

ATARI®

XMM801

**FIELD
SERVICE
MANUAL**



ATARI (U.S.) CORP.



CO70435
OCT. 1985
Rev. by jer/eightbitter 2014

SERVICE MANUAL
PERIPHERAL PRINTER
XMM 801

TABLE OF CONTENTS

	Page
GENERAL	1
A. MODULES AND COMPONENTS	1
Figure 1. External View	1
Figure 2. External View on Back Side	1
Figure 3. Internal Structure	2
B. BASIC STRUCTURE	3
1. Power Supply	3
2. CPU and Control Circuit Block	3
3. Printer Mechanism	3
Figure 4. General Blocks of Structure	3
Figure 5. CPU and Control Circuit Block Diagram	3
4. Connection of Circuits, between Modules	4
Figure 6. Connector Locations, on Blocks	4
5. Interface Out-line	4
Figure 7. Interface Block Diagram	4
6. ATARI SIO BUS Timing	5
Figure 8. Data Send (to Printer)	5
Figure 9. Data Receive (from Printer)	5
7. Functional Structure in Block Diagram	6
Figure 10. Basic Data Flow between the Hardwares	6
Figure 11. Basic Data Flow with the Host Computer	6
8. XMM801 Timing Chart at Power ON	7
Figure 12. Timing Chart	7
C. ELECTRIC CIRCUIT INFORMATION	8
1. Power Supply	8
Figure 13. Circuit diagram, 220/240Volts Type	8
Figure 14. Circuit diagram, 100/115Volts Type	8
Figure 15. Parts Layout and Pattern Schematic	9
For Filter P.C. Board	
2. Operation Keyboard	9
Figure 16. Circuit Diagram	9
Figure 17. Parts Layout and Pattern Schematic	9
3. Main Control Board	10
Figure 18. Circuit Diagram	10

Figure 19. Parts Layout and Pattern Schematic	11
4. ATARI SERIAL Input/Output Interface Board	12
Figure 20. Circuit Board	12
Figure 21. Parts Layout Schematic	12
5. Electric Circuit for Printer Mechanism	13
Figure 22. Connection Diagram	13
D. TROUBLESHOOTING	14
1. Check Flows for Troubleshooting	15
Figure 23. Printer is totally out of work	15
Figure 24. Incorrect function of printer mechanism	16
Figure 25. Print is available, but incorrect characters	17
Figure 26. Feed motor is not working	18
2. Check Points for Repair	19
3. Typical Wave Form of Signals	23
E. PARTS LIST	26
F. SERVICES FOR PRINTER MECHANISM	37

G E N E R A L

Information for Repair and Maintenance of PERIPHERAL PRINTER

Before starting repair and/or check of the printer by referring to this information, the Operation Manual of the Printer should be thoroughly read.

This manual includes all the technical information that is necessary to be referred to for performance of service at the distributor's service organization except for the subjects that are covered by the Operation Manual.

A. MODULES AND COMPONENTS

Refer to the followings for the indexes of the descriptions and locations of the parts (modules).

Figure 1. External View

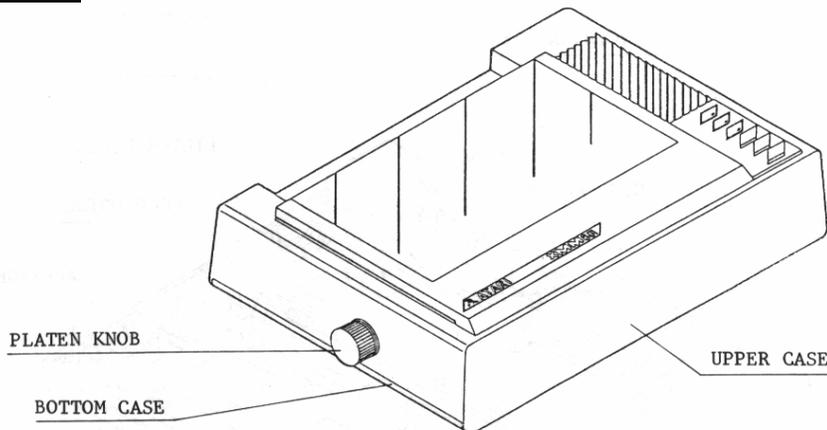


Figure 2. External View on Back Side

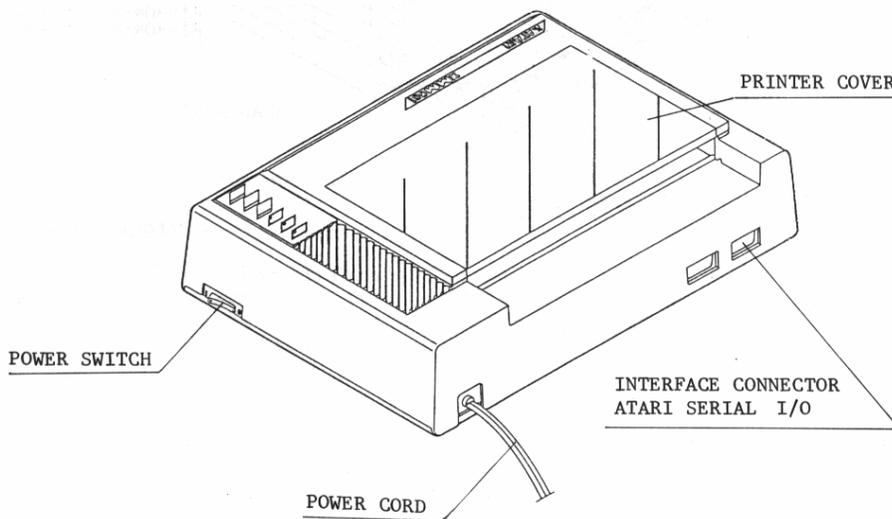
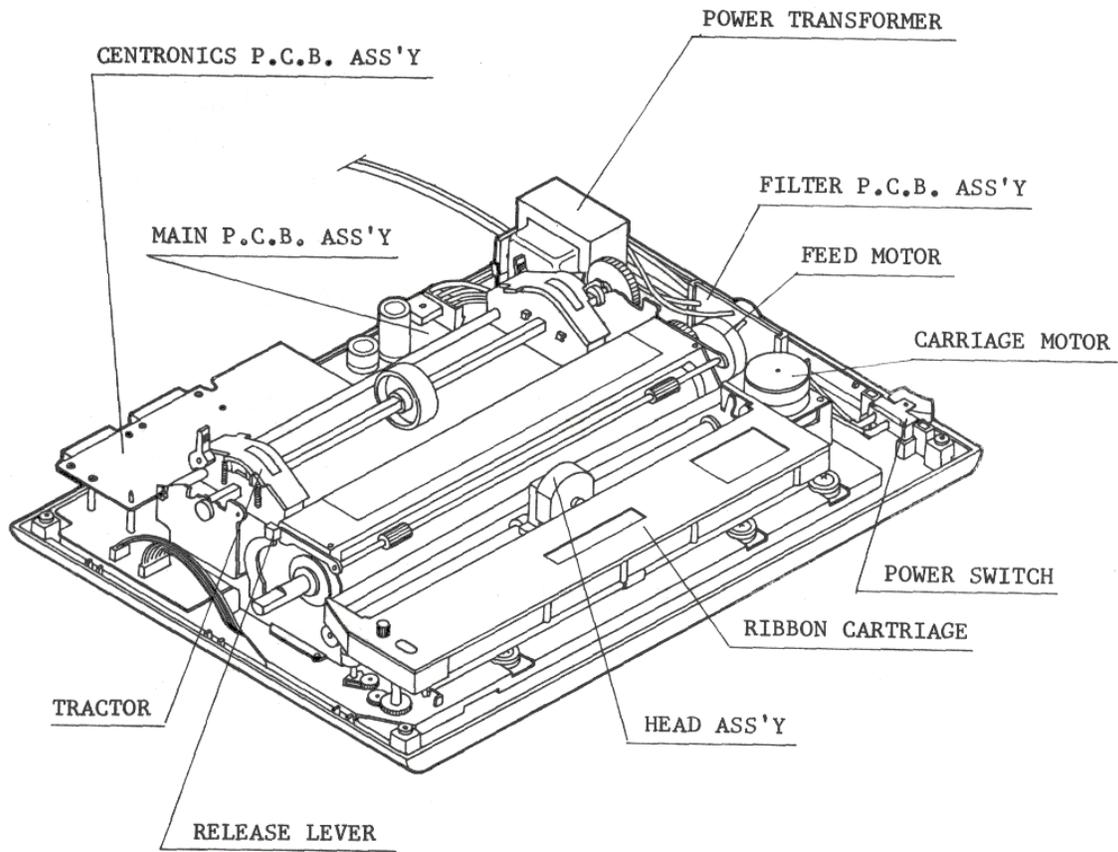


Figure 3. Internal Structure



B. BASIC STRUCTURE

1. Power-Supply

Primary - AC 50/60Hz 100V, 115 V, 220 V or 240 V
Transformer for each AC voltage is selected at the factory.

Note: There are four types of transformer. A selection of voltage is made at the factory-set in accordance with the customer's requirements.

Secondary - DC 5 Volt for TTL Logics.
DC 19 Volt for Printer Mechanism.

2. CPU and Control Circuit Block

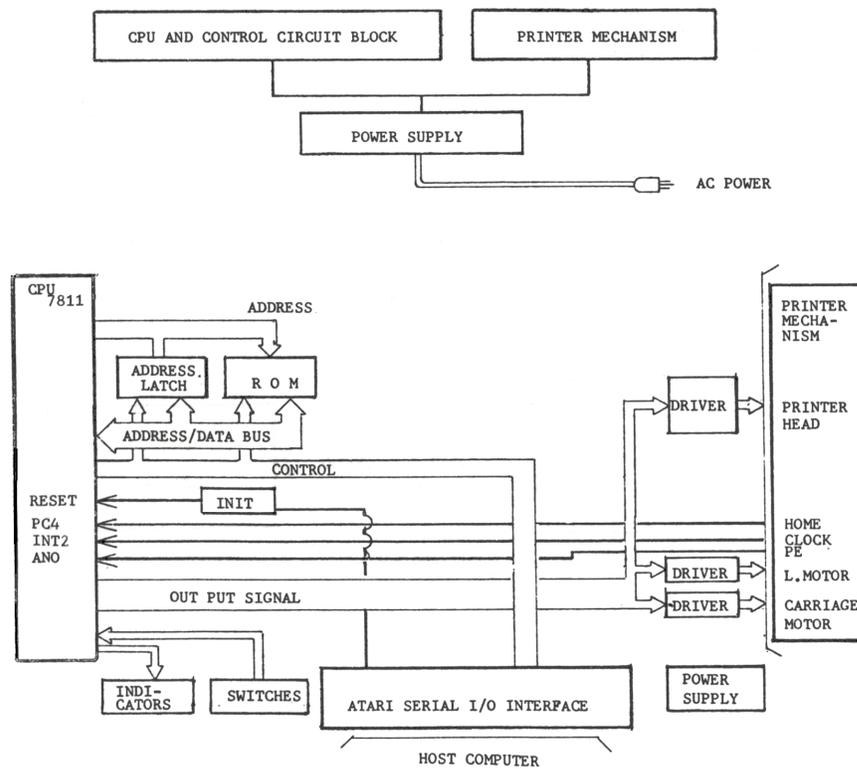
Main Control Board with CPU, ATARI SIO Interface Board and Operation Key Board.

3. Printer Mechanism

Printer Head, Head Carriage Mechanism, Paper Feed with Tractor Mechanism and Ribbon Driver Mechanism are in unit.

The Printer head is replaceable but disassembling of the other parts of unit at the field is not recommended for repair. In case of the printer mechanism is defective, the whole printer mechanism unit should be replaced, and the defective one be sent back to the factory.

