Technical Bulletin

Issued on Jan. 30, 1991

Model : FAX 77/80/85/84
i-6212/6213/6215
Nashua 1040/1045
SAVINFAX 301/331
AT&T 9020FX/9022FX

FAX T.S. Section T.S. Department
Manager
H. Motojima

RTB No. C-017

Classification :

☐ Action Required
■ Troubleshooting
☐ Retrofit Information
☐ Revision of Service Manual
☐ Information Only ☐ Others

Control No. For Each Area

R.C.	C-013	Savin	C-013
Europe	C-015	ATT	C-011
Kalle	C-015		
Asia	C-015		
LAM	C-015		

Subject: Changing the software

Ref.M/B No.

This information is to explain the countermeasures for the communication problems experienced with the Model C series. There are three types of problem.

1. Echo countermeasure bit has no effect
2. Particular RTI rejection
3. Frequent Rx error

The details of each problem are described on the following pages.

[Countermeasure]

The software will be modified from February production. The part number suffixes of the FCU board and the ROM will also be changed. The part number list is attached for reference. Detailed information about the modification will be issued as an MB.

1. Echo Countermeasure Bit

[Symptom]

On a line with a lot of echo, the error code '0-14' occurs. The other terminal seems to send the same signal in reply to the signal which was just sent by the model C, as can be seen on the protocol dump list.

[Cause]

The echo countermeasure bit (Bit switch 4, bit 1) was ignored. So, even if this bit was set at '0'(enable), the echo problem could not be solved. This has been corrected and this bit switch now operates normally.

* Bit switch 4. bit 1

If the setting is 0, the machine ignores any incoming signal that is the same as it just sent. This is because it may be an echo from the line.

2. Particular RTI Rejection.

[Symptom]

The fax machine yields a modem training error and communication is impossible if the other terminal is programmed with a particular type of RTI.

[Cause]

The model C stored the received RTI to the RAM area with an extra digit by mistake. Because of this it works out that, if the RTI of the other terminal is 20 digits (RTI is full) and if the upper byte of the CRC calculation result is '00', the model C can not communicate with the other terminal.

* CRC code = Cyclic Redundancy Check Code

This code is attached to the end of each HDLC frame as a check sum during normal fax protocol. On receiving a frame, the receiver makes an identical checksum calculation based on the received data and compares the result with the received CRC code to determine whether there have been any errors. Please refer to T.30 in the CCITT yellow book.

[Temporary Action]

Please ask the other terminal user to change the RTI a little. For example, change from a space to a hyphen or a period. Therefore, the CRC calculation result will be changed from '00' to another value.

3. Frequent Rx Errors

[Symptom]

When the fax machine is connected to a PABX, many Rx errors are recorded on the TCR (Journal), or the fax machine can not communicate using a higher transmitting speed (e.g., 9600 bps, 7200 bps). It looks like a modem failure.

[Cause]

The software referred to bit 6 of bit switch F by mistake. Correctly, the software has to refer to bit 1 of bit switch 7.

Bit switch F, bit 6 (PSTN access method through PABX)

This bit and bit 7 are used to match the type of PABX system when the fax is installed behind a PABX. The definition of these bits is as follows.

Bit 7	Bit 6	Setting
0	0	No PABX
0	1	Loop start
1	0	Ground start
1	1	Flash start

When these bits are set at the PABX mode, the fax machine works as follows.

If the first digit of the phone number is the same as the value specified by bit switch 11, the machine recognizes the PSTN access code. At first the machine detects the PABX dial tone and the machine accesses the PSTN as specified by bit switch F, and then the machine waits for detecting the PSTN dial tone and sends out the phone number of the distant end.

Notes for North American type NCU users and Asian type NCU users:

1. These NCUs can not do 'Ground Start' or 'Flash Start'. Don't touch bit 7 of bit switch F.

2. Even if this bit switch is set at 'Loop Start', the dial tones can not be detected. This is because the auto dialing parameters are not specified in the RAM.

Bit switch 7 bit 1 (Line error counter decrement)

If this bit is set at '0', the line error counter is decreased by 1 when 10 consecutive good lines are received. The default setting is '0'. If this bit is set at '1', this line error counter decrement function is disabled. So, if the number of line errors exceeds the threshold level on a particular page, the machine judges that an rx error has occurred. But usually the rx image does not look so damaged. This is because line noise occurs in a rather short period to affect one or two data lines only. Please refer to the field service manual and the service training manual for the model C series for details. As mentioned above, the following conclusion is surmised.

