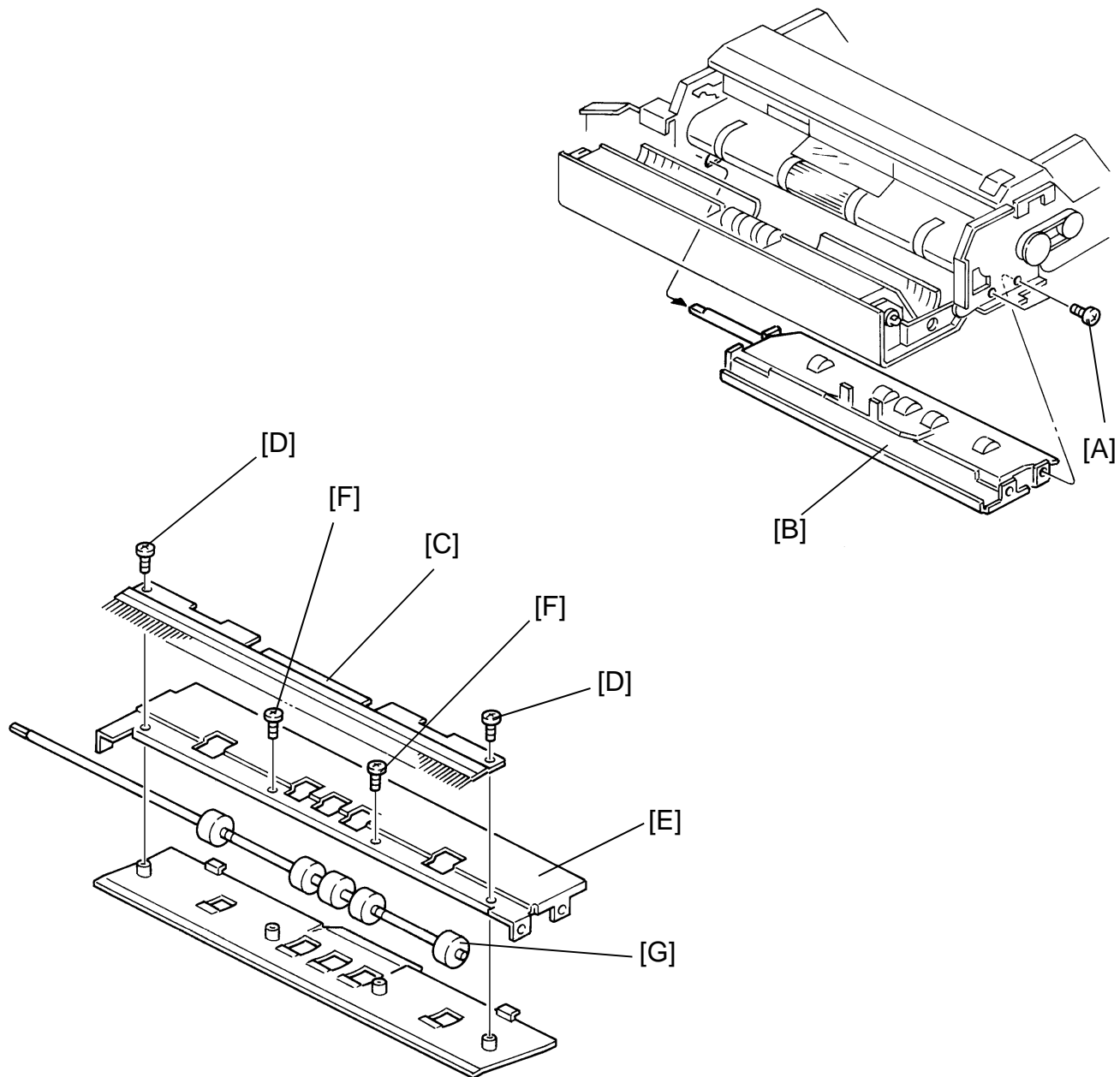
**NOTE:** Do not pull the harness too strongly, otherwise the sensor [E] will be pulled out.