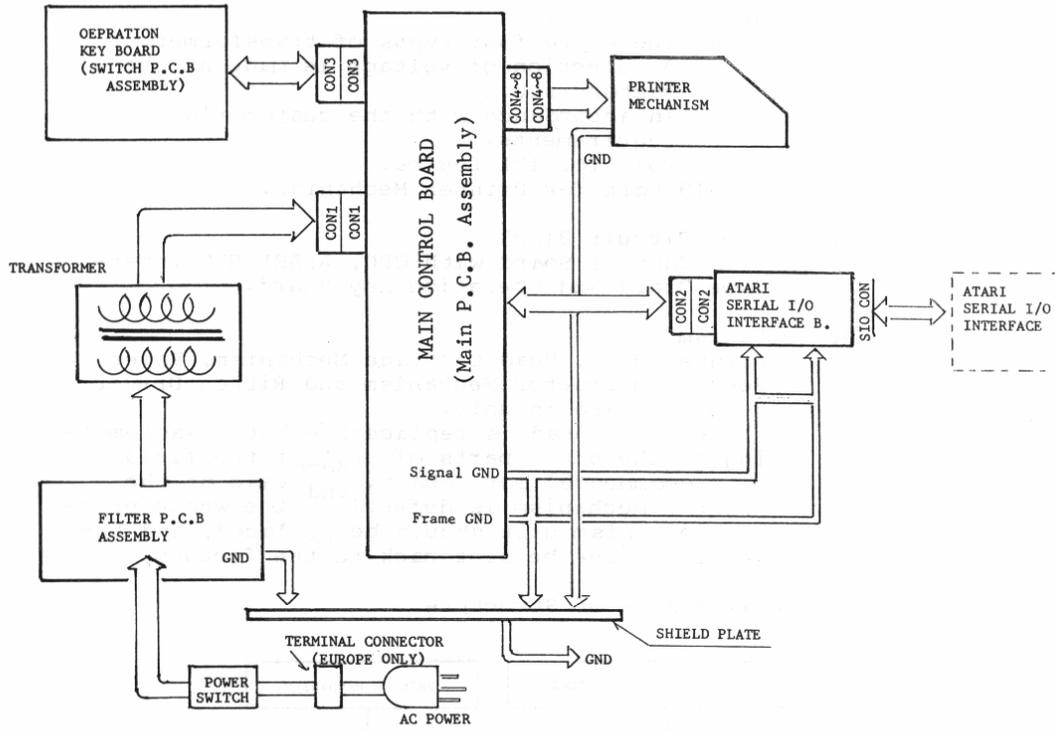
Figure 4. General Blocks of Structure



4. Connection of Circuits, between Modules

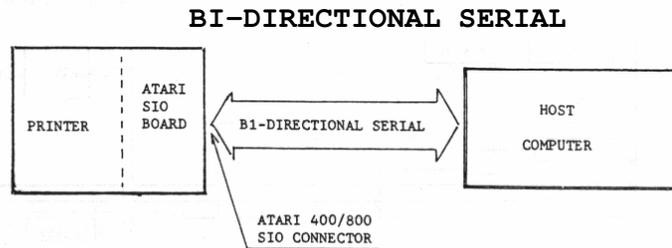
Figure 6. Connector Location, on Blocks:

Please refer to the electric circuit diagram and P.C.B. layouts.



4. Interface Outline

Figure 7. Interface Block Diagram



5. ATARI SIO BUS Timing

The bus protocol specifies that all commands must Originate from the CPU and that peripherals will present data on the bus only when commanded to.

Figure 8. Data Send (to Printer)

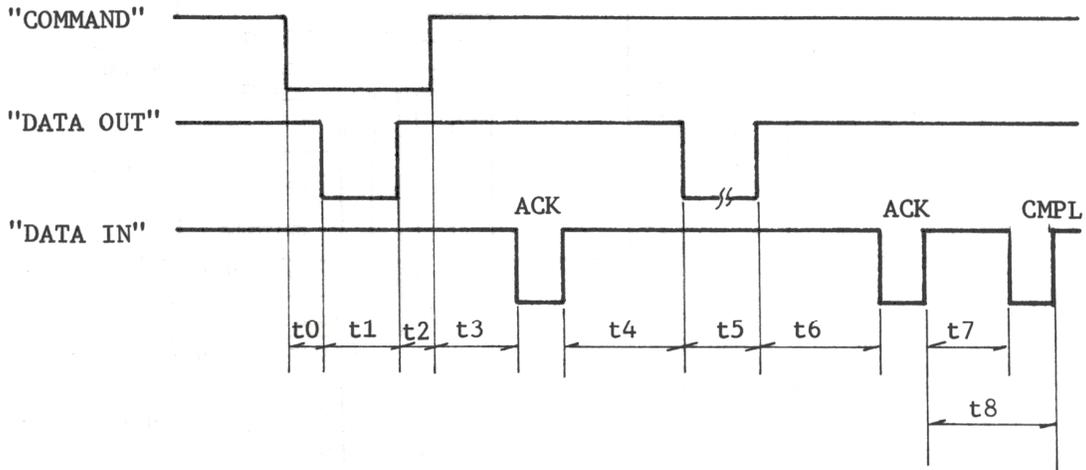
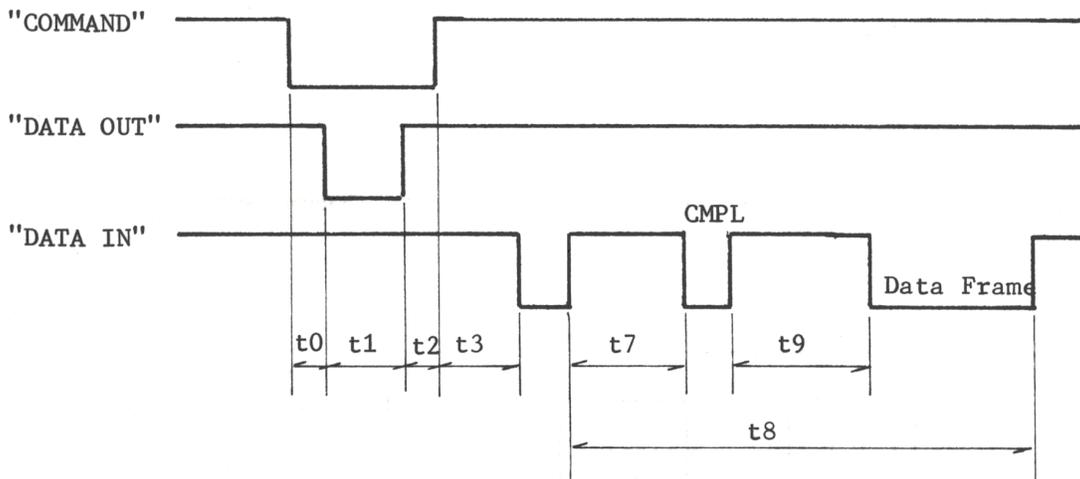


Figure 9. Data Receive (from Printer)



	min	max		min	max		min	max
t0 ;	750 μ	80mS	t4 ;	900 μ	6.7mS	t8 ;		10Sec
t1 ;		3.5mS	t5 ;		24.5mS	t9 ;		2.15mS
t2 ;	250 μ	2.8mS	t6 ;	2.8mS	10mS			
t3 ;	0 μ	10mS	t7 ;	2.95mS				

7. Functional Structure in Block Diagrams

Figure 10. Basic Data Flow between the Hardwares

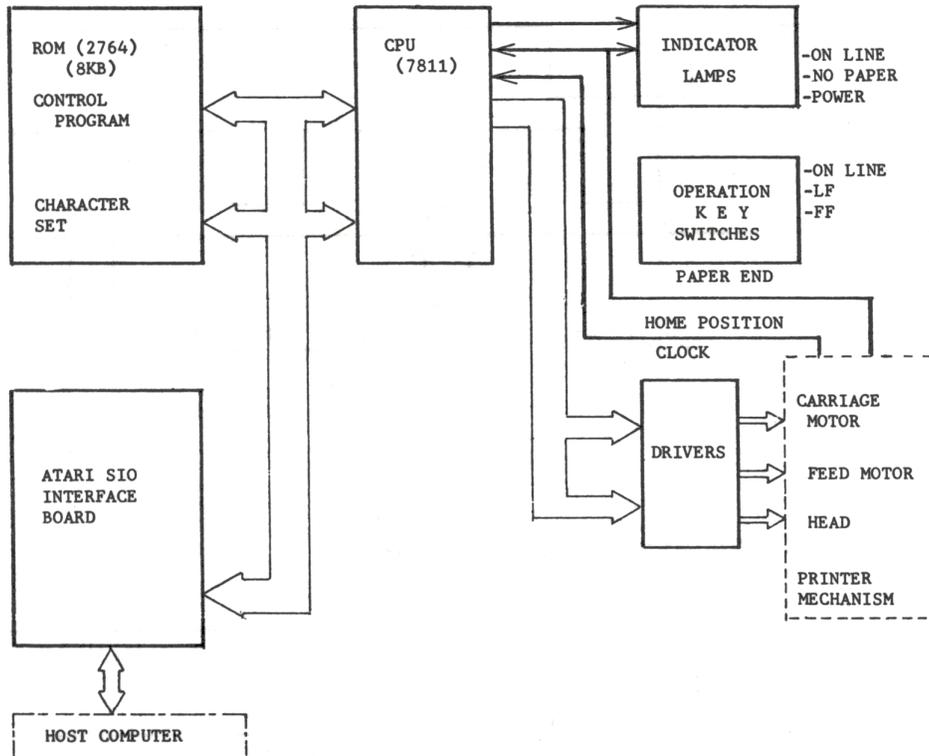
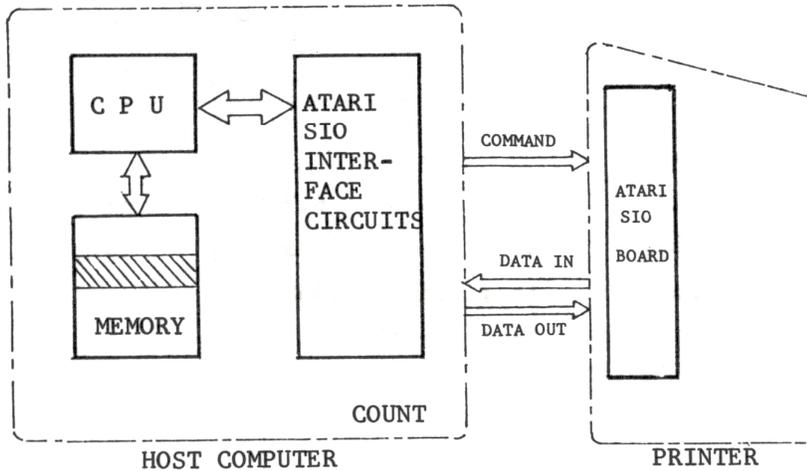
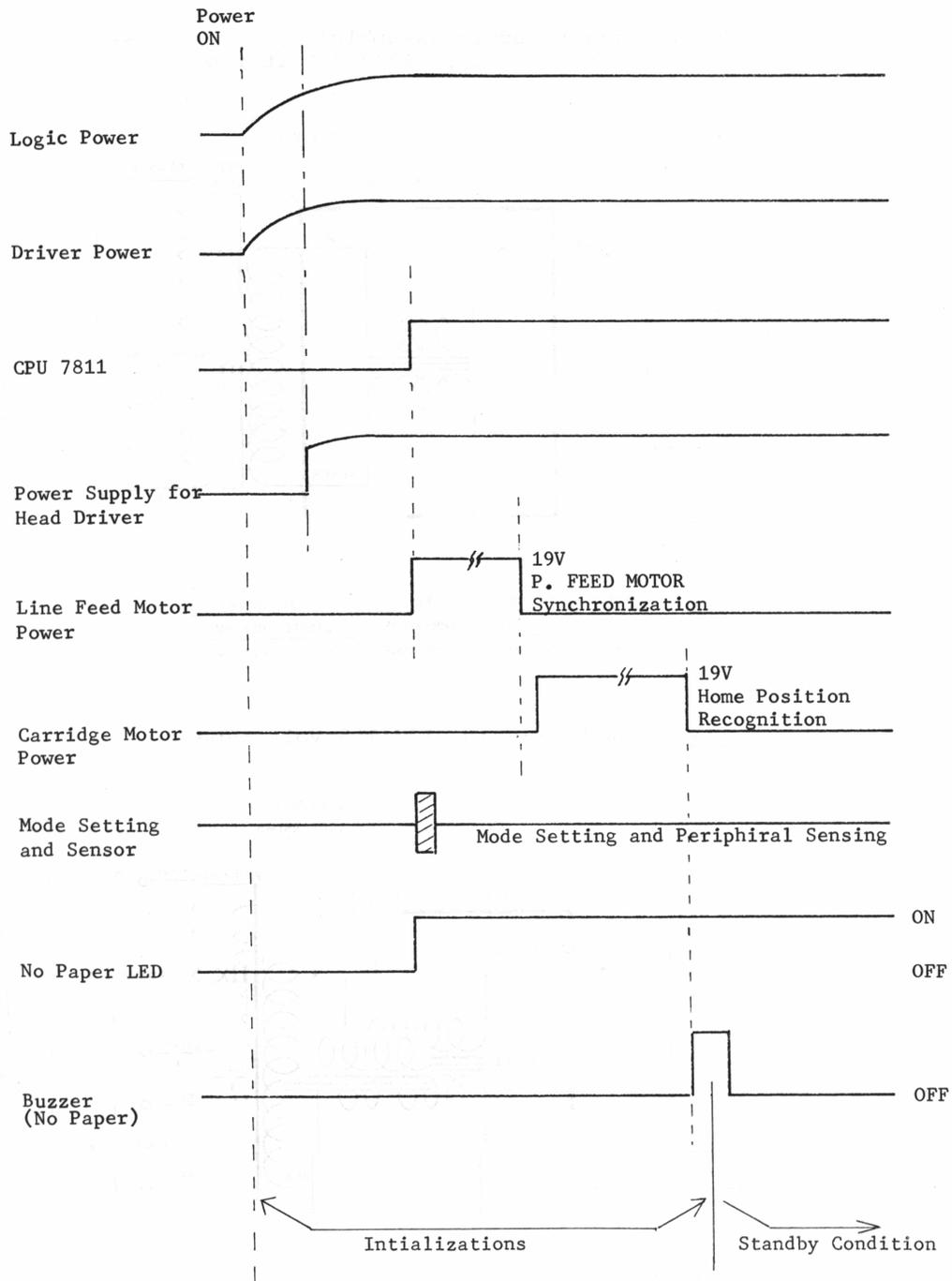


Figure 11. Basic Data Flow with the Host Computer



8. XMM801 Timing chart at Power ON

Figure 12. Timing Chart



C. ELECTRIC CIRCUIT INFORMATION

Refer to Figure 6. for the connection between modules.