The model C that is installed behind a PABX, and that normally communicating with a normal G3 fax, yields many Rx errors.

However, even if the model C is installed behind a PABX, if the fax uses ECM communication every time, this problem must not occur.

[Temporary Action]

Even if a fax machine is installed behind a PABX, bit 6 of bit switch F should not be changed from the default value. And instruct the user to enter some pauses between the PSTN access number and a phone number if the user wants to access the PSTN through the PABX.

For example: 0---123.....

If the user programmed the Quick Dials and other phone numbers, they must be reprogrammed to attach some pauses. This is because, if bit switch F is set at "No PABX", the machine will not detect the PSTN dial tone, i.e. the machine does not wait for the dial tone from the PSTN before sending the phone number. However, this countermeasure is not effective for users who use 'Flash start'.

Part Number Table (New ROM)

Model	Part Number
FAX 77 i-6212	H051 7107F (G) H051 7108E (UK) H051 7109F (I) H051 7110E (UN) H051 7114G (SP) H051 7115G (SW) H051 7117F (F) H051 7111E (AS)
FAX80 i-6213 N-1040 A-9020FX S-301	H053 7106J (RC) H053 7107J (G) H053 7108H (UK) H053 7109H (I) H053 7110G (UN) H053 7111J (AS) H053 7113J (ATT) H053 7114K (SP) H053 7115G (SW) H053 7116G (SAVIN) H053 7117F (F)
FAX82	H054 7111F (AS)
FAX85	H055 7106H (RC) H055 7107K (G) H055 7108J (UK) H055 7109J (UK) H055 7109J (I) H055 7110H (UN) H055 7111H (AS) H055 7113B (ATT) H055 7114J (SP) H055 7115G (SW) H055 7116G (SAVIN) H055 7117F (F)

Note:

(G)= German version
(UK)= UK version
(I)= Italian version
(UN)= Universal version
(SP)= Spanish version
(SW)= Swedish version
(F)= French version
(AS)= Asian version
(ATT)= ATT version
(SAVIN)= SAVIN version
(RC)= North American version

Technical Bulletin No.C-019

Issued on March 6th, 1991

Subject:

New bit switch table for FAX77/80/85/86

Model(s):

Ricoh FAX77/80/85/86

FAX T.S. Section T.S. Department Manager
H. Motojima

Classification

- ☐ **Action Required**
- ☐ **Troubleshooting**
- ☐ **Retrofit Information**
- ■ **Revision of Service Manual**
- ☐ **Information Only**
- ☐ **Others**

Control No. for Each Area

R.C.	C - 015	Asia	--
SAVIN	--	LAM	--
Europe	--	AT&T	--
HCS	--		

The bit switch table is reissued.

This information includes the addition for FAX77 / FAX86 and the correction for FAX80 / FAX86.

Technical Bulletin No.C-021

Issued on

Subject: **RX MOTOR**

Model(s):

FAX T.S. Section T.S. Department Manager
H. Motojima

Classification
- ☐ **Action Required**
- ■ **Troubleshooting**
- ☐ **Retrofit Information**
- ☐ **Revision of Service Manual**
- ☐ **Information Only**
- ☐ **Others**

Control No. for Each Area

R.C.	C-017	Asia	C-018
SAVIN	C-016	Nashua	C-018
Europe	C-018	LAM	C-018
HCS	C-018	AT&T	C-014

This information describes the countermeasure for the Rx motor pulley loosening on the shaft.

[Symptom]

Thermal paper does not step properly through the machine in receive or copy mode, resulting in a "Clear Copy" indication.

[Cause]

The stressed insertion of the shaft into the pulley during assembly in conjunction with temperature and frequent use such as c.w. turns and c.c.w. turns, causes the material of the pulley (zinc) to creep resulting in loose contact between the shaft and the pulley.

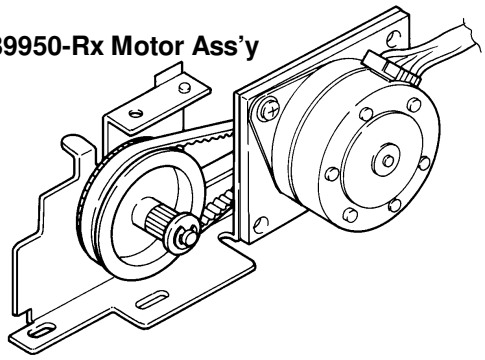
[Solution]

Replace the Rx motor with a modified Rx motor.

