Honeywell

Honeywell Information Systems Italia

SPPL (MOS)
FAULT DIAGNOSIS

71011369-300

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RECORD OF REVISIONS

Data Date	N. Modifica Change N.	Note/Pagine Aggiornate Notes/Pages Affected		Firma Signature
Rev.0 7/76		1st Edition	71011369-001	
Rev.0 9/77		2nd Edition	71011369-100	
Rev.0 9/79		3rd Edition	71011369-200	
Rev. 0 10/81		4th Edition	71011369-300	

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VII
FAULT DIAGNOSIS

CAUTION

All dangerous voltage (≥ 42 Vpp), high temperature points and areas containing parts in movement are conveniently protected and indicated by caution labels.

When operating without protection covers, be very careful and, after executing all operations, restore all protections as at the start.

For a higher safety, it is advisable to interrupt the AC line by acting on the electric panel breaker. On the SPPL units, the protection on the network voltage input is implemented by interrupting only the phase. To meet this requirement, the power cable is provided with a polarized plug which must be fitted into a similar socket outlet available at the customer site.

A particular care must be taken when connecting the socket outlet to the network circuit as not to invert the polarities.

An external label is stuck near the main breaker to advise the F.E. engineers.

The unit is not foreseen to be installed on IT-type networks (Neutral insulated).

7.1 INTRODUCTION

This fault diagnosis procedure is aimed to supply an isolating guide for those faults with fixed symptom which at a first examination are attributed to the SPPL subsystem, SARA, ROSY and POLY models.

This procedure isolates the faults at component level in the Power Supply area, at board level for the logic and at component/assembly level for the mechanics.
Should the problem persist also after the isolation of a faulty component, it is necessary to restart the procedure after having replaced the isolated component. Furthermore it is necessary that the supply voltage (VAC) does not exceed the allowed tolerance limits (+ 10% - 15%) during execution of the procedure.

Implementation of this procedure does not require a specific knowledge of the unit, but only a general knowledge of the used symbols and of the electronic components functioning.

Needed Material:

- Personal F.E. tools kit
- Unit documentation (Product Manual)

The needed spare parts are available at the District depots, exception made for the transformer, which however it is not easily liable to break down.

7.2 MAINTENANCE POLICY

The current "maintenance policy" of the SPPL MOS printer foresees that the faulty part be isolated with the unit in off line. The possible presence of the "on line" diagnostics, supplied by the system to which the SPPL is connected, is only useful for a check -out of the connection without giving an automatic isolation.

Before describing the suggested replacement level (board, chip, etc.) and the media supplied for this purpose, remember that SPPL units could be optionally supplied with a special diagnostic (resident in the printer and therefore possible to start-up in local) which will give the automatic isolation of the faulty part (Refer to para 7.3 for its description).

Therefore the fault diagnosis flows will show different branches whether the unit under study is or not supplied with the above diagnostic.

Apart from the repair media available, the foreseen replacement level (supported by the spare part kits) is the following:

Logic : CPU board (without EPROM), EPROM chip (firmware), Keyboard (assembly) plus all boards making up an option.

Analogic: DRIVE board ; VFU components (option), i.e.: motor, lamp, optic prism, plate;

Mechanic: Paper or carriage STEP motor; head assembly; various parts (belts, microswitches, mistor etc.);

Power Supply: Components (diode parts, capacitors, etc.).

All SPPL printers may either print the graphic set in LOCAL or perform some carriage movements without printing.

7.3 AUTOMATIC DIAGNOSTIC

The internal diagnostic routines automatically perform the fault isolation on:

- CPU Board
- EPROM chip (firmware)
- RAM chip
- line (internal circuit)

In case of OK symptom, the fault is to be traced on the LINE, on the DRIVE board or on the MECHANICS (the options are not controlled by this diagnostic).

The discrimination between DRIVE, POWER SUPPLY and MECHANICS fault is supplied by the fault isolation flow.

The diagnostic routines are contained in a chip (EPROM) mounted on the board (AFFD) to be installed on the standard logic module.

In case the SPPL unit has the AFF option (front inserter), the chip will be mounted on the AFF board of the option itself. (Table 1)

A connector is to be inserted in place of the modem cable in the unit output.
Table 1 shows, for each SPPL model, the corresponding diagnostic option.

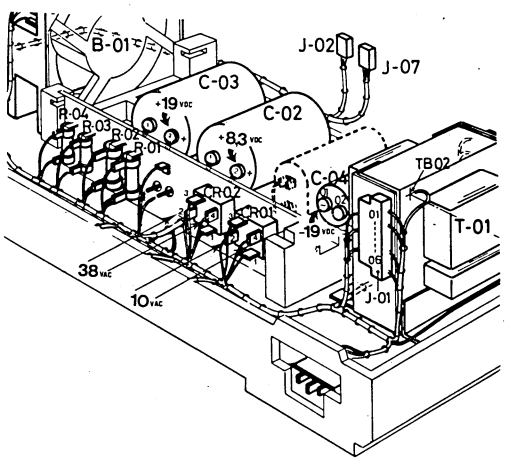
Tab.1

SPPL TYPE	EPROM POSITION				TURN-AROUND CONNECTOR	I.P.I.
	PWA AFF	AFF-E	PWA AFF. D	AFF-ED		
SARA 2X (*)					78119555-001	GTWF309A
ROSY 21	U01		U01		N.A.	GTWF308A
ROSY 24.1	U01		U01		78119555-001	GTWF309E
ROSY 26.1	U01		U01		78119555-001	GTWF308E
ROSY 28		U01		U01	78119555-001	GTWF307J
POLY 21	U01		U01		78119555-001	GTWF309E
POLY 21.1		U08		U08	78119555-001	GTWF308N

(*) For the SARA 2X model, the EPROM must be fitted in position U20 on the PWA CPU ØØ.

7.4 AC AND DC VOLTAGES - OK CONDITION

The following figure shows the AC and DC voltages values with unit operational (breaker ON but without printing) and the pertinent points on which to perform the voltage check by means of a TESTER instrument.



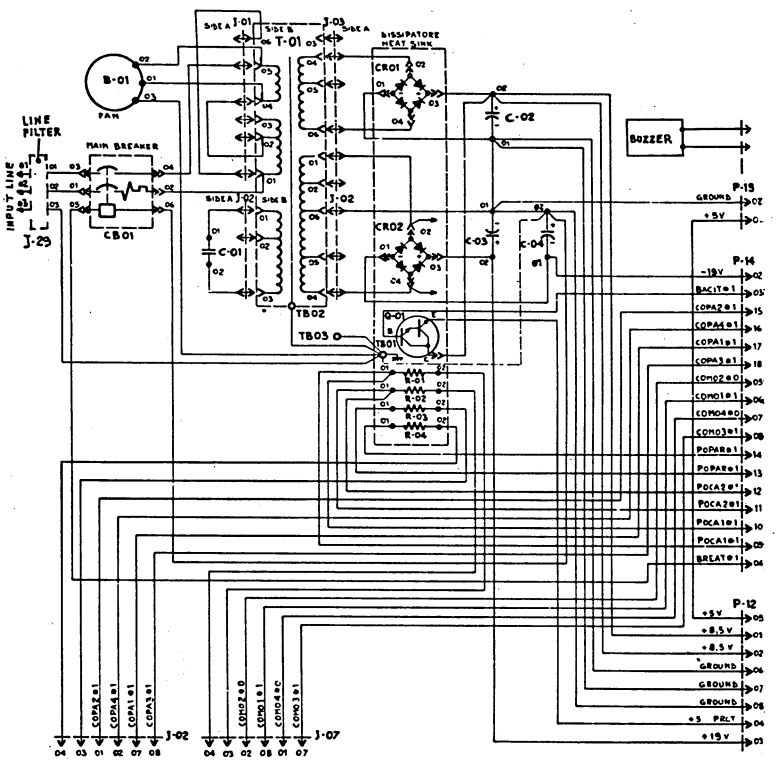
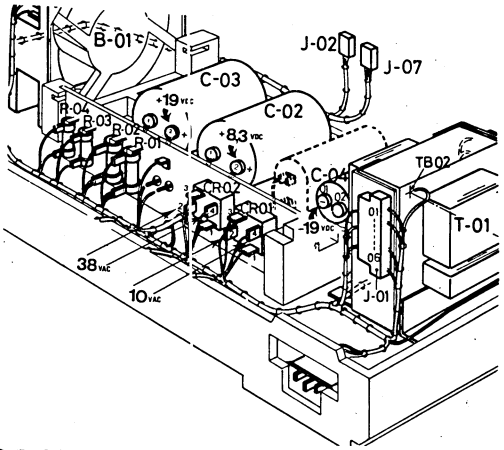


Fig. 7-1 Power Supply Electric Diagram and Measurement Points on an Old type Transformer



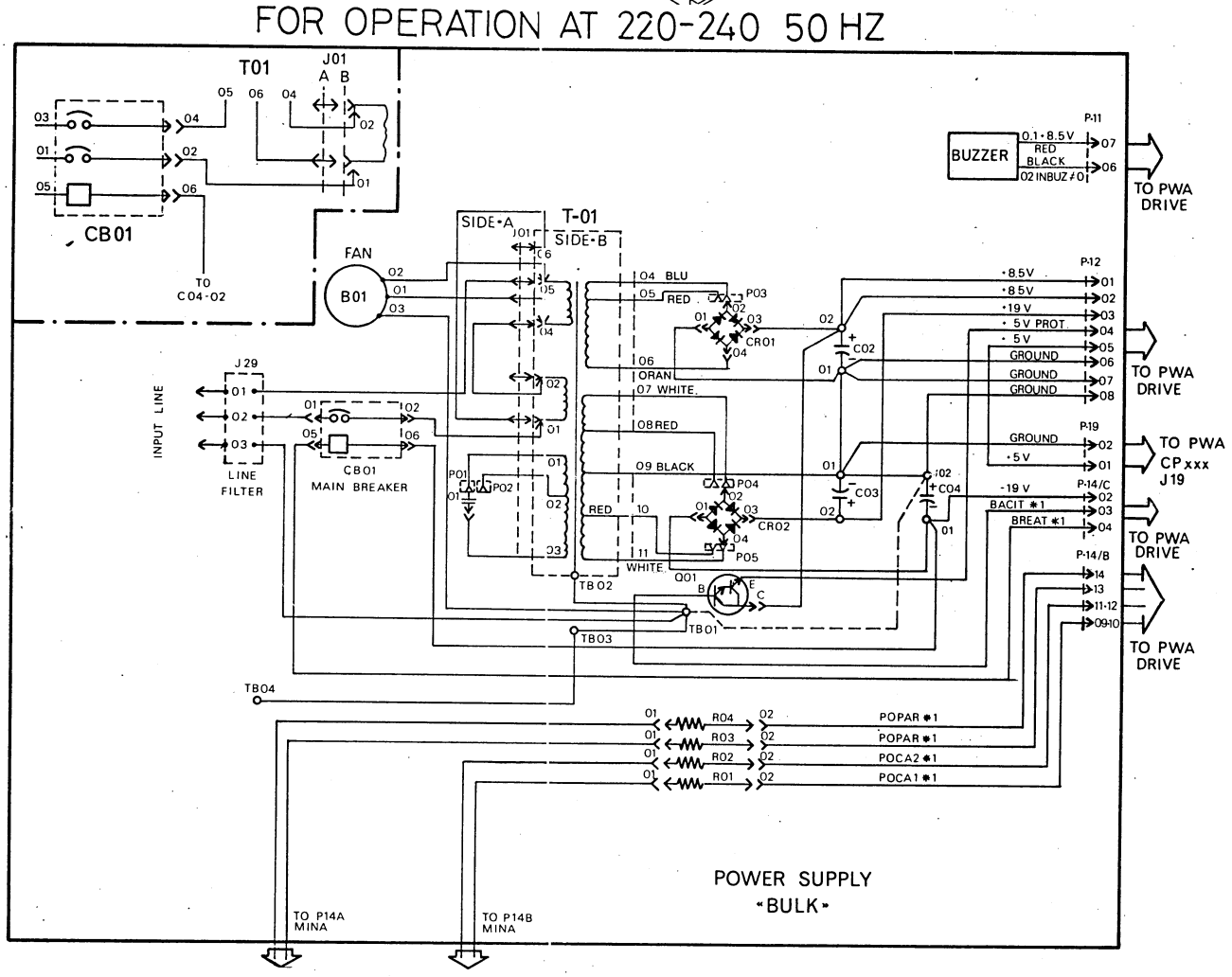


Fig. 7-2 Power Supply Electric Diagram and Measurement Points on a New Type Transformer

7.5 "FAULT" CONDITIONS

Faults, which cause intervention of the protection (Breaker-off), are:

- Lacking of an DC voltage (exception made for the - 15 V which is not protected)
- + 5 V Protection (it intervenes when the voltage exceeds the 5,6V Value)
- one or more print needles energized when no real print command is present.
- wrongly presence of an extra current which unbalances the synchronous movement of the step motor, in absence of a command towards the motor itself.
- errors due to faulty F/W EPROM's

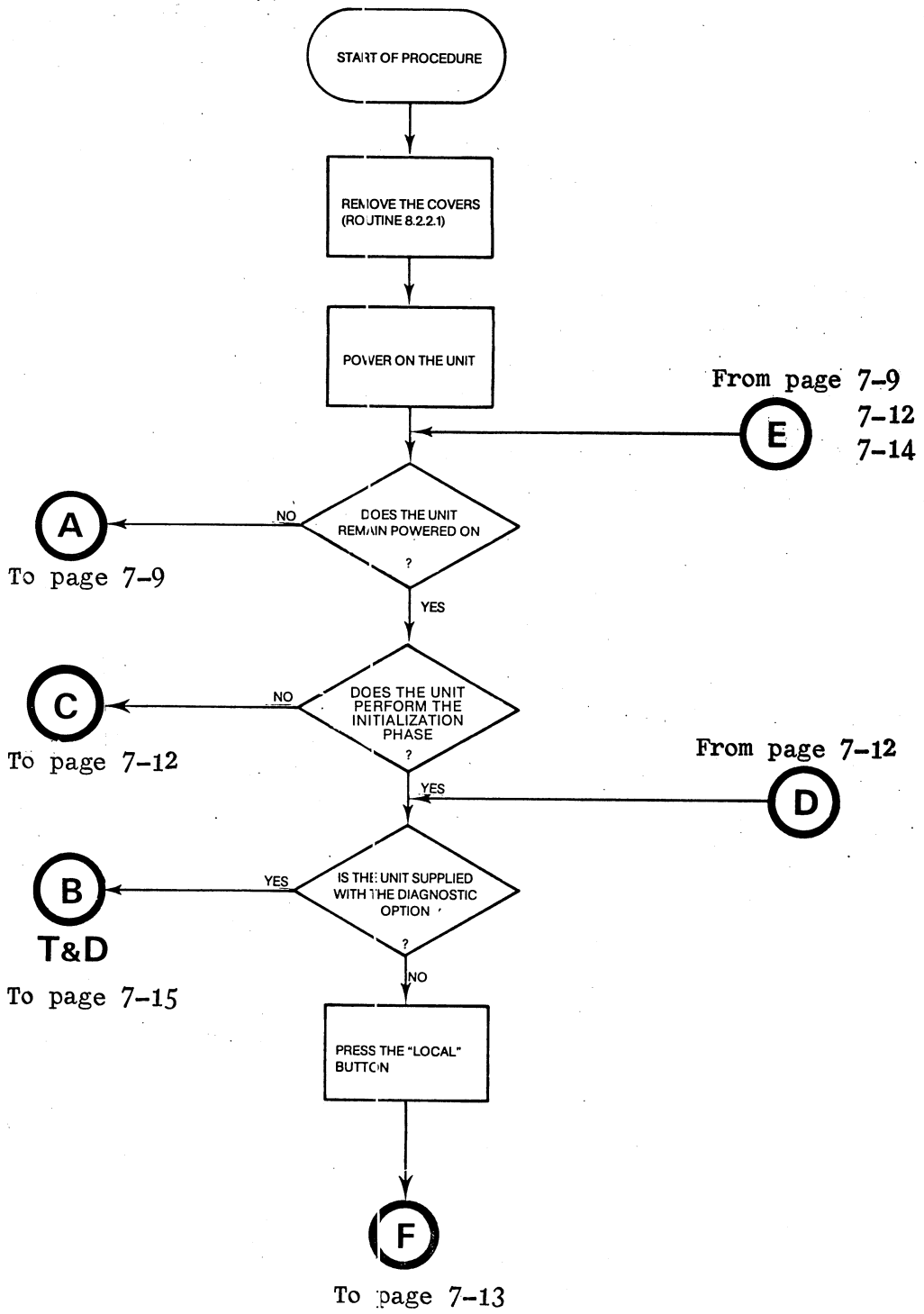
All these conditions and the protection circuits are implemented on the DRIVE board and the "BREAT * 1" signal of the P14 PIN 04 connector determines the POWER OFF of the main breaker.