14. Move the main motor bracket [F] up and hold it (5 screws).

**NOTE:** This step is necessary to access the screw [G] behind this motor.

15. Remove 2 screws [G].

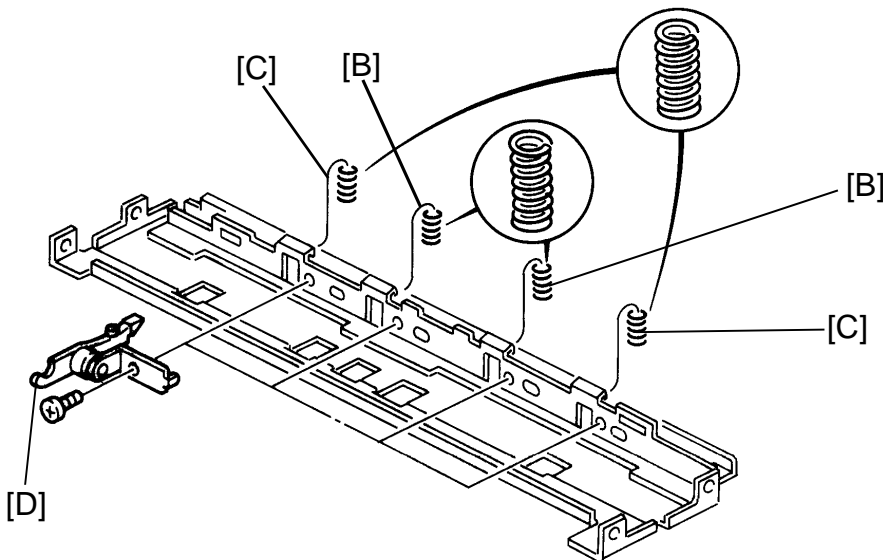
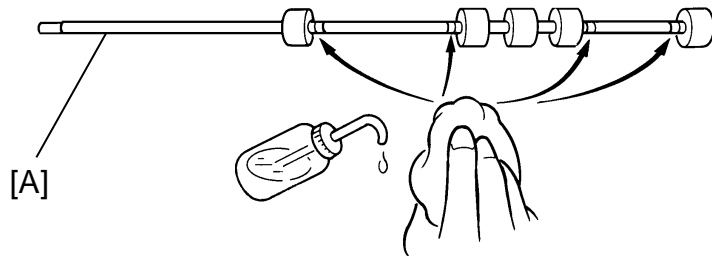
SUBJECT: RDH Original Size Misdetection

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February 15, 1994  
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16. Remove 2 screws [A].
17. Remove the pull out roller stay [B].
18. Remove the registration sensor bracket [C] (2 screws [D]).
19. Remove the original feed out stay [E] (2 screws [F]).
20. Remove the pull out roller [G].

