

Facsimile

# OFX 500 / OFX 500 LINKFAX

SERVICE MANUAL

Code 684561S-01



**olivetti**

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Code 684561S-01

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**Olivetti Lexikon, S.p.A.**  
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**WARNING**

Danger of explosion if battery is incorrectly replaced.  
Replace only with the same or equivalent type  
recommended by the manufacturer.  
Dispose of used batteries according to the manufacturer's instructions.

## PREFACE

This manual, intended for service engineers responsible for installing, servicing and repairing the facsimile machines described herein, consists of 12 chapters covering:

- Chapter 1: the *General Features and Technical Specifications*
- Chapter 2: the facsimile machine's *Internal and external structure*
- Chapter 3: the *Installation and setup* procedures
- Chapter 4: how to set the *Software Parameters*
- Chapter 5: the *Diagnostic and testing* procedures
- Chapter 6: the *Settings and adjustments*
- Chapter 7: the *Maintenance and replacement* procedures
- Chapter 8: the *Optional devices*
- Chapter 9: the *Installation of the LinkFax 10 module in Windows 95 environment*
- Chapter 10: the *User Guide of the LinkFax 10 module in Windows 95 environment*
- Chapter 11: the *Installation of the LinkFax 10 module in Windows 3.1x environment*
- Chapter 12: the *User Guide of the LinkFax 10 module in Windows 3.1x environment*

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### NOTICE

Olivetti Lexikon, S.p.A., reserves the right to make changes to the product described in this manual at any time and without notice.

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<p><b>Memory</b></p> <p>Capacity</p>	<p>512 kbytes, of which about 360 available to the user, powered by a backup battery</p>
<p><b>Dialling</b></p> <p>Dialling mode</p> <p>Dialling on facsimile machine</p> <p>Redialling</p> <p>One-touch dialling</p> <p>Speed code dialling</p>	<p>Pulse and tone</p> <p>The number can be dialled directly on the facsimile machine's keypad</p> <p>A number can be redialled in automatic or manual mode</p> <p>10 numerical keys (0 ÷ 9) are available</p> <p>32 memory locations are available, and each may be assigned a facsimile or telephone number ID</p>
<p><b>Other features</b></p> <p>Automatic reception</p> <p>Polling</p> <p>Reports</p>	<p>The facsimile machine can be set to receive a document automatically</p> <p>Polling is available both for transmission and reception</p> <p>Various kinds of reports may be printed (transmission, activity, etc.)</p>
<p><b>Environmental conditions</b></p> <p>Temperature</p> <p>Relative humidity</p>	<p>Operating: from 5°C to 35°C Storage: from 0°C to +45°C Transport: from -15°C to +45°C</p> <p>Operating: from 15% to 85 % (without condensation) Storage: from 15% to 85 % (without condensation) Transport: from 5% to 95 % (without condensation)</p>

- **Half tones**

In the scanning of documents, a scale of 64 half tones can be used for a higher quality reproduction of photographs and pictures.

- **Automatic Document Feeder (ADF)**

The fax machine allows automatic feeding of up to 5 documents in A4, Letter or Legal format, with a maximum thickness of 0.1 mm/sheet.

- **Telephone answering device (TAD)**

The model without a built-in TAD can be connected to an external one.

## 1.2 TECHNICAL SPECIFICATIONS

<b>Physical characteristics</b>	
Type	Desktop transceiver
Dimensions (L, D, H)	359 x 264 (+ 84 <sup>1</sup> ) x 193 (+ 138 <sup>1</sup> ) mm
Weight	5 kg
<b>Operator console</b>	
Display	2 lines of 16 characters
Keypad	<ul style="list-style-type: none"> <li>- 15 function keys of which 4 are dual function and two are triple function</li> <li>- 12 dual-function keys for normal dialling and user name setting</li> <li>- 10 one-touch dialling keys</li> <li>- 1 light indicator</li> </ul>
<b>Power supply</b>	
Operating range	220-240V, 50/60Hz
Absorption	6W (in standby); max 30W
<b>Communication characteristics</b>	
Type of connection	Public telephone network (PSTN) or private branch exchange (PBX)
Compatibility	ITU-TS G3 standard

(<sup>1</sup>) with the document output tray

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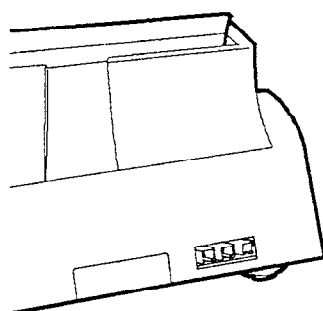
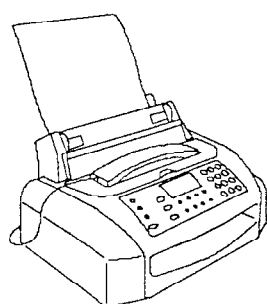
Type of modulation	CCITT V29 / V27ter
Transmission speed	2400 / 4800 / 7200 / 9600 bps
Type of communication	Half duplex
Coding methods	MH, MR, MMR
Transmission time	About 15 s for ITU-TS test sheet n°1 (Slerexe Letter) at 9600 bps in standard resolution
<b>Scanner</b>	
Scanning system	Contact Sensor (CIS)
Resolution	Vertical: 3.85 (standard) / 7.7 (fine) lines/mm Horizontal: 8 dots/mm
Document size (width x length)	From 210 x 148 mm (minimum length) to 216 x 600 mm (maximum length)
Actual scanning area	Horizontal: 216 mm Vertical: within 2 mm of the edge of the document
Automatic document feeder (ADF)	Capacity: 5 sheets of A4 / US Letter / Legal format (max thickness 0.1 mm/sheet) Sheet thickness: min 0.06 mm, max 0.12 mm
Half tones	The facsimile machine can emphasize the contrast of text areas and reproduce pictures with 64 half tones.
Contrast	Three levels are handled: dark, normal and light
<b>Printer</b>	
Printing method	Bubble ink jet on plain paper (standard model) or special paper (LinkFax model)
Printing speed	ITU-TS test sheet n°1 (Slerexe Letter) / about 40 s
Automatic sheet feeder	Capacity: 40 sheets of A4 / US Letter/ Legal format (weight 70-90g/m <sup>2</sup> )
Print resolution	300 x 300 dpi
Actual printing area	208 x 290 (A4) / 273 (Letter US) / 349 (Legal) mm

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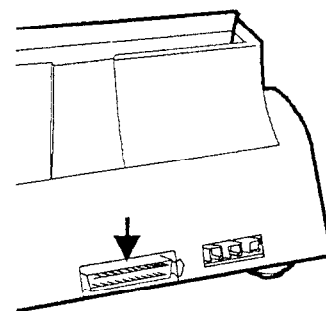
# 1. INTRODUCTION

The two models referred to in this manual are desktop facsimile machines with a bubble ink jet printing system which complies with the ITU-TS G3 standard for document transmission and reception. The most suitable factor to distinguish between the two models is the possibility of using a monochrome print head only or both monochrome and colour print heads, in addition to the availability of a parallel port for PC connection.

The colour model, once connected to a PC equipped with the *LinkFax 10* software communication module, can be transformed into a **multifunctional product** able to perform both **printer** and **scanner** functions in addition to the facsimile traditional features. The colour print head must be used only for printing purposes. All standard facsimile functions require a monochrome print head. In this manual, the two models are referred to as follows:



**Standard** model  
(monochrome)



**LinkFax** model  
(colour)

## 1.1 MAIN FEATURES

- **Bubble ink jet printing**

Allows the use of normal paper with individual sheets of A4, Letter and Legal format.

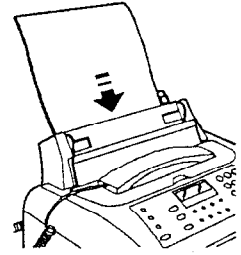
- **Memory capacity**

The fax machine has a memory which enables operations such as *One-touch Dialling*, *Speed Code Dialling* and *Substitute Reception*, as well as the storage of parameters, data and documents. This memory is powered by a backup battery in the event of a power failure.

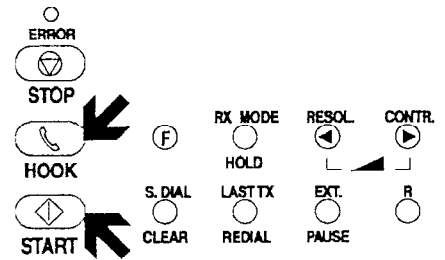
## 1.3 QUICK REFERENCE GUIDE

### 1.3.1 Sending a Fax

1. Insert the document into the automatic document feeder.

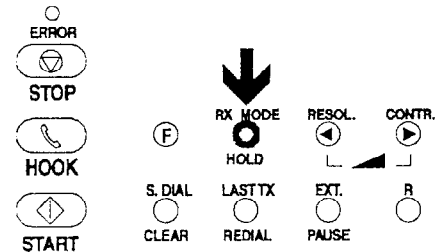


2. Press the **HOOK** key or lift the handset, dial the correspondent's number on the *numeric keypad*, then press the **START** key..



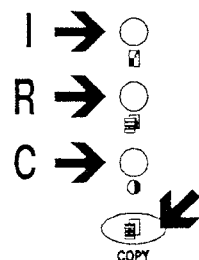
### 1.3.2 Receiving a Fax

1. The facsimile machine is normally set for *automatic reception*: the message AUTOMATIC RX is displayed.
2. If you want to receive a fax in manual mode, press the **RX MODE** key: the message MANUAL RX will be displayed.



### 1.3.3 Using the Facsimile Machine as a Photocopier

1. Insert the document (max 5 sheets) into the automatic document feeder
2. Type on the numeric keypad the number of copies to make (max. 9 copies)
3. If necessary, set contrast (C), resolution (R) and enlargement or reduction rate (I)
4. Press the **COPY** key.





## 2.2.2 Sensors

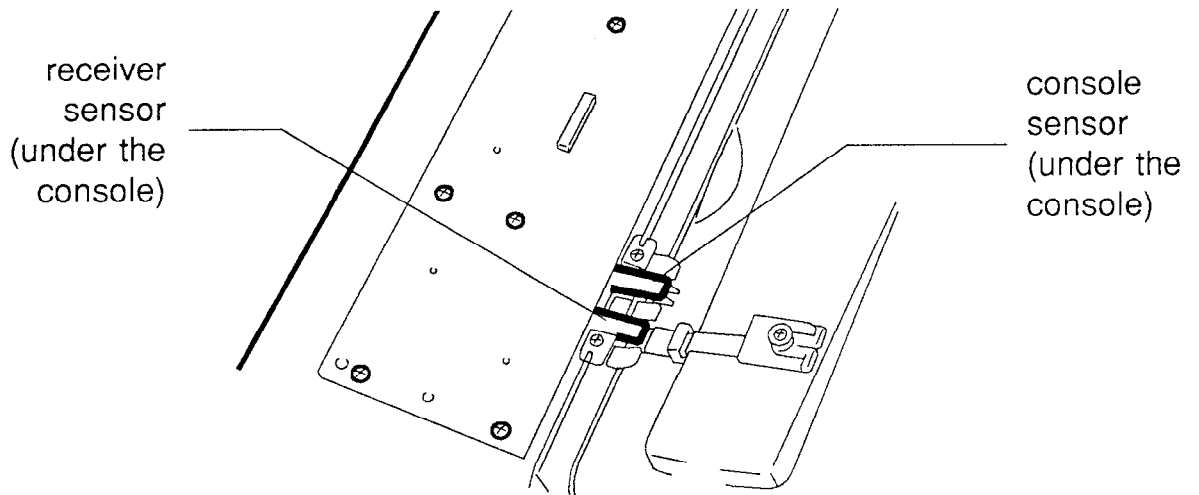


Fig. 2-5 Locating the paper and printer sensors

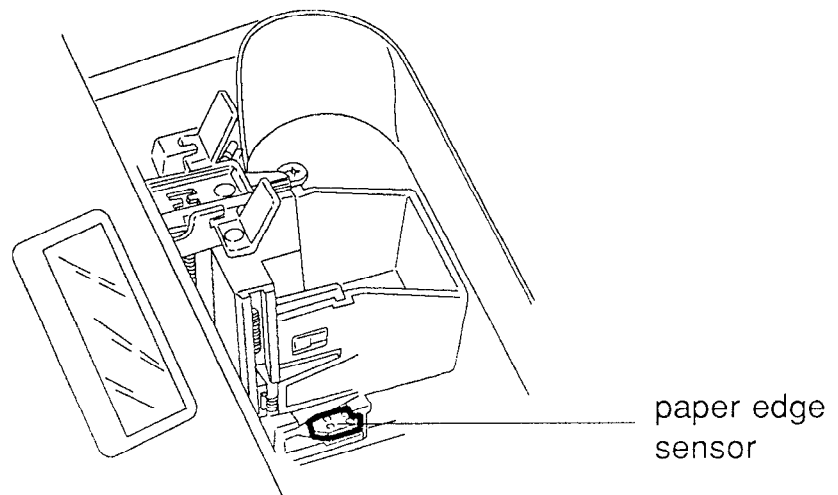


Fig. 2-6 Locating the carriage sensor

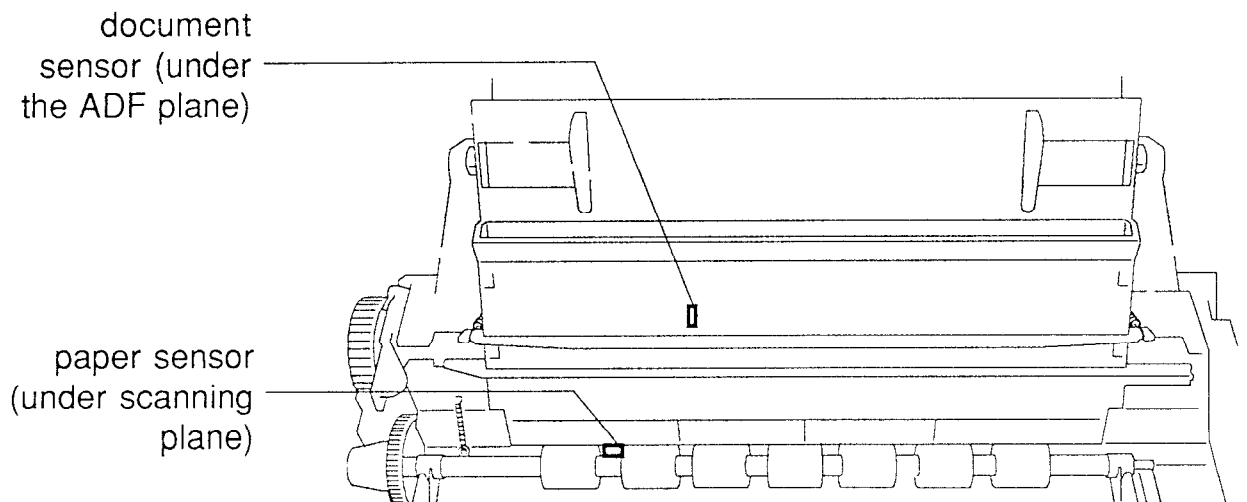


Fig. 2-7 Locating the paper sensors

## 2.1.1 Console

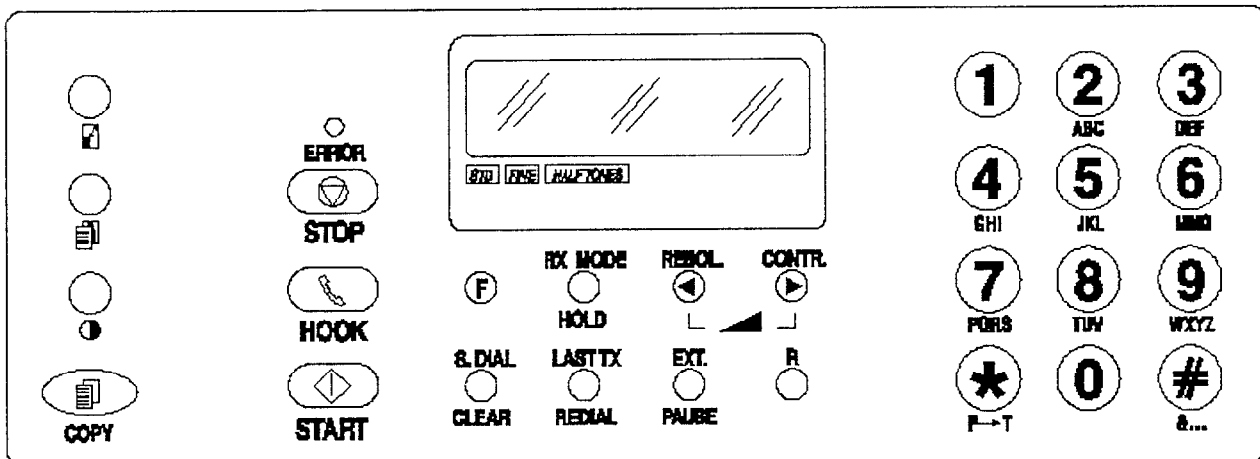


Fig. 2-2 Console layout

The console comprises:

- a **display** consisting of **2 lines of 16 characters** each
- a **keypad** consisting of:
  - 15 function keys (● - □ - ○ - F - COPY - STOP - HOOK - START - F - RX/STANDBY MODE - RESOL. - CONTR. - S. DIAL/CLEAR - LAST TX/REDIAL - EXT./PAUSE - R) of which 4 are dual function keys (RX/STANDBY MODE - S.DIAL/CLEAR - LAST TX/REDIAL - EXT./PAUSE) and two are triple function keys (RESOL. /◀/ – ◀ - CONTR./▶/ ▶ ◀)
  - 12 triple-function keys: for **normal dialling** (0 - 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - \* - #), for **user name setting** (ABD - DEF - GHI - JKL - MNO - PQRS - TUV - WXYZ - I→T - &...), for **one-touch dialling** (0 - 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9) or, in pairs, for **speed dialling**
  - 1 LED for indicating **ERROR** conditions.



## 2.1.2 Functions of the Console Keys

Some keys perform different functions according to the current operating mode of the facsimile machine:




- ① **Stand-by** mode *with document* on the ADF
- ② **Stand-by** mode *without document* on the ADF
- ③ **Function** mode (activated by pressing the FUNCTION key), irrespective of the presence of a document on the ADF
- ④ **Hook** mode (activated by pressing the Hook key or lifting the handset).

Key	Mode	Functions
Number keys	① ④	Used for <i>dialling numbers</i> .
	③	Select <i>alphanumeric</i> characters for setting the user's name.
P→T	① ③ ④	In pulse dialling mode, <i>changes the dialling mode</i> to tone. In tone dialling mode, <i>emits a tone</i> on line for special network services.
★	① ② ④	In tone dialling mode, <i>emits a tone</i> on line for special network services.
★	③	Scrolls <i>forward through the special characters and symbols</i> for the user's name; selects the + character for the user's telephone number; used to dial remote control codes.
#	① ④	In tone dialling mode, <i>emits a tone</i> on line for special network services.
&...	③	Scrolls <i>backwards</i> through the <i>special characters and symbols</i> available for the mnemonic ID.
F	① ②	Provides <i>access to</i> operator selection <i>menus and submenus</i> .
RX MODE	① ②	<i>Changes the reception mode</i> : automatic, manual, FAX/TEL, FAX/TAD.
HOLD	①	During a telephone conversation, <i>puts the call on hold</i> .
RESOL.	①	Selects the <i>type of resolution</i> of the document to be transmitted.
◀	③	<i>Moves the cursor left</i> during entry of the user's name and number.
◀	④	<i>Reduces the volume</i> of the speaker.

>>

Key	Mode	Functions
CONTR.	①	Selects the <i>type of contrast</i> of the document to be transmitted.
▶	③	<b>Moves the cursor right</b> during entry of the user's name and number.
■ _	②④	<b>Increases the volume</b> of the speaker.
S. DIAL CLEAR	①②	<b>Enables</b> the setting of a <i>two-digit code</i> for speed dialling.
	①②③	<b>Clears</b> wrong settings.
LAST TX REDIAL	①②	Pressed once, <b>displays the result of the last transmission</b> .
	①②	Pressed twice, <b>redials the last number</b> .
EXT.	①	When the facsimile machine is connected to a private branch exchange, <b>enables access to the public line</b> .
PAUSE	①②③	<b>Inserts a pause</b> in dialling the number of the called party.
R	④	Enables to access the special functions made available by the network operator and commonly known as REGISTER RECALL.
	①	<b>Switches off</b> the ERROR LED. <b>Stops copying, sending or receiving</b> a document.
STOP	③	Sets the facsimile machine in <b>standby</b> mode.
HOOK	①②	Enables the user to <b>dial the number without lifting the receiver</b> and to <b>monitor the tones</b> through the speaker.
	①	<b>Starts</b> manual reception (with the handset lifted)
	①②	After the number has been dialled, <b>starts sending</b> the document on the ADF.
START	②	After the handset is lifted, it places the facsimile in <b>manual reception</b> mode.
	③	<b>Confirms</b> menus, submenus, parameters and values.
	④	Sets the facsimile in <b>manual reception</b> mode.

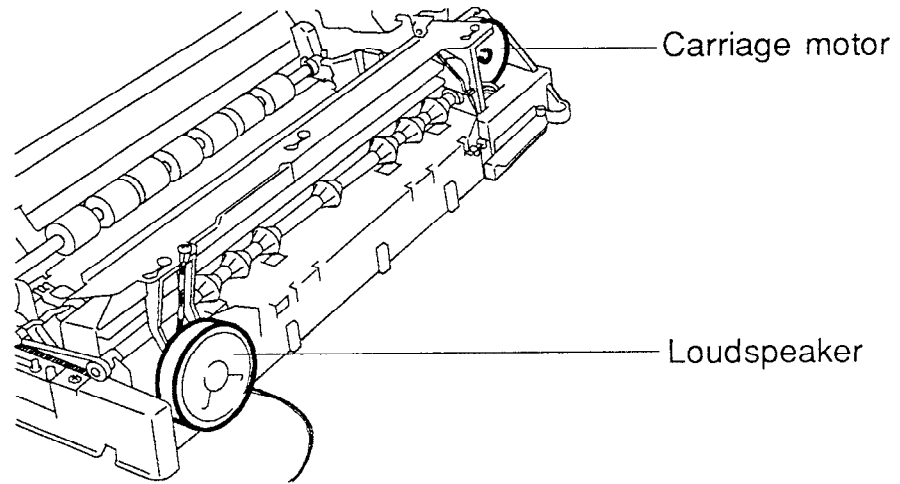
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Key	Mode	Functions
	①	Selects the <b>enlargement</b> (140%) or the <b>reduction</b> (70%) of the document to be copied.
	①	Selects the <b>type of resolution</b> of the document to be copied.
	①	Selects the <b>type of contrast</b> of the document to be copied.
<b>COPY</b>	①	<b>Starts copying</b> the document inserted in ADF.

## 2.2 ELECTROMECHANICAL PARTS

### 2.2.1 Motors, Electromagnet and Loudspeaker

Behind the front side



Rear left-hand side

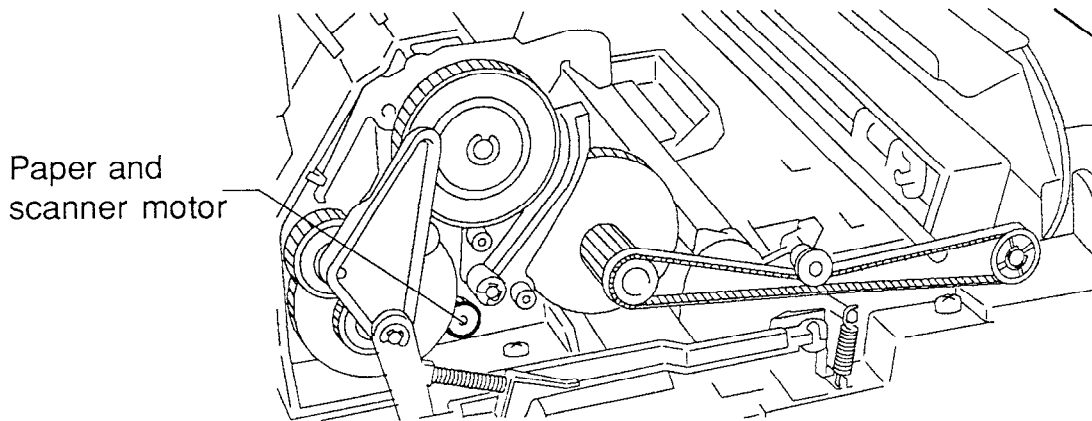


Fig. 2-3 Locating the motors

Underneath the scanning plane

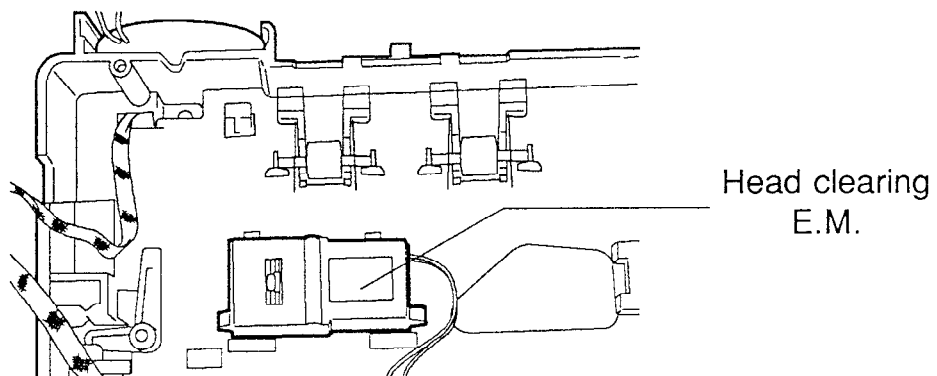
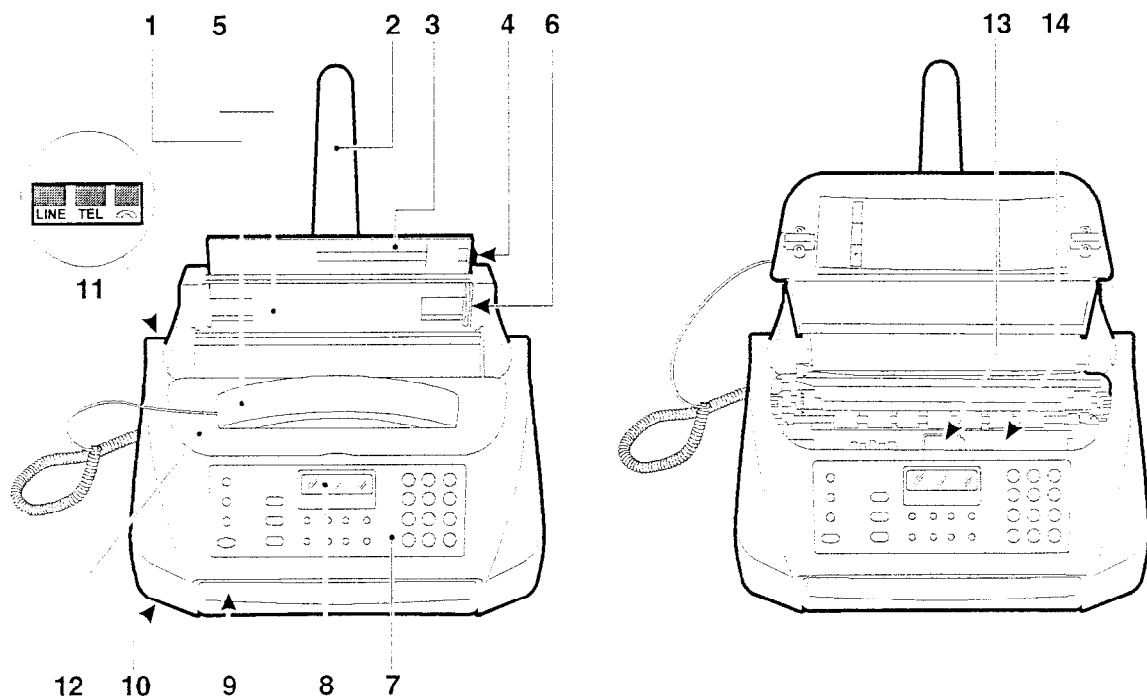


Fig. 2-4 Locating the Head clearing E.M.

## 2. GENERAL DESCRIPTION

### 2.1 EXTERNAL PARTS

The figure shows the main external parts, of the facsimile machine.



- |                                    |   |
|------------------------------------|---|
| 1. Handset                         | 8. Display  |
| 2. Paper support extension         | 9. Outlet for original documents and documents received or copied |
| 3. Automatic sheet feeder (ASF)    | 10. Loudspeaker   |
| 4. Paper format adjustment lever   | 11. Connection sockets  |
| 5. Automatic document feeder (ADF) | 12. Printer lid   |
| 6. Document guides                 | 13. Print carriage  |
| 7. Console                         | 14. Optical reader  |

Fig. 2-1 External parts of the facsimile machine

## 2.3 ELECTRONIC PARTS

Figure 2-8 shows the boards assembled on the facsimile machine.

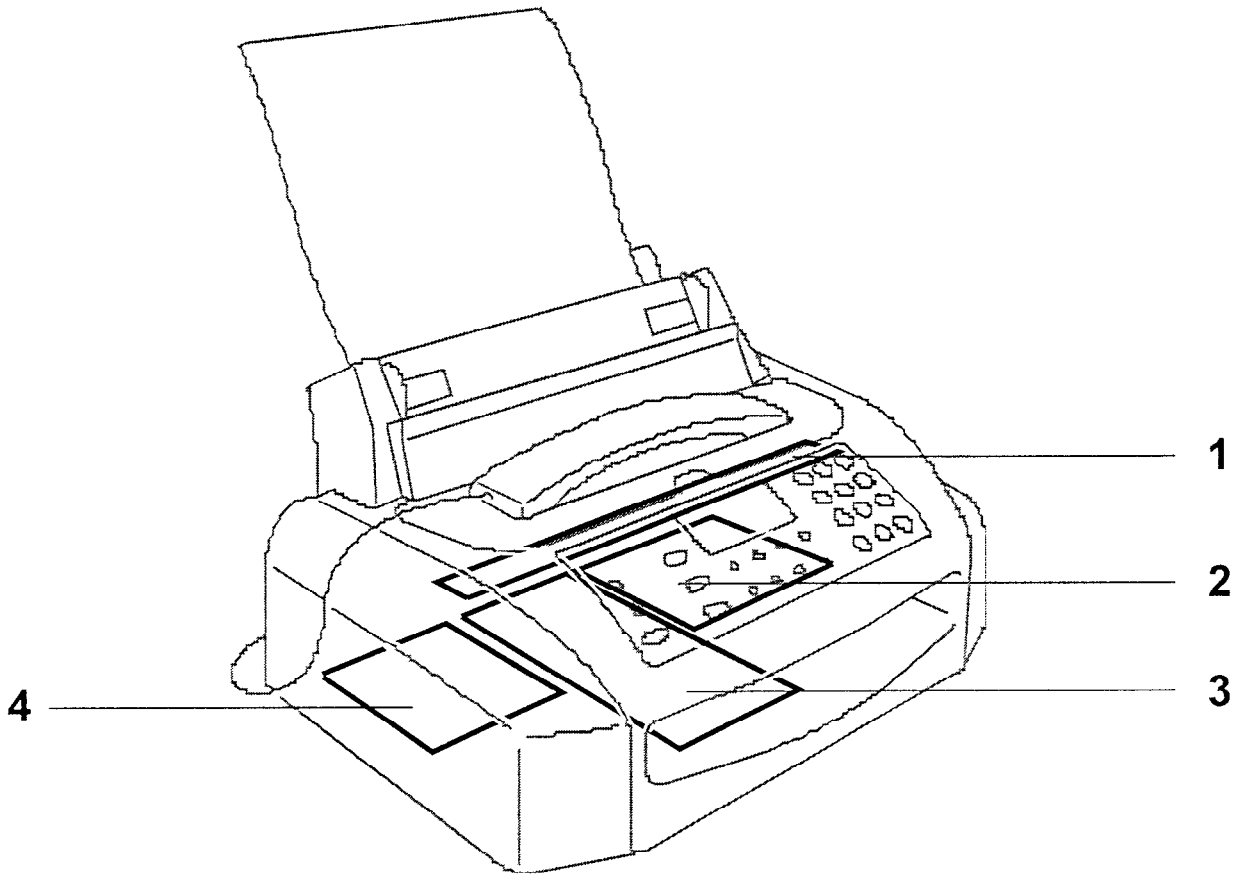
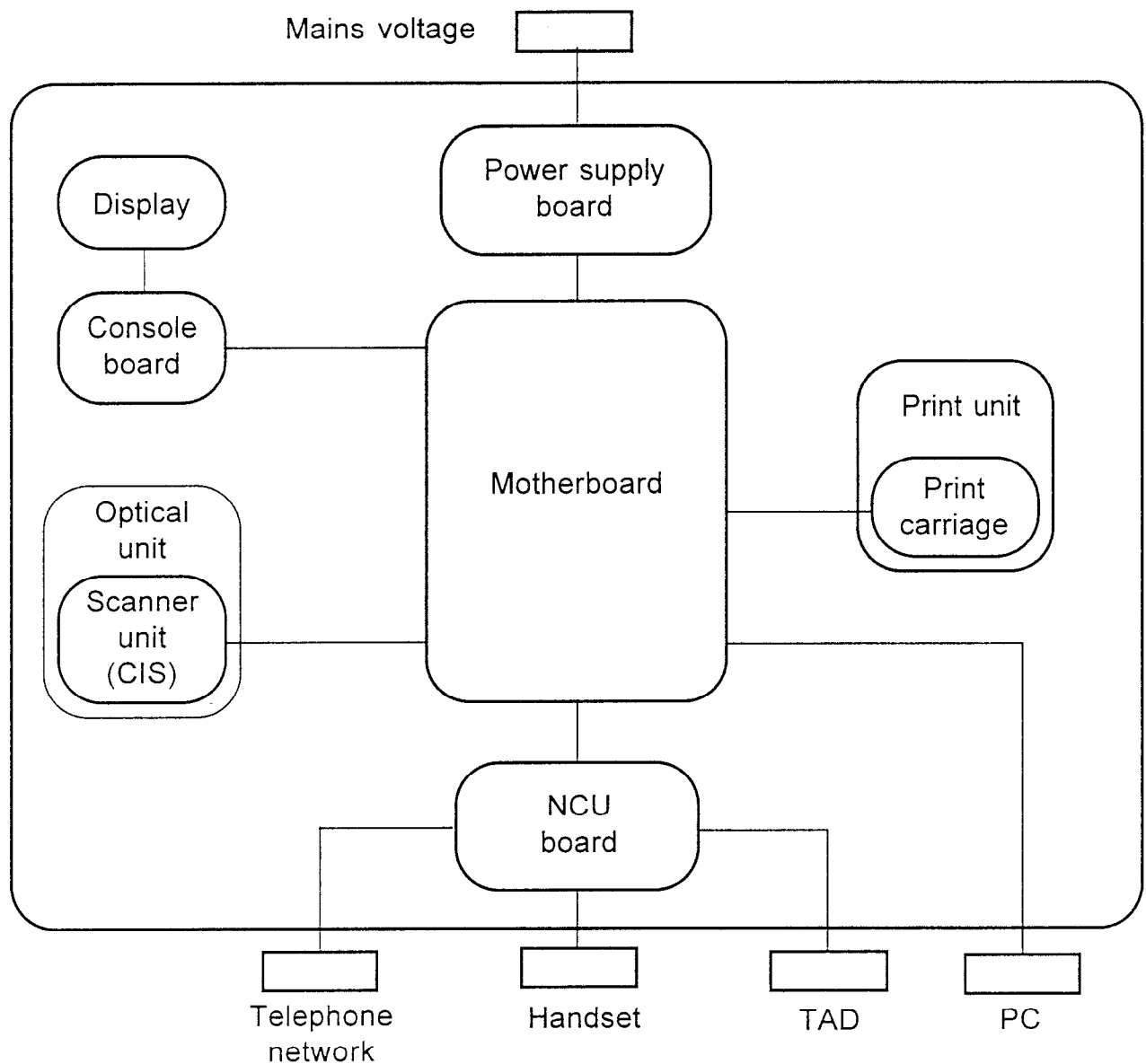


Fig. 2-8 Locating the boards

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1. Contact Sensor (CIS)
2. Power supply board
3. Motherboard
4. Network Control Unit board

### 2.3.1 General Block Diagram



**Fig. 2-9 General block diagram**

The facsimile machine comprises the following main units:

- Motherboard
- Network Control Unit (NCU) board, which also includes the integrated phone circuit
- Console board, with the display
- Power supply board
- Optical unit, consisting of the scanner unit and CIS board
- Printer unit, comprising the carriage and the carriage drive mechanism.

### 2.3.2 Block Diagram of the Motherboard

The motherboard controls the entire machine by means of a central processing unit (CPU) which uses special circuits to handle four main functional units: the image processor (for processing the scanned document), the motors and the E.M. (for activating all the mechanical parts), the print head (for printing both received and copied documents) and the modem (for controlling the signals to and from the telephone network).

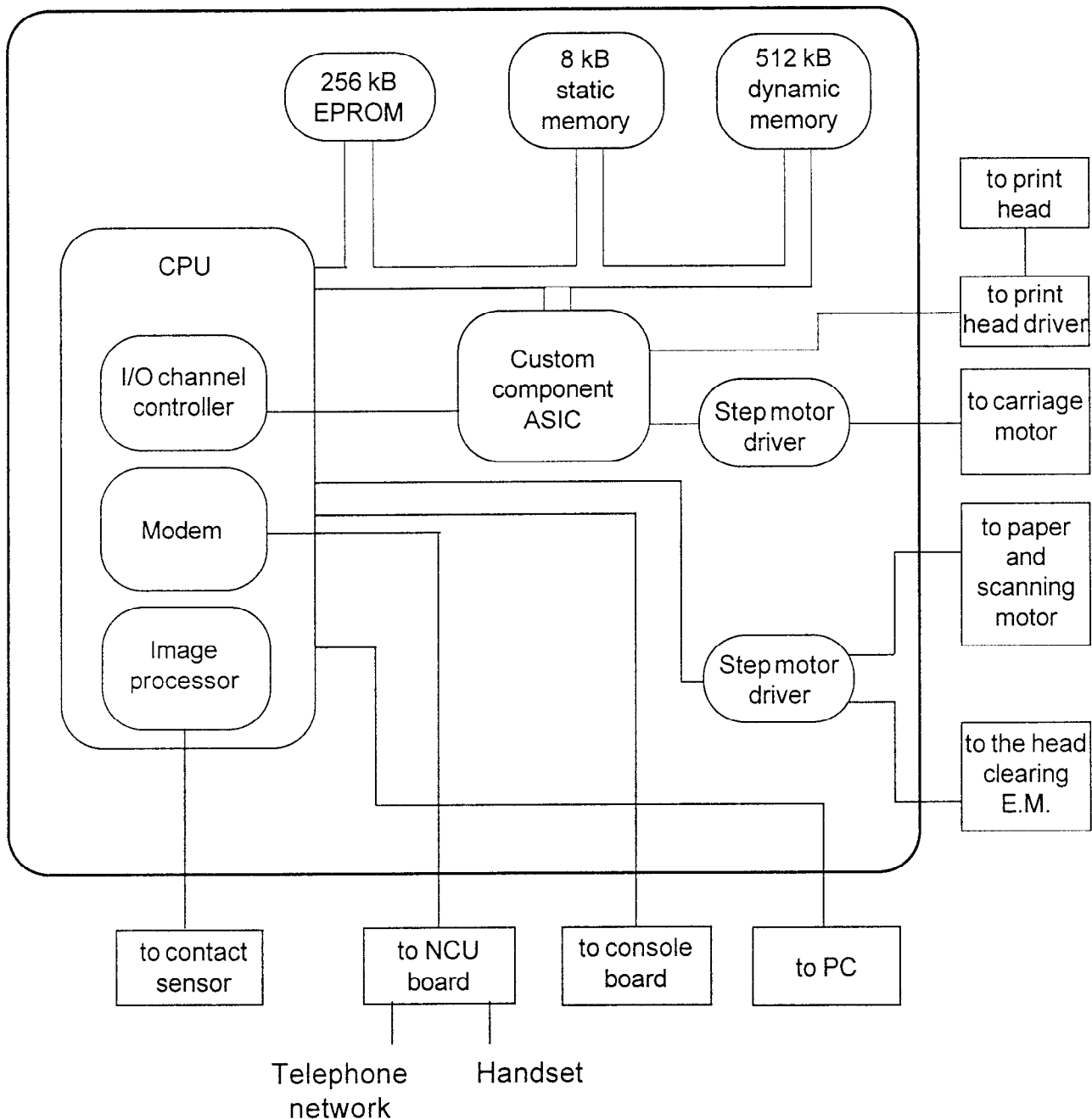


Fig. 2-10 Block diagram of the motherboard



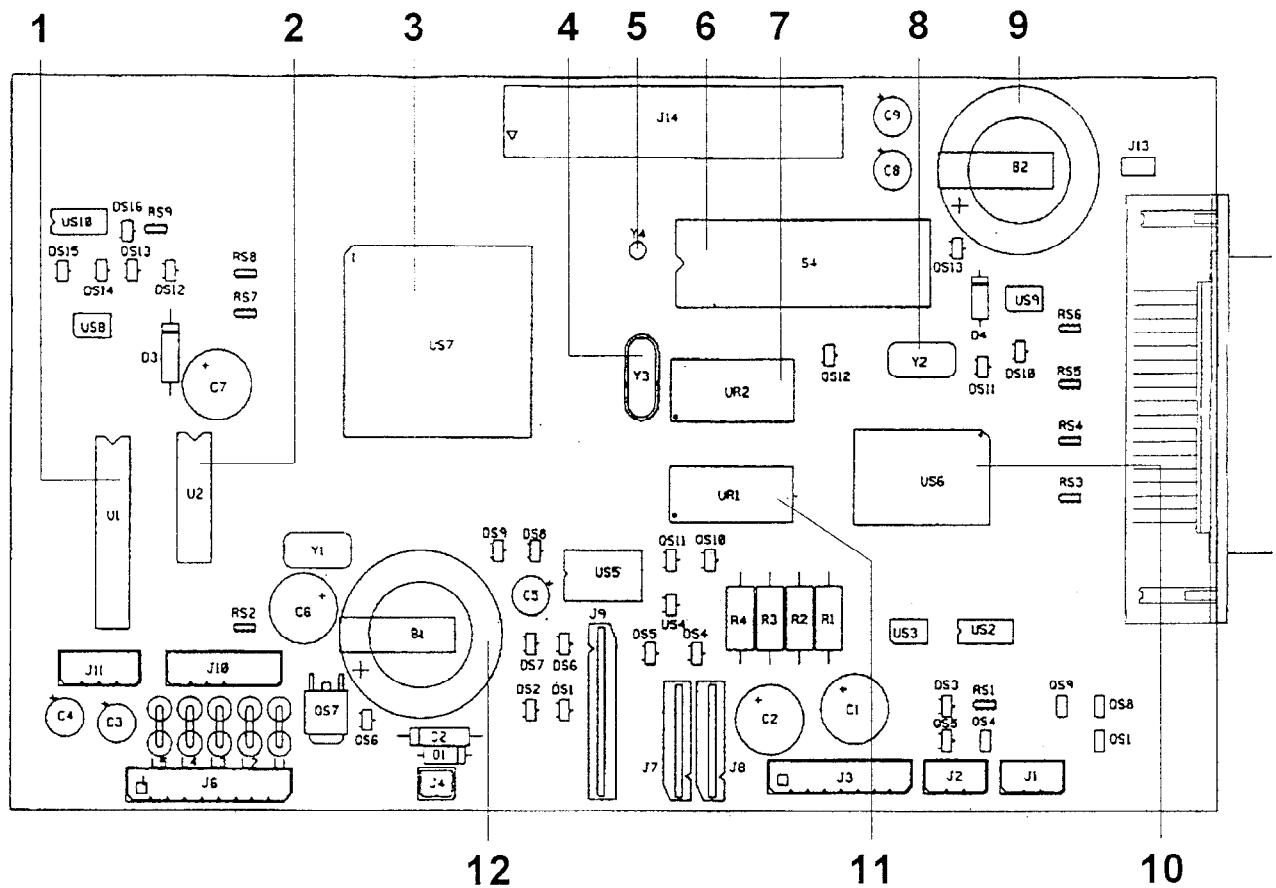
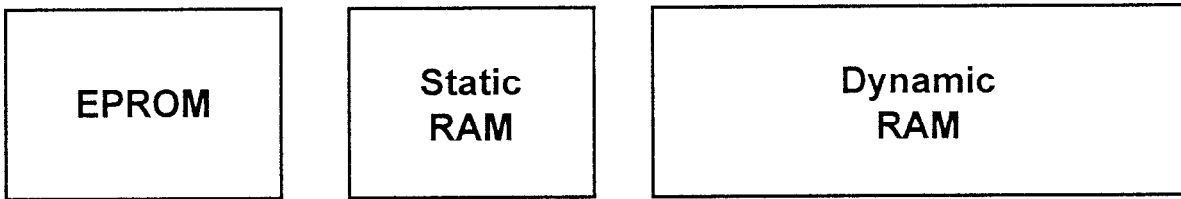


Fig. 2-10a Locating the motherboard components

- |   |   |    |  |
|---|---|----|--|
| 1 | CARRIAGE MOTOR DRIVER                         | 8  | QUARTZ CRYSTAL FOR ASIC (16 MHz)   |
| 2 | PAPER AND SCANNING MOTOR DRIVER               | 9  | BACK-UP RECHARGEABLE BATTERY FOR DYNAMIC RAM (Li, 3 Volts, 72 hour duration) |
| 3 | CPU (WITH BUILT-IN MODEM AND IMAGE PROCESSOR) | 10 | CUSTOM COMPONENT ASIC  |
| 4 | QUARTZ CRYSTAL FOR MODEM CLOCK (20.736 MHz)   | 11 | DYNAMIC RAM (512 kbytes)   |
| 5 | QUARTZ CRYSTAL FOR RTC (32.768 kHz)           | 12 | SYSTEM BATTERY (Lithium, 3 volts, 5-year duration)                           |
| 6 | SYSTEM FIRMWARE EPROM (256 kbytes)            |    |  |
| 7 | STATIC RAM (8 X 8 kbytes)                     |    |  |

The memory block, divided into the following three sections, is an integral part of the motherboard:



- **EPROM** (256 Kbytes), this memory contains the system *firmware*, the default settings of the software parameters and the *messages* in the various languages
- **STATIC RAM** (8 kbytes), this memory contains:
  - the *current user and service software parameters*
  - the *calibration settings* (alignment settings)
  - the *telephone number list* (one-touch dialling numbers and speed code dialling numbers)
  - the *power failure report* with the *memory erasure report* if needed.
- **DYNAMIC RAM** (512 kbytes), this memory contains:
  - the *compression and decompression buffer*
  - the *scanning buffer*
  - the *print buffer*
  - the *transaction memory* (activity reports)
  - the *user memory* (documents to send, documents received in the memory).

The data is retained in the dynamic memory even during a power failure by a *backup battery* capable of powering the system for 72 hours. The facsimile machine *must be left powered for 24 hours* to *recharge* this battery.

The data is retained in the static memory by the *5-year duration system battery*.

### 2.3.3 Block Diagram of the Network Control Unit Board

The NCU (Network Control Unit) board acts as the physical interface with the telephone line. The NCU board is available in several versions, to suit the specific needs of each country.

The NCU board also contains the integrated phone circuitry.

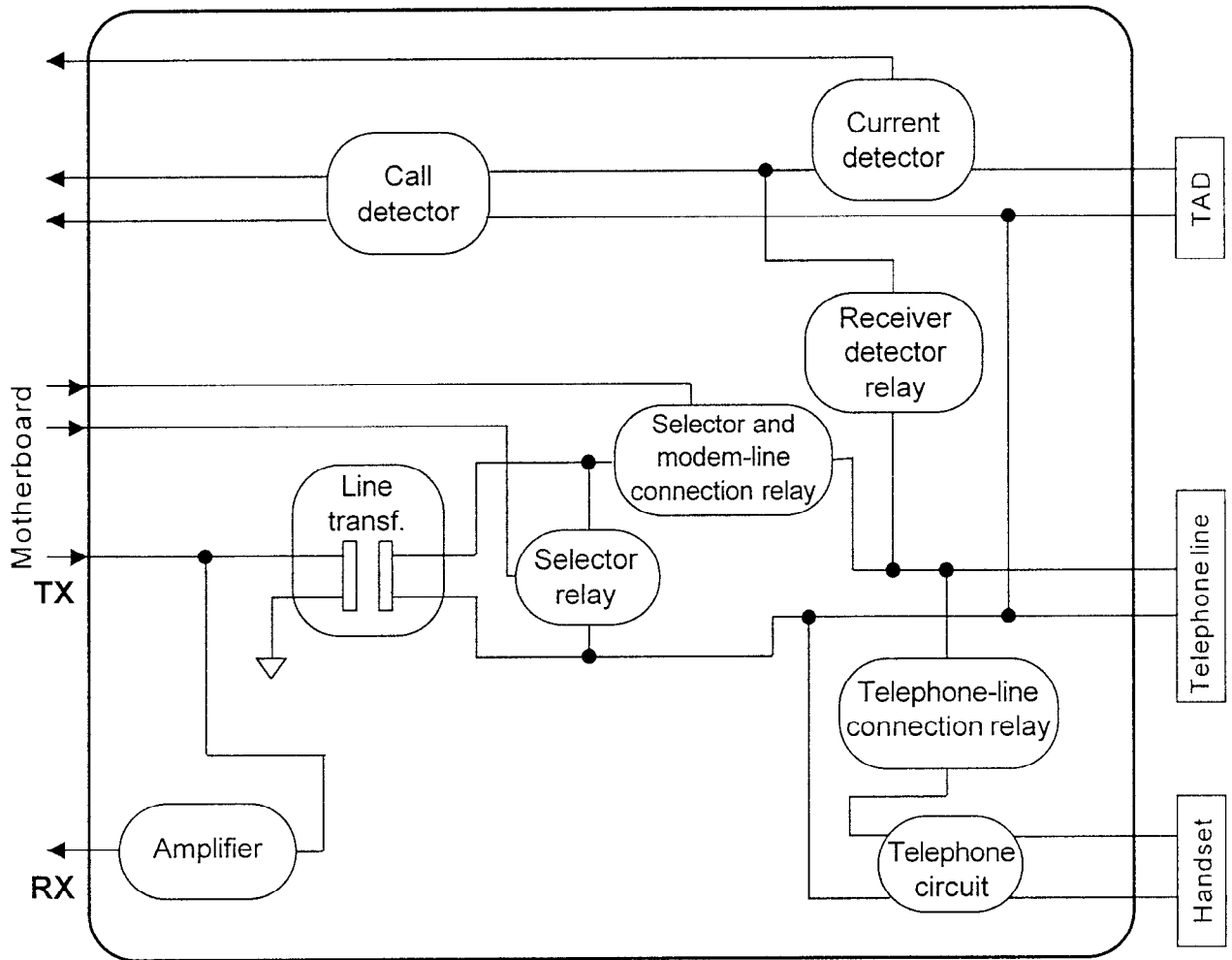


Fig. 2-11 Block diagram of a generic NCU board

### 2.3.4 Block Diagram of the Power Supply Board

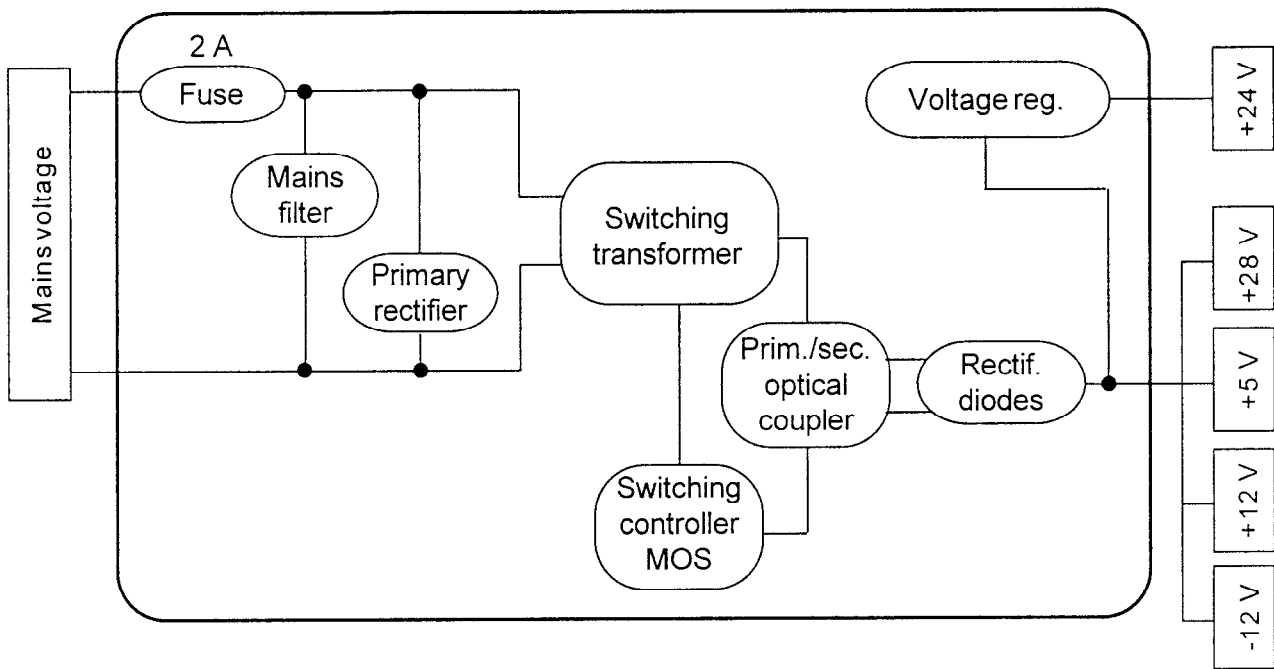


Fig. 2-12 Block diagram of the power supply board

The power supply board provides a maximum power of 30 Watts and supplies, via the switching circuit, the following direct voltages:

- +28 VDC ( $\pm 10\%$ ), for the motors, variable according to the load
- +24 VDC ( $\pm 2\%$ ), for CIS and the print head
- +12 VDC ( $\pm 10\%$ ), for NCU and logic circuits
- -12 VDC (+10% -15%), for logic circuits
- +5 VDC ( $\pm 5\%$ ) for CSI sensors and logic circuits.

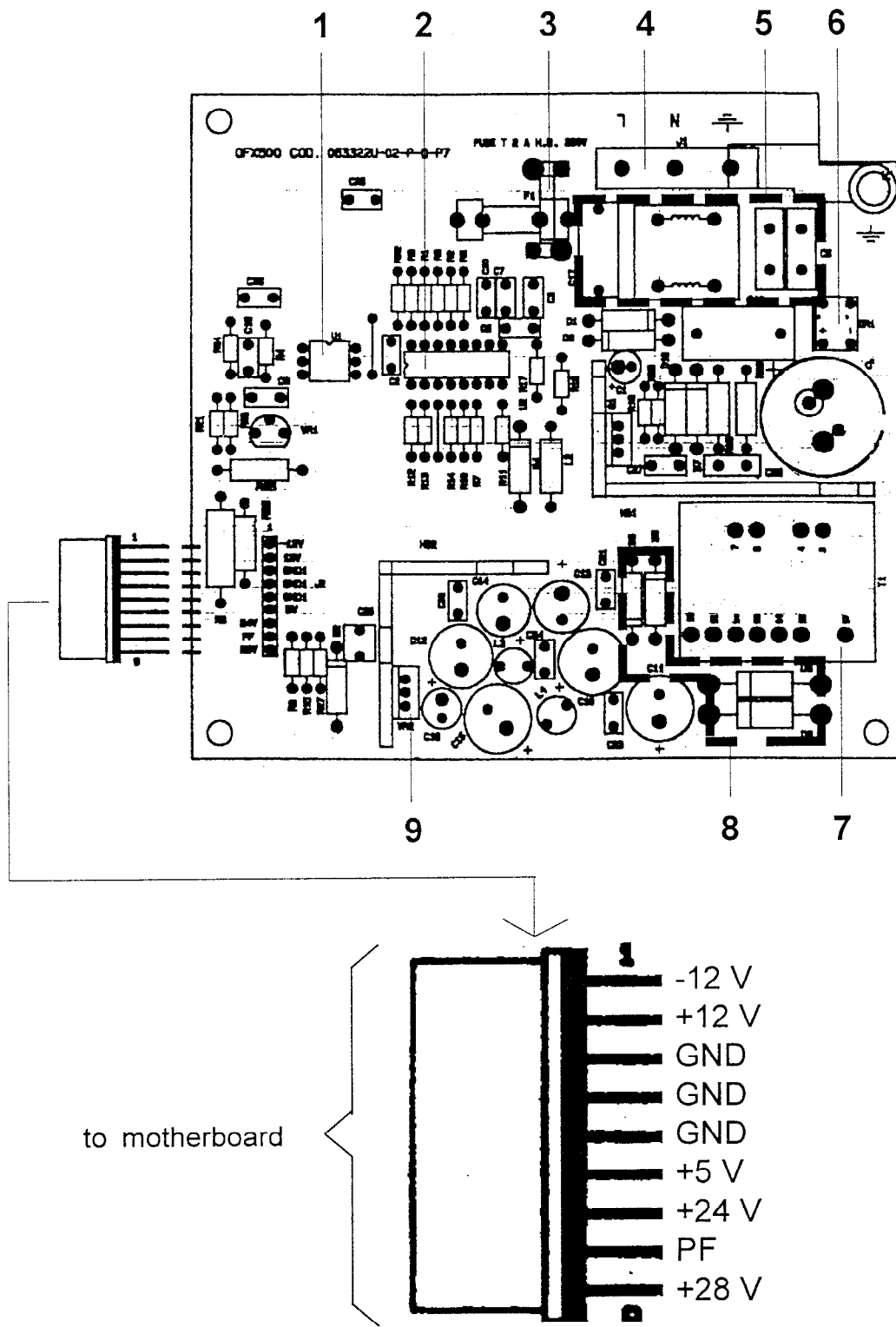


Fig. 2-12a Locating the power supply components

- |                            |                   |                   |
|----------------------------|-------------------|-------------------|
| 1 Prim/sec optical coupler | 4 Mains connector | 7 Transformer     |
| 2 Switching controller MOS | 5 Mains filter    | 8 Diode rectifier |
| 3 Fuse (2A)                | 6 Stabiliser      | 9 +24 V regulator |

### 2.3.5 Printer Unit

The facsimile machine has a bubble ink jet system which uses a special head and prints on plain paper.

The bubble ink jet print head consists of an interchangeable cartridge, which contains a sponge soaked with liquid ink, which is ejected from 50 nozzles made of a nickel and gold component, under the control of the signals that reach an electrical circuit consisting of 50 resistors (Fig. 2-13).