Frequent passages in "STAND-BY STATUS" are due either to a fault or to a misadjustment of the mistor.

This causes the step motor to perform some carriage movements in a completely asynchronous way or even to stop on any position, along the entire print line.

7.6 FAULT DIAGNOSIS

7.6.1 FLOW FOR SARA, ROSY, POLY.



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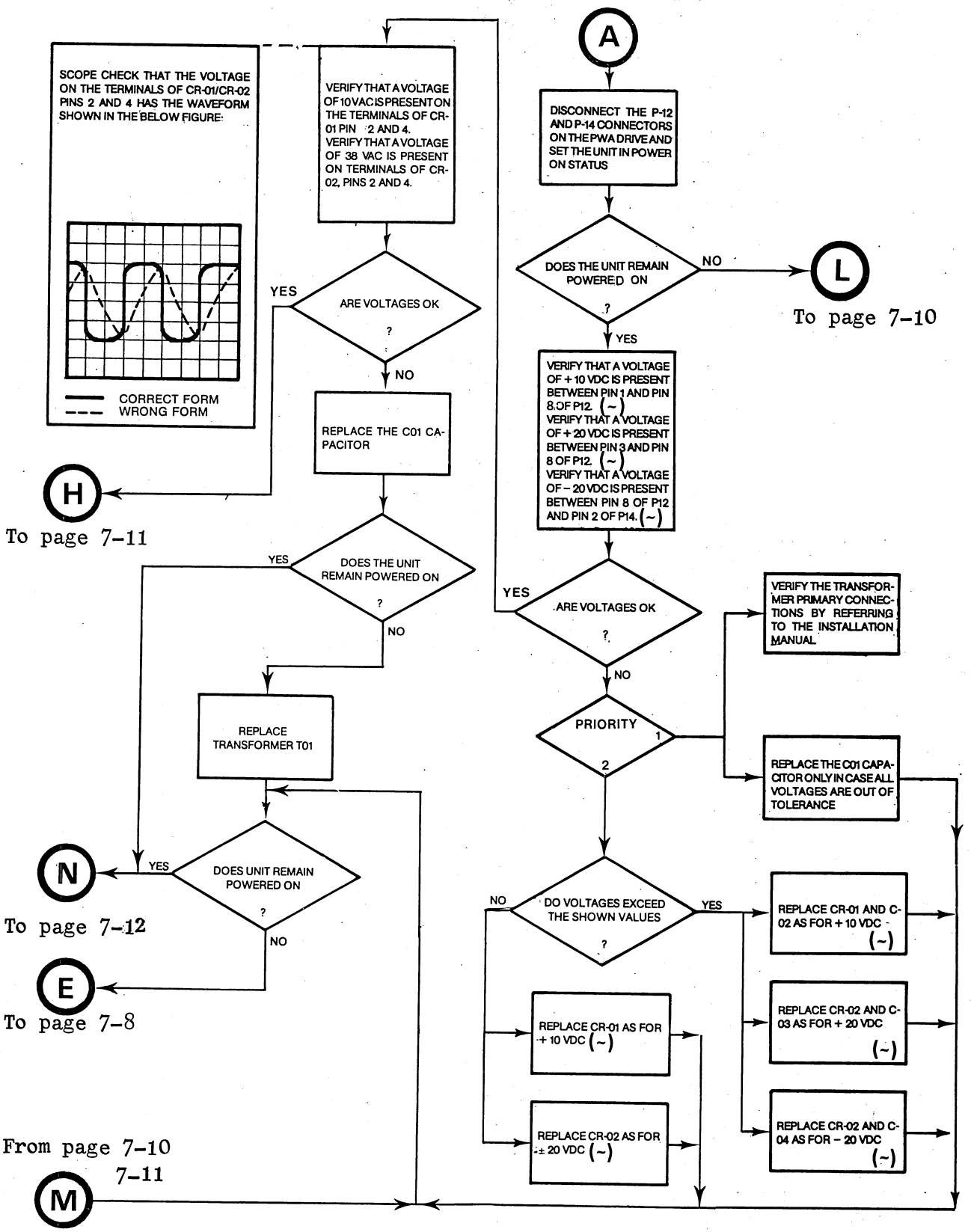
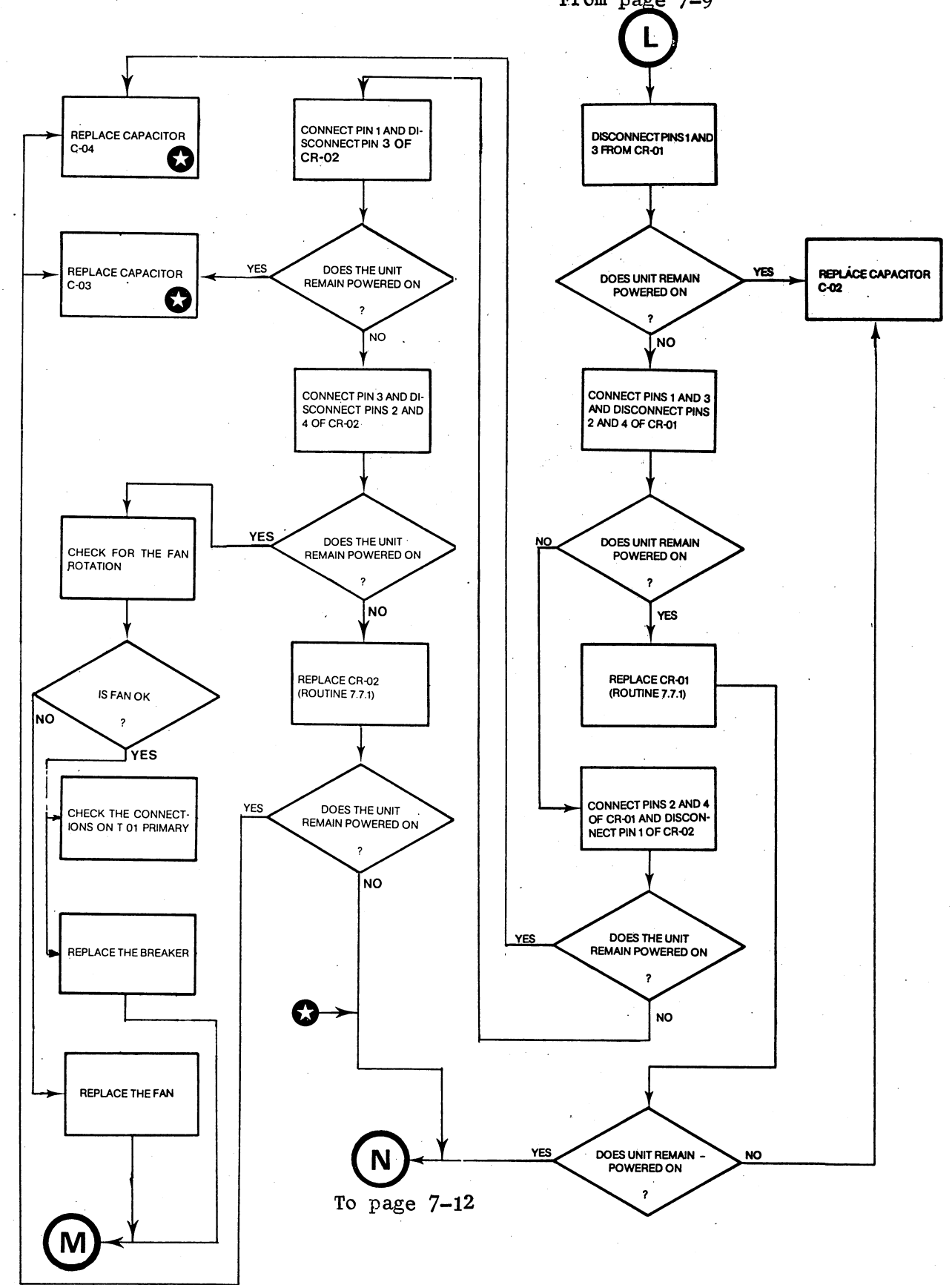


From page 7-9



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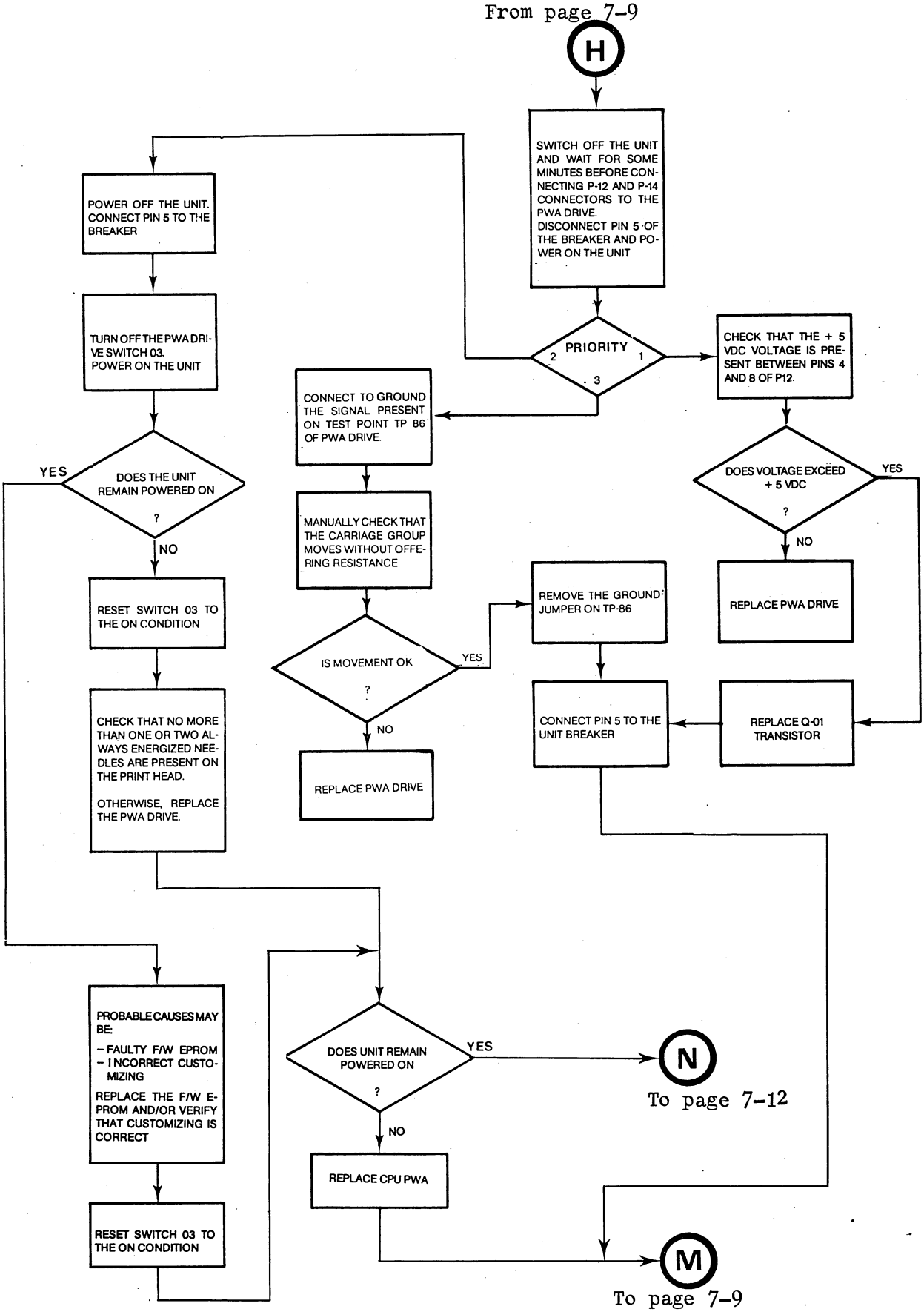