SUBJECT: RDH Original Size Misdetection

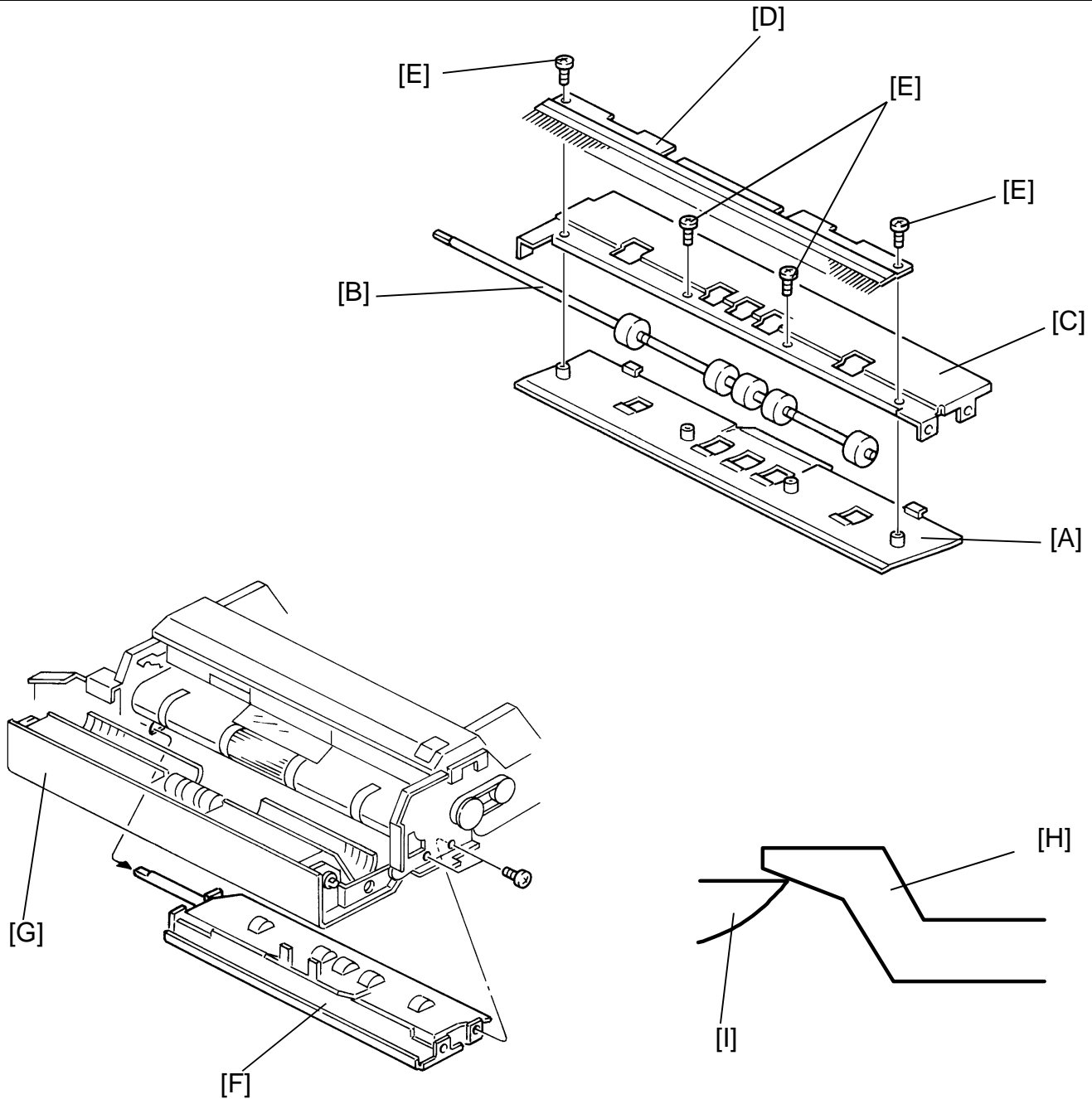
DATE:  
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21. Completely wipe off the grease on the pull out roller shaft [A] with alcohol.
  22. Remove inner springs (Silver) [B] and outer springs (Black) [C].
  23. Replace 4 arms [D] (1 screw each).
  24. Install inner springs (Silver) [B] and outer springs (Black) [C].
- NOTE:** Inner springs and outer springs are different, do not mix them.