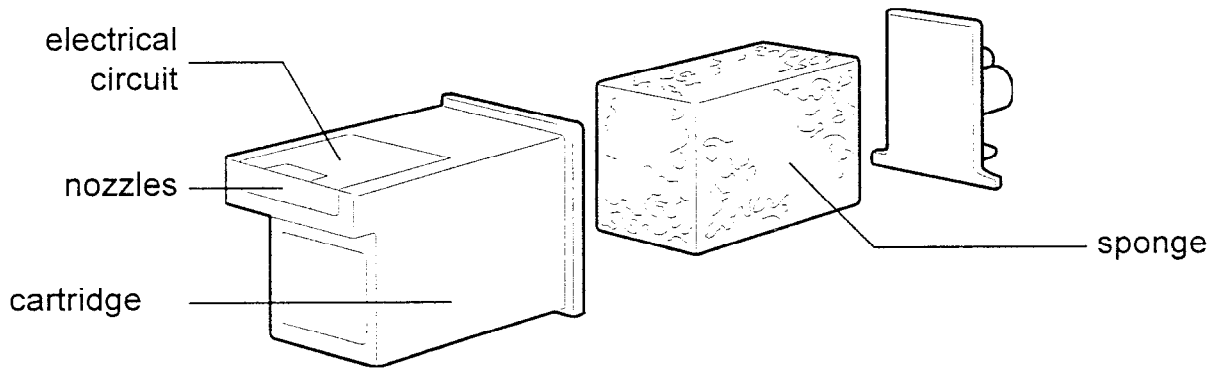
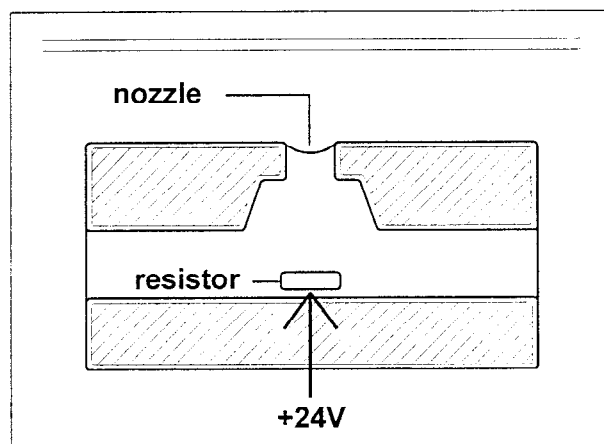
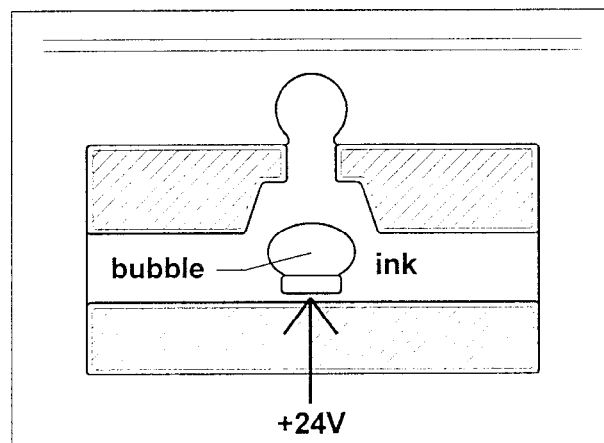


Fig. 2-13 Composition of the print head

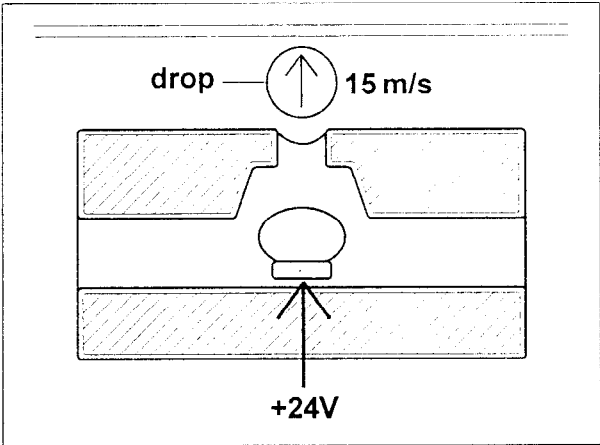
Each nozzle generates a drop of ink when the corresponding resistor is powered (+24 Volt) for a few microseconds.



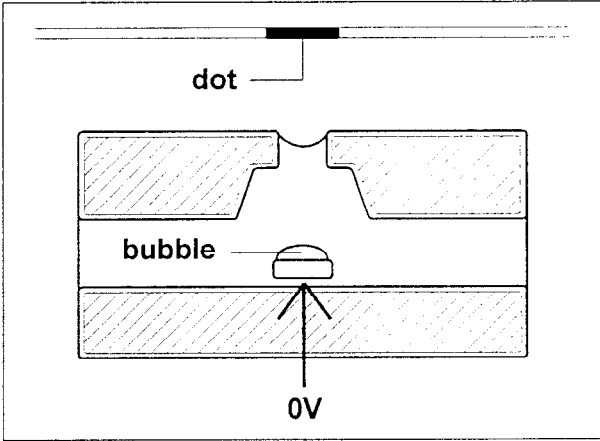
The resistor is heated and the ink that is in direct contact with it evaporates, expanding like a bubble and pressing the rest of the ink against the nozzle.



As a result, a drop of ink is ejected from the nozzle at a speed of 15 metres a second until it strikes the paper on which it makes a dot.



When the resistor is powered off, the bubble collapses quickly, drawing from the sponge a quantity of ink equal to the amount ejected. 800 microseconds after the ink has been ejected, the nozzle is ready to eject another drop.



### 2.3.6 Paper Feeding

The fax machine feeds both the originals (placed in the **ADF**) and the documents received or copied (in the **ASF**) through a single series of rollers **RS** which conveys them towards a single outlet, comprising rear **RP** and front **RA** rollers (fig. 2-14):

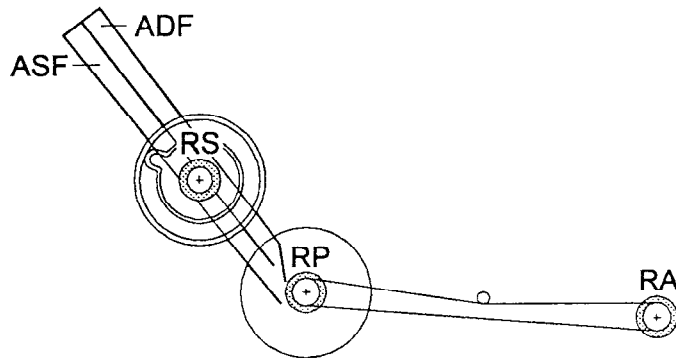


Fig. 2-14 Paper path

A single motor, able to rotate in both directions, can feed the *originals* (*clockwise rotation* of the RS rollers) (fig. 2-15):

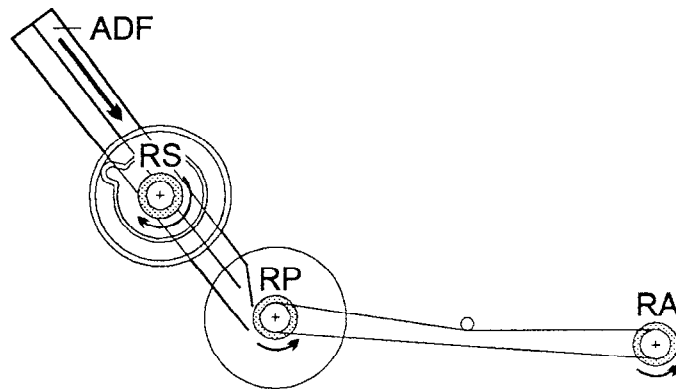


Fig. 2-15 Original document feeding

... or *received or copied documents* (*counter-clockwise rotation* of the RS rollers) (fig. 2-16):

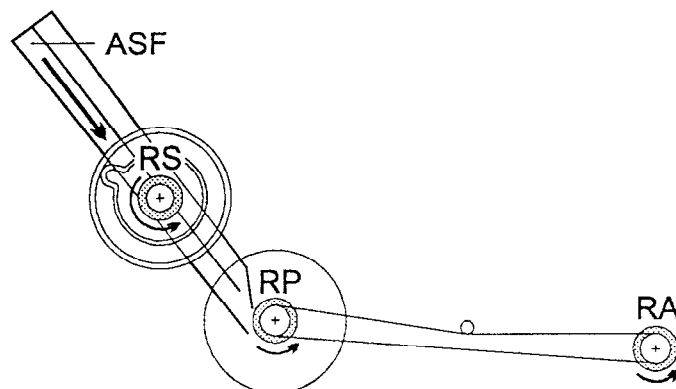
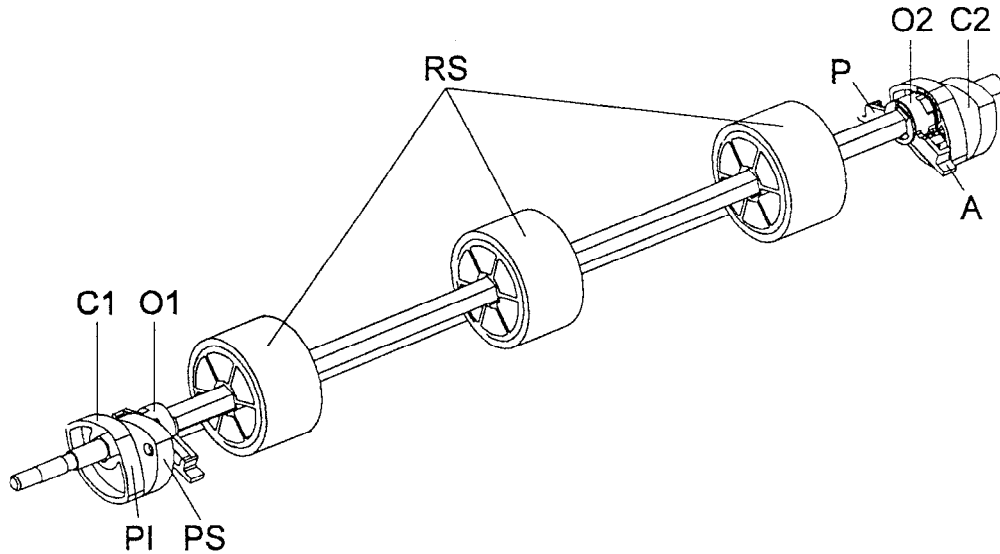


Fig. 2-16 Received or copied document feeding



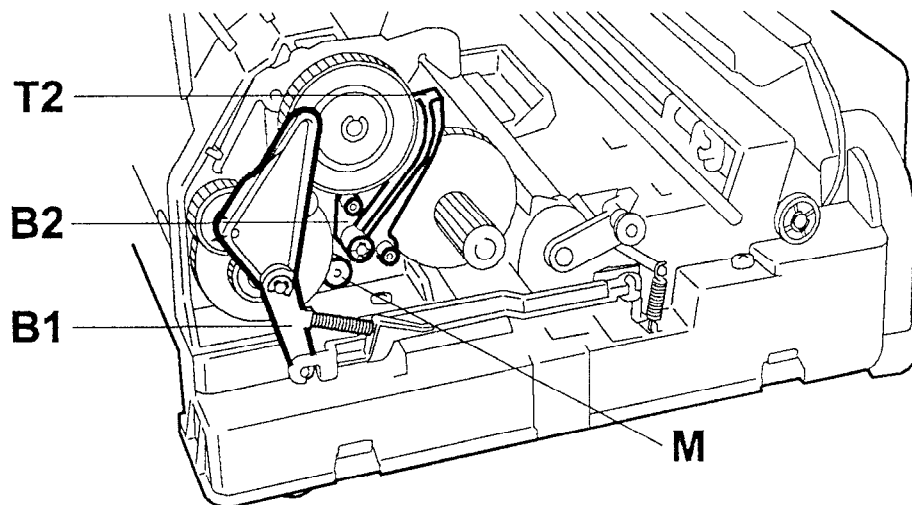
The **RS** roller shaft comprises (fig. 2-17):



**Fig. 2-17 RS roller shaft**

- two series of symmetrical cams **C1** and **C2**, integral with the shaft, which:
  - through the upper profile **PS** move the ADF (or ASF) away from the RS rollers
  - through the lower profile **PI** at the same time allow the ASF (or ADF) to come in contact with the RS rollers
- two oscillating rockers **O1** and **O2**, moved in the shaft rotation, which maintain the ADF (or ASF) in the position detached from the RS rollers, respectively through steps **A** or **P**).

Rotation to the RS shaft is imparted by motor **M** through a series of gear wheels, rocker **B1** and feeler pin **T2** which supports rocker **B2** (Fig. 2-18):



**Fig. 2-18 Paper feed mechanisms**

A paper feeding cycle is started by the *carriage against the left side*. In this position, the motion shown in fig. 2-19 is started, which frees cam **CRS** (integral to the RS roller shaft) from feeler pin **T1** of the rocker **B1**, and simultaneously accomplishes the connection between motor **M** and the cam (in detail) thus allowing the shaft to rotate:

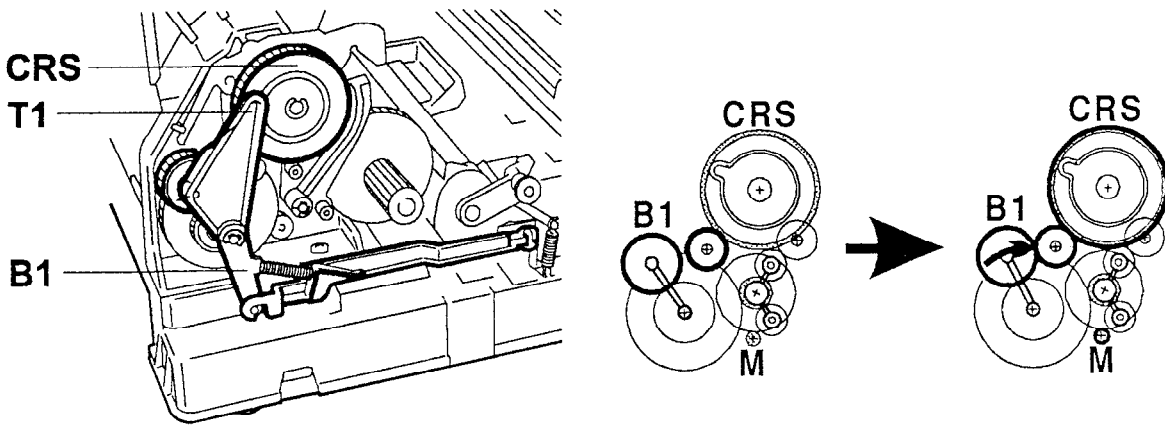


Fig. 2-19 Paper feeding cycle start

Paper feeding conditions in the case of the ADF and in the case of the ASF are described separately below.

### Original document feeding (ADF)

Motor **M** rotates *counter-clockwise* so that the **CRS** cam (and thus the RS roller shaft) rotates clockwise, allowing the original documents contained in the ADF to be fed (Fig. 2-20):

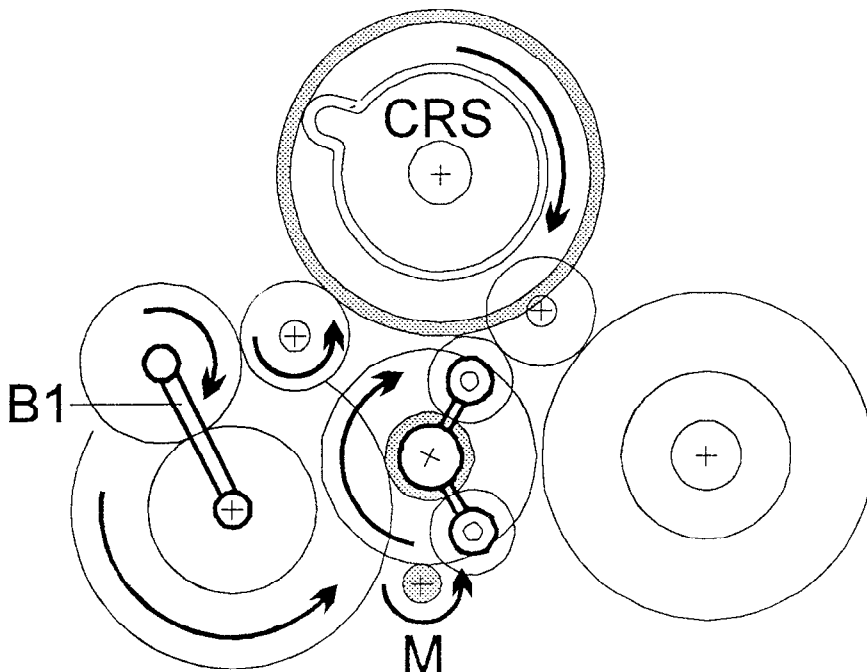


Fig. 2-20 Original document feeding

During the first 360° of rotation of the **CRS** cam, the original is aligned against rear rollers **RP** which are still stationary because, thanks to feeler pin **T2**, neither one of the wheels **R1** and **R2** of the rocker **B2** is engaged with the remaining mechanisms (Fig. 2-21):

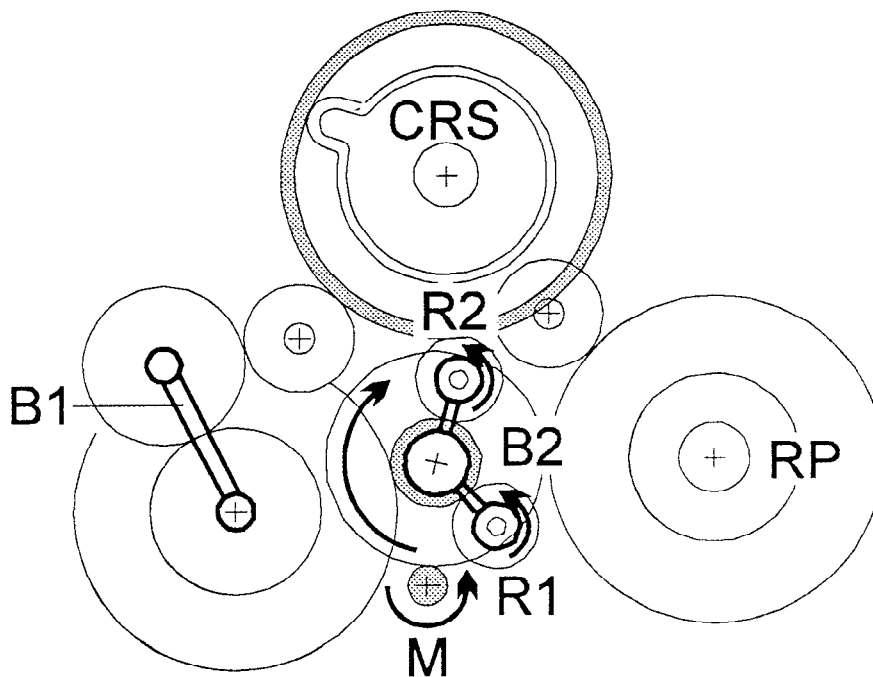


Fig. 2-21 Original document alignment

Subsequently, the feeler **T2** allows rocker **B2**, which is set in motion by friction, to transmit the motion to the rear rollers **RP** thanks to its wheel **R2** (Fig. 2-22):

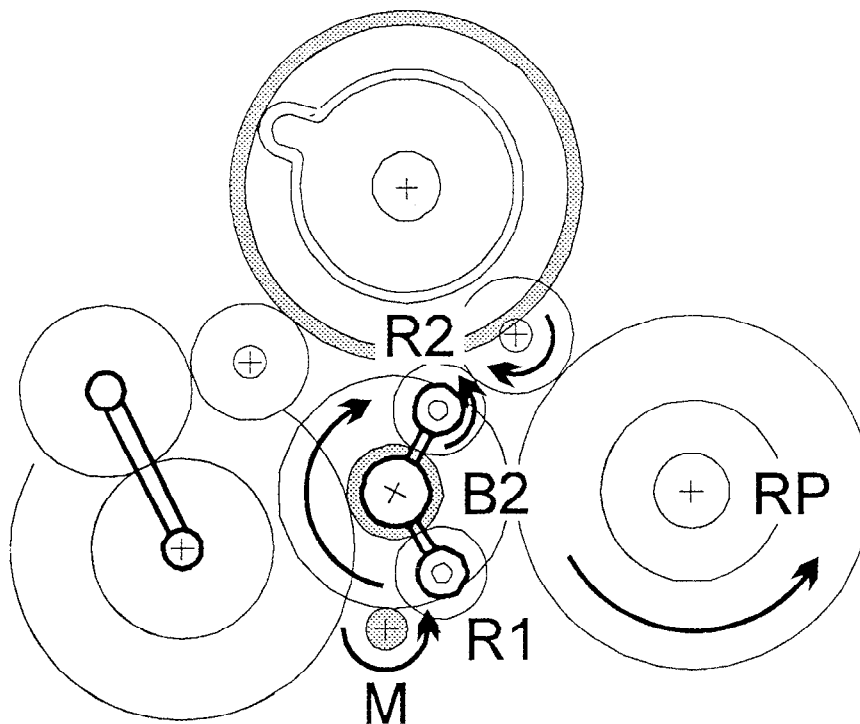


Fig. 2-22 Original document ejection

## Received or copied document feeding (ASF)

Motor **M** rotates *clockwise*, so that cam **CRS** (and thus the RS roller shaft) rotates counter-clockwise, allowing the paper in the ASF to be fed (Fig. 2-23):

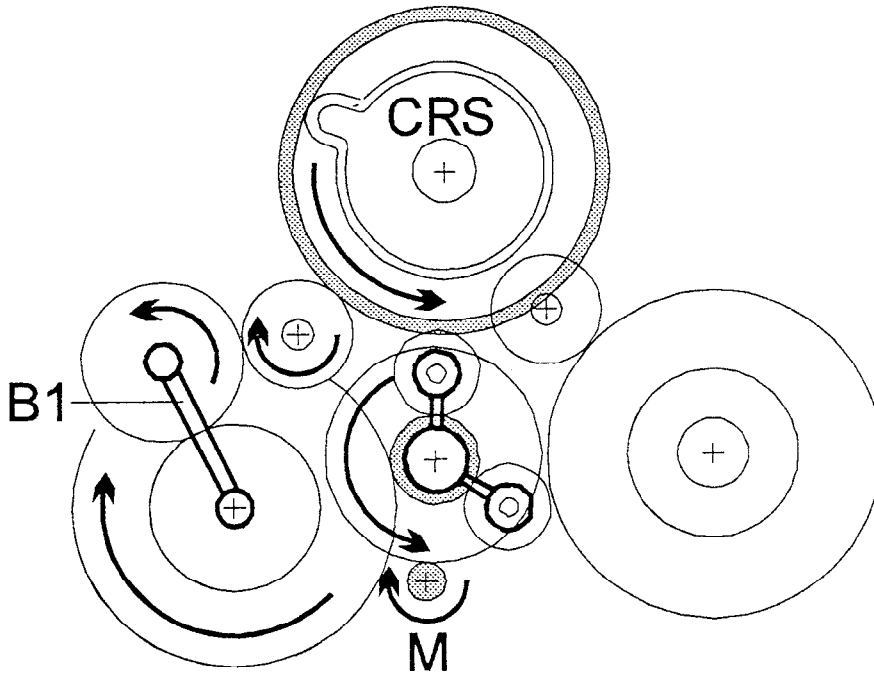


Fig. 2-23 Received or copied document feeding

In this case as well, during the first 360° of rotation of the **CRS** cam, the paper is aligned against the rear rollers **RP**. Subsequently, feeler pin **T2** allows rocker **B2** to transmit motion to rear rollers **RP** thanks to its wheel **R1**. Note that rotation of the **RP** rollers is always counter-clockwise (Fig. 2-24):

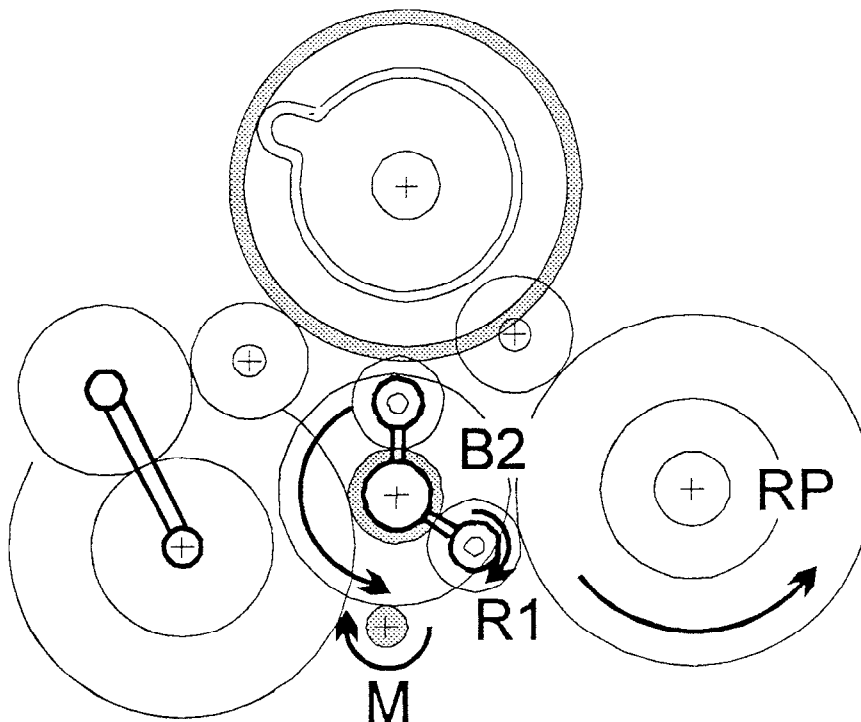


Fig. 2-24 Received or copied document ejection

### 3.2.5 Completing Installation

Installation may be completed by setting the FAX SET-UP to suit the user's needs. See the User Manual for a description of the procedure to be followed.

#### Various parameters

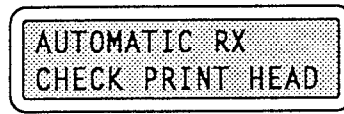
- **ECM** (error correction mode): allows to enable (YES) or disable (NO) the function for *correcting errors caused* by line interference; this function is effective if it is enabled on both connected fax machines.
- **TX FAILURE REPORT**: allows to enable (TX REPORT: ALWAYS) or disable (TX REPORT: NO) the *automatic transmission report print* in case of failed transmission.
- **DELAYED LIST**: allows to enable (YES) or disable (NO) the *automatic print of the delayed transmission parameters* after they have been set.
- **SPEED**: allows to define *transmission speed* (9600 bps / 4800 bps).
- **HEADER**: allows the sender to choose how to send the line with his/her identification data:
  - INT, as the *internal part* of the document to be transmitted (in which case, the header is overlaid onto the contents of the document)
  - EXT, as the *external part* of the document to be transmitted (in which case, the header is transmitted before the document)
- **RESOLUTION**: allows to define the current degree of *transmission resolution* (STD / FINE). The resolution can be changed momentarily at any instant afterwards, using the **RESOL.** key.
- **VOLUME**: it allows to change the *volume of the sound indications* (LOW / HIGH).

#### Print Parameters

- **FORMAT**: allows to define the *format of the sheets* to be used for reception and copying (A4 / LETTER / LEGAL).
- **REDUCTION**: allows to *reduce automatically the size of the printed document* (always received in A4 format) into the following percentages: 94% / 80% / 76% / 70%, or to leave it unchanged (NO).

### 3.1.2 Connecting the Power Cord

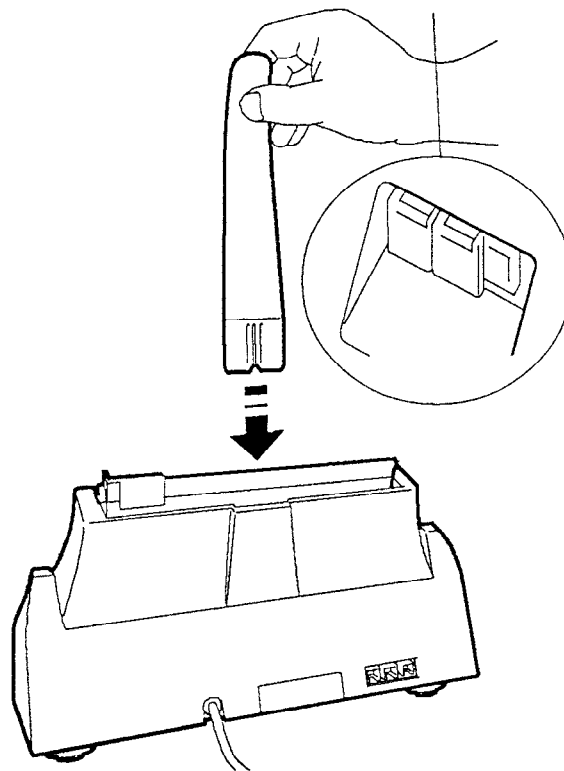
Plug the power cord into the wall socket. The fax machine performs a brief self-test and then shows the following message on the display:



**CAUTION:** If the message does not appear in your language, carry out the country setup procedure described in section 3.2.2 and continue with this procedure starting from the next step.

### 3.1.3 Inserting the Paper Support Extension

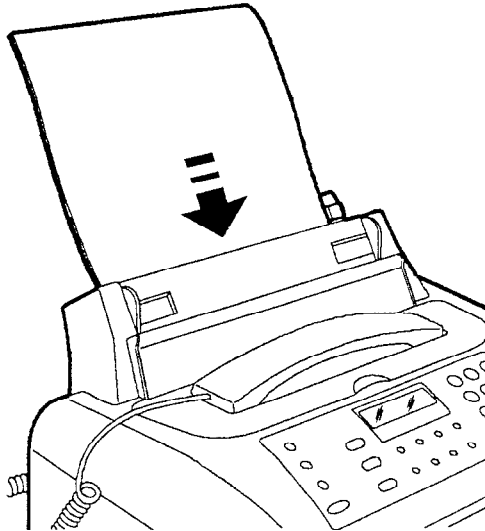
Insert the paper support extension in its slot pushing downward until you hear the latching click.



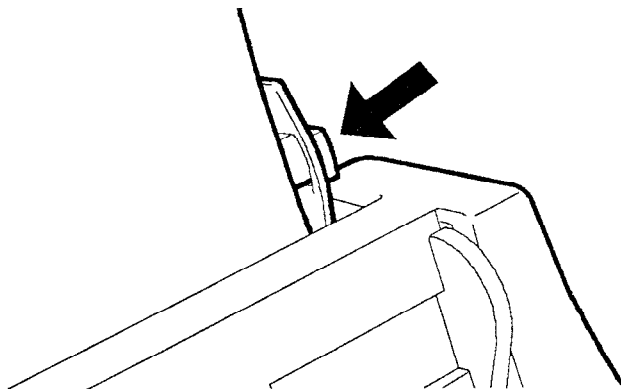
### 3.1.4 Paper Supply

When supplying the paper to print received and copied documents, always pay attention to the following two factors, which must ***always coincide*** to guarantee that the print is properly contained within the width of the sheet in use:

- **paper format**, i.e. width of the sheet in use
  - **print format**, i.e. the value of the FORMAT parameter in the PRINT PARAMETERS menu (see sect. 3.2.1).
- 1) Insert the sheets without going beyond the maximum quantity indicator notch, letting them fall into the tray without bending or forcing them.



- 2) Push the sheets **against the left side** of the tray using the adjustment lever.



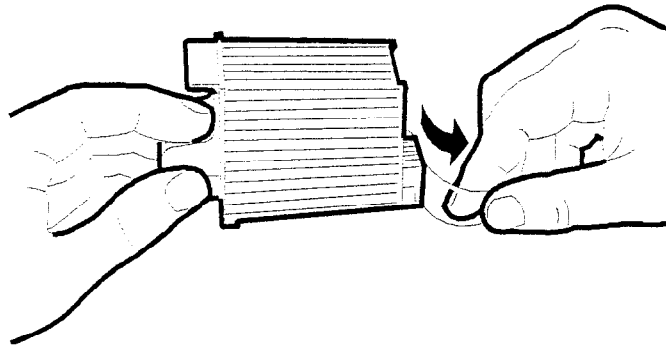
**CAUTION:** When you need to add paper in the tray, insert the sheets under those already present.

- 3) Set the FORMAT parameter of the PRINT PARAMETERS menu to the value **corresponding to the format of the paper** (see sect. 3.2.1)

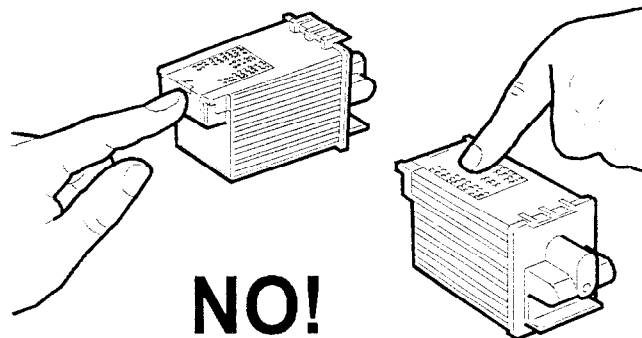
### 3.1.5 Installing the Print Head

- 1) Flip open the printer lid

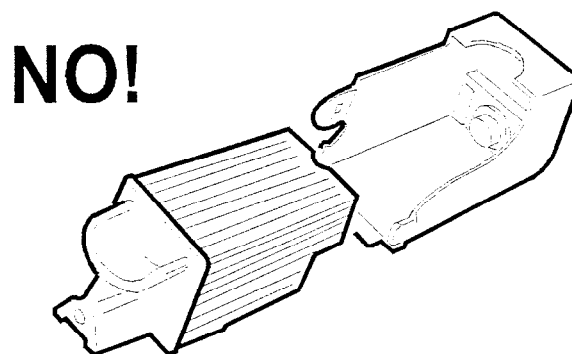
- 2) Open the print head packet and remove the sealed box containing the print head.
- 3) Open the box and remove the print head, holding it by the grip, then remove the label covering the nozzles.



**WARNING:** *do not touch the electrical contacts or the print head nozzles*

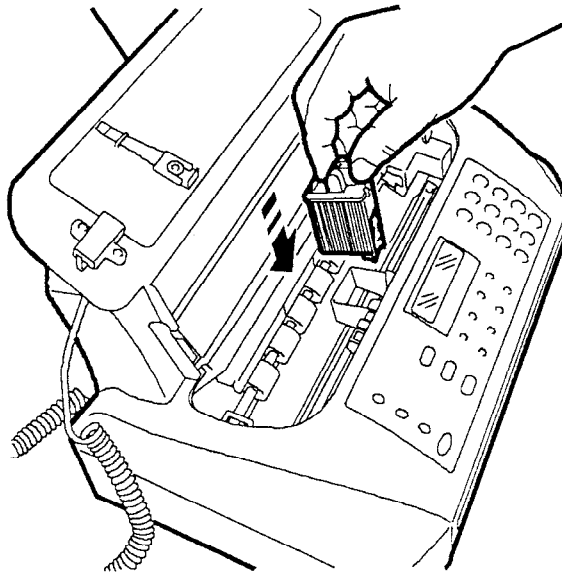


In addition, if the print head has an interchangeable cartridge, *do not separate the cartridge from the print head*

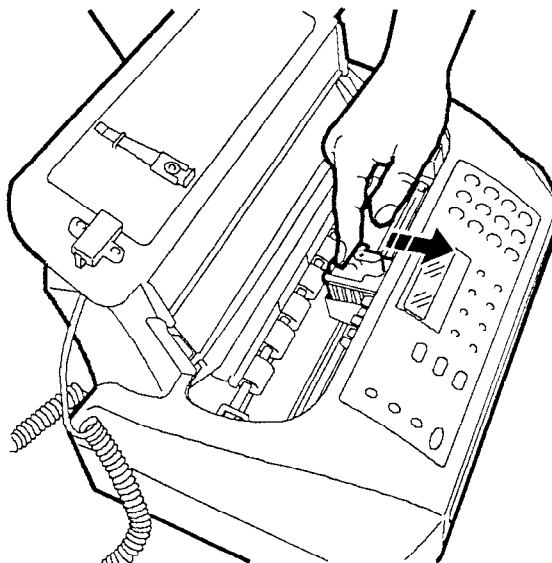


- 4) Tilt the printer cover, then insert the print head in position with the *electrical contacts facing the front* of the machine.



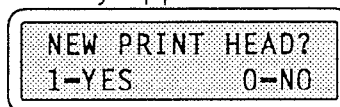


- 5) Taking care not to obstruct the hole on the top, insert your index finger in the recess on the print head and pull it ***until you hear it clearly click into position.***



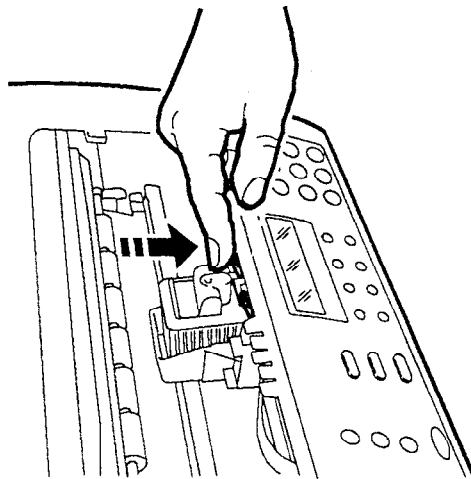
- 6) Having inserted the print head, close the printer cover

**WARNING:** if a ***disposable print head*** has been inserted, the following message generally appears:



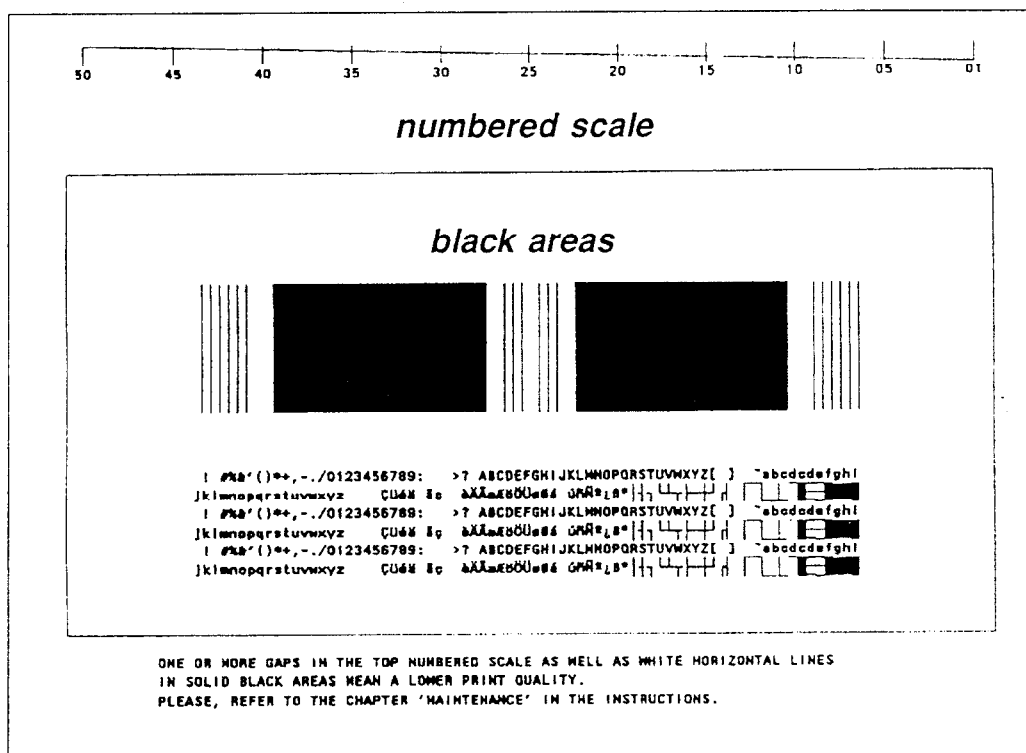
Set the value 1.

- 7) If the CHECK PRINT HEAD appears again, remove the print head pulling the small levers forward:



and visually check for the presence of a particle on the print nib: if so, remove the particle with care, without touching the electrical contacts. If not, the facsimile machine automatically loads a sheet of paper and starts the **nozzle cleaning and checking procedure**, which ends by:

- **printing out** the following **print chart** on the automatically loaded sheet (\*)



which contains:

- a **numbered scale**, for checking the flow of ink and the electrical circuits controlling the print head nozzles
- a section of **graphics and text**, for evaluating print quality

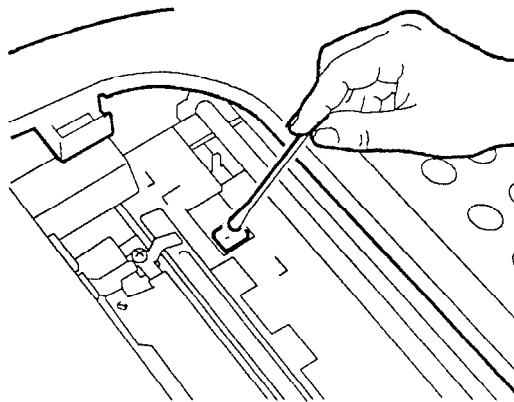
(\*) only if bit 2 of SW09 is set to 1.

- the following **message** appears



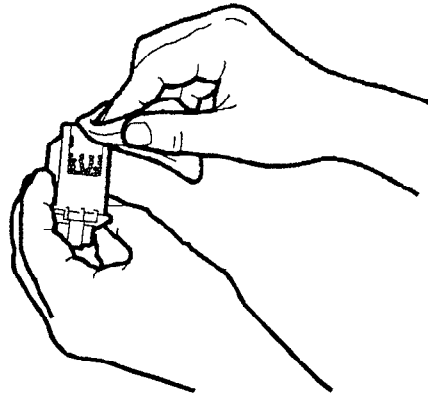
8) Analyse the print chart as follows:

- Check that there are **no gaps** in the numbered scale and that there are **no horizontal white lines** in the black areas: under these conditions, which indicate that the print head has been inserted correctly and is in perfect working order, type **1**: the facsimile machine returns to stand-by and is ready for use
- If there are **gaps or white lines**, type **0** to repeat the nozzle cleaning procedure: if the new print chart is still unsatisfactory, repeat the procedure again
- If the printing quality is still not up to the required standard after the procedure has been performed three times, proceed as follows until a satisfactory print chart is obtained:
  - Make a copy of a document with the desired type of graphics and text and assess its quality.
  - Change the type of paper (the paper you are using may be too porous) and repeat the procedure.
  - Remove and reinsert the print head.
  - Remove the print head and check that there is no foreign body on the printing nib; if there is, remove it with care, taking care not to touch the electrical contacts; slide the print carriage to the right, then clean the print head cleaning pad using a cotton swab soaked in water, taking care not to leave any fluff;

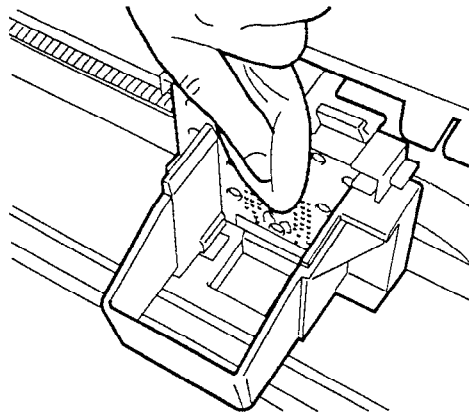


Reinsert the print head.

- Remove the print head and clean the contacts with a piece of felt, pressing firmly;



Clean the contacts on the print carriage with a soft, dry cloth;



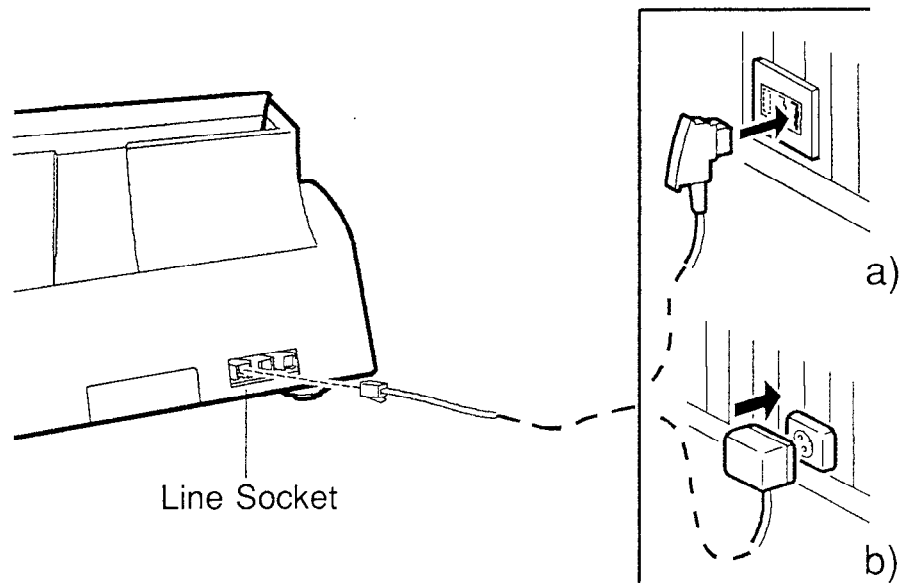
Reinsert the print head.

- Replace the print head
- Replace the print carriage (see section 7.2.15).

### 3.1.6 Connecting to the Telephone Line

**CAUTION:** check that the **power cable** is **plugged into the power outlet**, before connecting the facsimile machine to the telephone line.

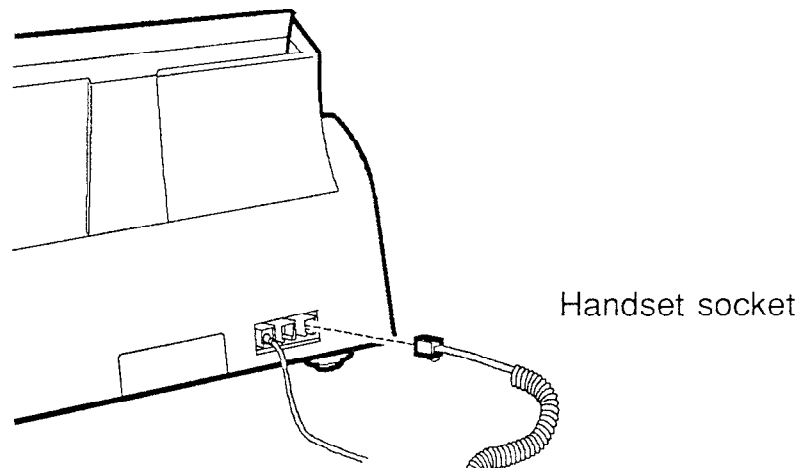
To connect the **facsimile machine** to the telephone line, plug one end of the telephone cable to the line socket (LINE) on the facsimile machine and the other end into a wall socket (a) or using the adapter if necessary (b).




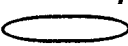
**CAUTION:** If the telephone exchange the fax machine is inserted on is of the type with multiple sockets in series, then the telephone cord must be plugged into the primary socket.

### 3.1.7 Connecting the Handset

Insert the handset cord into the fax machine socket bearing the corresponding symbol, then place the handset in its cradle.

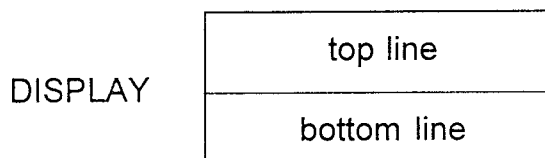


## 3.2 INSTALLING AND SETTING UP THE MACHINE

The procedures used for installing and setting up the machine may be divided into *indispensable* procedures (marked by the background ) and procedures that *depend on the characteristics of the telephone exchange or the user's requirements* (marked by the background )

### 3.2.1 Organization of the Installation and Setup Parameters

The *installation and setup* parameters are organized into *menus* and *submenus*, shown on the display as follows:

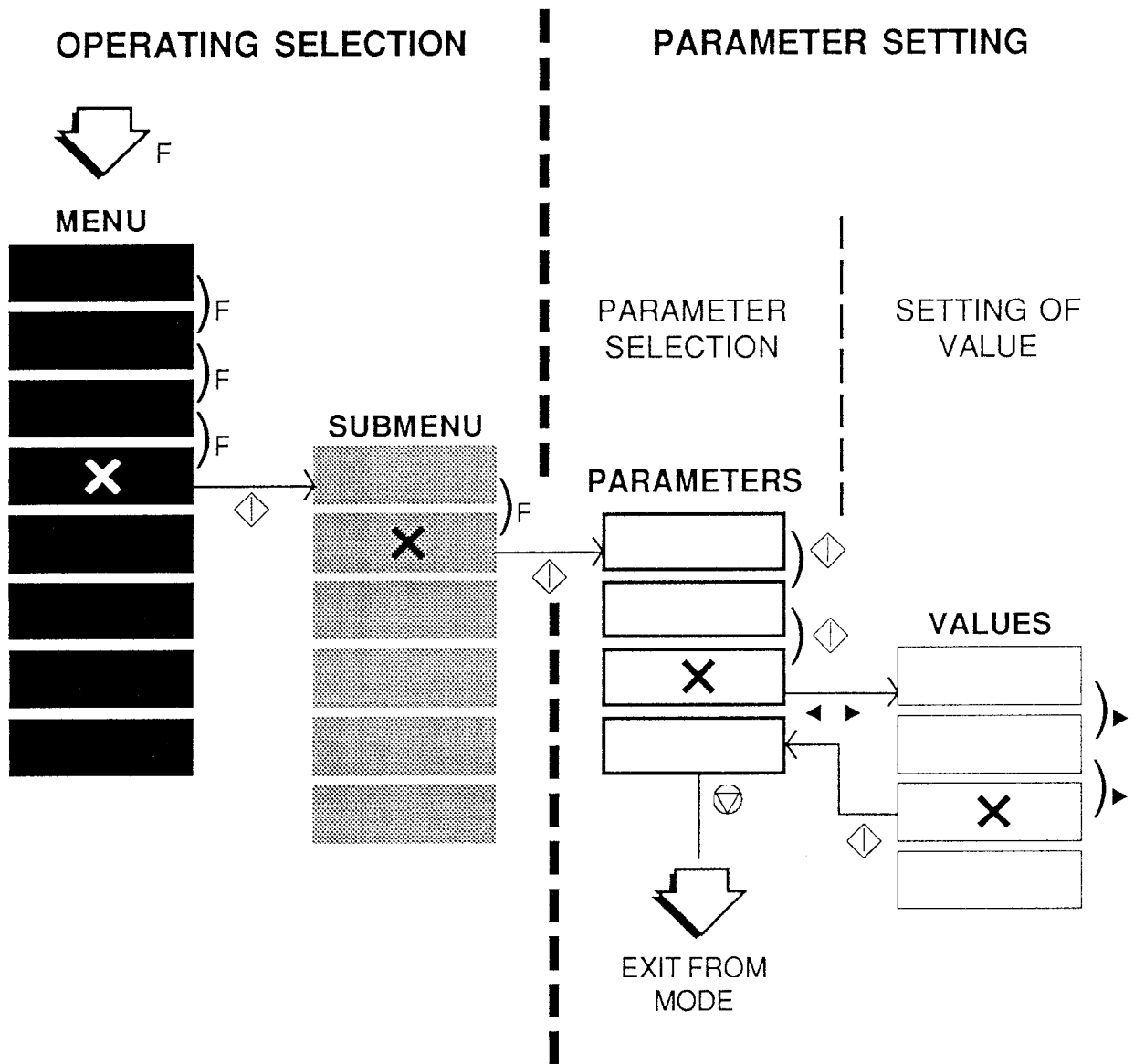


- the *top line* is used for displaying:
  - *menu* and *submenu* items, which represent the operating selections available on the facsimile machine
  - *parameters*, to which a value is to be assigned to make an operating selection
- the *bottom line* is used for displaying the *keys that handle* the items indicated on the top line, that is:
  - F for *selecting menu* and *submenu* items, which can be scrolled cyclically *forwards only*, i.e. from the first to the last and then skipping straight back to the first again
  - (START) for *confirming menu* and *submenu* items, *parameters* and *values*:
    - by confirming a *menu*, you access the corresponding *submenu*
    - by confirming a *submenu*, you access the corresponding *parameters*
    - by confirming a *parameter* or its *value*, you access the *next parameter*

◀ ▶ for **selecting the values** of a parameter, scrolling forwards and backwards through those available on the machine, or for **moving** along the characters that make up the parameter value. In the latter case, the value must then be **set** using the numeric keypad

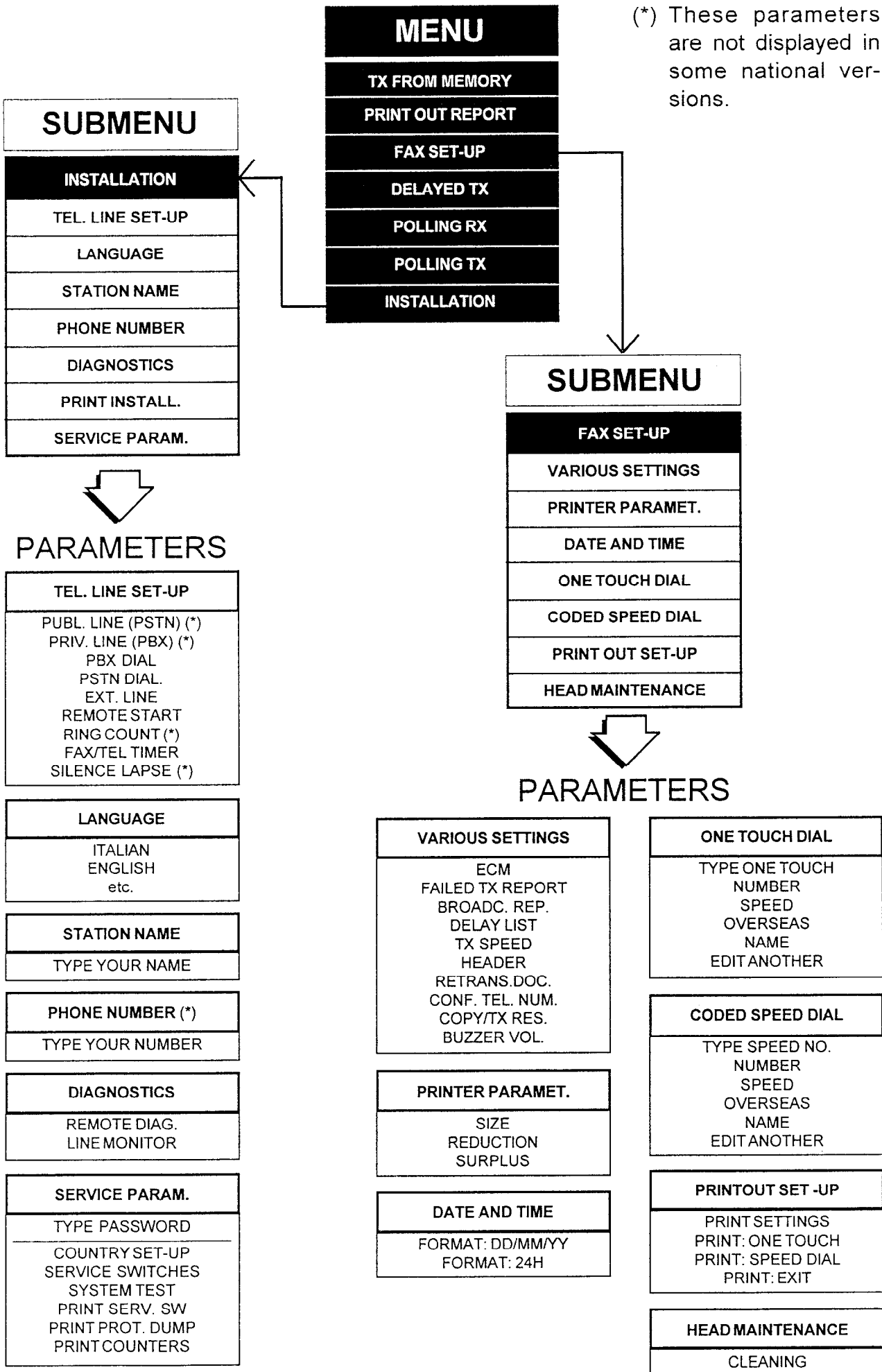
⏏ (STOP) for **exiting from installation or setup mode**.

A schematic diagram of parameter management is provided below:



The figure that follows provides a detailed illustration of the organization of the installation and setup parameters.

(\*) These parameters are not displayed in some national versions.



SUBMENU	
<b>INSTALLATION</b>	
TEL. LINE SET-UP	
LANGUAGE	
STATION NAME	
PHONE NUMBER	
DIAGNOSTICS	
PRINT INSTALL.	
SERVICE PARAM.	

**PARAMETERS**

TEL. LINE SET-UP	
PUBL. LINE (PSTN) (*)	
PRIV. LINE (PBX) (*)	
PBX DIAL	
PSTN DIAL.	
EXT. LINE	
REMOTE START	
RING COUNT (*)	
FAX/TEL TIMER	
SILENCE LAPSE (*)	
LANGUAGE	
ITALIAN	
ENGLISH	
etc.	
STATION NAME	
TYPE YOUR NAME	
PHONE NUMBER (*)	
TYPE YOUR NUMBER	
DIAGNOSTICS	
REMOTE DIAG.	
LINE MONITOR	
SERVICE PARAM.	
TYPE PASSWORD	
COUNTRY SET-UP	
SERVICE SWITCHES	
SYSTEM TEST	
PRINT SERV. SW	
PRINT PROT. DUMP	
PRINT COUNTERS	

SUBMENU	
<b>FAX SET-UP</b>	
VARIOUS SETTINGS	
PRINTER PARAMET.	
DATE AND TIME	
ONE TOUCH DIAL	
CODED SPEED DIAL	
PRINT OUT SET-UP	
HEAD MAINTENANCE	

**PARAMETERS**

VARIOUS SETTINGS	
ECM	
FAILED TX REPORT	
BROADC. REP.	
DELAY LIST	
TX SPEED	
HEADER	
RETRANS.DOC.	
CONF. TEL. NUM.	
COPY/TX RES.	
BUZZER VOL.	
PRINTER PARAMET.	
SIZE	
REDUCTION	
SURPLUS	
DATE AND TIME	
FORMAT: DD/MM/YY	
FORMAT: 24H	
ONE TOUCH DIAL	
TYPE ONE TOUCH	
NUMBER	
SPEED	
OVERSEAS	
NAME	
EDIT ANOTHER	
CODED SPEED DIAL	
TYPE SPEED NO.	
NUMBER	
SPEED	
OVERSEAS	
NAME	
EDIT ANOTHER	
PRINTOUT SET -UP	
PRINT SETTINGS	
PRINT: ONE TOUCH	
PRINT: SPEED DIAL	
PRINT: EXIT	
HEAD MAINTENANCE	
CLEANING	


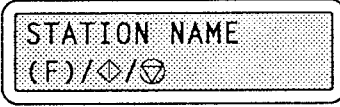
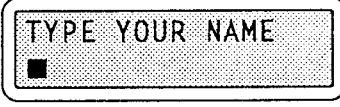
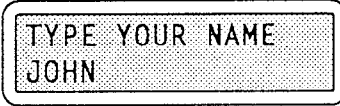


## 3.2.2 Setting the Country Parameters

This procedure enables you to adapt some specific parameters automatically to the values preset for a particular country.

Setting	Display
a) The facsimile machine is in stand-by mode	AUTOMATIC RX 09-05-95 14:58
b) Press <b>F</b> to access the main menu	FAX SET-UP (F)/◊/▽
c) Select the SERVICE SWITCHES submenu of the INSTALLATION menu.	SERVICE SWITCHES (F)/◊/▽
d) Press ◊	TYPE PASSWORD ■
e) Enter the number <b>5 0 0</b> and press ◊ to enter " <b>service</b> " mode	COUNTRY SETUP ◊/▽/←/→
f) Press ◊ to confirm the COUNTRY SETUP item	AMERICA ◊/▽/←/→
g) Select the desired country (for example, <b>U.K.</b> ), and then press ◊: the values for the selected country are automatically loaded, then the facsimile machine returns to stand-by mode.	U.K. ◊/▽/←/→
	AUTOMATIC RX 09-05-95 14:58
<b>WARNING:</b> After setting the country parameters it is possible, whenever necessary, to reload the default values for the current country, by pressing in rapid sequence ▽ # # followed by <b>START</b> .	COUNTRY SETUP ◊/▽

### 3.2.3 Storing the User's Number and Name

Setting	Display																								
a) The facsimile machine is in stand-by mode																									
b) Access the main menu and select the STATION NAME item on the INSTALLATION menu																									
c) Press </>																									
d) Enter the user's <i>mnemonic ID</i> : <ul style="list-style-type: none"> <li>- you can use a <i>maximum of 16 alphanumeric characters</i></li> <li>- select <i>one character at a time</i> using the numeric keys, as shown below:               <table border="0" style="margin-left: 20px;"> <tr><td>key 0, characters:</td><td>0</td></tr> <tr><td>key 2, characters:</td><td>2 A B C</td></tr> <tr><td>key 3, characters:</td><td>3 D E F</td></tr> <tr><td>key 4, characters:</td><td>4 G H I</td></tr> <tr><td>key 5, characters:</td><td>5 J K L</td></tr> <tr><td>key 6, characters:</td><td>6 M N O</td></tr> <tr><td>key 7, characters:</td><td>7 P R S</td></tr> <tr><td>key 8, characters:</td><td>8 T U V</td></tr> <tr><td>key 9, characters:</td><td>9 W X Y</td></tr> <tr><td>key 0, characters:</td><td>0 Q Z</td></tr> <tr><td>key *, characters:</td><td>symbols (selected "forwards")</td></tr> <tr><td>key #, characters:</td><td>symbols (selected "backwards")</td></tr> </table> </li> <li>- each key selects the characters <i>cyclically</i>, starting from the numeric character and displaying each of the other characters when pressed</li> <li>- confirm the character selected by pressing the ► key: the cursor will move one place to the right</li> <li>- to correct an error, move the cursor to the character to be changed using the ► and ◀ keys, and select the desired character</li> <li>- to delete the entire entry, press <b>CLEAR</b>.</li> </ul>	key 0, characters:	0	key 2, characters:	2 A B C	key 3, characters:	3 D E F	key 4, characters:	4 G H I	key 5, characters:	5 J K L	key 6, characters:	6 M N O	key 7, characters:	7 P R S	key 8, characters:	8 T U V	key 9, characters:	9 W X Y	key 0, characters:	0 Q Z	key *, characters:	symbols (selected "forwards")	key #, characters:	symbols (selected "backwards")	<p style="text-align: center;">Example</p> 
key 0, characters:	0																								
key 2, characters:	2 A B C																								
key 3, characters:	3 D E F																								
key 4, characters:	4 G H I																								
key 5, characters:	5 J K L																								
key 6, characters:	6 M N O																								
key 7, characters:	7 P R S																								
key 8, characters:	8 T U V																								
key 9, characters:	9 W X Y																								
key 0, characters:	0 Q Z																								
key *, characters:	symbols (selected "forwards")																								
key #, characters:	symbols (selected "backwards")																								

>>

- having made the entry, press  $\diamond$  to access the PHONE NUMBER item
- e) Press  $\diamond$
- f) Enter your *number*.
- you can enter a **maximum of 16 characters** using the **numeric keys** (0÷9), the \*key (to enter the + character) and the > key (to enter a space)
  - to correct or delete, proceed as for the mnemonic ID
  - having made the entry, press  $\diamond$
- g) Press  $\nabla$  to return to stand-by mode.