1. Power Supply (power supply assembly)

Figure 13. Circuit Diagram 220/240 Volt type

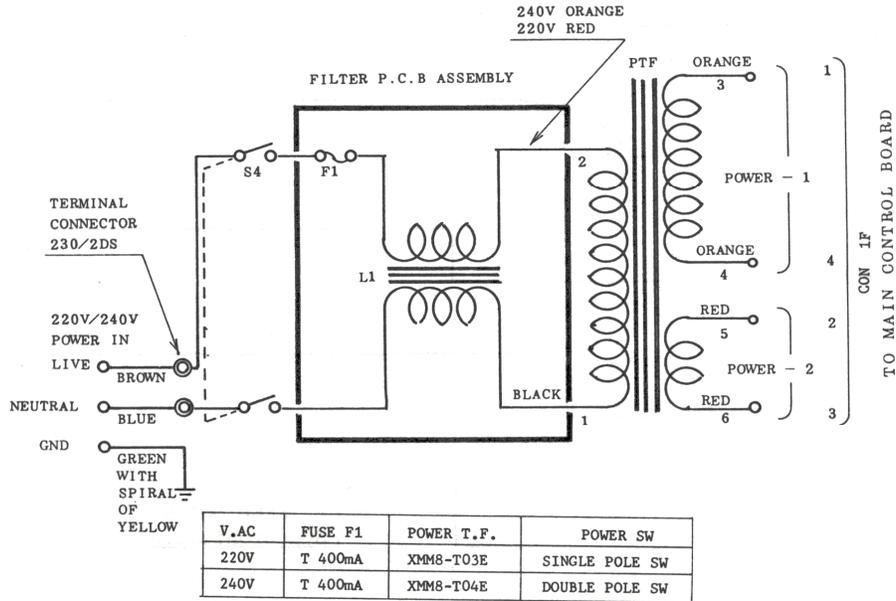


Figure 14. Circuit Diagram, 100/115 Volt type

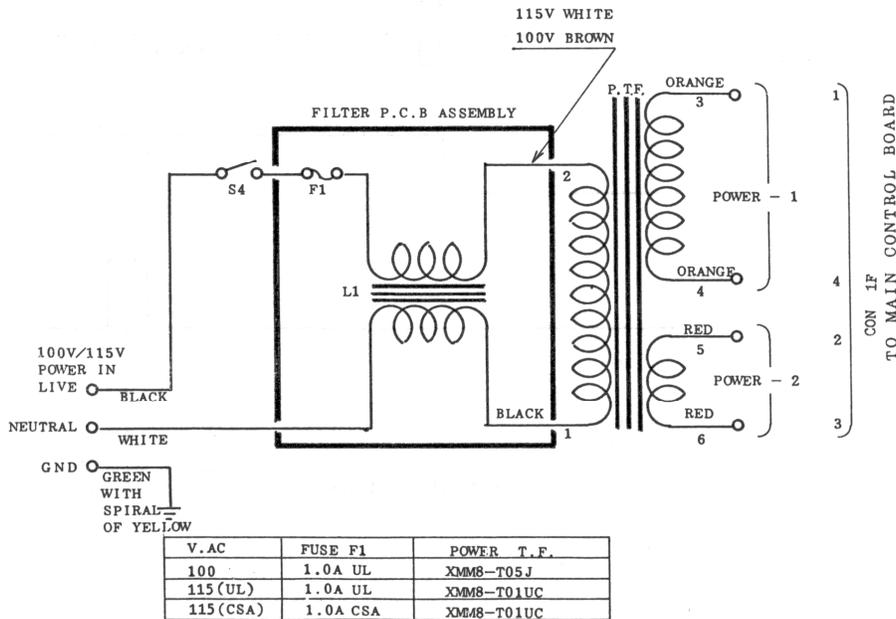
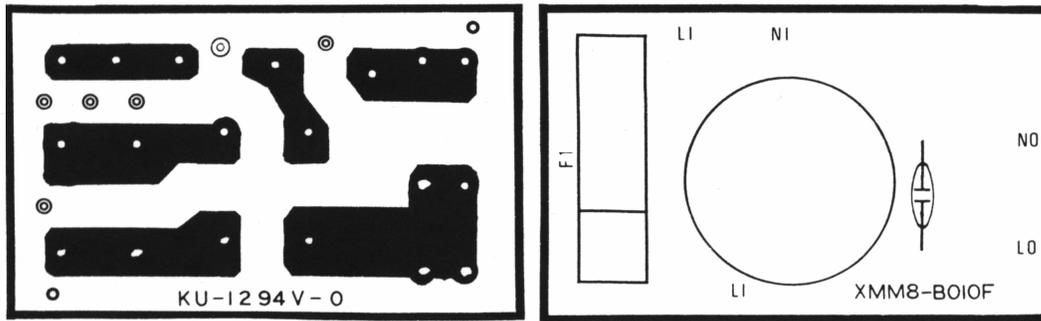