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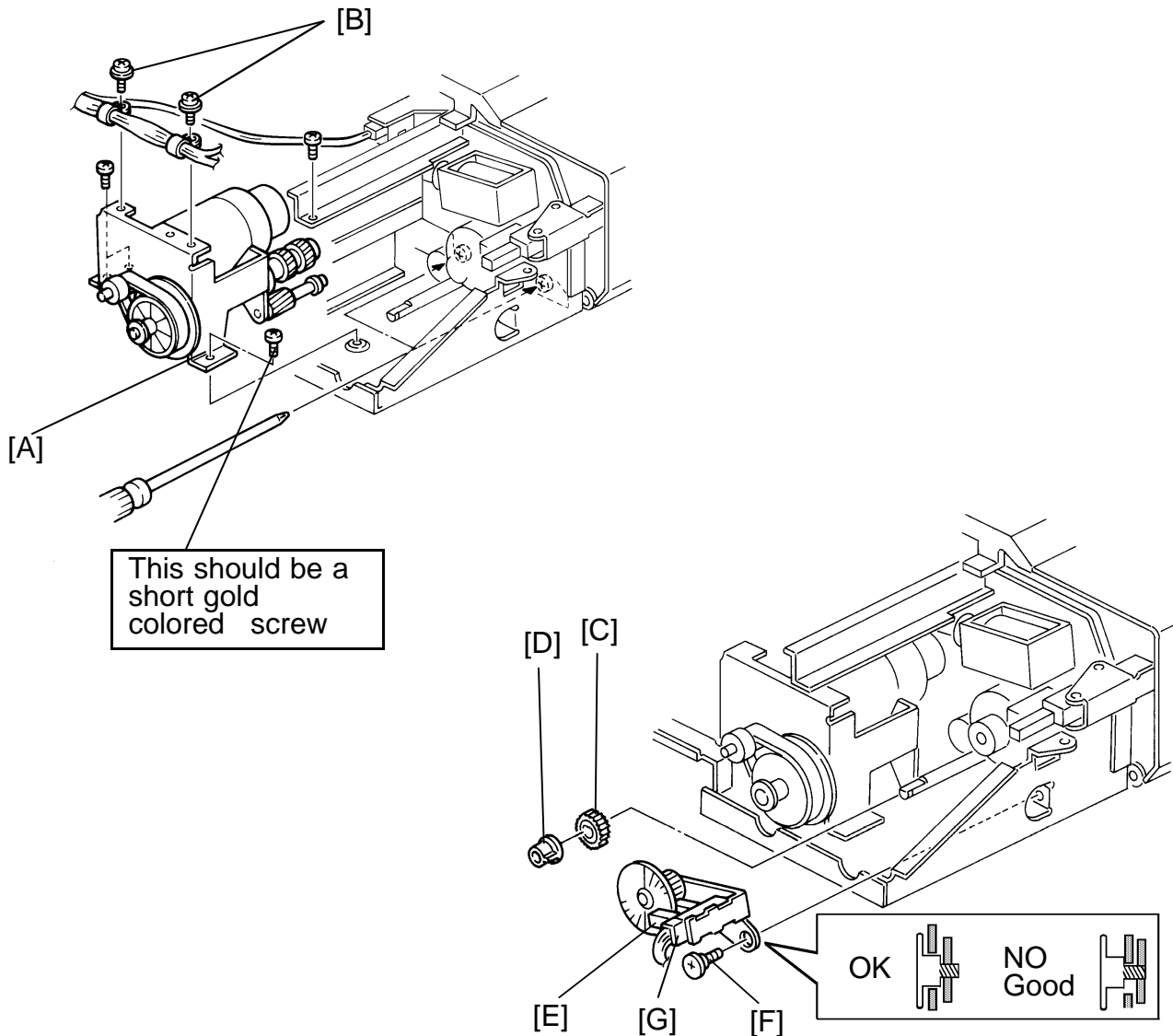
25. Assemble the original guide plate [A], the pull out roller [B], the original feed-out stay [C], and the registration sensor bracket [D] as shown (4 screws [E])

26. Install the pull out roller stay [F] (4 screws).

**NOTE:** Before fixing the 4 screws, close the feed guide [G] so that the pull out roller arms [H] locate above the projections [I] on the feed guide.

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27. Install the main motor bracket [A] (5 screws).

28. Fix the wire cramps [B] (2 screws).

29. Install the gear [C].

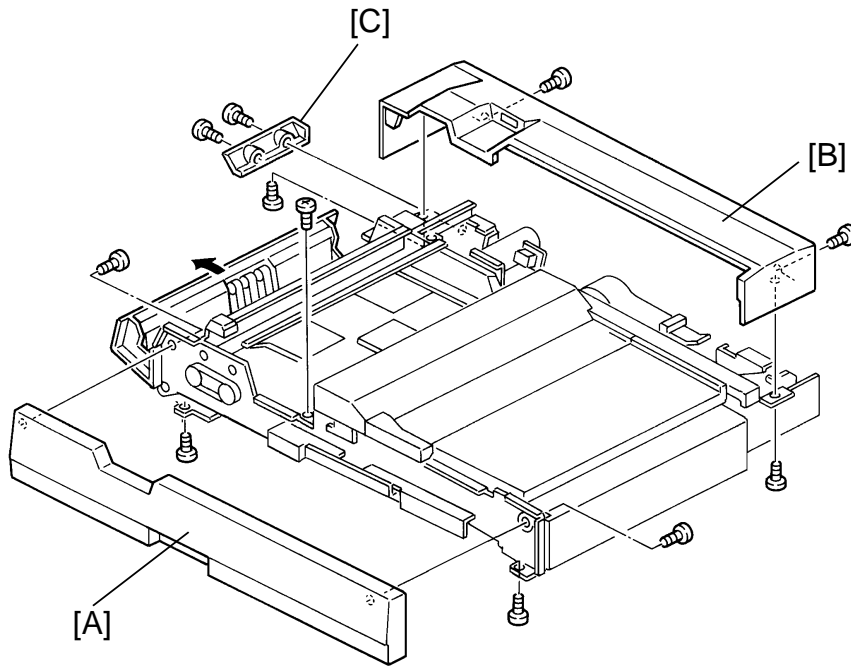
30. Install the bushing [D].