PHONE NUMBER  
(F)/ $\diamond$ / $\nabla$

TYPE YOUR NUMBER  
■

Example

TYPE YOUR NUMBER  
+39 125 524598

DIAGNOSTICS  
(F)/ $\diamond$ / $\nabla$

AUTOMATIC RX  
09-05-95 14:58

### 3.2.4 Setting Up the Telephone Line

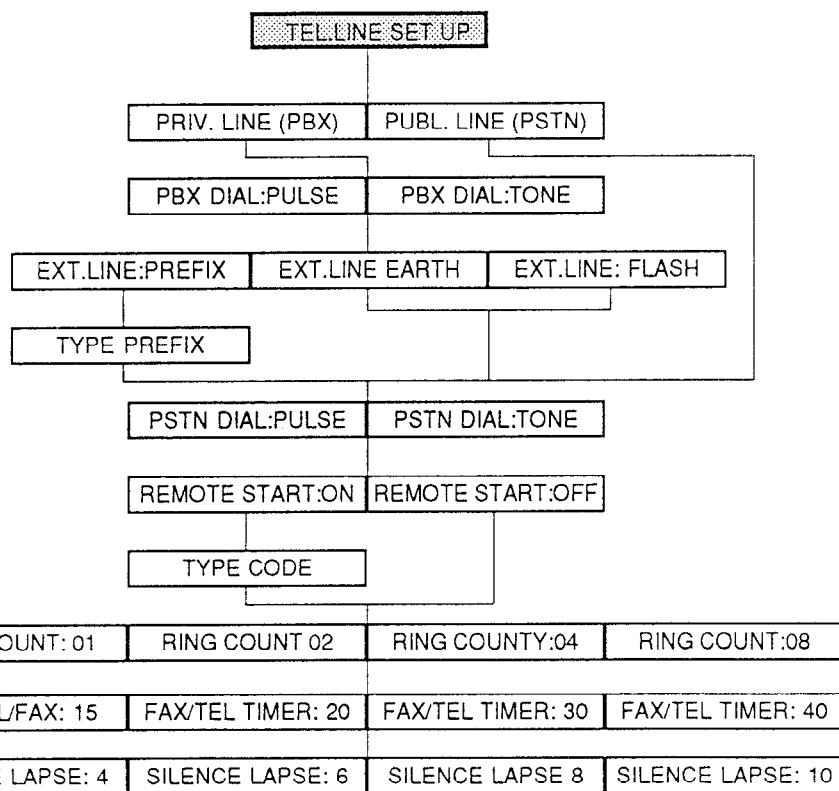
According to the type of network to which the facsimile machine is connected (PUBLIC NETWORK or PRIVATE BRANCH EXCHANGE), the following specific parameters must be set:

- type of **dialling** (established by the Telephone Service Manager):
  - **tone** (or **multifrequency**) (PBX/PSTN DIAL: TONE)
  - **pulse** (PBX/PSTN DIAL: PULSE)
- type of **access** from private line to public line:
  - numeric **prefix** (EXT. LINE: PREFIX)
  - **earth pulse** (EXT. LINE: EARTH)
  - **flash pulse** (EXT. LINE: FLASH).

In addition to these indispensable parameters, the following parameters may also be set:

- **enabling of extension telephone** for activating the facsimile machine ( REMOTE START), **by means of a one-digit code** (0-9)
- **number of rings** after which the facsimile machine prepares for automatic reception (RING COUNT: 01 / 02 / 04 / 08)
- **time** (in **seconds**) after which the facsimile machine with the fax/phone feature enabled **switches to fax mode** (FAX/TEL TIMER: 15 / 20 / 30 / 40)
- **time** (in **seconds**) after which the facsimile machine connected to an external telephone answering machine **switches to fax mode**, when there is no incoming message (SILENCE LAPSE: 3 / 4 / 6 / 8 / 10 / NO).

Setting	Display
a) The facsimile machine is in stand-by mode	AUTOMATIC RX 09-05-95 14:58
b) Access the main menu and select the TEL.LINE SETUP submenu of the INSTALLATION menu.	TEL.LINE SETUP (F)/◊/⊙
c) Press ◊	PUBL.LINE (PSTN) ◊/⊙/←/→
d) Set the parameters to the desired values, following the explanatory flow chart shown below:	



# 3. INSTALLATION AND INITIALIZATION PROCEDURES

Installation of the facsimile machine consists of three separate phases:

1. **PRELIMINARY OPERATIONS**, or *fitting together the parts* supplied in the packaging and subsequent *connection* of the facsimile machine and telephone, if present, *to the telephone network*
2. **INSTALLATION**, or *setting the parameters indispensable* for the facsimile machine's operation.
3. **SETUP**, or *setting the customization parameters*.

## 3.1 PRELIMINARY OPERATIONS

### 3.1.1 Unpacking the Facsimile Machine

Having removed the facsimile machine and the other parts from the packaging, check that the following elements are present:

- the facsimile machine (complete with power cord)
- a packet containing the print head
- the telephone cable (with two international RJ11 connectors)
- the handset (complete with connection cord)
- the telephone plug
- the paper support extension
- three clear films with back sheet to use as holders for documents in non-standard formats
- the "User Guide", complete with the "Quick Reference Guide".

- **EXCESS:** allows to define how to print a received document, whose length exceeds that of the paper in use on the fax machine.
  - YES, *on multiple consecutive sheets*
  - NO, *losing* the part of document that exceeds the length of the paper in use
  - AUTO, if the document exceeds the format of the paper in use by a quantity exceeding that set through the software parameter **SW03**, bit **7** (8 mm / 12 mm), then it is printed *on multiple consecutive sheets*; otherwise, the excess part is lost.
  
- **COPY:** allows to define *print quality when copying* (HIGH QUAL. / NORMAL).

## Date and time

- **FORMAT:** allows to define the *order* in which the three components of the *date* are displayed (MM/GG/AA - AA/MM/GG - GG/MM/AA).
  
- **TIME FORMAT:** allows to define how the *time* is to be displayed:
  - 24 H; the time is expressed over *24 hours* (e.g. 17:35)
  - 12 H, the time is expressed over *12 hours* differentiating *ante meridian* hours (preceded by the letter *a*; for instance, a 09:47) from the *post-meridian* hours; for instance, *p* 11:05).

## 3.2.6 Resetting the Fax Machine

Having installed the machine, if it does not work properly in reception and transmission, reset the parameters to restore the default values and repeat the installation procedure from the start.

Setting	Display
a) The facsimile machine is in stand-by mode	AUTOMATIC RX 09-05-95 14:58
b) Access the main menu and select the SERVICE SWITCHES submenu of the INSTALLATION menu.	SERVICE SWITCHES (F)/◊/⊕
c) Press ◊	TYPE PASSWORD ■
d) Enter the number 5 0 0 and press <b>START</b> to enter " <b>service</b> " mode	COUNTRY SETUP ◊/⊕/←/→
e) Select the SYSTEM TEST item and press ◊	SYSTEM TEST ◊/⊕/←/→
f) Select LOAD DEFAULT and press ◊ twice: the default values for U.K./SOUTH AFRICA are loaded automatically in place of those set previously	LOAD DEFAULT ◊/⊕/←/→
g) Press ⊕ to return to stand-by mode.	AUTOMATIC RX 09-05-95 14:58
h) Perform fax machine nationalisation and reset installation and configuration parameters.	

**WARNING:** having installed the machine successfully, *never repeat the reset procedure* or you will have to reset all personal data set by the user.





**Switch SWE0**

<b>Format</b>	<b>Function</b>
max 2 digits (001 ÷ 255)	Ring reset time (in hundreds of ms)

**Switch SWE1**

<b>Format</b>	<b>Function</b>
max 2 digits (001 ÷ 255)	Ring reset time (in hundreds of ms)

**Switch SWE2**

<b>Format</b>	<b>Function</b>
max 2 digits (001 ÷ 255)	Ring reset time (in hundreds of ms)

**Switch SWE3**

<b>Format</b>	<b>Function</b>
max 2 digits (001 ÷ 255)	Ring reset time (in hundreds of ms)

**Switch SWE4**

<b>Format</b>	<b>Function</b>
max 2 digits (001 ÷ 255)	Ring reset time (in hundreds of ms)

SERVICE SWITCHES

U.K./S. AFRICA

SW01	01000101
SW02	00100100
SW03	10000010
SW04	00000000
SW05	01100111
SW06	00101011
SW07	00000000
SW08	00010001
SW09	10101100
SW10	10101111
SW11	00000101
SWA	0
SWB	2
SWC	10
SWD	10
SWE	70
SWF	10
SWG	10
SWH	10 db
SWI	16
SWJ	63
SWK	7
SWL	4
SWM	15
SWN	10
SWO	6
SWP	70
SWQ	3
SWR	120

Fig. 4-1 Example of a printout of the service switch settings

Two types of service switches are available in the SERVICE SWITCHES menu:

- **SW01 - SW11**: these switches consist of **8 bits** and can be programmed either individually or in group
- **SWA - SWR**: these switches consist of a **value ranging from 1 to 3 digits**

```
SERVICE SWITCHES
SW01      01010101
```

bit no. 76543210

```
SERVICE SWITCHES
SWR              120
```

- Warning:**
- 1) Whenever **no value** is printed in correspondence with a service switch **SWA-SWR**, this means that the value is **0** (zero).
  - 2) Some of the service switches can be set by the user; in these cases, the **user setting takes priority** over the service setting. The parameters concerned are:

User parameter	Software parameter
RING COUNT	SWB
FAX/TEL TIMER	SWM
SILENCE LAPSE	SWO

## 4.1 SERVICE SWITCH TABLES

The tables that follow describe the functions carried out by the bits and combinations of bits for each service switch. In order to correctly interpret some of the functions required, a knowledge of the communication protocol is required. The default values may undergo some modifications due to both homologation and user's peculiarities. For this reason, you are recommended to print out the service switches of the facsimile machine to be serviced, always before modifying them.

### 4.1.1 Service switches for the standard model

#### Switch SW01

bit	Function	set to 1	set to 0
7	Error code generated on failed reception	YES	NO
6	Next page sent from the ADF despite bad reception signal (RTN) from the receiver	YES	NO
5 4	Multifrequency output level (dBm)	bit 5 4 = 0 0, -11 / -9 bit 5 4 = 0 1, -8 / -6 bit 5 4 = 1 0, -12 / -10 bit 5 4 = 1 1, -6 / -4	
3 2	Cable equalizer in reception (*)	bit 3 2 = 0 0, 0 km (0 dB) bit 3 2 = 0 1, 1.8 km (4 dB) bit 3 2 = 1 0, 3.6 km (8 dB) bit 3 2 = 1 1, 5.6 km (12 dB)	
1 0	Cable equalizer in transmission (*)	bit 1 0 = 0 0, 0 km (0 dB) bit 1 0 = 0 1, 1.8 km (4 dB) bit 1 0 = 1 0, 3.6 km (8 dB) bit 1 0 = 1 1, 5.6 km (12 dB)	

(\*) Distances refer to a cable radius = 0.4 mm. With smaller or greater cable radius, distances respectively decrease or increase, with equal attenuation.

Switch SW02

bit	Function	set to 1	set to 0
7	Answer to second signal from the receiver (anti-echo device)	YES	NO
6	Tone duration / pause in tone dialling (ms / ms)	bit 6 5 4 = 0 0 0, 70 / 70	
5		bit 6 5 4 = 0 0 1, 70 / 140	
4		bit 6 5 4 = 0 1 0, 87 / 87	
		bit 6 5 4 = 0 1 1, 120 / 120	
	bit 6 5 4 = 1 0 0, 200 / 200		
3	Disable non standard features (NSF)	YES	NO
2	Reception start speed	9600-2400 (V.29,V.27ter)	4800-2400 (V.27ter only)
1	Transmission start speed	bit 1 0 = 0 0, 9600 bps	
0		bit 1 0 = 0 1, 7200 bps	
		bit 1 0 = 1 0, 4800 bps	
		bit 1 0 = 1 1, 2400 bps	

## Switch SW03

bit	Function	set to 1	set to 0
7	Page loss when SURPLUS = AUTO	12 mm	8 mm
6	Automatic transmission in HOOK mode without pressing START at the end of dialling	YES	NO (*)
5	Transmission of the tone emitted by the receiver during reception (CED)	NO	YES
4	Anti-echo protect tone in transmission	YES	NO
3	Reception sensitivity	-47 dBm	-43 dBm
2 1	Wait time for signal from receiver during transmission	bit 2 1 = 0 0, 35 s (**) bit 2 1 = 0 1, 60 s (**) bit 2 1 = 1 0, 90 s (**) bit 2 1 = 1 1, 130 s (**)	
0	Frequency of the tone emitted by the receiver during reception (CED)	1100 Hz	2100 Hz

(\*) The transmission starts automatically only if a facsimile machine is responding

(\*\*) In some countries these bits are set to a single specific value.

## Switch SW04

bit	Function	set to 1	set to 0
7 6	Reception channel evaluation criteria	bit 7 6 = 0 0, strict bit 7 6 = 0 1, average bit 7 6 = 1 0, moderate bit 7 6 = 1 1, loose	
5	Pause between digits in pulse dialling	800 ms	900 ms
4 3	Dial pulses (N = digits dialled)	bit 4 3 = 0 0, N bit 4 3 = 0 1, N + 1 bit 4 3 = 1 0, 10 - N	
2	Pulse dialling frequency	20 p/s (*)	10 p/s
1	Report printing inhibited	always	(**)
0	PBX dialling tone detection	YES	NO

(\*) only valid if the value of switch SWP is halved.

(\*\*) as programmed via TX REPORT user parameter.

## Switch SW05

bit	Function	set to 1	set to 0
7	Earth pulse duration	100 ms	300 ms
6	Flash pulse duration	110 ms	270 ms
5 4	Pause time	bit 5 4 = 0 0, 2 s bit 5 4 = 0 1, 3 s bit 5 4 = 1 0, 4 s bit 5 4 = 1 1, 5 s	
3	PAUSE key enabling	NO	YES
2	Limit to the number of pauses that may be inserted	unlimited number	for 11 s max
1 0	Predialling pause (*)	bit 1 0 = 0 0, 1 s bit 1 0 = 0 1, 2 s bit 1 0 = 1 0, 3 s bit 1 0 = 1 1, 4 s	

(\*) only valid if dial tone detection is not enabled (SW06, bit 2 = 0).

## Switch SW06

bit	Function	set to 1	set to 0
7 6	Dialling tone frequency range	bit 7 6 = 0 0, 320 / 570 Hz bit 7 6 = 0 1, 360 / 520 Hz bit 7 6 = 1 0, 300 / 640 Hz bit 7 6 = 1 1, 300 / 640 Hz	
5 4 3	Dialling tone detection time	bit 5 4 3 = 0 0 0, 400 ms bit 5 4 3 = 0 0 1, 800 ms bit 5 4 3 = 0 1 0, 900 ms bit 5 4 3 = 0 1 1, 1200 ms bit 5 4 3 = 1 0 0, 1800 ms bit 5 4 3 = 1 0 1, 2000 ms	
2	PSTN dialling tone detection	YES	NO
1	Shortcircuit between digits in pulse dialling	YES	NO
0	Shortcircuit time on relay, before and after dialling pulse	260 / 70 ms (*)	86 / 48 ms (*)

(\*) Some countries use values different from those indicated.



## Switch SW07

bit	Function	set to 1	set to 0
7	Busy tone detected after dialling	YES	NO
6	Exchange tones detected during preliminary phase of reception	YES	NO
5	Rapid preamble recognition during the handshake phase	YES	NO
4	Minimum memory space for RX	128 kbytes	17 kbytes
3	Report always printed on failed transmission	YES	NO
2	Busy tone seek time after dialling	20 s	standard (*)
1	Frequency range of second dialling tone	1120:1160 Hz Belgian type	as for the 1st dialling tone
0	Dialling tone wait time	40 s	10 s

(\*) i.e., as established by the couple of bits 1 and 2 of switch SW03.

Switch SW08

bit	Function	set to 1	set to 0
7	Full line monitoring	YES	NO
6	Not used		
4 5	Dialling tone detection threshold	bit 5 4 = 0 0, -40 dBm bit 5 4 = 0 1, -30 dBm bit 5 4 = 1 0, -26 dBm bit 5 4 = 1 1, -35 dBm	
3	R Key function	REGISTER RECALL (*)	REGISTER RECALL (**)
2	Exit from HOOK mode	after 1 h	after 1 min
1	Busy tone detected before dialling	YES	NO
0	Evaluation criteria (in sequences) of the busy tone	4 sequences	2 sequences

(\*) by Earth pulse

(\*\*) by Flash pulse

## Switch SW09

bit	Function	set to 1	set to 0
7	Switching off ERROR LED	manual	automatic after 1 min
5 6	Maximum reception/transmission time for one page	bit 6 5 = 0 0, 8 min bit 6 5 = 0 1, 16 min bit 6 5 = 1 0, 32 min bit 6 5 = 1 1, unlimited	
4	Size of data block packets in ECM	64 bytes (*)	256 bytes
3	Compression method	MR & MH	MH
2	Print chart enabled	YES	NO
1	Frequency and sequence of answer tone in FAX/TEL mode	Type B (**)	Type A (***)
0	Extended error codes	YES	NO

(\*) only to be used on lines with interference

(\*\*) Frequency: 425 Hz

Sequence: 

1 s
-----

4 s

(\*\*\*) Frequency: 700 Hz

Sequence: 

0.1 s	0.1 s	0.1 s	0.1 s	0.1 s
-------	-------	-------	-------	-------

2 s

Switch SW10 (to enable / disable user-level functions)

bit	Function	set to 1	set to 0
7	Change in dialling mode by pressing the * key disabled	YES	NO
6	MMR compression method	NO	YES
5	Enabling the item REMOTE DIAG. in the DIAGNOSTIC menu (INSTALLATION)	YES	NO
4	Set number of rings	YES	NO
3	Enable pulse mode during dialling	YES	NO
2	Set silence time detection	YES	NO
1	FAX/TEL switch	YES	NO
0	Set call time in FAX/TEL mode	YES	NO

**Switch SW11** (to enable / disable user-level functions)

bit	Function	set to 1	set to 0
7	Enable FAX/TAD	NO	YES
6	Not used		
5	Reserved		
4	Protection for telephone credit card (*)	YES	NO
3	Reserved		
2	Linking between letters and numeric keys	fixed to 1 (never set to 0)	
1	Disable "second tone" function of HOLD - 2.TONE key	NO	YES
0	Enable entry of sender's number	YES	NO

(\*) In order to prevent the secret card code from being either displayed or printed, only the last 10 digits of the telephone number are displayed or printed.

### Switch SWA

Format	Function
1 digit (0 ÷ 9)	Time before answering (in seconds)

### Switch SWB

Format	Function
2 digits (01 ÷ 10)	Number of rings before answering

### Switch SWC

Format	Function
max 3 digits (001 ÷ 255)	First ring detection time (in tens of ms)

### Switch SWD

Format	Function
max 3 digits (001 ÷ 255)	Second ring detection time (in tens of ms)

### Switch SWE

Format	Function
max 3 digits (001 ÷ 255)	Ring reset time (in hundreds of ms)

### Switch SWF

Format	Function
max 2 digits (00 ÷ 15)	Maximum percentage of incorrect lines on a page without an error message (00 = function disabled)

### Switch SWG

Format	Function
max 2 digits (00 ÷ 15)	Maximum number of incorrect lines on a page without an error message (00 = function disabled)

### Switch SWH

Format	Function
max 2 digits (00 ÷ 15) (*)	Transmission level code (in dBm)

(\*) 03 ÷ 15 for Italy.

### Switch SWI

Format	Function
max 3 digits (010 ÷ 100)	Minimum ring duration (in ms)

### Switch SWJ

Format	Function
max 3 digits (010 ÷ 100)	Maximum ring duration (in ms)

### Switch SWK

Format	Function
max 2 digits (00 ÷ 99)	Number rings before answering in manual reception mode (00 = no answer in manual RX)

### Switch SWL

Format	Function
max 2 digits (01 ÷ 99)	Wait time of the tone emitted by the sender before alarm to the operator in FAX/TEL mode (in seconds)

### Switch SWM

Format	Function
max 2 digits (01 ÷ 99)	Alarm duration in FAX/TEL mode (in seconds)

### Switch SWN

Format	Function
max 2 digits (01 ÷ 99)	Reserved

### Switch SWO

Format	Function
max 2 digits (01 ÷ 59)	Silence recognition time in FAX/TAD mode (in seconds)



### Switch SWP

Format	Function
max 2 digits (50 ÷ 80)	Break time in pulse dialling (in ms) (*)

(\*) with a pulse dialling frequency of 20 p/s, halve the value used with the 10 p/s frequency.

### Switch SWQ

Format	Function
max 2 digits (00 ÷ 99)	Number of redials

### Switch SWR

Format	Function
max 3 digits (000 ÷ 999)	Time between redials (in seconds) (000 = no redials)

## 4.1.2 Service switches for the LinkFax model

### Switch SW01

bit	Function	set to 1	set to 0
7	Error code generated on failed reception	YES	NO
6	Next page sent from the ADF despite bad reception signal (RTN) from the receiver	YES	NO
5 4	Multifrequency output level (dBm)	bit 5 4 = 0 0, -11 / -9 bit 5 4 = 0 1, -8 / -6 bit 5 4 = 1 0, -12 / -10 bit 5 4 = 1 1, -6 / -4	
3 2	Cable equalizer in reception (*)	bit 3 2 = 0 0, 0 km (0 dB) bit 3 2 = 0 1, 1.8 km (4 dB) bit 3 2 = 1 0, 3.6 km (8 dB) bit 3 2 = 1 1, 5.6 km (12 dB)	
1 0	Cable equalizer in transmission (*)	bit 1 0 = 0 0, 0 km (0 dB) bit 1 0 = 0 1, 1.8 km (4 dB) bit 1 0 = 1 0, 3.6 km (8 dB) bit 1 0 = 1 1, 5.6 km (12 dB)	

(\*) Distances refer to a cable radius = 0.4 mm. With smaller or greater cable radii, distances respectively decrease or increase, with equal attenuation.

## Switch SW02

bit	Function	set to 1	set to 0
7	Answer to second signal from the receiver (anti-echo device)	YES	NO
6	Tone duration / pause in tone dialling (ms / ms)	bit 6 5 4 = 0 0 0, 70 / 70	
5		bit 6 5 4 = 0 0 1, 70 / 140	
4		bit 6 5 4 = 0 1 0, 87 / 87	
		bit 6 5 4 = 0 1 1, 120 / 120	
		bit 6 5 4 = 1 0 0, 200 / 200	
3	Disable non standard features (NSF)	YES	NO
2	Reception start speed	9600-2400 (V.29,V.27ter)	4800-2400 (V.27ter only)
1	Transmission start speed	bit 1 0 = 0 0, 9600 bps	
0		bit 1 0 = 0 1, 7200 bps	
		bit 1 0 = 1 0, 4800 bps	
		bit 1 0 = 1 1, 2400 bps	

## Switch SW03

bit	Function	set to 1	set to 0
7	Page loss when SURPLUS = AUTO	12 mm	8 mm
6	Automatic transmission in HOOK mode without pressing START at the end of dialling	YES	NO (*)
5	Transmission of the tone emitted by the receiver during reception (CED)	NO	YES
4	Anti-echo protect tone in transmission	YES	NO
3	Reception sensitivity	-47 dBm	-43 dBm
2 1	Wait time for signal from receiver during transmission	bit 2 1 = 0 0, 35 s (**) bit 2 1 = 0 1, 60 s (**) bit 2 1 = 1 0, 90 s (**) bit 2 1 = 1 1, 130 s (**)	
0	Frequency of the tone emitted by the receiver during reception (CED)	1100 Hz	2100 Hz

(\*) The transmission starts automatically only if a facsimile machine is responding

(\*\*) In some countries these bits are set to a single specific value.

## Switch SW04

bit	Function	set to 1	set to 0
7 6	Reception channel evaluation criteria	bit 7 6 = <b>0 0</b> , strict bit 7 6 = <b>0 1</b> , average bit 7 6 = <b>1 0</b> , moderate bit 7 6 = <b>1 1</b> , loose	
5	Pause between digits in pulse dialling	800 ms	900 ms
4 3	Incorrect lines evaluation criteria at reception start	bit 4 3 = <b>0 0</b> , N bit 4 3 = <b>0 1</b> , N + 1 bit 4 3 = <b>1 0</b> , 10 - N bit 4 3 = <b>1 1</b> , loose	
2	Pulse dialling frequency	20 p/s (*)	10 p/s
1	Report printing inhibited	always	(**)
0	PBX dialling tone detection	YES	NO

(\*) only valid if the value of switch SWP is halved.

(\*\*) as programmed via TX REPORT user parameter.

## Switch SW05

bit	Function	set to 1	set to 0
7	Earth pulse duration	100 ms	300 ms
6	Flash pulse duration	110 ms	270 ms
5 4	Pause time		bit 5 4 = 0 0, 2 s bit 5 4 = 0 1, 3 s bit 5 4 = 1 0, 4 s bit 5 4 = 1 1, 5 s
3	PAUSE key enabling	NO	YES
2	Limit to the number of pauses that may be inserted	unlimited number	for 11 s max
1 0	Predialling pause (*)		bit 1 0 = 0 0, 1 s bit 1 0 = 0 1, 2 s bit 1 0 = 1 0, 3 s bit 1 0 = 1 1, 4 s

(\*) only valid if dial tone detection is not enabled (SW06, bit 2 = 0).

## Switch SW06

bit	Function	set to 1	set to 0
7 6	Dialling tone frequency range	bit 7 6 = 0 0, 320 / 570 Hz bit 7 6 = 0 1, 360 / 520 Hz bit 7 6 = 1 0, 300 / 640 Hz bit 7 6 = 1 1, 300 / 640 Hz	
5 4 3	Dialling tone detection time	bit 5 4 3 = 0 0 0, 400 ms bit 5 4 3 = 0 0 1, 800 ms bit 5 4 3 = 0 1 0, 900 ms bit 5 4 3 = 0 1 1, 1200 ms bit 5 4 3 = 1 0 0, 1800 ms bit 5 4 3 = 1 0 1, 2000 ms	
2	PSTN dialling tone detection	YES	NO
1	Shortcircuit between digits in pulse dialling	YES	NO
0	Shortcircuit time on relay, before and after dialling pulse	260 / 70 ms (*)	86 / 48 ms (*)

(\*) Some countries use values different from those indicated.

## Switch SW07

bit	Function	set to 1	set to 0
7	Busy tone detected after dialling	YES	NO
6	Exchange tones detected during preliminary phase of reception	YES	NO
5	Rapid preamble recognition during the handshake phase	YES	NO
4	Minimum memory space for RX	128 kbytes	17 kbytes
3	Report always printed on failed transmission	YES	NO
2	Busy tone seek time after dialling	20 s	standard (*)
1	Frequency range of second dialling tone	1120:1160 Hz Belgian type	as for the 1st dialling tone
0	Dialling tone wait time	40 s	10 s

(\*) i.e., as established by the couple of bits 1 and 2 of switch SW03.



## Switch SW08

bit	Function	set to 1	set to 0
7	Full line monitoring	YES	NO
6	Not used		
4 5	Dialling tone detection threshold	bit 5 4 = 0 0, -40 dBm bit 5 4 = 0 1, -30 dBm bit 5 4 = 1 0, -26 dBm bit 5 4 = 1 1, -35 dBm	
3	R Key function	REGISTER RECALL (*)	REGISTER RECALL (**)
2	Exit from HOOK mode	after 1 h	after 1 min
1	Busy tone detected before dialling	YES	NO
0	Evaluation criteria (in sequences) of the busy tone	4 sequences	2 sequences

(\*) by Earth pulse

(\*\*) by Flash pulse

## Switch SW09

bit	Function	set to 1	set to 0
7	Switching off ERROR LED	manual	automatic after 1 min
5 6	Maximum reception/transmission time for one page	bit 6 5 = 0 0, 8 min bit 6 5 = 0 1, 16 min bit 6 5 = 1 0, 32 min bit 6 5 = 1 1, unlimited	
4	Size of data block packets in ECM	64 bytes (*)	256 bytes
3	Compression method	MR & MH	MH
2	Print chart enabled	YES	NO
1	Frequency and sequence of answer tone in FAX/TEL mode	Type B (**)	Type A (***)
0	Extended error codes	YES	NO

(\*) only to be used on lines with interference

(\*\*) Frequency: 425 Hz

Sequence: 

(\*\*\*) Frequency: 980 Hz

Sequence: 

Switch SW10 (to enable / disable user-level functions)

bit	Function	set to 1	set to 0
7	Change in dialling mode by pressing the * key disabled	YES	NO
6	MMR compression method	NO	YES
5	Enabling the item REMOTE DIAG. in the DIAGNOSTIC menu (INSTALLATION)	YES	NO
4	Set number of rings	YES	NO
3	Enable pulse mode during dialling	YES	NO
2	Set silence time detection	YES	NO
1	FAX/TEL switch	YES	NO
0	Set call time in FAX/TEL mode	YES	NO

Switch SW11 (to enable / disable user-level functions)

bit	Function	set to 1	set to 0
7	Enable FAX/TAD	NO	YES
6	Not used		
5	Reserved		
4	Protection for telephone credit card (*)	YES	NO
3	Reserved		
2	Linking between letters and numeric keys	fixed to 1 (never set to 0)	
1	Disable "second tone" function of HOLD - 2.TONE key	NO	YES
0	Enable entry of sender's number	YES	NO

(\*) In order to prevent the secret card code from being either displayed or printed, only the last 10 digits of the telephone number are displayed or printed.

## Switch SW12

bit	Function	set to 1	set to 0
7	Not used		
6	Not used		
5	Not used		
4	Not used		
3	Not used		
2	Not used		
1	Not used		
0	Special features for hotel requirements	YES	NO

## Switch SW13

bit	Function	set to 1	set to 0
7	Not used		
6	Not used		
5	Not used		
4	Not used		
3	Not used		
2	Not used		
1	Not used		
0	Not used		

## Switch SW14

bit	Function	set to 1	set to 0
7	Not used		
6	Not used		
5	Not used		
4	Not used		
3	Not used		
2	Not used		
1	Not used		
0	Not used		

## Switch SW15

bit	Function	set to 1	set to 0
7	Not used		
6	Not used		
5	Not used		
4	Not used		
3	Not used		
2	Not used		
1	Not used		
0	Not used		



### Switch SWA

Format	Function
1 digit (0 ÷ 9)	Time before answering (in seconds)

### Switch SWB

Format	Function
2 digits (01 ÷ 10)	Number of rings before answering

### Switch SWC

Format	Function
max 3 digits (000 ÷ 999)	Not used

### Switch SWD

Format	Function
max 3 digits (000 ÷ 999)	Not used

### Switch SWE

Format	Function
max 3 digits (000 ÷ 999)	Not used

### Switch SWF

Format	Function
max 2 digits (00 ÷ 15)	Maximum percentage of incorrect lines on a page without an error message (00 = function disabled)

### Switch SWG

Format	Function
max 2 digits (00 ÷ 15)	Maximum number of incorrect lines on a page without an error message (00 = function disabled)

### Switch SWH

Format	Function
max 2 digits (00 ÷ 15) (*)	Transmission level code (in dBm)

(\*) 03 ÷ 15 for Italy.

### Switch SWI

Format	Function
max 3 digits (010 ÷ 100)	Minimum ring duration (in ms)

### Switch SWJ

Format	Function
max 3 digits (010 ÷ 100)	Maximum ring duration (in ms)

### Switch SWK

Format	Function
max 2 digits (00 ÷ 99)	Number rings before answering in manual reception mode (00 = no answer in manual RX)

### Switch SWL

Format	Function
max 2 digits (01 ÷ 99)	Wait time of the tone emitted by the sender before alarm to the operator in FAX/TEL mode (in seconds)

### Switch SWM

Format	Function
max 2 digits (01 ÷ 99)	Alarm duration in FAX/TEL mode (in seconds)

### Switch SWN

Format	Function
max 2 digits (01 ÷ 99)	Reserved

### Switch SWO

Format	Function
max 2 digits (01 ÷ 59)	Silence recognition time in FAX/TAD mode (in seconds)

## Switch SWP

Format	Function
max 2 digits (50 ÷ 80)	Break time in pulse dialling (in ms) (*)

(\*) with a pulse dialling frequency of 20 p/s, halve the value used with the 10 p/s frequency.

## Switch SWQ

Format	Function
max 2 digits (00 ÷ 99)	Number of redials

## Switch SWR

Format	Function
max 3 digits (000 ÷ 999)	Time between redials (in seconds) (000 = no redials)

## Switch SWS

Format	Function
max 1 digit (0 ÷ 4)	Number of different sequences of the ring tone (when SWS is 0, the item DISTINCTIVE RING is not displayed in the INSTALLATION menu; when SWS is 1 / 2 / 3 / 4, the item DISTINCTIVE RING allows to choose the corresponding number of sequences (1 / 2 / 3 / 4))

**NOTE** The following switches (**SWCx** - **SWDx** - **SWEx**) are used to set the times corresponding to the different ring tone sequences. Every sequence you choose under DISTINCTIVE RING (e.g. sequence **3**), will use only the parameters corresponding to the chosen sequence (following the example, **SWC3**, **SWD3** and **SWE3**).

### Switch SWC0

Format	Function
max 2 digits (001 ÷ 255)	First ring minimum detection time (in tens of ms)

### Switch SWC1

Format	Function
max 2 digits (001 ÷ 255)	First ring minimum detection time (in tens of ms)

### Switch SWC2

Format	Function
max 2 digits (001 ÷ 255)	First ring minimum detection time (in tens of ms)

### Switch SWC3

Format	Function
max 2 digits (001 ÷ 255)	First ring minimum detection time (in tens of ms)

### Switch SWC4

Format	Function
max 2 digits (001 ÷ 255)	First ring minimum detection time (in tens of ms)

#### Switch SWD0

Format	Function
max 2 digits (001 ÷ 255)	Second ring minimum detection time (in tens of ms)

#### Switch SWD1

Format	Function
max 2 digits (001 ÷ 255)	First ring maximum detection time (in tens of ms)

#### Switch SWD2

Format	Function
max 2 digits (001 ÷ 255)	First ring minimum detection time (in tens of ms)

#### Switch SWD3

Format	Function
max 2 digits (001 ÷ 255)	First ring minimum detection time (in tens of ms)

#### Switch SWD4

Format	Function
max 2 digits (001 ÷ 255)	First ring minimum detection time (in tens of ms)

## 4. SERVICE SWITCHES

The term **service switches** is intended to mean parameters that **cannot be accessed by the user** and that can **only be accessed by service technicians** with the facsimile machine in "**service**" mode (see section 3.2.2).

These parameters are given **default values** which depend on the country specifications made by the telephone network manager. As a result, the technician should only change these values in order to correct the functioning of the machine or to adapt it to particular local features.

Before changing any of the service switch settings, it is advisable to print them, as described below:

Setting	Display
a) The facsimile machine is in standby mode	AUTOMATIC RX 09-05-95 14:58
b) Access the main menu and select the SERVICE SWITCHES submenu of the INSTALLATION menu	SERVICE SWITCHES FUNC/START/STOP
c) Press <b>START</b>	TYPE PASSWORD <span style="float: right;">■</span>
d) Enter the number <b>1 1 0 0</b> and press <b>START</b> to enter " <b>service mode</b> "	COUNTRY SETUP START/STOP/←/→
e) Select the PRINT SERV. SW option	PRINT SERV. SW START/STOP/←/→
f) Press the <b>START</b> key: the <b>current default values</b> will be printed (see fig. 4-1)	PRINTING... <span style="float: right;">STOP</span>
g) Press <b>STOP</b> to return to standby mode.	AUTOMATIC RX 09-05-95 14:58





## 5.3 REPORTS

The facsimile machine controls and updates various kinds of transaction reports which are described in this section for the technician's benefit, though a more detailed description is provided in the Instruction manual. Some of these reports are printed automatically and others on request by the operator:

- Transmission report (LAST TX REPORT): printed automatically and manually
- Broadcast transmission report (LAST BROAD. REP.): printed automatically and manually
- Journal (ACTIVITY REPORT): printed automatically and manually
- Power failure report: printed automatically only.

A report is printed by selecting the PRINT OUT REPORT option on the main menu (see section 3.2.1).

### 5.3.1 Transmission Report (TX REPORT)

The methods for printing the transmission report (automatically or manually) are selected by means of the SET MISCELLANEOUS option of the FAX SET-UP menu (see section 3.2.1):

- TX REPORT: OFF, if you do **not** want the report to be printed **automatically**
- TX REPORT: ALWAYS, if you want the report to be printed **automatically after each transmission transaction**
- FAILED TX REPORT, if you want the report to be printed **automatically only when an error is detected** (\*).

---

(\*) if bit 3 of switch SW07 is set to 1 (see section 4.1), the report is **always printed** when **transmission is failed** even if the TX REPORT: OFF option is selected.

## 5.1.1 Description of the Self-Diagnostic Program

Diagnostic step	Error message
1) The facsimile machine is powered on: the error LED lights up	
2) The EPROM is tested	<div style="border: 1px solid black; padding: 5px; display: inline-block;">SYSTEM ERROR 93</div> (1)
3) The static RAM is tested	<div style="border: 1px solid black; padding: 5px; display: inline-block;">SYSTEM ERROR 16</div> (2)
4) Printer startup: check that the print carriage is reset.	<div style="border: 1px solid black; padding: 5px; display: inline-block;">SYSTEM ERROR 03</div> (3)
5) The paper edge sensor is tested.	<div style="border: 1px solid black; padding: 5px; display: inline-block;">SYSTEM ERROR 04</div> (4)
6) Self-diagnostic program ended successfully: error LED switches off.	<div style="border: 1px solid black; padding: 5px; display: inline-block;">AUTOMATIC RX 09-05-95 14:58</div>

(1) To solve this problem, replace the EPROM.

(2) This error means that the data of the static memory have been damaged, so U.K./ S. AFRICA country software parameters have automatically been loaded. To solve this problem, proceed as follows:

- disconnect and reconnect the fax machine from the power supply socket: if the error message persists, replace first the rechargeable battery then, if the error still persists, replace the motherboard. If instead the message disappears, proceed as follows:
- perform LOAD DEFAULT (see sect. 6.1.7), ALIGNMENT TEST (see sect. 6.1.1) and SCANNER SHADING (see sect. 6.1.8) procedures
- perform fax machine nationalisation and reset installation and configuration parameters (see sect. 3.2).

(3) This problem could be caused by the absence of the carriage limit stop plate (right side), by the paper edge sensor (replace carriage) or by a failure in the carriage motor (replace the defective part: motor, belt, etc.).

4) This problem could be caused by the absence of the carriage limit stop plate (right side) or by the paper edge sensor (replace the carriage).

## 5.2 ERROR CODES

The error codes are *printed* on the journals (see section 5.3).

The format of these error codes, excluding those referring to the self-diagnostic test (described in section 5.1.1), may be:

- one group of two digits (**xx**)
- two groups of two digits separated by a dot (**xx.xx**); this extended format:
  - indicates the *category* to which the error belongs, by means of the *first group*;

01	Document incorrectly positioned
02	Unable to connect
03	No answer from correspondent
04	Failed transmission
05	Incomplete transmission
07	Document too long
08	Document jam
10	Failed or incomplete reception
11	No reception due to memory full
13	Failed polling reception
16	Power failure

- provides *more detailed information* about the error, by means of the *second group*, and may be requested by the technician with the machine in "service" mode (see section 3.2.2), by setting *bit 0* of switch **SW09** to **1** (see section 4.1).

In the tables that follow, the error codes are indicated in their *extended format* and in *ascending numeric order*.

For an explanation of the meaning of the protocol signal codes that appear in the description of the causes of errors, see the next section (5.2.1).

**Important:** to ensure correct identification of the cause of the error, we recommend you always print the communication protocol (PROTOCOL DUMP, see section 5.2.3).

## 5.2.1 Meaning of Protocol Signal Codes

Code	Name	Type of signal
CRP	Command Repeat	GENERIC
CED	Called (Station Identification)	
CIG	Calling (Subscriber Identification)	
CSI	Called asubscriber Identification	
DIS	Digital Identification Signal	
NSC	Non-Standard Command	INITIAL IDENTIFICATION
NSF	Non-Standard Facilities	
NSS	Non-Standard Set-up	
TCF	Training Check Frame	
TSI	Transmitting Subscriber Identification	
DTC	Digital Transmit Command	POLLING COMMANDS
DCS	Digital Command Signal	TRANSMISSION COMMANDS
CFR	Confirmation To Receive	PRE-MESSAGE ANSWERS
FTT	Failure To Train	
CTC	Continue To Correct	
EOM	End-of-Message	
EOP	End-of-Procedure	
EOR	End-of-Retransmission	POST-MESSAGE COMMANDS
MPS	Multipage Signal	
PPS	Partial Page signal	

>>

PRI	Procedure Interrupt	
RR	Receive Ready	
<hr/>		
CTR	Response to CTC	
ERR	Response to EOR	
MCF	Message Confirmation	
PIN	Procedure Interrupt Negative	
PIP	Procedure Interrupt Positive	POST-MESSAGE ANSWERS
PPR	Partial Page Request	
RNR	Receive Not ready	
RTN	Retrain Negative	
RTP	Retrain Positive	
<hr/>		
DCN	Disconnect	DISCONNECTION
<hr/>		

## 5.2.2 Meaning of Error Codes

Code	Cause of Error	Action
02.00	No dial tone	Check telephone connection
03.00	No answer from correspondent	Call again manually
04.00	No connection due to disconnected correspondent (DCN received)	Print and analyse protocol dump
04.01	No connection due to incompatible correspondent (during handshake phase)	Print and analyse protocol dump
04.02	No connection due to incompatible correspondent	Print and analyse protocol dump
04.03	No connection due to incompatible correspondent (incompatible confirmation signal)	Print and analyse protocol dump
04.04	No connection due to incompatible correspondent (DCN instead of confirmation signal)	Print and analyse protocol dump
04.05	Line error as no further speed fall-back is possible	Print and analyse protocol dump
04.06	No connection due to problems on receiver's side (no answer)	Call again manually
04.07	No answer during post-message phase	Print and analyse protocol dump
04.08	Answer not allowed during post-message phase	Print and analyse protocol dump
04.09	No development of protocol	Print and analyse protocol dump
04.10	Answer not allowed during post-message phase in ECM	Print and analyse protocol dump

>>

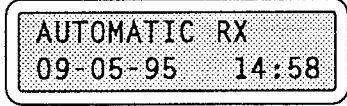
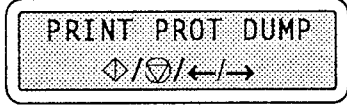

Code	Cause of Error	Action
04.11	No answer during post-message phase in ECM	Call again
04.12	Insufficient memory on receiver's side	Call again
05.00	Transmission incomplete due to RTN reception	Call back and send missing pages again
07.00	Transmission duration exceeding time set with SW09, bit 5-6	Call again
08.00	Document jam	Remove document
09.00	STOP pressed during TX or RX	None
10.00	Text coding error at start of message	Print and analyse protocol dump
10.01	No connection due to incompatible correspondent	Print and analyse protocol dump
10.02	No reception due to no answer from correspondent during handshake, or at the end of the block, or at the end of a page with change in resolution	Print and analyse protocol dump
10.03	Line error due to incompatible speed	Print and analyse protocol dump
10.04	No commands received from correspondent	Print and analyse protocol dump
10.05	Text coding error (5 seconds without data)	Print and analyse protocol dump
10.06	No signal during reception of the message	Print and analyse protocol dump
10.07	No commands received from correspondent at start of message	Print and analyse protocol dump

>>

<b>Code</b>	<b>Cause of Error</b>	<b>Action</b>
10.08	No document present on polling request	Print and analyse protocol dump
10.09	Page received incorrectly (RTN transmitted)	Print and analyse protocol dump
10.10	No commands received from correspondent at start of message (in ECM)	Print and analyse protocol dump
10.11	Page received incorrectly in ECM (ERR sent)	Print and analyse protocol dump
10.12	Busy tone recognized during handshake	Print and analyse protocol dump
10.13	Text coding error during reception of the message	Print and analyse protocol dump
11.00	Riception incomplete due to user memory full	Clear unwanted documents from the memory
11.10	Riception incomplete due to user memory full in ECM	Clear unwanted documents from the memory
13.00	Failed polling reception	Call again
16.00	Power failure	None



### 5.2.3 Printing the Communication Protocol

Setting	Display
1) The facsimile machine is in standby mode.	
b) Enter " <b>service</b> " mode and select PRINT PROT. DUMP	
c) Make sure that there is paper in the ASF and then press $\diamond$ : the data shown in fig. 5-1 will be printed and then the facsimile machine will return to standby mode.	

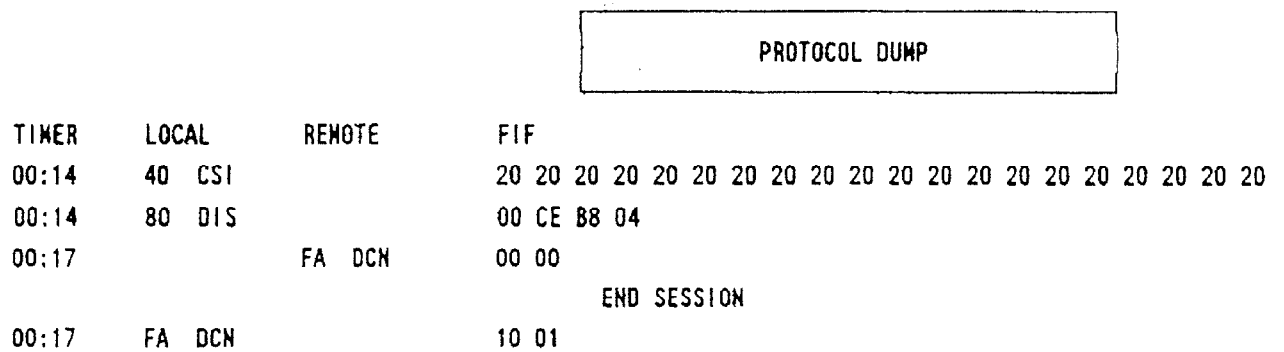


Fig. 5-1

The protocol status is presented, session by session, by means of the following fields:

- TIMER**      Indicates the times, in *minutes : seconds*, at which the signals were exchanged during the session
  
- LOCAL**      Indicates the signals, represented by a *hexadecimal code* and a *mnemonic code*, sent by the local facsimile machine
  
- REMOTE**     Indicates the signals sent by the correspondent's facsimile machine
  
- FIF**          Indicates the *structure of the signals* (FIF = Facsimile Information Field) in hexadecimal code.

**Remarks:**

- 1) The LOCAL field, during the session in which the message was sent, indicates the message's *transmission level*, followed by the word **MESSAGE** (fig. 5-2)

---

00:14	43	TSI		20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
00:14	83	DCS		00 86 F8 04
00:20		84	CFR	
00:21	06	dBm	MESSAGE	
00:38	BF	PPSEOP		00 00 47
00:41		8C	MCF	

**Fig. 5-2**

- 
- 2) If there is a data inconsistency error in any session, the LOCAL field contains the message **CRC ERROR**
  - 3) At the end of the session, the FIF indicates the extended code of the *result* of the session (fig. 5-3):

---

00:14	80	DIS		00 CE B8 04
00:17		FA	DCN	00 00
				END SESSION
00:17	FA	DCN		10 01

**Fig. 5-3**

- 
- positive result (00 00)
  - positive result with document received incorrectly (00 01)
  - negative result (*extended error code*, e.g. 10 01)
  - busy status (06 00)
  - STOP key pressed status (09 00).

# 5. DIAGNOSTICS

## 5.1 SELF-DIAGNOSTICS

The facsimile machine *automatically runs a diagnostic program* (SELF-DIAGNOSTIC TEST) the first time it is powered on and on reactivation after a power failure or disconnection from the mains:

- if the self-diagnostic test is *passed*, the facsimile machine enters *standby mode*
- If instead the self-diagnostic test is *failed*, the fax machine shows an *error code* on the display (SYSTEM ERROR xx). In this case, the fax machine needs to be disconnected from the power supply socket before eliminating the related problem.

The self-diagnostic routine tests the following components:

- EPROM
- static RAM
- printer.

The self-diagnostic test stops at the first test in which a fault is detected.

The transmission report contains the following information (fig. 5-5):

LAST TRANSMISSION REPORT		
Act.n.	0035	
Type	RX POLL	
Dialled Number	74257	
Received Id		
Date/Time	14-10-97	10:45
Duration	00:00	
Pages	01	
Result	09	STOP PRESSED

Fig. 5-5

- **Act. n.** progressive number of activity or transaction (4 digits)
- **Type** transaction (TX / TX ECM / RX / RX ECM / POLL / POLL ECM)
- **Dialled number** correspondent's number dialled
- **Received Id** correspondent's number (and name, if recorded) (\*)
- **Date/Time** date and time of start of transaction
- **Duration** duration of transaction (minutes : seconds)
- **Page** number of pages in document
- **Result** result of transaction (OK / error code).

(\*) this is the **ID recorded** on the correspondent's facsimile machine, the numeric part of which should correspond to the **actual telephone number** of the facsimile machine: if it does not, call the correspondent and ask him/her to correct the ID.

### 5.3.2 Journal (ACTIVITY REPORT)

Provides information about all transactions (transmission / reception) and is printed *automatically every 32 transactions* (and the information printed is subsequently cleared from the memory) or on request by the operator (fig. 5-6):

ACTIVITY REPORT								
Act.n.	Type	Dialled Number	Received Id	Date/Time	Duration	Pages	Result	
0005	RX ECM			25-09-97 15:42	00:36	01	OK	
0006	TX	222		26-09-97 08:17	00:03	01	08	
0007	TX	222		26-09-97 08:18	00:03	01	08	
0008	TX	222		26-09-97 08:19	00:03	01	08	
0009	TX ECM	222		26-09-97 08:21	00:18	01	09	
0010	RX POLL			26-09-97 08:24	00:00	01	09	
0011	TX ECM	222		26-09-97 08:25	00:16	01	09	
0012	TX ECM	222		26-09-97 08:29	00:11	01	09	
0013	RX POLL			26-09-97 08:32	00:00	01	09	
0014	RX ECM			26-09-97 08:34	00:17	01	10	
0015	RX			26-09-97 09:02	00:11	01	10	
0016	RX			26-09-97 09:24	00:24	01	10	
0017	RX			26-09-97 09:25	00:11	01	10	
0018	RX ECM			26-09-97 10:57	00:18	01	10	
0019	TX POLL ECM			26-09-97 11:00	00:31	01	OK	
0020	RX			26-09-97 11:58	00:22	01	10	
0021	TX POLL ECM			26-09-97 11:58	00:40	01	04	

Fig. 5-6

### 5.3.3 Loss of Mains Power Supply Report

When operating conditions are restored after a loss of mains power supply, the fax machine may behave in three different ways:

- if power was lost during a transaction (transmission or reception), then a report with the transmission data will *automatically* be printed (fig. 5-7):

POWER FAILURE		
Act.n.	0046	
Type	TX	
Dialled Number	2	
Received Id	+49 681 123 709	
Date/Time	16-10-97 10:22	
Duration	00:04	
Pages	01	
Result	16	POWER FAILURE ON PAGE 01

Fig. 5-7

or with the reception data (fig. 5-8):

POWER FAILURE		
Act.n.	0045	
Type	RX ECM	
Received Id	+49 681 123 709	
Date/Time	16-10-97	10:20
Duration	00:18	
Pages	01	
Result	16	POWER FAILURE ON PAGE 01

Fig. 5-8

- if power was lost *during reception* and the received document was *damaged*, the same report as in fig. 5-8 is printed, with the addition of data pertaining to the last 16 receptions (fig. 5-9):

POWER FAILURE		
Act.n.	0003	
Type	RX ECM	
Received Id	121212	
Date/Time	01-01-95	08:08
Duration	01:03	
Pages	02	
Result	16	POWER FAILURE ON PAGE 02
Act.n.	Received Id	Pages
0002		01
0003		02

Fig. 5-9

- if power was lost *after a substitute reception and the document still in memory* is damaged, a report is automatically printed with the data for the last 16 receptions (fig. 5-10):

POWER FAILURE		
Act.n.	Received Id	Pages
0002		01
0003		02

Fig. 5-10

- if power was lost *after a substitute reception* and the received document *is not damaged*, no report is printed.

## 5.4 REMOTE DIAGNOSTICS

Remote diagnostics is a **long-distance service** enabling a main station, consisting of a facsimile machine connected to a PC (called a "**master station**"), to perform diagnostic operations on any peripheral facsimile machine in the same family (called a "**slave station**") - providing it has been **enabled** to do so **previously** - to eliminate problems that have arisen on the slave.

This facsimile machine can only be enabled as a "**slave station**" in remote diagnostic sessions, that is:

- **transmit** a series of data that includes the **setup parameters** after a request has been made in polling mode by a "master station"
- have **these parameters changed locally** (i.e. on the "master station")
- **receive the modified data** to replace the current data.

### 5.4.1 Enabling the Facsimile Machine as a "Slave Station"

Enabling the facsimile machine to "slave" operation is possible by setting to **1** the bit **5** of software switch **SW10** (see section 4.1).

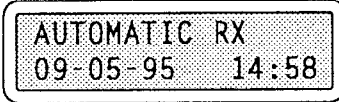

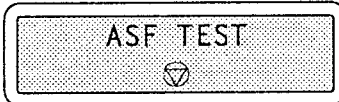


To use this function, it must be enabled by setting the **REMOTE CONTROL** setup parameter in the **DIAGNOSTICS** submenu of the main **INSTALLATION** menu (see section 3.2.1) to **YES**.





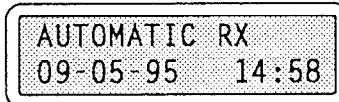
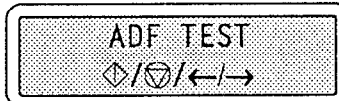

### 6.1.4 ASF TEST (not active with a colour print head)

This test **MUST** be carried out after replacing: the paper motor or the printer unit.

Setting	Display
a) The facsimile machine is in standby mode.	
b) Get access to the system test menu and select the ASF TEST option	
c) Place an A4-size blank sheet of paper in the ASF and then press $\diamond$ : the same line is printed on both top and bottom of sheet as in the case of the alignment test (fig. 6-2):	
	
d) If the paper gets jammed, the message PAPER ERROR appears on the display.	



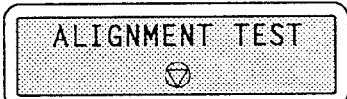
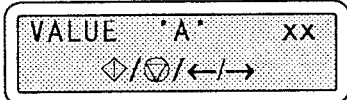

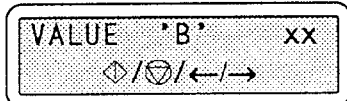
### 6.1.5 ADF TEST

This test **MUST** be carried out after replacing: the feeder rollers or the scanner unit.

Setting	Display
a) The facsimile machine is in standby mode	
b) Get access to the system test menu and select the ADF TEST option	
c) Place one or more sheets with text and pictures in the automatic document feeder and then press $\diamond$ : the documents are scanned one at a time and, at the end of the operation, a message appears indicating the number of documents scanned ( <b>xx</b> )	
d) If you want to repeat the test, insert more sheets in the feeder and press $\diamond$ .	

## 6.1.1 ALIGNMENT TEST (not active with a colour print head)

This test **MUST** be carried out after replacing: the printer unit, motherboard, carriage or carriage motor.