Figure 15. Parts Layout and Pattern Schematic for filter P.C. Board



2. Operation Key Board (switch P.C.B. assembly)

Figure 16. Circuit Diagram

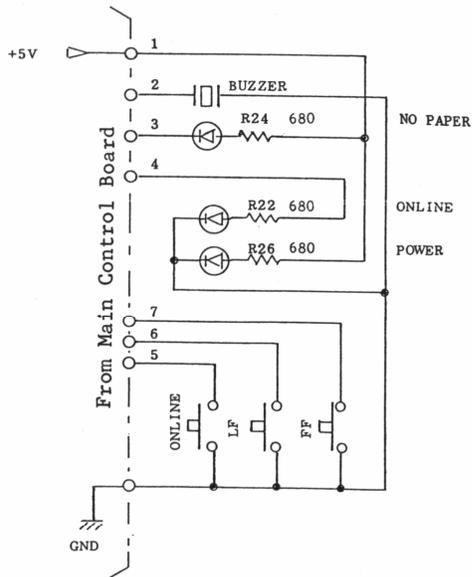


Figure 17. Parts Layout and Pattern Schematic

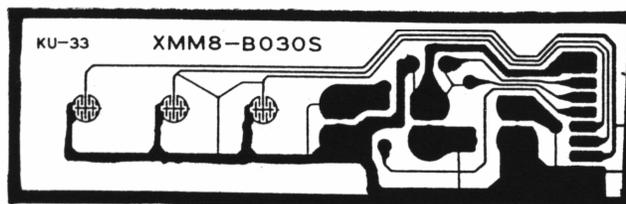


Figure 18. Circuit Diagram

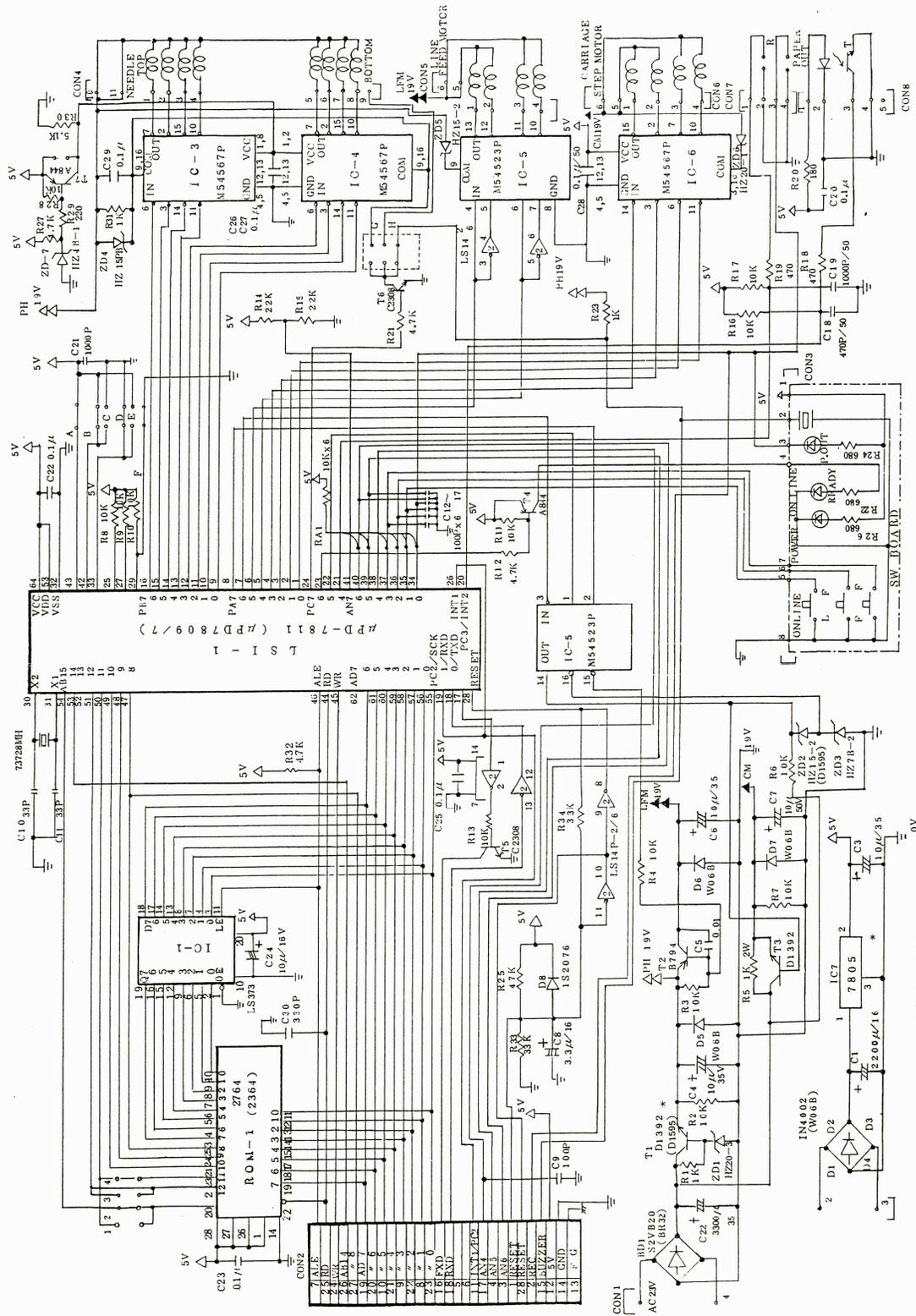


Figure 19. Parts Layout and Pattern Schematic

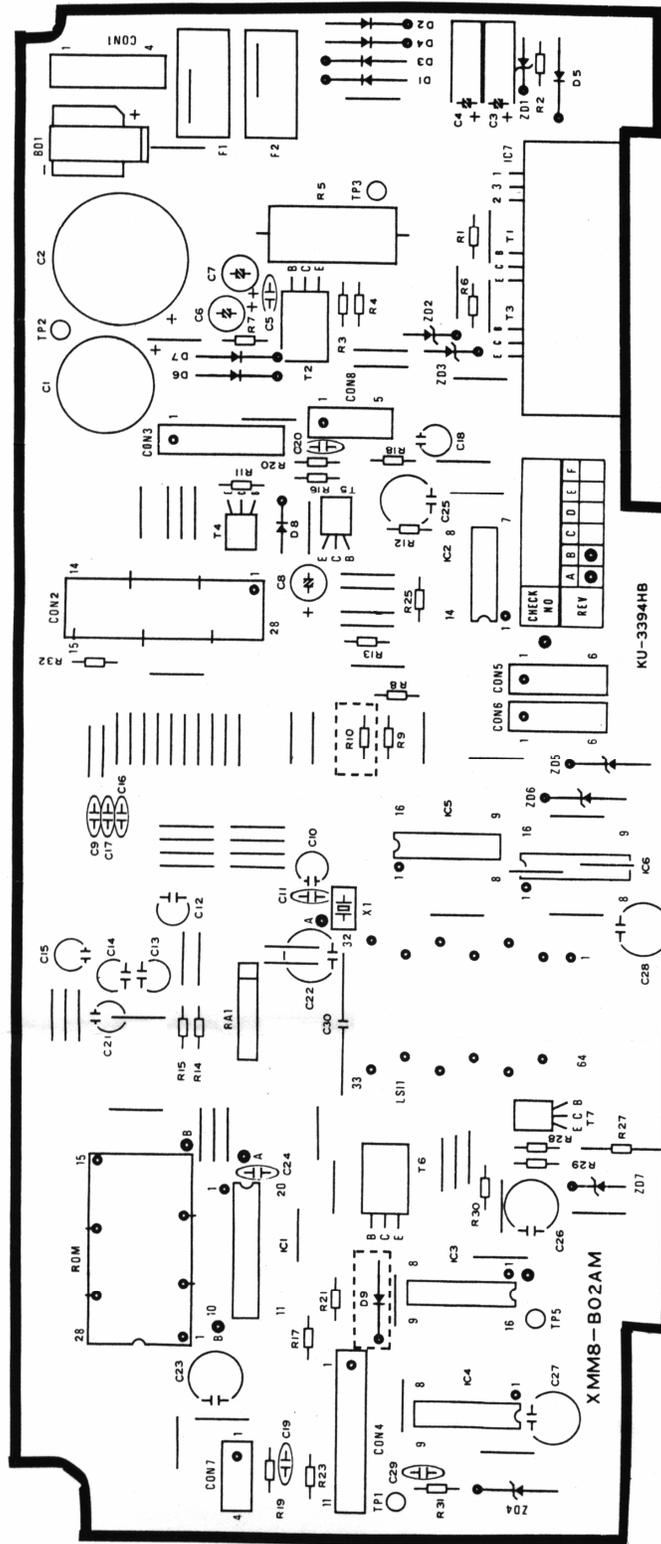
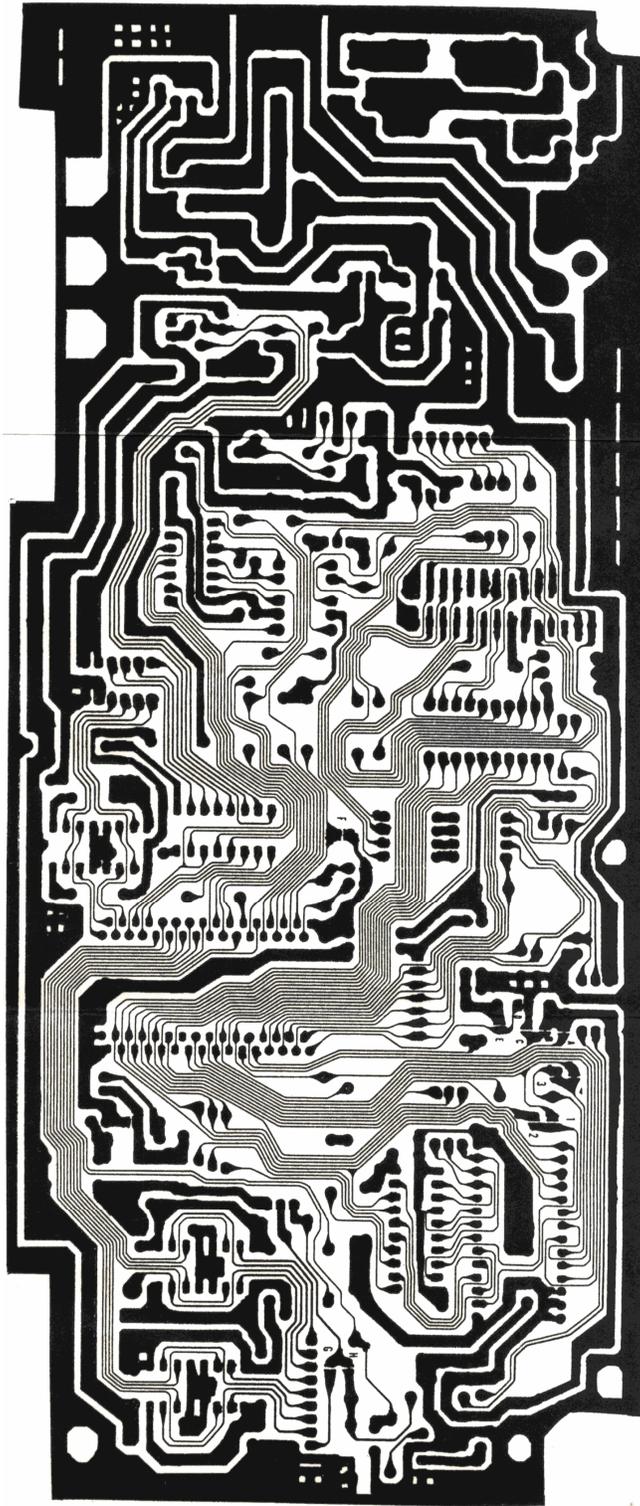


Figure 19. (cont.) Parts Layout and Pattern Schematic



4. ATARI SIO INTERFACE BOARD

Figure 20. Circuit Diagram

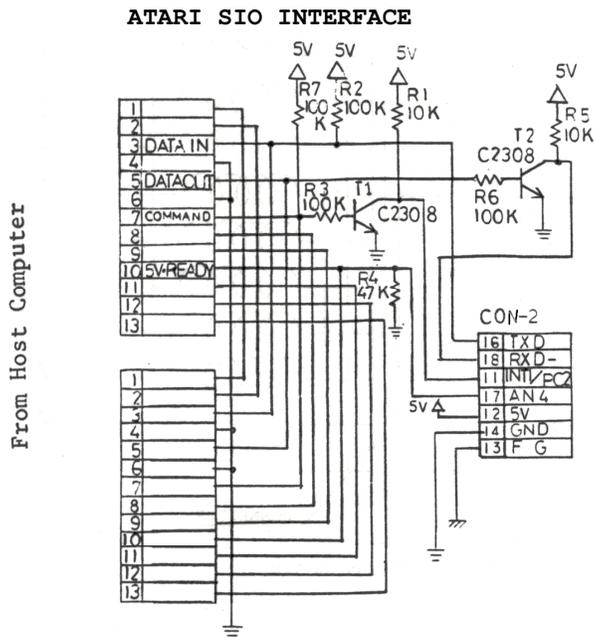
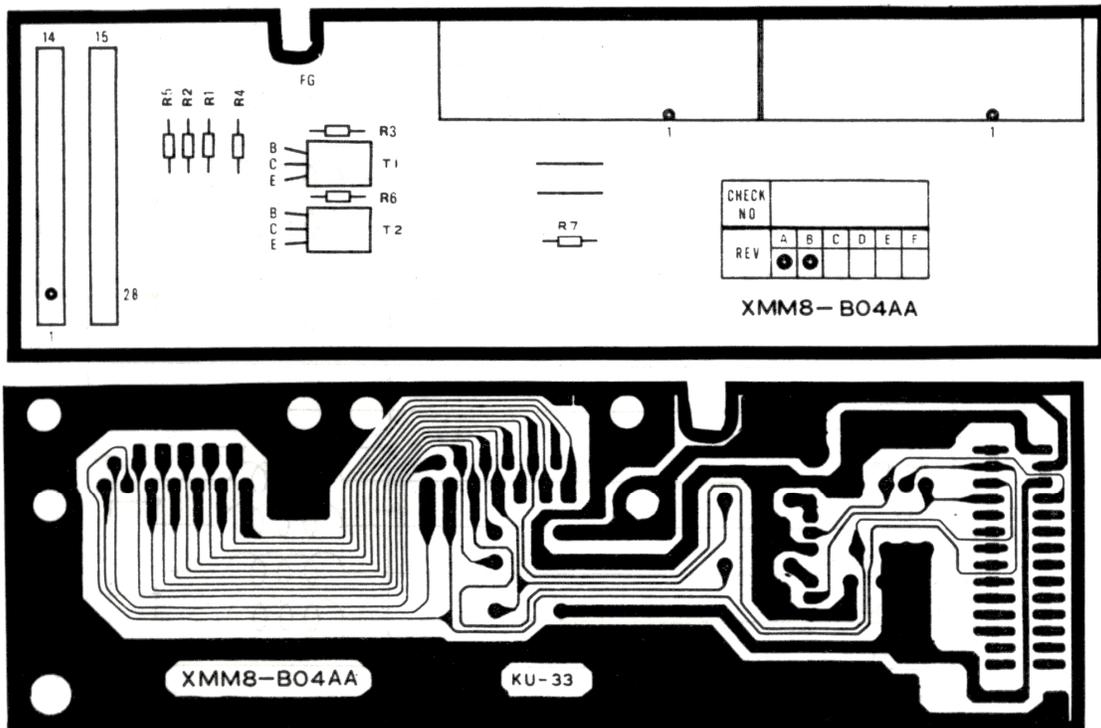
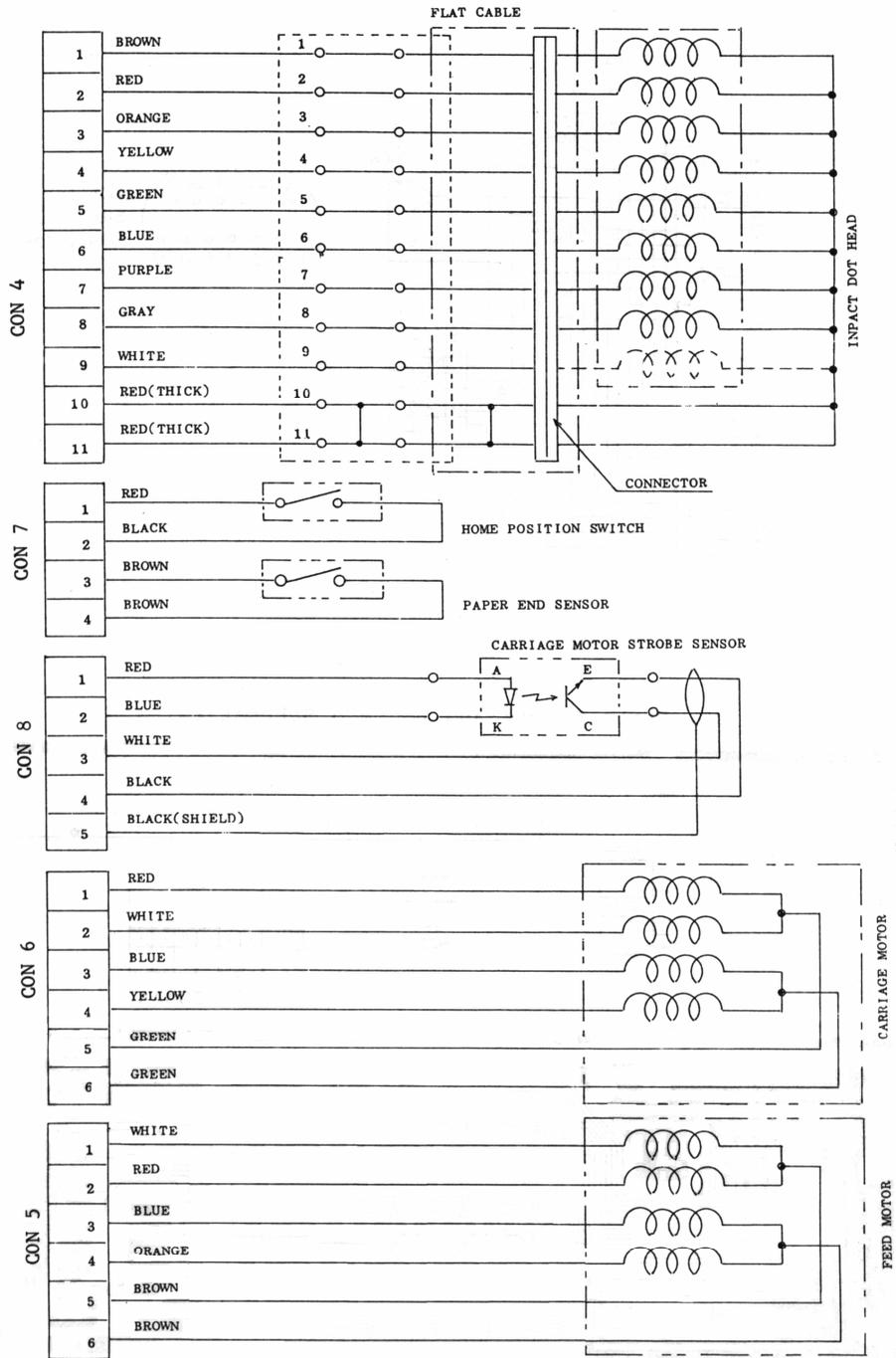


Figure 21. Parts Layout and Pattern Schematic



5. Electric Circuit for Printer Mechanism

Figure 22. Connection Diagram



D. TROUBLESHOOTING

If the printer fails to operate properly, please solve the problem using this table.