[Recommended servicing unit]

The service parts ass'y is available for replacing the Rx motor. Please refer to the following.

H0539950-Rx Motor Ass'y



Contents:
H0535033 - Rx Motor
H0532200 - Spacer - Rx Motor
H0532162 - Insulating Sheet - Motor
H0532186 - Timing Belt - 180:4
H0532126 - Reduction Pulley - Printer
H0532210 - Bracket - Rx Motor
07200040 - Retaining Ring - M4
09513010 - Screw - M3 x 10

The Rx motor ass'y consists of the motor, bracket, belt and gears. It makes serviceability easier, i.e. to minimize adjustment.

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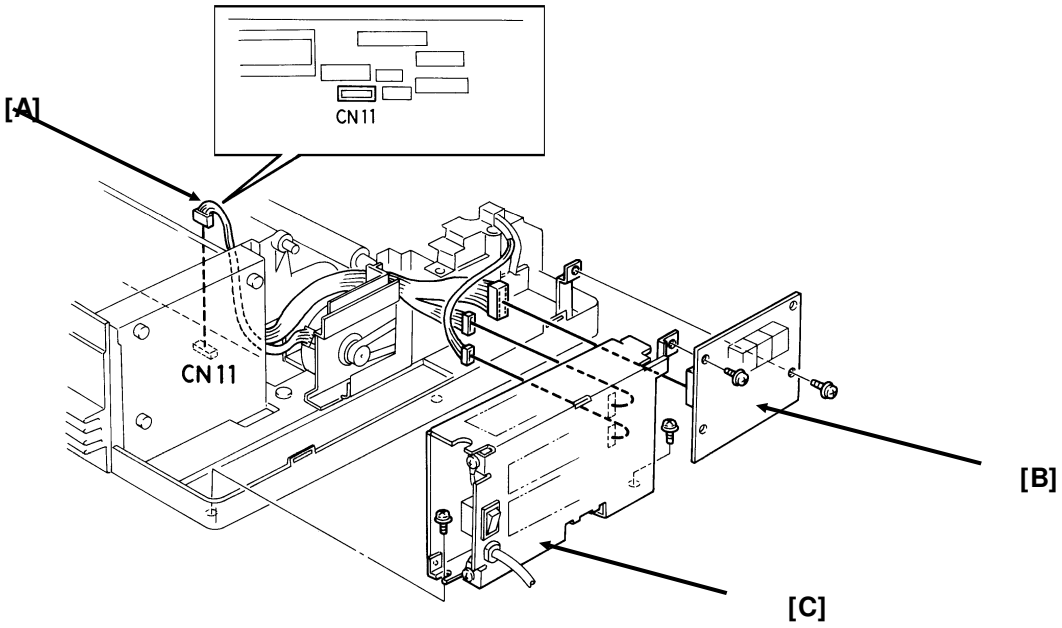
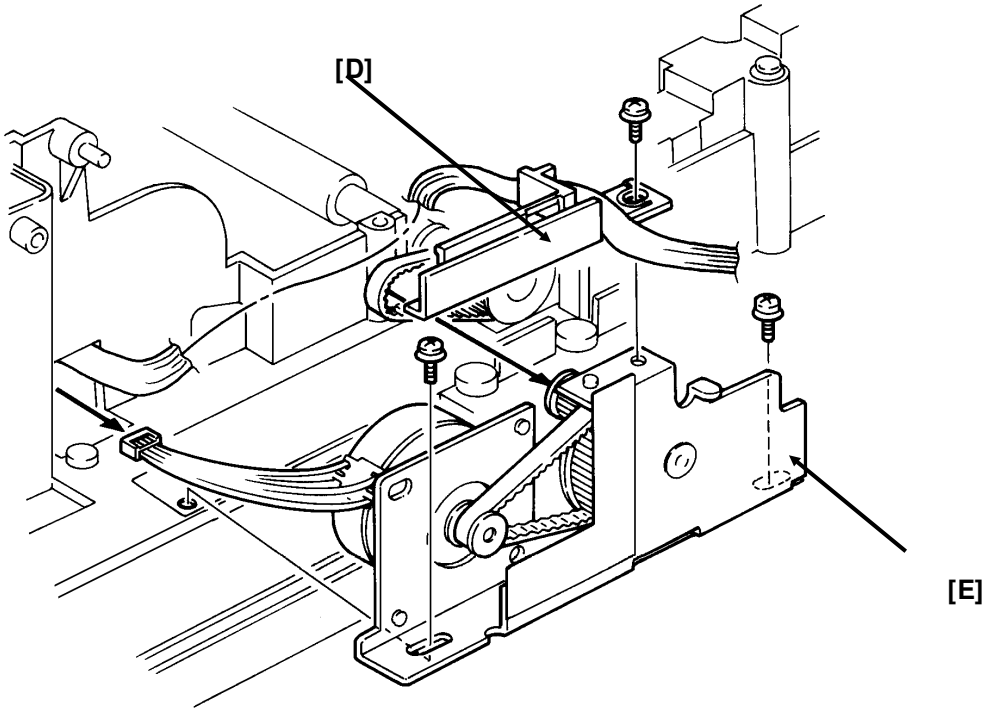
Issued on