Setting	Display
a) The facsimile machine is in standby mode	
b) Get access to the system test menu and select the ALIGNMENT TEST option	
c) Make sure that there is paper in the ASF, and then press $\diamond$ : the test chart shown in fig. 6-1 is printed out	
d) At the end of the printout, the message <b>VALUE 'A' xx</b> will appear on the display; look carefully at the <b>scale</b> printed in the top left corner of the print chart (use a magnifying lens or make an enlarged copy of the scale) and detect the <b>value of its length (from 0 to 15)</b> :	
	
e) Enter the detected value as <b>xx</b> (in order to adjust the print left margin) and press $\diamond$ ; the message <b>VALUE 'B' xx</b> will appear on the display:	
<ul style="list-style-type: none"> <li>- identify the <b>best vertical alignment</b> from the ten shown on the test chart</li> <li>- enter the <b>number corresponding</b> to the best alignment using the left and right arrow keys; note that an <b>intermediate value</b>, which is not printed on the test chart, may be selected as the best alignment, there are therefore 20 values available (0-19)</li> <li>- press <math>\diamond</math>: the test chart in fig. 6-2 showing both the margin alignment (the example shows VALUE 'A' = 07) and the vertical alignment (the example shows VALUE 'B' = 11) is printed out.</li> </ul>	

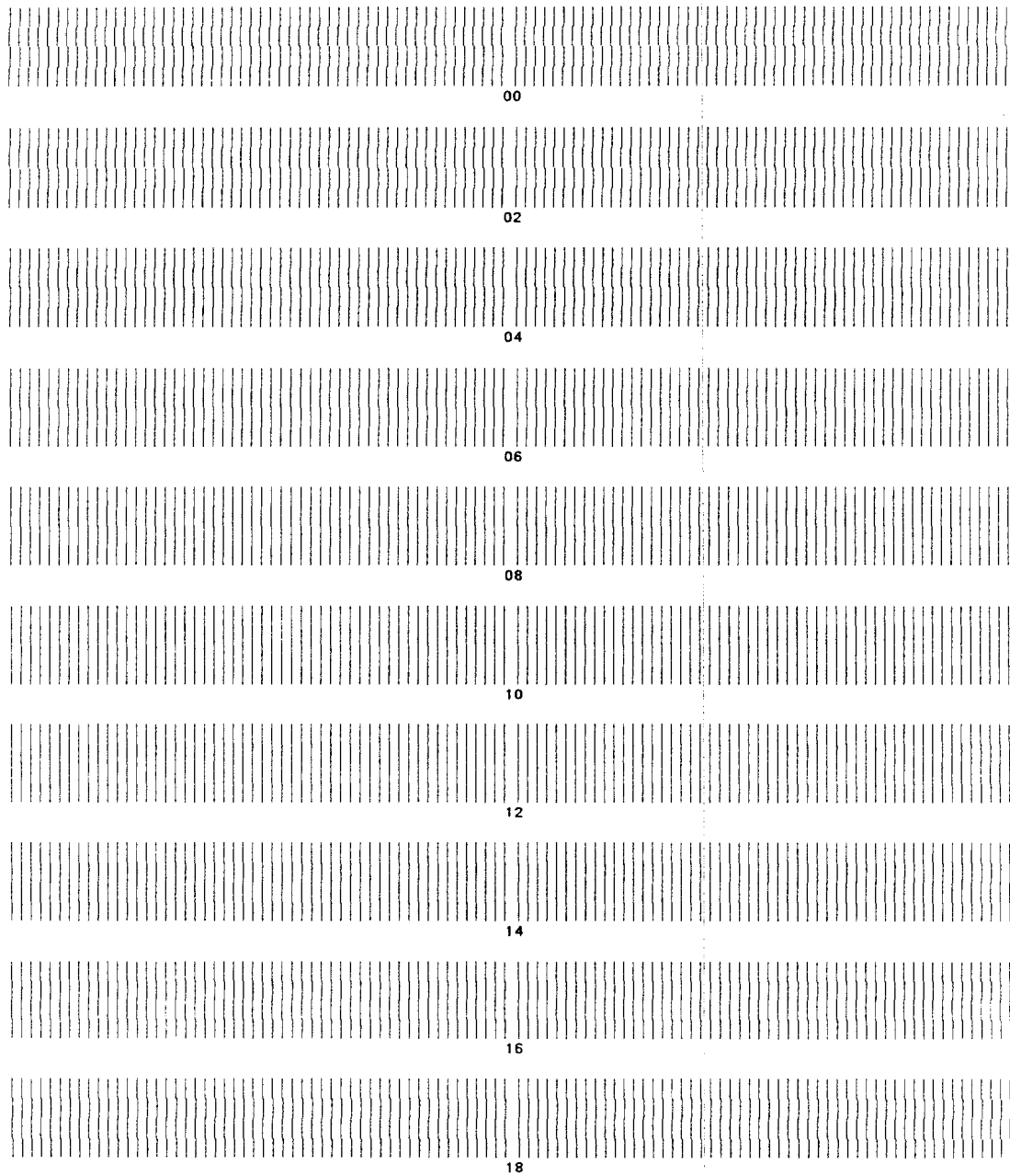
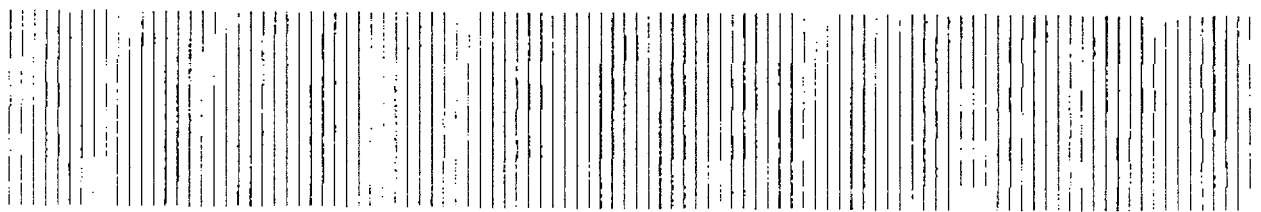


Fig. 6-1

VALUE 'A' = 07


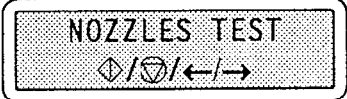
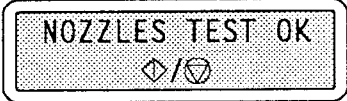



VALUE 'B' = 10

Fig. 6-2

## 6.1.2 NOZZLES TEST

This test may be carried out to identify the cause of printing errors.

Setting	Display
a) The facsimile machine is in standby mode	
b) Get access to the system test menu and select the NOZZLES TEST option	
c) Press $\diamond$ : the test result is immediately displayed	 or 
d) Make sure that there is paper in the ASF, and then press $\diamond$ ; if you have installed a <b>monochrome print head</b> , the following chart is printed out (see fig. 6-3):	

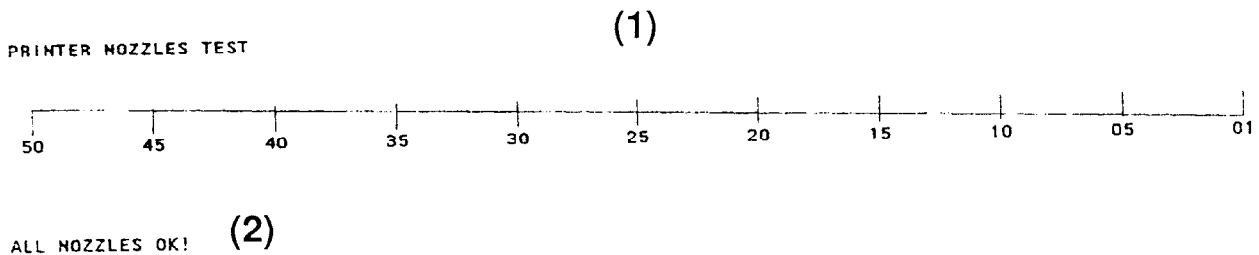


Fig. 6-3

The chart consists of:

- (1) a **numbered scale** for **checking the flow of ink**, with the nozzles numbered from 01 to 50
- (2) a message providing the **result of the test run on the electrical print head circuits**.

If you have installed a **colour print head**, the following chart is printed out (see fig. 6-3a) and consists of:

- (1) the threefold print-out of the **three print head colours** (cyan, magenta, yellow)
- (2) three **numbered scales** for **checking the flow of ink**, with the nozzles numbered (01 to 16 for cyan, 01 to 17 for magenta, 01 to 18 for yellow)

- 3) a message providing the *result of the test run on the electrical print head circuits*.

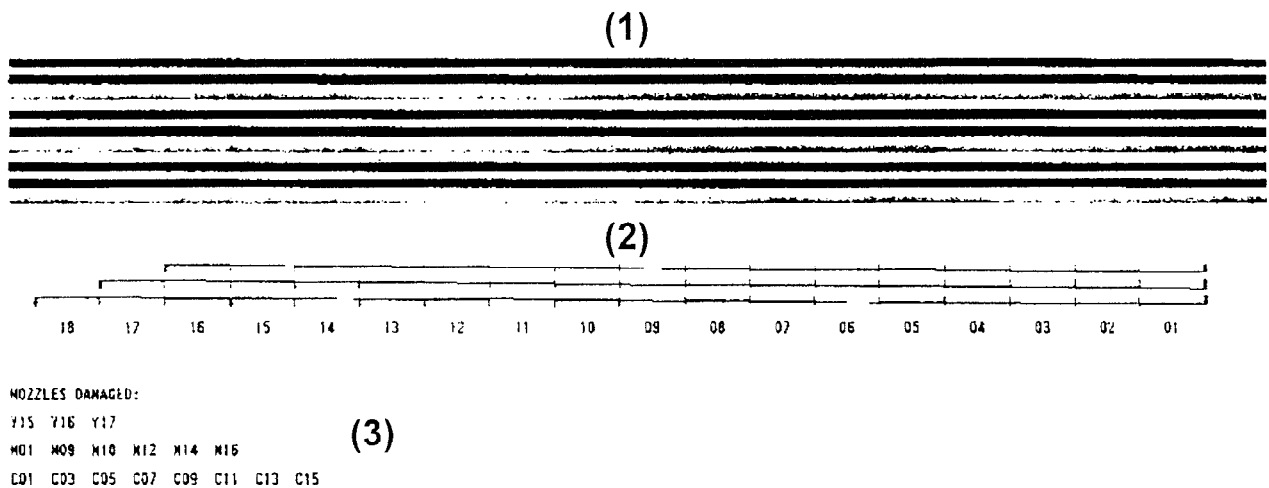


Fig. 6-3a

### 6.1.2.1 Checking the Ink Flow

Check the numbered scale:

- if *all the lines* that make up the scale are *present*, all the nozzles are working
- if *one or more lines are missing*, the fault could be due to one of the following:
  - dirty printing nib: clean the rubber print head pad
  - foreign body on printing nib: remove it taking care to avoid touching the electrical contacts on the print head
  - air bubble in the ink: carry out the CLEANING (see section 6.1.3) followed by the PRINT CHART test (see section 6.1.4); if the fault persists, repeat the CLEANING up to three times, and then replace the print head if this does not have the desired effect.

### 6.1.2.2 Checking the Electrical Circuits

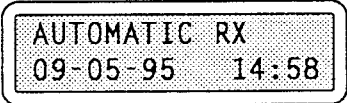


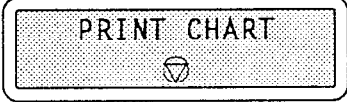
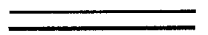

Check the message indicating the result of the test:

- ALL NOZZLES OK            all the electrical circuits are working
- NOZZLES DAMAGED:    circuit(s) xx (yy, zz) error: remove the print head, clean the electrical contacts on the print head with a dry swab and the electrical contacts of the print carriage with a soft, dry cloth, then reinsert the print head and repeat the NOZZLES TEST. If another faulty circuit is indicated, reinsert the print head

several times until the fault has been eliminated; if the fault persists on the same circuit (xx / yy / zz) after installing a new print head, replace the print carriage (see section 7.2.14).

### 6.1.3 PRINT CHART (not active with a colour print head)

This test **MUST** be carried out after replacing: the printer unit, motherboard, carriage, carriage motor or paper motor.

Setting	Display
a) The facsimile machine is in standby mode	
b) Get access to the system test menu and select the PRINT CHART option	
c) Make sure that there is paper in the ASF and then press  : the test chart shown in fig. 6-4 is printed out.	
d) With reference to the figure, check that: <ul style="list-style-type: none"> <li>• lines 1, 10, 11 and 12 delimit the <b>printable area</b> on an A4-size sheet (about 208 x 290 mm)</li> <li>• area 2 is used to evaluate that the <b>transport speed</b> of the print carriage is uniform: no shadings should result in the strip</li> <li>• area 3 is used for checking <b>vertical alignment</b>; run the printer alignment test, if necessary, to modify the alignment parameters (see section 6.1.1)</li> <li>• areas 4, 5 and 7 are used for checking that the <b>line feed mechanism is uniform</b>: <ul style="list-style-type: none"> <li>- in area 4, groups of lines are printed close together but must never cross or overlap (  ); the groups alternate in lines corresponding to the central nozzle on the print head (number 25)</li> <li>- in area 5, groups of lines are printed one on top of another and there must be no space between them (  ); the groups alternate in lines corresponding to the central nozzle on the print head (number 25)</li> <li>- in area 7 dark grey and light grey patterns are printed forming a uniform strip, that is, without black or white lines distributed irregularly across it; if the lines appear at regular intervals along the strips, some of the nozzles are faulty</li> </ul> </li> </ul>	

Faults found in areas 4, 5 and 7 indicate line feed errors

- four areas 6 are used for checking "**all black**" printing; check that there are no white lines present; if there are, some print nozzles may be blocked. In this case, run CLEANING (see section 6.1.3)
- area 8 is used for checking the printing of **ASCII characters**
- area 9 is used for checking printing with the nozzles spraying at **maximum frequency**; there must be no white or broken lines; if there are, run the nozzles test (see section 6.1.2).





# 6. SYSTEM TEST AND ADJUSTMENTS

## 6.1 SYSTEM TEST

The **SYSTEM TEST** is a collection of *utility programs*, which are not available to the user but are provided to enable the service technician to carry out specific *tests* on components and modules.

The system tests are arranged into menus under the SYSTEM TEST item (see section 3.2.1) and can be accessed either with the machine in "*service*" mode (see section 3.2.2) or pressing in rapid sequence **START** ★ ★. *Underlined tests* cannot be activated with a colour print head:

- PRINT OUT SET-UP (\*)
- ALIGNMENT TEST
- NOZZLES TEST
- CLEANING
- PRINT CHART
- ASF TEST
- ADF TEST
- SYSTEM TEST MSG (\*)
- MODEM TEST (\*)
- KEYB. SIMULATION (\*)
- RAM TEST (\*)
- AGING TEST (\*)
- FIRMWARE RELEASE (\*)
- LOAD DEFAULT
- SCANNER SHADING
- KEYBOARD TEST (\*)
- DISPLAY TEST (\*)
- CARRIAGE TEST.
- PRINT SIMULATION (\*)
- CLEANER TEST (\*)

**Warning:** each test in progress can be interrupted or terminated in either of the following ways:






- by pressing **the STOP key once**, if you want **to stay in test mode** (the test that follows the interrupted or terminated one appears on the display)
- by pressing **the STOP key twice**, if you want to exit from test mode and **return to stand-by mode**.

---

(\*) These tests are used exclusively for special production requirements or during laboratory tests and, consequently, no description is provided in this manual.








## 6.1.6 LOAD DEFAULT

This procedure is used for loading the default values of the service switches for the current country version of the facsimile machine.

Setting	Display
a) The facsimile machine is in standby mode	
b) Get access to the system test menu and select the LOAD DEFAULT option	
c) Press 	
d) Press  once again: the default values of the U.K. service switches are automatically set in place of the current ones, <b>clearing the static RAM</b> and thus deleting all data (reports) set by the user.	

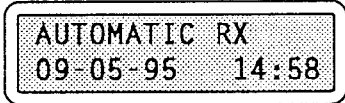



## 6.1.7 SCANNER SHADING

This test **MUST** be carried out after replacing: the scanner unit, motherboard or CCD board. It must also be carried out after making the CCD adjustment (see section 6.3).

Setting	Display
a) The facsimile machine is in standby mode	
b) Get access to the system test menu and select the SCANNER SHADING option	
c) Press 	
d) Press 	
e) Press 	

## 6.1.8 CARRIAGE TEST

This test **MUST** be carried out after replacing: the carriage, carriage motor or printer unit.

Setting	Display
a) The facsimile machine is in standby mode	
b) Get access to the system test menu and select the CARRIAGE TEST option	
c) Press  : the carriage starts moving from right to left and gradually increases its field of movement until it reaches the left-hand side of the machine, and then it repeats this procedure.	

## 6.2 CHECKS AND ADJUSTMENTS

### 6.2.1 Checking the Direct Voltages

- 1) Remove the power supply/NCU assembly (see section 7.2.3) without disconnecting it from the motherboard
- 2) Measure the direct voltages at connector J2 on the power supply board.

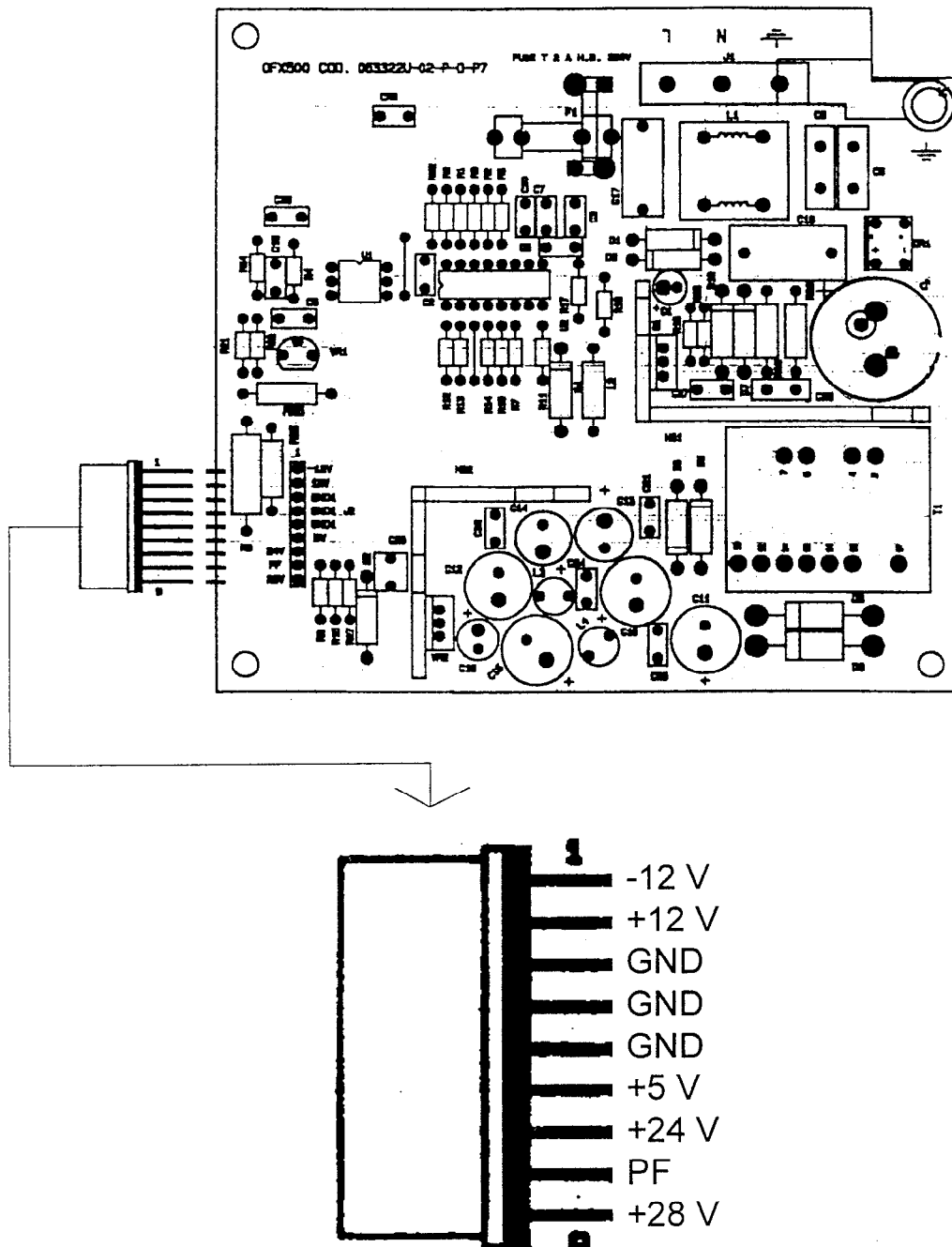
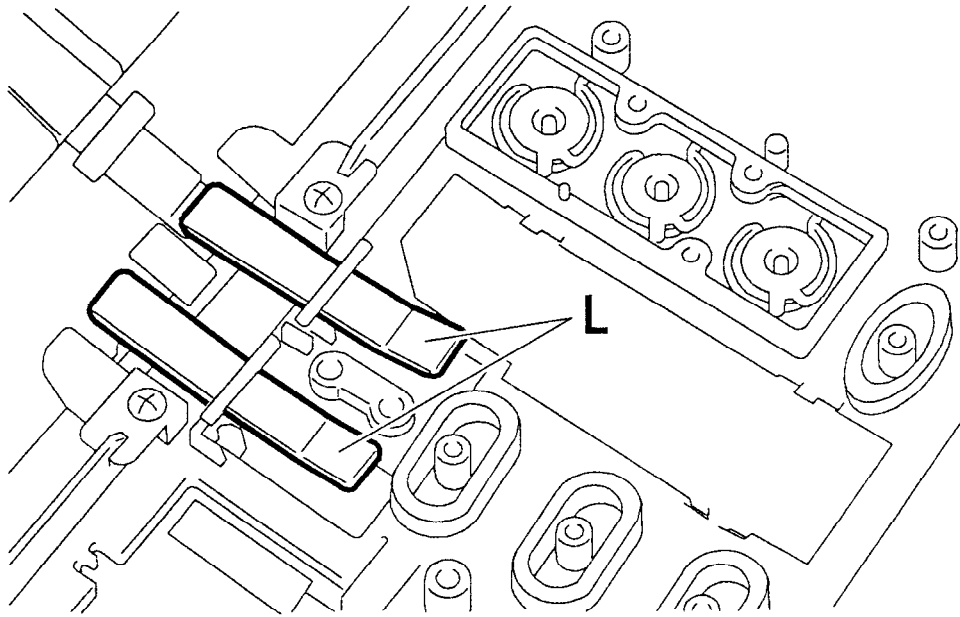


Fig. 6-5

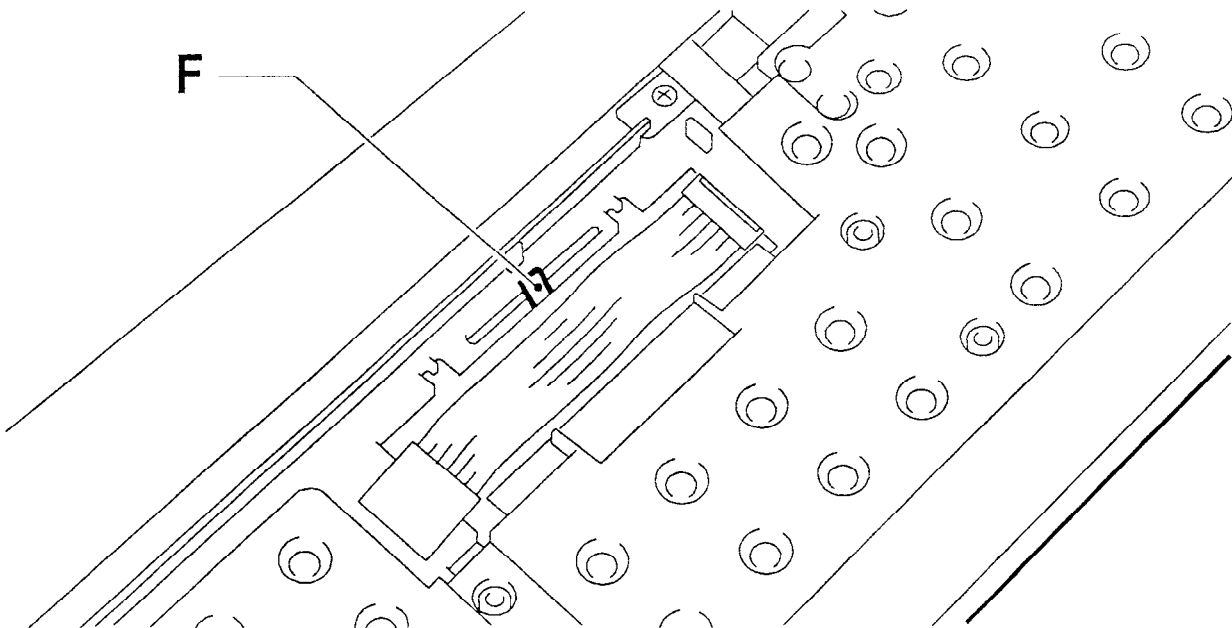
**Caution** During re-assembly, ensure that the two levers L are properly inserted in their housings (Fig. 7-55):



**Fig. 7-55**

### 7.2.20 Replacing the Display

- 1) Disassemble the console board (see sect. 7.2.19)
- 2) Release the display from latch F and extracted it from its guide (Fig. 7-56):

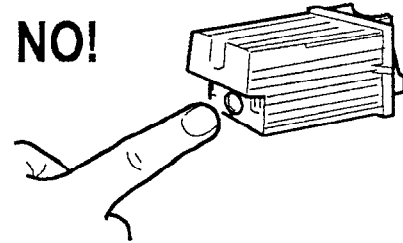


**Fig. 7-56**

## 7.1.2 Replacing the rechargeable Ink Cartridge

1. Tilt the printer cover.
2. Remove the used cartridge, **without removing the print head**, by pressing the catch.
3. Remove the new cartridge from its sealed packing and peel the protective film off the ink supply hole.

**WARNING**  
**Do not touch the inked area!**



4. Insert the cartridge in its housing immediately and press it in until the catch clicks into place to indicate that the cartridge is correctly inserted.
5. Close the printer cover: if the **head cleaning** feature is enabled (bit 2 of software parameter SW09 =1, see section 4.1), the facsimile machine automatically starts the **nozzle cleaning and testing procedure** (see section 3.1.5, step 7). If it is not, the sheet of paper is unloaded.

## 7.1.3 Replacing the Print Head

See section 3.1.5 (starting from step 4).

## 7.1.4 Cleaning the Print Head

If print quality deteriorates, the print nozzles need to be tested first (see sect. 6.1.2) to determine whether it is necessary to perform the print head CLEARING procedure, which entails drawing ink to free the print head from any air bubbles it may contain.

Setting	Display
1) The facsimile machine is in stand-by mode	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">           AUTOMATIC RX            09-05-95 14:58         </div>
2) Access the main menu and select the HEAD MAINTENANCE submenu of the FAX SETUP menu	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">           HEAD MAINTENANCE            (F)/◀/⊗         </div>
3) Press ◀ twice to start procedure.	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">           PRINTING         </div>

## 7.1.5 Cleaning the Electrical Contacts

If a deterioration of the print quality is observed, it may be necessary to clean the electrical contacts on the print head

- 1) Unplug the power cable from the mains socket and tilt the printer cover
- 2) Remove the print head and clean the electrical contacts using a dry cotton swab (see figure 7-1)

**Warning: Do not touch the printing nib.**

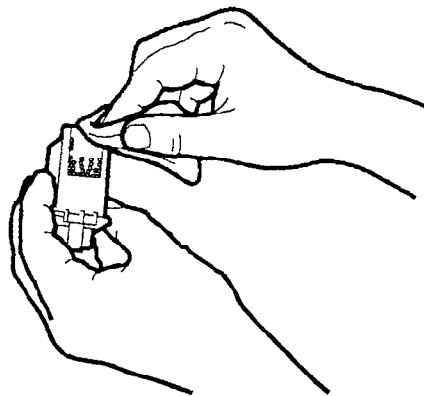


Fig. 7-1

- 3) Clean also the electrical contacts on the print carriage using a dry soft cloth (see figure 7-2).

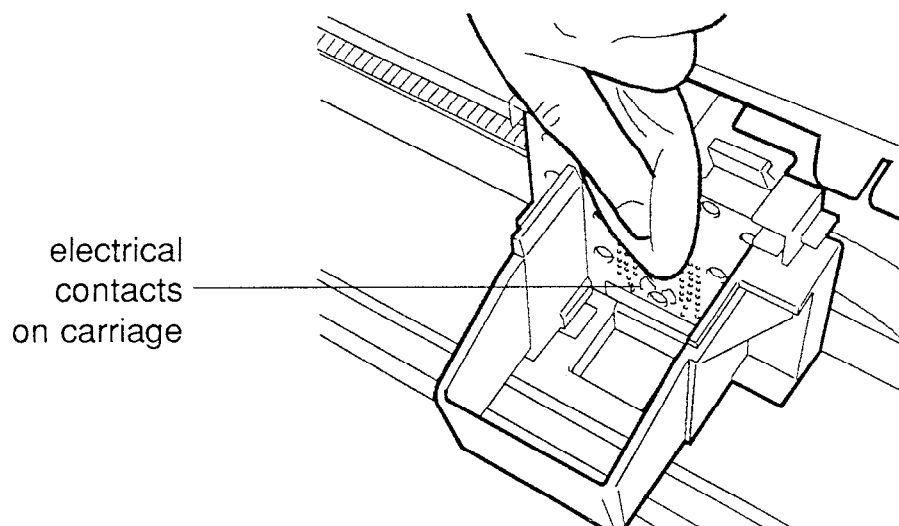


Fig. 7-2

- 4) After reinserting the print head, close the printer cover.

## 7.1.6 Cleaning the Print Head Cleaning Pad

- 1) Unplug the power cord from the mains socket and flip open the printer lid.
- 2) Remove the print head and move the carriage against the left side (figure 7-3).

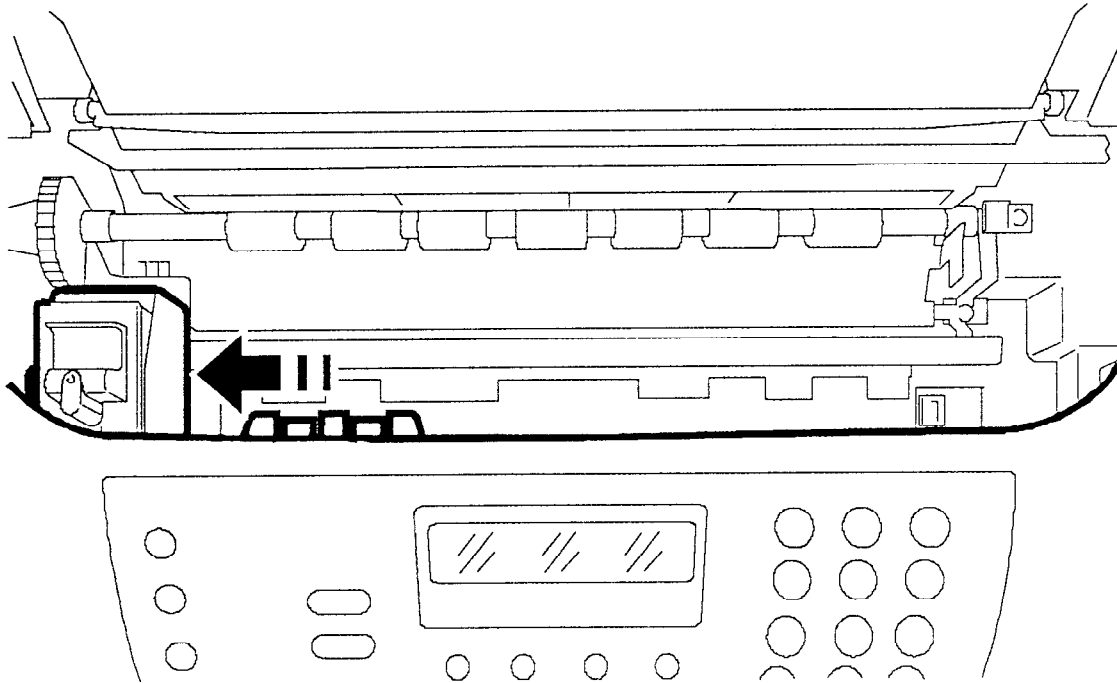


Fig. 7-3

- 3) Clean the print head cleaning pad using a dry cotton swab (fig. 7-4), then re-install the print head and close the printer lid.

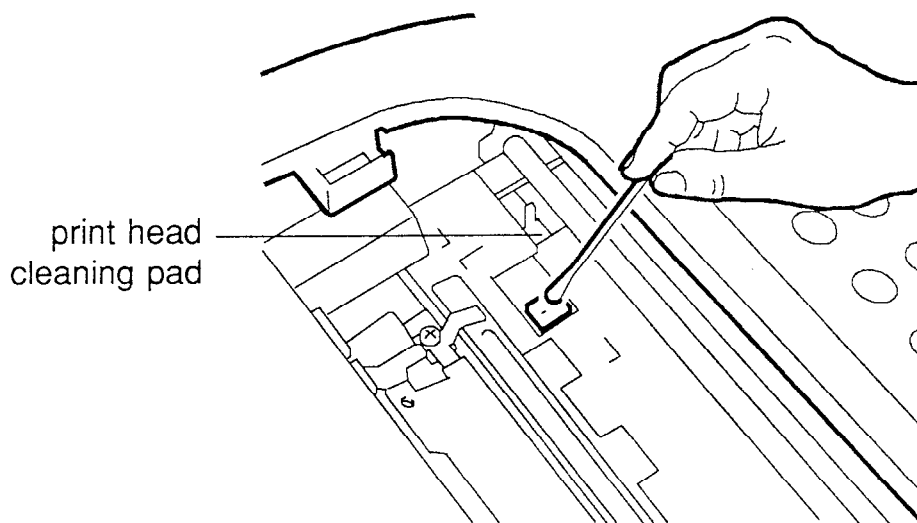


Fig. 7-4



### 7.1.7 Cleaning the Optical Unit

Dust may accumulate on the optical unit glass, causing document scanning problems: it is thus advisable to clean the glass periodically.

- 1) Unplug the power cord from the mains socket and flip open the printer cover.
- 2) Move the print head against the left side, then lift the optical unit screen acting on the right side lever (fig. 7-5).

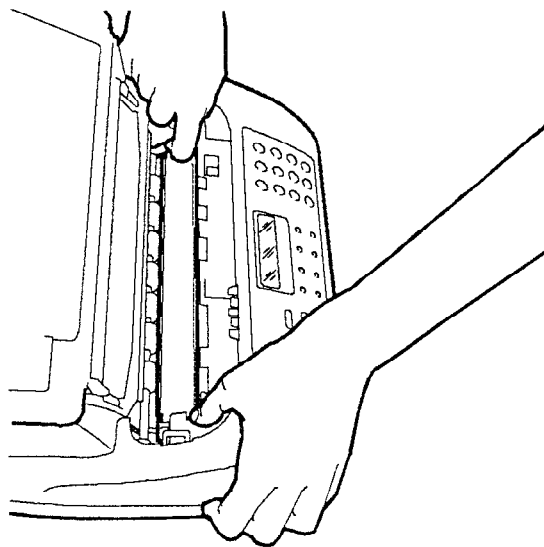


Fig. 7-5

- 3) Keeping the screen raised, clean the optical unit glass using a cloth dampened with a specific glass cleaning product, then carefully wipe dry (fig. 7-6).

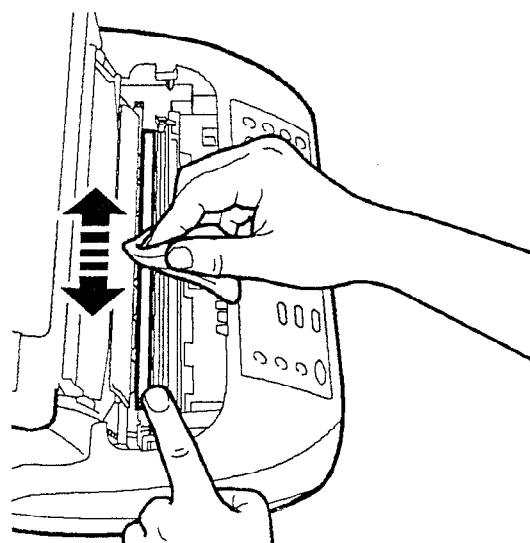


Fig. 7-6

## 7.2 DISASSEMBLY AND REPLACEMENT PROCEDURES

This section describes how to disassemble and replace the main units of the facsimile machine.

**WARNING:** Should a procedure require *one or more connectors to be unplugged from the motherboard*, we recommend the following:

- 1) *before starting the procedure*, print all configuration parameters (both user-level and service-level) and the user's telephone list
- 2) *upon completion of the procedure*, restore the facsimile as referenced in paragraph 7.2.21.

Before starting to disassemble the facsimile machine, unplug the power cable from the wall outlet and the telephone line.

### 7.2.1 Wirings

Figures 7-7 and 7-8 show the motherboard connectors and their connection to the fax machine assemblies, to facilitate re-installation of the replaced assemblies.

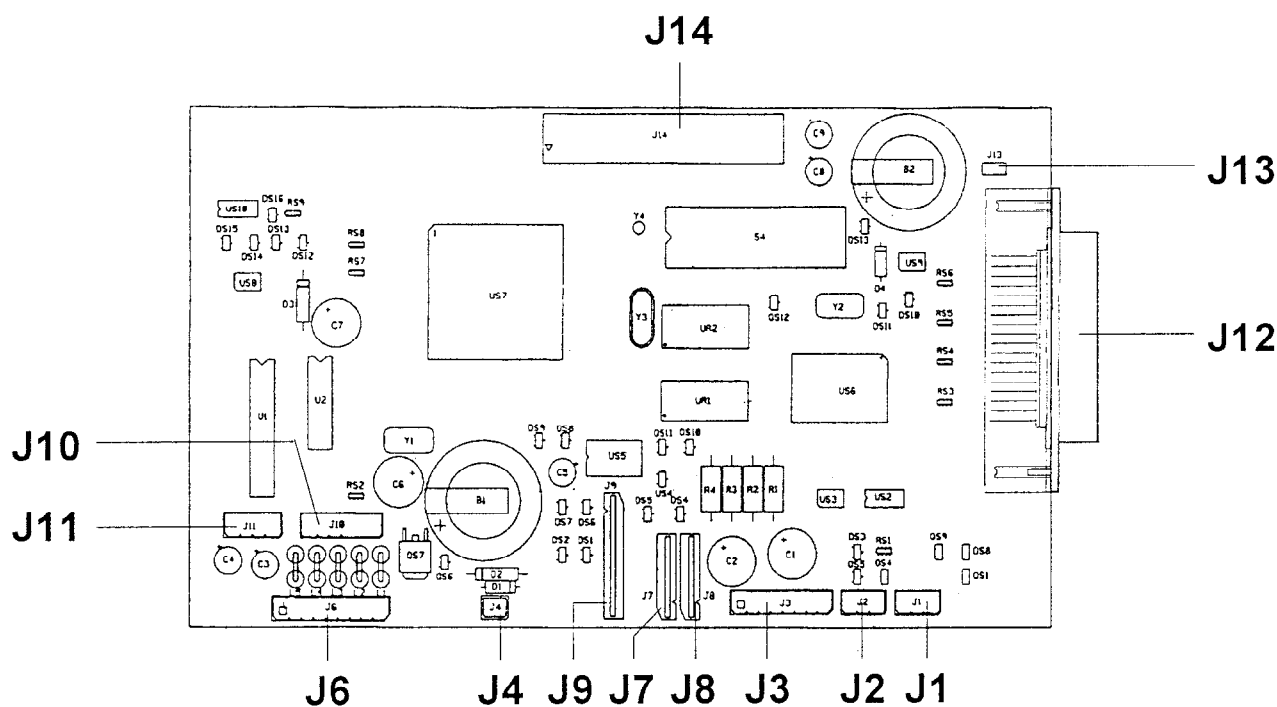


Fig. 7-7 Locating the connectors on the motherboard

J1	Paper edge sensor	J9	Keypad
J2	Document sensor	J10	Interline motor
J3	Contact sensor (CIS)	J11	Carriage motor
J4	Print head cleaner E.M.	J12	Parallel port (LinkFax model, only)
J6	Power supply	J13	Dynamic memory Reset
J7-8	Print head	J14	NCU board

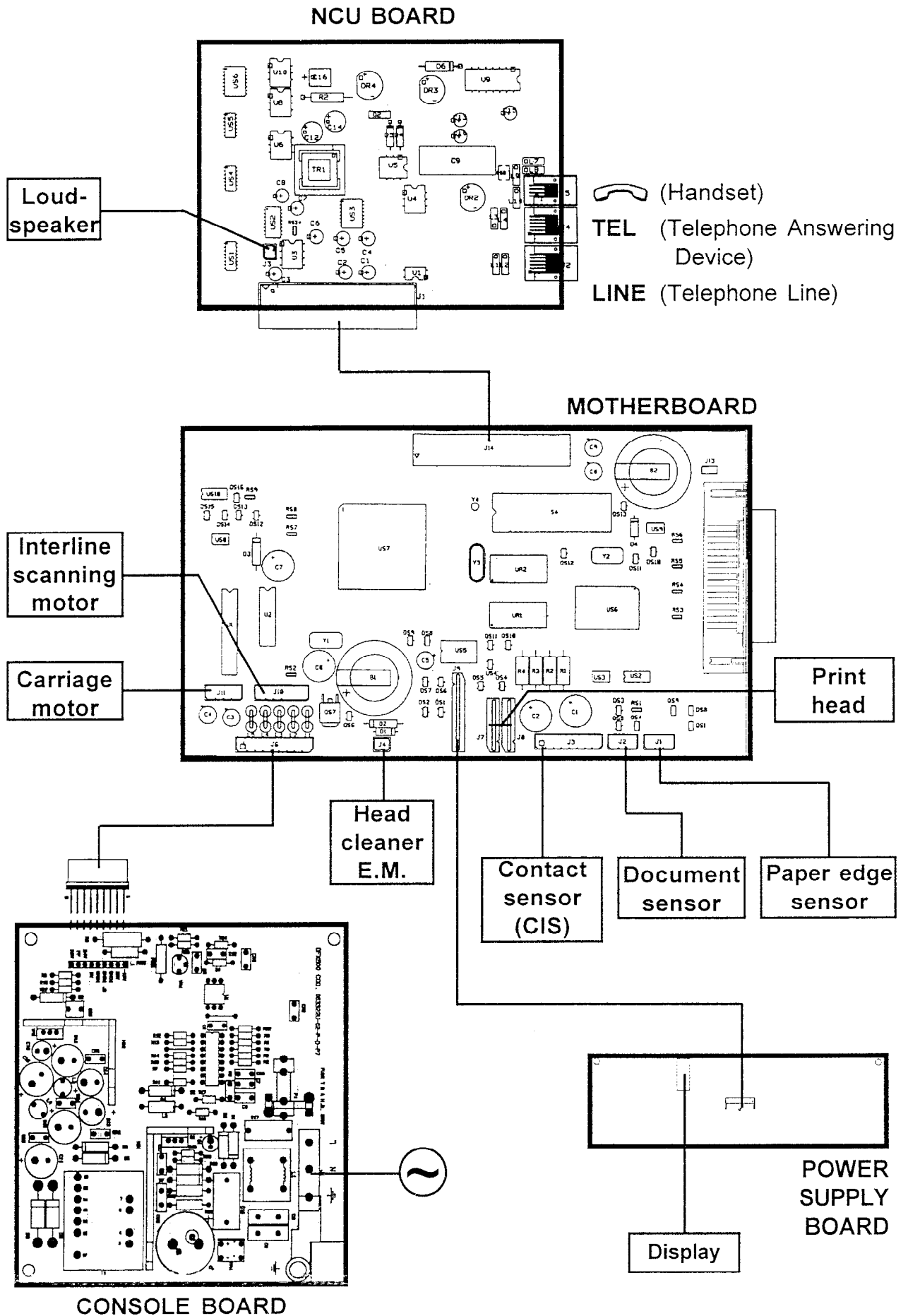


Fig. 7-8 Wirings diagram

## 7.2.2 Removing the Casing

- 1) Disconnect the handset from its plug and remove it from the casing
- 2) Release the casing from the base, flexing outward and lifting upward the points indicated in order in the figure (Fig. 7-9):

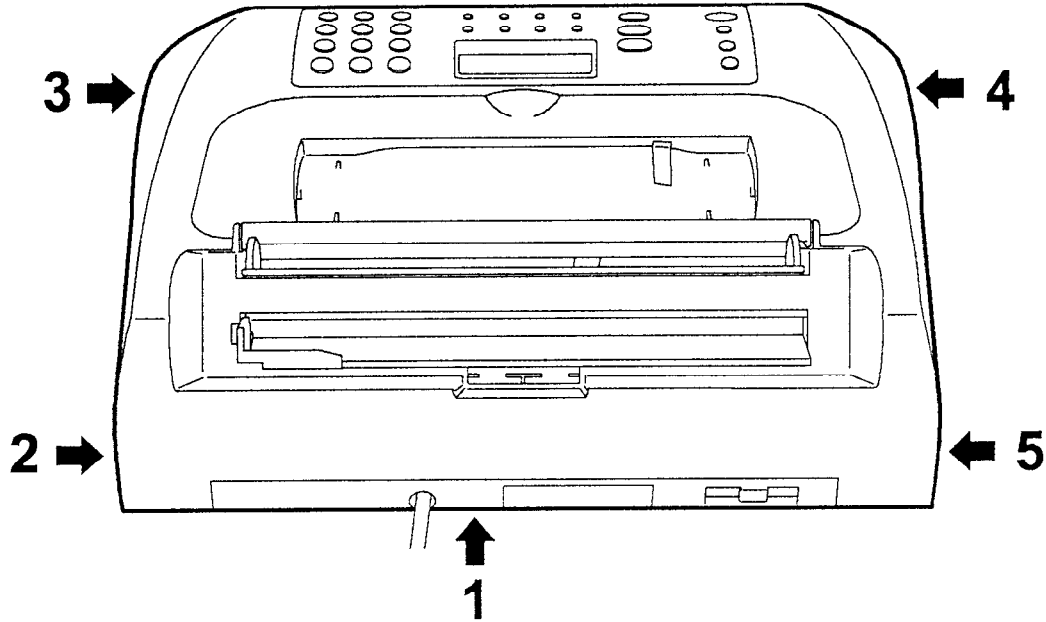


Fig. 7-9

- 3) Lift the casing upwards and flip it forward, then remove flat cable F from the console board (Fig. 7-10):

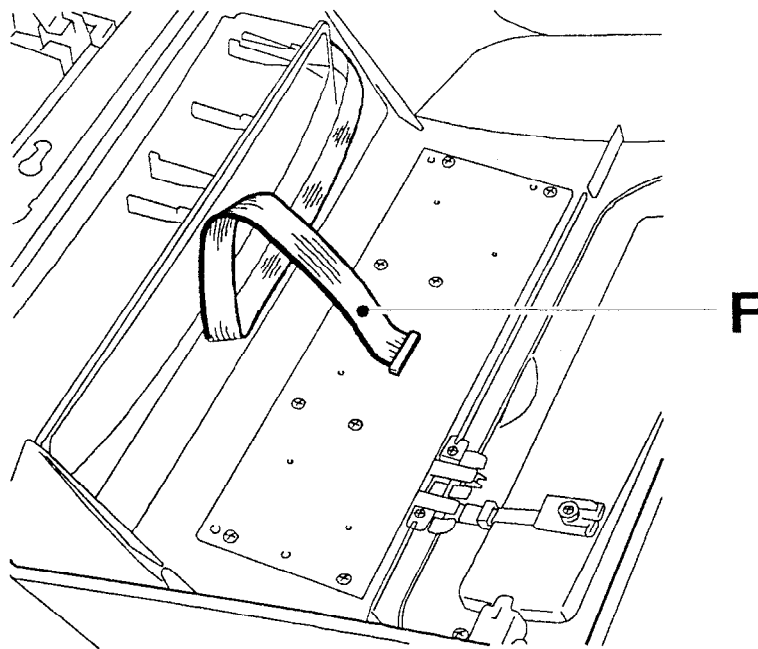


Fig. 7-10

### 7.2.3 Disassembling the Base

- 1) Disassemble the casing (see sect. 7.2.2)
- 2) Release the outlet **C** flexing it upward with both hands, then rotating it forward (Fig. 7-11):

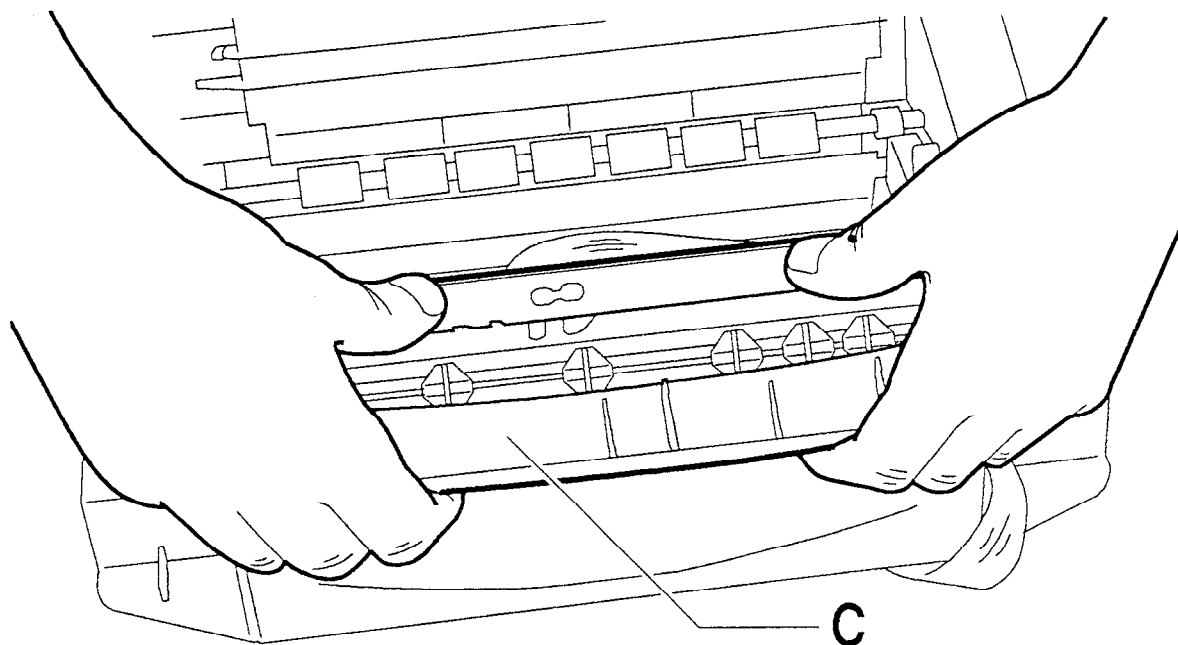


Fig. 7-11

- 3) Put the fax machine in the vertical position and remove the two screws **V** (Fig. 7-12):

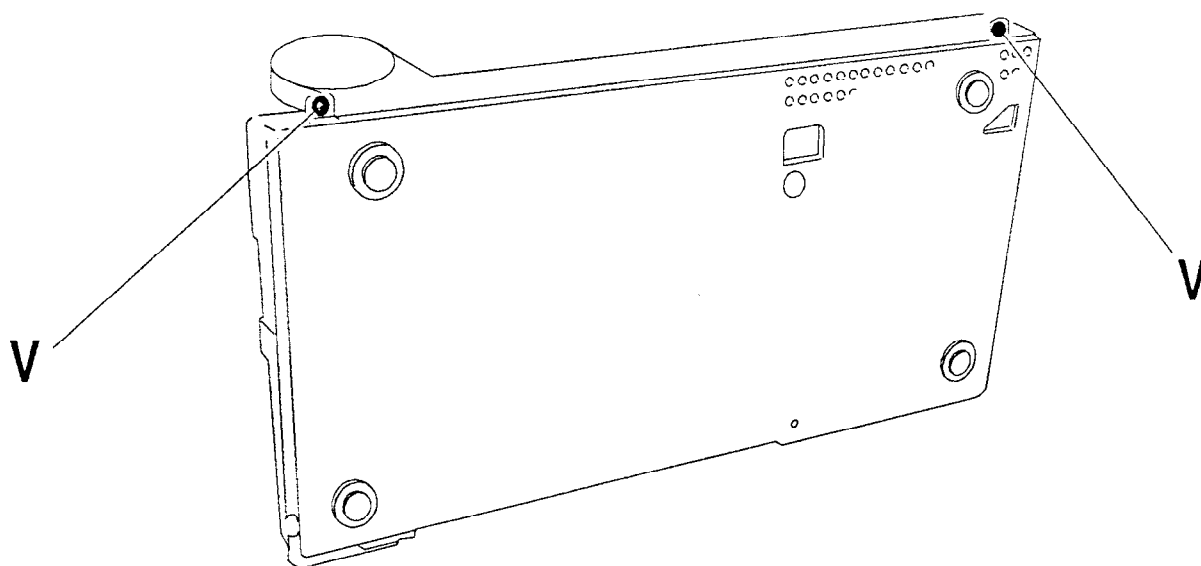


Fig. 7-12

- 4) Flip the base forward and disconnect earthing leads **C**, then remove the base from the body of the machine (Fig. 7-13):

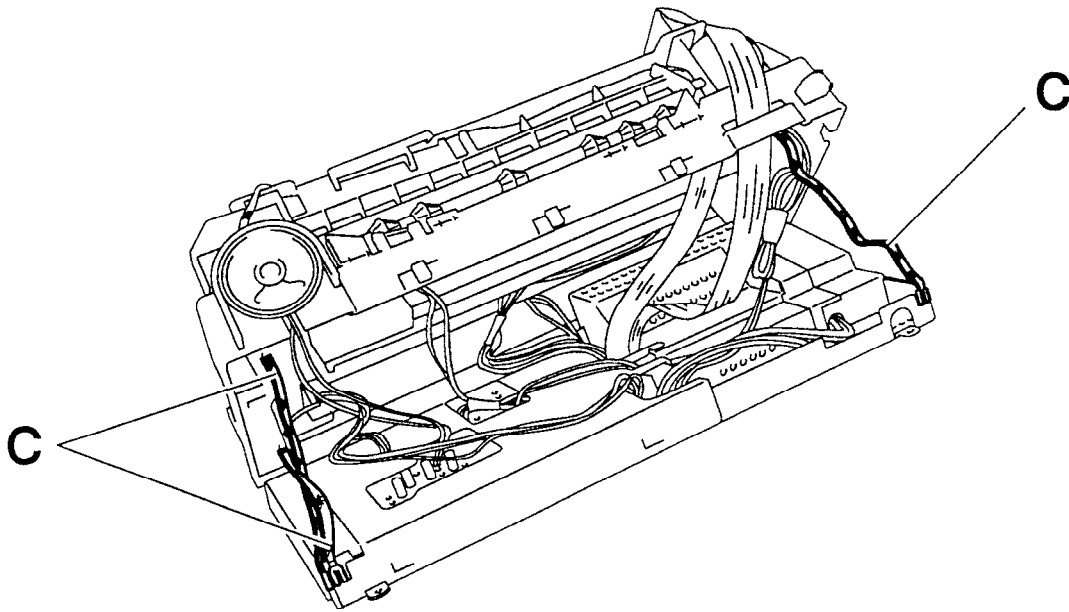


Fig. 7-13

- 5) Free all wires from their fastening and disconnect them from the underlying board (Fig. 7-14), then retrieve the base:

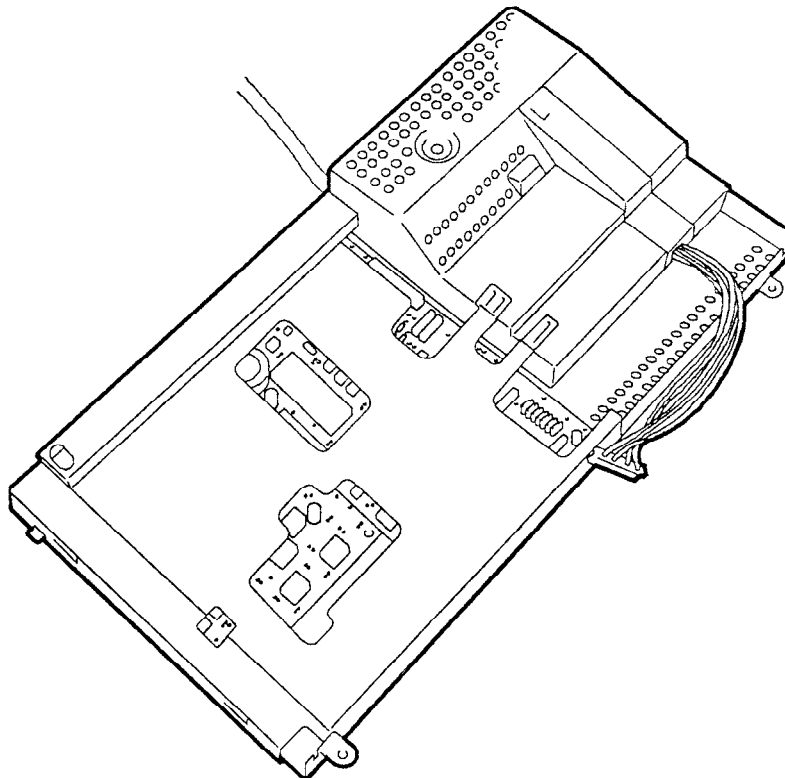


Fig. 7-14

**Caution** In reassembling the machine, ensure that the rear tabs (**A**) of the base are properly inserted in the corresponding slots **F** (Fig. 7-15):

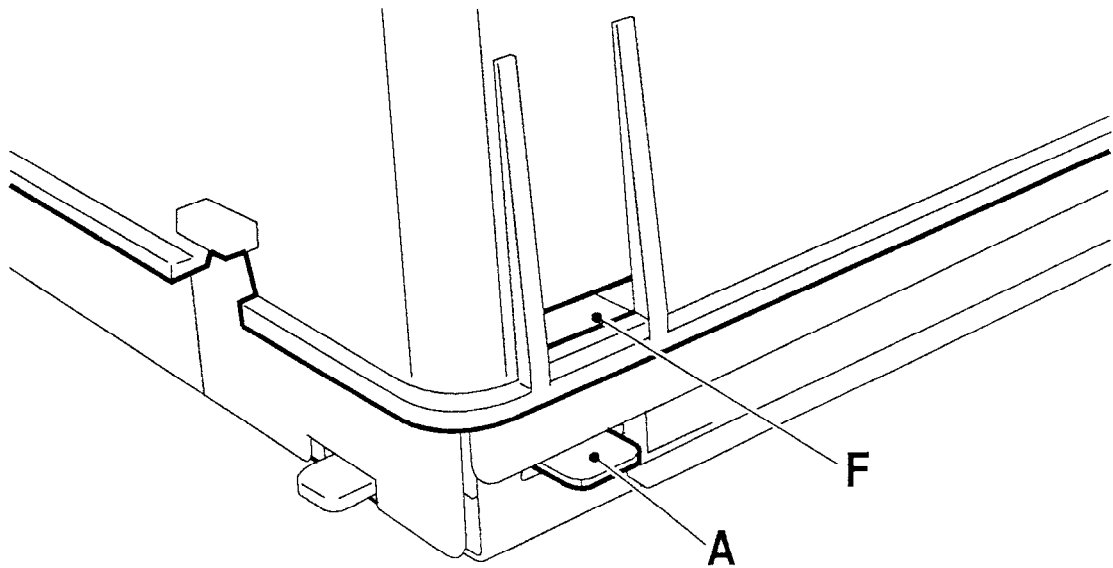


Fig. 7-15

#### 7.2.4 Replacing the Motherboard and the NCU Board

- 1) Remove the base (sect. 7.2.3)
- 2) Remove screen **S** releasing it in the points indicated by the arrows (Fig. 7-16):

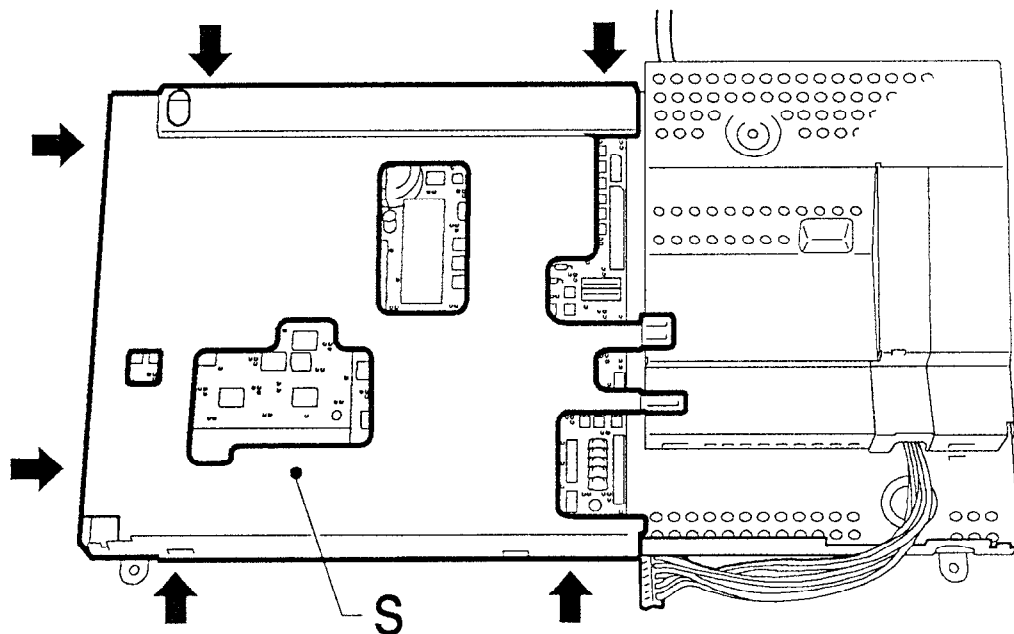
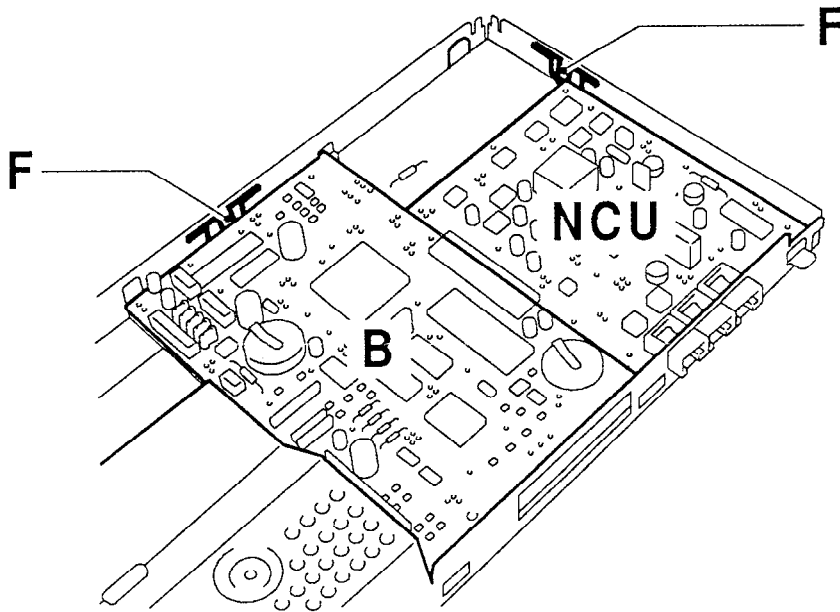


Fig. 7-16

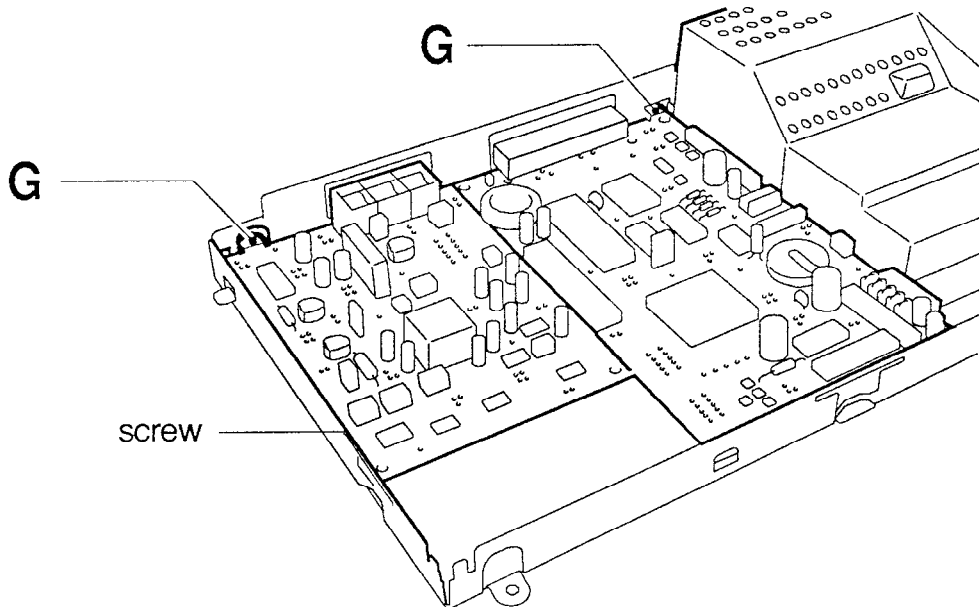
- 3) Release the assembly of motherboard **B** and board **NCU** from the related latches **F** and extract it from the base, then separate the boards (Fig. 7-17):



**Fig. 7-17**

- 4) Once the motherboard has been replaced, perform the LOAD DEFAULT (see sect. 6.1.7), ALIGNMENT TEST (see sect. 6.1.1) and SCANNER SHADING (see sect. 6.1.8) procedures.