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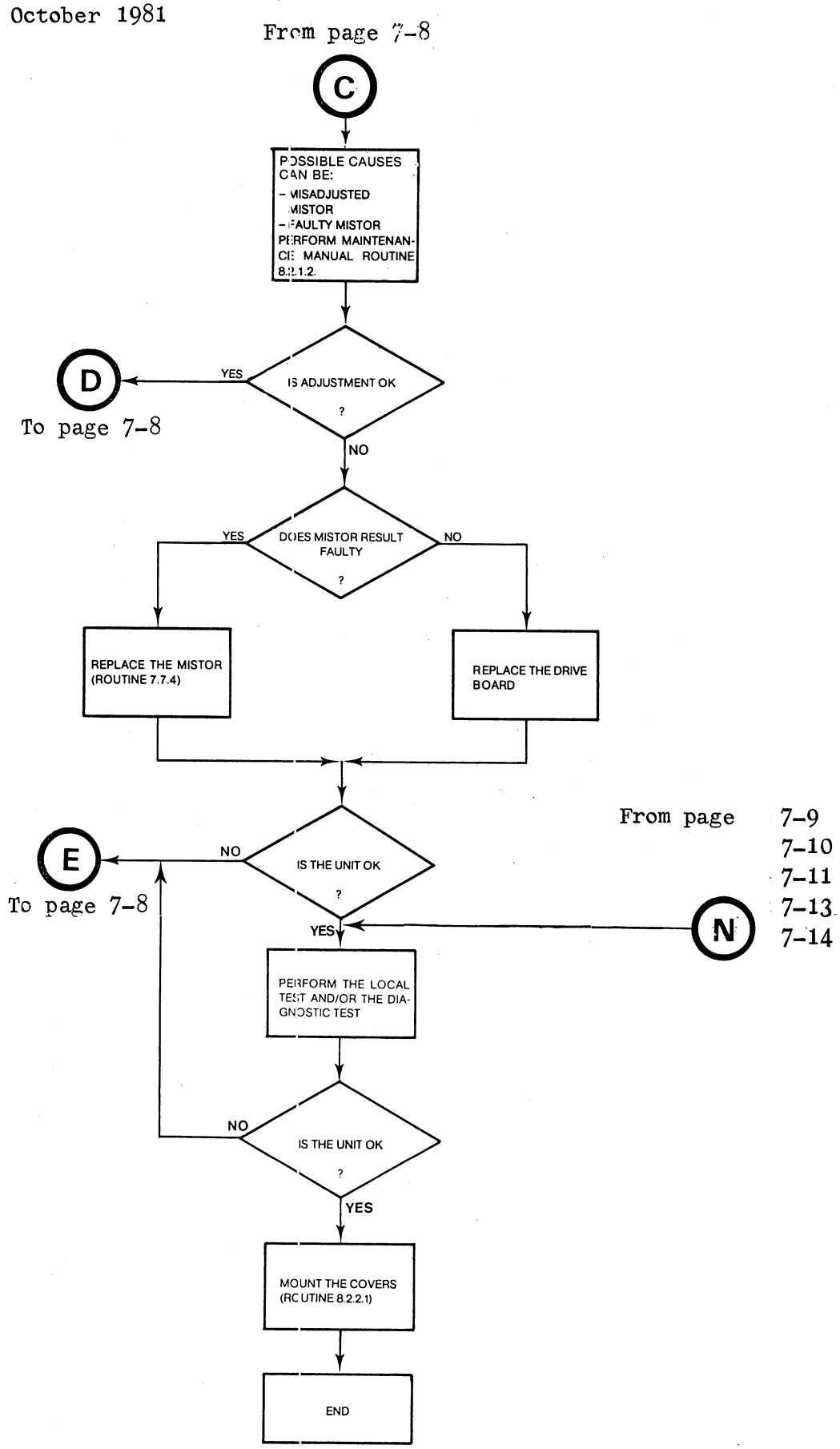

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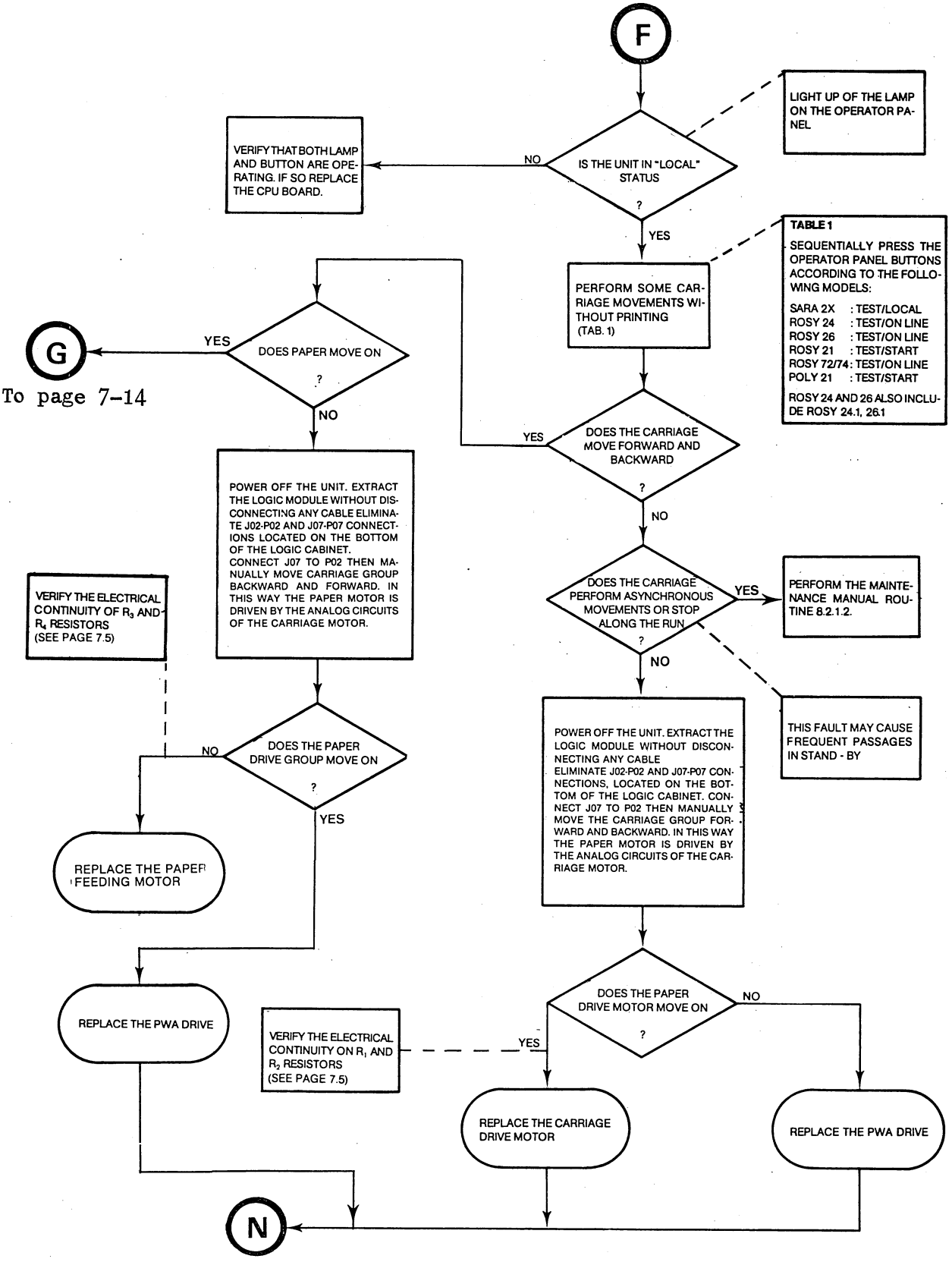

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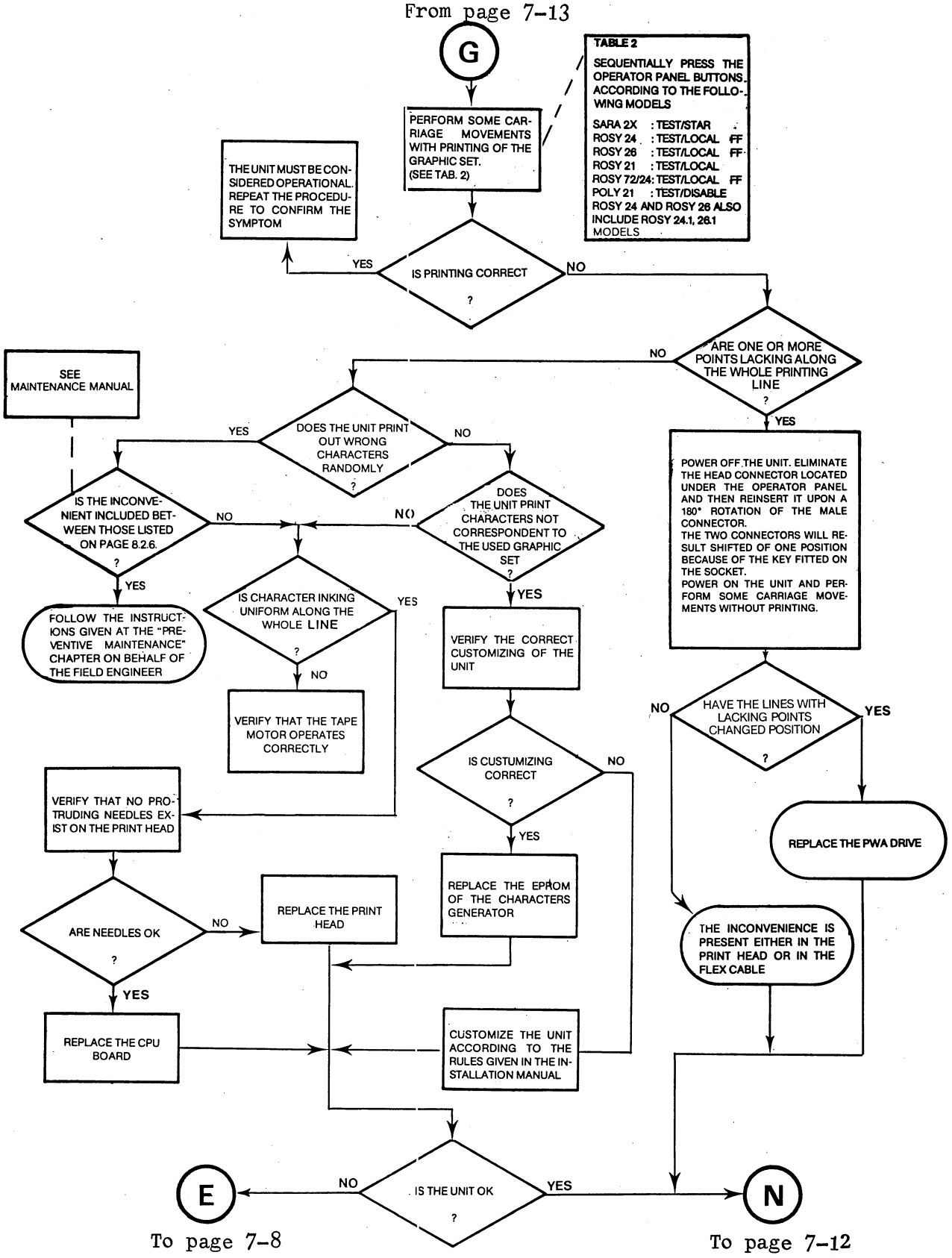

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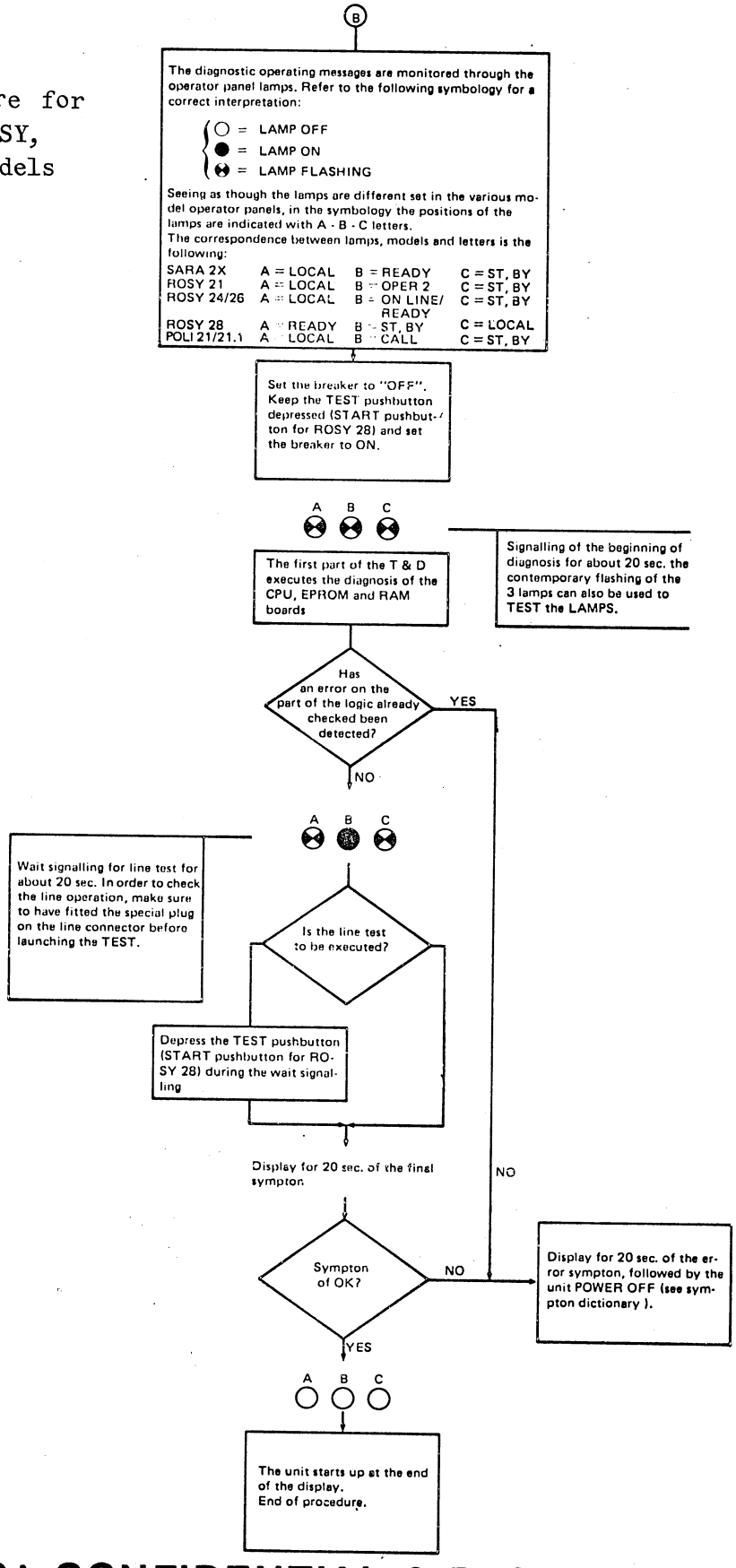
7.6.2. T&D Procedure for SARA, ROSY, POLY Models



7.6.3 ERROR SYMPTOMS DICTIONARY

7.6.3.1 Symptom Dictionary for SARA, ROSY, POLY

A	B	C	PART TO BE REPLACED
⊗	⊗	●	Error on the PWA CPU (replace the PWA CPU)
○	⊗	●	Error in the interface logic (replace the PWA CPU)
○	○	⊗	Replace RAM on the PWA CPU, location U02 and U07
○	⊗	○	Replace RAM on the PWA CPU, location U01 and U06
○	⊗	⊗	Replace RAM on the PWA CPU, location U04 and U09
⊗	○	○	Replace RAM on the PWA CPU, location U03 and U08
⊗	○	⊗	Replace RAM on the PWA CPU, location U05 and U10
●	○	⊗	Replace EPROM on the PWA CPU, location U14
●	⊗	○	Replace EPROM on the PWA CPU, location U15
●	⊗	⊗	Replace EPROM on the PWA CPU, location U16
●	⊗	●	Replace EPROM on the PWA CPU, location U17
●	●	⊗	Replace EPROM on the PWA CPU, location U21
⊗	⊗	○	General type errors. As a first operation to be executed, it is advisable to replace the CPU board.
○	●	⊗	
⊗	○	●	
⊗	●	○	
⊗	●	●	
○	○	⊗	
○	●	○	
○	●	●	
●	○	○	
●	○	●	
●	●	○	
●	●	●	