Subject: **RX MOTOR**

[Purchase Order]

You should send the purchase order to Ricoh Tokyo, after filling in the following items. The Rx motor ass'y is free of charge.





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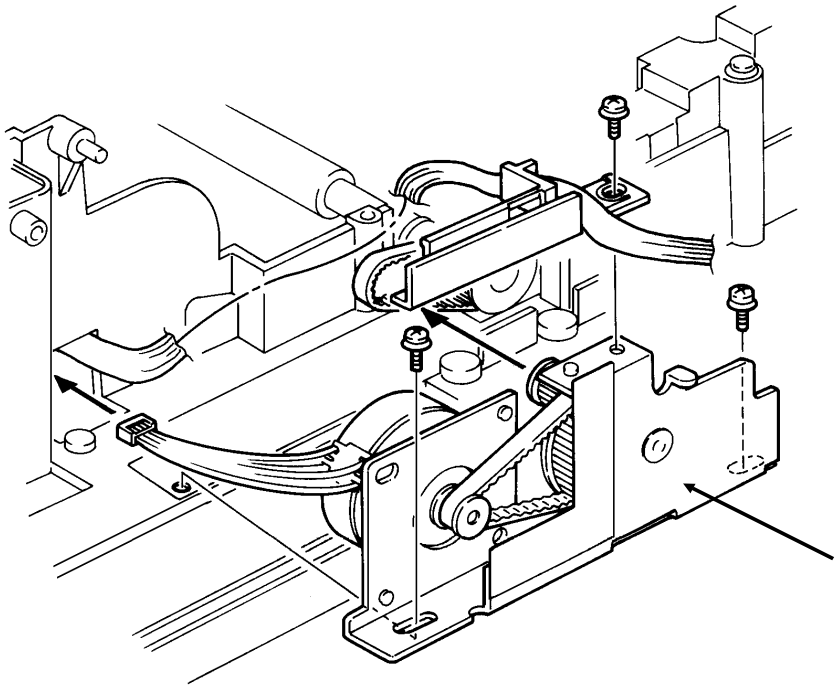
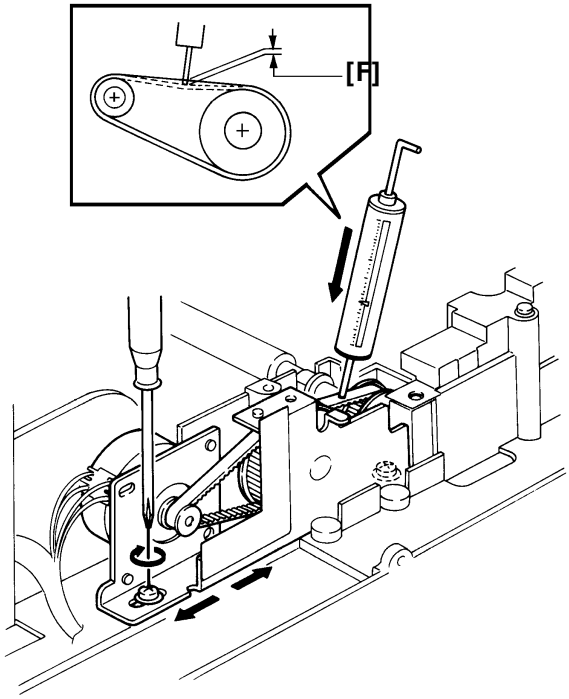
Issued on

Subject: **RX MOTOR**



[H0539950]



P/O no:
Ship to:
Quantity:
Ship via:
Partial Shipment:

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Issued on

Subject: **RX MOTOR**

Address of P/O
Fax no. + 813 - 3479 - 3063
Ricoh int'l marketing group
Fax TSG
H. Motojima.