**Caution** During re-assembly, ensure that the boards are properly inserted in the related guides **G** (Fig. 7-18):



**Fig. 7-18**



## 7.2.5 Replacing System Software

- 1) Before replacing the system software EPROM - operation which entails the loss of all data and of all configuration and installation parameters - it is necessary to:
  - ensure that there are no documents in the memory, eliminating any causes which prevent them from being printed (paper end, ink end, etc.)
  - print the activity report, the installation and configuration parameters and the list of one-touch dial and speed dialling numbers
- 2) Flip the basement upside down (steps 1 through 4 of sect. 7.2.3) and replace the EPROM (Fig. 7-19):

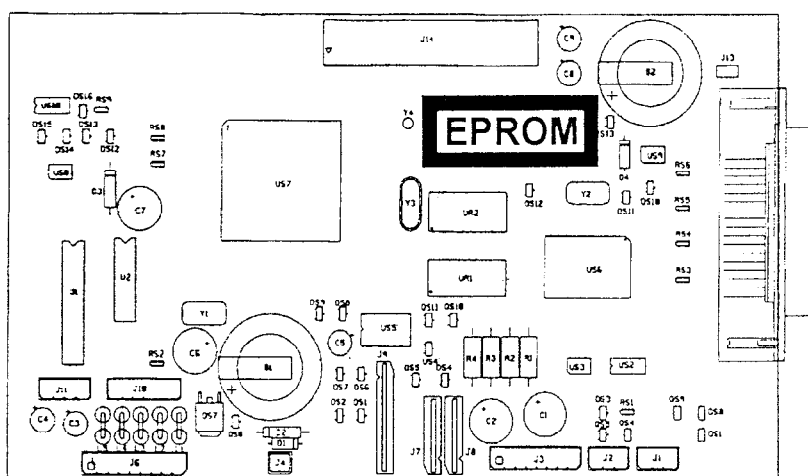


Fig. 7-19

- 3) Perform the LOAD DEFAULT (see sect. 6.1.7), ALIGNMENT TEST (see sect. 6.1.1) and SCANNER SHADING (see sect. 6.1.8) procedures
- 4) Perform the fax machine nationalisation procedure, reset installation and configuration parameters as well as the one-touch and speed dialling numbers, using the data printed previously (see sect. 3.2).

## 7.2.6 Replacing the Power Supply Board

- 1) Disassemble the base (sect. 7.2.3) and remove the screen of the motherboard (see sect. 7.2.4)

2) Remove screen **S** releasing it in the points indicated by the arrows (Fig. 7-20):

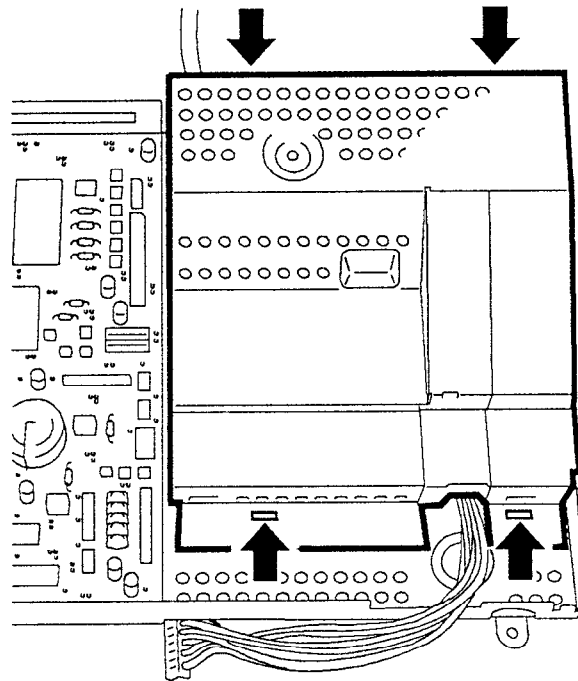


Fig. 7-20

3) Disconnect the power supply cable from the terminal board **M**, then unscrew the screw **V**, compress pin **P** and remove the power supply board from their guide **G** (Fig. 7-21):

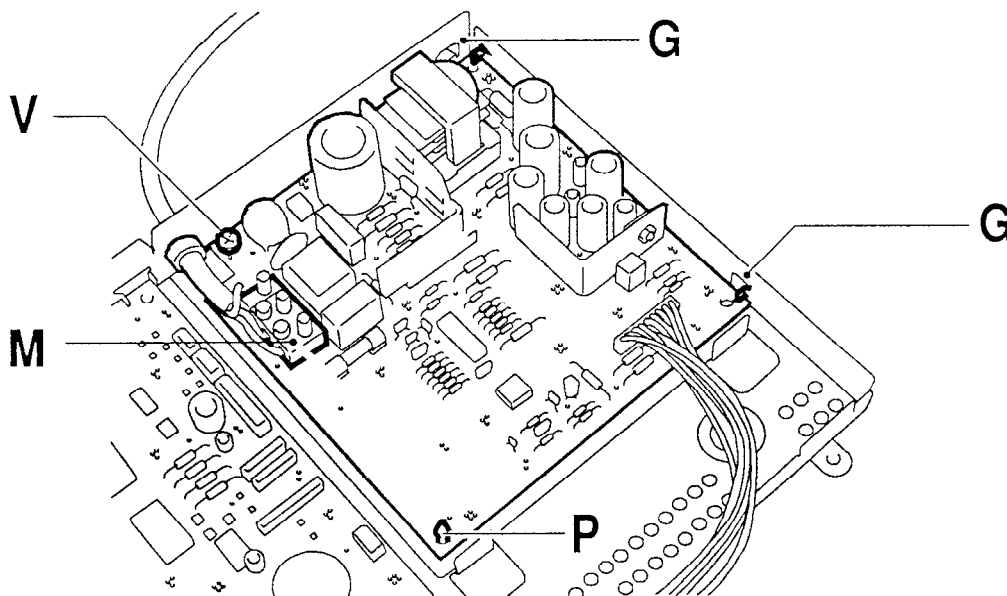


Fig. 7-21

**Caution:** While reassembling, ensure that the board is properly inserted in the related guides **G** (Fig. 7.21).

## 7.2.7 Replacing the Loudspeaker

- 1) Disassemble the base (see sect. 7.2.3)
- 2) Remove loudspeaker **A** from its housing by extracting it downward (fig. 7-22):

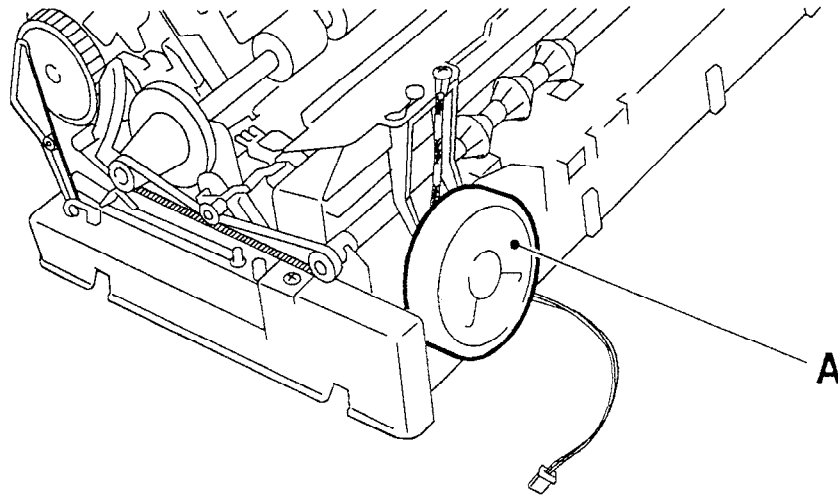


Fig. 7-22

## 7.2.8 Replacing the Print Head Cleaner Electromagnet

- 1) Disassemble the base (see sect. 7.2.3)
- 2) Flip over the fax machine and release container **C** of the E.M. by flexing tabs **A** (Fig. 7-23):

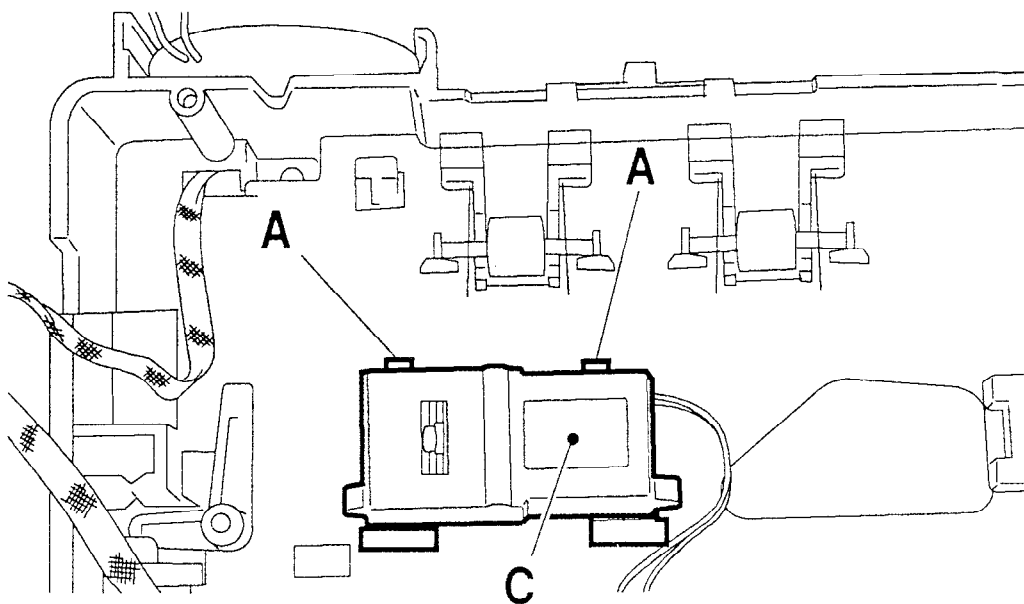


Fig. 7-23

- 3) Extract the components from the container (head cleaner **T**, slider **C**, spring **M**, armature **A**, **E.M.**) starting from the head cleaner (Fig. 7-24):

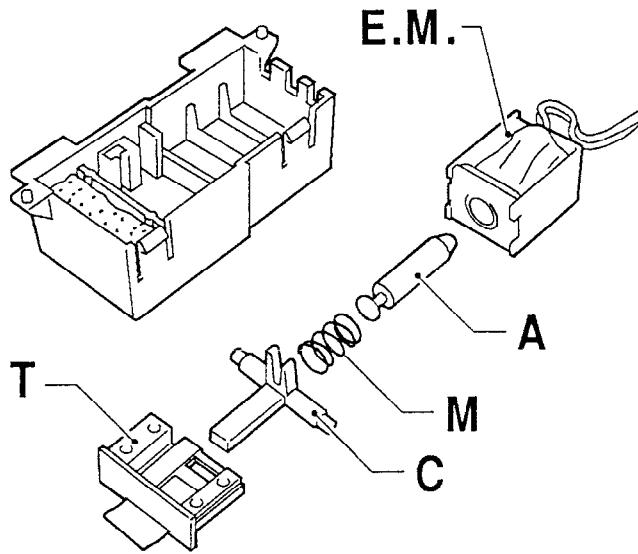


Fig. 7-24

### 7.2.9 Replacing the Scanning/Interline Motor

- 1) Disassemble the base (see sect. 7.2.3)
- 2) Remove bracket **A** and extract rocker **L**, taking care not to lose spring **M** and wheels **R1** and **R2** (Fig. 7-25):

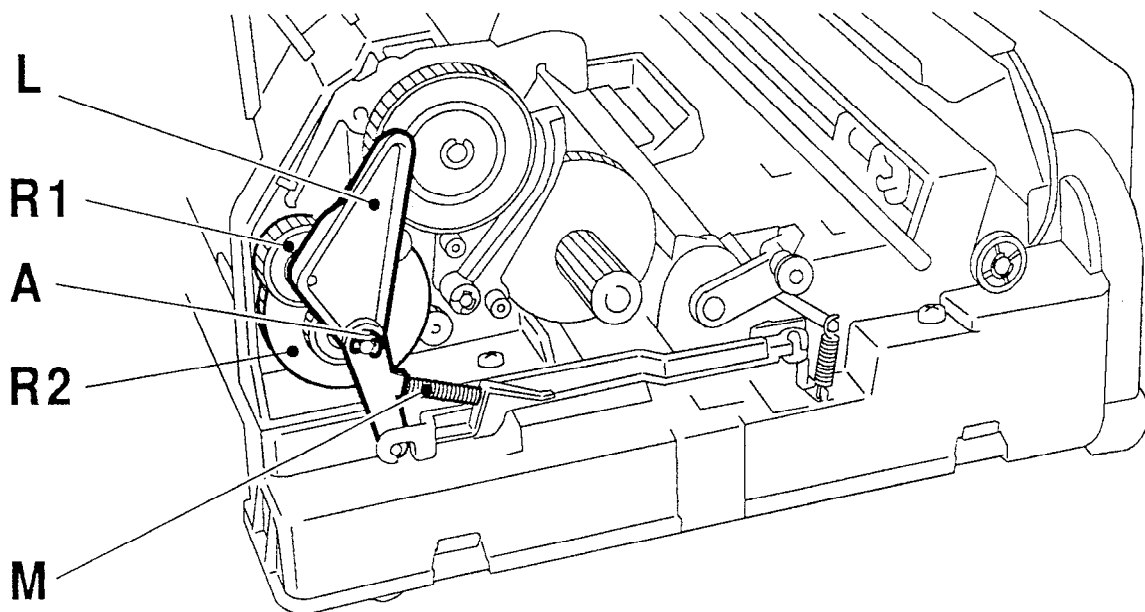


Fig. 7-25

- 3) Release the two springs **M** and remove the automatic switch **A** flexing the two sides of the structure and taking care not to rip the wires from the sensor (Fig. 7-26):

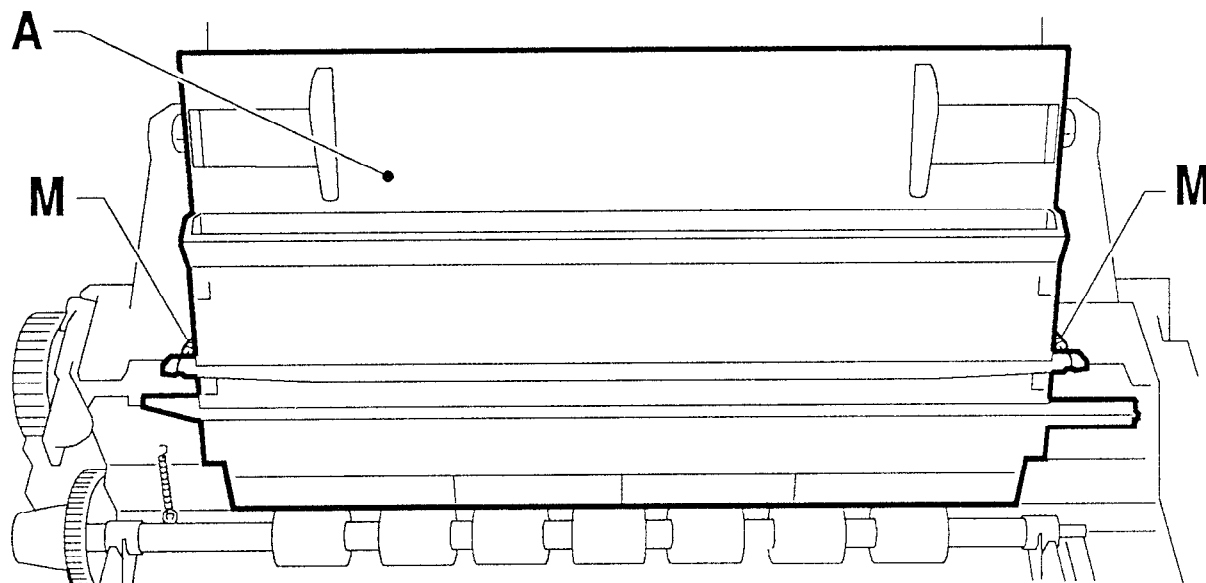


Fig. 7-26

- 4) Release the two bushings **B** and rotate them forward, then extract the shaft of the paper shifter roller **A** forward (Fig. 7-27):

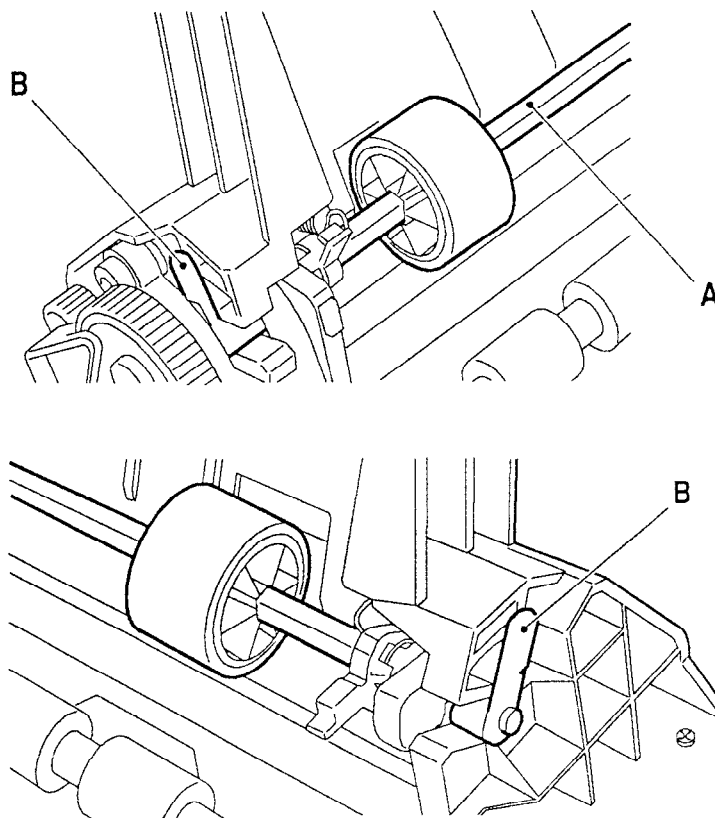


Fig. 7-27

5) Remove the five screws **V** and remove the paper tray assembly (Fig. 7-28):

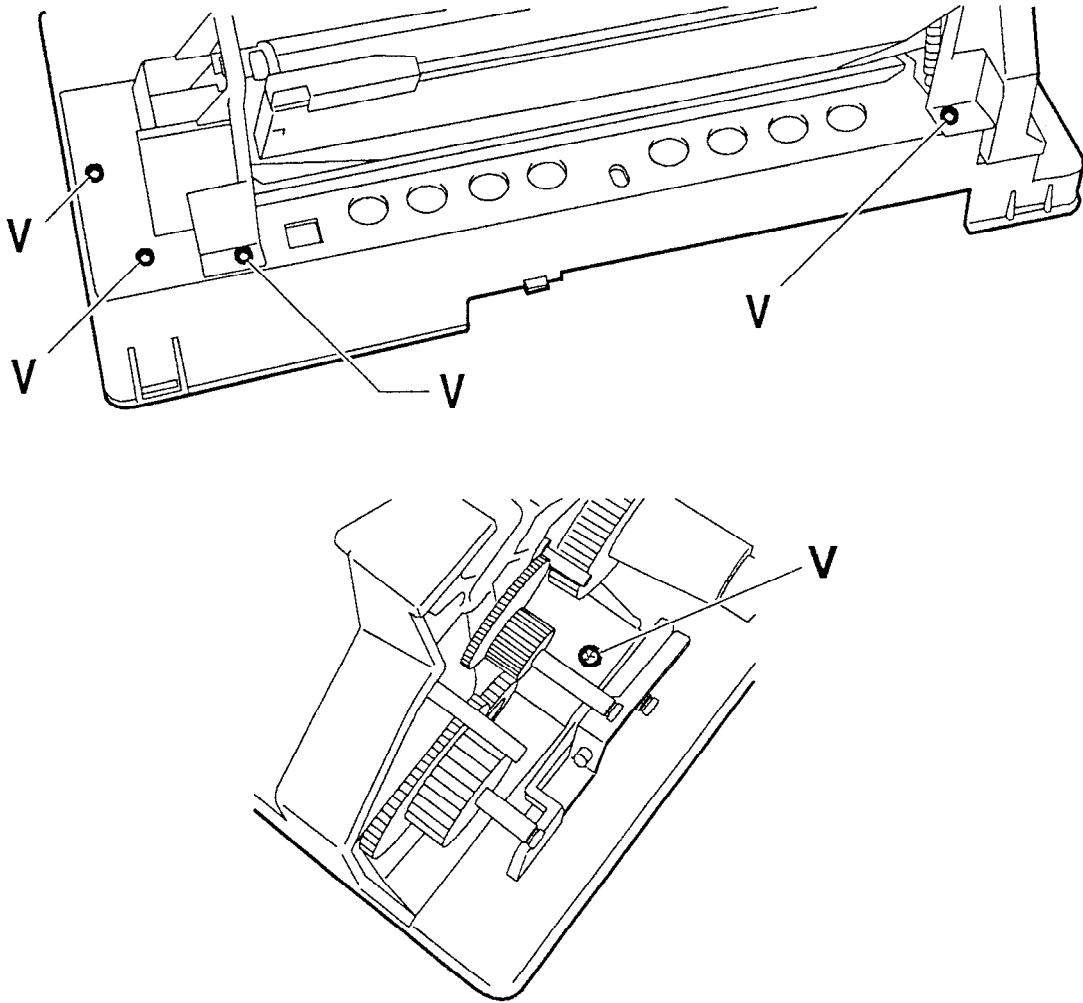


Fig. 7-28

6) Remove the two screws **V** and retrieve the motor (Fig. 7-29):

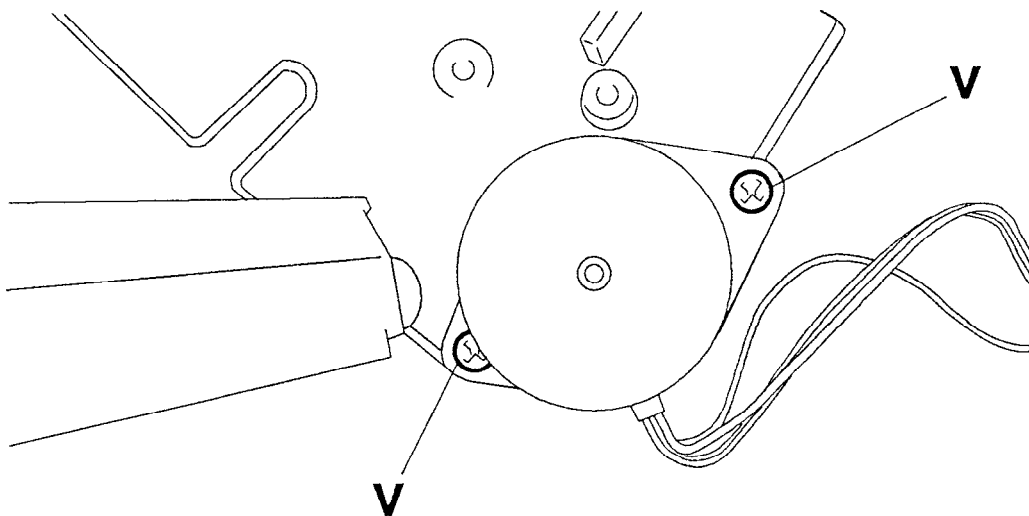
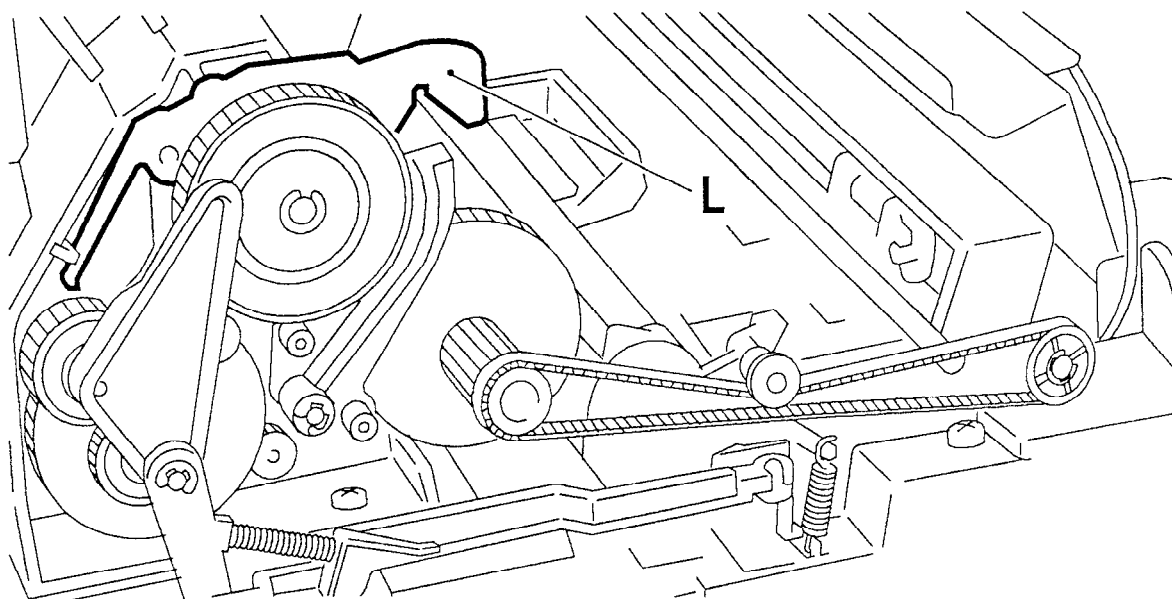


Fig. 7-29

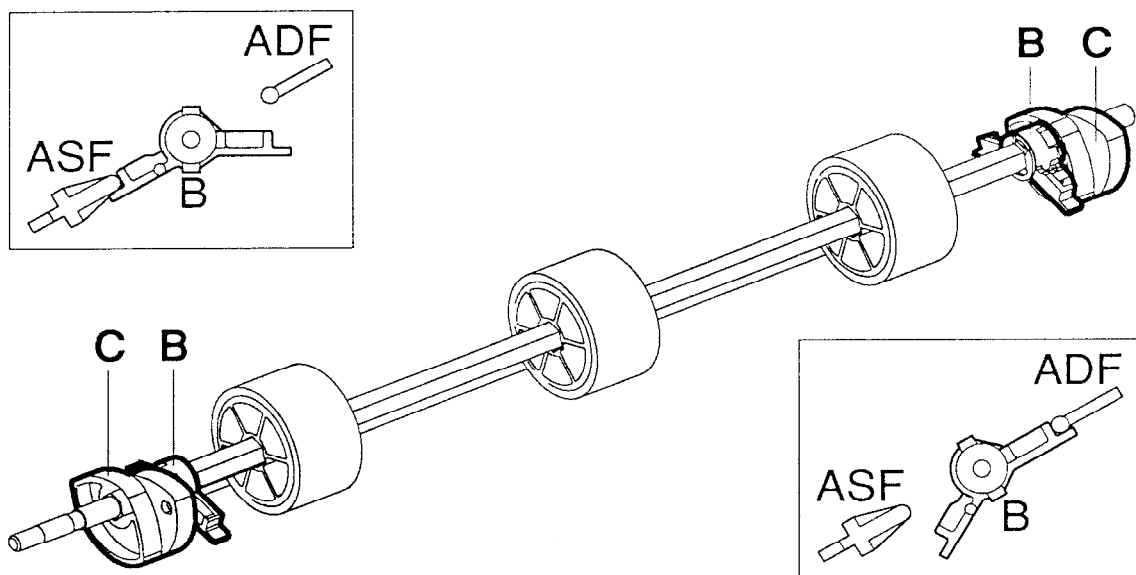
**Caution** When reassembling, comply with the following precautions:

- reassemble the paper freeing lever **L** before the paper shifter roller shaft (Fig. 7-30):



**Fig. 7-30**

- reassemble the paper shifter roller shaft with cams **C** facing downward and rockers **B** positioned so as to be able to oscillate between the stops of the ASF and of the ADF (Fig. 7-31):



**Fig. 7-31**

- position the two springs **M** of the automatic inserter above the paper shifter roller shaft, so as to be able to re-latch them easily (Fig. 7-32):

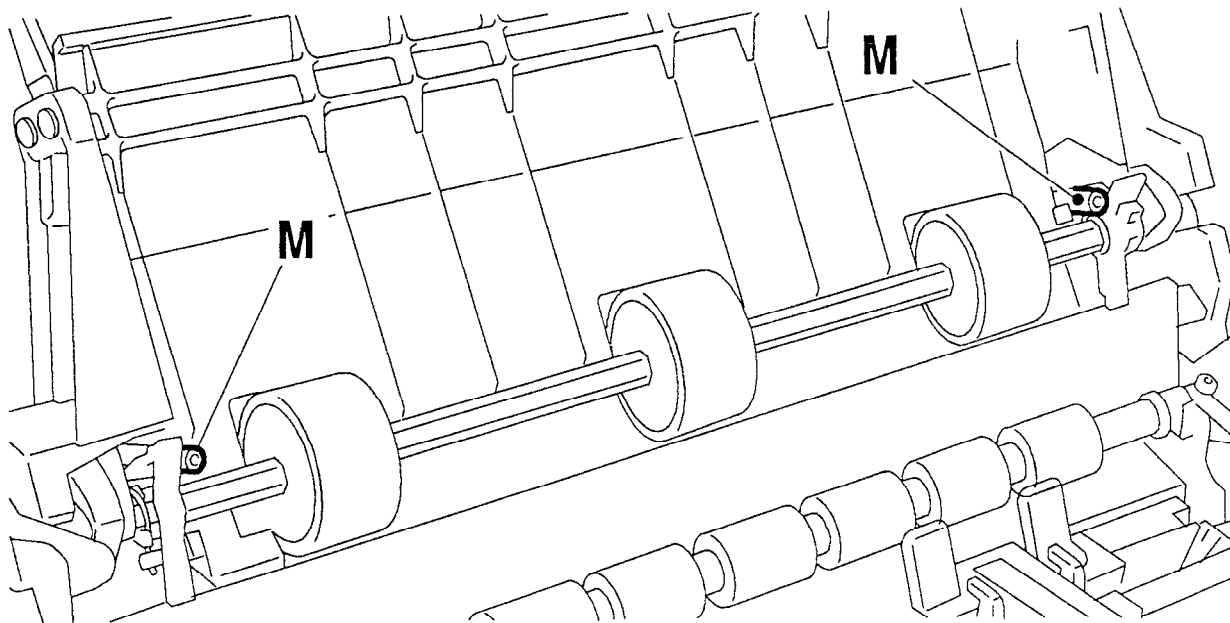


Fig. 7-32

- position lever **L** inside the notch **T** of the cam (Fig. 7-33):

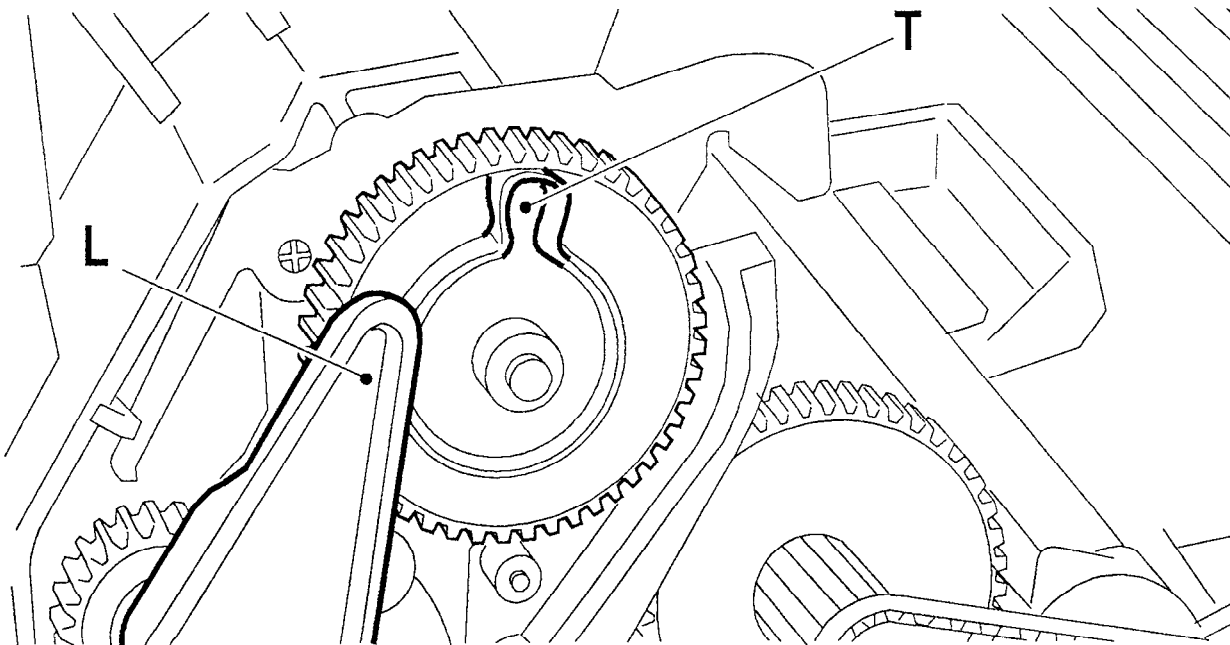


Fig. 7-33



## 7.2.10 Replacing the Carriage Motor

- 1) Disassemble the base (see sect. 7.2.3)
- 2) Disconnect the belt from sprocket **P** of the motor (Fig. 7-34):

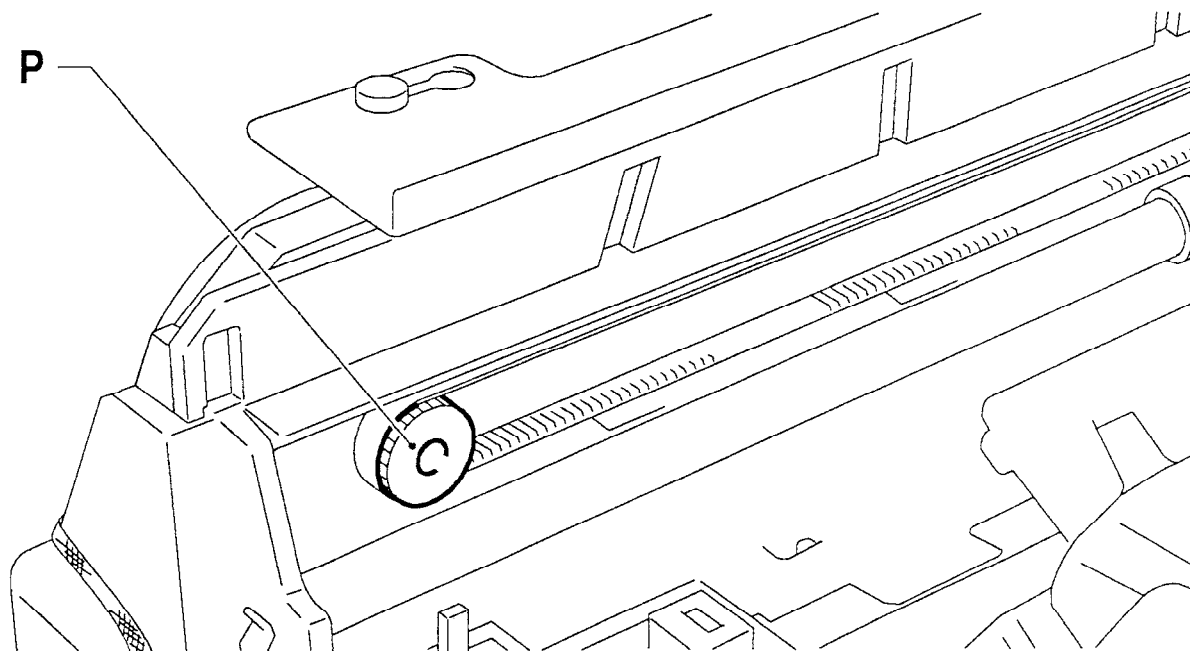


Fig. 7-34

- 3) Rotate the motor counter-clockwise until it is released from the latches **F** (Fig. 7-35):

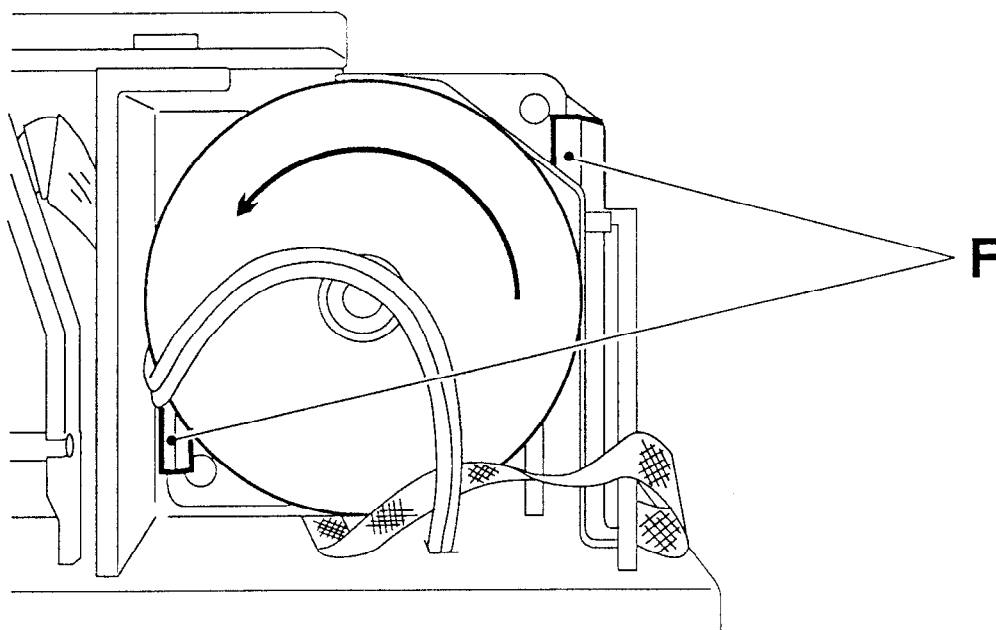


Fig. 7-35

## 7.2.11 Replacing the Print Head Pad

- 1) Disassemble the base (see sect. 7.2.3)
- 2) Flip over the fax machine and release the pad by flexing the two tabs **A**, then extract it rightward (Fig. 7-36):

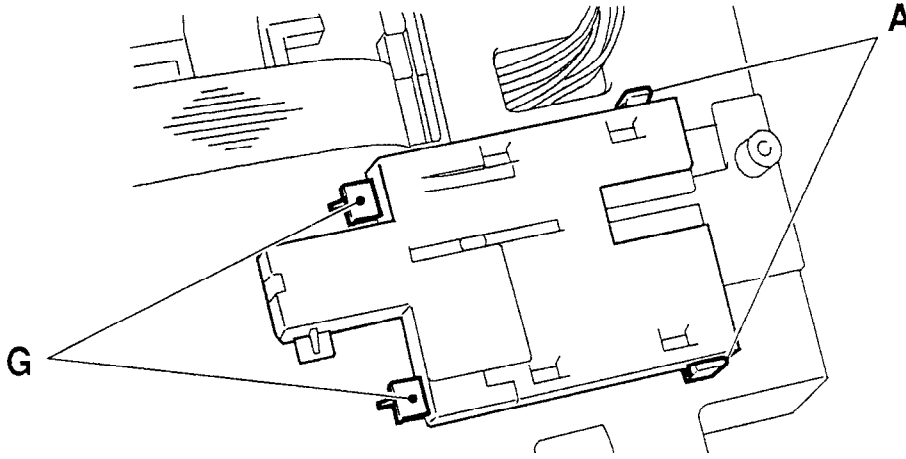


Fig. 7-36

**Caution** When reassembling, ensure that the pad is properly inserted within its guides **G** (Fig. 7-36).

## 7.2.12 Replacing the Carriage

- 1) Disassemble the base (see sect. 7.2.3) and remove the print head
- 2) Flex pawl **A** forward, move bar **B** rightward and extract it rotating it backward (Fig. 7-37):

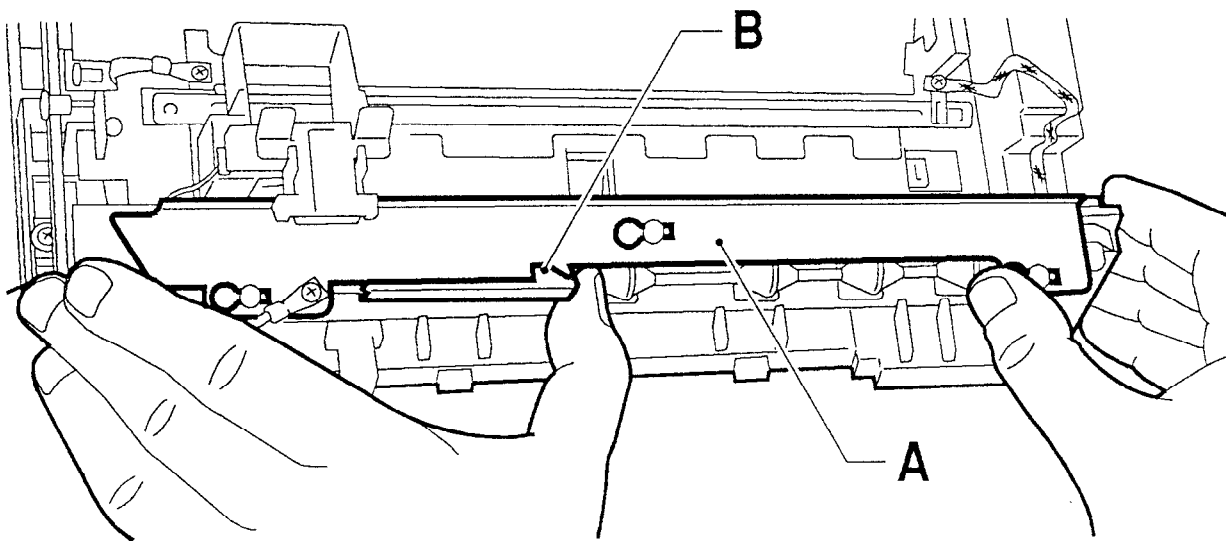


Fig. 7-37

- 3) Disconnect belt **C** from the driving rollers (Fig. 7-38):

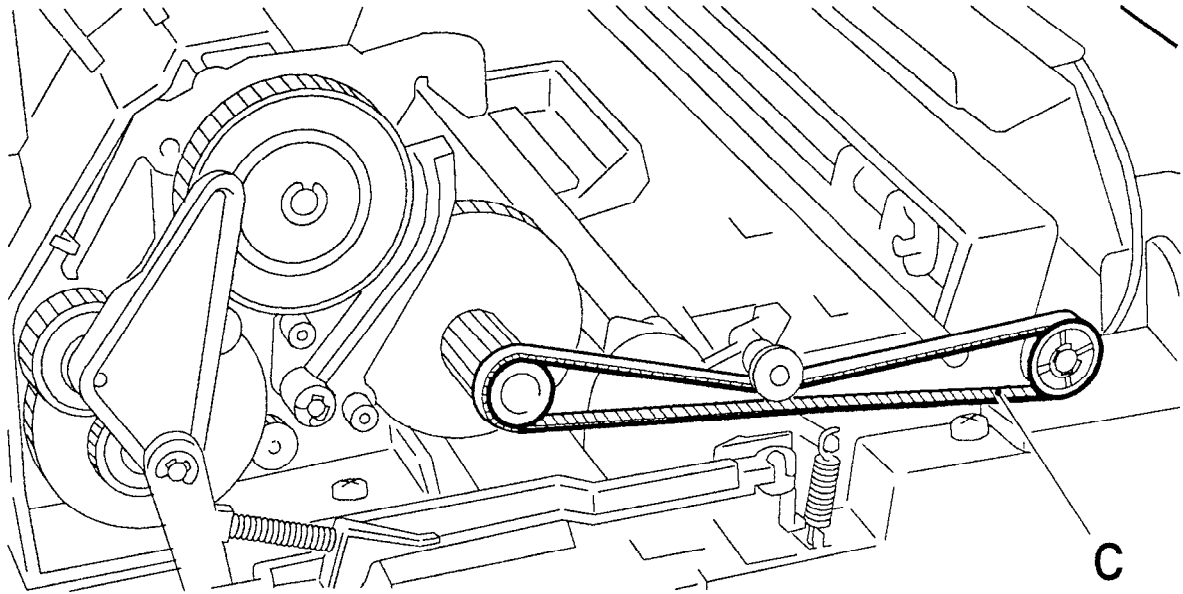


Fig. 7-38

- 4) Extract the two screws **V** and flip frame **T** forward, then disconnect the belt from the motor sprocket and flex the sides of the frame to release the guide shaft **A** (Fig. 7-39):

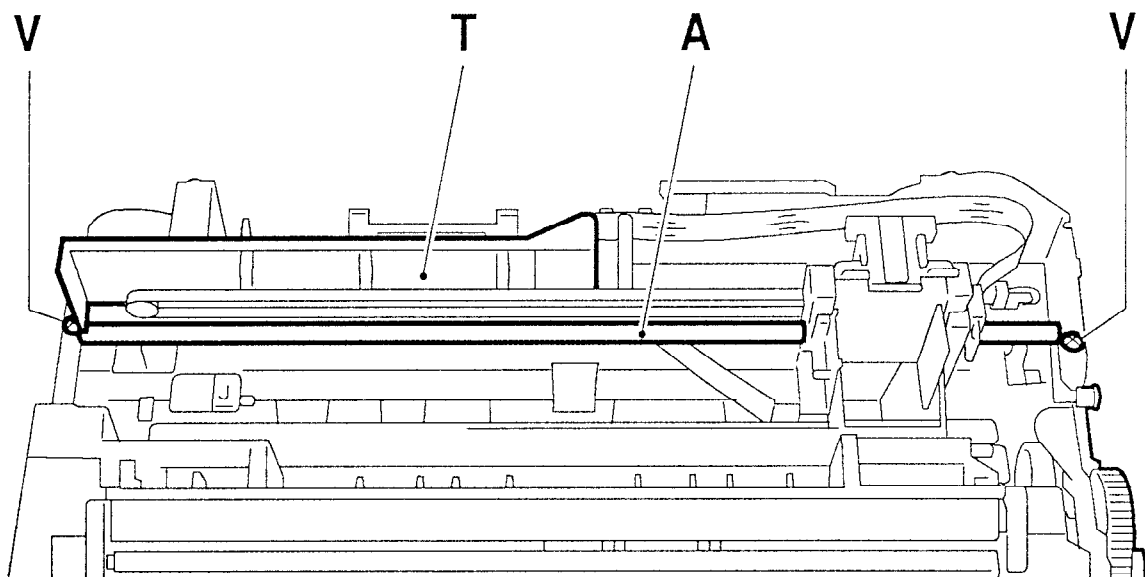


Fig. 7-39

- 6) Remove the carriage from the guide shaft and disconnect the belt from the carriage (Fig. 7-40):

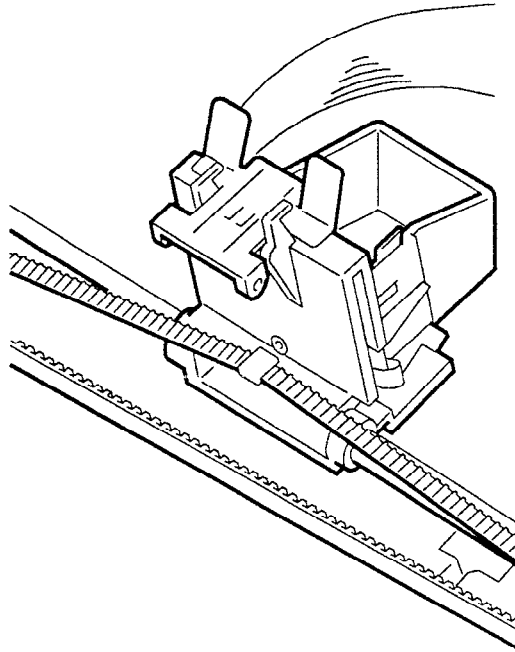


Fig. 7-40

**Caution** During re-assembly, ensure that bushings **B** of the forward roller shaft have not come out of their housings (Fig. 7-41):

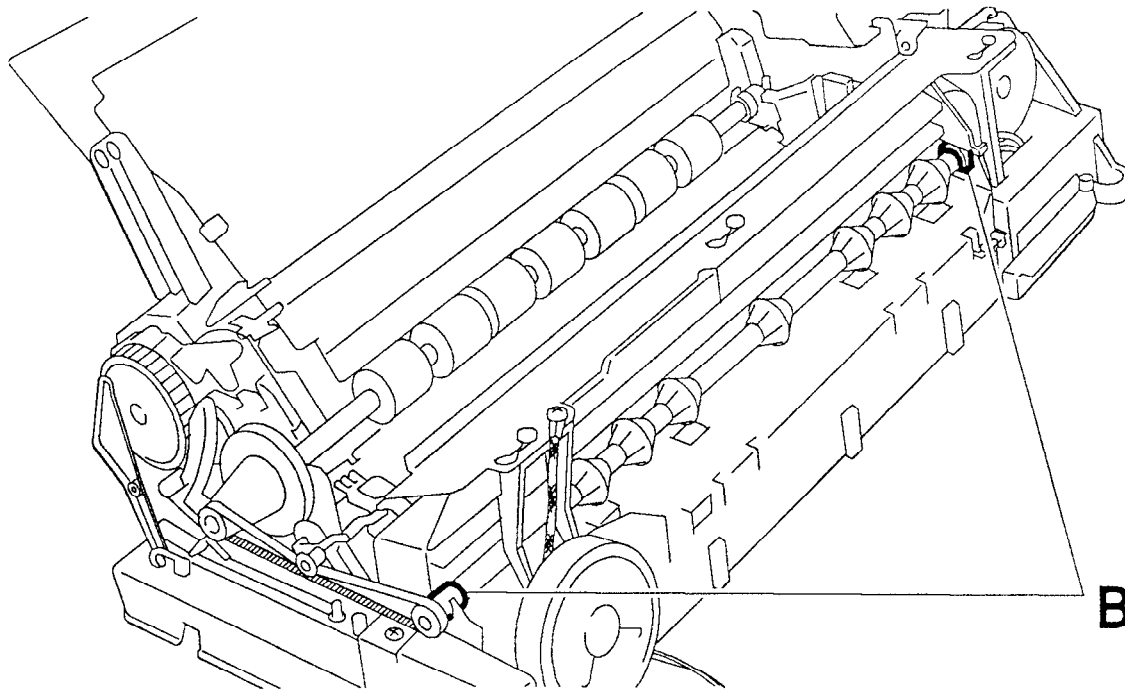


Fig. 7-41

Further ensure that belt tensioner **T** can slide freely within its housing (Fig. 7-42):

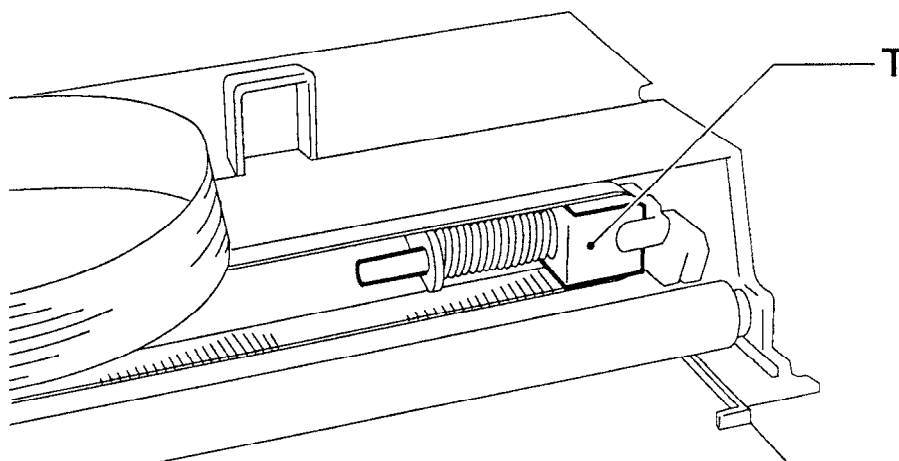


Fig. 7-42

### 7.2.13 Replacing the Forward Driving Rollers

- 1) Perform steps 1 through 4 of the procedure in sect. 7.2.12
- 2) Remove left bushing **B** from its housing, then extract the shaft leftward (Fig. 7-43):

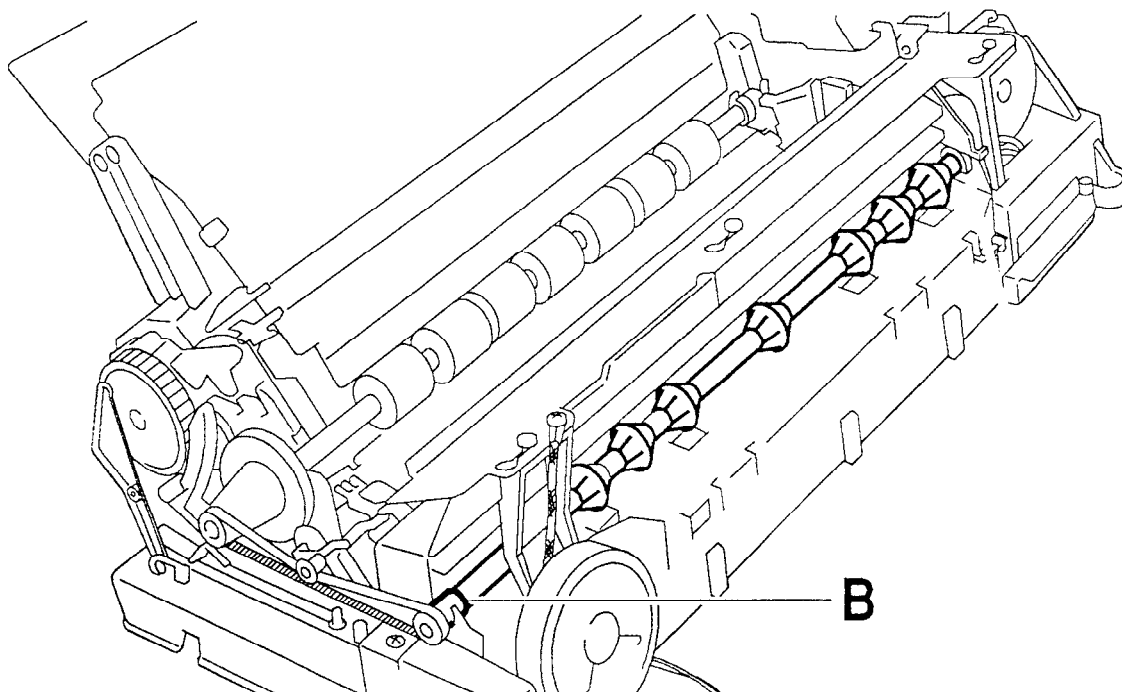


Fig. 7-43

**Caution** During re-assembly, ensure that both bushings are properly inserted in their housings.

## 7.2.14 Replacing Paper Shifter Rollers

- 1) Perform steps 1 through 4 of the procedure in section 7.2.9
- 2) Replace elastic rings **A** covering the paper shifter rollers (Fig. 7-44):

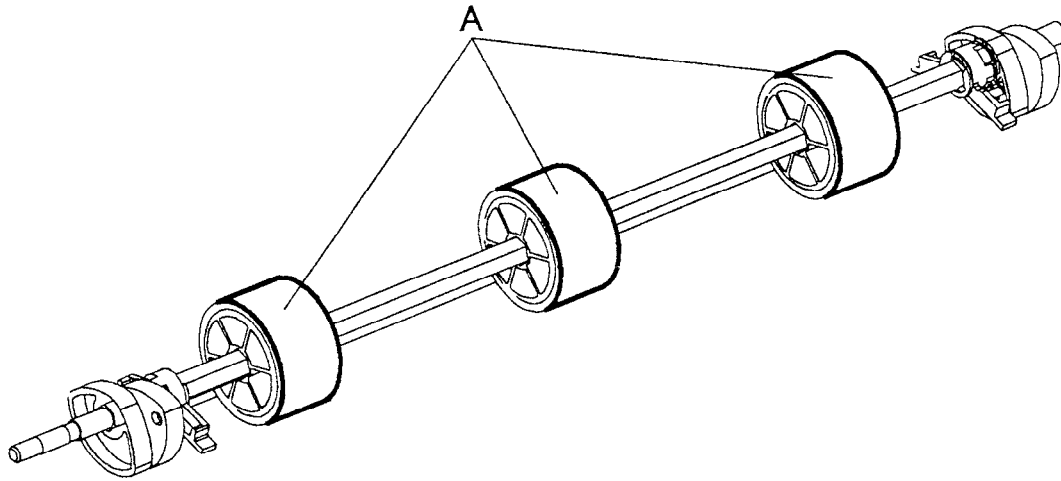


Fig. 7-44

## 7.2.15 Replacing Rear Driver Rollers

- 1) Perform steps 1 through 4 of the procedure in section 7.2.9
- 2) Disconnect belt **C** of the driver rollers (Fig. 7-45):

