

SERVICE MANUAL

PC-FAX EXPANDER TYPE 250

February 9th, 1998
Subject to change

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1. OVERALL INFORMATION

1.1 SPECIFICATIONS

| Item | Description |
|--------------------------|--|
| PC Fax Interface | EIA/TIA Class 2 (Class 1 is not supported) |
| Host Interface Connector | EIA/TIA RS232C DB25 female connector |
| Scanner | TWAIN interface Maximum resolution: 200 x 200 dpi |

1.2 FEATURES

- ❑ Class 2 fax transmission directly from a host PC
(PC fax application required)
- ❑ Class 2 fax transmission through SAF memory
(PC fax application required)
- ❑ Class 2 fax reception directly to a host PC
(PC fax application required)
- ❑ Class 2 fax reception through SAF memory
(PC fax application required)
- ❑ Local printing from a PC fax application
(PC fax application required)
- ❑ Local scanning from the machine's scanner using TWAIN API
(CFM Twain driver required)

2. DETAILED DESCRIPTIONS

2.1 AT COMMANDS AND RESPONSES

2.1.1 CLASS 0 COMMANDS

| Command | Function | Remarks |
|---------|-------------------------------|--|
| ATA | Answer | |
| ATD | Dial | |
| ATE | Command echo | |
| ATH | Switch-hook control | |
| ATI | Identification | |
| ATL | Speaker volume | |
| ATM | Speaker control | |
| ATP | Set pulse dial as default | The machine returns OK, but the function is not supported. |
| ATQ | Result code display | |
| ATS | S register | |
| ATT | Set tone dial as default | |
| ATV | Result code form | |
| ATX | Extended result codes | The machine returns OK, but the function is not supported. |
| ATZ | Reset | |
| AT&C | DCD option | The machine returns OK, but the function is not supported. |
| AT&D | DTR option | |
| AT&F | Restore factory configuration | |

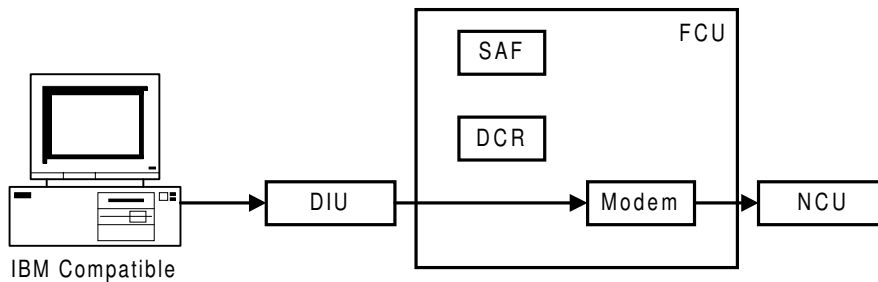
2.1.2 CLASS 2 COMMANDS

| Command | Function | Remarks |
|------------|----------------------------|--|
| AT+FCLASS? | Service class | The machine responds "22". |
| AT+FMFR? | Identify manufacturer | The machine responds "RICOH(CF1)". |
| AT+FLID | Local ID string | |
| AT+FBOR | Phase C data bit order | |
| AT+FCR | Capability to receive | The machine returns OK, but the function is not supported. |
| AT+FDCC | DCE capability parameters | |
| AT+FDIS | Current session parameters | |
| AT+FDT | Data transmission | |
| AT+FET | Transmit page punctuation | |
| AT+FDR | Phase C receive data | |
| AT+FMDL? | Identify model | The machine responds "PC-FAX EXPANDER (CF1)". |

| Command | Function | Remarks |
|-----------|-------------------------------------|---|
| AT+FREV? | Identify revision | The machine responds with FCU ROM version and release date. |
| AT+FAA | Adaptive answer | The machine returns OK, but the function is not supported. |
| AT+FPHCTO | Phase C timeout | |
| AT+FECM | ECM parameter | |
| AT+FBUG | Session manager reporting parameter | |
| AT+FPTS | Page transfer status | |
| AT+FAXERR | Fax error value | The machine returns OK, but the function is not supported. |
| AT+FDCS | Current session results | |
| AT+FCQ | Copy quality capability parameter | The machine returns OK, but the function is not supported. |
| AT+FK | Session termination | |
| +FHNG | Call termination with status | |
| +FCON | Facsimile connection response | |
| +FCSI | Report the CSI | |
| +FTSI | Report the TSI | |
| +FCFR | Indicate CFR | |