See page 7-46 for the EPROM's isolation (routine 7.7.9)

7.6.3.2 Symptom Dictionary for ROSY 28

A	B	C	PART TO BE REPLACED
⊗	⊗	●	Replace the PWA CPU
○	⊗	●	Fault in the line circuits. Replace the PWA CPU
○	○	⊗	Replace RAM, location U11 - U13
○	⊗	○	Replace RAM, location U10 - U12
●	○	⊗	Replace EPROM, location U07
●	⊗	○	Replace EPROM, location U06
●	⊗	⊗	Replace EPROM, location U05
●	⊗	●	Replace EPROM, location U04
●	●	⊗	Replace EPROM, location U03
⊗	⊗	●	Replace EPROM, location U02
⊗	○	⊗	Replace EPROM, location U08
⊗	⊗	○	General type errors. As a first operation to be executed, it is advisable to replace the CPU board.
○	●	⊗	
⊗	○	●	
⊗	●	○	
⊗	●	●	
○	○	⊗	
○	●	○	
○	●	●	
●	○	○	
●	○	●	
●	●	○	
●	●	●	

See page 7-47

7.7 DISMOUNTING PROCEDURES

7.7.1 REPLACEMENT OF THE DIODE BRIDGE

Removal procedure

1 Needed material
. Personal F.E. tools kit

2 Preliminary operations
. Power off the printer
. Remove the covers (routine 8.2.2.1)

3 Procedure
. Remove the pertinent cables (Fig. 7-3)from pins 1-2-3-4 of the diode bridge
. Remove the screw (1) fixing the diode bridge to the frame

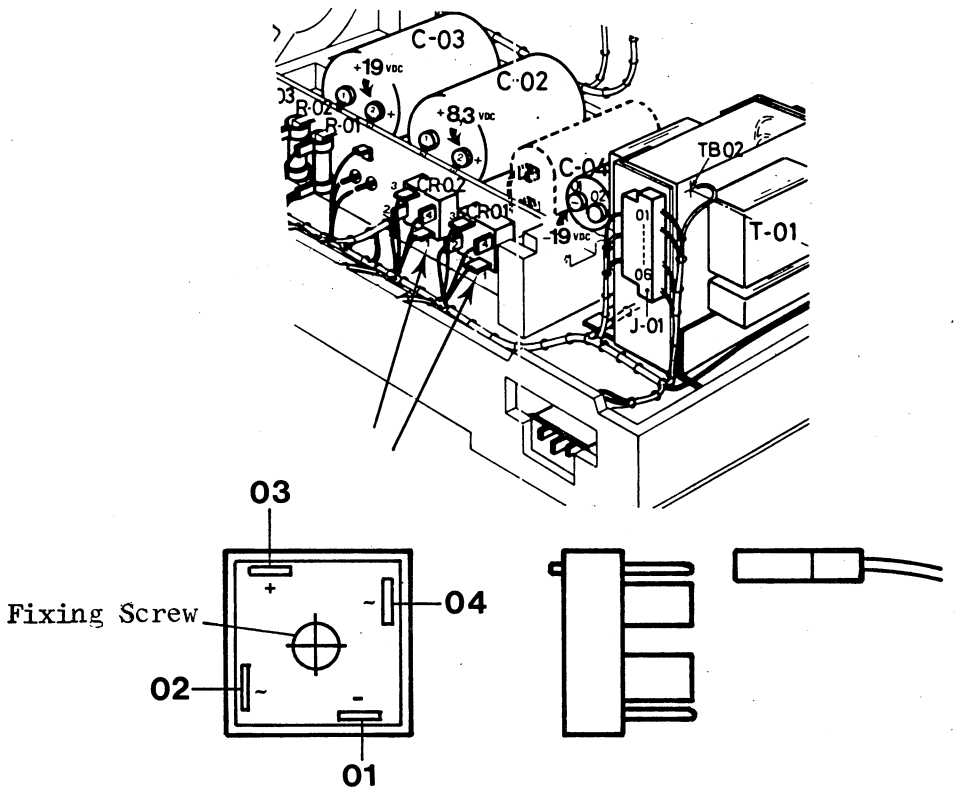


Fig. 7-3 CR01 and CR02 Diode bridge Localization

Mounting Procedure

- Screw the diode bridge to the frame by using the pertinent fixing screw (1).
- Connect the cables to the diode bridge pins as shown in the electrical diagram on page 7-6 of this manual.

Final operations

- Scrap the faulty diode bridge
- Check that the unit operates correctly.

7.7.2 Q-01 TRANSISTOR REPLACEMENT

Removal

1 Needed material
- Personal F.E. Tools kit

2 Preliminary operations
- Power off the unit
- Remove the covers (8.2.2.1)

3 Procedure
- Unsolder the cables from the transistor pins and tag the cables to avoid errors when reconnecting.
- Remove the faulty transistor

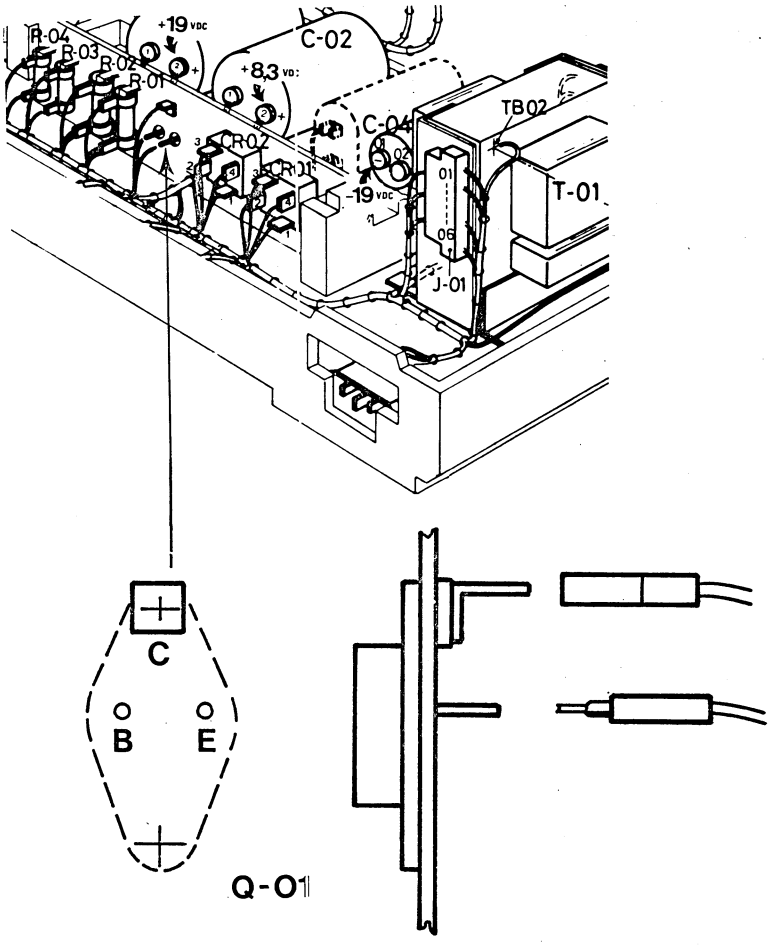


Fig. 7-4 Q.01 Transistor localization

Mounting Procedure

- Insert the new Q 01 transistor and solder the cables to the corresponding pins verifying the exact connection on the electrical diagram. See fig. 7-2

Final operations

- Check that the unit operates correctly
- Scrap the faulty transistor

7.7.3 TRANSFORMER REPLACEMENT

Removal

1 Needed tools

- Personal F.E. Tools kit

2 Preliminary operations

- Power off the unit
- Remove the covers (Routine 8.2.2.1)

3 Procedure

- Disconnect all connections present on the J01-J03 terminal boards (TABLE 2). It is advisable to tag the cables before implementing this operation to avoid errors when reconnecting them.
- Remove the fixing screws (4)

220 - 240 V - 50 Hz			
C01 - 02	T1	J02	3A
C01 - 01	T1	J02	01A
CB01 - 02	T1	J01	-01B
CB01 - 04	T1	J01	05A
B01 - 01	T1	J01	04B
B01 - 02	T1	J01	05B
CR02 - 04	T1	J02	04A
CR02 - 02	T1	J03	01A
CR01 - 04	T1	J03	06A
CR01 - 02	T1	J03	04A
T1 J02 06A	C3 - 01		
JUMPERS			
T1 J01 - 06B	T1	J01	01A
T1 J01 - 04A	T1	J01	02B

208 V 60 Hz			
C01 - 02	T1	J02	03A
C01 - 01	T1	J02	02A
CB01 - 02	T1	J01	01B
CB01 - 04	T1	J01	05A
B01 - 01	T1	J01	04B
B01 - 02	T1	J01	05B
CR02 - 04	T1	J02	05A
CR02 - 02	T1	J03	02A
T01 J02 06	C03 - 01		
CR01 - 04	T1	J03	05A
CR01 - 02	T1	J03	05A
JUMPERS			
T1 J01 - 06B	T1	J01	01A
T1 J01 - 04A	T1	J01	02B

120 V 60 Hz			
C01 - 02	T01	J02	03A
C01 - 01	T01	J02	02A
CB01 - 02	T01	J01	01B
CB01 - 04	T01	J01	02A
B01 - 01	T01	J01	04B
B01 - 02	T01	J01	05B
CR02 - 04	T01	J02	05A
CR02 - 02	T01	J02	02A
T01 J02 06A	C03 01		
CR01 - 04	T01	J03	06A
CR01 - 02	T01	J03	05A
JUMPERS			
T1 J01 05A	T01	J01	02B
T1 J01 04A	T01	J01	01A

TABLE 2 - 3 connector transformer

Mounting Procedure

- Fit the new transformer and lock it to the base by means of the 4 fixing screws
- Restore the transformer connections complying with the voltage values of the power supply as shown in table 2
- Check that all connections are executed according to the electrical diagram (fig. 7.2)

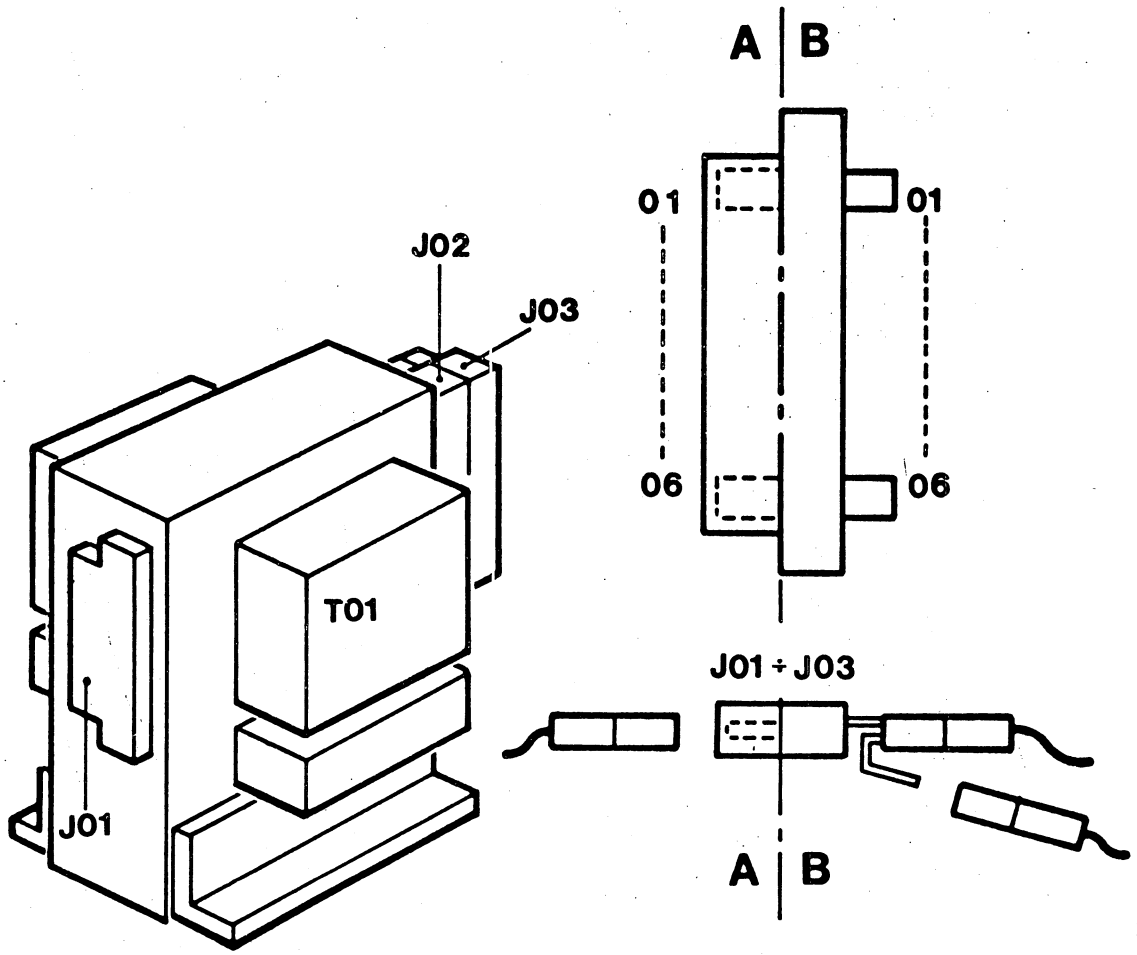


Fig. 7-5 Transformer lay-out

Final Operations

- Check that the unit operates correctly
- Scrap the faulty transformer

7.7.3.1 Cabled Transformer Replacement

Removal

1 - Needed Material
- Personal F.E. Tools kit

2 - Preliminary Operations
- Remove the covers (routine 8.2.2.1)

3 - Execution
- Disconnect all connections present on the transformer as shown in tab. 7.3
- Remove the transformer fixing screws (4)

Table 7.3 - Jumpers present on the transformer terminal board J01A/B

220 240 V 50 Hz			
C01 - 02	T1	J01	03A
C01 - 01 brown	P01	01 yellow	
CB01 - 02	T1	J01	01B
J29 - 01	T1	J01	05A
B01 - 01		J01	04B
B01 - 02		J01	05B
CR02 - 04		P05 white	
CR02 - 02		P04 white	
C03 - 01	T1	09 black	
CR01 - 04	T1	06 orange	
CR01 - 02		P03 blu	
JUMPERS			
T01 J01 06B	T1	J01	01A
T01 J01 04A	T1	J01	02B