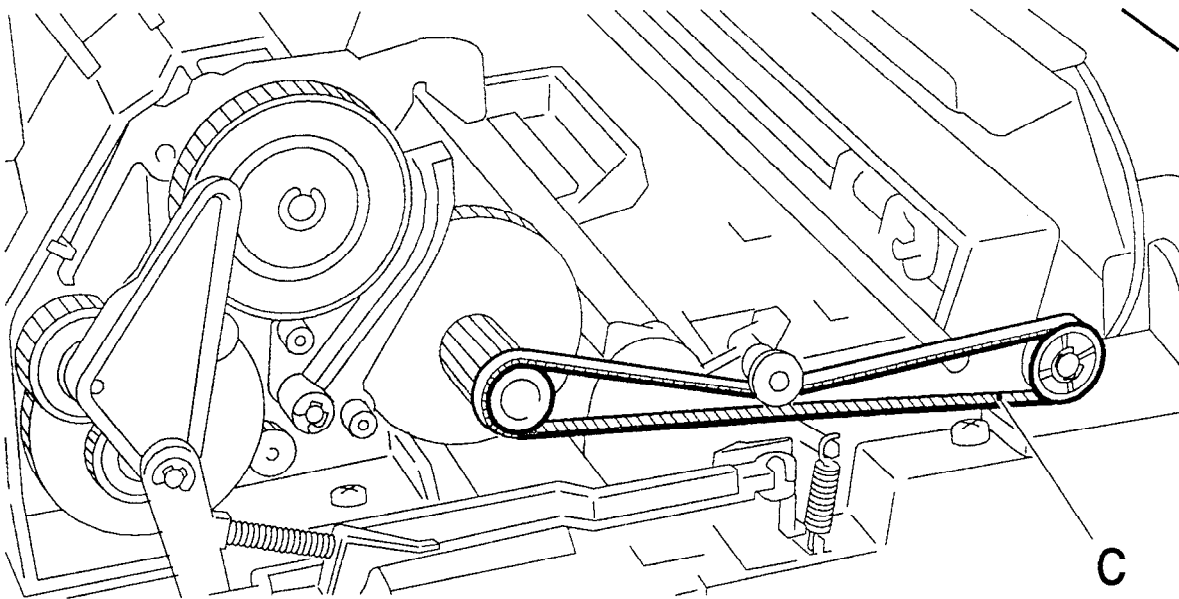


Fig. 7-45

3) Remove bracket **A** and extract lever **L** with the related mechanisms (Fig. 7-46):

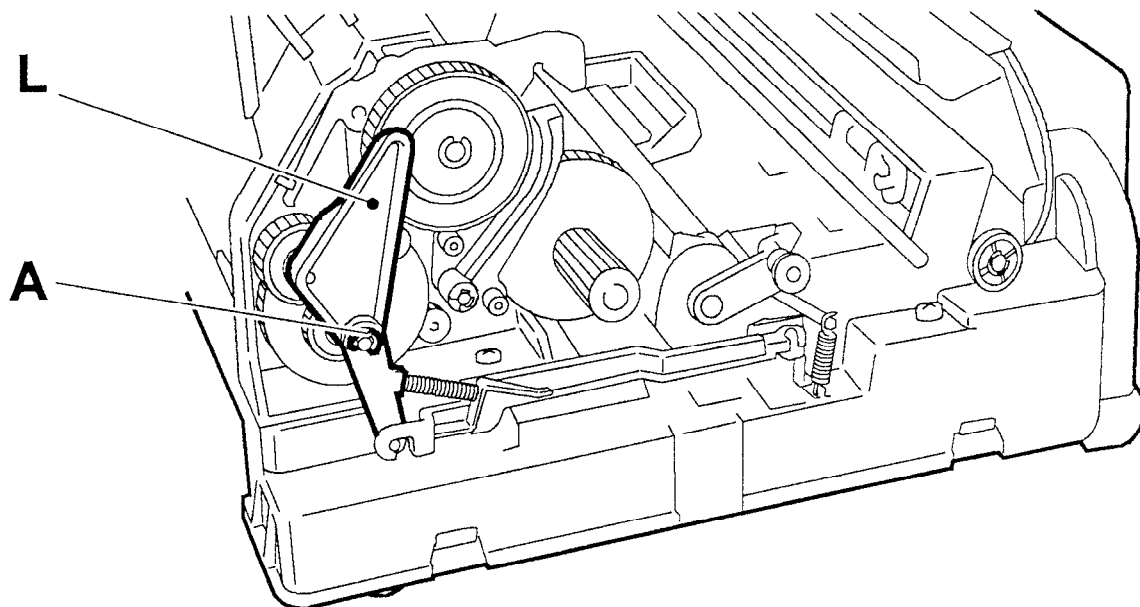


Fig. 7-46

4) Release spring **M** and move the carriage against the left side to be able to remove the lid of the optical unit **A** forward (Fig. 7-47):

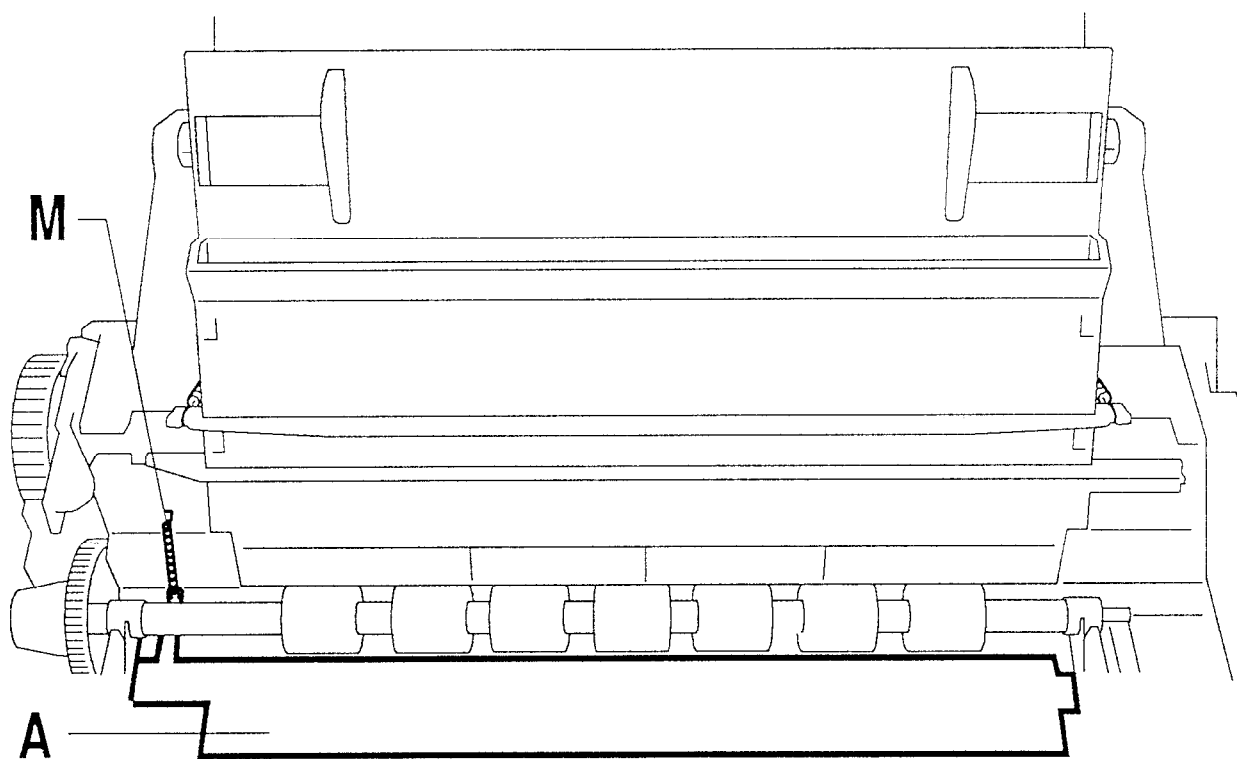
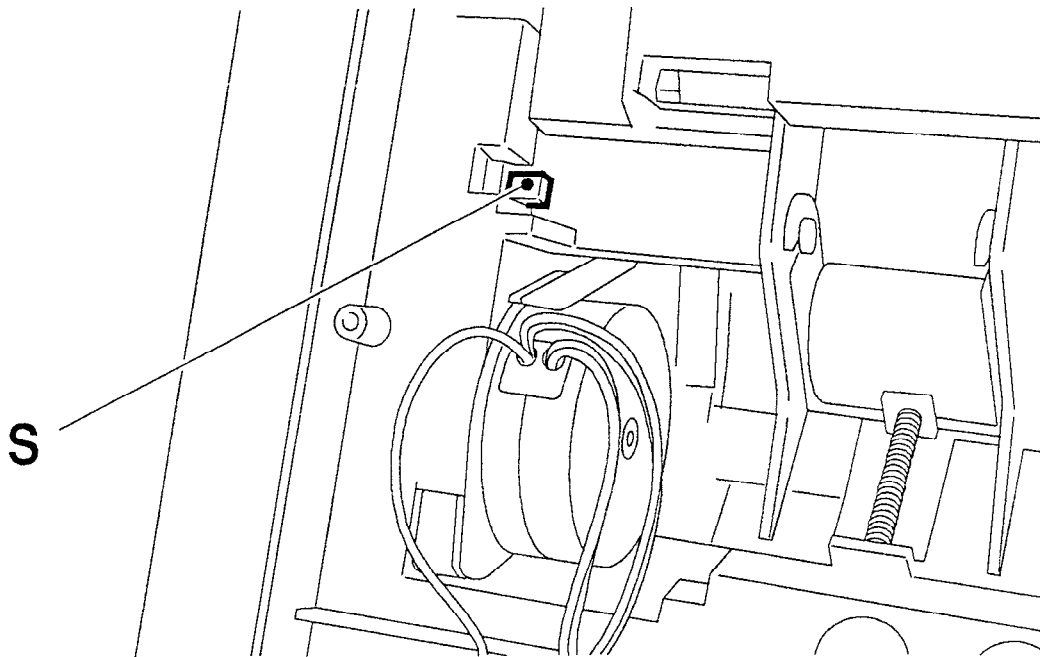


Fig. 7-47

- 5) Flip the fax machine over and release from the side the left support S of the roller shaft (Fig. 7-48):



**Fig. 7-48**

- 6) Put the fax machine back in the starting position and extract the roller shaft leftward.

**Caution** During re-assembly, comply with the following precautions:

- ensure the left support of the shaft is properly re-latched to the side
- reassemble the paper freeing lever **L** before the paper shifter roller shaft (Fig. 7-30)
- reassemble the paper shifter roller shaft with cams **C** facing downward and the two rockers **B** in the horizontal position (Fig. 7-31)
- position the two springs **M** of the automatic inserter above the paper shifter roller shaft to be able to re-latch them easily (Fig. 7-32)
- position lever **L** inside notch **T** of the cam (Fig. 7-33).



## 7.2.16 Replacing the Optical Unit (CIS)

- 1) Disassemble the rear driver roller shaft (see sect. 7.2.15)
- 2) Unscrew the two screws **V**, then remove the unit by pushing it downward (Fig. 7-49):

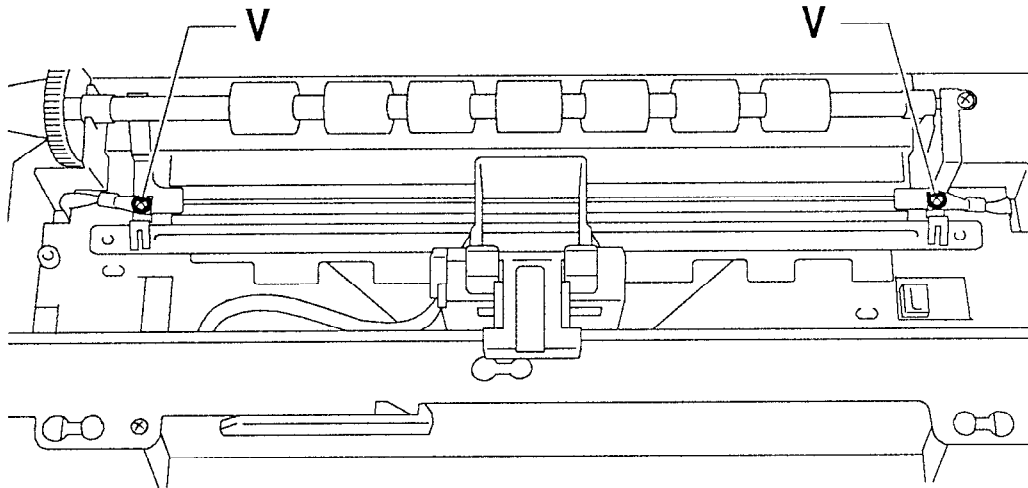


Fig. 7-49

## 7.2.17 Replacing the Document Sensor

- 1) Perform steps 1 through 3 of the procedure in section 7.2.9
- 2) Extract sensor **S** from its housing flexing the side stops **F** (Fig. 7-50):

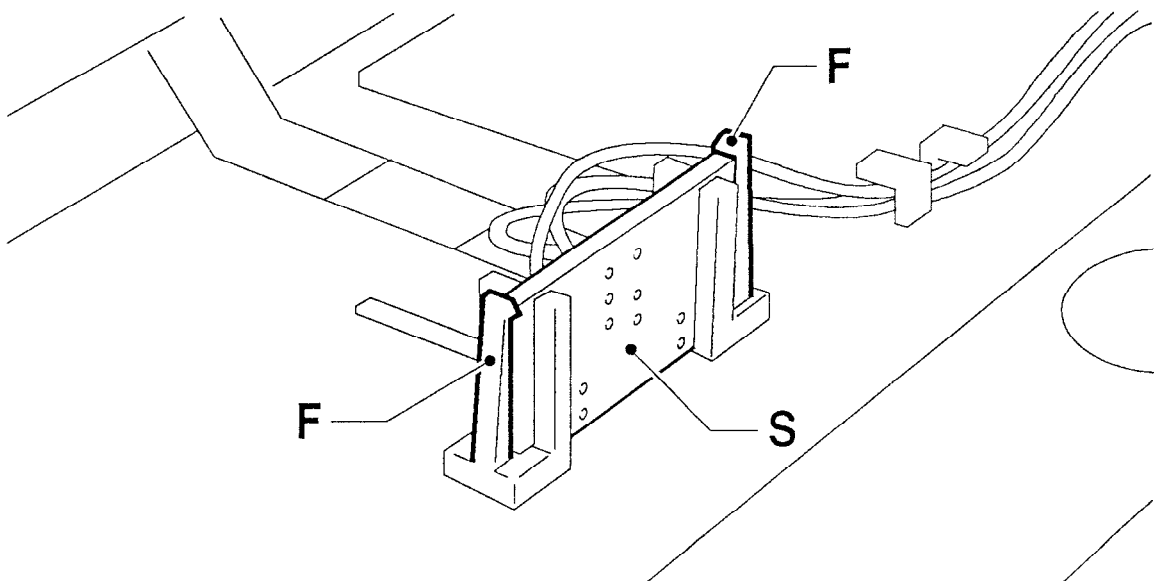


Fig. 7-50

## 7.2.18 Replacing the Paper Sensor

- 1) Perform steps 1 through 5 of the procedure in section 7.2.9
- 2) Flip the fax machine over and release lid **C** of the sensor by flexing its latch **F** (Fig. 7-51):

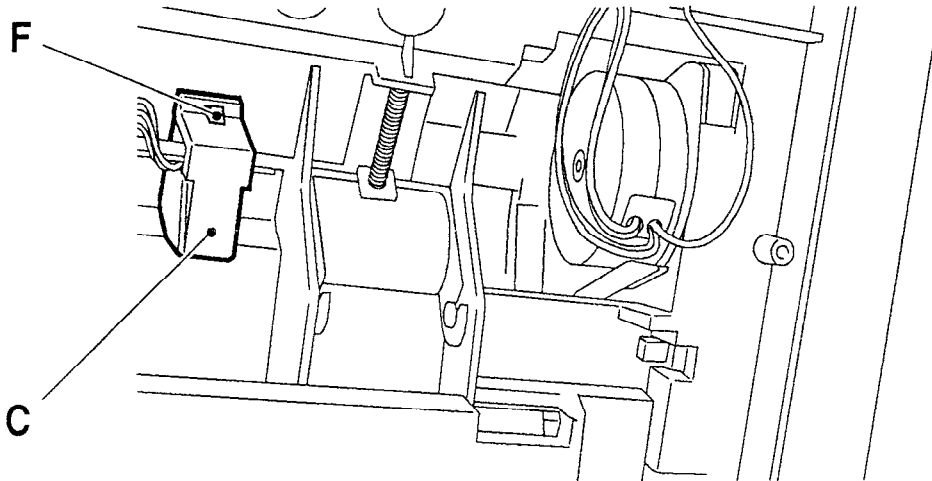


Fig. 7-51

- 3) Take the fax machine back to the starting position, remove lid **C** and extract sensor **S** upward (Fig. 7-52):

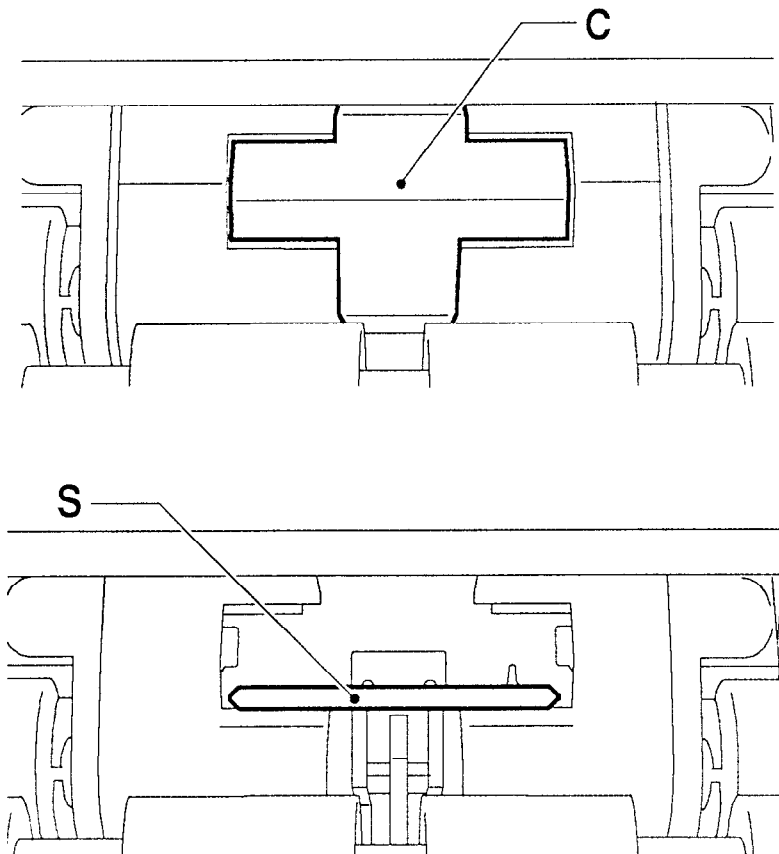


Fig. 7-52

## 7.2.19 Replacing the Console Board

- 1) Disassemble the casing (see sect. 7.2.2)
- 2) Unscrew the eight screws indicated by the arrows and flip over the board (Fig. 7-53):

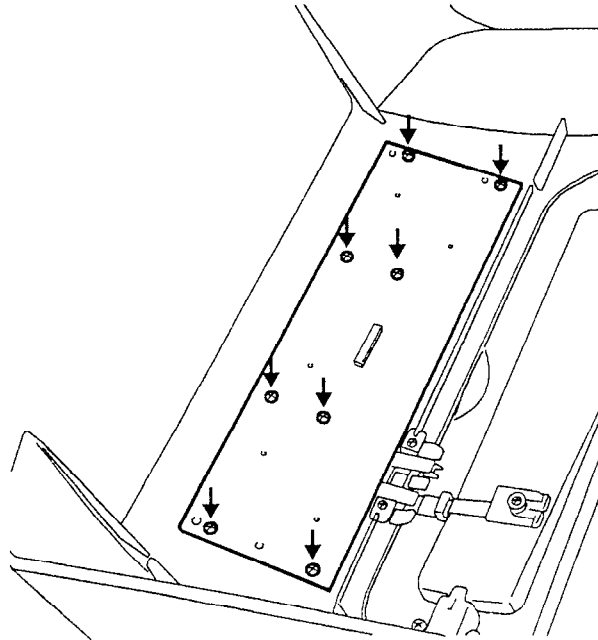


Fig. 7-53

- 3) Disconnect flat cable F of the display from the board (Fig. 7-54):

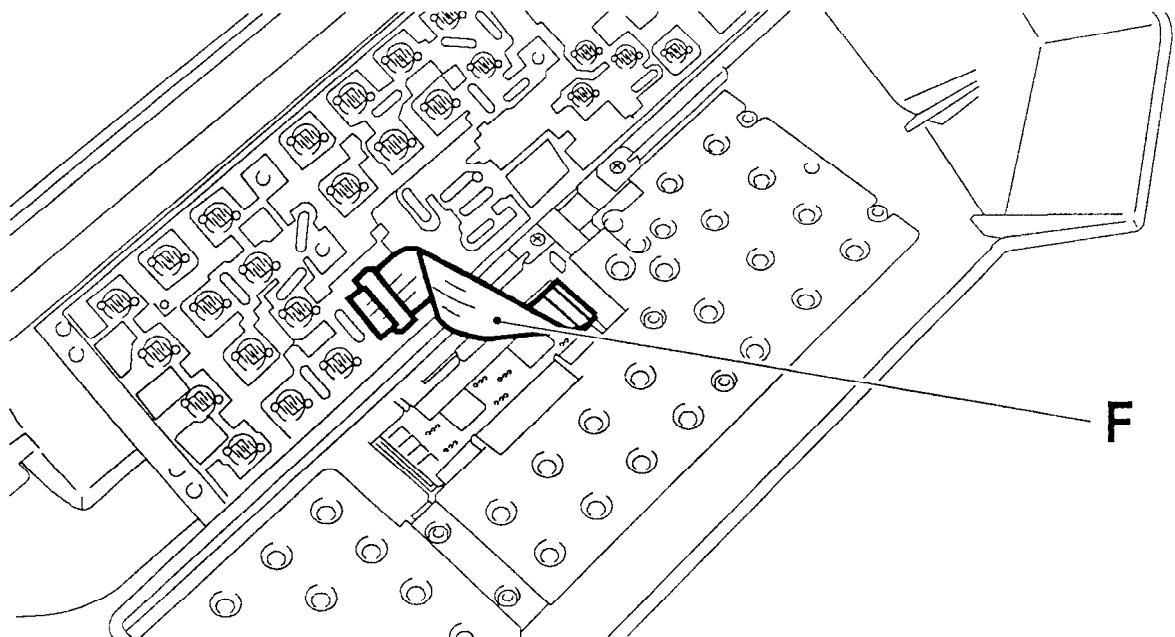


Fig. 7-54

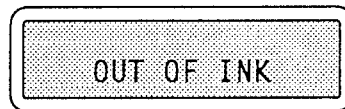
# 7. MAINTENANCE AND REPLACEMENT PROCEDURES

## 7.1 MAINTENANCE

The facsimile machine's maintenance includes *periodic preventive procedures* (such as optical unit cleaning), and *action to be taken following a message* on the display (such as the ink out message): the procedures are normally carried out by the user so they will be described in detail in the User Guide. Here only a brief description is provided.

### 7.1.1 OUT OF INK Message

The facsimile machine has a built-in counter (\*) for keeping track of ink consumption, so as to provide an ink out message at the right time. When the ink present in the cartridge runs out, the display shows the following message:



to prompt the operator to:

- replace the *ink cartridge*, if the print head is of the *rechargeable* type
- replace the *entire print head*, if it is of the *disposable* type.

If a rechargeable print head is used, the ink cartridge can be replaced several times. When a deterioration in the printing quality is observed, after several replacements, this means that the entire print head is to be replaced.

While replacing the *cartridge only*, but not the entire print head, a little ink may be ejected, to prevent the printing area from getting dirty, when the out of ink message appears, *a sheet of paper is automatically inserted* under the print carriage.

---

(\*) Two counters on the LinkFax model, one for the monochrome print head and another for the colour print head.

**Caution** During re-assembly, ensure that the two levers L are properly inserted in their housings (Fig. 7-55):

## 7.2.21 Restoring the Facsimile Machine

During every disassembly or replacement procedure in which one or more connectors have been unplugged from the motherboard, it is advisable to restore the facsimile machine prior to complete the procedure.

- 1) Remove the motherboard, unplug the short-pin **P** (see fig. 7-42) and plug it again after one second to be sure that the dynamic memory has been cleared

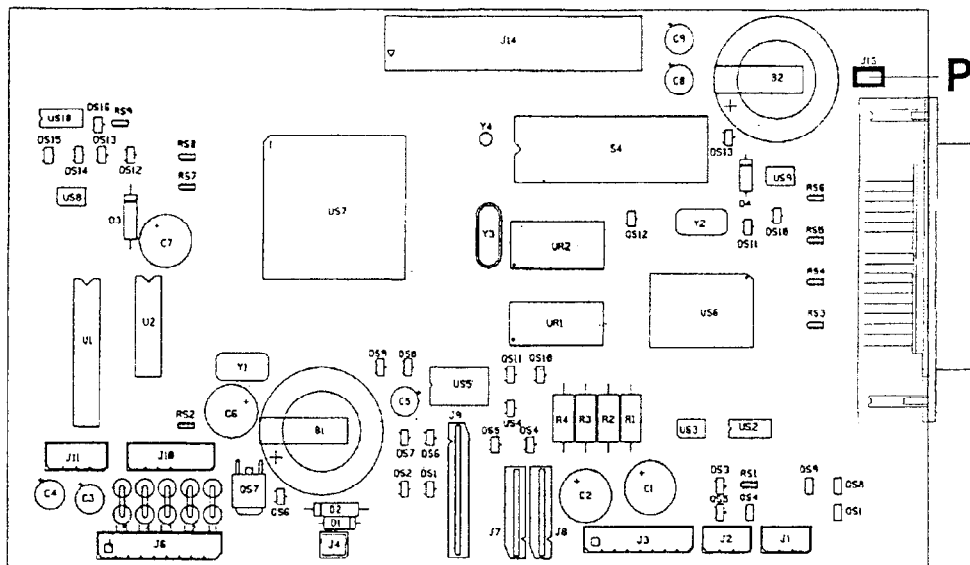


Fig. 7-42

- 2) Reassemble the motherboard and complete the disassembly or replacement procedure
- 3) Perform the LOAD DEFAULT (see sect. 6.1.7), ALIGNMENT TEST (see sect. 6.1.1) and SCANNER SHADING (see sect. 6.1.8) procedures
- 4) Perform the fax machine nationalisation procedure, reset installation and configuration parameters as well as the one-touch and speed dialling numbers, using the data printed previously.



## 8.1 SETTING UP A BACK TO BACK CONNECTION

The **back to back connection** between facsimile machines of the same model or line of products does not require any particular setting: simply connect the two facsimile machines with a telephone cable plugged into the LINE socket on each machine (fig. 8-1).

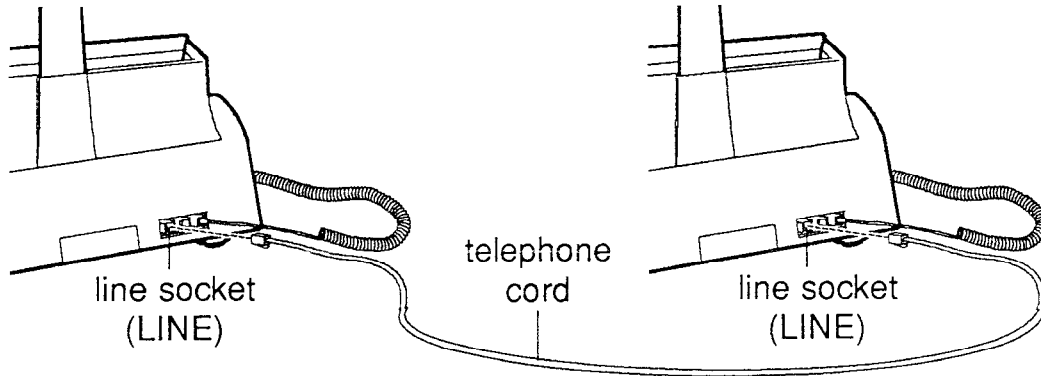


Fig. 8-1

## 8.2 CONNECTING THE TELEPHONE ANSWERING DEVICE OR AN EMERGENCY PHONE SET

- 1) Plug the cord of the telephone answering device or of the emergency phone set into the TEL socket (Fig. 8-2).

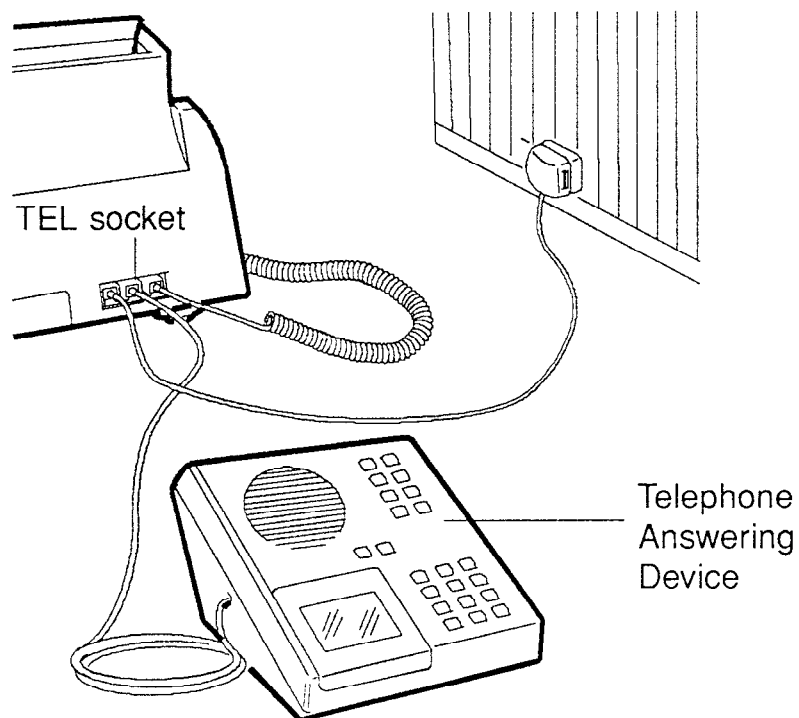


Fig. 8-2

## 8. OPTIONAL DEVICES

The facsimile machine offers the following optional features:

- *Back to back connection*
- *Connecting the telephone answering device or an emergency phone set*



- 2) In the case of the telephone answering device, press the RX MODE key until the display reads RX SEGR./FAX.

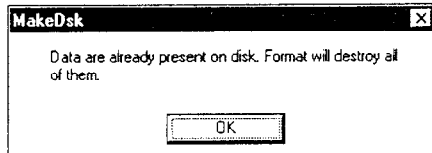
**Caution :** To guarantee the proper operation of the TAD, ensure the value of the silence time (SWO software parameter, sect. 4.1) is lower than the TAD's own time.



**4**

Attach a *label* to the diskette, *with the corresponding number*, then place it in drive **A** and click on **OK** to confirm:

- if the diskette is *not a blank one*, the following message is displayed:



... asking you to confirm (**OK**) *formatting* of the diskette;

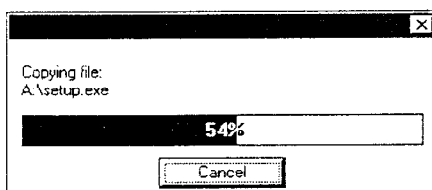
- if the diskette is *blank*, it is automatically formatted.

**WARNING**

At the end of the formatting process, a message may be displayed, alerting you that the software could not be copied due to insufficient space on the diskette or write-protected diskette. This means that the diskette is *damaged* (or *write-protected*): replace it with a good diskette (or remove the protection) and click on **Retry** in the dialogue box.

**5**

The copying process starts automatically, *copying files* from the CD to the diskette:



On completion of the copying process, you will be prompted to insert the next diskette: remove the first diskette from the drive and repeat steps **4** and **5**. When the last diskette has been copied, the following message is displayed:



... informing you that the diskette creation process is complete. Click on **OK** to confirm.

## INSTALLING LINKFAX 10 USING 3.5" DISKETTES

**1**

Power on the PC and, while *Windows 95* starts, insert the *first diskette into drive A*.

**2**

Continue with the "*PLUG & PLAY*" or with the "*NO PLUG & PLAY*" installation (see item 2 and following items in the related sections).

## INSTALLING ADOBE READER USING 3.5" DISKETTES

**1**

Power on the PC and wait for *Windows 95* to become active. Then insert the *penultimate diskette into drive A*.

**2**

From the **Start** menu, select **Run** and type *a:\acread*, then click on **OK** to confirm.

**3**

Follow the instructions as they appear and insert the *last diskette* into the drive when requested.

# 1 INTRODUCTION

**LinkFax 10** is a software communication module that transforms bubble ink jet facsimile machines into *multifunctional products* running under *Windows 95*.

In fact, once they have been *connected to a Personal Computer*, they may be used above all as a *graphic printer*. Documents such as letters, drawings or spreadsheets prepared using standard *Windows* applications may therefore be *printed by the facsimile machine*.

Alternatively, they may be used as a *scanner* for acquiring images and documents on the PC. This is made possible by the TWAIN module, which supplies the standard protocol between the facsimile machine and most popular image processing applications.

Again, with the aid of a fax application (for example, the Windows 95 Microsoft Fax), all kinds of documents (texts and images) *can be sent directly from the PC*. In addition, incoming fax messages can be *stored on the PC*, and subsequently displayed and processed using standard *Windows* applications.

finally they permit transmission and reception of faxes as *electronic mail attachments* using the *Internet* channel.

This guide describes how to install the LinkFax 10 module in Windows 95. The LinkFax 10 module is supplied on *Compact Disc* and comes with the following:

- this *"Installation"* guide
- one *parallel cable*
- one *print head container*.

Instructions on how to use the various functions of **LinkFax 10** are available both *on-line* (specific Guide) and in *printable format* (User Guide).

## SYSTEM REQUIREMENTS

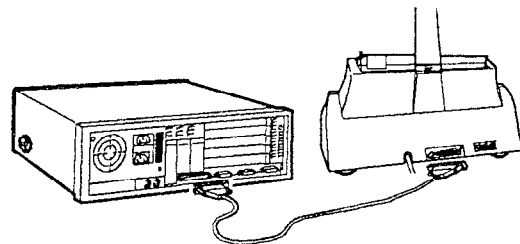
The LinkFax 10 module can only be installed on an *IBM-compatible* PC with the following *recommended minimum configuration* (in brackets the minimum configuration supported):

- processor **486 - 66 MHz** (486 - 33 MHz)
- RAM **≥ 16 Mbytes** (8 Mbytes)
- monitor **VGA** or higher
- operating system **Windows 95**
- **CD ROM** unit (\*).

(\* ) the installation CD can be copied on 3.5" diskettes to install LinkFax 10 on PCs *not equipped with CD ROM reader*. See the *Creating 3.5" installation diskettes* section.

## CONNECTING THE FACSIMILE MACHINE TO THE PC

The facsimile is connected to the PC by means of the *parallel cable*, as shown below:



If you are linked to the Internet and wish to *use your one telephone line for both the facsimile machine and the PC modem* (either built-in or external), the following connections will need to be made:

### 1

Refer to the **Instructions for Use** of the fax machine (under the section *Connecting the answering device, an emergency telephone or other equipment*) for a description of how to connect the facsimile, telephone and PC modem.

### 2

Make sure that the *number of rings before automatic answer* programmed for the PC modem, is *greater than* the number of rings programmed for the facsimile machine.

## PRINT HEAD PRECAUTIONS

The bubble ink jet facsimile machine uses both monochrome (black) and colour print heads:

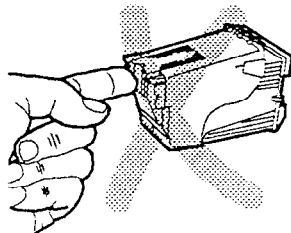
- **monochrome**, for use with the *facsimile*, or the *printer* in **black and white** mode;
- **colour**, for use with the *printer* in **colour** mode.

### WARNING

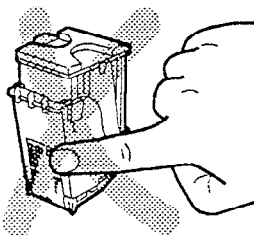
When the colour print head is installed, the documents received will **not be printed straight away**, but stored in the memory of the facsimile machine. Once the memory is full, the facsimile will no longer be able to receive documents, so **always remember** to replace the monochrome print head each time the facsimile is reset.

Since it will be necessary to change the print head regularly, depending on what the facsimile is to be used for, take note of the following precautions:

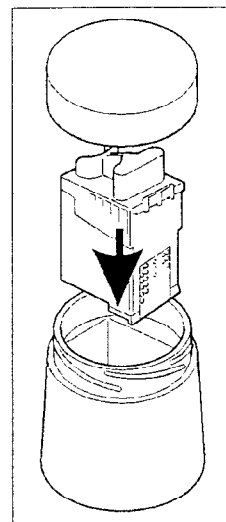
- **do not touch, or stand** the print head on the **ink jets**:



... or the **contacts**:



- **never try to re-load** the print head, as this could damage the print head or the facsimile;
- always place the **print head not in use** in the special container:



This will ensure long life and efficiency of the print head and a high print quality.

- Try **not to get ink on hands or clothes**, as it is very difficult to remove.

### VERY IMPORTANT

The facsimile machine automatically recognises the type of print head installed and checks the level of ink remaining by means of a special internal counter. When there is no ink remaining, the message **OUT OF INK** appears on its display.

In order for the ink level monitored by the internal counter to be consistent with the actual level contained the print head, **never install the print heads of one facsimile machine onto another facsimile machine or bubble ink jet printer.**

## 2 INSTALLING THE LINKFAX 10 MODULE

The LinkFax 10 communication module consists of *four main components*, three of which can be selected individually:

- 1 **LinkFax Scanning and Internet Application.** Acquires black and white images via the facsimile machine (scanning), irrespective of the application that will be used to process them. It can also be used to partially process acquired images, to save images in the desired format and to send them as electronic mail, if this feature is available. Furthermore, it can be used to partially process colour images loaded from the PC.
- 2 **TWAIN.** Acquires images from within the application that will be used to process them. TWAIN therefore provides a standard interface between the facsimile machine and most popular picture processing applications.
- 3 **Printer driver.** Handles the facsimile machine as a *printer* attached to a PC.
- 4 **Fax Manager.** Enables the facsimile machine to be used as a *multifunctional* product, which can be run simultaneously with other applications. Since the Fax Manager component is essential to the running of LinkFax 10, it is always installed automatically and cannot be selected.

The Compact Disc supplied with the kit also contains the installation program. This program guides you through a series of dialog boxes to enable you to install what you require onto the hard disk of your PC.

### WARNING

The following general conditions apply to the dialog boxes that appear during the installation procedure:

- *optional elements* can only be **selected using the mouse**;
- *buttons* can be **selected** either using the mouse, or by pressing the ← and → arrow keys;
- the **selected button** can be confirmed using the *mouse*, or by pressing the **Enter** key.

### PLUG & PLAY INSTALLATION

This kind of installation can be performed *only with the fax machine connected to the PC and to the power supply* (machine powered-on).

#### 1

Power on the PC, wait for *Windows 95 (\*)* to start and then insert the *CD in the CD ROM drive*.

#### 2

At the end of the Windows 95 start up phase, a dialogue box appears on the screen, indicating *a new hardware component*, inviting you to select the related driver to be installed.

*The driver on disk provided by the hardware manufacturer* is already selected by default.

Confirm (OK).

#### 3

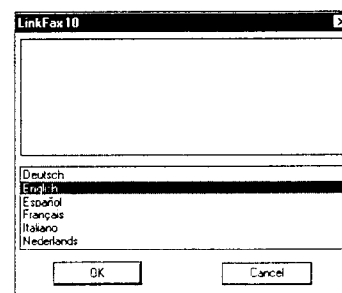
The dialogue box for the *CD installation* appears on the screen.

(\*) If the operating system on your computer is *Windows 95 version 4.00.950 B (OSR2)*, then the Plug & Play installation procedure is slightly different. In this case, carefully follow the instructions that appear on the PC screen and do not get alarmed if an error message appears. Continue and, at the end, in the "Copy file from." box, type the name of the drive the CD is inserted in (for instance D:).

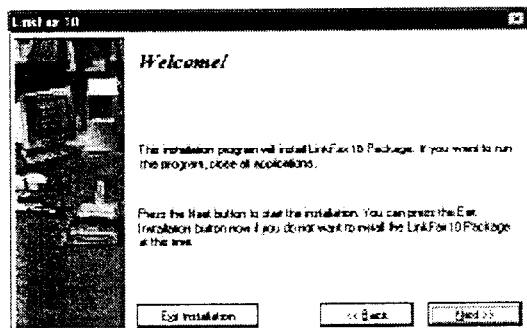
Confirm (OK).

#### 4

The LinkFax 10 installation procedure starts. Select your *mother language*, if it is not already selected:

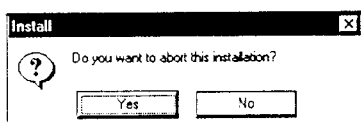


... and click on **OK** to confirm. A welcome message is displayed explaining how to continue (**Next >>**), or abort the installation procedure (**Exit Installation**):

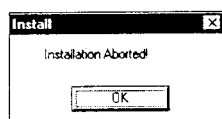


**WARNING**

You can abort the installation procedure from any of the dialog boxes that appear from now on. If you decide to abort the procedure, the program will request confirmation (**Yes**):



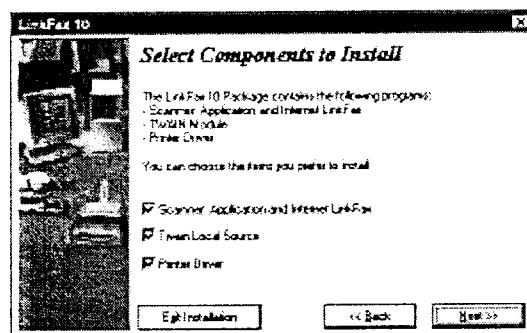
and then return to Windows 95.



If you abort the installation procedure, *none* of the items selected *will be installed*.

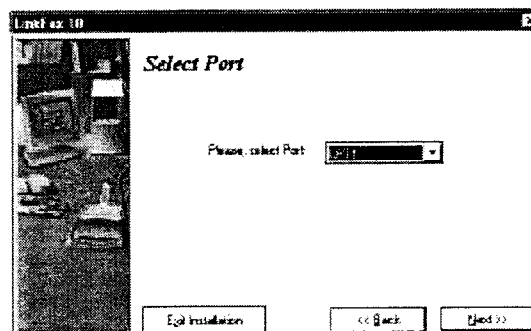
**5**

Select the **components** you wish to install:



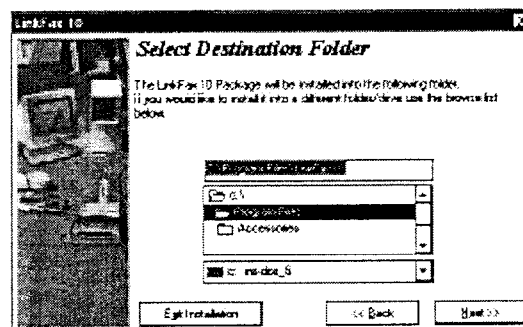
**6**

Select the **port** to which the facsimile machine has been connected:



**7**

Select the folder in which you wish to install the LinkFax 10 module from the **folder** list (the **Programs/LinkFax 10** folder is automatically selected):

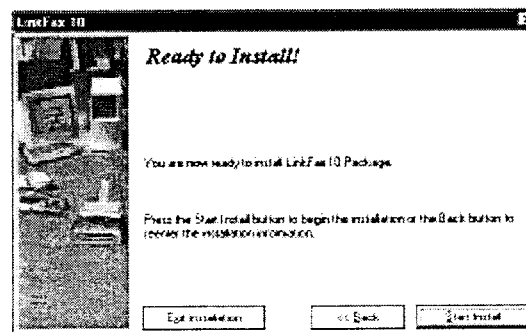


**WARNING**

The **LinkFax 10** item is automatically inserted in the **Start** menu.

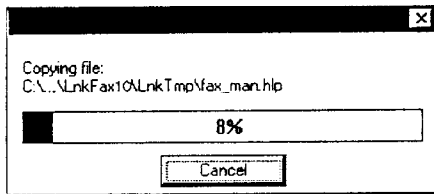
**8**

You have now finished selecting what you wish to install. You can either return (**<< Back**) to the previous dialog boxes to check your settings, or you can continue:



**9**

**Start Installation.** A dialog box enables you to keep track (in %) of the files being installed from the CD to the hard disk ...



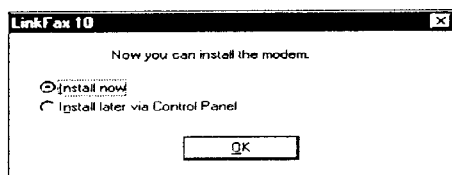
... together with some messages introducing you to the features of the LinkFax 10 module.

**WARNING**

If you click on **Cancel** while the files are being loaded, this will interrupt the installation procedure and cause the system to restart.

**10**

On completion of the installation procedure, a dialog box prompts you to install the modem:



- You can select **Install now** and confirm (**OK**):
  - if you already have a modem installed, the standard Modem properties **window is opened**:
    - a. confirm the **Add** button;
    - b. select **Don't detect my modem; I will select it from a list** and confirm (**Next**);
    - c. select the **LinkFax** item from the Manufacturers menu and the **LinkFax 10** item from the **Models** menu and then confirm (**Next**);
    - d. select the **port** to which the facsimile machine has been connected and confirm (**Next**);
    - e. once the selected modem has been retrieved, confirm by clicking on the **Finish** button;
    - f. confirm the **Close** button.

- if you have no modem installed, the standard **Install new modem** window is opened:
  - a. follow steps **b**, **c** and **d** of the above procedure;
  - b. when the standard **Modem properties** window appears, click on **OK** to confirm;
- Alternatively, you can select **Install later via Control Panel** and then click on **OK** to confirm.

**WARNING**

If you selected the printer driver at step 4, go to step 11; if you did not, go straight to step 12.

**11**

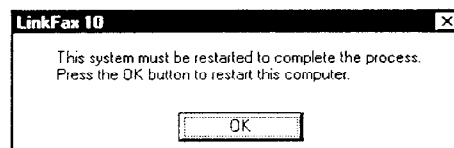
The Windows 95 **Printer Installation** guide appears. Select the following parameters where required:

- **Local printer**;
- Manufacturer: **LinkFax 10**, which corresponds to Model: **LinkFax 10 Color Printer**;
- Port: that to which the facsimile is connected (**Fax port**);
- Printer name: confirm the predefined name (**LinkFax 10 Color Printer**), or enter another name as required, then click on **Finish**.

The procedure automatically proceeds to the next step.

**12**

A dialog box prompting you to restart the system appears:



**13**

Confirm (**OK**); the following message appears:

**Restarting Windows ...**

which remains until the end of the restart cycle.

**14**

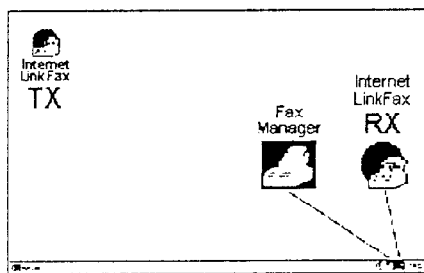
Remove the CD and check that the **LinkFax 10** item has been added to the **Programs** menu,



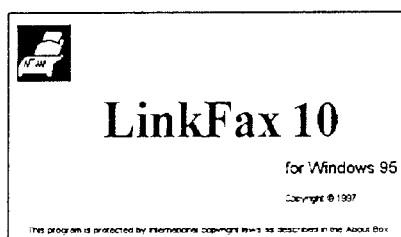
together with any components you have installed: **Scanner application, Uninstaller, Internet LinkFax, Printer.** *Specific guides* are displayed for each of the components installed (marked by a book icon). These include:

- the **User Guide** item, which supplies instructions for printing the **Instructions for use** of the LinkFax 10 module.
- the **Printer** item, which allows for the selection of the associated **Guide** and the **Status Monitor**.

The *installed components* of the LinkFax 10 module are now *active* within Windows 95 and are represented by *icons* which appear at the bottom of the screen: **Fax Manager** and **Internet LinkFax** icons for reception, plus an **Internet LinkFax** icon for transmission, which appears further up the screen.

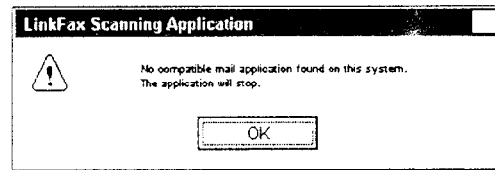


In addition, from this point on, whenever the system is restarted, the following picture will appear on the display for a few seconds:



**WARNING**

If no *E-mail* application has been installed (with *Simple MAPI* as its interface), the **Internet LinkFax** icon...will not appear at the bottom of the screen and the icon that appears on the screen will not be active. Furthermore, each time the system is restarted, the following message will appear:



... to remind you that you do not have access to any E-mail applications.

The two **Internet LinkFax** icons are automatically reset following installation of an E-mail application.

**NO PLUG & PLAY INSTALLATION**

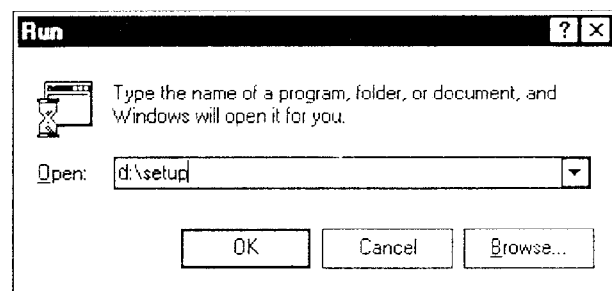
This kind of installation can be performed initially, as an alternative to Plug & Play, with the fax machine disconnected from the PC, or to *update the LinkFax 10*.

**1**

Power on the PC, wait for *Windows 95* to start and then insert the *CD in the CD ROM drive*.

**2**

From the **Start** menu, select **Run** and type *x:\setup*, where *x* is the name of the CD ROM drive (for example, *d*):



... then click on **OK** to confirm.

**3**

The LinkFax 10 installation procedure starts.

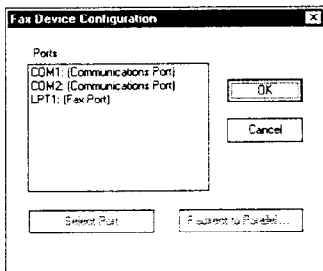
Now *select your language* and proceed with all other operations until the installation procedure is complete (see step 3 and following steps of the **Plug & Play Installation** section).

## NOTES ON THE USE OF THE COMMUNICATION PORT

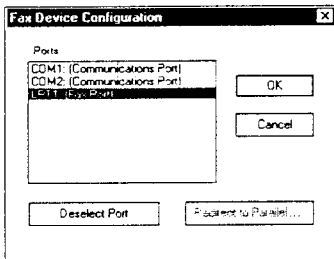
Having installed the LinkFax 10 module, the PC port to which the facsimile machine is connected will be **exclusively dedicated to the management of bubble ink jet facsimile machines** (Fax Port) supported by the module.

Should you need to use this port for devices other than facsimile machines, you can **temporarily deselect** the port and then reselect it:

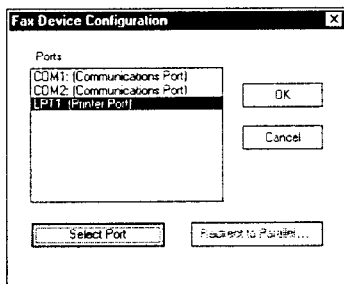
- Double click on the Fax Manager icon:



- Select the **fax port** (LPT1 in the example):



- Confirm the **Deselect port** button to enable the port for **standard operation** (Printer Port):

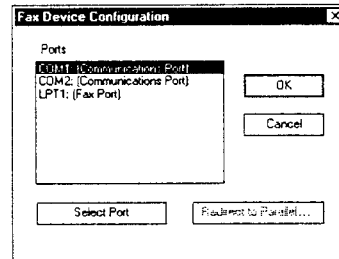


- To reselect the Fax Port, you will have to confirm the **Select Port** button.

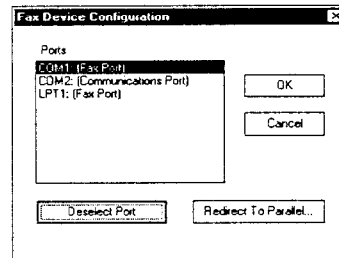
If you are using an application that can only control the facsimile machine **via a serial port**, you can **temporarily redirect the serial port to the parallel port**. In this way, the application will

"think" that it is using a serial port, while in reality the facsimile machine is controlled via the parallel port.

- Double click on the Fax Manager icon and select the relevant **serial port** (COM1 in the example):

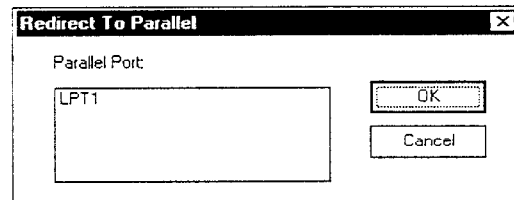


- Confirm the **Select Port** button:

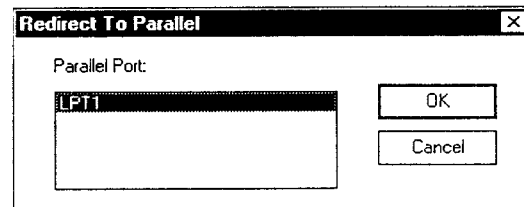


The **Redirect to Parallel** button is now active.

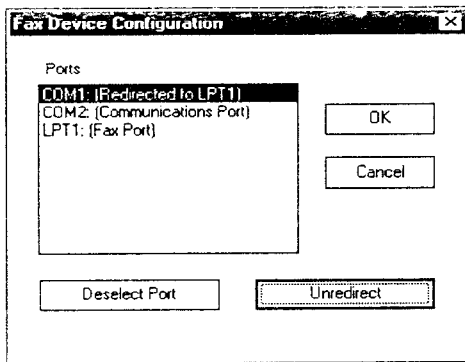
- Confirm the **Redirect to Parallel** button:



- Select the **parallel port** to which you wish to redirect the serial port (LPT1 in the example):



and click on **OK** to confirm:



- Complete the procedure by clicking on **OK**.
- Click on the **Unredirect** button to restore standard port management.

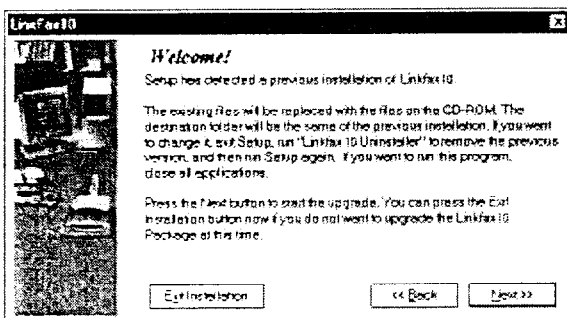
### UPDATING THE LINKFAX 10 MODULE

Having performed the initial installation of the LinkFax 10 module, you may need to carry out one of the following procedures:

- **Adding components** to a previous partial installation: repeat the installation procedure by selecting the required elements. Since Fax Manager cannot be selected, it will be reinstalled.
- **Installing a new version** of the current module:

#### 1

Carry out the "**NO PLUG & PLAY**" *installation procedure* up to the point where you have selected and confirmed your language; this time a message will appear informing you that **the module is already installed** and giving instructions on how to continue:



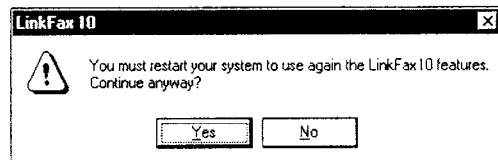
#### 2

Continue by selecting the components and applications you require: during the installation procedure the new elements will be **added** to those already installed in the previous version, and the existing elements will be **updated**.

### TEMPORARY DISABLING OF THE LINKFAX 10 MODULE

#### 1

Click on the **Fax Manager** icon at the bottom of the screen with the **right mouse button**. Then click on **Exit** of the related menu:



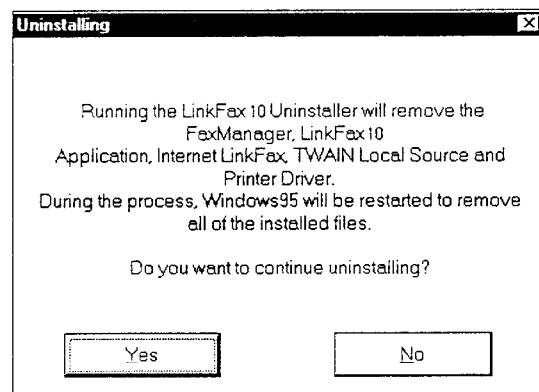
#### 2

Confirm (**YES**): the features of the LinkFax 10 module are **disabled** and will be automatically activated again the next time the system is restarted.

### UNINSTALLING THE LINKFAX 10 MODULE

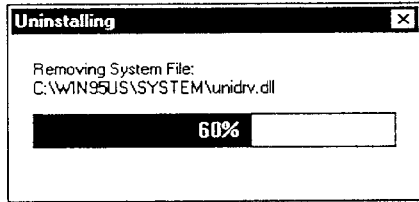
#### 1

Select **Uninstaller** from the **LinkFax 10** menu on the **Programs** menu:



**2**

Confirm uninstallation (**Yes**): the LinkFax 10 module is removed, together with all its links (menus, items, icons):



Windows 95 is restarted as at the end of the installation procedure.

**ACCESSING ONLINE HELP**

As already mentioned, specific online help for each LinkFax 10 function can be accessed from the **LinkFax 10** menu, and is indicated by a book icon (📖).

When you select a specific guide (e.g. **Fax Manager Guide**), the corresponding help window is displayed:

**1**

Double click on the item you wish to refer to (e.g. **How to use help**) and the corresponding help page will be displayed.

**2**

Follow the instructions given.

**PRINTING THE USER GUIDE**

The on-line **User Guide** (divided into chapters, with cover, table of contents and numbered pages) provides the **Operating Instructions** of all LinkFax 10 functions. If you wish to print these instructions, double click the **User Guide** icon on the **LinkFax 10** group, then double click on the **Print User Guide** item and follow the corresponding instructions.

**WARNING**

The User Guide can only be accessed and printed **if the Acrobat Reader application is present**. If this application has not been installed yet, install it now proceeding as

follows:

1. Power on the PC on and enter **Windows 95**, then insert the **CD in the CD ROM drive**.
2. Select **Run** from the **Start** menu and type **x:\acrobat\lacroread**, where **x** is the name of the CD ROM drive (for instance, **d**); then confirm (**OK**).
3. Follow the instructions provided, until the conclusion of the installation procedure.

**CREATING 3.5" INSTALLATION DISKETTES**

The installation CD can be copied onto **3.5" diskettes**. This makes it possible to install LinkFax 10 on PCs that are **not equipped with a CD ROM drive**.

**1**

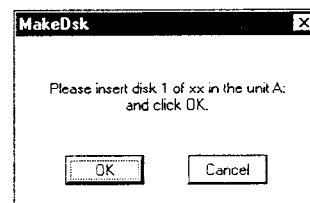
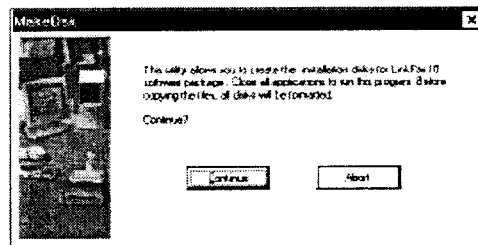
Power on the PC and wait for **Windows 95** to become active. Then insert the **CD in the CD ROM drive**.