SYMPTOM	REFERENCE
Printer is totally out of work. It does not operate when Power switch is turned ON:	Refer to CHECK FLOW, TROUBLE-1
Incorrect function on Printer. Motors are working but wrong. Motor works only occasionally.	Refer to CHECK FLOW, TROUBLE-2
Incorrect print. Paper feed and head carriage are OK and print is available wrong font/matrix.	Refer to CHECK FLOW, TROUBLE-3
Feed Motor does not work, Every functions are ok but does not feed paper.	Refer to CHECK FLOW, TROUBLE-4

Note: For description of CHECK POINT, REF. Numbers are shown in the flow charts. Please refer to the Paragraph 2. Check Points for Repair, to know which to be mainly checked for repair service.

Figure 23. TROUBLE-1 PRINTER IS TOTALLY OUT OF WORK

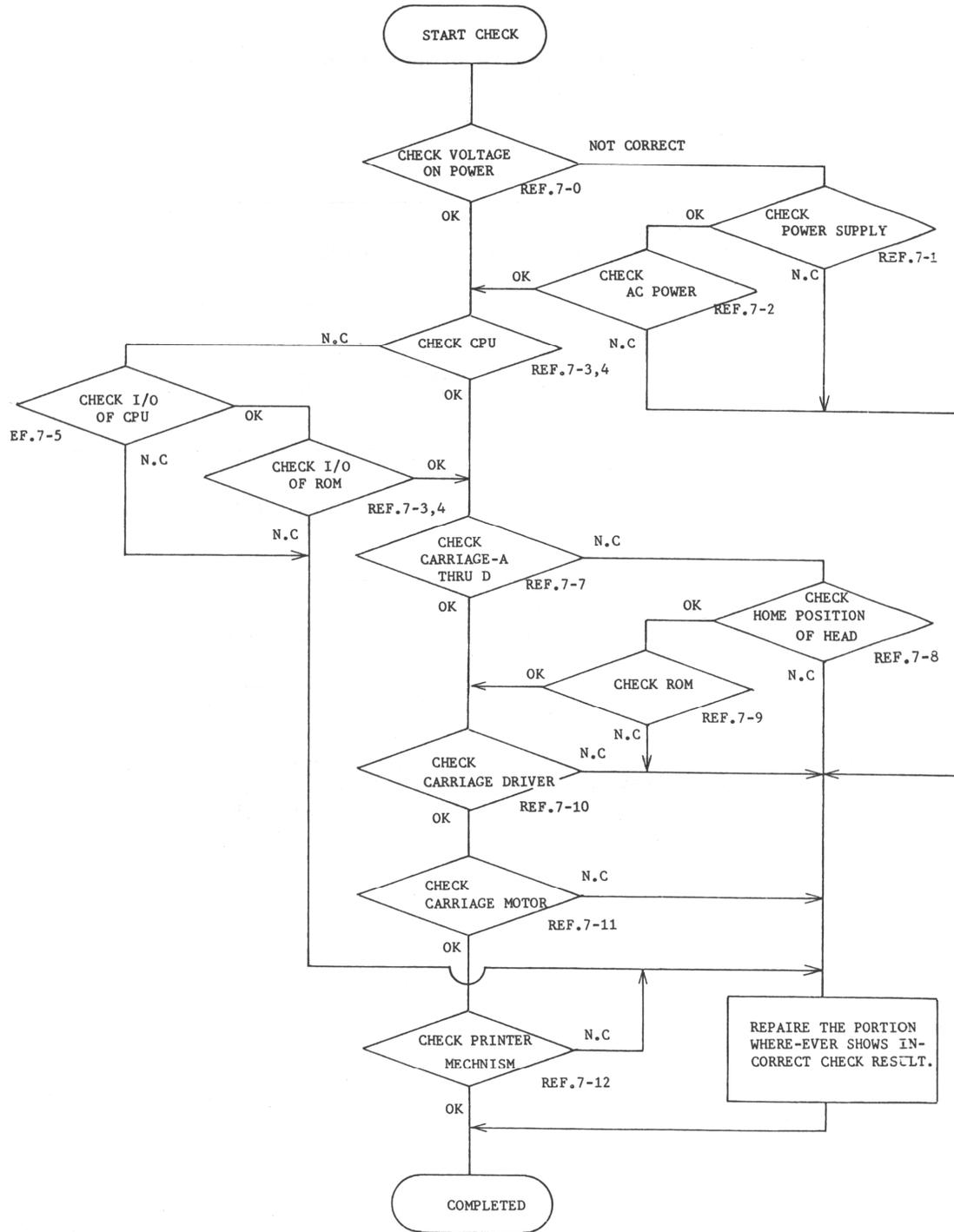


Figure 24. TROUBLE-2 INCORRECT FUNCTION OF PRINTER MECHANISM

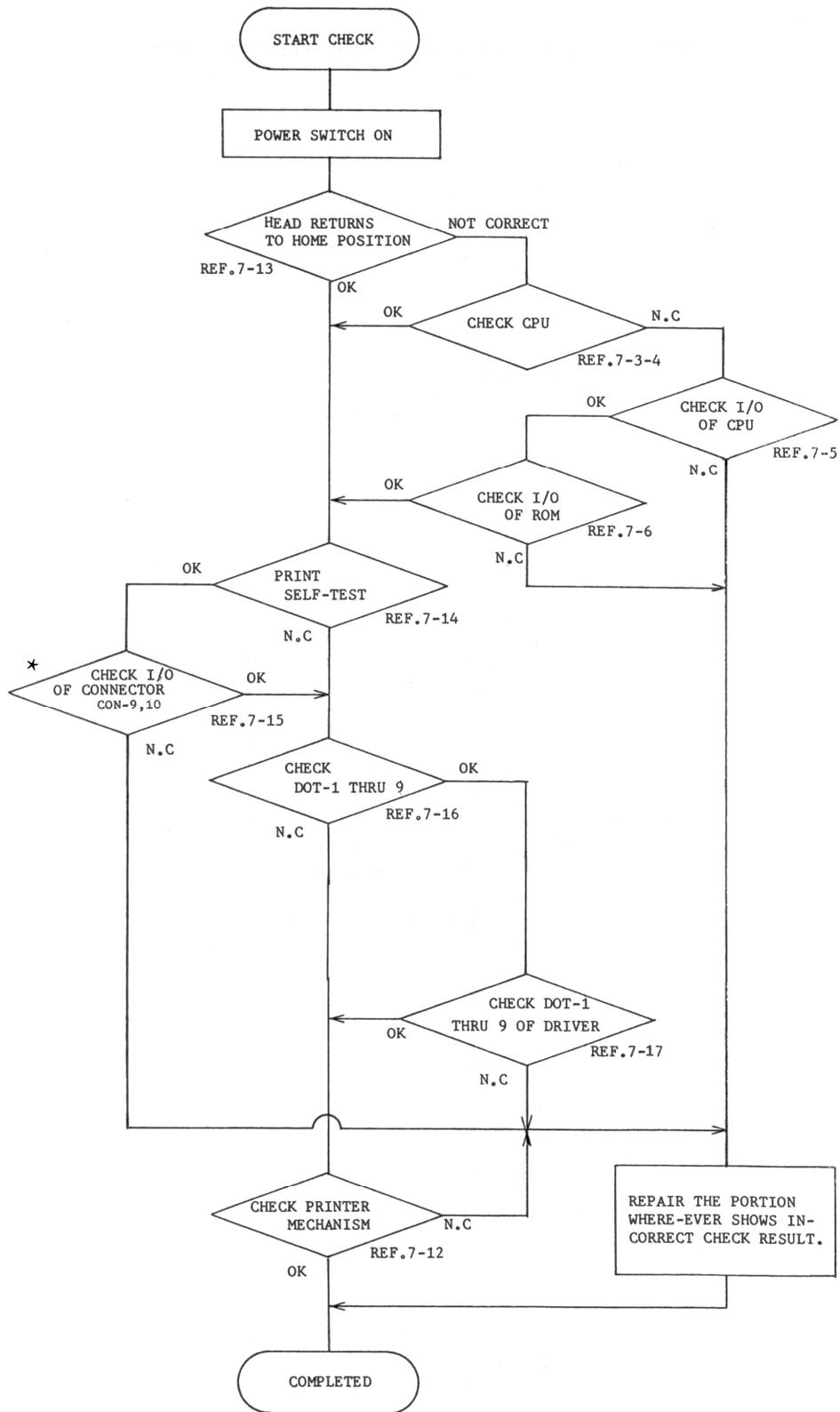
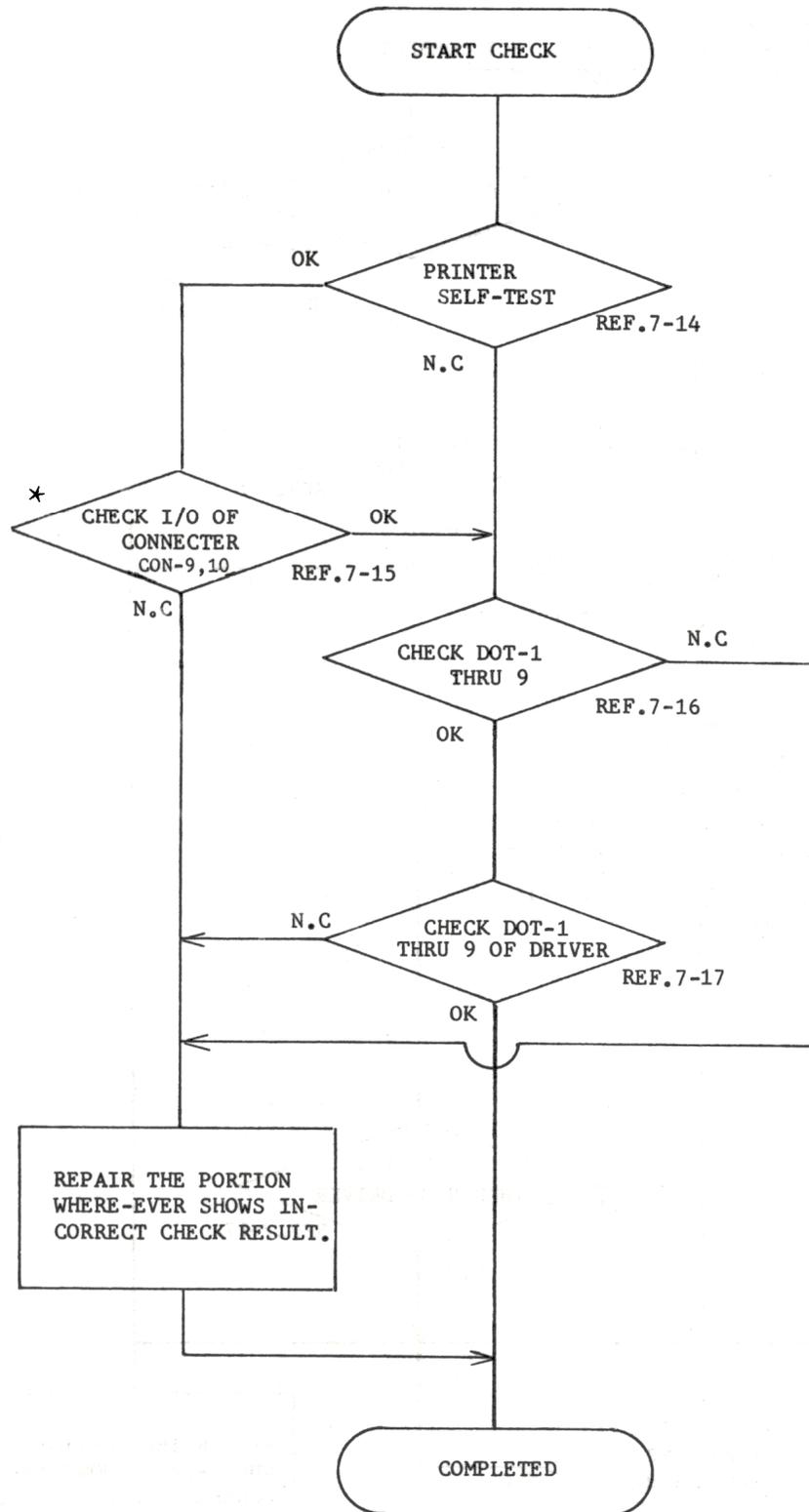
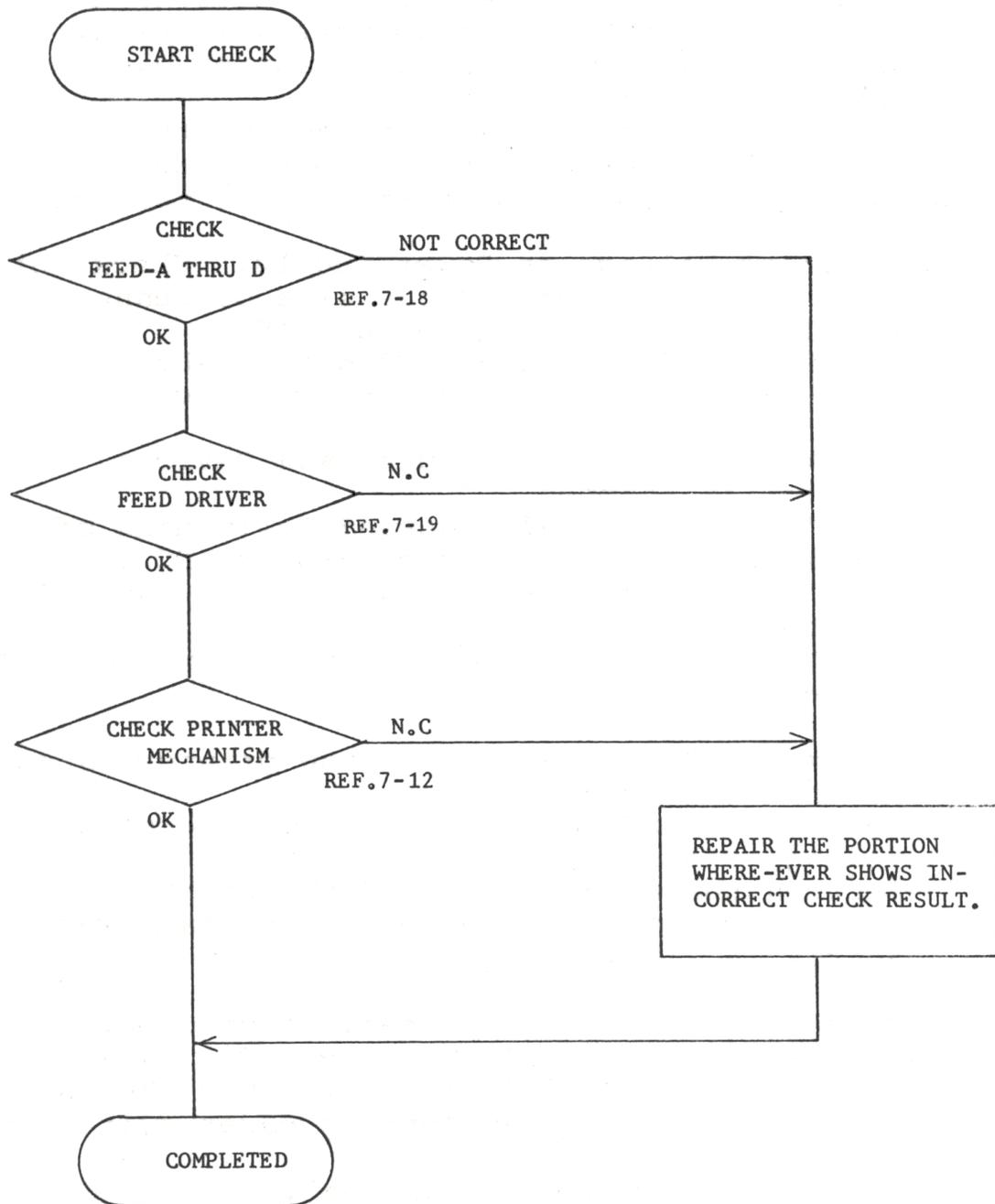