208 - 60 Hz			
C01 - 02	T1	J01	3A
C01 - 01	P2 red		
CB01 - 02	T1	J01	01B
J29 - 01	T1	J01	05A
B01 - 01	T1	J01	04B
B01 - 02	T1	J01	06B
CR02 - 04	P05 red (10)		
CR02 - 02	P04 red (08)		
T01 - 09	C03 01		
CR01 - 04	T01 06		
CR01 - 02	P03 red (5)		
JUMPERS			
T01 J01 6B	T01	J01	01A
T01 J01 04A	T01	J01	02B

120 V 60 Hz			
C01 - 02	T01	J01	03A
C01 - 01	P01	02 red	
CB01 - 02	T01	J01	01B
J29 - 01	T01	J01	02A
B01 - 01	T01	J01	04B
B01 - 02	T01	J01	05B
CR02 - 04	P05 red (10)		
CR02 - 02	P04 red (8)		
T01 09	C03 01		
CR08 04	T01 06		
CR01 - 02	P03 red (5)		
JUMPERS			
T01 J01 05A	T01	J01	02B
T01 J01 04A	T01	J01	01B

120 V 50 Hz			
C01 - 02	T01	J01	03
C01 - 01	P01	01 yellow	
CB01 - 02	T01	J01	01B
J29 - 01	T01	J01	02A
B01 - 01	T01	J01	04B
B01 - 02	T01	J01	05B
CR02 - 04	P05 white (11)		
CR02 - 02	P04 white (07)		
CR01 - 04	T01 06 orange		
CR01 - 02	P03 blu (04)		
T01 05	C03 01		
JUMPERS			
T01 J01 05A	T01	J01	02B
T01 J01 04A	T01	J01	01A

TABELLA 3 - 1 connector transformer

Mounting Procedure

- Mount the new transformer and fix it to the base by means of the 4 fixing screws
- Restore the transformer connections complying with the values of the supply voltages as shown in table 7.3
- Check that all connections are executed according to the electrical diagram illustrated in fig. 7.2

Tab. 7.4

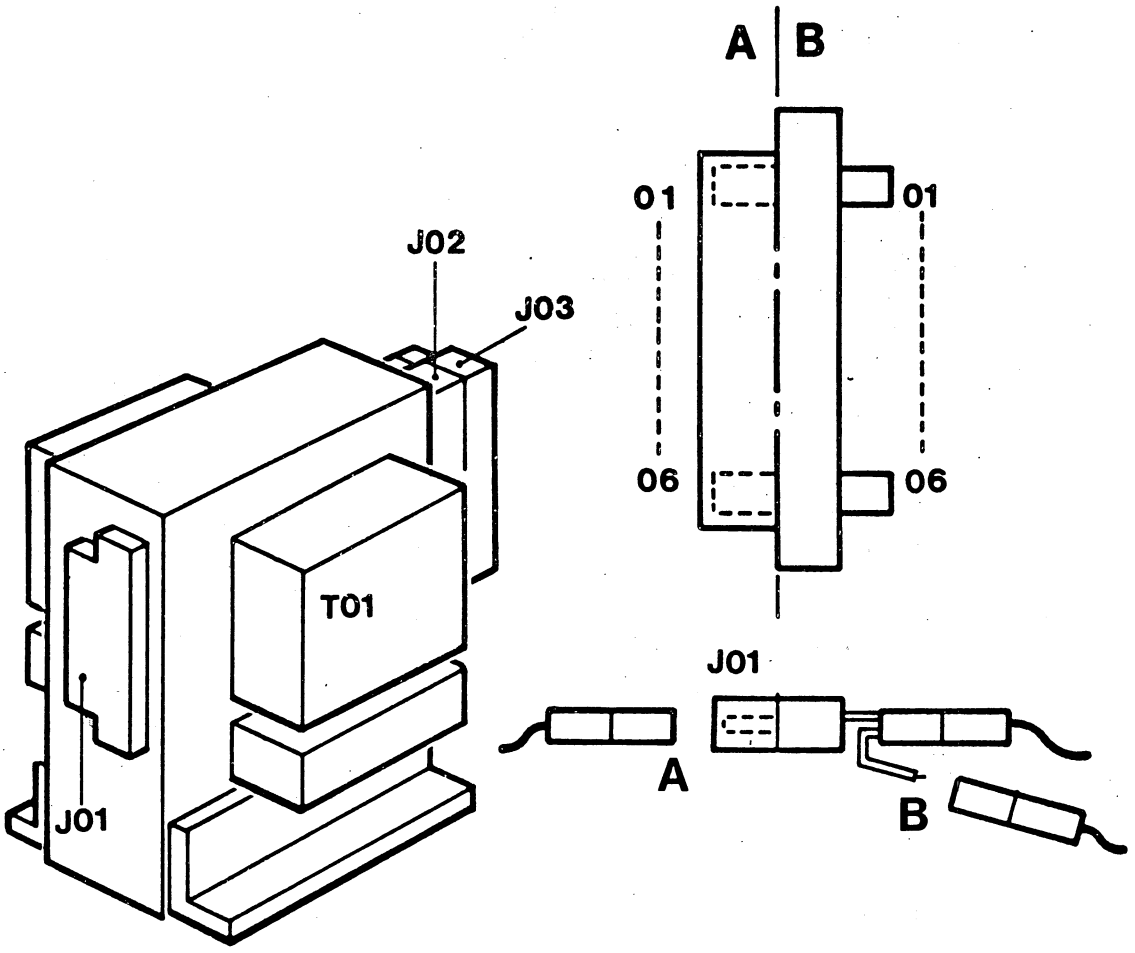


Fig. 7-6 Transformer Lay-out

Final Operations

- Check that the unit operates correctly
- Scrap the faulty transformer

7.7.4 MISTOR REPLACEMENT

Removal

1 Needed material
- Personal F.E. tools kit

2 Preliminary operations
- Power off the unit
- Remove the covers (Routine 8.2.2.1)

3 Procedure
- Unsolder the cables from the mistor pins . It is advisable to tag the cable positions to avoid errors when having to reconnect them
- Loosen the screw fixing the mistor to the motor support and remove the mistor (Fig. 7-7A/7B)

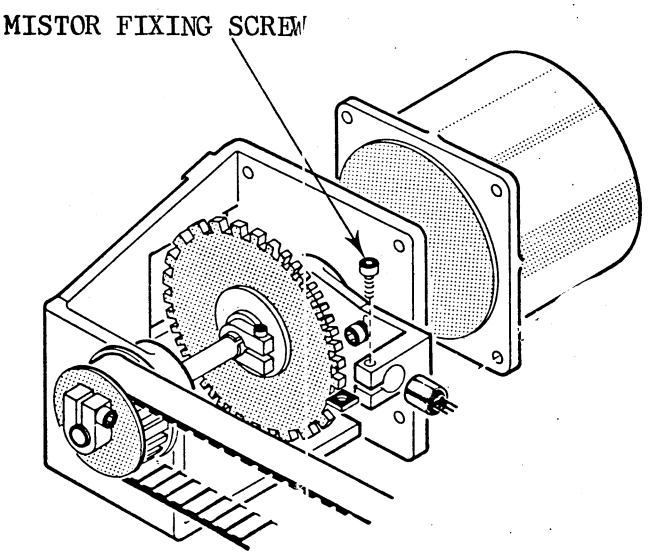


Fig. 7-7A Mistor Localization for the Mina Mechanics

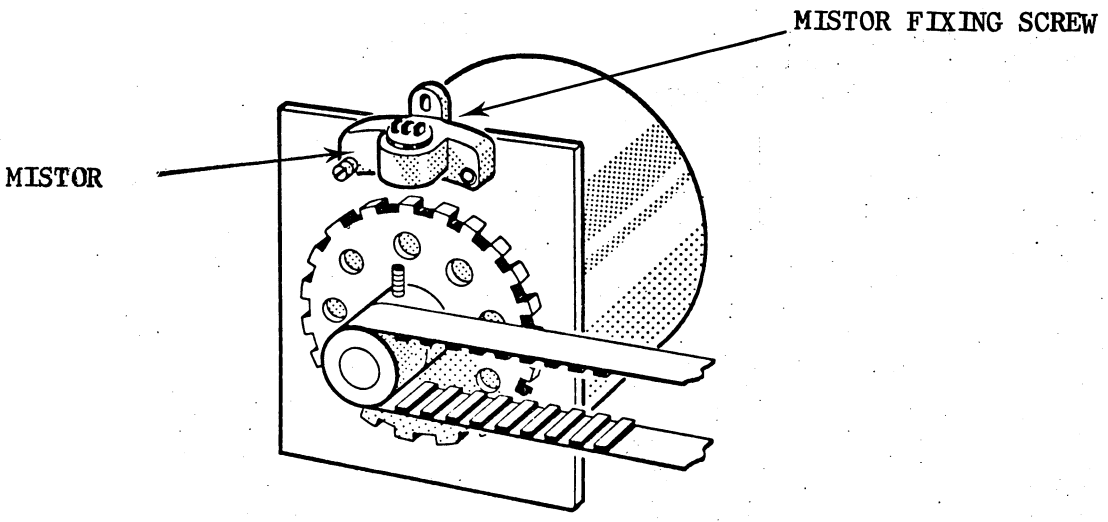


Fig. 7-7B Mistor Localization for the Mara Mechanics

Mounting Procedure

- Mount the new mistor and fix it by means of the fixing screw
- Solder the mistor pin ends

Final Operations

- Check that the following adjustments are correct:

- Routine 8.2.1.1
- Routine 8.2.1.3

of the maintenance manual

- Check that the unit operates correctly
- Scrap the faulty mistor

7.7.5 PRINT HEAD REPLACEMENT

Removal

1 Needed material
- Personal F.E. tools kit

2 Preliminary operations
- Power off the unit
- Remove the covers (Routine 8.2.2.1)

3 Procedure
- Remove the inked ribbon cartridge
- Disconnect the head cable from the connector located on the carriage
- Remove the two screws fixing the head to the carriage group and then remove the head (fig. 7-8)

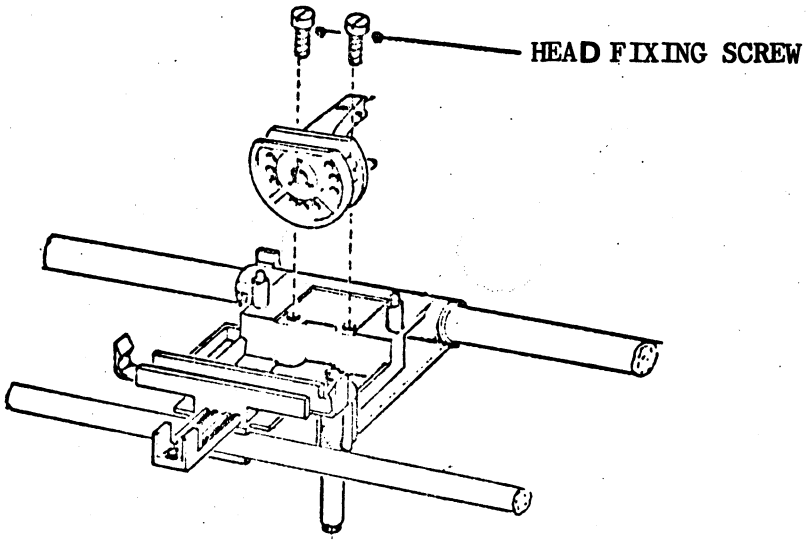


Fig. 7-8

Mounting Procedure

- Connect the head connector
- Insert the head group in its pertinent housing in the carriage
- Mount the allen screws without fully tightening them

Final Operations

- Perform Adjustment Routine 8.2.1.5
- Mount again the cartridge support
- Check that the unit operates correctly

7.7.6 MINA CARRIAGE DRIVE MOTOR REPLACEMENT (Short cabled type without terminals to be soldered)

Removal

1 Needed materials

. Personal F.E. tools kit

2 Preliminary operations

. Power off the unit

. Remove the covers (Routine 8.2.2.1)

3 Procedure

. Eliminate the motor supply cable on the P-07/J07 connector of the bulk cable

. Loosen the collar Allen screw which locks the motor shaft to the timing disc

. Remove the four screws fixing the motor to the motor support group (fig. 7-9) by acting from the rear side of the unit.

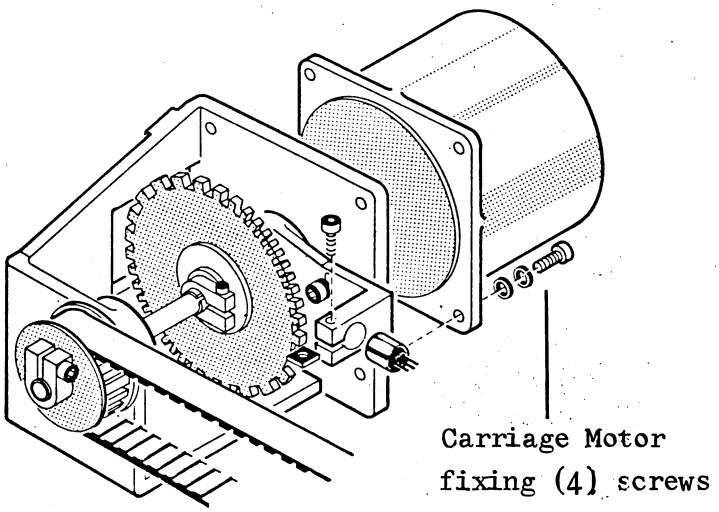


Fig. 7-9 Carriage Drive Motor for the Mina Mechanics

Mounting Procedure

- Mount the new motor and fix it to its support by means of the pertinent fixing screws (4).
- Connect the power cable on P-07/J-07 connection

Final operations

- Execute routines 8.2.1.3/4 described in the maintenance manual
- Verify that the unit operates correctly
- Scrap the faulty motor.