31. Install the encoder assembly [E] (1 stepped screw).

**NOTE:** 1. Make sure that the stepped screw [F] is correctly tightened as shown.

2. Make sure that the sensor [G] is set on the bracket properly.

SUBJECT: RDH Original Size Misdetection

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32. Install the front cover [A] (5 screws).
33. Install the rear cover [B] (4 screws).
34. Install the cover [C] (2 screws).

SUBJECT: USER REMARKS WHILE SETTING THE ORIGINAL ON  
THE RDH

DATE: JULY 31 '94  
PAGE: 1 of 2

PREPARED BY: S. MANO  
CHECKED BY: S. Hamano

FROM: 2nd Technical Support Section

**CLASSIFICATION:**

- Action Required
- Troubleshooting
- Retrofit Information

- Revision of service manual
- Information only
- Other

MODEL: RDH for  
F410/F420

During field survey, we found cases that an incorrect feed out unit position created original jams.

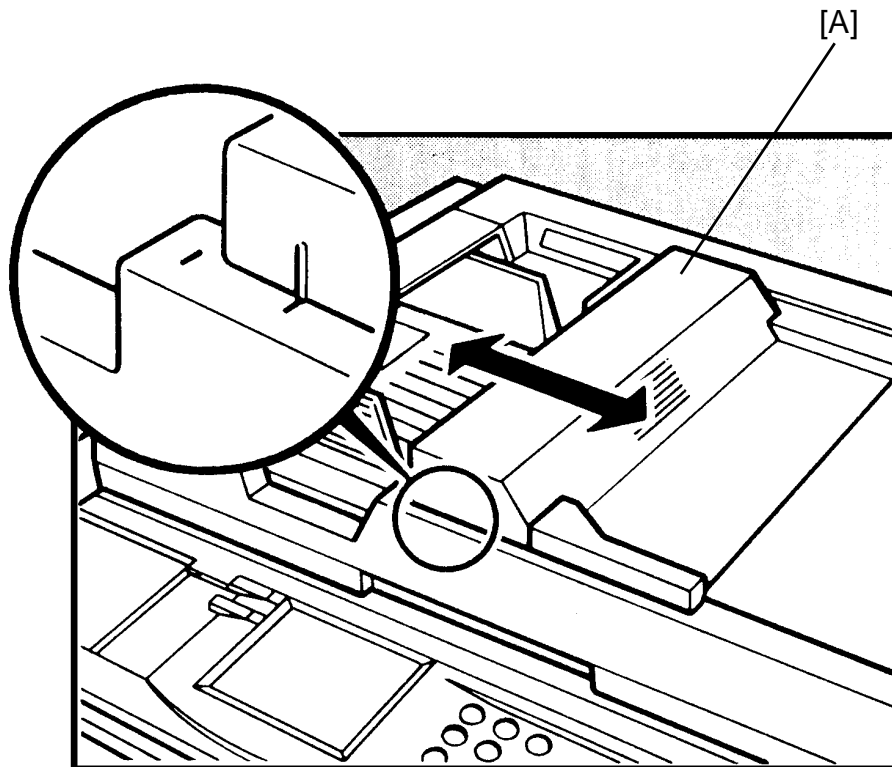
Please instruct the customer to set the feed out unit in the correct position.

Especially for machines which are used by many casual customers, it will be helpful for reducing the original jams by putting a copy of the page 2 of this RTB on the wall behind the RDH.

SUBJECT: USER REMARKS WHILE SETTING THE ORIGINAL ON  
THE RDH

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*To prevent original jams,  
slide the feed-out unit [A] to match the size marks on  
the front of the recirculating document handler (RDH).*





SUBJECT: SOFTWARE MODIFICATION

DATE: Dec. 31, '94

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### 2. "B" version ROMs

From the following serial numbers, the EPROMs (A0965151A and A0965153A) on the main board have been updated to version "B".