[Modified Rx motor]

The Rx Motor has been modified in the two steps.
H0535031⇒H0535033 ⇒H0535033A

H0535033 (Temporary)

The new material is brass, which is suitable for stressed shaft insertion, with no possible creeping.

H0535033A (Permanent)

The material of the pulley is changed with the change of the shaft shape.
Pulley: brass ⇒zinc diecasting
Shaft: Smooth ⇒with roulette shape.

Technical Bulletin No.C-021

Issued on

Subject: **RX MOTOR**

[Replacing procedure]

1. Open the upper unit.
2. Remove the rear cover and FCU cover.
3. Disconnect the Rx motor connector (CN 11) [A] from the FCU board.
4. Remove the NCU [B] and PSU [C] (4 screws).
5. Remove the harness guide [D] (1 screw)
6. Remove the Rx motor ass'y [E] (2 screws)
7. Install the new Rx motor ass'y. [H0539950]
8. Adjust the position of the Rx motor ass'y until the belt tension at [F] is 131 ± 32 grams when the belt is pushed in by 1mm. Tighten the screws.
9. Reassemble the machine.

Note: Do not loosen the screws that secure the Rx motor to the bracket. The belt tension of the Rx motor ass'y is already adjusted.

Technical Bulletin No.C-022

Issued on Aug. 5th, 1991

Subject:

Dedicated transmission parameters

Model(s):Ricoh FAX77/80/82/85/86
SAVINFAX 301/331,
AT&T FAX9020/22,
infotec 6212/6213/6215,
Nashua Fax 1040/1045

FAX T.S. Section T.S. Department Manager
H. Motojima

Classification

- ☐ Action Required
- ☐ Troubleshooting
- ☐ Retrofit Information
- ☐ Revision of Servicce Manual
- ■ Information Only
- ☐ Others

Control No. for Each Area

R.C.	C-018	Asia	C-019
SAVIN	C-017	Nashua	C-019
Europe	C-019	LAM	C-019
HCS	C-019	AT&T	C-015

This information mentions about the dedicate transmission parameter in detail.

[Address]

FAX77/ i -6212 -0265~ 04BCH
Other models - 0700~ 0C13H

[Construction]

- Each dial has 10 bytes.
- The 1st, 2nd and 3rd bytes are used as the dedicated transmission parameters.
- Last 7 bytes (from the 4th byte to the 10th byte) are used for the system, so the last 7 bytes have to be kept at factory settings.

Dedicated transmission parameters

Byte 1

Initial modem rate

Bit	1	0	Rate (bps)
	0	0	9600
	0	1	7200
	1	0	4800
	1	1	2400

Tx level

Bit	2	3	4	5	Level (-dB)
	0	0	0	0	0
	0	0	0	1	1
	0	0	1	0	2
	0	0	1	1	3
	and so on until				
	1	1	1	1	15

Bit 6
Not used

Bit 7
Dedicated parameters
Disable / Enable
0: Disabled
1: Enabled

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Issued on
Aug. 5th, 1991

Subject: **Dedicated transmission parameters**

Byte 2

Bit 0- DIS destection 0:First 1:Second(first DIS is ignored)
Bit 1- ECM transmission 0: Enabled 1: Disabled
Bit 2 to 4 - Not used
Bit 5 and 6 - Compression methods available, priority

Bit 6	5	Methods	
0	0	MH/MR/MMR	; MMR priority (Model L and modified Model C)
0	1	MH/MR	; MR priority
1	0	MH only	
1	1	Not used	

Bit 7- Short preamble 0: Disabled 1: Enabled

Byte 3

CCITT T1 time, in seconds divided by 2.56.

But if this byte is set "0 0", the T1 time is 35 sec. ....There is no zero seconds setting.