Figure 25. TROUBLE-3 PRINT IS AVAILABLE BUT INCORRECT CHARACTER



* CON 9,10: Male Connectors on Atari Serial Input/Output interface board

Figure 26. TROUBLE-4 FEED MOTOR IS NOT WORKING



2. Check Points for Repair

The followings are reflected to the markings on the check flow charts on paragraph 1.

In this description, there are the explanations as refer to FIG. a,b,c,... showing the tested wave form on scope that can be compared with the same index in paragraph 3."Typical wave form of signals".

When the checking operation is disturbed by the printer mechanism, it should be removed from the bottom case. The (-) leg of Diode BD-1 is useful as GND terminal for testing.

REF.7-0 Check of Voltage on Power Supply. Printer is stopped.
Anode side of zener diode ZD1 should show the voltage of DC 21V.

-The PIN 2 of regulator IC7 should show DC 5V $\pm 5\%$ (on the main control board.

REF.7-1 Check Power Supply Circuits and Devices while the printer is stopped.

-The "1" leg of IC-7, located left hand of heat sink Should show the voltage of approx. DC 11V.

-The "E" leg of transistor T1 should show the voltage of about DC 19V.

-The "E" leg of transistor T3 should show the voltage of about DC 1V.

REF.7-2 Check of AC Voltage, while the printer is stopped. Without the Host.

-Input of diode BD-1 should show the sine wave with voltage range of approx. AC 23V.

-Between the anode of D3 and the cathode of D2, it should show the sine wave with voltage range of approx. AC 10V.

REF.7-3 Check for pulses at power-on reset time.

-Relation between "DC 5V" on Pin 63, 64 and "RESET" on Pin 28 of CPU (7811) should show a the pulse wave, refer to FIGURE s. at turning power switch on.

REF.7-4 Check "if software is running".

-Signal ALE, on Pin 46 of CPU (7811) 1 should show the pulse ;nave, refer to FIG. a.

-Signal CE, Pin 20 ROM (2764) should show:
high level while the printer is stopped.
Pulse wave, refer to FIG. b-similar wave, while the printer is running.

RFF.7-5 Check around main CPU (7811).

-Signal RD, on Pin 44 of main CPU (7811) should show the pulse wave, refer to FIG. c, while the printer is stopped.

- Signal CLK, on Pin 31 of the main CPU (7811) should show the wave, refer to FIG. d.
- Signal ALE, on pin 46 of main CPU (7811) should show the pulse wave, refer to FIG.a.
- Signal WR, on Pin 45 of main CPU (7811) should show the pulse wave, refer to FIG.e-similar wave, while the printer is running.
It stays at High Level while the printer is stopped.
- Signals on Data and Address Bus, Pin 55 thru 62 of main CPU (7811) should show the pulse wave, refer to FIG.f-similar wave.
- Signals on ADDRESS BUS, Pin 47 thru 54 of CPU (7811) should show the pulse wave, refer to FIG.g-similar wave .
- Other pins on CPU (7811) should be as follows, under Condition 1.

Pin No	LEVEL	Pin No	LEVEL	Pin No	LEVEL	Pin No	LEVEL
1	L	12	H	23	L	38	L
2	H	13	H	24	L	39	H
3	L	14	H	25	H	40	H
4	H	15	H	26	L	41	F
5	L	16	H	27	H(PLS)	42,43	H(+5V)
6	L	17	H	28	H	52	H(PLS)
7	H	18	L	29,32,33	L	53	H(PLS)
8	L	19	L	34	H	63,64	H
9	H	20	H	35	H		
10	H	21	L	36	H		
11	H	22	L	37	H		

F: Floating

REF.7-6 Check around ROM (27128)

- Check the Pin of CPU IC1 instead of the pin of ROM
- Signals on Address Bus, Pin 2 thru 10, 21 & 23-25 of ROM (27128) should show the pulse wave, refer to FIG.f-similar wave, while printer is running.
- Signals on Data Bus, Pin 11 thru 13 and 15 thru 19 of ROM (27128) should show the pulse wave, refer to FIG.f-similar wave, while printer is running.
- Other pins of ROM should be as follow, under condition

Pin No	LEVEL	Pin No	LEVEL	Pin No	LEVEL
1	H(+5V)	14	L(GND)	27	H(+5V)
26	H(+5V)	20	PULSE	28	H(+5V)

CONDITION 1 : While Printer is stopped after power on and home positioning of Head and sound of Buzzer.
Without the Host and paper.
All Dip Switches on Centronics Parallel Interface Board are on.

REF.7-7 Check signals to the Carriage Motor.

-At power-on Time if Head is located at home position, Pin 3,6,11,14 of IC6 should show just few pulses, refer to FIG.h just few pulses then stop.
While the head is moving, this pulse remains.

REF.7-8 Check signals for the head which is at Home Position.

-Level on Pin 21 of CPU (7811) should be:
When Head is on home position ----- level low.
When Head is not on home position ---- level high.

REF.7-9 Check if the contents of ROM (27128) are correct.

-Replace the ROM and see the trouble has been solved.
-If no ROM for replacement, follow the next steps of Flow Chart.

REF.7-10 Check on Carriage Driver Circuits.

Pin 2,7,10,15 of IC6 show the step motor drive pulses refer to FIG.i.

REF.7-11 Check for Dot Strobe.

-While the head is moving by hand or by power, Pin 20 of CPU (7811) should show the pulse, refer to FIG.k.
-While the head is moving by hand or by power, leg of R37 should show the pulse, refer to FIG.j.
CAUTION: Moving the head by hand should not be done for long time, just few seconds only.

REF.7-12 Check for Printer Mechanism.

-If trouble is on head, replace it and test.
-If trouble is not on head, try to replace whole printer mechanism, then check. Before replacing it, see thoroughly the mechanism to see for any mechanical damage.

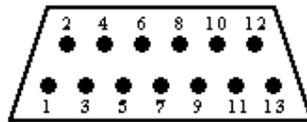
NOTE: Repair of printer mechanism is not recommendable.

Special service manual for mechanism repair will be provided.

REF.7-13 The head should return to home position at power on time, even so the head is originally located at home position it should be moved to right and returned to home position automatically at Power On.

REF.7-14 Test print should be done when the main power switch is turned on, while the LF switch is also pressed down.

REF.7-15 Check pin status on signal connector CON 9, 10
(Pin Assignment)



- Pin 3. DATA INPUT (to Host Computer)
4. GND
5. DATA OUT (from Host Computer)
6. GND
7. COMMAND (from Host Computer)
 Low when Host Computer is sending a
 command frame to the printer
10. READY (from Host Computer)
 High when Host Computer is ready.

Pin 1, 2, 8, 9, 11, 12, 13 not used by printer

-All 13 pins shall be daisy chained from one SIO connector to the other, i.e. connect pin 1 to pin 1, pin 2 to pin 2 and so on.

-For reference DATA IN, DATA OUT and COMMAND should show the pulse wave, refer to FIG.1,m while printing.

REF.7-16 Check Print Signal on CPU (7811).

-While printing, Pin 9 thru 16 should show pulse wave, refer to FIG. n-similar wave.

Pulse width is typically 600µsec.

REF.7-17 Check Print signals on the driver.

-Connect plus lead of scope to Anode side of Diode ZD4 then check following points by minus leadoff scope:

Pin 7, 2, 15, 10 (IC3) 7, 2, 15, 10 (IC4) should show pulse wave refer to FIG.o-similar wave.

CAUTION: For this check, the scope should be floating from GND.

REF.7-18 Check paper feed signals.

-Some 2pins in Pin 4 thru 7 of IC5 should show High level, other 2 pins should show Low level when not feeding paper, and in paper feeding should show pulse, refer to FIG.q-similar wave.

REF.7-19 Check circuits for Paper Feed Motor, in feeding.

Check pin 10 thru 13 of IC5 while paper feeding and refer to FIG.r-similar wave.

3. Typical Wave Form of Signals

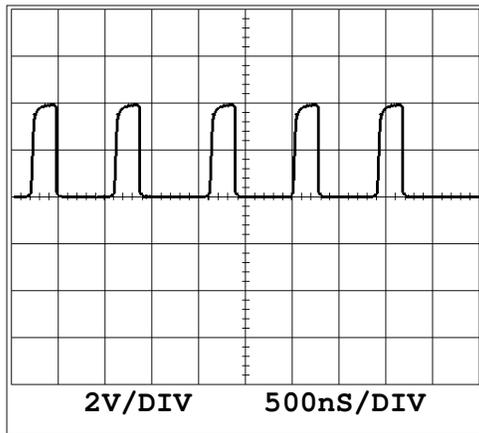


FIG.a ALE SIGNAL

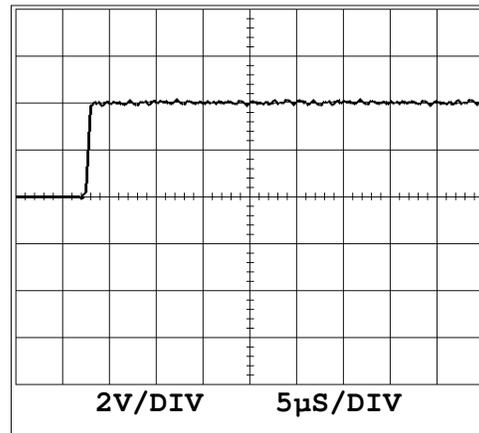


FIG.b AB15(2764) SIGNAL

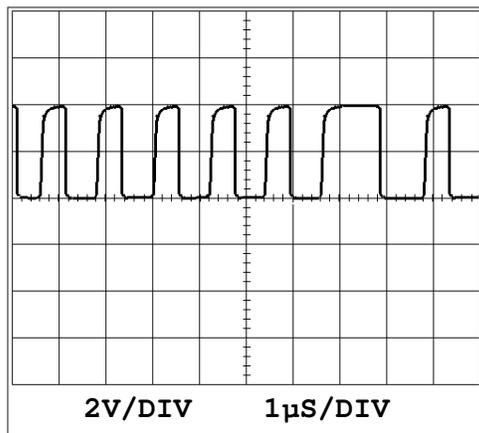


FIG.c RD SIGNAL

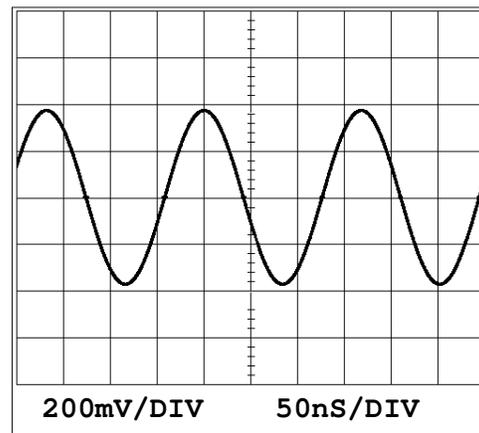


FIG.d CLOCK SIGNAL (7811)