**2**

From the **Start** menu, select **Run** and type **x:\makedsk**, where **x** is the name of the CD ROM drive (for example, **d**). Click on **OK** to confirm:

**3**

Select your **mother language**, if it is not already selected and click on **OK** to confirm; an indication will be given of **how many diskettes** are required for the copying process:



# 9. INSTALLATION OF THE LINKFAX 10 MODULE IN WINDOWS 95 ENVIRONMENT

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SYSTEM REQUIREMENTS .....	2
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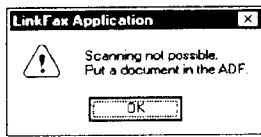
### **2 INSTALLING THE LINKFAX 10 MODULE 4**

PLUG & PLAY INSTALLATION .....	4
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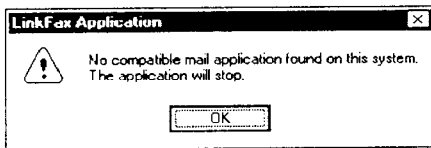


**WARNING**

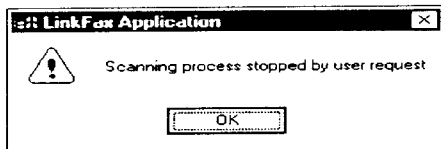
- If you forget to insert the document, the following message appears:



- If no electronic mail application has been installed, the following message appears:



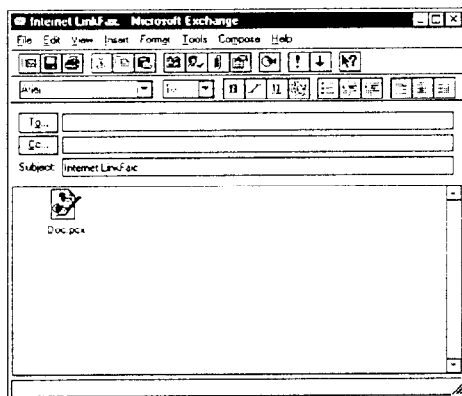
- To interrupt transmission, click on **Cancel**:



... then click on **OK** to confirm.

**3**

If the *list of services you wish to use* is displayed, select and confirm it. The dialogue box relative to the electronic mail application in use is displayed (e.g. *Exchange*, as shown in the example below):



**4**

Compile the following fields:

- **A:**, with the address of the *main correspondent*;

- **Cc:**, with the address of the correspondent to whom the mail is to be sent as *carbon copy*;
- **Ccn:**, with the address of the correspondent to whom the mail is to be sent as *blind carbon copy*.
- **Subject:**, with the *comment that identifies* the document to be sent.

**WARNING**

- If the correspondent is a *non-internet* user, fill in the address as indicated by the Internet fax service provider.
- Part of the comment in the **Subject:** field is already filled in: **Internet LinkFax:**.

**Never delete this label**

as it is needed to identify *mail sent using Internet LinkFax* on the correspondent's machine. Add your own comment to the end of it.

- **Text area** (which contains the *symbol* of the document to be sent, saved as an *attachment; Doc.pcx* in the example), with the *text* that you wish to send to the selected correspondents.

**5**

Set any *transmission properties and options* (for example, sender name and address, attachment format, etc.) using the functions associated to the electronic mail application in use. Then confirm the **send** command and the document is sent to all the correspondents.

**Setting the Transmission Parameters**

**1**

Run the *Scanner application* and select **Options** from the **Tools** menu. Then click on **Internet LinkFax Send**; a dialogue box which is split into two sections is displayed for entry of the *transmission* parameters.

# 1 INTRODUCTION

LinkFax 10 is a software communication module that transforms bubble ink jet facsimile machines into *multifunctional products* running under *Windows 95*.

In fact, once they have been *connected to a Personal Computer*, they may be used above all as a *graphic printer*. Documents such as letters, drawings or spreadsheets prepared using standard *Windows* applications may therefore be *printed by the facsimile machine*.

Alternatively, they may be used as a *scanner* for acquiring images and documents on the PC. This is made possible by the TWAIN module, which supplies the standard protocol between the facsimile machine and most popular image processing applications.

Again, with the aid of Windows 95 Microsoft Fax (or of another fax application emulating a class 2 modem), all kinds of documents (text and images) *can be sent directly from the PC*. In addition, incoming fax messages can be *stored on the PC*, and subsequently displayed and processed using standard *Windows* applications.

They also allow to transmit and receive faxes as *e-mail attachments*, using the *Internet*.

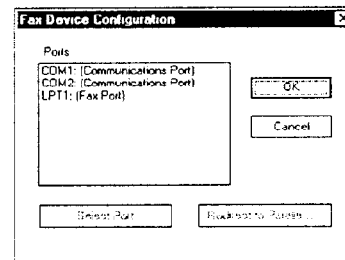
Lastly, with the aid of the Windows 95 application *Phone dialer* (or other applications), numbers for outgoing calls can be dialed with a click of the mouse or from the PC keyboard (when the fax machine is used as a telephone).

## NOTES ON THE USE OF THE COMMUNICATION PORT

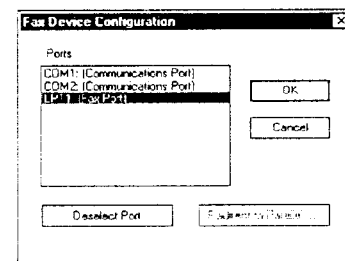
When the LinkFax 10 module is installed, the PC port to which the facsimile machine is connected will be *exclusively dedicated to the management of bubble ink jet facsimile machines* (Fax Port) supported by the module.

Should you need to use this port for devices other than facsimile machines, you can *temporarily deselect* the port and then reselect it:

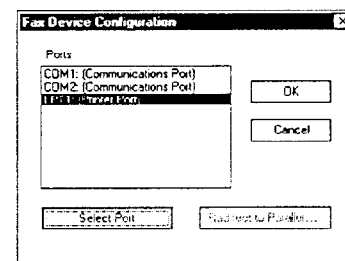
- Double click on the Fax Manager icon:



- Select the *fax port* (in the example LPT1):



- Confirm the **Deselect port** button to enable the port for *standard operation* (Printer Port):

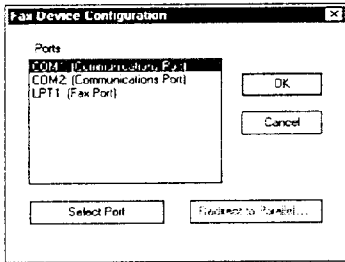


- To reselect the Fax Port, you will have to confirm the **Select Port** button.

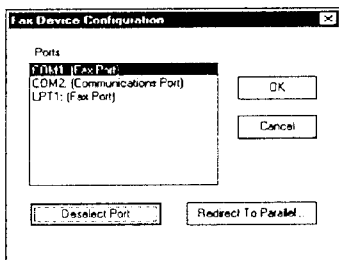


If you have to use an application that can only control the facsimile machine via a *serial port*, you can **temporarily redirect the serial port to the parallel port**. In this way, the application will "think" that it is using a serial port while in reality the facsimile machine is controlled via the parallel port.

- Double click on the Fax Manager icon and select the relevant *serial port* (in the example, **COM1**):

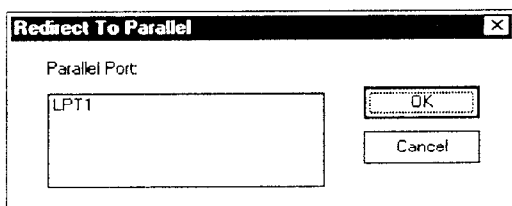


- Confirm the **Select Port** button:

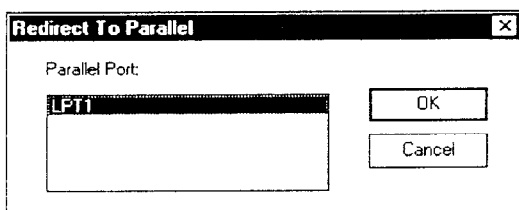


The **Redirect to Parallel** button will become active.

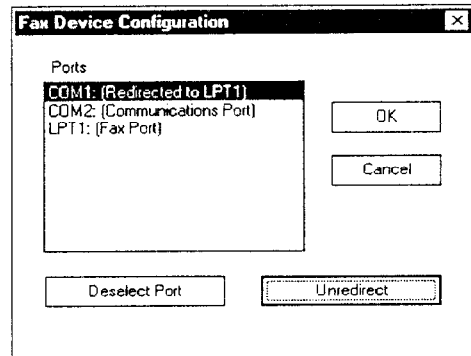
- Confirm the **Redirect to Parallel** button:



- Select the *parallel port* to which you wish to redirect the serial port (in the example, **LPT1**):



and click on **OK** to confirm:



- Complete the procedure by confirming (**OK**).
- To restore standard port management, you must confirm the **Unredirect** button.

## 2 USING THE FACSIMILE MACHINE AS A PRINTER

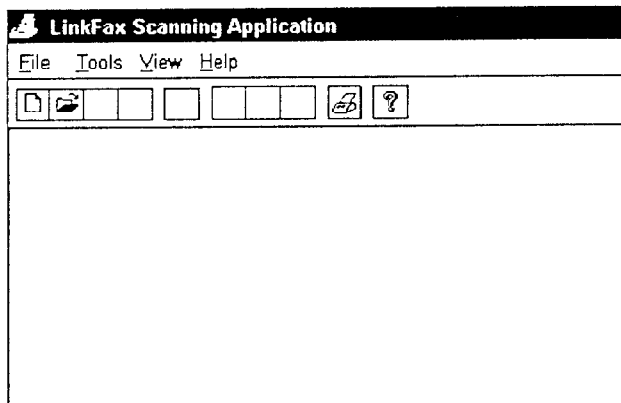
Once the *Printer driver* of the LinkFax 10 module has been installed (**LinkFax 10 Colour Printer**), the facsimile machine automatically becomes the *default printer*.

### SELECTING THE PRINTER DRIVER

To select the LinkFax 10 printer driver, proceed as follows:

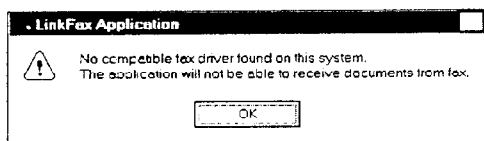
**1**

Select **Scanner Application** from the **LinkFax 10** menu on the **Programs** menu:



#### WARNING

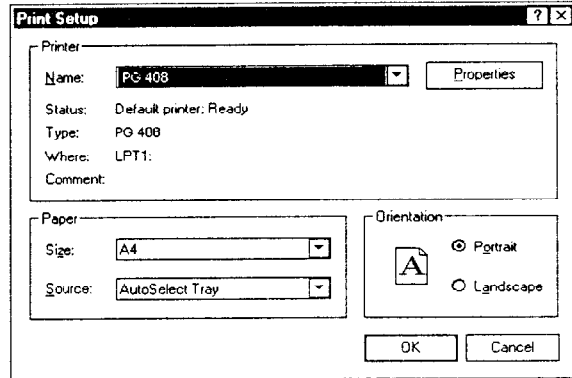
If the connection port of the PC port (Fax Port) has not been enabled, the following message is displayed:



In this case, select the port (see section entitled **Notes on the Use of the Communication Port** in Chapter 1) and then continue.

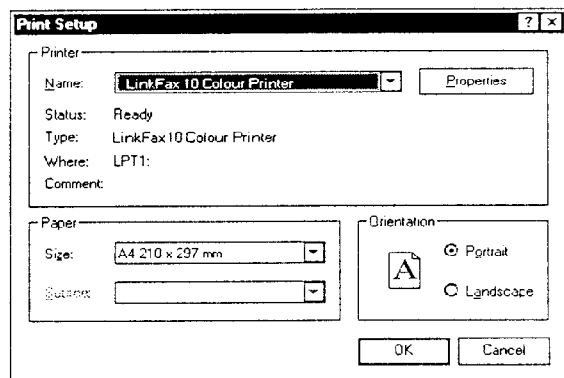
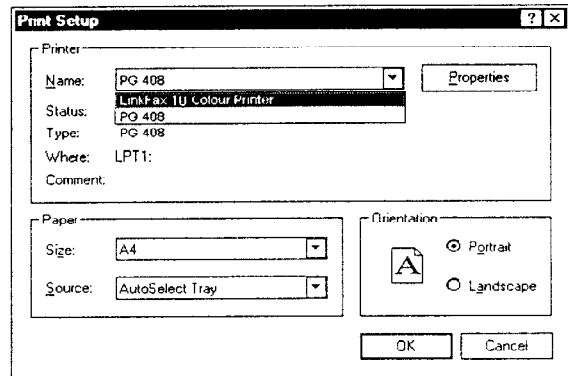
**2**

Select **Printer Setup** from the **File** menu:



**3**

Select **LinkFax 10 Colour Printer** from the **Name** list:



and click on **OK** to confirm.

### SETTING THE PRINTING PARAMETERS

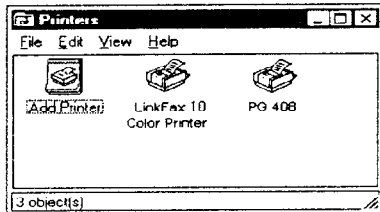
Once the **LinkFax 10 Colour Printer** has been installed, you can set the *printing parameters*

for the images or documents that you wish to print from the application of your choice.

The driver **Properties** can be accessed either via the **Status Monitor** (see section entitled **Checking the Printer**), or by following the instructions set out below:

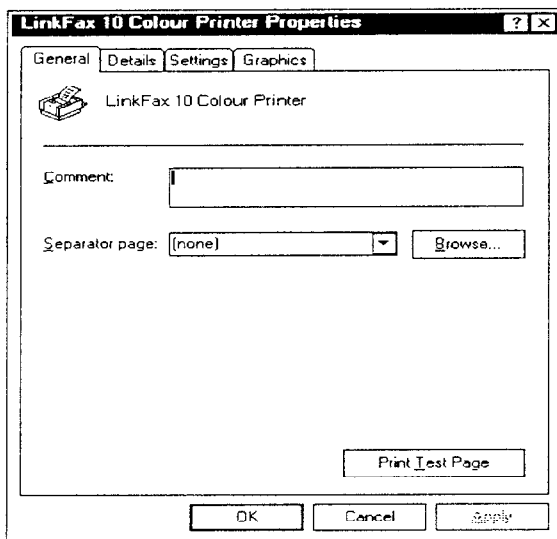
**1**

Select **Printers** from the **Settings** menu on the **Start** menu:



**2**

Click on the **LinkFax 10 Colour Printer** icon with the *right mouse button* and select **Properties**:

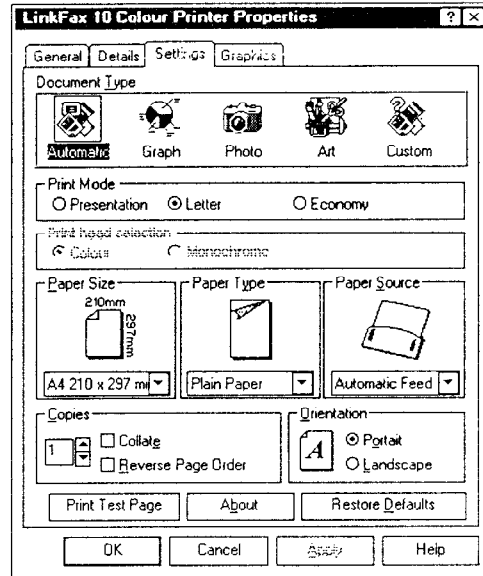


**3**

Set the Windows 95 *standard parameters* by selecting the **General** and **Details** boxes.

**4**

Select the **Settings** box:



... and select:

- **Document Type:**
  - **Automatic**, to set up *automatic detection* of the document to be printed: **black and white**, **colour**, or **mixed** (part black and white and part colour);
  - **Graph**, to print documents created using *computer graphics*;
  - **Photo**, to print *photographic images*;
  - **Art**, to print *drawings*;
  - **Custom**, to print special documents *created by you*.
- **Print Mode**, to set the best conditions for the type of image to be printed:
  - **Presentation**, to print *high definition images* (e.g. photographs, histograms, slides, etc.) and *quality black/white texts*;
  - **Letter**, to print *text* or *standard graphics*;
  - **Econofast**, to print *drafts*.
- **Print head selection**, to set the type of *print head*:
  - **Colour**
  - **Monochrome**.

**WARNING**

This parameter will be *disabled* if the document type selected is anything other than **Automatic**.

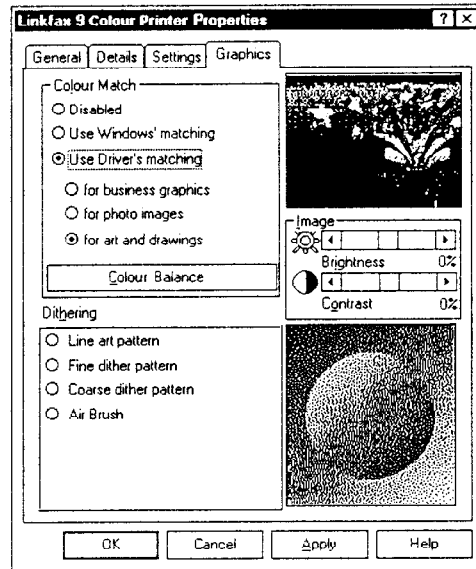
- **Paper Size**, to set the *size* of the paper being used by the facsimile machine: **A4, Letter, Legal**.
- **Paper Type**, to set the type of paper being used by the facsimile machine: **Plain Paper, Transparency Film (with backing), Transparency Film with Border, Glossy Paper, Coated Paper, Thick Paper**.
- **Paper Source**, to set the way in which the paper is to be fed into the facsimile machine:
  - **Automatic Feed**, if the paper in the paper tray can be easily fed into the facsimile machine: this is the case of **plain paper**.
  - **Manual Feed**, if the paper to be used is not *easily fed* into the facsimile machine (i.e. it is too thick, too heavy or too smooth), or in the case of **transparency film with border, thick paper** and special paper (**glossy, coated and transparency film**).
- **Orientation**, to set the page orientation for the image to be printed (**Vertical** or **Horizontal**).
- **Copies**, to select the number of copies of the document to be printed and the *order* in which the pages are to be printed: **Collate (increasing order per groups)**, or **Reverse Page Order (decreasing order)**.

**WARNING**

Since the facsimile machine has *no resident character sets (FONTS)*, you can only use the characters offered by the application in use. For this reason, it is recommended that you use **True Type** characters (those preceded by the  $\mathcal{T}$  symbol) to ensure that they are printed correctly.

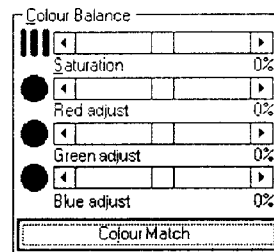
**5**

Click on the **Graphics** box if you wish to print a complex photographic image:

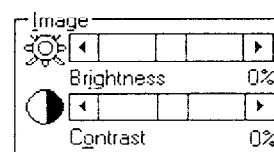


... and select:

- **Colour Match**, to improve colour *reproduction on paper*. This so-called *balancing* operation is necessary because the screen's chromatic definition is much higher than the print definition.
  - **Disabled**, to maintain the *original colours* of the image to be printed;
  - **Use Windows' matching**, to match the colours using the Windows method;
  - **Use Driver's matching**, to match the colours using the method operated by the **LinkFax 10 Colour Printer**.
- **Colour Balance**, to balance the colours of the image to be printed *manually*. In this case, the *colour selectors* will appear on top of the colour match section:

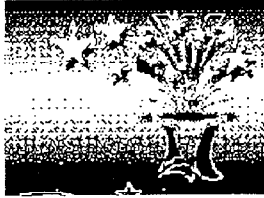


- **Brightness and Contrast of the Image:**



**WARNING**

Once the relevant parameters have been set, the image will appear in colour at the top right of the screen.



To complete the setup, select:

- **Dithering:** the resulting image will appear at the bottom right of the screen.

- Line Art pattern



- Fine dither pattern



- Coarse dither pattern

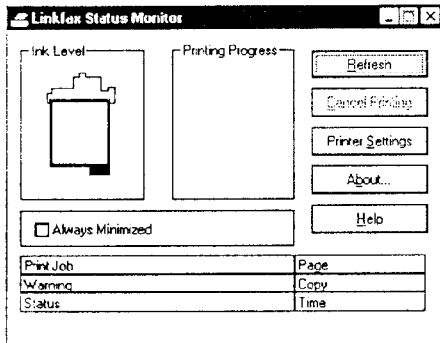


- Air Brush



**PRINTING WITH LINKFAX 10**

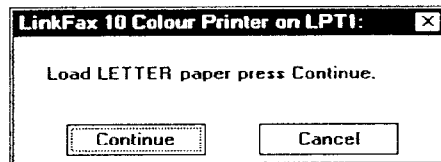
After installing the LinkFax 10 Colour Printer, select it from the application in which you want to work. The facsimile machine will be activated and the relative dialogue box (**Status Monitor**) is displayed on the PC monitor:



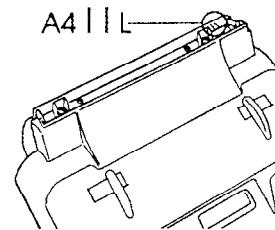
... containing standard Windows data: **Printing Progress** of the current document, name of the **document being printed (Print Job)**, current **Page, Copy** number and **Time** elapsed. The Status Monitor dialogue box remains active for the duration of the printing process and printing can be **interrupted** at any time by clicking on **Abort Print**.

**WARNING**

- If you set **manual feed**, **remove the paper tray** from the facsimile machine and then start the print: The following message will appear after the Status Monitor:



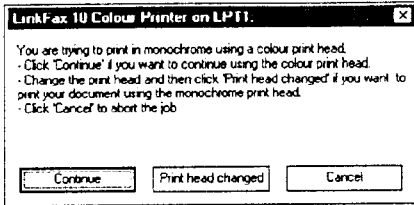
... prompting you to insert **one sheet of paper**, which must be aligned with the reference marks that correspond to the paper format (**A4** or **Letter**):



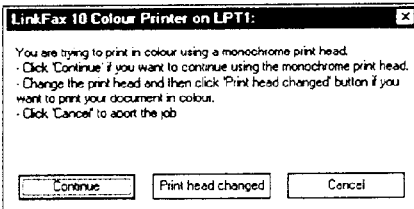
Once the paper has been inserted, printing begins in the normal way. If there is **more than one page** to be printed, you are prompted to insert another sheet of paper each time a page has been printed.

- If **Document & Type** is set to **Automatic** and it **does not correspond to the type of print head** installed, you will be prompted to replace the print head:

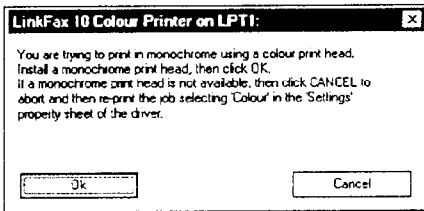
USING THE FACSIMILE MACHINE AS A PRINTER



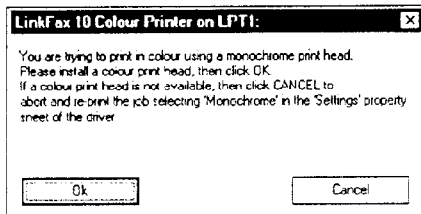
OR:



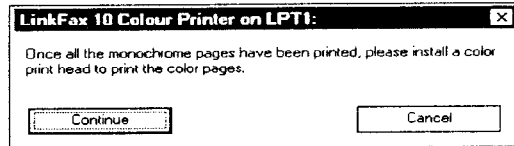
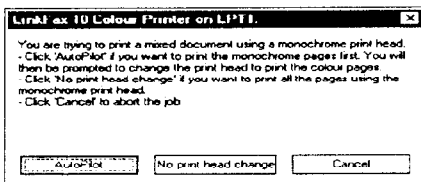
- If the type of document set is **not Automatic** and the print head selected is **different to the one installed**, you will be prompted to change the print head:



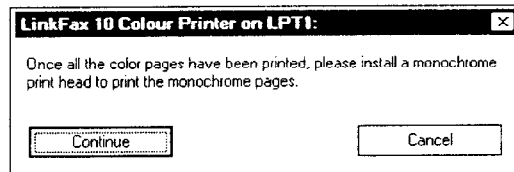
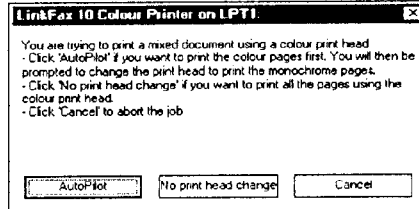
OR:



- If **Document & Type** is set to **Automatic** and you are printing a **mixed** document, instructions on how to begin printing are displayed:



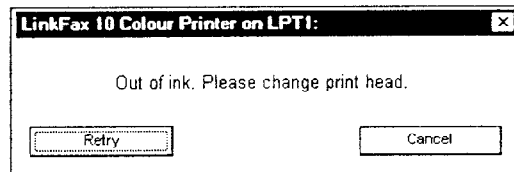
OR:



- When the print head is finished, the following message appears:

OUT OF INK

If a **refillable** print head is in use, the following message appears on the PC monitor:



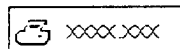
## CHECKING THE PRINTER

You can *only* check the status and configuration of the printer *before starting or on completion of the print process*.

Select **Printer** from the **LinkFax 10** menu on the **Programs** menu, then select the **Status Monitor**; the corresponding dialogue box is displayed, allowing you to check the following:

- the **Ink Level** of the print head: click on **Update** and the level (or three levels in the case of a colour print head) is highlighted on the print head image;
- the **printer setting**: click on **Properties** and the dialogue box associated to the properties of the **LinkFax 10 Colour Printer** driver is displayed.

You can *reduce* the Status Monitor dialogue box (which remains active for the duration of the printing process) to an *icon*. To do this, click on **Always minimized** and it will appear at the bottom of the screen as an icon when the next print process is activated.



... where **xxxx.xxx** indicates the name of the *file being printed*.

### 3 USING THE FACSIMILE MACHINE AS A SCANNER

As already mentioned, the facsimile machine can be used to scan images in three different ways:

- **autonomously**, irrespective of the processing application, using the **Scanner Application** which allows for the acquired image to be processed afterwards;
- from within the same **Word Processing** or **Desk Top Publishing** application, using the **TWAIN** interface;
- from within the same **Word Processing** or **Desk Top Publishing** application, using the **OLE (Object Linking and Embedding)** standard interface.

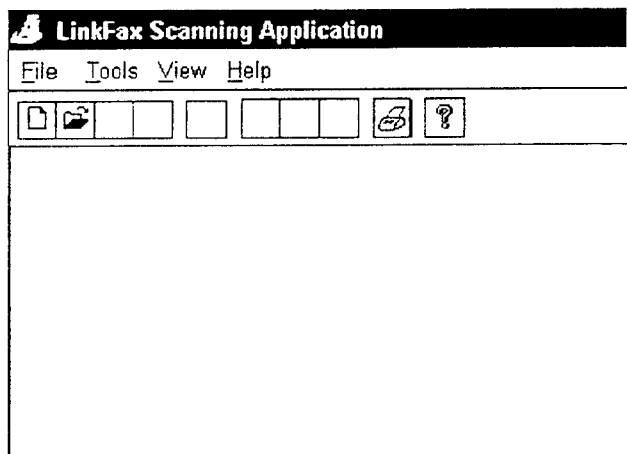
#### SCANNING USING THE SCANNER APPLICATION

##### 1

Place the document to be scanned onto the document feeder (make sure that the number of **pages does not exceed** the maximum number supported by the facsimile machine).

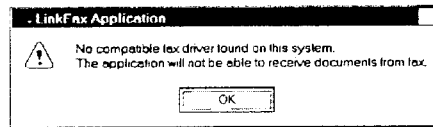
##### 2

Select **Scanner Application** from the **LinkFax 10** menu on the **Programs** menu:



#### WARNING

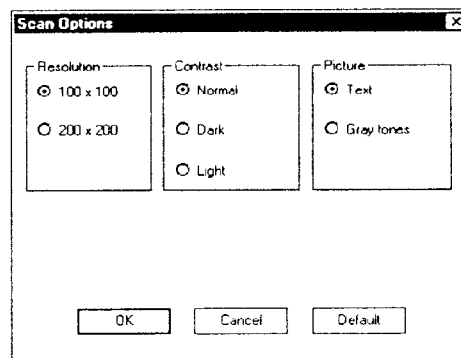
If the PC connection port has not been enabled, the following message will be displayed:



In this case, select the port (refer to **Notes on the Use of the Communication Port** in Chapter 1) and continue.

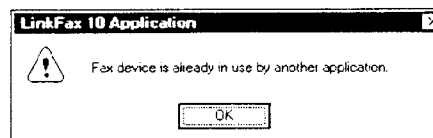
##### 3

Select **Scan** from the **Scanner** menu (or confirm the **facsimile icon**) to set the appropriate scanning parameters:



#### WARNING

If the facsimile machine is busy, the following message will be displayed:



##### 4

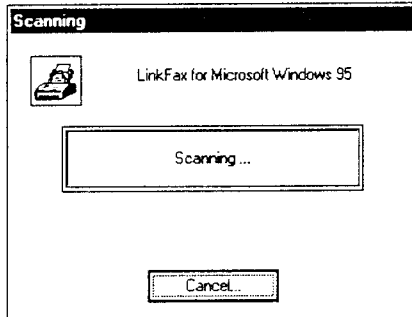
Set the scanning parameters:

- **Resolution**, depending on the degree of **definition** required;
- **Contrast**:
  - **Normal**, for documents with a **satisfactory** level of **intensity**;
  - **Dark**, for **light documents**;
  - **Light**, for **dark documents**;
- **Picture**: type of image to be scanned:
  - **Text**, for **written** documents;



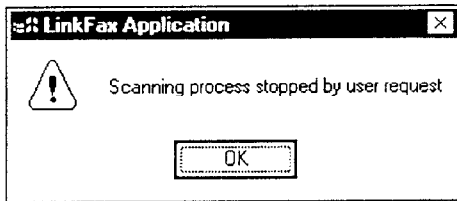
- **Gray tones** (with *64 shades* of gray), for images with a series of *shades*;

... and click on **OK** to confirm. The document is then read by the facsimile machine:



**WARNING**

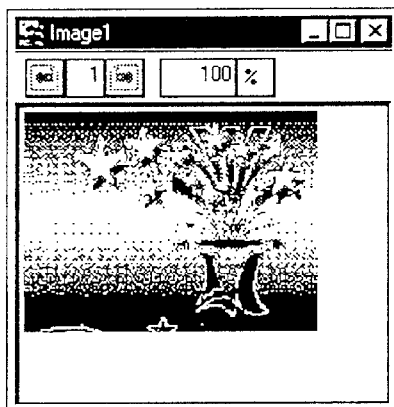
To interrupt the scanning process, click on **Cancel**:



... and click on **OK** to confirm: the document is automatically ejected.

**5**

At the end of the scanning procedure, the document is displayed on the screen:

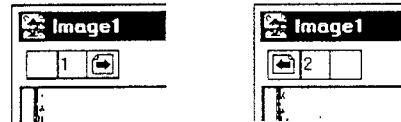


**WARNING**

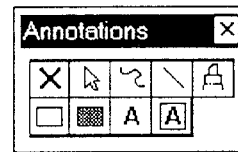
- If the document is too big to fit onto the screen, the *percentage by which it has been reduced* is indicated at the top of the image:



- If the document consists of *more than one page, only the first page is displayed*. To display the subsequent pages, and return to previous pages, click on the *arrows beside the page number*.



- the **Annotations** dialogue box also appears beside the image:



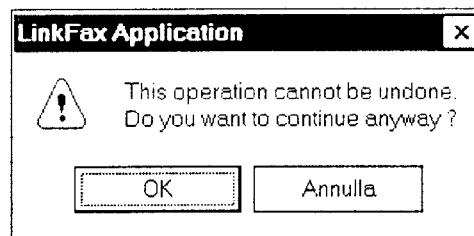
... which enables you to assign *graphic attributes* to the image (refer to the section entitled **Processing Images**).

**6**

You can now *process* the image as required, by following the instructions given in the section below.

**WARNING**

If you have assigned *annotations* to the image, you can make them *permanent* (i.e. make them part of the actual image). To do this, select either **Make permanent** from the **Annotations** menu (for selected annotations), or **Make all permanent** (for all the annotations contained in the image). The following message is displayed:

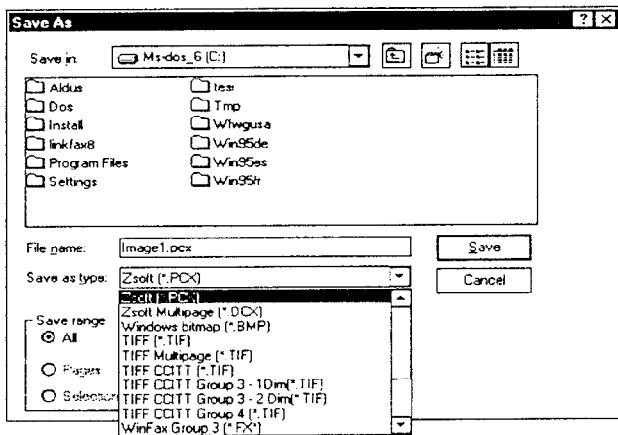


... informing you that the annotations made permanent can no longer be separated from the image.

**7**

Save the document acquired (**Save as**) by specifying:

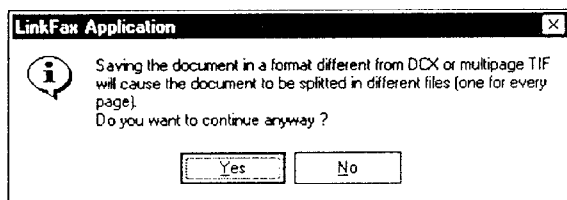
- the **path** of the file (**Save in**);
- the **name** of the file (**File name**);
- the desired **format** to be selected from a list (**Save as type**);
- the **portion** of the image to be saved:
  - **All**
  - **Pages, from: xx to: yy**
  - **Selection**, if you have selected a **portion** of the image;



... and then confirm the **Save** button.

**WARNING**

- If no format is specified, **single-page** documents are automatically saved in **PCX** format, while **multipage** documents are saved in **DCX** format.
- If you wish to save a **multipage** document in a **format other than DCX or TIF**, the following message appears:



... to inform you that **a file will be created for each page**. Each file will have the name you specified, plus a number assigned automatically: **\_xx**, where **xx** indicates the **page number** (for example: test\_01.jpg, test\_02.jpg).

- Images that contain **annotations** can be saved in the following two ways:
  - with annotations that **can be edited** (i.e. independent of the image), in **LFX** (LinkFax) **format only**;
  - with **permanent** annotations in **any format**.

**8**

Close the **Save as** dialogue box.

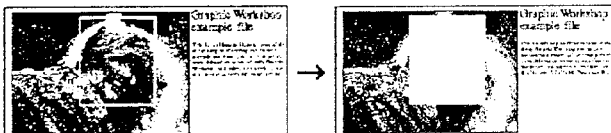
**PROCESSING IMAGES**

LinkFax 10 offers **partial processing** of the acquired images by means of various **standard functions**:

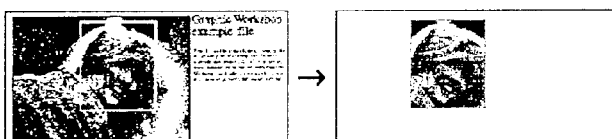
- using the **mouse**:
  - to **select** an area of the image (+);
  - to **drag** a selected area in any direction (⇄);
  - to **size** a selected area horizontally (⇆), vertically (⇅), or diagonally (↖↘);
- from the **Edit** menu:
  - to **cut** a selected area;
  - to **copy** a selected area;
  - to **paste** an area that has been cut or copied;
- from the **View** menu:
  - to **zoom in** or **minimize** a selected area (**Zoom**) (25%, 50%, 75%, 100%, 200%, 400%, fit to the dialogue box, fit to the screen);

- from the **Window** menu:
    - to *cascade* and *tilt* several images;
- ... and using the following *advanced functions*:

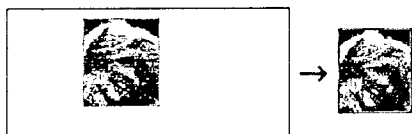
- from the **Modify** menu:
  - **Delete inside**: to delete the *part inside the outline* of a selected area:



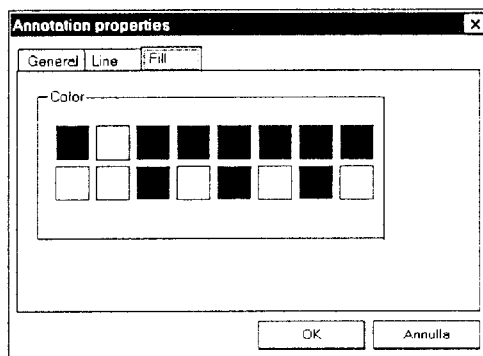
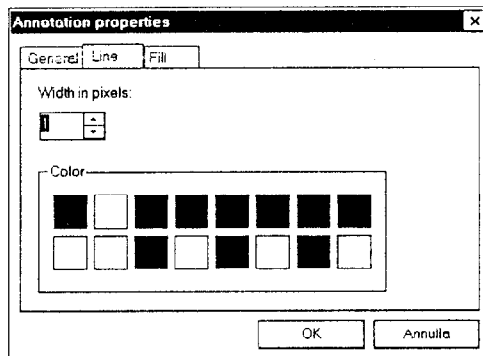
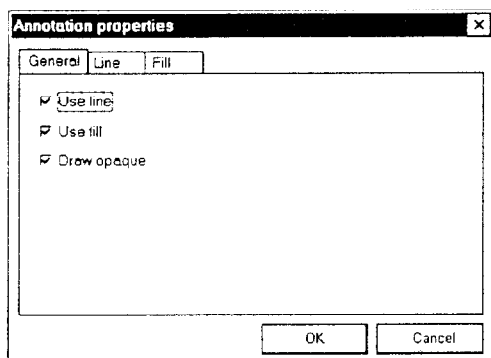
- **Delete outside**: to delete the *part outside the outline* of a selected area:



- **Resize image**: to delete *the entire blank area around the outline*, thus reducing its size:

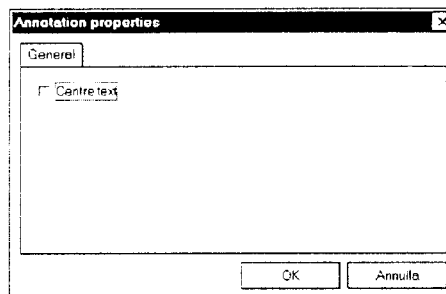


- **Annotation properties**, to display the dialogue box associated to the type of annotation selected (e.g. **Filled rectangle** annotation)

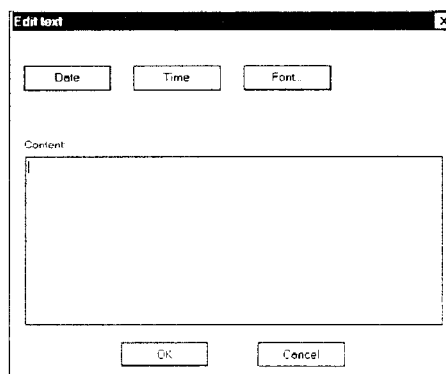


**WARNING**

In the case of a *text* type annotation, the **Centre text** property is available.

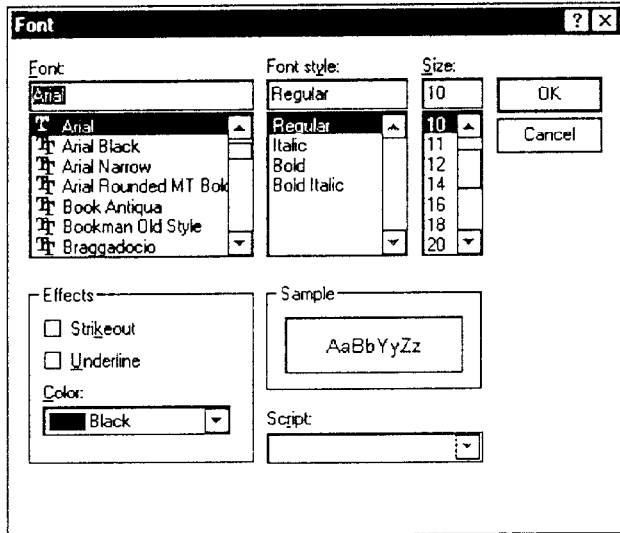


- **Annotation editor**, to modify *text* type annotations only:



USING THE FACSIMILE MACHINE AS A SCANNER


... by entering the *date* (indicated by the % D symbol), or the *time* (indicated by the % T symbol) and entering the *character type* (Font):



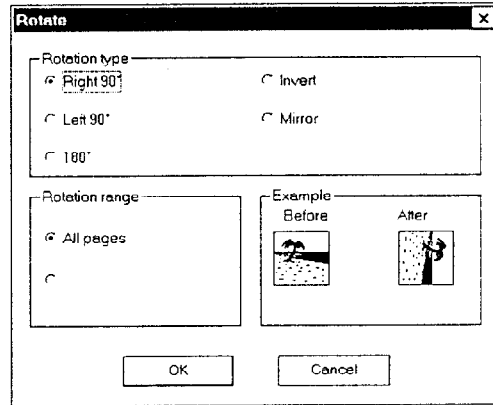
... or by editing the text itself.

- from the **Annotations** menu (item **Tools**):
  - to **select** an annotation already included in the image
  - to draw **free hand lines**
  - to draw **straight lines**
  - to **highlight**
  - to draw **hollow rectangles**
  - to draw **filled rectangles**
  - to type in **text**
  - to type in **notes** (background texts).

**WARNING**

The  tool can be used to select an area of the image in order to **edit the size or position**. While the other annotation functions are independent of the image, this function **permanently modifies** the image.

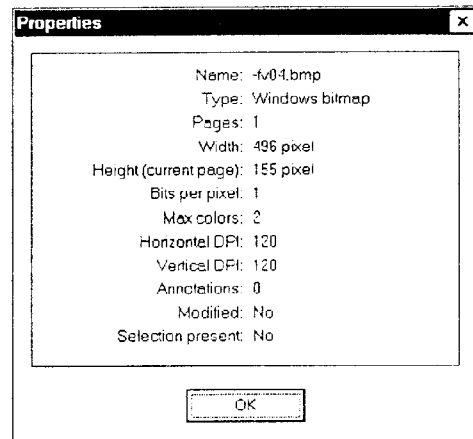
- from the **Picture** menu:
  - to **rotate** the image (not active for images with editable annotations):



The result of the rotation (**right 90°**, **left 90°**, **180°**, **Invert**, **Mirror**) is displayed by means of two sample images, **Before** and **After**.

You can apply the set rotation to **All Pages**, or just to the selected portion of the image (**Selection**).

- to see the **properties** of the image being processed:



**SCANNING WITH TWAIN**

TWAIN allows for the acquisition of images by means of the following **certified applications**:

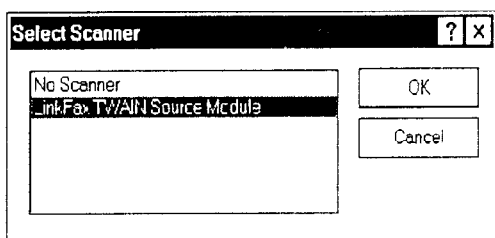
- **ABC Picture Publisher 6.0**
- **CorelPHOTO-PAINT! 5.0 and 6.0**
- **Imaging.**

**1**

Place the document to be scanned onto the document feeder (make sure that the number of **pages does not exceed** the maximum number supported by the facsimile machine).

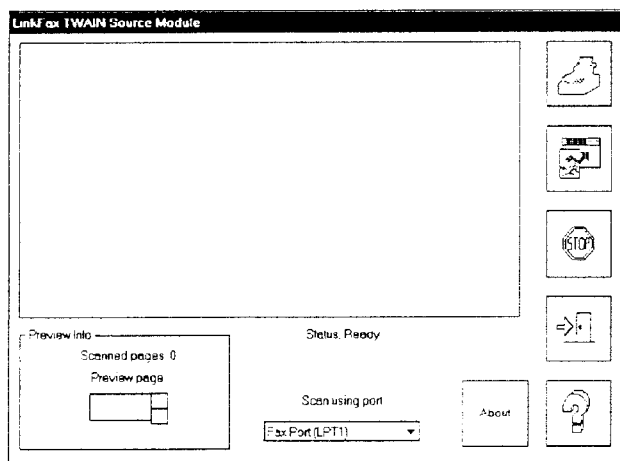
**2**

Activate the required picture processing application and select the **scanning device** as required by that application; the device selection dialogue box (**Source**) appears:



**3**

Select and confirm the **LinkFax 10** source, then confirm the **scan** command of the application. The specific **TWAIN Module** dialogue box will appear:



**4**

Confirm the **facsimile** button to start the scanning process and set the required scanning parameters (**Resolution, Contrast, Picture**). Then click on **OK** to confirm; the following message appears:

**Status: Scanning ...**

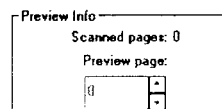
and the document is displayed as it is scanned by the facsimile machine.

**WARNING**

To interrupt the scanning process, click on the **STOP** button.

**5**

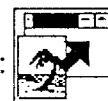
On completion of the scanning process (**Status: Ready**), the **number of pages acquired** is indicated and the **first page** appears on the display:



To display the subsequent pages, and return to previous pages, click on the **arrows beside the page number**.

**6**

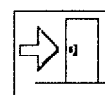
Confirm the **transfer** button:



The acquired image is **automatically transferred** to the picture processing application (**Status: Transfer in progress ...**).

**WARNING**

If the TWAIN module dialogue box does not close automatically at the end of the transfer, confirm the **exit** button.



**7**

You may now start processing the acquired image from within the application.

**SCANNING WITH OLE**

**1**

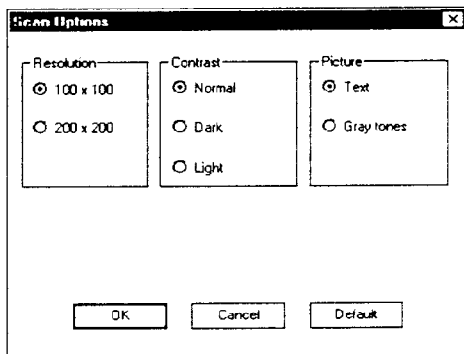
Place the document to be scanned onto the document feeder (make sure that the number of **pages does not exceed** the maximum number supported by the facsimile machine).

**2**

Activate the required picture processing or desktop publishing application (e.g. *Word for Windows 95*).

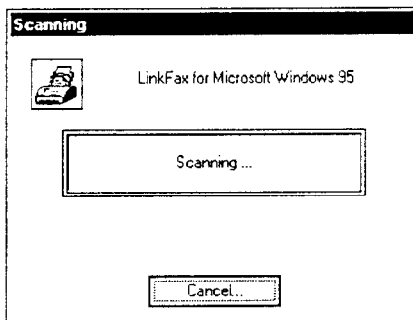
**3**

Select **Object** from the **Insert** menu. Then click on the type of **LinkFax Document** and click on **OK** to confirm:



**4**

Set the **Resolution**, **Contrast** and type of **Picture**, then click on **OK** to confirm. The document is read by the facsimile machine:



... at the end of the scanning process, the acquired image is displayed on the screen.

## 4 SENDING AND RECEIVING ON THE PC

---

Documents can *only* be sent and received using the PC *if you have installed Fax Manager*. Fax Manager is part of the Microsoft Fax application, which is a standard Windows 95 application.

Fax Manager is the **carrier structure** of LinkFax 10 and carries out the following functions:

- It emulates a generic **Class 2 modem** (called **LinkFax 10** on the **Control Panel**) and guarantees a standard interface between fax applications and bubble ink jet facsimile machines.
- It guarantees synchronisation among **scanning, communications** (sending and receiving) and **printing** operations, so that they do not overlap each other in a damaging way.

In order to guarantee these functions, Fax Manager must be **permanently resident in the memory of the PC**; you **must not therefore close the corresponding icon** at the bottom of the screen, except when you need to install a new application. In this case, Fax Manager will reopen automatically the first time the system is restarted.

### INSTALLING MICROSOFT FAX

The **Microsoft Fax** installation depends on both the operating environment version and the application being used on your PC. For correct installation, reference should be made to the specific documentation in your possession.

For both transmission and reception, the **Microsoft Fax** requires an **application support** (for example **Exchange**, that is also a standard Windows 95 application). If this application is not installed automatically, you have to install it yourself.

#### WARNING

If you have not yet installed the modem, install it now via the **Control Panel**:

- double click on **Modem**;
- click on **Add**;
- select **Do not detect modem, select it later** and click on **Next** to confirm;
- select the **LinkFax** item from the **Manufacturers** menu and the **LinkFax 10** item from the **Models** menu; then click on **Next** to confirm;
- select the **port** to which the facsimile machine is connected and click on **Next** to confirm;
- when the selected modem has been traced, click on **End** to confirm;
- click on **Close**.

## SENDING WITH THE PC

You can use the PC to send documents by means of the *Exchange* application:

- select **Programs → Accessories → Fax → Compose New Fax** from the **Start** menu;
- enter the data associated to the document to be sent and the *recipient*, following the instructions given by the **Compose New Fax** guide, then start transmission by clicking on **End**.

## RECEIVING WITH THE PC

In order to receive documents in your mailbox, the PC must be setup as follows:

- double click on the **Mail & Fax** icon on the **Control Panel**;
- double click on the **Microsoft Fax** item;
- click on the **Modem** box;
- select the **LinkFax 10** item and click on **Properties**;
- click on **Answer after xx rings** to set automatic reception after the required number of rings (**xx**).



## 5 SENDING AND RECEIVING VIA INTERNET

The Internet LinkFax application of Fax Manager enables you to *send and receive faxes* on the facsimile machine, as *electronic mail attachments* via *Internet*. This means that

### **FORTHE COST OF A LOCAL TELEPHONE CALL**

you can access all the standard communication possibilities, namely:

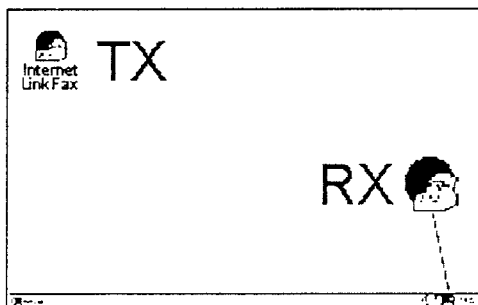
- among Internet LinkFax users who work for the same company, but in different places;
- between an Internet LinkFax user of a company and an Internet LinkFax user outside the company;
- between an Internet LinkFax user and any other Internet user.

It is also possible for an Internet LinkFax user to communicate with a non-Internet user. However, in this case, in addition to the cost of a local telephone call, there is also the cost of subscription to the Internet fax service provider.

The Internet LinkFax functions are dependent on the availability of the following:

- *electronic mail application* which is compatible with the specific Windows 95 interface (otherwise known as *MAPI support*), such as:
  - *Internet Mail*
  - *Netscape*
- Windows 95 *Exchange* application
- *connection to the Internet network* and *running link up*.

Sending and receiving are indicated by the *icon on the screen* (TX) and the *icon at the bottom of the screen* (RX), respectively:



### SENDING VIA INTERNET

As already mentioned, the documents sent are processed as *electronic mail attachments*, which are assigned a *name* (by default **Doc**) and a *format* (by default **PCX** for single-page documents and **DCX** for multipage documents).

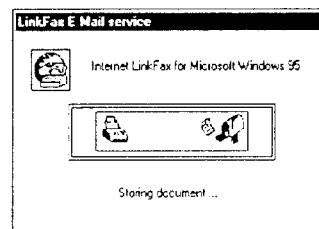
#### 1

Place the document to be scanned onto the document feeder (make sure that the number of *pages does not exceed* the maximum number supported by the facsimile machine).

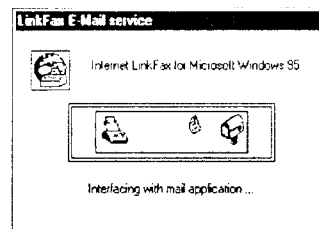
#### 2

Double click on the **Internet LinkFax** icon as it appears on the screen; the document is *read as during scanning* with the following default values:

- **Resolution:** 100 x 100
- **Contrast:** Normal
- **Image:** Text



... and *transferred* temporarily to the memory of the PC as an *attachment* with a fixed name and format.

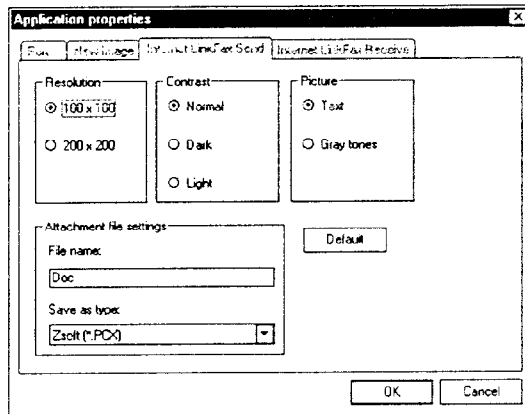


To set transmission parameters with values other than the default values, see the Section entitled **Setting the Transmission Parameters**.

# 10. USER GUIDE OF THE LINKFAX 10 MODULE IN WINDOWS 95 ENVIRONMENT

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- Upper part: **Resolution**, **Contrast**, **Picture**;
- Lower part: **File name** (name of attachment) and **Save as Type** (format of attachment).

## 2

Select the required values and click on **OK** to confirm.

## RECEIVING VIA INTERNET

If you have activated the electronic mail application, the Internet LinkFax application enables you to set the PC to **regularly poll** your mailbox (by default every 5 minutes) to see whether it contains any **electronic mail sent using Internet LinkFax**. This type of mail is identified by the label **LinkFax**: before the comment. As soon as the message is recognised, it is **automatically printed using the default printer** of the system.

To set the reception parameters with values other than the default values, see the section entitled **Setting the Reception Parameters**.

### WARNING

- If your system is connected to the facsimile machine via the **parallel port** and the default printer is **not the facsimile machine**, the Internet LinkFax electronic mail can be printed using one of the following procedures:
  - set the **facsimile machine** as the **default printer** (see **Setting the Printing Parameters** in Chapter 2);


or:

- connect the **default printer** to a port other than the fax port.

If **no physical printer has been set as the default printer** (for instance, a fax application), mail received will be transmitted as a fax instead of being printed.

- If **no electronic mail application** is installed, the associated icon at the bottom of the screen does not appear, and the icon displayed the screen is inactive. Whenever you wish to use the Internet LinkFax application, install the electronic mail application and restart the system.

When printed, Internet LinkFax electronic mail is preceded by a special **cover page**:

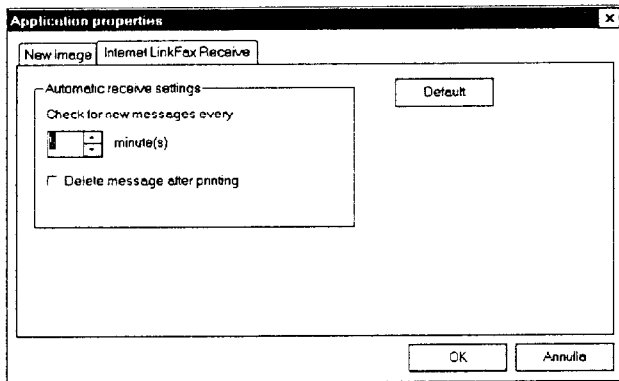
	<b>Internet LinkFax</b>
Subject :	
Received :	
From :	
To :	
Number of document pages (Cover included) :	
Message :	

... bearing the following information:

- **Subject**: comment relating to the document (not including the **Internet LinkFax** label);
- **Received**: date and time received;
- **From**: sender's identifier;
- **To**: correspondent's identifier;
- **Number of document pages (cover included)**:
- **Message**: any text that accompanies the attached document.

## Setting the Reception Parameters

Run the *Scanner application* and select **Options** from the **Tools** menu. Then click on **Internet LinkFax Receive**; a dialogue box is displayed for entry of the *reception* parameters.



- the value (in *minutes*) of the mailbox *polling time* (using the arrows beside the minutes field);
- the *deletion after printing* of text (**Message**) that accompanies the attachment (if required, mark the mailbox).

Once these settings have been made, each time Internet LinkFax mail is detected in the mailbox, it will be printed as soon as the default printer is available.

## Disabling Internet LinkFax Reception

If you wish to cancel automatic detection of Internet LinkFax electronic mail, click the *right mouse button* on the **Internet LinkFax** icon, which appears in the bottom right-hand corner of the screen. Then select **Exit**; the Internet LinkFax icon *disappears* and, from this moment on, this type of mail *will no longer be printed automatically*.

### WARNING

To restore the Internet LinkFax reception function, you must *restart Windows 95*.

# 6 LINKFAX 10 ACCESSORY FUNCTIONS

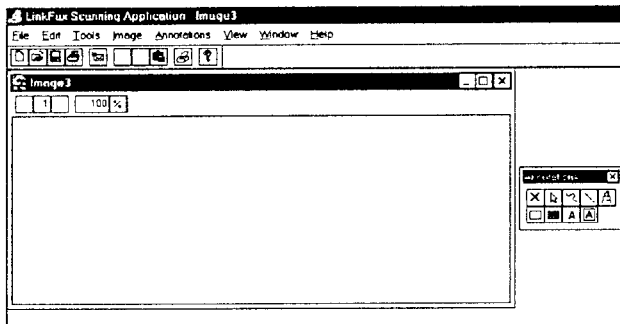
In addition to the functions already discussed, LinkFax 10 can also be used for:

- **File processing;**
- **New image creation.**

## FILE PROCESSING

LinkFax 8 enables you to process files using **standard Windows functions**, activated from the **File** menu:

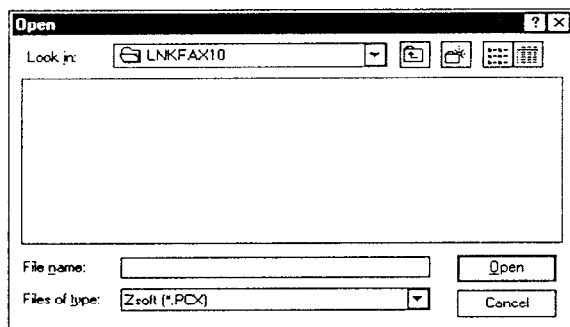
- Select **New**, to create a **new image**:



### WARNING

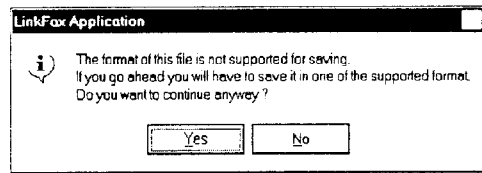
When creating a new image, LinkFax 8 enables you to **define its size** using the **Options** menu (see the section entitled **Creating a New Image**).

- Select **Open**, to open an **existing image**:



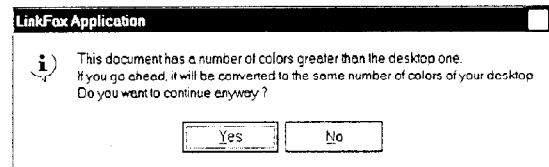
### WARNING

- If, clicking on **Open**, the following message is displayed:



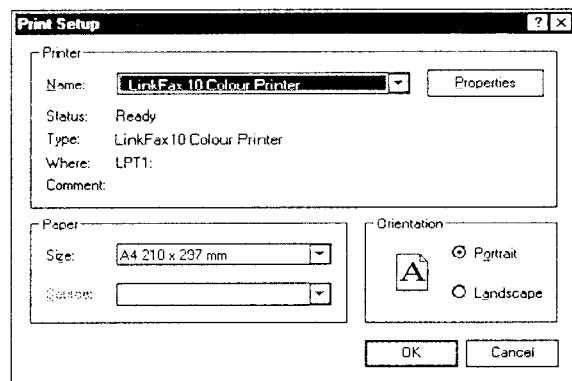
... this means that the file cannot be saved in that format. Therefore, although the file can be opened in the normal way, **it must be saved in one of the formats handled by the application.**

- If you try to open a file containing a **colour image** that has a colour definition greater than that of the screen, the following message appears:



You can opt either to open the image with the colour definition set for your screen (**Yes**), or decide not to open it (**No**).

- **Print setup**, to change the device where the file is to be printed:



## CREATING A NEW IMAGE

You can use LinkFax 8 to create **custom** images.

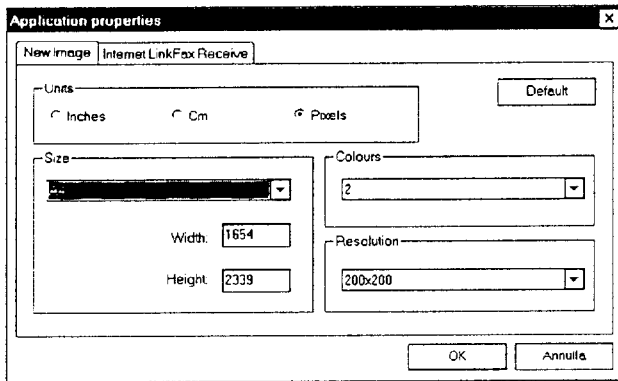
## ACCESSORY FUNCTIONS

### WARNING

Since LinkFax 8 is not equipped with graphics tools, you can only create images using the standard **Copy** and **Paste** functions.