Note: Model L : 2800L/1200L
Modified Model C : i-6215/FAX86, FAX85 (ASIA), NASHUA Fax 1045

[Address table]

FAX77 / i-6212

Quick Dials

No	Address
01	0265 - 026E
02	026F - 0278
03	0279 - 0282
04	0283 - 028C
05	028D - 0296
06	0297 - 02A0
07	02A1 - 02AA
08	02AB - 02B4
09	02B5 - 02BE
10	02BF - 02C8
11	02C9 - 02D2
12	02D3 - 02DC
13	02DD - 02E6
14	02E7 - 02F0
15	02F1 - 02FA

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Issued on Aug. 5th, 1991

Subject: **Dedicated transmission parameters**

Speed Dials

No	Address	No	Address
00	0391 - 039A	15	0427 - 0430
01	039B - 03A4	16	0431 - 041A
02	03A5 - 03AE	17	041B - 0444
03	03AF - 03B8	18	0445 - 044E
04	03B9 - 03C2	19	044F - 0458
05	03C3 - 03CC	20	0459 - 0462
06	03CD - 03D6	21	0463 - 046C
07	03D7 - 03E0	22	046D - 0476
08	03E1 - 03EA	23	0477 - 0480
09	03EB - 03F4	24	0481 - 048A
10	03F5 - 03FE	25	048B - 0494
11	03FF - 0408	26	0495 - 049E
12	0409 - 0412	27	049F - 04A8
13	0413 - 041C	28	04A9 - 04B2
14	041D - 0426	29	04B3 - 04BC

[Address table]

FAX80/85/84/86 , i-6213/6215
Nashua 1040/1045 , SAVIN 301/331
ATT 9020/9022 FX

Quick Dial

No	Address	No	Address
01	0700 - 0709	16	0796 - 07AF
02	070A - 0713	17	07A0 - 07A9
03	0714 - 071D	18	07AA - 07B3
04	071E - 0727	19	07B4 - 07BD
05	0728 - 0731	20	07BE - 07C7
06	0732 - 073B	21	07C8 - 07D1
07	073C - 0745	22	07D2 - 07DB
08	0746 - 075F	23	07DC - 07E5
09	0750 - 0759	24	07E6 - 07EF
10	075A - 0763	25	07F0 - 07F9
11	0764 - 076D	26	07FA - 0803
12	076E - 0777	27	0804 - 080D
13	0778 - 0781	28	080E - 0817
14	0782 - 078B	29	0818 - 0821
15	078C - 0795	30	0822 - 082B

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Issued on Aug. 5th, 1991

Subject: **Dedicated transmission parameters**

Speed Dial

No	Address	No	Address	No	Address
00	082C - 0835	35	098A - 0993	70	0AE8 - 0AF1
01	0836 - 083F	36	0994 - 099D	71	0AF2 - 0AFB
02	0840 - 0849	37	099E - 09A7	72	0AFC - 0B05
03	084A - 0853	38	09A8 - 09B1	73	0B06 - 0B0F
04	0854 - 085D	39	09B2 - 09BB	74	0B10 - 0B19
05	085E - 0867	40	09BC - 09C5	75	0B1A - 0B23
06	0868 - 0871	41	09C6 - 09CF	76	0B24 - 0B2D
07	0872 - 087B	42	09D0 - 09D9	77	0B2E - 0B37
08	087C - 0885	43	09DA - 09E3	78	0B38 - 0B41
09	0886 - 088F	44	09E4 - 09ED	79	0B42 - 0B4B
10	0890 - 0899	45	09EE - 09F7	80	0B4C - 0B55
11	089A - 08A3	46	09F8 - 0A01	81	0B56 - 0B5F
12	08A4 - 08AD	47	0A02 - 0A0B	82	0B60 - 0B69
13	08AE - 08B7	48	0A0C - 0A15	83	0B6A - 0B73
14	08B8 - 08C1	49	0A16 - 0A1F	84	0B74 - 0B7D
15	08C2 - 08CB	50	0A20 - 0A29	85	0B7E - 0B87
16	08CC - 08D5	51	0A2A - 0A33	86	0B88 - 0B91
17	08D6 - 08DF	52	0A34 - 0A3D	87	0B92 - 0B9B
18	08E0 - 08E9	53	0A3E - 0A47	88	0B9C - 0BA5
19	08EA - 08F3	54	0A48 - 0A51	89	0BA6 - 0BAF
20	08F4 - 08FD	55	0A52 - 0A5B	90	0BB0 - 0BB9
21	08FE - 0907	56	0A5C - 0A65	91	0BBA - 0BC3
22	0908 - 0911	57	0A66 - 0A6F	92	0BC4 - 0BCD
23	0912 - 091B	58	0A70 - 0A79	93	0BCE - 0BD7
24	091C - 0925	59	0A7A - 0A83	94	0BD8 - 0BE1
25	0926 - 092F	60	0A84 - 0A8D	95	0BE2 - 0BFB
26	0930 - 0939	61	0A8E - 0A97	96	0BFC - 0BF5
27	093A - 0943	62	0A98 - 0AA1	97	0BF6 - 0BFF
28	0944 - 094D	63	0AA2 - 0AAB	98	0C00 - 0C09
29	094E - 0957	64	0AAC - 0AB5	99	0C0A - 0C13
30	0958 - 0961	65	0AB6 - 0ABF		
31	0962 - 096B	66	0AC0 - 0AC9		
32	096C - 0975	67	0ACA - 0AD3		
33	0976 - 097F	68	0AD4 - 0ADD		
34	0980 - 0989	69	0ADE - 0AE7		