7.7.6.1 MINA CARRIAGE DRIVE MOTOR REPLACEMENT (Long cabled type with terminals to be soldered)

Removal

1 - Needed Material

- Personal F.E. tools kit

2 - Preliminary Operations

- Set the unit to POWER OFF
- Remove all covers

3 - Execution Procedure

- Disconnect the motor power cable (P14B) on the DRIVE PWA (See fig. 7.10)
- Unsolder the connections on resistances R.01 - R.02 - R.03 - R.04 (see fig. 7.10)
- Loosen the collar allen screw locking the motor shaft to the timing disc
- Remove the four screws fixing the motor to its support (see fig. 7.11)

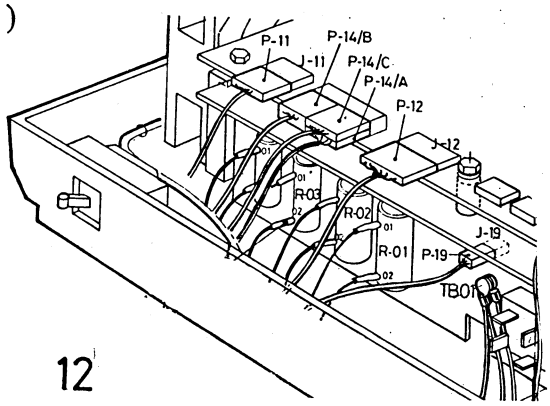


Fig. 7-10 Resistances/ Connectors Localization

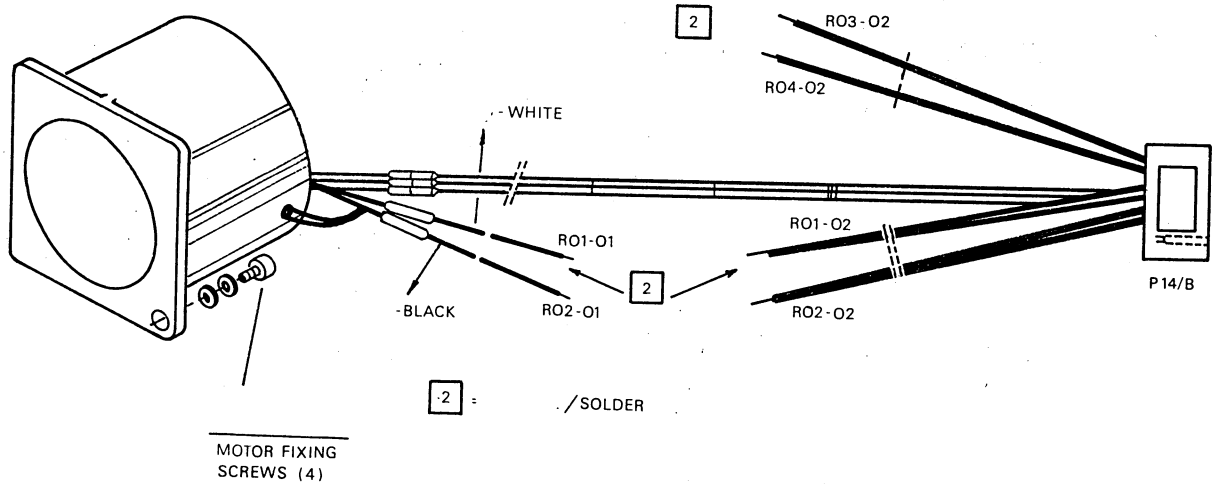


Fig. 7-11 Carriage Motor Assembly for the Mina Mechanics

Mounting Procedure

- Mount the new motor and fix it to the support by means of the 4 fixing screws (see fig. 7-11)
- Mount the toothed pulley
- Connect the power cable P14B on the DRIVE PWA. (See fig. 7.10)
- Solder the connections on resistances R.01 - R.02 - R.03 R.04 (See fig. 7-10)

Final Operations

- Execute routines 8.2.1.3./4 described in the maintenance manual
- Check that the unit operates correctly
- Scrap the faulty motor

7.7.6.2 MARA Mechanics Carriage Drive Motor Replacement

Dismounting Procedure

1 Materials Required

. Personal F.E. tool kit

2 Preliminary Operations

. Set the unit to POWER OFF
. Open the upper cover

3 Execution Procedure

. Disconnect the motor power cable (P 14 B) on the PWA DRIVE (see fig. 7.12)
. Unsolder all connections present on resistances R.01 - R.02 - R.03 R.04 (see fig. 7.12)
. Remove the four screws fixing the motor to its support (see fig. 7-13)
. Remove the screw fixing the toothed pulley to the motor shaft

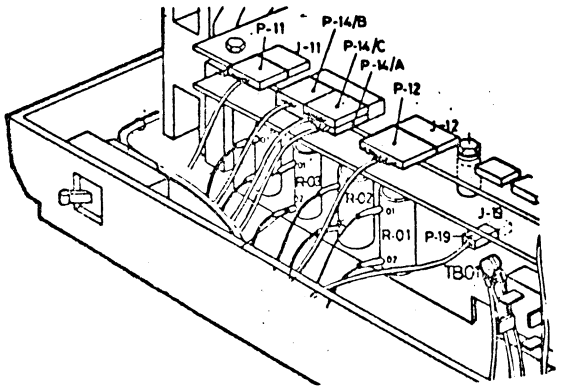


Fig. 7-12 Resistances/ Localization

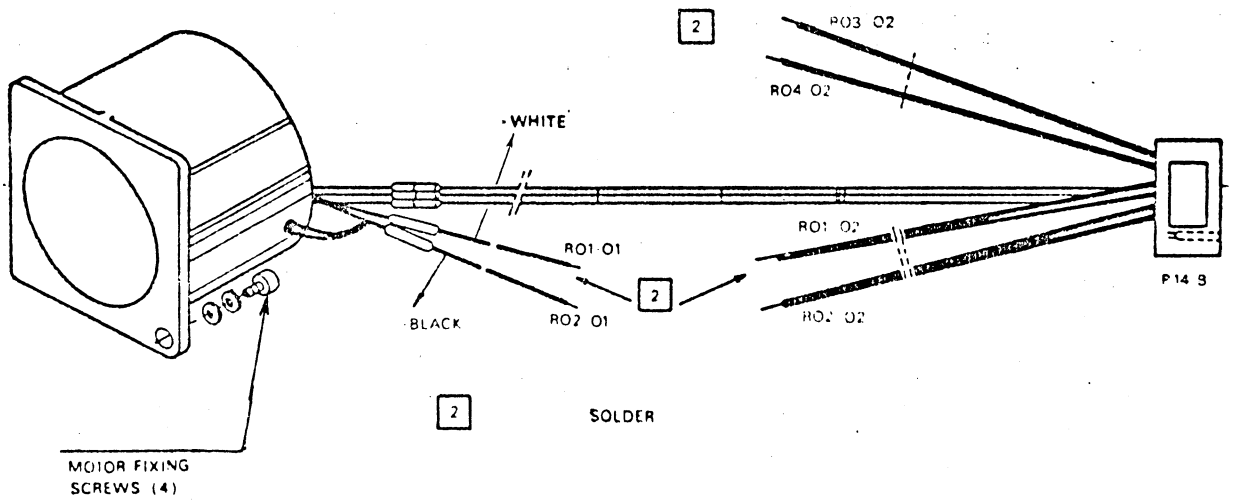


Fig. 7-13 MARA Mechanics Carriage Motor Assembly

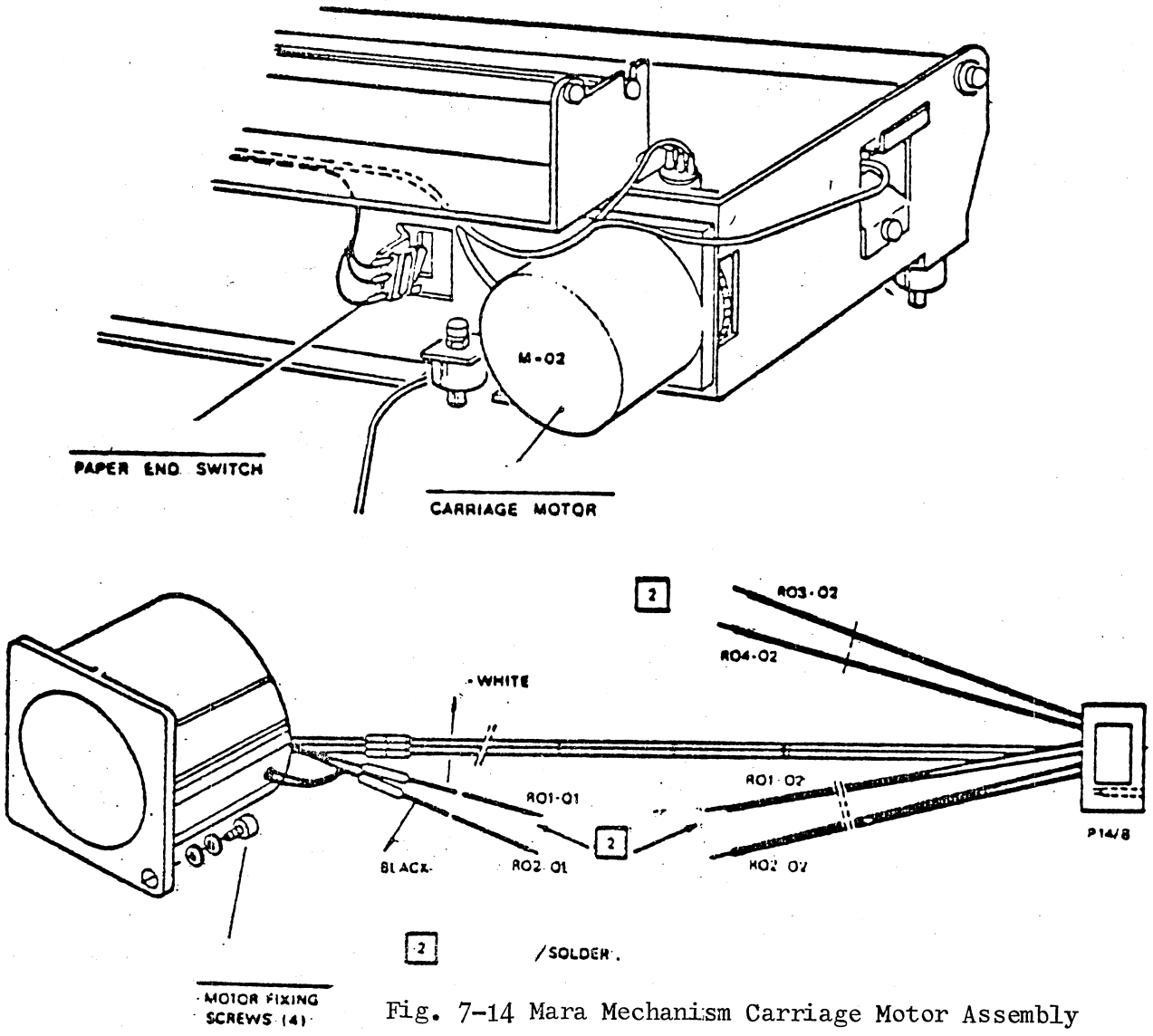


Fig. 7-14 Mara Mechanism Carriage Motor Assembly

Mounting Procedure

- Mount the new motor and lock it to its support by means of the 4 fixing screws (see fig. 7-14)
- Mount the toothed pulley
- Connect the power cable P14B on the PWA DRIVE. (see fig. 7-12)
- Solder the connections on resistances R.01 - R.02 - R.03 - R.04 (see fig. 7-13)

Final Operations

- Execute routines 8.2.1.3/4 described in the maintenance manual
- Check that the unit operates correctly
- Scrap the faulty motor

7.7.7 MINA MECHANICS PAPER DRIVE MOTOR REPLACEMENT (Short cabled type without terminals to be soldered)

Removal

1 Needed Material
- Personal F.E. tools kit

2 Preliminary Operations
- Power off the unit
- Remove the covers (Routine 8.2.2.1)

3 Procedure
- Disconnect the motor power cable on the P-02/J-02 connection of the bulk cable
- Remove the 4 screws fixing the motor to the right-hand support assembly of the unit (fig. 7-15)

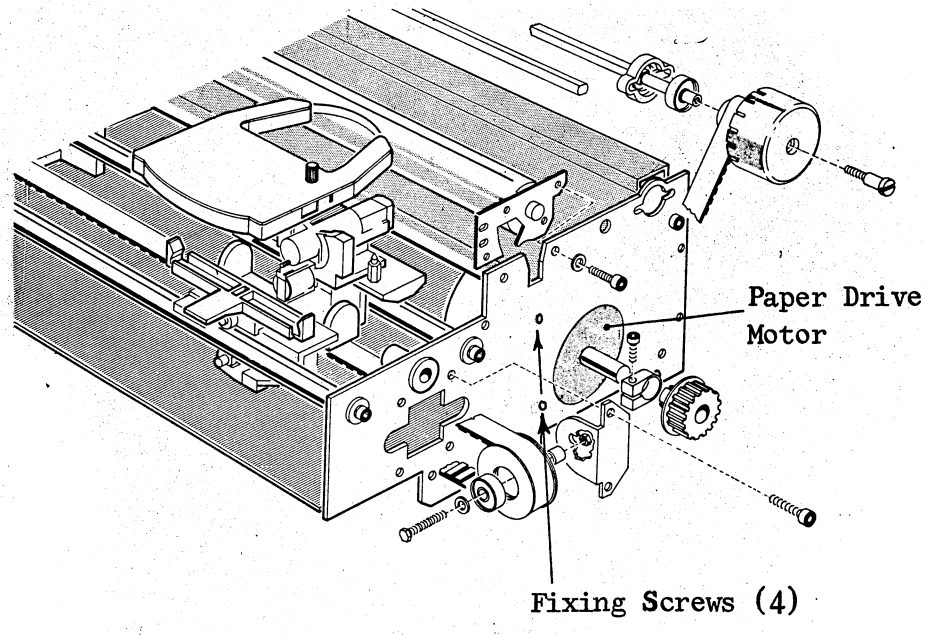


Fig. 7-15 Paper Drive Motor Localization for the Mina Mechanics

Mounting Procedure

- Mount the new motor and fix it to its support through the four fixing screws
- Connect the power cable on the P-02/J-02 connection

Final Operation

- Check that the unit operates correctly
- Scrap the faulty motor

7.7.7.1 MINA MECHANICS PAPER DRIVE MOTOR REPLACEMENT (Long cabled type with terminals to be soldered)

Dismounting Procedure

1 Materials Required

- Personal F.E. tool kit

2 Preliminary Operations

- Set the unit to POWER OFF
- Remove all covers (routine 8.2.2.1)

3 Execution Procedure

- Disconnect motor power cable P14A on the PWA DRIVE (See fig. 7-16)
- Unsolder the connections present on resistances R.03-01 and R.04-01 (See fig. 7-16)
- Loosen the collar screw which locks the toothed pulley on the motor shaft
- Take off the toothed pulley
- Remove the 4 screws which lock the motor to the right-hand flank (See fig. 7-17)