2.2 CLASS 2 FAX COMMUNICATION

2.2.1 DIRECT TRANSMISSION

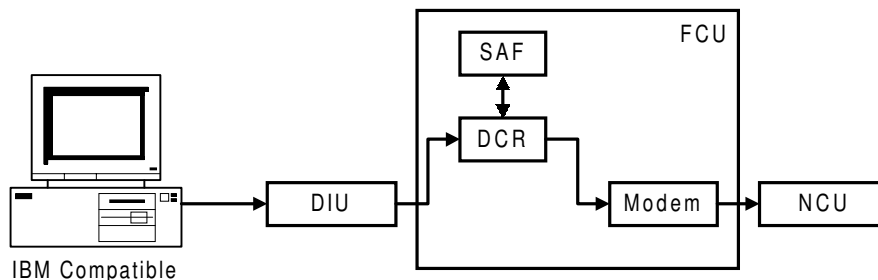


A824D001.WMF

The host computer sends commands and image data to the machine through the DIU during transmission.

- NOTE:**
- 1) Group dials programmed in the machine cannot be used.
 - 2) ISDN G4 numbers programmed in quick or speed dials cannot be used.
 - 3) If ISDN is selected for G3 communication (system switch 0A, bit 6), the G3 numbers must have been programmed in quick or speed dial.
 - 4) T.30 optional protocols (e.g., BFT) are not supported by class 2 fax communication.

2.2.2 MEMORY TRANSMISSION

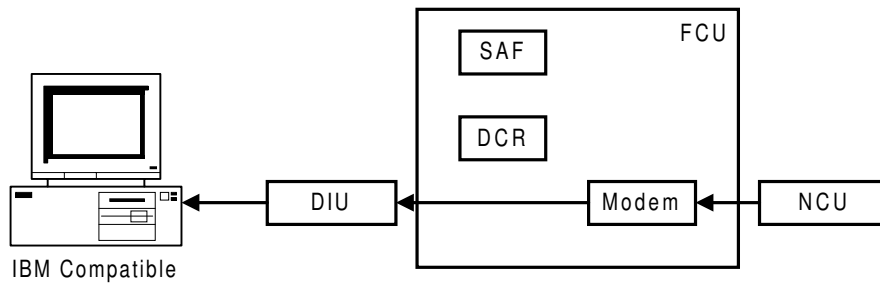


A824D002.WMF

The host computer sends destination number(s) and image data to the machine through the DIU during transmission. The machine stores the image in the SAF memory, then makes a fax transmission.

- NOTE:**
- 1) If the memory overflows while storing the first page into SAF memory, the machine does not start the transmission.
 - 2) If the memory overflows while storing the second or subsequent page into SAF memory, the machine transmits all the successfully stored pages.
 - 3) When fax numbers programmed in the machine's quick or speed dials are specified using the PC fax application, all the specified numbers must have been programmed in the fax machine.
 - 4) T.30 optional protocols (e.g., BFT) are not supported by class 2 fax communication.

2.2.3 DIRECT RECEPTION

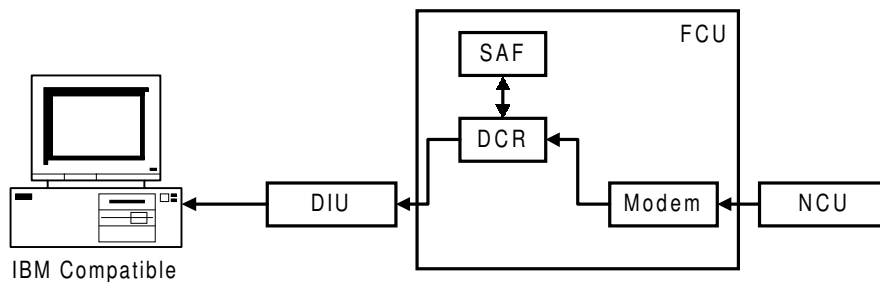


A824D003.WMF

The machine transfers received image data directly to the host PC without storing it into SAF memory.

- NOTE:**
- 1) If the host PC is not ready to receive a fax message, the machine receives the message into SAF memory.
 - 2) Even if the SAF memory is full, the machine starts fax reception. However, the machine will not continue reception if the host computer is not ready to receive a message.
 - 3) The "Number of rings to answer" parameter in the PC fax application must not exceed 4.