Technical Bulletin No.C-023

Issued on April 23rd, 1992

Subject: **Modification of cutter unit**

Model(s): Model C'
Model C
Model C with Memory
FAX 82

FAX T.S. Section, T.S. Department
Assistant General Manager

H. Motojima

Classification

- ☐ Action Required
- ■ Troubleshooting
- ☐ Retrofit Information
- ☐ Revision of Service Manual
- ☐ Information Only
- ☐ Others

From the July, 1991 production, to prevent from paper jam at the cutter exit, a mylar has been attached to the cutter blade (Diagram A).

The affected models and cutters are shown below.

No.	Cutter Unit	Part No.
1	Cutter - A4 for model C (Hitachi)	H0532161H
2	Cutter - A4 for model C (Ooyane)	H0532150G
3	Cutter - B4 for FAX 82	H0542156C
4	Cutter - A4 for AFO	H0845028C

With this modification, the guide plate of the cutter exit was discontinued after the old cutter assembly was out of stock (Diagram B).
This discontinuance has been applied from the February, 1992 production.
However, we found in the production line that few machines experienced paper jam due to the discontinuance of the guide plate.

[Cause]

The cause of this paper jam is as follows.
In some machines there might be a clearance between the guide plate for paper feed-out and the mylar (Diagram C).

Therefore, the printed page gets into the clearance and then a paper jam occurs.
The number of cases of paper jam in the production line were 5/2035(0.2%).

[Countermeasure]

We have applied the following countermeasures in order to ensure the paper feed correctry.

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Issued on April 23rd, 1992

Subject: **Modification of cutter unit**

-Temporary-

Two (four) spacers were attached between the feed-out roller holder and the feed-out guide plate, to get rid of the clearance (Diagram D).
This was done in the March production.

-Permanent-

The guide plate of the cutter exit has been reattached.
This was done all the way from the April production.

No.	Old P/# of cutter	Temporary Action	Permanent Action	New P/# of cutter
1	H0532161H	To be attached 0.9mm spacer (P/# H0542153)	To be attached the guide plate of the cutter exit (no part number)	H0532161J
2	H0532150G	To be attached 0.9mm spacer (P/# H0542153)	To be attached the guide plate of the cutter exit (no part number)	H0532150H
3	H0542156C	Not countermeasure	To be attached the guide plate of the cutter exit (no part number)	H0542156D
4	H0845028C	To be attached 0.9 + 0.5mm spacer (P/# : • 0.9mm spacer … H0542153 • 0.5mm spacer … 07080030B)	To be attached the guide plate of the cutter exit and 0.9mm spacer (P/# : • Guide plate … no part number • 0.9mm spacer … H0542153)	H0845028D

If you need the above parts for countermeasure, please deal with the following way.

0.9mm and 0.5mm spacer … Please order from SPC
Guide plate of the cutter exit … Please contact our section attention to Mr. H.Motojima.

[Affected models in the field]

The machines which have not had any countermeasures applied before being shipped out are as follows.

- From Tokyo
  - →To Asia … Less than 1230 units
  - →To USA … Less than 805 units
- From RIF (France)
  - →To Europe … A few units

Technical Bulletin No.C-023

Issued on April 23rd, 1992

Subject: **Modification of cutter unit**

[Solution]

The design section tested the machine under abnormal conditions (They tested 4 units of AFO after adjusting the clearance to the widest.)
The result of testing is shown below.