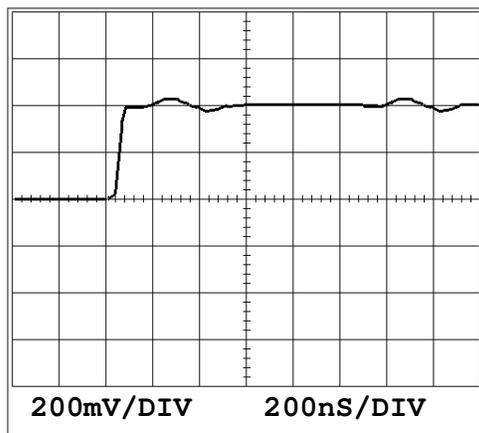


FIG.e WR SIGNAL

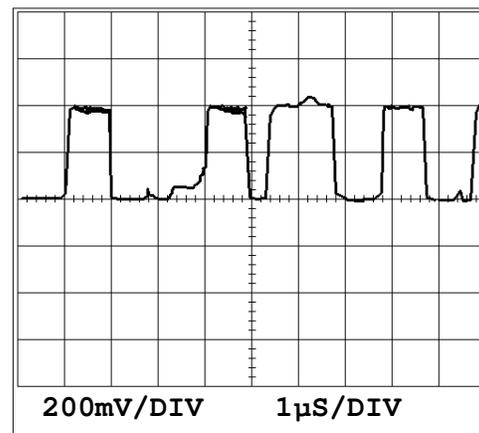


FIG.f DATA & ADDR BUS SIGNAL

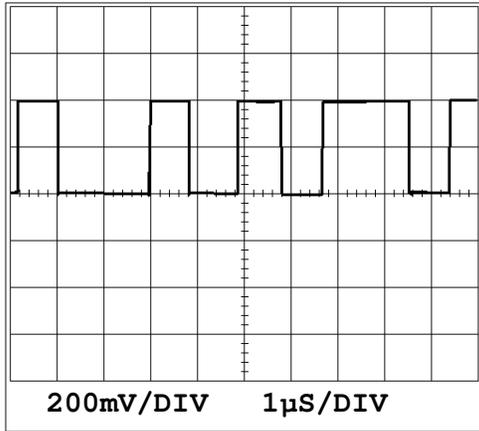


FIG.g ADDRESS BUS SIGNAL

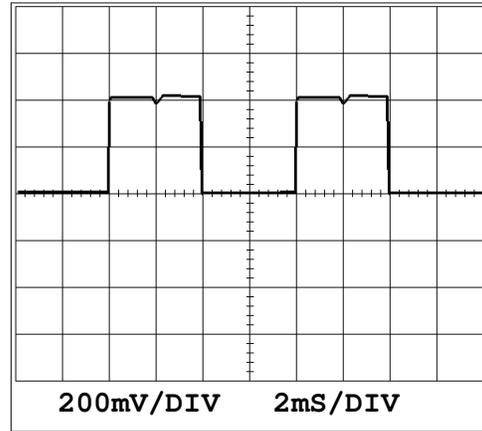


FIG.h CARRIAGE SIGNAL

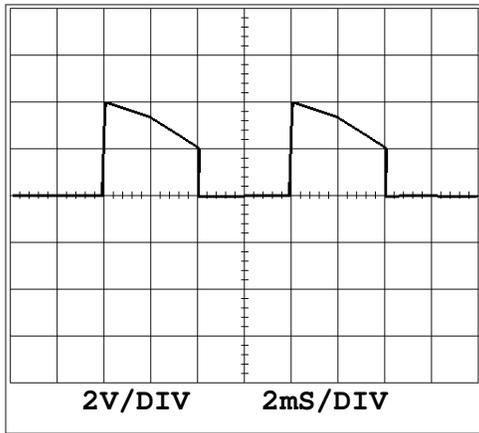


FIG.i CARRIAGE MOTOR

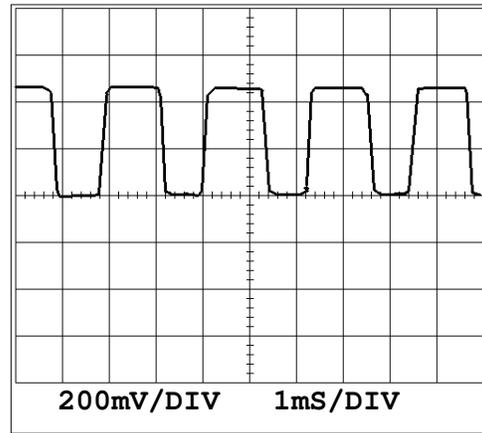


FIG.j,k DOT STROBE

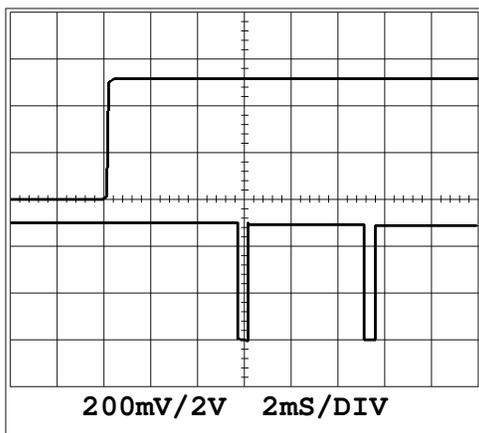


FIG.l,m DATA IN SIGNAL

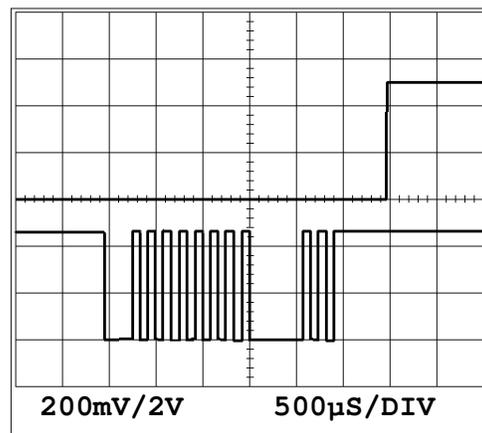


FIG.l,m DATA OUT SIGNAL

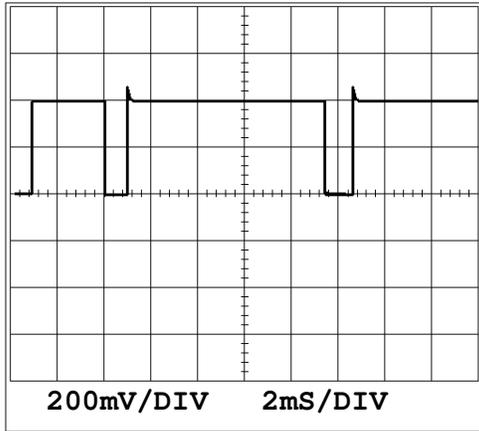


FIG.n PRINT SIGNAL

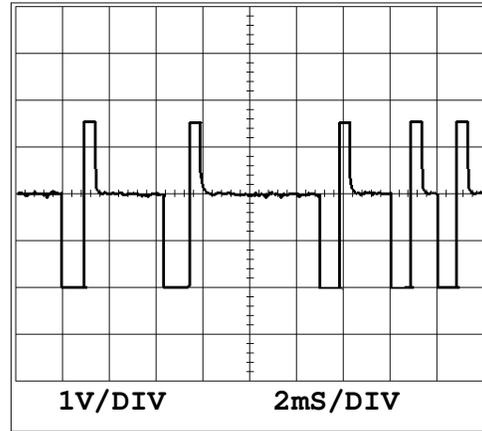


FIG.o PRINT DRIVER

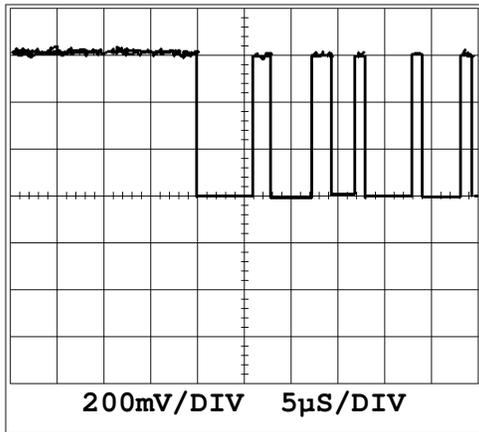


FIG.p I/O M SIGNAL

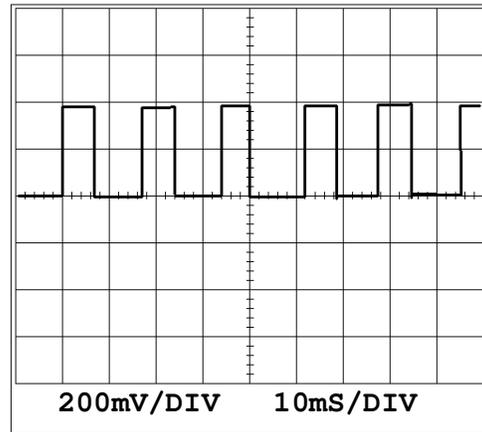


FIG.q PAPER FEED SIGNAL

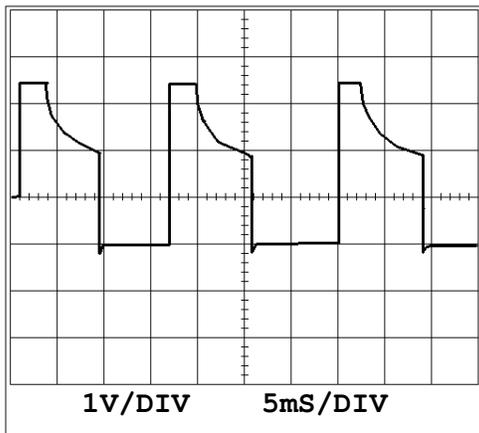


FIG.r FEED MOTOR DRIVER

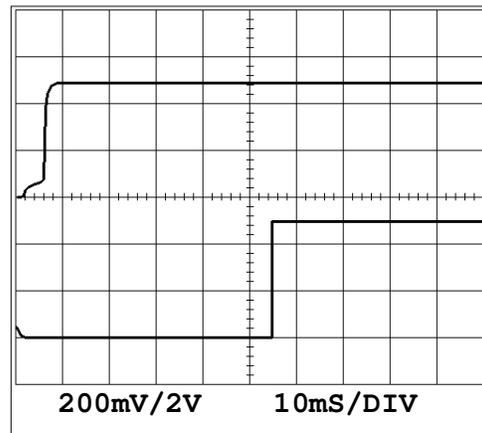


FIG.s +5V and RESET(8155)

E. PARTS LIST

The codes on the column of INDEX on the list are the guide to locate the parts on the exploded view drawing included in this paragraph.

To locate the electric and/or electronic parts on the boards, see the markings on the column of INDEX referred to in the schematics in Paragraph C. ELECTRIC CIRCUIT INFORMATION.

NOTE: For repair of the boards, the locally available equivalents (in specifications) of the electronic devices can be used.

P A R T S L I S T

INDEX	PART NUMBER	DESCRIPTION	Q' TY
MAIN P.C.BOARD ASS'Y (7811-B)			
1-1	XMM8-B32AM	Main P.C.Board, 1.6t HB Material Paper Phenol Resin	1
LSI1	L-uD7811	CPU, uPD7811	1
ROM1	RO-2764	ROM, 2764 (X801.1D)	1
IC1	I-74LS373	IC, 74LS373P	1
IC2	I-74LS14	IC, 74LS14 (or 74HC14)	1
IC3, 4 6	I-M54567	IC, M54567P or M5248P	3
IC5	I-M54523	IC, M454523P or Equivalent	1
IC7	I-7805	IC, 7805 (3-Terminal Regulator)	1
T4, 7	TR-2SA844	Transistor, 2SA844	2
T5, 6	TR-2SC2308	Transistor, 2SC2308	2
T1, 3	TR-2SD1392	Transistor, 2SD1392 (2SD1595) (with Mylar Sheet)	2
T2	TR-2SB794	Transistor, 2SB794	1
	X-C7.37M	Ceramic Resonator. 7.37MHz	1
R33, 34	R-333J25CH	Resistor, 33k Ω 1/4W \pm 5%	2
R25	R-473J25CH	Resistor, 47k Ω 1/4W \pm 5%	1
R20	R-181J25CH	Resistor, 180 Ω 1/4W \pm 5%	1
R18, 19	R-471J25CH	Resistor, 470 Ω 1/4W \pm 5%	2
R23, 31	R-102J25CH	Resistor, 100 Ω 1/4W \pm 5%	2
R8, 9 11~13 16, 17 28	R-103J25CH	Resistor, 10k Ω 1/~I~J \pm 5%	8
R21, 27 32	R-472J25CH	Resistor, 4k7 1/4W \pm 5%	3

NOTE : We change rate value of R29 (220 Ω ->100 Ω) in order to common use IC M54547P and M5248P (Index No. IC 3, 4, 6).