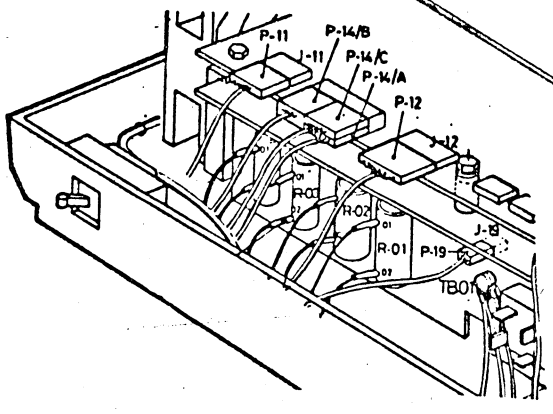


Fig. 7-16 Resistances/Connectors Localization

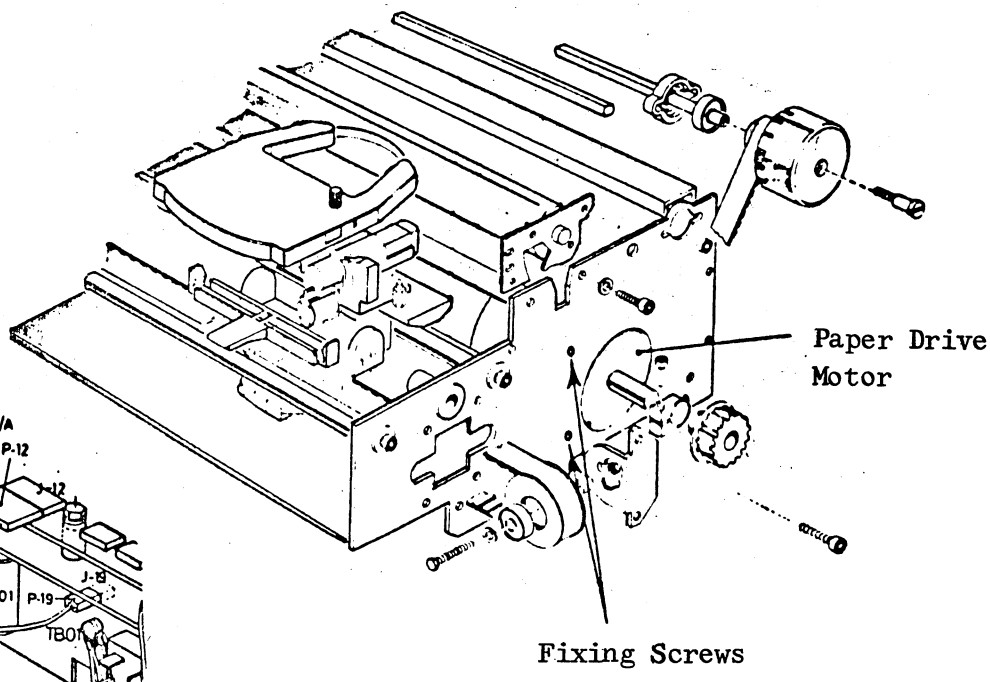
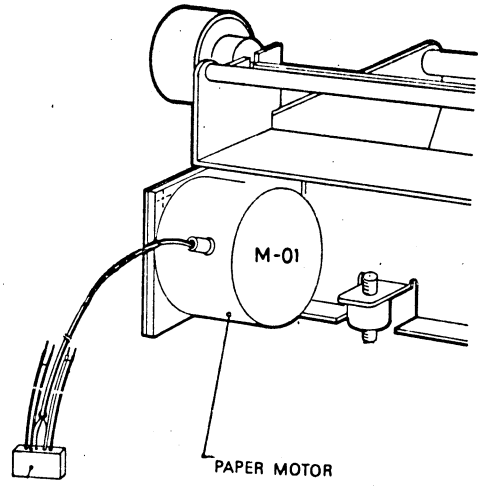


Fig. 7-17 Mina Mechanics Paper Drive Motor Localization



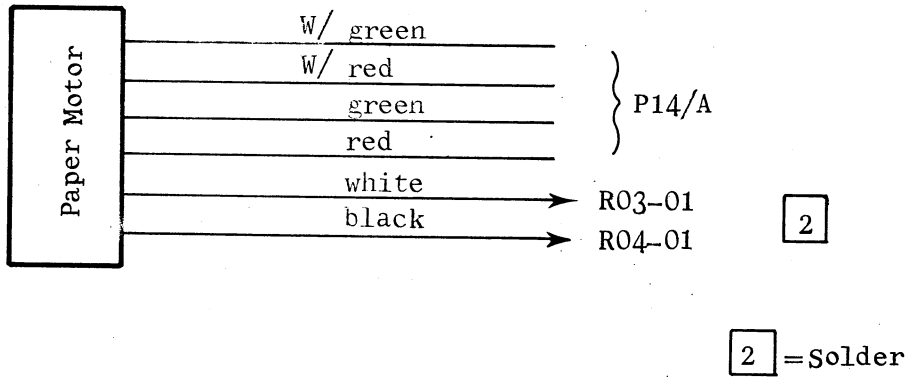


Fig. 7-10 Bis Paper Drive Motor Connectors

Mounting Procedure

- Mount the new motor and fix it to the support by means of the four fixing screws
- Mount the toothed pulley
- Connect the power cable P14A on the DRIVE PWA (see fig. 7-16)
- Solder the connections on resistances R.03-01 and R.04-01. (See fig. 7-18)

Final Operations

- Check that the unit operates correctly
- Scrap the faulty motor

7.7.7.2 MARA Mechanics Paper Drive Motor Replacement

Removal

1 - Personal F.E. tools kit

2 - Preliminary Operations

- Power off the unit
- Remove the covers (routine 8.2.2.1)

3 - Execution Procedure

- Disconnect the motor power cable P14A on the DRIVE PWA. (See fig. 7-19)
- Unsolder the connections on resistances R.03-01 and R.04-01 (See fig. 7-19)
- Remove the 4 screws fixing the motor to the right-hand wall (see fig. 7-20)
- Remove the screw fixing the toothed pulley to the motor shaft.

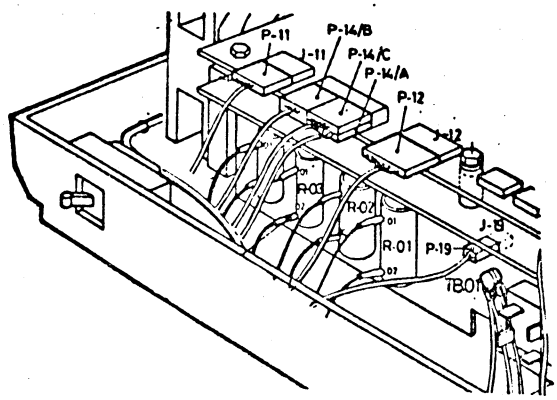


Fig. 7-19 Resistance/Connector Localization

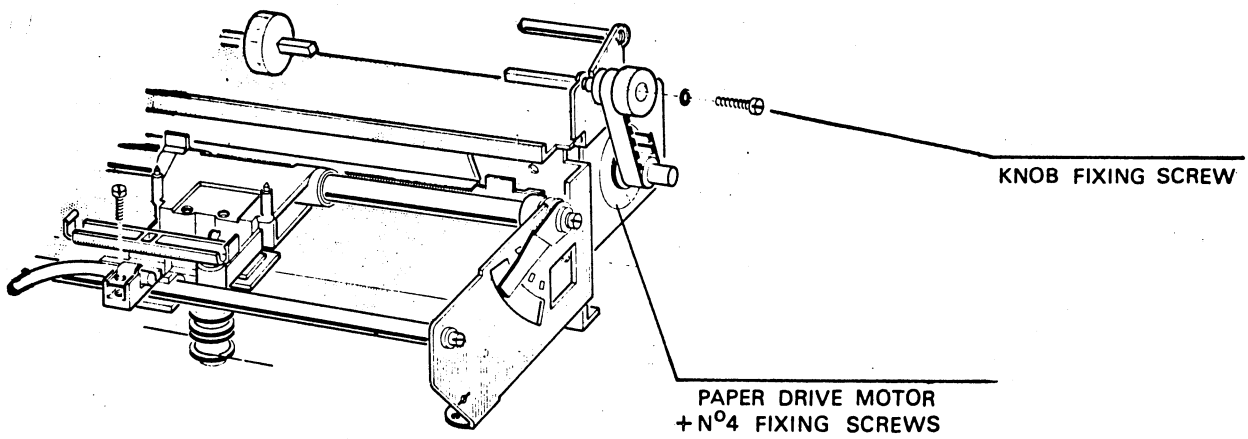
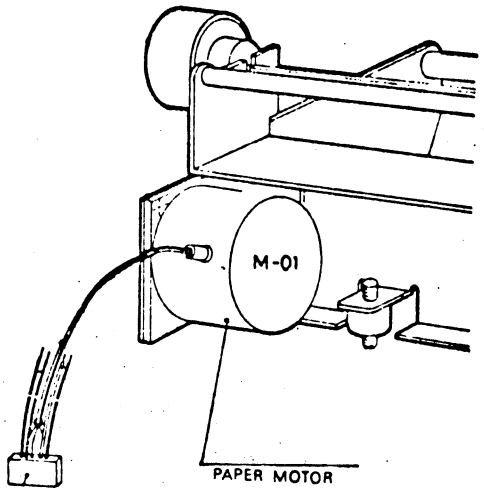


Fig. 7-20 Paper Drive Motor Localization for the Mara Mechanics



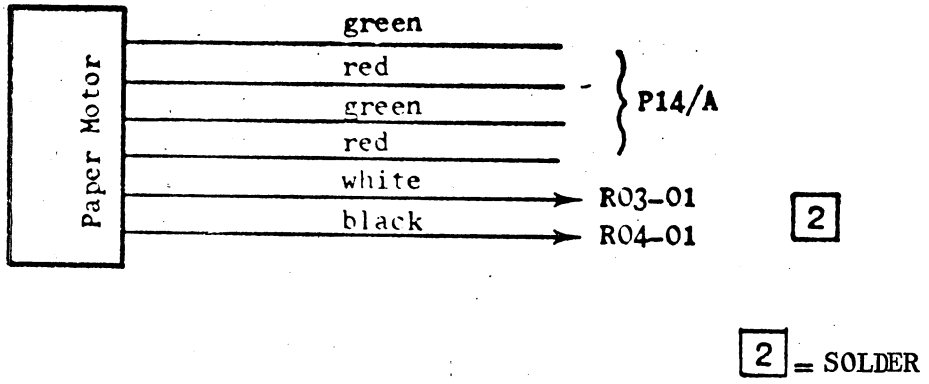


Fig. 7-21 MARA Mechanics Paper Drive Motor Localization

Mounting Procedure

- Mount the new motor and lock it to its support by means of the 4 fixing screws
- Mount the toothed pulley
- Connect power cable P14A on the DRIVE PWA (fig. 7-19)
- Solder the connections on resistances R.03-01 and R.04-01 (see fig. 7-21)

Final Operations

- Check that the unit operates correctly
- Scrap the faulty motor

7.7.8 RIBBON DRIVE ROPES REPLACEMENT

Removal

1 Needed material
. Personal F.E. tools kit

2 Preliminary operations
. Power off the unit
. Remove the covers (Routine 8.2.2.1)

3 Procedure
. Unhook the rope by removing the support spring
. Extract the rope by pulling it from either point (A) or point (B) as shown in fig. 7-22

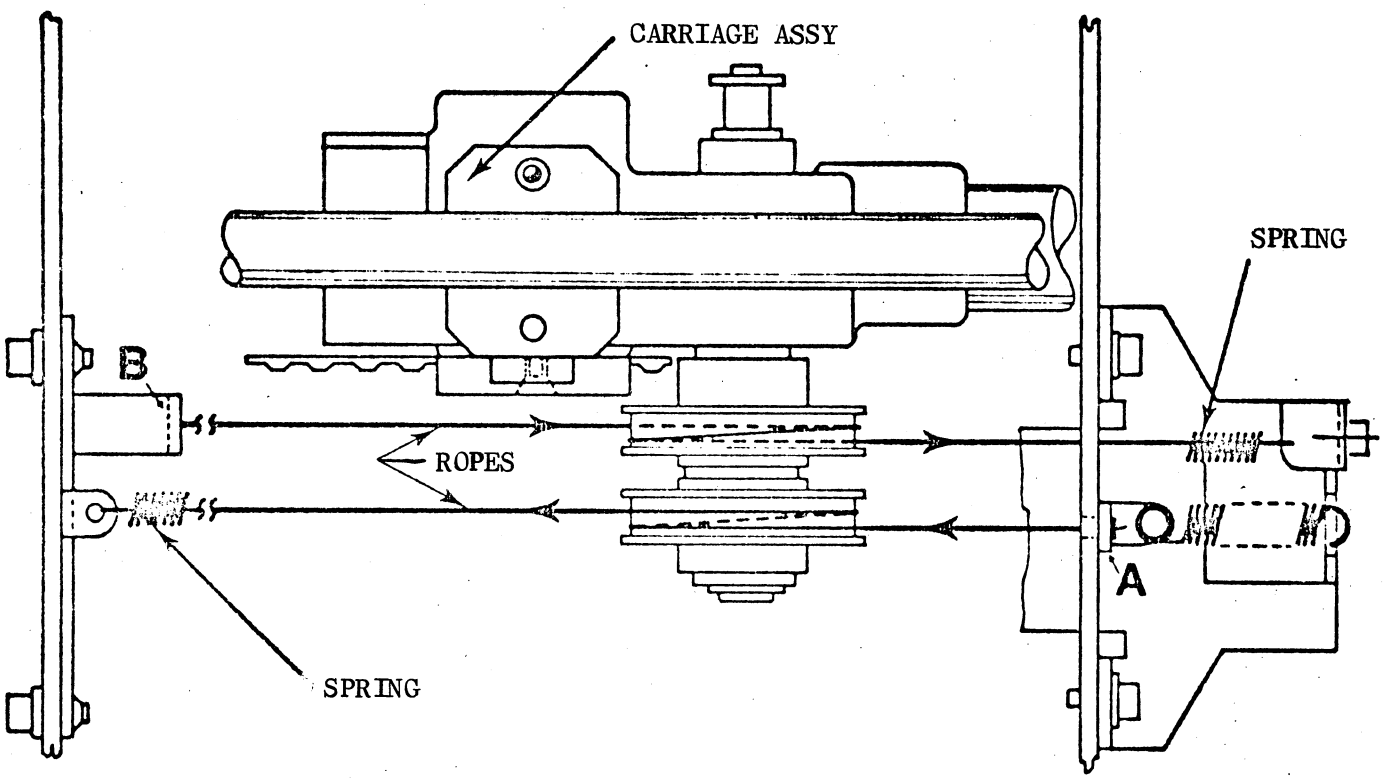


Fig. 7-22 Ribbon Drive Ropes Localization

Mounting Procedure

- Thread the new rope through the pertinent bushing on either point A or B and pull it up to hook the spring to its support point.