2.2.4 MEMORY RECEPTION



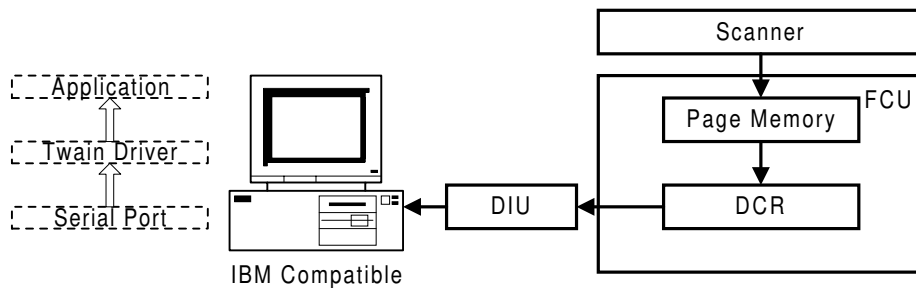
A824D004.WMF

The machine receives a fax message in the SAF memory, then transfers data to the host computer after the reception has finished. The machine prints the received message after transferring data to the host if user parameter 20 – bit 4 is set to "1: Print".

- NOTE:**
- 1) If an error occurs due to cable disconnection, the PC fax application must be restarted to receive the message.
 - 2) Memory reception is not possible when forwarding is enabled.
 - 3) Manual reception from the PC fax application is not supported.
 - 4) The "Number of rings to answer" parameter in the PC fax application must not exceed 4.

2.3 SCANNING AND PRINTING

2.3.1 SCANNING

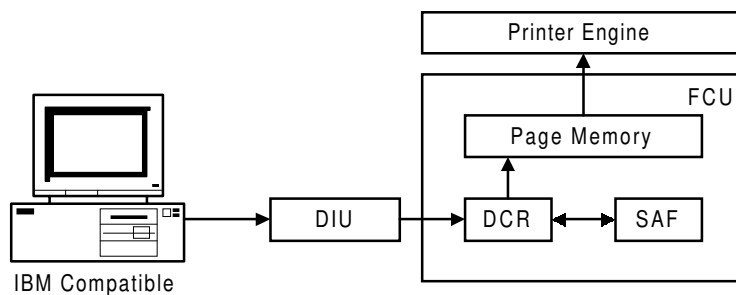


A824D005.WMF

The machine scans an original into page memory, then transfers the data to the host PC. The data is sent to the application through the CFM Twain driver.

NOTE: 1) The maximum resolution is 200 x 200 dpi.

2.3.2 PRINTING



A824D006.WMF

The machine receives print data into SAF memory as fax image data, then prints it after all the data has been transferred from the host PC.

The destination number "0000" informed from the host PC identifies a print job.

- NOTE:**
- 1) If SAF memory runs out while receiving print data, the machine prints up to the successfully received data.
 - 2) The machine cannot receive print data while printing a message from the SAF memory. The data will be received after printing.
 - 3) If a fax destination is specified together with the print destination "0000", the destinations specified after "0000" will be delayed until the machine prints all pages in the message.

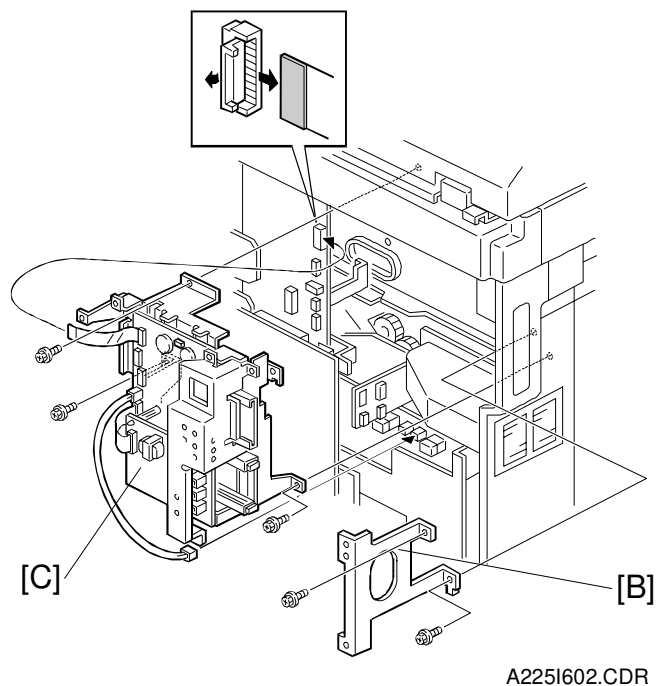
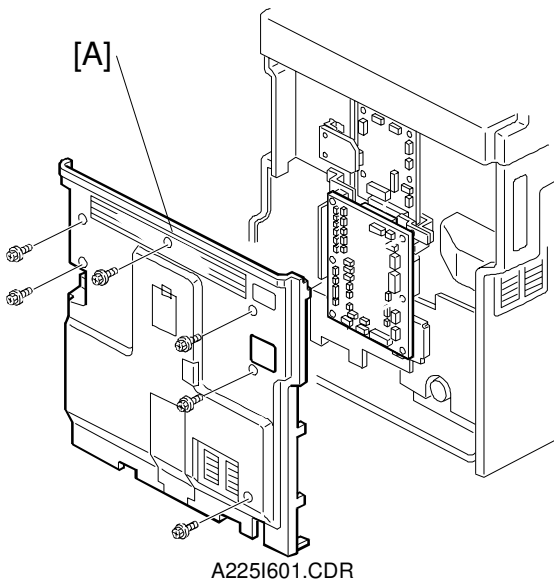
3. INSTALLATION