No.	Clearance (mm)	Occurrence Rate
1	-2.0	0/3685
2	-1.75	0/3786
3	-1.8	0/3759
4	-1.65	0/3685

We guess that paper jams caused by this tolerance problem would occur rarely, according to the test result.

Also, the frequency should almost be within the specification (less than 1/1000).

However, if paper jam occurs in the field, and if the guide plate of the cutter exit is not used in the cutter, you should attach the guide plate to the cutter or attach the spacers between the feed-out roller holder and the feed-out guide plate.

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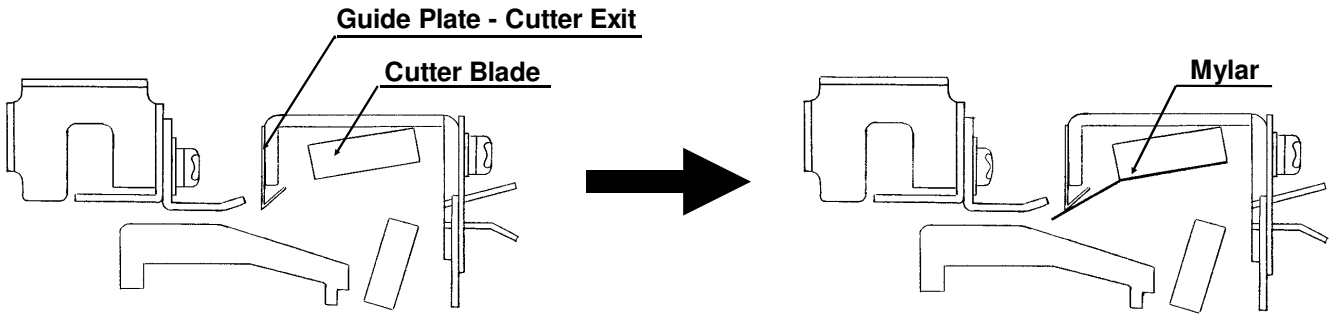
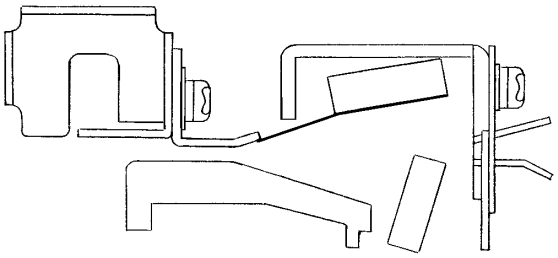
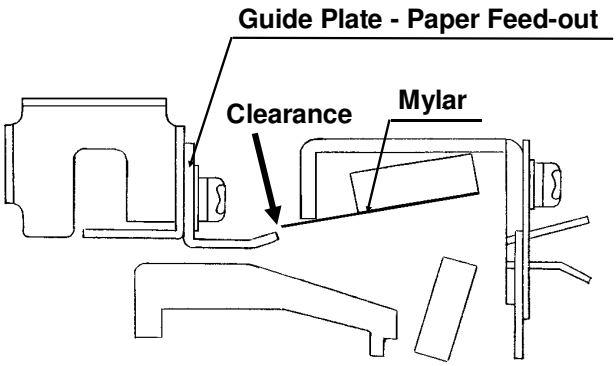
Subject: **Modification of cutter unit**



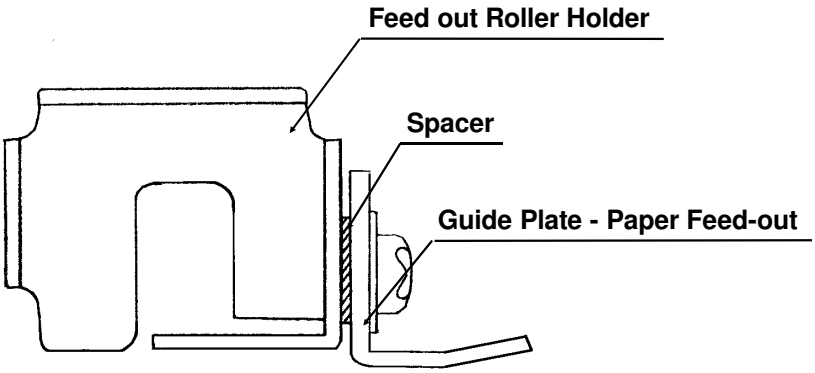
[Diagram A]



[Diagram B]



[Diagram C]



[Diagram D]