Final Operations

- Scrap the broken ropes
- Check that the unit operates correctly

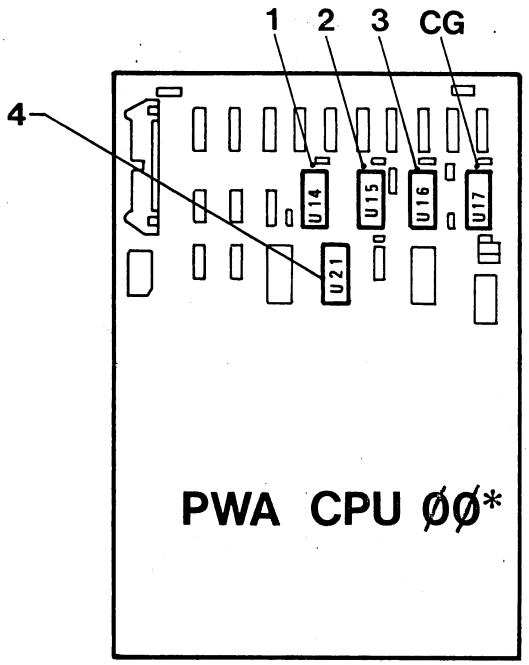
7.7.9 FIRMWARE EPROM REPLACEMENT

Removal

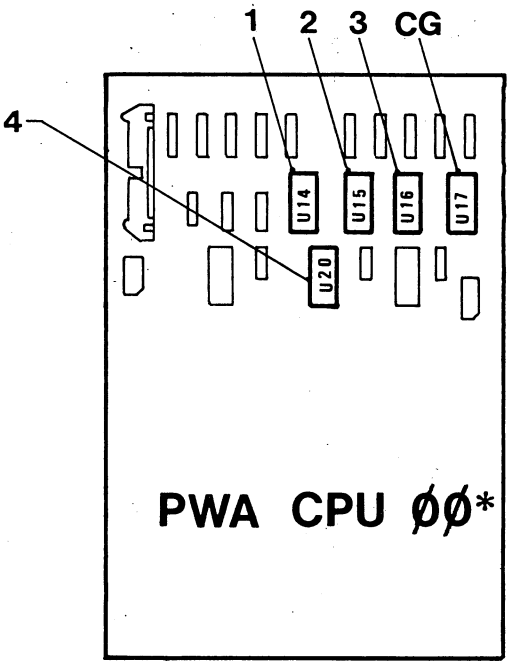
1. Needed material
. Personal F.E. tools kit

2 Preliminary operations
. Power off the unit
. Remove the covers (Routine 8.2.2.1)

3 Procedure
. Extract the logic module (PWA's)
. Remove the faulty F/W EPROM's from the involved CPU or AFF board
. Insert the new F/W EPROM's complying with the "tab number" level of the involved CPU board (See fig. 7-23/24)



* (B 78119300-001 ÷ 003)
78118450-001 ÷ 006)
78119299-001 ÷ 003



* (B 78119300-004 ÷ 005)

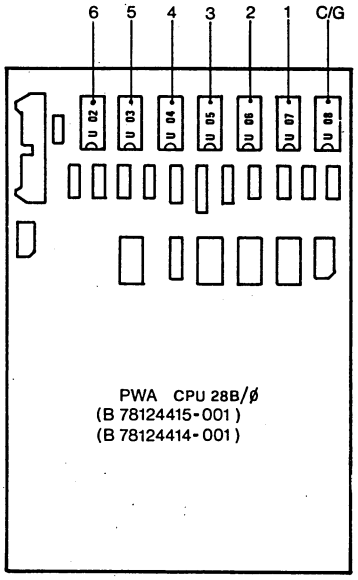
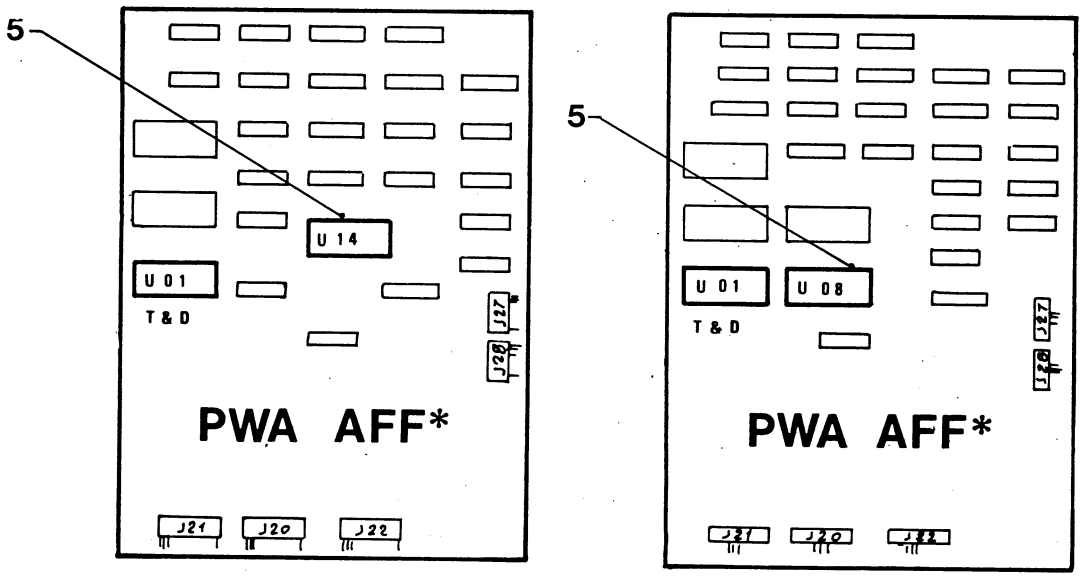


Fig. 7-24 F/W EPROM Localization on the CPU 28B/Ø PWA

. When the involved unit features the AFF option, the fifth F/W EPROM is surely mounted on the PWA AFF (See fig. 7-25)



* (B78117217-002 ÷ 006)

* (B78117217 ÷ 007-008)

Fig. 7-25 F/W EPROM Localization on the AFF PWA

- When the involved unit features the AFF option, but the F/W EPROM's have a 2K Memory size, the fifth F/W EPROM is mounted on an AFF - E PWA. (See fig. 7-26)

CAUTION

For the POLY 21.1 model the 5th FW EPROM must be mounted in location U01, and the 6th EPROM of FW AFF must be mounted in location U08.

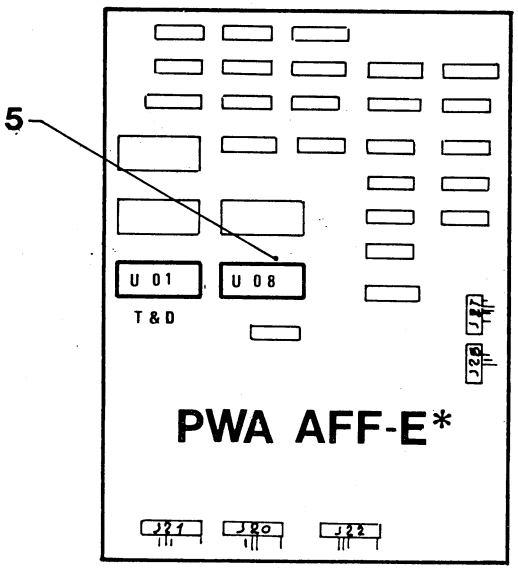


Fig. 7-26A F/W EPROM Localization on the AFF - E PWA

* (B78122655-001 + 002)

NOTE: Only for ROSY 28

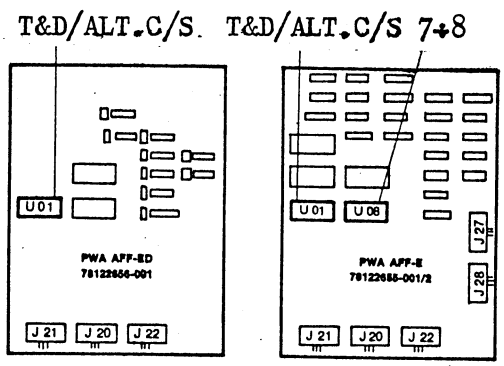
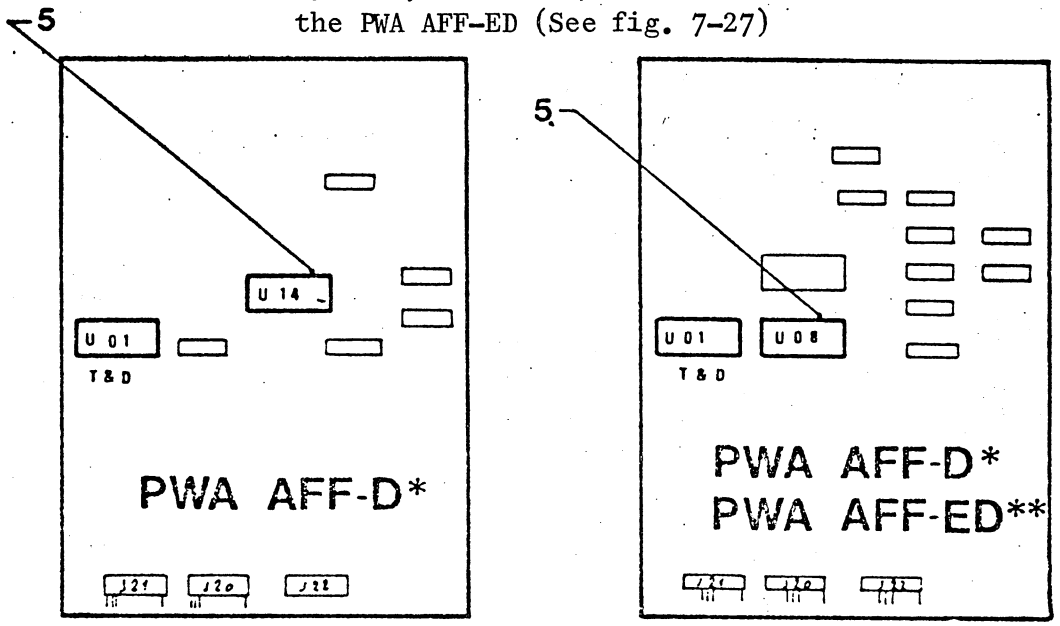


Fig. 7-26B Base F/W and AFF/2 P.H. Chips Mounting

. When the involved unit does not comprise the AFF option, the 5th F/W EPROM is mounted on the PWA AFF-D.
Besides, if the F/W EPROM's have a 2K memory size, the 5th F/W EPROM is mounted on the PWA AFF-ED (See fig. 7-27)



* (B 78119100-001)

* (B 78119100-002)
* * (B 78122656-001)

Fig. 7-27 F/W EPROM Localization on the AFF-D/AFF-ED PWA's

. When the involved unit feature the diagnostic option (T&D EPROM), it is always mounted on the PWA AFF-D or on the PWA AFF-ED (if 2K memory EPROM) if the AFF option is not mounted (Automatic Front Feed). (See fig. 7-27)
The diagnostic option is always mounted on the PWA AFF or on the PWA AFF-E (if 2K Memory EPROM) if the AFF option is present (Automatic Front Feed). (See fig. 7-25/26).

CAUTION

For the POLY 21.1 model, the diagnostic option (T&D EPROM) shall be always mounted in location U08.

Final Operation

. Check that the unit operates correctly
. Scrap the faulty EPROM's

7.7.10 KEYBOARD REPLACEMENT

Removal

1 Needed material

. Personal F.E. tools kit

2 Preliminary operations

. Power off the unit
. Remove the covers (Routine 8.2.2.1)

3 Procedure

. Remove the keyboard cover
. Remove the four screws fixing the keyboard to the base

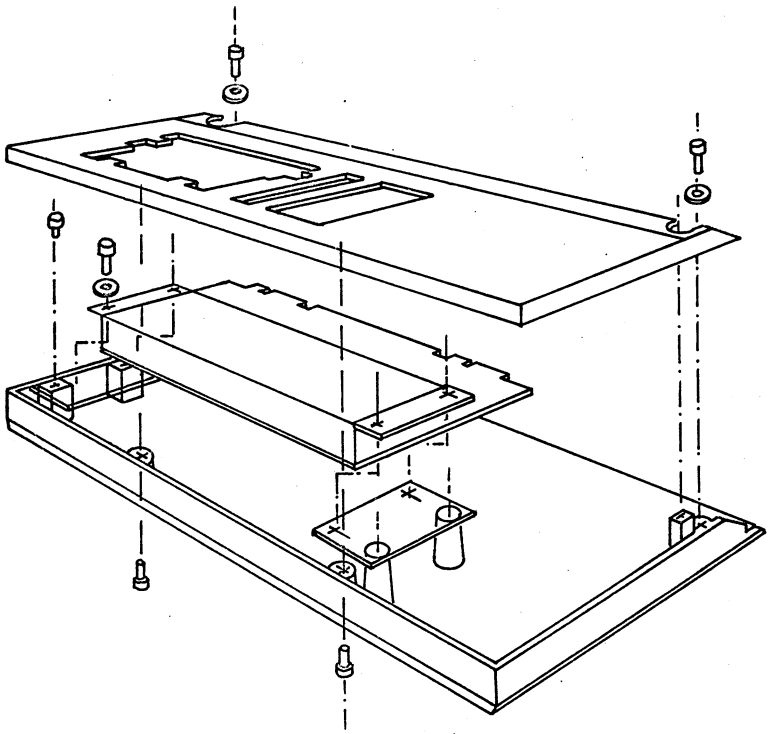


Fig.7-28 Keyboard Covers with Separate Numeric - Pad

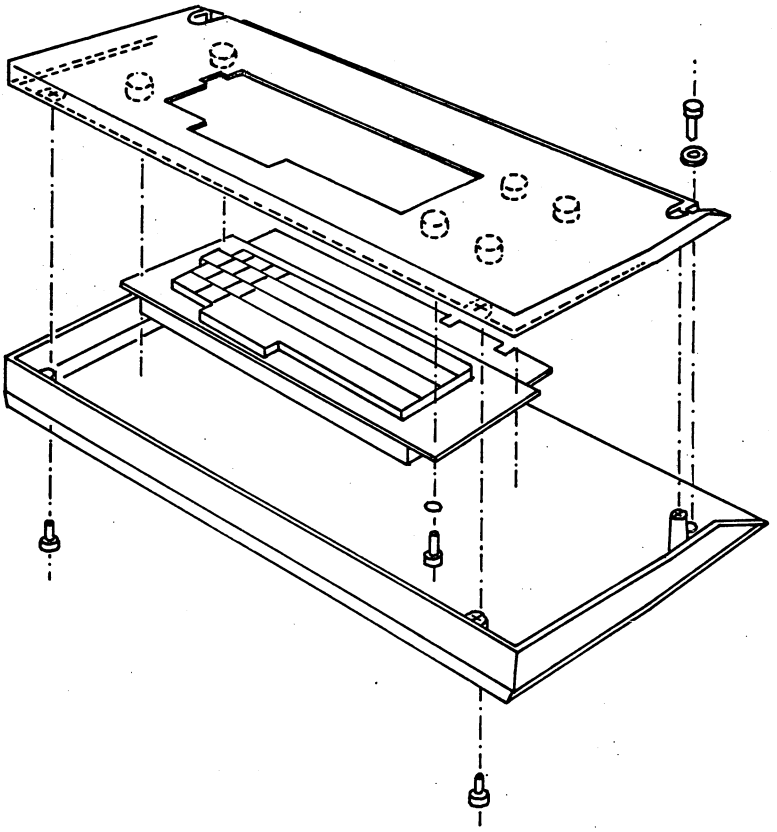


Fig. 7-29 Keyboard Covers without Separate Numeric - Pad

Mounting Procedure

- Mount the new keyboard and fix it by means of the four fixing screws.
- Mount the keyboard covers.

Final Operations

- Check that the unit operates correctly
- Return back the faulty keyboard for repair.