**1**

Select **New Image** from the **Options** menu item on the **Tools** menu:



**2**

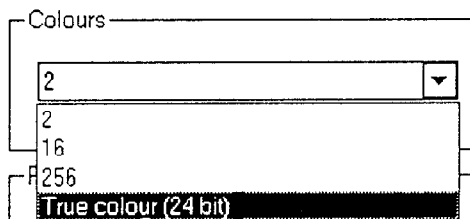
Select the **Units** of measurement to be used when creating the image (**Inch**, **Cm**, or **Pixel**).

**3**

Select the **Size** of the image from those given in the list (...). If you select **Custom** size, go on to select the **Width** and **Height** values.

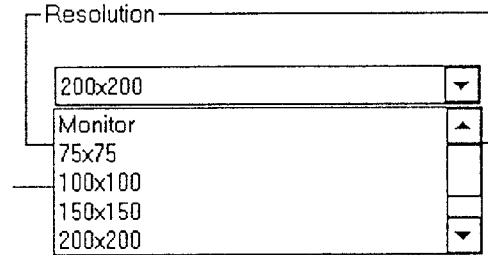
**4**

Select the **Colour** definition from the list:



**5**

Finally, select the **Resolution** of the image from those given in the list:



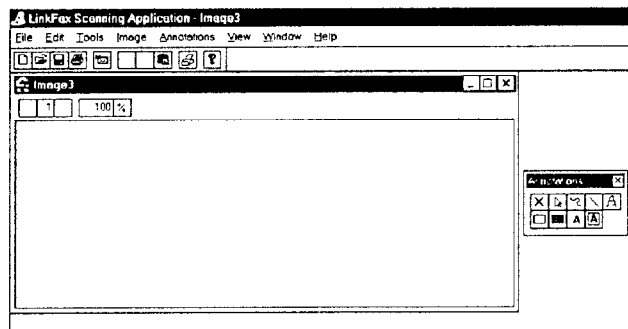
... then click on **OK** to confirm.

### WARNING

Select **Monitor** if you require *physical resolution* of your screen.

**6**

Select **New** from the **File** menu. A dialogue box is displayed to enable you to create an image of the size selected (8 x 3 cm in the example) in an **active area**:



**7**

Create the image inside the active area.

### WARNING

You can process the new image in the same way as any other acquired image (see the section entitled **Processing Images with LinkFax 8**).

## 7 PC-FAX TELEPHONE CONNECTION

Your fax machine can be used as a regular telephone, dialling numbers from the fax keypad (see the *User's Manual* of the fax machine).

With LinkFax 10 (if you install the Windows 95 application *Phone dialer* or a similar one) you can use the fax machine as a telephone working with the mouse or the PC keyboard.

### INSTALLING PHONE DIALER

THE *Phone dialer* application is a component of the *Communications* group included in the *Windows 95 Accessories*.

The installation procedure for the application depends on the version of the Windows 95 operating system installed on your PC.

For a correct installation, refer to the specific Windows 95 documentation you have been issued.

The *Phone dialer* application works also if you installed the modem previously (LinkFax 10 allows to transform your fax machine into a modem).

If you have not installed your modem yet, do so now through the *Control Panel*:

- double click **Modem**
- click **Add**
- select **Don't detect my modem; I will select it from a list** and confirm (**Next**)
- select **LinkFax** under the **Manufacturers** menu and the item **LinkFax 10** in the **Models** menu, then confirm (**Next**)
- select the **port** you connected the fax machine to and confirm (**Next**)
- after the selected modem has been found, confirm (**Finish**)
- click **Close**.

### USING PHONE DIALER

For the use of the *Phone dialer* application, consult its on-line help (Menu"").

The application allows to:

1. dial numbers with the mouse or from the keyboard of your PC
2. store the most frequently used numbers on the eight buttons of the application's dialogue box, which you can activate with a click of the mouse
3. record all calls made on a log that indicates number, date, start time and duration of the conversations
4. use other features (see the application's on-line Help).

### CAUTION

Before dialling the number, **first pick up the handset** of the fax machine and **then click Talk**, to avoid hanging up.

If you want to record the call on the application's log, click **Talk** (at the start of the conversation) and **Hang up** (at the end of the call).

The start time and the duration of the call, indicated in the call log, are not the actual ones but those determined by these two clicks.







## ACCESSING ONLINE HELP

As already mentioned, specific online help for each LinkFax 10 function can be accessed via icons in the **LinkFax 10** window.

When you select a specific guide by double-clicking on the associated icon (e.g. **Printer Help**), the corresponding help window is displayed:

### 1

Double click on the item you wish to refer to (e.g. **How to use help**) and the corresponding help page will be displayed.

### 2

Follow the instructions given in the guide.

## PRINTING THE USER GUIDE

The on-line **User Guide** (divided into chapters, with cover, table of contents and numbered pages) provides the **Operating Instructions** of all LinkFax 10 functions. If you wish to print these instructions, double click the **User Guide** icon on the **LinkFax 10** group, then double click on the **Print User Guide** item and follow the corresponding instructions.

### WARNING

The User Guide can only be accessed and printed *if the Acrobat Reader application is present*. If this application has not been installed yet, install it now proceeding as follows:

1. Power on the PC on and enter **Windows 3.1x**, then insert the **CD** in the **CD ROM drive**.
2. Select **Run** from the **File** menu of **Program Manager** and type **x:\acrobat\acroread**, where **x** is the name of the CD ROM drive (for instance, **d**); then confirm (**OK**).
3. Follow the instructions provided, until the conclusion of the installation procedure.

■

# 1 INTRODUCTION

**LinkFax 10** is a software communication module that transforms bubble ink jet facsimile machines into *multifunctional products* running under *Windows 3.1x*.

In fact, once they have been *connected to a Personal Computer*, they may be used above all as a *graphic printer*. Documents such as letters, drawings or spreadsheets prepared using standard *Windows* applications may therefore be *printed by the facsimile machine*.

Alternatively, they may be used as a *scanner* for acquiring documents on the PC.

Finally, with the aid of the *WinFAX* application (manufactured by *Delrina* in Canada), documents can be *transmitted directly from the PC*. Incoming faxes can also be *stored on the PC* and then displayed and processed using standard *Windows* applications.

This guide describes how to install the LinkFax 10 module in Windows 3.1x. The LinkFax 10 module is supplied on *Compact Disc* and comes with the following:

- this "*Guide to Installation*"
- one *parallel cable*
- one *print head container*.

Instructions on how to use the various functions of **LinkFax 10** are available both *on-line* (specific Guide) and in *printable format* (User Guide).

## SYSTEM REQUIREMENTS

The communication software of the **LinkFax 10** module can only be installed on an *IBM-compatible* PC with the following *recommended minimum configuration* (the minimum configuration supported is shown in brackets):

- processor      **486 - 50 MHz** (486 - 33 MHz)
- RAM            **8 Mbytes** or more (4 Mbytes)
- monitor                              **VGA** or higher
- MS-DOS version                      **5.00** or higher

- Windows version                      **3.11**  
(3.1 in enhanced mode)

- *CD ROM* drive.

(\* ) The installation CD can be copied on **3.5" diskettes** to install LinkFax 10 on PCs **not equipped with CD ROM drive**. See the Creating 3.5" installation diskettes in the **Installation for Windows 95 guide**.

### WARNING

To install the WinFax application, you must *first install the LinkFax 10 module* and have *enough free space on the hard disk*. The amount of space required depends on the type of installation that you wish to carry out (i.e. maximum, minimum, or personalised) and is indicated in the documentation associated with the application.

During installation of the WinFax application, you must check that the *type of modem* is **CAS** (and change the setting, if necessary).

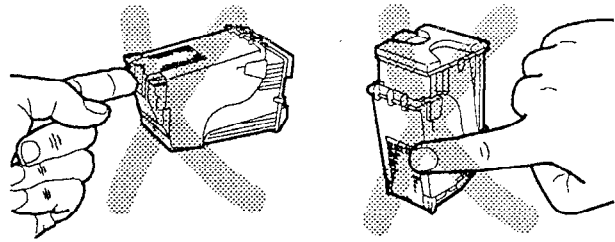
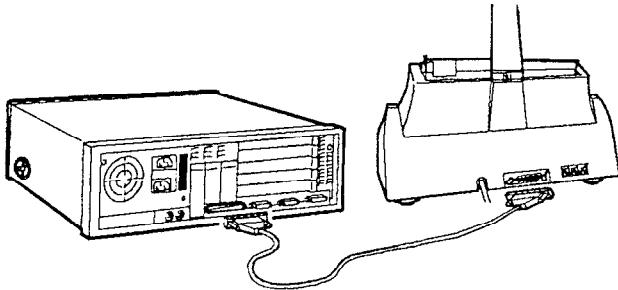
Furthermore, since your facsimile machine *automatically inserts a heading* for each document sent, make sure that *a second heading is not added* by the WinFax application. To do this you should either *avoid entering a heading* when prompted to do so, or *cancel the heading* proposed by the application, depending on the version of WinFax to be installed.

### IMPORTANT

- On completion of the WinFax installation procedure, make sure that there *are at least 1.5 Megabytes of free space on the hard disk*. You must also have at least this amount of free space *when using the LinkFax 10 module*.
- If you *do not install* WinFax, *disable the Automatic Reception* (refer to the paragraph **Receiving a document** in the User Guide).

## CONNECTING THE FACSIMILE MACHINE TO THE PC

The facsimile is connected to the PC by means of the *parallel cable*, as shown below:



- *never try to re-load* the print head, as this could damage the print head or the facsimile;
- always place the *print head not in use* in the special container:

## PRINT HEAD PRECAUTIONS

The bubble ink jet facsimile machine uses both monochrome (black) and colour print heads:

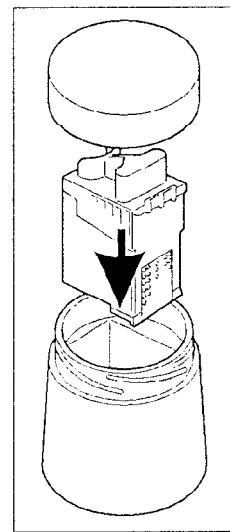
- *monochrome*, for use with the *facsimile*, or the *printer* in *black and white* mode;
- *colour*, for use with the *printer* in *colour* mode.

### WARNING

When the colour print head is installed, the documents received will *not be printed straight away*, but stored in the memory of the facsimile machine. Once the memory is full, the facsimile will no longer be able to receive documents, so *always remember* to replace the monochrome print head each time the facsimile is reset.

Since it will be necessary to change the print head regularly, depending on what the facsimile is to be used for, take note of the following precautions:

- *do not touch, or stand* the print head on the *ink jets* or the *contacts*:



This will ensure long life and efficiency of the print head and a high print quality.

- Try *not to get ink on hands or clothes*, as it is very difficult to remove.

### VERY IMPORTANT

The facsimile machine automatically recognises the type of print head installed and checks the level of ink remaining by means of a special internal counter. When there is no ink remaining, the message **OUT OF INK** appears on its display.

In order for the ink level monitored by the internal counter to be consistent with the actual level contained the print head, *never install the print heads of one facsimile machine onto another facsimile machine or bubble ink jet printer.*

## 2 INSTALLING THE LINKFAX 10 MODULE

The **LinkFax 10** communication module consists of *two main components*, which can be selected individually:

- 1 **Utility module:** acquires black and white images via the facsimile machine (*scanning*), irrespective of the application that will be used to process them. It also *enables the PC to send and receive*.

**WARNING**

- The utility module *does not allow* documents to be sent and received. These functions are performed by the *WinFax* application, which must be installed after the utility module.
- The scanned documents can be stored in **DCS**, **PCX**, **BMP** and **TIF** formats and are handled directly by standard *Windows* applications, or they can be made available to the *WinFax* environment.

- 2 **Printer driver:** handles the facsimile machine as a *graphic printer*, with a maximum resolution of 300 dots per inch.

The Compact Disk supplied with the kit also contains the installation program. This program guides you through a series of dialog boxes to enable you to install what you require onto the hard disk of your PC.

**WARNING**

The following general conditions apply to the dialog boxes that appear during the installation procedure:

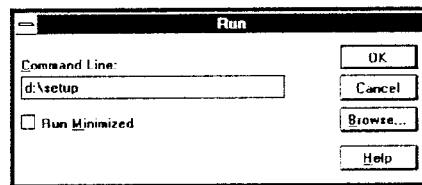
- *optional elements* can only be *selected using the mouse*;
- *buttons* can be *selected* either using the mouse, or by pressing the ← and → arrow keys;
- the *selected button* can be confirmed using the *mouse*, or by pressing the **Enter** key.

**1**

Power on the PC, wait for *Windows 3.1x* to start and then insert the *CD in the CD ROM drive* (e.g. **d:**).

**2**

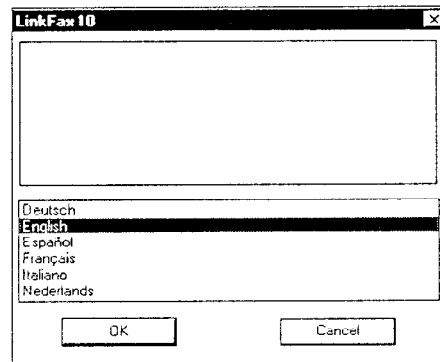
Select **Run** from the **File** menu of **Program Manager** and type **x:\setup**, where **x** is the name of the drive (for example, **d**).



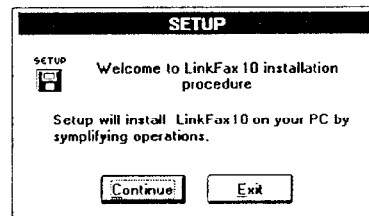
... then click on **OK** to confirm.

**3**

Select your *mother language* ...



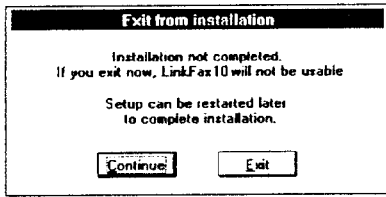
... and click on **OK** to confirm. A welcome message appears explaining how to continue (**Continue**), or abort the installation procedure (**Exit**):



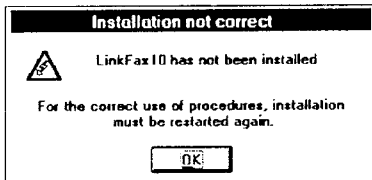
**WARNING**

You can abort the installation procedure from any of the dialog boxes that appear from now

on. If you decide to abort the procedure (**Exit**) .. you have first to confirm it (**Exit**):

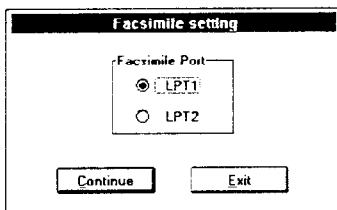


... to return to Windows 3.1x:

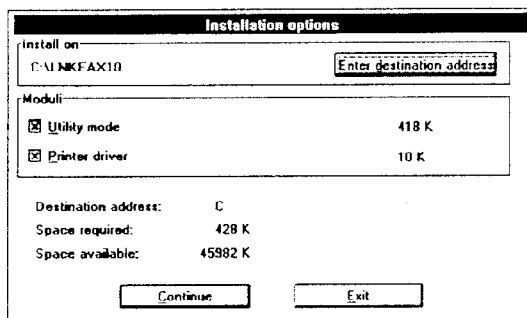


If you abort the installation procedure, *none* of the items selected *will be installed*.

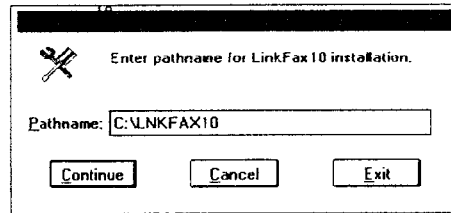
**4** Select the *port* to which the facsimile machine has been connected:



**5** Select the *components* you wish to install:

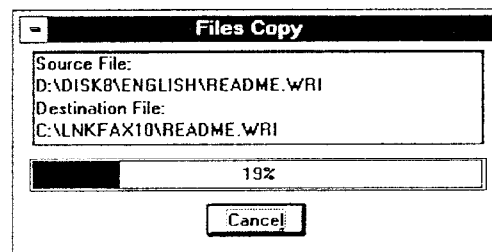


**6** If you do not wish to change the predefined installation path (*c:\linkfax10*), click on **Continue** to confirm and go straight to step 8. Otherwise, click on **Enter destination address**:

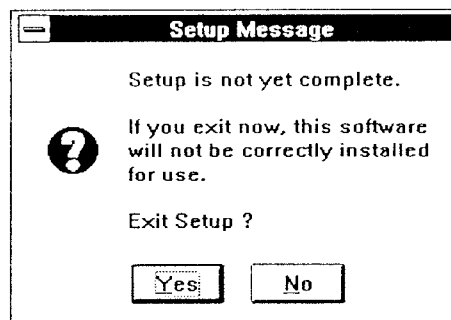


**7** Type the new path and click on **Continue** to confirm: the dialog box described in step 5 is displayed again with the new path to be confirmed.

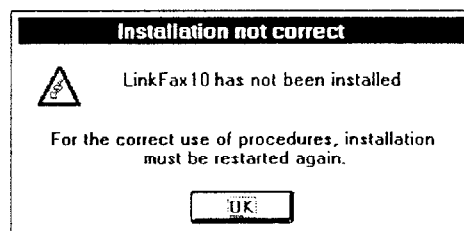
**8** A dialog box enables you to keep track (in %) of the files being installed from the CD to the hard disk:



**WARNING** If you click on **Cancel** while the files are being loaded, this will interrupt the installation procedure:



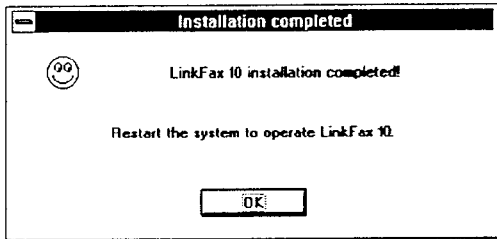
Click on **Yes** to confirm:



... then click on **OK**.

**9**

On completion of the installation procedure, a dialog box prompting you to restart the system appears:



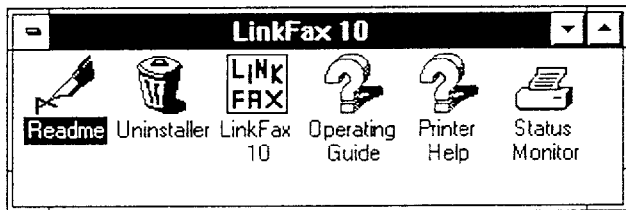
Click on **OK** to confirm; the system is restarted automatically.

If you have installed the **Utility module**, the *LinkFax group 10* icon appears automatically when Windows 3.1x is restarted.



**10**

Double click on the group icon to check that it has been installed correctly:



**UPDATING THE LINKFAX 10 MODULE**

Having performed the initial installation of the LinkFax 10 module, you may need to carry out one of the following procedures:

- **Adding components** to a previous partial installation: repeat the installation procedure by selecting the required elements.
- **Updating the current version** of the module: perform the installation procedure, re-selecting the required components and applications. During installation, any elements that were not included in the previous version will be **added** and the existing elements will be **updated**.

**WARNING**

If, for the update, you select a different mother language from the previous installation, a message will appear on the PC's screen to inform you of this and to allow you to continue the update or to abort it.

If you are installing a less recent version of LinkFax10 than the one you are trying to update, a message will also appear on the PC's screen to inform you of this and to allow you to continue the update or to abort it.

**UNINSTALLING THE LINKFAX 10 MODULE**

**1**

Double click on the **Uninstaller** icon in the **LinkFax 10** group; a message alerts you that running the uninstaller will erase the LinkFax 10 installed. You can continue the uninstallation procedure or abort it.

**2**

If you want to continue, confirm uninstallation (**Yes**); the LinkFax 10 module is completely removed with all its references (group, items, icons).

**3**

The display will show a message indicating the successful completion of the uninstallation procedure.

Confirm (**OK**).

# 11. INSTALLATION OF THE LINKFAX 10 MODULE IN WINDOWS 3.1x ENVIRONMENT

## CONTENTS

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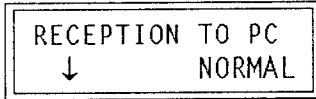
<b>1 INTRODUCTION</b>	<b>2</b>
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**2**

Set the *reception parameters*, in this case just the **Automatic Reception** parameter. Click on the box until the cross *appears* and click on **OK** to confirm. During reception, the facsimile machine will display the following message:



RECEPTION TO PC  
↓            NORMAL

**WARNING**

If you wish to *disable reception on the PC*, click on the box until the cross *disappears*.



## 2 USING THE FACSIMILE MACHINE AS A PRINTER

Once the *Printer driver* of the LinkFax 10 module has been installed (**LinkFax 10 Colour Printer**), the facsimile machine automatically becomes the *default printer*.

### SELECTING THE PRINTER DRIVER

To select the LinkFax 10 printer driver, proceed as follows:

**1**

Double click on the **Control Panel** icon and then double click on the **Printers** icon.

**2**

Select **LinkFax 10 Colour Printer** from the list of **Installed Printers**, then:

- click on **Set as Default Printer** to setup the facsimile machine as the **default printer**, therefore taking priority over any other printers installed;
- if you wish to *optimise the sharing of resources*, disable the **Use Print Manager** function, by clicking on the appropriate box until *the cross disappears*.

**3**

Click on **Connect** and select the name of the *parallel port of the PC* (LPT1 or LPT2) to which the facsimile machine is connected. Then:

- if you wish to *optimise the printing speed* of the facsimile machine, check that the **Fast Printing Direct to Port** function is enabled by clicking on the appropriate box until the *cross appears*. Then *disable automatic reception*, as described in the section entitled **Receiving a Document**.

**4**

Click on **OK** to confirm and then click on **Close**, to close the **Printers** dialogue box.

### SETTING THE PRINTING PARAMETERS

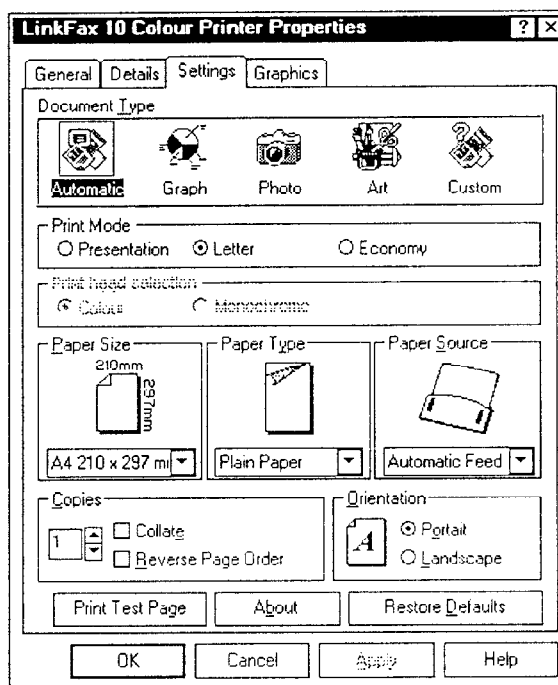
Once the **LinkFax 10 Colour Printer** has been installed, you can set the *printing parameters*

for the images or documents that you wish to print from the application of your choice.

The driver **Properties** can be accessed either via the **Status Monitor** (see section entitled **Checking the Printer**), or by performing the instructions set out below from the application you are using:

**1**

Select **Print Setup** from the **File** menu and enter the basic printing parameters: page **Orientation** (portrait or landscape), **Paper size**, paper **Feed** (manual or automatic). Then click on **Options**:



... and select the following:

- **Document Type:**
  - **Automatic**, to set up *automatic detection* of the document to be printed: **black and white**, **colour**, or **mixed** (part black and white and part colour);
  - **Graph**, to print documents created using *computer graphics*;
  - **Photo**, to print *photographic images*;
  - **Art**, to print *drawings*;
  - **Custom**, to print special documents *created by you*.


- **Print Mode**, to set the best conditions for the type of image to be printed:
  - **Presentation**, to print *high definition images* (e.g. photographs, histograms, slides, etc.) and *quality black/white texts*;
  - **Letter**, to print *text* or *standard graphics*;
  - **Econofast**, to print *drafts*.
- **Print head selection**, to set the type of *print head*:
  - **Colour**;
  - **Monochrome**.

**WARNING**

This parameter will be *disabled* if the document type selected is anything other than **Automatic**.

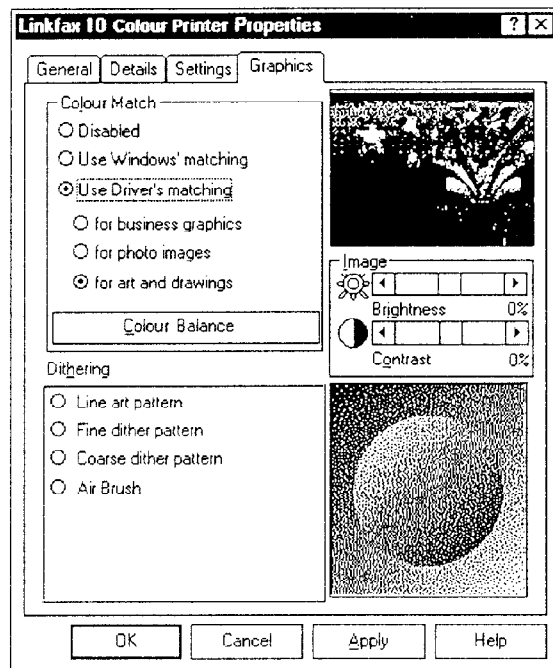
- **Paper Size**, to set the *size* of the paper being used by the facsimile machine: **A4**, **Letter**, **Legal**.
- **Paper Type**, to set the *type* of paper being used by the facsimile machine: **Plain Paper**, **Transparency Film (with backing)**, **Transparency Film with Border**, **Glossy Paper**, **Coated Paper**, **Thick Paper**.
- **Paper Source**, to set the way in which the paper is to be fed into the facsimile machine:
  - **Automatic Feed**, if the paper in the paper tray can be easily fed into the facsimile machine: this is the case of **plain paper**.
  - **Manual Feed**, if the paper to be used is not *easily fed* into the facsimile machine (i.e. it is too thick, too heavy or too smooth), or in the case of *transparency film with border*, *thick paper* and special paper (*glossy, coated and transparency film*).
- **Orientation**, to set the page orientation for the image to be printed (**Vertical** or **Horizontal**).
- **Copies**, to select the number of copies to be printed of the document and the *order* in which the pages are to be printed: **Collate (increasing order per groups)**, or **Reverse Page Order (decreasing order)**.

**WARNING**

Since the facsimile machine has *no resident character sets (FONTS)*, you can only use the characters offered by the application in use. For this reason, it is recommended that you use **True Type** characters (those preceded by the ) to ensure that they are printed correctly.

**2**

Click on the **Graphics** box if you wish to print a complex photographic image:

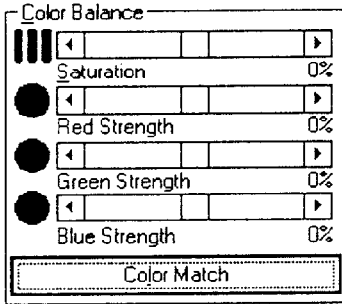


... and select:

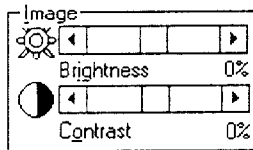
- **Colour Match**, to improve colour *reproduction on paper*. This so-called *balancing* operation is necessary because the screen's chromatic definition is much higher than the print definition.
  - **Disabled**, to maintain the *original colours* of the image to be printed;
  - **Use Windows' matching**, to match the colours using the Windows method;
  - **Use Driver's matching**, to match the colours using the method operated by the **LinkFax 10 Colour Printer**.
- **Colour Balance**, to balance the colours of the image to be printed *manually*. In this

USING THE FACSIMILE MACHINE AS A PRINTER

case, the *colour selectors* will appear on top of the colour match section:



- **Brightness and Contrast of the Image:**



**WARNING**

Once the relevant parameters have been set, the image will appear in colour at the top right of the screen.



To complete the setup, select:

- **Dithering:** the resulting image will appear in colour at the bottom right of the screen.

- Line art pattern



- Fine dither pattern



- Coarse dither pattern

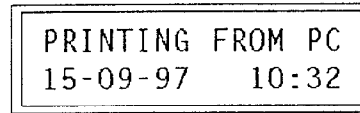


- Air Brush

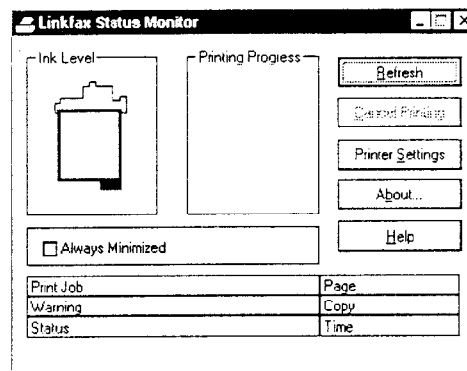


**PRINTING WITH LINKFAX 10**

After installing the **LinkFax 10 Colour Printer**, select it from the application in which you want to work. The facsimile machine will be activated and the following message appears on the facsimile display:



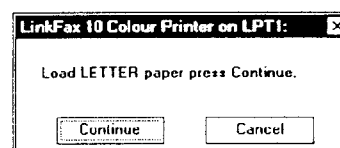
... and the relative dialogue box (**Status Monitor**) is displayed on the PC monitor:



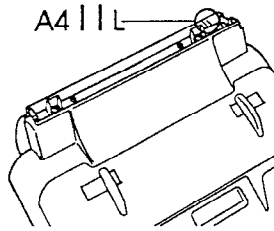
... containing standard Windows data: **Printing Progress** of the current document, name of the **document being printed (Print Job)**, current **Page, Copy** number and **Time** elapsed. The Status Monitor dialogue box remains active for the duration of the printing process and printing can be *interrupted* at any time by clicking on **Cancel Printing**.

**WARNING**

- If you activated the **Use Print Manager** function and you wish to interrupt the current print job, press the **STOP** button on the facsimile machine and then *cancel* the document being printed by **Print Manager**.
- If you set *manual feed*, **remove the paper tray** from the facsimile machine and then start the print: The following message will appear after the Status Monitor:

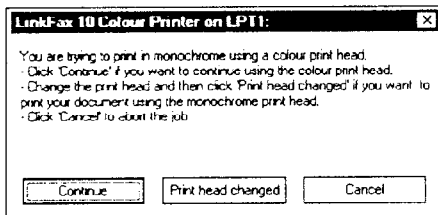


... prompting you to insert *one sheet of paper*, which must be aligned with the reference marks that correspond to the paper format (**A4** or **Letter**):

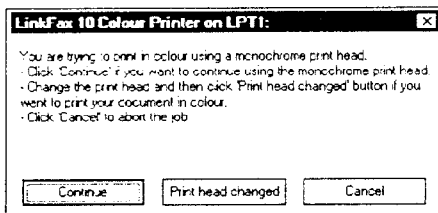


Once the paper has been inserted, printing begins in the normal way. If there is *more than one page* to be printed, you are prompted to insert another sheet of paper each time a page has been printed.

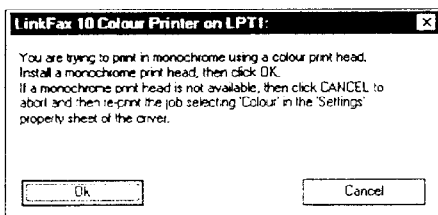
- If **Document & Type** is set to **Automatic** and it *does not correspond to the type of print head* installed, you will be prompted to replace the print head:



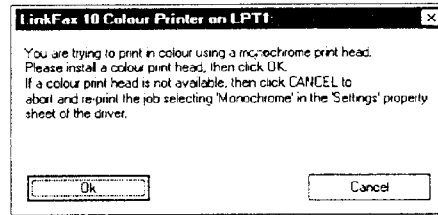
OR:



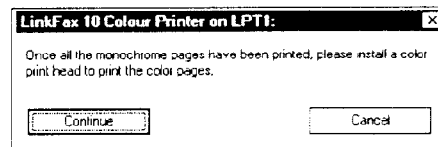
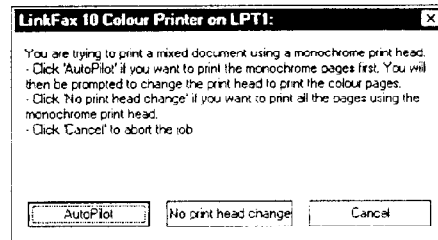
- If the type of document set is *not Automatic* and the print head selected is *different to the one installed*, you will be prompted to change the print head:



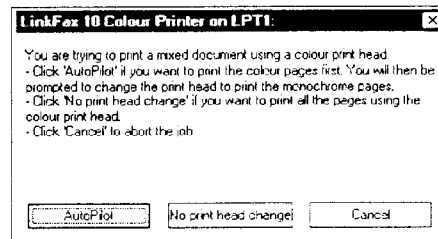
OR:



- If **Document & Type** is set to **Automatic** and you are printing a *mixed* document, instructions on how to begin printing are displayed:



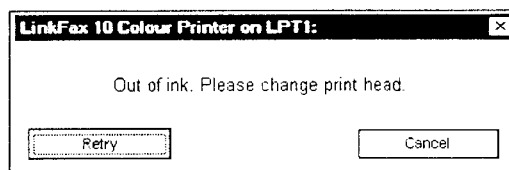
OR:



- When the print head is finished, the following message appears:

OUT OF INK

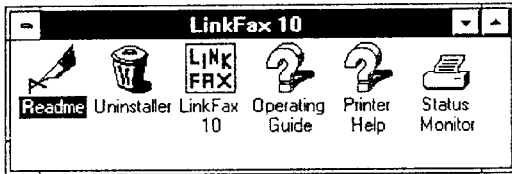
If a *refillable* print head is in use, the following message appears on the PC monitor:



## CHECKING THE PRINTER

You can *only* check the status and configuration of the printer *before starting or on completion of the print process*.

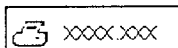
Double click on the **LinkFax 10** group icon:



... and double click on the **Status Monitor** icon: the corresponding dialogue box is displayed, allowing you to check the following:

- the **Ink Level** of the print head: click on **Refresh** and the level (or three levels in the case of a colour print head) is highlighted on the print head image;
- the **printer settings**: click on **Properties** and the dialogue box associated to the **Properties** of the **LinkFax 10 Colour Printer** is displayed.

You can *reduce* the Status Monitor dialogue box (which remains active for the duration of the printing process) to an *icon*. To do this, click on **Always minimized** and it will appear at the bottom of the screen as an icon when the next print process is activated.



... where **xxxx.xxx** indicates the name of the *file being printed*.

### 3 USING THE FACSIMILE MACHINE AS A SCANNER

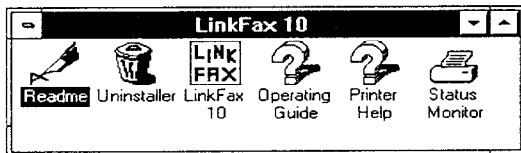
The **LinkFax 10** communication module makes it possible for the facsimile machine to be used as a *scanner* to scan in documents.

#### SETTING THE PC TO USE THE FACSIMILE MACHINE AS A SCANNER

In order for your facsimile machine to be used as a scanner, the parallel port of the PC must be setup as described below:

**1**

Double click on the **LinkFax 10** group icon:



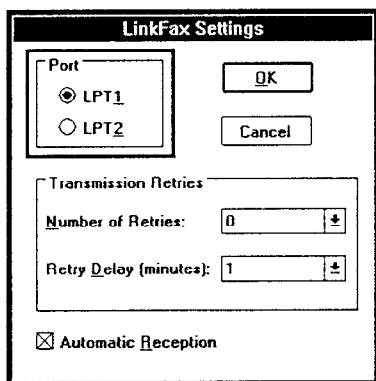
**2**

Double click on the **LinkFax 10** icon to enter the *communication environment*.



**3**

Click on the  icon:



**4**

Click on the name of the *PC port* (LPT1 or LPT2) to which the facsimile is connected and click on **OK** to confirm.

#### SCANNING WITH THE FACSIMILE MACHINE

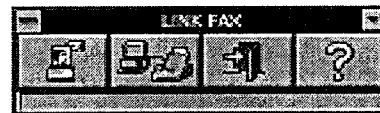
The *scanning* of a document using the facsimile machine is performed in the *communication* environment, whereas the document is *managed* in the *Windows* or *WinFax* environment.


**1**

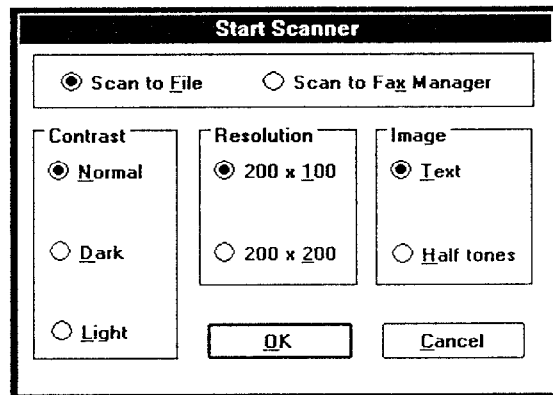
Place the document to be scanned onto the document feeder (make sure that the number of *pages does not exceed* the maximum number supported by the facsimile machine).

**2**

Move to the *communication environment*.



... and click on the  icon:



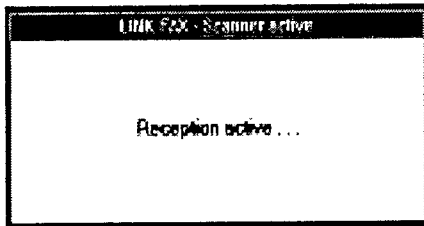
**3**

Set the *scanning parameters*:

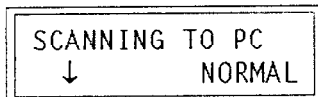
- **Scan to File**, to assign a *name*, *format* and *destination file* to the acquired document;
- **Scan to Fax Manager**, with predefined name and format;
- **Contrast**: normal, dark, or light;
- **Resolution** in dpi (dots per inch): 200 x 100, or 200 x 200;
- **Image**: **Text** (line art), **Gray tones** (with *64 shades* of gray);

## USING THE FACSIMILE MACHINE AS A SCANNER

... and click on **OK** to confirm. The PC displays this message:



... and the facsimile machine displays this message:

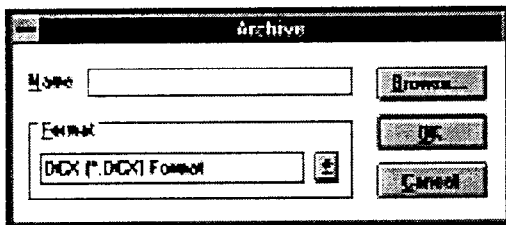


### WARNING

Contrast and resolution are the two factors that contribute to the sharpness and definition of the scanned image. The various settings should therefore be made in accordance with the characteristics of the image.

## Scan to File

The document is read by the facsimile machine and **sent to the PC**. On completion of the scanning process, the PC displays a dialogue box:



... where the characteristics of the **destination file** must be entered:

- **File name:** the **maximum number of characters** that can be assigned to a name, depending on the format the file is to be saved in:
  - **8 characters**, for **DCX** format, where **all the pages** of the scanned document are stored in a **unique file**;
  - **5 characters** for **BMP, PCX** or **TIF** formats, where **each page is stored in a separate file**. Each file will have the name you specified, plus a **progressive number** assigned

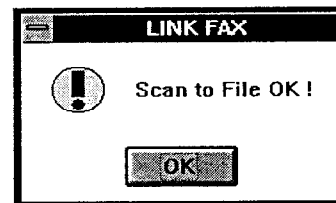
automatically, to make up the 8 characters (e.g. xxxxx001, xxxxx002, etc. or xxx00001, xxx00002, etc.)

- **Format:** the format in which the file is to be saved is **independent of the scanning resolution**;
- **Browse:** to select the **destination path**.

### WARNING

If no destination path is specified, the file will automatically be saved in the directory where you have installed the **Linkfax 10** module.

Click on **OK**; the following message is displayed confirming that the document has been saved to file:



Click on **OK**; the acquired document can now be managed using your preferred application.

## Scan to Fax Manager

The document is read by the facsimile machine and **sent to the PC**. It is **automatically** stored by the PC and made **available to the WinFax environment**, that allows resolutions of 200 x 100 and 200 x 200. On completion of the scanning process, the following message is displayed confirming reception of the document:



Click on **OK**; the acquired document can now be managed using your preferred application.

## Interrupting the Scanning Process

To interrupt the current scanning process, press the **STOP** button on the facsimile machine.



## 4 SENDING AND RECEIVING DOCUMENTS

For information on how to send and receive documents, refer to the documentation provided with the *WinFax* application.


### SENDING A DOCUMENT

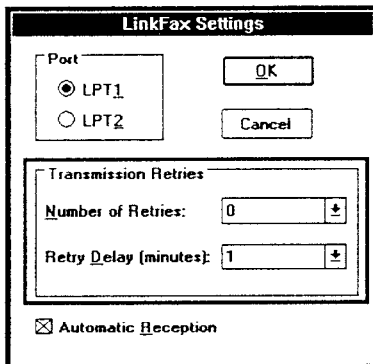
Before sending a document, you can set the following parameters:

**1**

Move to the *communication environment*.



... and click on the  icon:

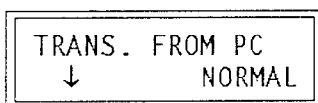


**2**

Set the transmission parameters:

- **Number of retries:** click on the arrow to set the number of *times* you wish to remake the call, from **0** (no retry) to **5**;
- **Retry Delay:** click on the arrow to set the number of *minutes* (from 1 to 10) that are to lapse between one retry and the next;

... and click on **OK** to confirm. When you start a transmission within WinFax, the facsimile machine will display the following message:



#### WARNING

- When dialling the *telephone number*, you

can use the following (as on the facsimile machine):

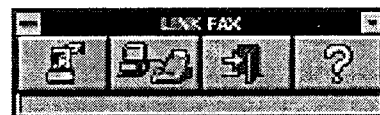
- the digits **0 to 9**
  - the \* and # characters
  - the letter **E**, to *connect to the public network* (when connected to a PBX)
  - the letter **p** (lower case) to insert a *pause between the digits*
  - the : character for the "*second tone*" feature.
- Since the facsimile machine *automatically assigns a header* to each document transmitted, *you must not assign another header* from the WinFax application. Likewise, (depending on the WinFax version installed on your PC), *do not type in the header* when prompted to do so; otherwise *delete the header* automatically proposed by the application.


### RECEIVING A DOCUMENT

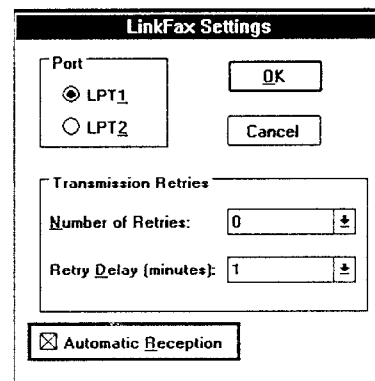
Before receiving a document, you can set the following parameters:

**1**

Move to the *communication environment*.



... and click on the  icon:



# 12. USER GUIDE OF THE LINKFAX 10 MODULE IN WINDOWS 3.1x ENVIRONMENT

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### **4 SENDING AND RECEIVING DOCUMENTS 10**

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# **FX 500 - FX 505**

# **FX 510 - FX 505 CE**

# **FX 510 CE**

## **SPARE PARTS CATALOGUE**

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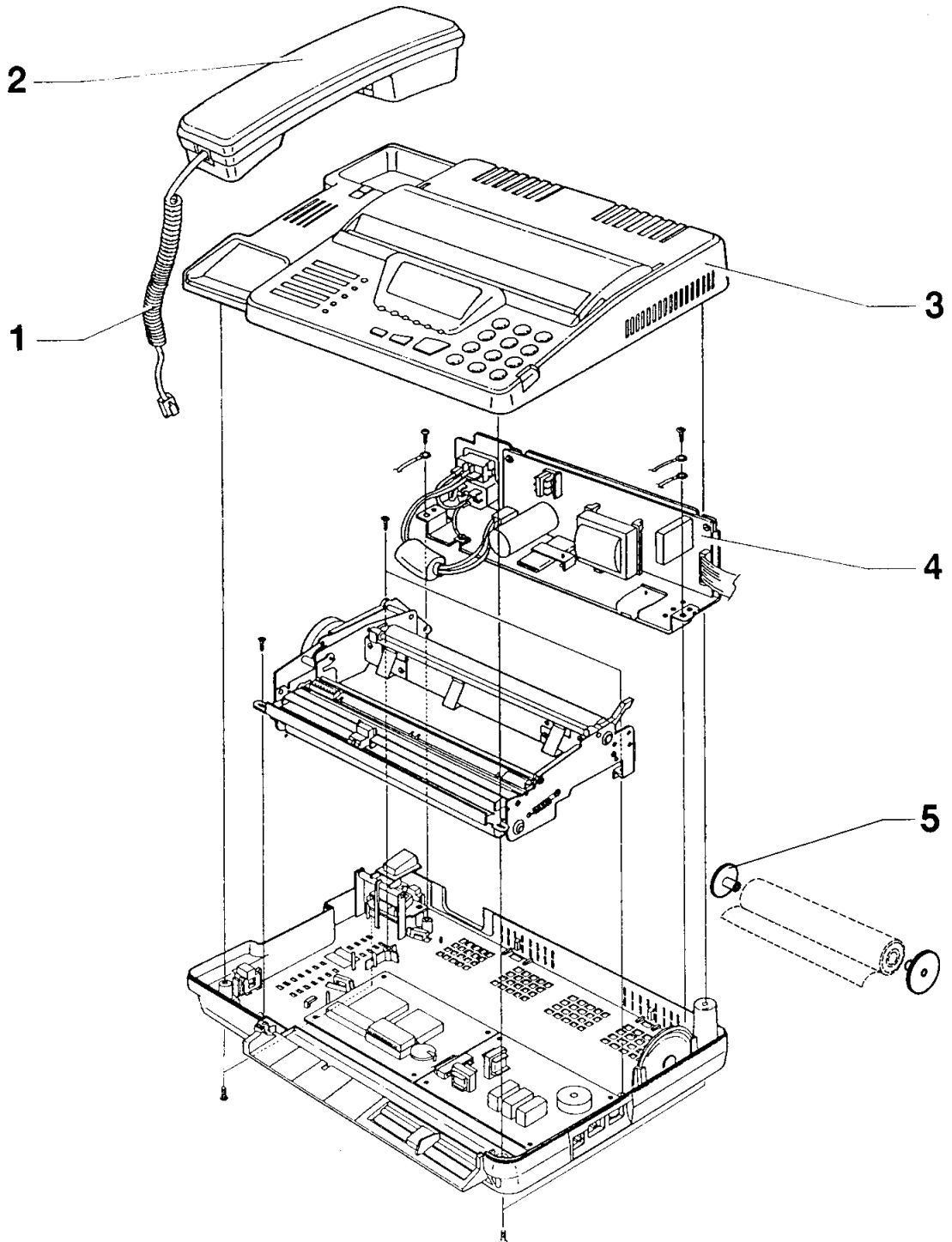
## SPARE PARTS LIST

REF.	T.A. PART HS000.	OLIVETTI PART	DESCRIPTION	QUANTITY	
				220V	240V
1	HF321.0000A		CORD CURL		
2	HF430.0000A		HAND SET		
3	HF420.0000A		FX 505 PANEL TOP ASSY		
	HF420.0000B		FX 500 PANEL TOP ASSY		
	HF420.0000X		FX 510 PANEL TOP ASSY		
4	HF411.0900A		POWER SUPPLY		
5	HF470.0000A		PAPERHOLDER		

- 
- parts with "•" are component parts or sub-assemblies of the assembly appearing immediately above them.
  - parts with "••" are component parts or sub-assembly with "•" appearing immediately above them.

# SPARE PARTS LIST

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## SPARE PARTS LIST

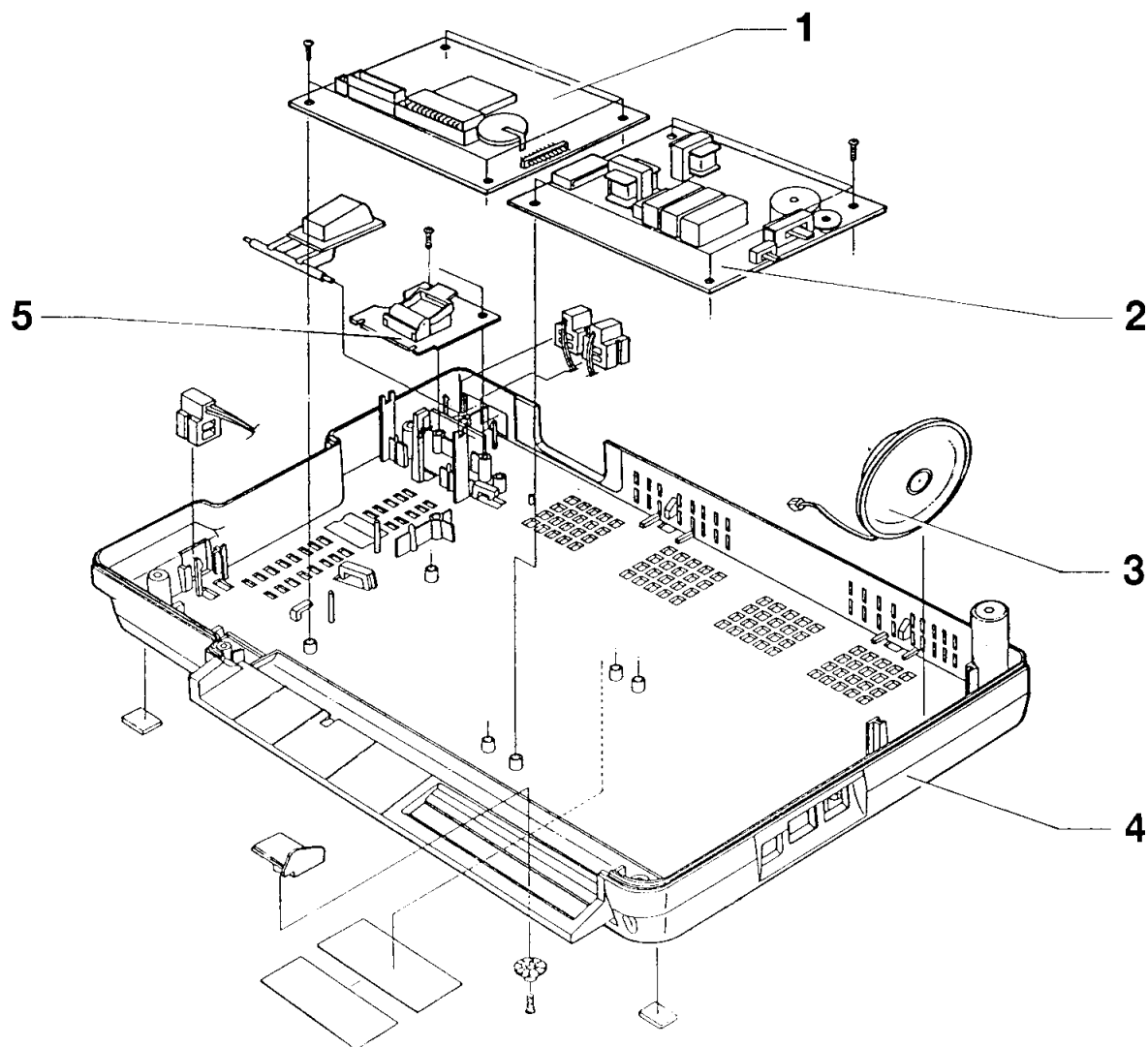
REF.	T.A. PART HS000.	OLIVETTI PART	DESCRIPTION	QUANTITY	
				220V	240V
1	HF411.0200A		MAIN PCB FX 505		
	HF411.0200B		MAIN PCB FX 500		
2	HF411.0200X		MAIN PCB FX 510		
	HF411.0300A		TEL-PCB		
	HF411.0300X		TEL-PCB 510		
3	HF411.0800A		SPEAKER		
4	HF411.0100A		BASE		
	HF411.0600A		HOOK SWITCH PCB ASSY FX500 / FX 505		
5	HF411.0600X		HOOK SWITCH PCB ASSY FX510		

- 
- parts with "•" are component parts or sub-assemblies of the assembly appearing immediately above them.
  - parts with "••" are component parts or sub-assembly with "•" appearing immediately above them.



# SPARE PARTS LIST

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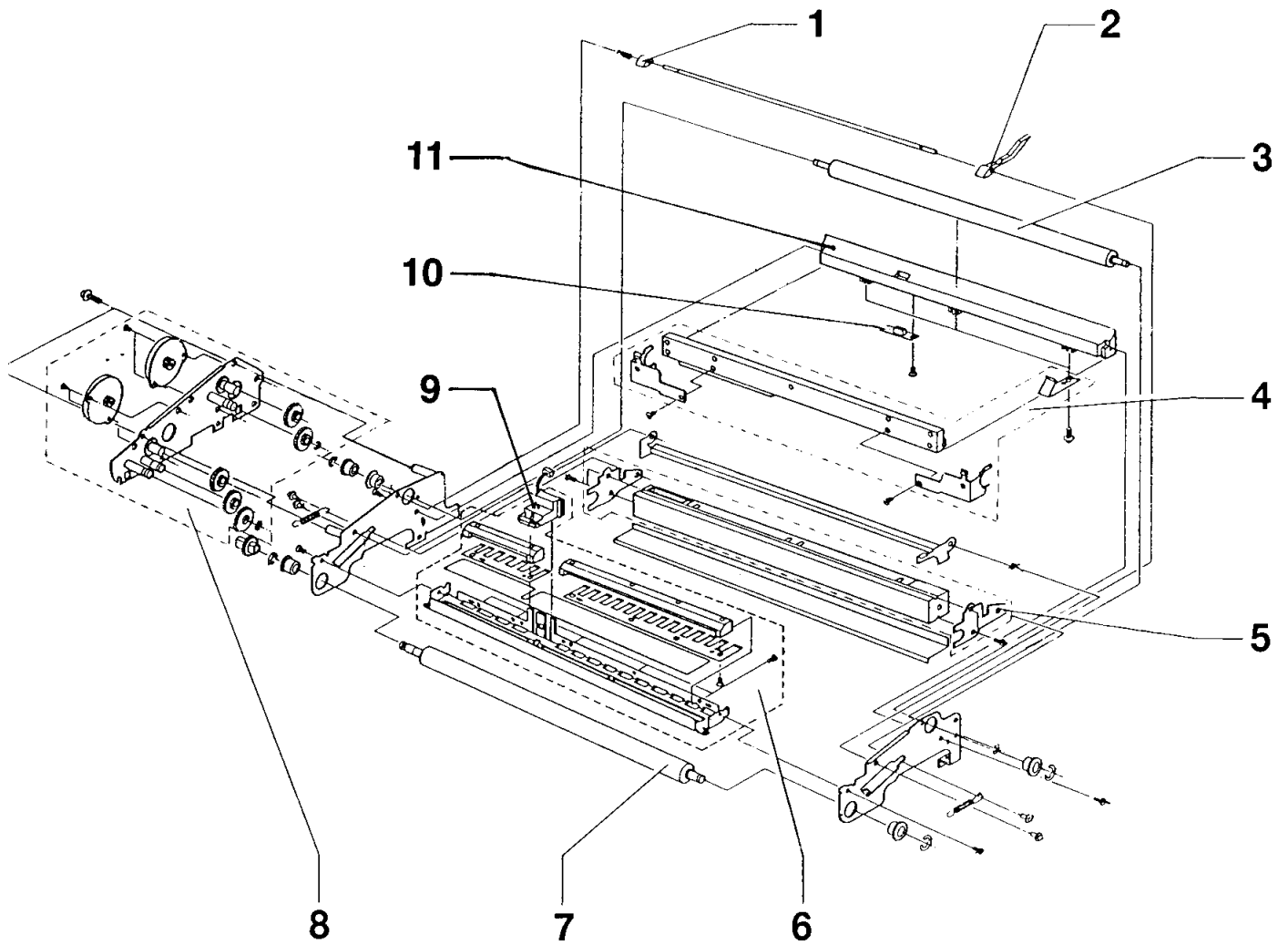
## SPARE PARTS LIST

REF.	T.A. PART HS000.	OLIVETTI PART	DESCRIPTION	QUANTITY	
				220V	240V
1	HF412.5900A		LEVER CAM		
2	HF412.6000A		HOLDER CAM		
3	HF412.5400A		ROLLER PLATEN		
4	HF412.5700A		TPH ASSY		
5	HF412.6400A		CIS ASSY		
6	HF412.6900A		LINK ASSY		
7	HF412.6200A		ROLLER DRIVE		
8	HF412.8000A		MOTOR BRACKET ASSY		
9	HF412.6970A		DOCUMENT SENSOR		
10	HF412.5310A		PAPER SENSOR PCB		
11	HF412.5300A		PAPER GUIDE		

- 
- parts with "•" are component parts or sub-assemblies of the assembly appearing immediately above them.
  - parts with "••" are component parts or sub-assembly with "•" appearing immediately above them.

# SPARE PARTS LIST

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## ADDITIONAL CODES FOR FX 505 / FX 510 CE MODELS

REF.	T.A. PART HS000.	OLIVETTI PART	DESCRIPTION	QUANTITY	
				220V	240V
	HF411.0200A		MAIN PCB FX 505		
	00001.00427		MAIN PCB FX 505 CE		
	HF411.0200X		MAIN PCB FX 510		
	00001.00666		MAIN PCB FX 510 CE		
	00001.00037		TEL-PCB WITH 7 PIN HOOK SW. (GERMAN VERSION) FX 505		
	00001.00709		TEL-PCB WITH 8 PIN HOOK SW. (GERMAN VERSION) FX 505 - FX 505 CE		
	HF411.0300X		TEL-PCB (GERMAN VERSION) FX 510		
	00001.00713		TEL-PCB (GERMAN VERSION) FX 510 CE		
	00001.00402		TEL-PCB (STANDARD NO GERMAN VERSION) FX 505		
	00001.00419		TEL-PCB (DENMARK VERSION) FX 510		
	HF411.0600A		TEL-PCB WITH 7 PIN HOOK SW.		
	HF411.0600X		TEL-PCB WITH 8 PIN HOOK SW.		
	00005.02950		CIS FOR CIS DL100-59US (SMALL CONNECTOR)		
	00005.03535		TPH (SAMSUNG SEC D2-216-8T20K)		
	HF412.5700A		TPH (SAMSUNG SEC D2-216-8T21K)		
	00005.00241		TPH (SAMSUNG ROHM KF2008-G82)		

- parts with "•" are component parts or sub-assemblies of the assembly appearing immediately above them.
- parts with "••" are component parts or sub-assembly with "•" appearing immediately above them.

# GENERAL T.A. CODES INDEX

CODE	PAGE	CODE	PAGE	CODE	PAGE
<b>(NM000.)</b>					
00001.00037	8				
00001.00402	8				
00001.00419	8				
00001.00427	8				
00001.00666	8				
00001.00709	8				
00001.00713	8				
00005.00241	8				
00005.02950	8				
00005.03535	8				
HF321.0000A	2				
HF411.0100A	4				
HF411.0200A	4				
HF411.0200A	8				
HF411.0200B	4				
HF411.0200X	4				
HF411.0200X	8				
HF411.0300A	4				
HF411.0300X	4				
HF411.0300X	8				
HF411.0600A	4				
HF411.0600A	8				
HF411.0600X	4				
HF411.0600X	8				
HF411.0800A	4				
HF411.0900A	2				
HF412.5300A	6				
HF412.5310A	6				
HF412.5400A	6				
HF412.5700A	6				
HF412.5700A	8				
HF412.5900A	6				
HF412.6000A	6				
HF412.6200A	6				
HF412.6400A	6				
HF412.6900A	6				
HF412.6970A	6				
HF412.8000A	6				
HF420.0000A	2				
HF420.0000B	2				
HF420.0000X	2				
HF430.0000A	2				
HF470.0000A	2				