THIS OPTION MUST BE INSTALLED BY A CUSTOMER SERVICE REPRESENTATIVE WHO HAS COMPLETED THE TRAINING COURSES ON THE BASE COPIER AND THIS OPTION.

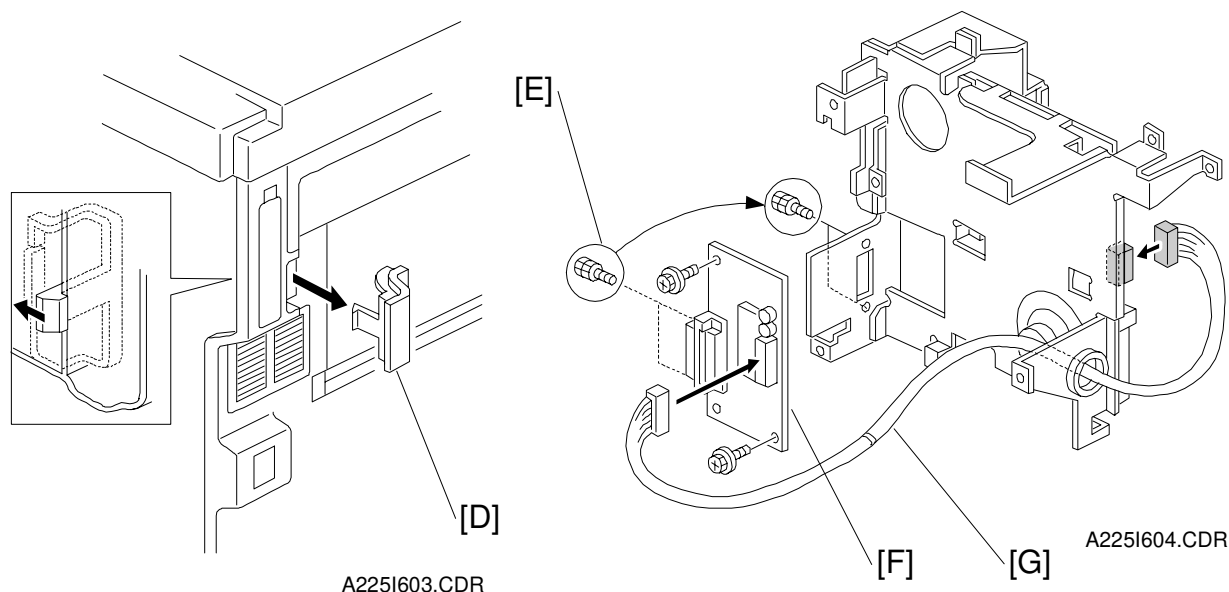
- NOTE:**
- 1) Never install telephone wiring during a lightning storm.
 - 2) Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
 - 3) Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
 - 4) Use caution when installing or modifying telephone lines.
 - 5) Avoid using a telephone (other than a cordless type) during an electric storm. There may be a remote risk of electric shock from lightning.
 - 6) Do not use an telephone to report a gas leak in the vicinity of the leak.

⚠ CAUTION

Before installing this option, switch off the main and ac switches, and disconnect the power cord.



1. Remove the rear cover [A] (6 screws).
2. Remove the bracket [B] (2 screws), or the fax unit [C] if it has been installed in the machine (13 screws, 2 brackets, 2 connectors).