**NOTE: We will re-issue this RTB as soon as the cut-in serial number becomes available.**

Code	Serial Number
A095-10	5204
A095-15	264
A095-17	A3354
A095-22	5234
A095-26	3D6
A095-27	A3354
A095-29	A3354
A096-10	5244
A096-15	284
A096-17	A3364
A096-22	5274
A096-26	3D6
A096-27	A3364
A096-29	A3364
A097-10	
A097-15	
A097-17	
A097-22	
A097-26	
A097-27	
A097-29	

**Caution:** Whenever replacing from the old main ROMs to the new version ROMs in the field, this modification is necessary.

The following are corrected by this software change:

#### 2-1. Machine enters the screen saver mode during auto counting

If the time to enter the screen saver mode (this time can be changed by using User tools) comes during the auto count mode, the machine enters the screen saver mode. After counting all originals, the machine indicates the original jam condition.

SUBJECT:SOFTWARE MODIFICATION

DATE: Dec. 31, '94

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**2-2. Operating time indication is incorrect**

During operation, the time remaining before the end of the copy job is indicated by animation on the touch panel screen.

During the duplex mode by using RDH and Finisher, the indicated time was incorrect.

**<Countermeasure>**

For the single side original to duplex copy mode, it is impossible to calculate the time due to a highly complex operation using the alternate feed system. Therefore, in this mode, the operating time is not indicated.

For the duplex original to duplex copy mode, the accuracy of the indicated operation time has been improved.

**2-3. RDH and Finisher, copy set limitation (maximum: 50 sets)**

When using the RDH and Finisher, the selectable copy set for sort mode should be "999" (In the sort mode, due to the alternate feed operation, the paper stocked in the duplex tray is always less than 50 sheets). However, it was limited to 50. If a larger number was entered, it was canceled and "50" was displayed.

**2-4. RDH and Finisher, Copier misfeed caused by the original misfeed**

When an original exit jam occurs in the RDH, it should not cause a copier misfeed (the copier should exit all sheets in the copier then stop) but actually a misfeed also occurs in the copier. This symptom occurs depending on the copy tray selected and the size of the copy paper. (The combination of the longer paper path and shorter paper length tends to create this symptom.)

**RICOH****Technical Bulletin****No. RTB-051**SUBJECT: RDH Original Auto Count Disabled  
(North America versions only)DATE: February  
29, '95  
PAGE: 1 of 2PREPARED BY: M. Mimura  
CHECKED BY: *T. Inoue*

FROM: 1st Field Information Dept. QAC

## CLASSIFICATION:

 Action Required Troubleshooting Retrofit Information Revision of service manual Information only Other

## MODEL:

F410 / 420

**<Symptom>**

When making one sided to two sided duplex copies with Energy Star compliant machines, the RDH will not count the number of originals (faulty Even original mode).

**<Cause>**

Software error

**<Field Solution>**

1. Turn on the copier main switch with the RDH installed.
2. Press the One Side → Two Sided duplexing key. (This key is the default selection key on Energy Star machines. However, it must be pressed again for this operation.)
3. Press the User Program key.
4. Store the current mode in the program #5.
5. Turn the machine off and on.
6. Confirm that the RDH counts the number of originals. (Confirmation also can be done by pressing the Check Modes key. If "Even" is not displayed on the Duplex/Series Copies tag, the correction has been successful.)

- NOTE:**
1. If the default mode is changed to single-side copying or two-sided to two-sided duplexing, selecting the one-sided to two-sided mode will not cause the problem.
  2. The above procedure is to be done one time only per machine. The corrected data will be kept on the RAM board.

SUBJECT: RDH Original Auto Count Disabled  
(North America versions only)

DATE: February  
29, '95  
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**<Affected Machines>**

Energy Star compliant machines configured with the RDH. See MB # 114 for cut-in serial number information of the Energy Star modification.

**<Factory Action>**

The program has been corrected to reflect the solution. The part numbers of the new ROM are as follows:

A0965155B  
A0965157B

The new ROMs have been implemented to the production machines from the following serial numbers:

Model	Code	Cut-in Serial No.
F400	A095-10	5206430002
	A095-15	2664300228
	A095-17	A3356430280
F410	A096-10	524604XXXX
	A096-15	2864400001
	A096-17	A3366430322
F420	A097-10	528604XXXX
	A097-15	2964400001
	A097-17	A3376440001