3. Remove the cover [D] from the left side cover.
4. Remove the ISDN G4 interface from the fax unit if it is present (2 screws, 1 connector).
5. Remove two hexagonal screws [E] from the DIU.
6. Install the DIU (RS232C interface) [F] in the fax unit (4 screws, 2 of them are the hexagonal screws removed in the previous step).
7. Connect the harness [G] from the DIU to CN506 on the FCU as shown, and put back the ISDN G4 interface if it was removed in step 4.
8. Install the fax unit [C] (13 screws, 2 brackets, 2 connectors), and the rear cover [A] (6 screws).
9. Turn on the machine and print the system parameter list. If "TR29" appears in the "Option" section of the system parameter list, go on to step 10. Otherwise, check the ROM version or the cable connections.

FCU ROM Versions which support this option

- A1945582H or later
- A1945585E or later
- A1945587B or later
- A2255582C or later
- A2255585C or later
- A2255587B or later

10. Follow the Operator's Manual for how to connect the machine to a host computer, how to set up the machine and the computer, if required.

NOTE: 1) A "straight-through" shielded serial cable is required, but it is not enclosed in this option.

- 2) One end of the serial cable must have a DB25 male type connector to be connected to the DIU.

4. SERVICE TABLES AND PROCEDURES

4.1 SERVICE MODE FUNCTIONS

4.1.1 PC PROTOCOL DUMP LIST

Use this function to check the AT commands and responses that are exchanged between a host computer and the machine.

Refer to section 2.1 for details of the supported AT commands.

1. Enter service mode, and select 05 "Protocol Dump".
2. Select 3 "PC Protocol List", then press Start.

4.2 BIT SWITCHES

| System Switch 1C | | |
|------------------|---|--|
| No | FUNCTION | COMMENTS |
| 0 | PC-DIU communication record on the Journal 0: Disabled 1: Enabled | 1: Communications between the DIU and a host PC are logged on the Journal. Also, the Data-in LED turns on while data is coming in and going out to the PC. Be sure to reset this bit to "0" after a test. |
| 1 to 7 | Not used | Do not change the settings. |

4.3 USER PARAMETERS

| User Switch 20 | | |
|----------------|---|--|
| No | FUNCTION | COMMENTS |
| 0 | Class 2 transmission 0: Direct tx 1: Memory tx | 0: Image data is sent directly from a host during communication. 1: Image data is sent to the fax machine's SAF memory before starting a fax communication, then it is sent by the fax machine. |
| 1 | Addition of fax TTI in class 2 memory transmission 0: Disabled 1: Enabled | 1: The machine adds its TTI to all the messages sent through SAF memory. This setting is effective only when bit 0 is set to "1". |
| 2 | Message received to: 0: Fax 1: PC | 0: Received messages are printed at the machine. 1: Received messages are transferred to the host PC. |

| User Switch 20 | | |
|-----------------------|--|--|
| No | FUNCTION | COMMENTS |
| 3 | Class 2 reception 0: Direct rx 1: Memory rx | 0: Received messages are transferred to the host PC directly during fax communication. 1: Received messages are stored in the SAF memory during reception. Then they are transferred to the host PC after reception has been completed. |
| 4 | Message printout in class 2 memory rx 0: Disabled 1: Enabled | 1: A message received into memory is printed after it has been transferred to the host PC. |
| 5 | Checkered mark on printouts from a PC 0: Disabled 1: Enabled | 1: The machine prints a checkered mark on a document printed through the DIU. |
| 6 to 7 | Not used | Do not change the settings. |

| User Switch 21 | | |
|-----------------------|--|-----------------|
| No | FUNCTION | COMMENTS |
| 0 to 3 | Scan density for the "Light" setting in scanner mode. $\begin{pmatrix} 1 \\ 0 \\ 0 \\ 0 \end{pmatrix} = \text{Level 1} \quad \begin{pmatrix} 0 \\ 1 \\ 0 \\ 0 \end{pmatrix} = \text{Level 2} \quad \begin{pmatrix} 1 \\ 1 \\ 0 \\ 0 \end{pmatrix} = \text{Level 3}$ | |
| 4 to 7 | Scan density for the "Dark" setting in scanner mode. $\begin{pmatrix} 1 \\ 0 \\ 1 \\ 0 \end{pmatrix} = \text{Level 5} \quad \begin{pmatrix} 0 \\ 1 \\ 1 \\ 0 \end{pmatrix} = \text{Level 6} \quad \begin{pmatrix} 1 \\ 1 \\ 1 \\ 0 \end{pmatrix} = \text{Level 7}$ | |

5. PARTS LIST

| Index | Part Number | Name | Q'ty/Unit |
|-------|-------------|-------------------|-----------|
| 1 | A2255172 | PCB - DIU | 1 |
| 2 | A2255290 | Harness – DIU-FCU | 1 |
| 3 | 04513006B | Screw – M3 x 6 | 3 |