P A R T S L I S T

INDEX	PART NUMBER	DESCRIPTION	Q'TY
R14,15	R-223J25CH	Resistor, 22KΩ 1/4W ±5%	2
R30	R-512J25CH	Resistor, 5k1 1/4W±5%	1
R29	R-101J25CH	Resistor, 100Ω 1/4W ±5%	1
R1	R-102J25CH	Resistor, 1KΩ 1/4W ±5%	1
R2~4	R-103J25CH	Resistor, 10KΩ 1/4W ±5%	5
6,7			
C20,22	C-104Z050CV	Ceramic Capacitor, 0.1uF/50V	3
23			
C10,11	C-330Z050CV	Ceramic Capacitor, 33PF/50V	2
C18	C-471Z050CV	Ceramic Capacitor, 470pF/50V	1
C12~17	C-102Z050CV	Ceramic Capacitor, 1nF/50V	8
19,21			
C9	C-101Z050CV	Ceramic Capacitor, 100pF/50V	1
C5,	C-105Z050CH	Ceramic Capacitor, 1uF/50V	6
25~29			
C30	C-331Z050CV	Ceramic Capacitor, 330pF/50V	1
C8	C-335Z050EV	Chemical Capacitor, 3.3uF/35V	
1			
C3,4	C-106Z035EV	Chemical Capacitor, 10uF/35V CE-04	4
6,24			
C1	C-228Z016EV	Chemical Capacitor, 2200uF/16V CE-04	1
C2	C-338Z035EV	Chemical Capacitor, 3300uF/35V CE-04	
C7	C-106Z050EV	Chemical Capacitor, 10uF/50V CE-04	1
RA1	R-103M06AV	Resistor Array, 10kΩ x 6	1
D8	D-1S2076	Switching Diode, 1S2076	1
ZD4	D-HZ-ISP B	Zener Diode, HZ-15PB 0.8W	1
BD1	ST-S2VB20	Stack Diode, S2VB20 (BR-32)	1
D1~4	D-1N4002	Diode, 1N4002 or Equivalent (ST-RB151 Stack Diode, RB151)	4
			1
D5~7	D-1N4002	Diode, 1N4002 or Equivalent	3
ZD3	D-HZ7B-2	Zener Diode, HZ7B-2	1
ZD2,5	D-HZ15-2	Zener Diode, HZ15-2	2
ZD6	D-HZ20-1	Zener Diode, HZ20-1	1
ZD1	D-HZ20-3	Zener Diode, HZ20-3	1
ZD7	D-HZ4B-1	Zener Dio3e, HZ4B-1	1
	SC-ICS28P	IC Socket, 28Pin	1
CON2F	SC-ICS14P	ZC Socket 14P (Sub P.C.B)	2
	TM-02T1.3A	Check Terminal, RT-02T-1.3A	5
CON1M	CO-5279-4A	Connector 4P Male 5279-04A (MOLEX)	1
R5	R-102J2SH	Resistor Metal Oxide 1kΩ 2W	1
	XMM8-P020	Heat Sink (X)	1
CON4M	CO-MMP11SBK	Connector 11P Male MMP11S-1 (Black) PH-9L (Burndy)	1

P A R T S L I S T

INDEX	PART NUMBER	DESCRIPTION	Q' TY
CON6M	CO-MMP6SBK	Connector 6P Male MMP6S-1 (Black) Cariage Motor (Burndy)	1
CON5M	CO-MMP6SBR	Connector 6P Male MMP6S-1 (Brown) Feed Motor (Burndv)	1
CON8M	CO-MMP5SBK	Connector SP Male MMP5S-1 (Black) Carriage Detector (Burndy)	1
CON7M	CO-MMP4SBK	Connector 4P Male MMP4S-1 (Black) Timing Detector (Burndy)	1
CON3M	CO-MMP8SBK	Connector 8P Male MMP8S-1 (Black) Key PCB (Burndy)	1
2-1	S+ISP3312FR	Screw, M3x12 +Pan Head (Transistor)	3
2-2	N130FR	Mut, M3 (Transistor)	3
	XMM8-E090	Lead Wire, L-43 Ø 0.12x12 Brown	1
	XMM8-E100	Lead Wire, L-56 Ø 0.12x12 Brown	1
	TU-007010E	Tube, Ø 0.7x12 Green	1
	C80S-E030	Lead Wire, L-50 Ø 0.12x12 Green	1
ATARI INTERFACE PCB ASSEMBLY			
2-3	CO-003-13P	ATARI 13P Connector, Male 003-13P-LT (JAE or HON HAI)	2
T1,2	TR-2SC2308	Transistor, 2SC2308	2
R2,3 6,7	R-104J25CH	Resistor, 100KΩ 1/4W ±5%	4
R1,5	R-103J25CH	Resistor, 10kΩ 1/4W ±5%	2
R4	R-473J25CH	Resistor, 47kΩ 1/4W ±5%	1
	S+PTB2608FR	Screw; M2.6x8 PTB (JAE Connector)	4
	S+ISP3008FR	Screw, M3x8 +Pan head	(4)
	N130FR	Nut, M3 (HON HAZ Connector)	(4)
		Lead Jumper	2
2-4	XMM8-B94AA	ATARI Interface P.C.Board, 1.6t HB Material, Paper Phenol Resin	1
CON2M	VP80-M090HT	Inter Connector, 14P	2
2-5	VP80-M110HP	Spacer	2
2-6	VP80-M123HP	Guide Spacer	2
2-7	S+PTB3006FR	Screw, M3x6 +Bind P-Tapping (SUB PCB)	2
2-8	S+PTB3006FR	Screw, M3x6 +Bind P-Tapping (Spacer)	4
SWITCH P.C. BOARD ASSEMBLY			
	XMMB-B030S	Switch P.C. Board	1
	XMM8-M070HN	Switch Frame	1
	LE-GL-9PR2	LED, GL-9PR2 (Red)	3
	XMM8-M060HU	Key Top	3
	VP80-I050	Rubber Contact	3
	CO-MMH850	Connector 8P, Terminal with Lead Wire	1

P A R T S L I S T

INDEX	PART NUMBER	DESCRIPTION	Q'TY
R22,24 26	R-681J25CH	Resistor, 680Ω 1/4W ±5%	3
	XMM8-M070HN	LED Lens Cover	3
	BZ-27DA-5A	Buzzer, 27DA-5A	1
	XMM8-E060	Lead Wire UL-1007 AWG28 L-80 (Black)	1
	XMM8-E070	Lead Wire UL-1007 AWG28 L-80 (Red)	1
	S+PTB2006FR	Screw, M2x6 +PTB (SW.PCB)	4
POWER SUPPLY, UL/CSA TYPE			
2-9	XMM8-T01UC	Power Transformer 115V (with Molex Connector 5058-04) UL/CSA	1
2-10	CA-SPT2WGA	Power Cord SPT-2 3Pole	1
2-11	CR-SR-4K-4	Strain Relief Bush, SR-4K-4	1
2-12	F-FIR0A6	Fuse, 1A 61M	1
	TU-05025H	Thermo Shrink Tube 820F Ø 5 L-25	1
	XMM8-L040	Fuse Label (250V 1A)	1
2-13	SW-T127A	Power Switch, T-127 (ATARI Color)	1
2-14	L880-M030UK	Cord Cover, UL-94V3 Type (ATARI Color)	1
2-15	XMM8-E010	Lead Wire, 22AWG UL-1672 L-170 (Black)	1
	TU-09090H	Thermo Shrink Tube, 820F Ø 9 L-90	1
2-16	CL-SC0210F	Coil Filter SC-02-10F or EC-2	1
2-17	XMM8-B010F	Filter P.C.Board, 1.6t V0 Material	1
		Paper Epoxy Resin	
	TU-04325H	Thermo Shrink Tube, 820F Ø 4 L-25	1
2-18	H-P032	Fuse Clip, P002	2
2-19	XMM8-E080	Ground Wire, UL-1037 18AWG L-45 (Yellow/Green, Spiral)	1
POWER SUPPLY EUROPEAN TYPE			
2-9	XMM8-T03E	Power Transformer 220V (with Molex Connector, 5058-04) EUROPE	1
2-10	CA-CE3P03A	Power Cord, Class-1 3-Pole (VDE) (ATARI Color)	1
2-11	CR-SR-5P-4	Strain Relief Bush, SR-5P-4	1
2-12	F-TOR40A5	Fuse, T 400mA	1
	TU-34025H	Thermo Shrink Tube 820F Ø 4 L-25	1
	XMM8-L050	Fuse Label (250V T 400mA)	1
2-13	SW-T822	Power Switch, T-822 (Black)	1
2-14	L880-M030HN	Cord Cover, UL-94HB (ATARI Color)	1
2-15	XMM8-E020	Lead Wire, UL-1672 22AWG L-170 (Red)	1
	CO-2302DS	Terminal Connector, 230/2DS	1
	XMM8-E030	Lead Wire, UL-1672 22AWG L-180 (Red)	1
	XMM8-E040	Lead Wire, UL-1672 22AWG L-120 (Black)	1
2-16	CL-SC0210F	Coil Filter SC-02-10F or EC-2	1

P A R T S L I S T

INDEX	PART NUMBER	DESCRIPTION	Q'TY
2-17	XMM8-B010F	Filter P.C. Board, 1.6t V0 Material Paper Epoxy Resin	1
	TU-04025CH	Thermo Shrink Tube, 820F Ø 4 L-25	1
2-18	H-P002	Fuse Clip, P002	2
2-19	XMM8-E080	Ground Wire, UL-1007 18AWG L-45 (Yellow/Green, Spiral)	1
POWER SUPPLY, UK TYPE			
2-9	XMM8-T04E	Power Transformer 240V (with Molex Connector, 5058-04) EUROPE	1
2-10	CA-GTBS3	Power Cord, Class-1 3-Pole (VDE) (ATARI Color)	1
2-11	CR-SR-5P-4	Strain Relief Bush, SR-5P-4	1
2-12	F-TOR40A5	Fuse, T 400mA	1
	TU-04025H	Thermo Shrink Tube 820F Ø 4 L-25	4
	XMM8-L050	Fuse Label (250V T 400mA)	1
2-13	SW-T822	Power Switch, T-822 (Black)	1
2-14	L880-M030HN	Cord Cover, UL-94HB (ATARI Color)	1
2-15	XMM8-E020	Lead Wire, UL-1672 22AWG L-170 (Red)	1
2-15	XMM8-E010	Lead Wire, UL-1672 22AWG L-170 (Black)	1
2-15	XMM8-E110	Lead Wire, UL-1672 22AWG L-180 (Red)	1
2-15	XMM8-E030	Lead Wire, UL-1672 22AWG L-100 (Black)	1
	CO-2302DS	Terminal Connector, 230/2DS	1
	XMM8-E030	Lead Wire, UL-1672 22AWG L-180 (Red)	1
	XMM8=E040	Lead Wire, UL-1672 22AWG L-120 (Black)	1
2-16	CL-SC0210F	Coil Filter SC-02-10F or EC-2	1
2-17	XMM8-B010F	Filter P.C. Board, 1.6t V0 Material Paper Epoxy Resin	1
2-18	H-P002	Fuse Clip, P002	2
2-19	XMM8-E080	Ground Wire, UL-1007 18AWG L-45 (Yellow/Green, Spiral)	1
CASE ASSEMBLY UL TYPE A			
1-3	XMM8-M010UK	Upper Case "UL-94V0"	1
1-4	XMM8-M020UK	Bottom Case "UL-94V0"	1
1-5	4023-I010	Rubber Foot, Ø 16x3t	4
1-6	XMM8-M030HN	Printer Cover	1
1-7	XMM8-L010	Brand Plate	1
	XMM8-L020	Serial Plate (117V)	1
CASE ASSEMBLY EUROPEAN TYPE A			
1-3	XMM8-M010HM	Upper Case "UL-94HB"	1
1-4	XMM8-M-020HM	Bottom Case "UL-94HB"	1
1-5	4023-I010	Rubber Foot, Ø 16x3t	4
1-6	XMM8-M030HN	Printer Cover	1

P A R T S L I S T

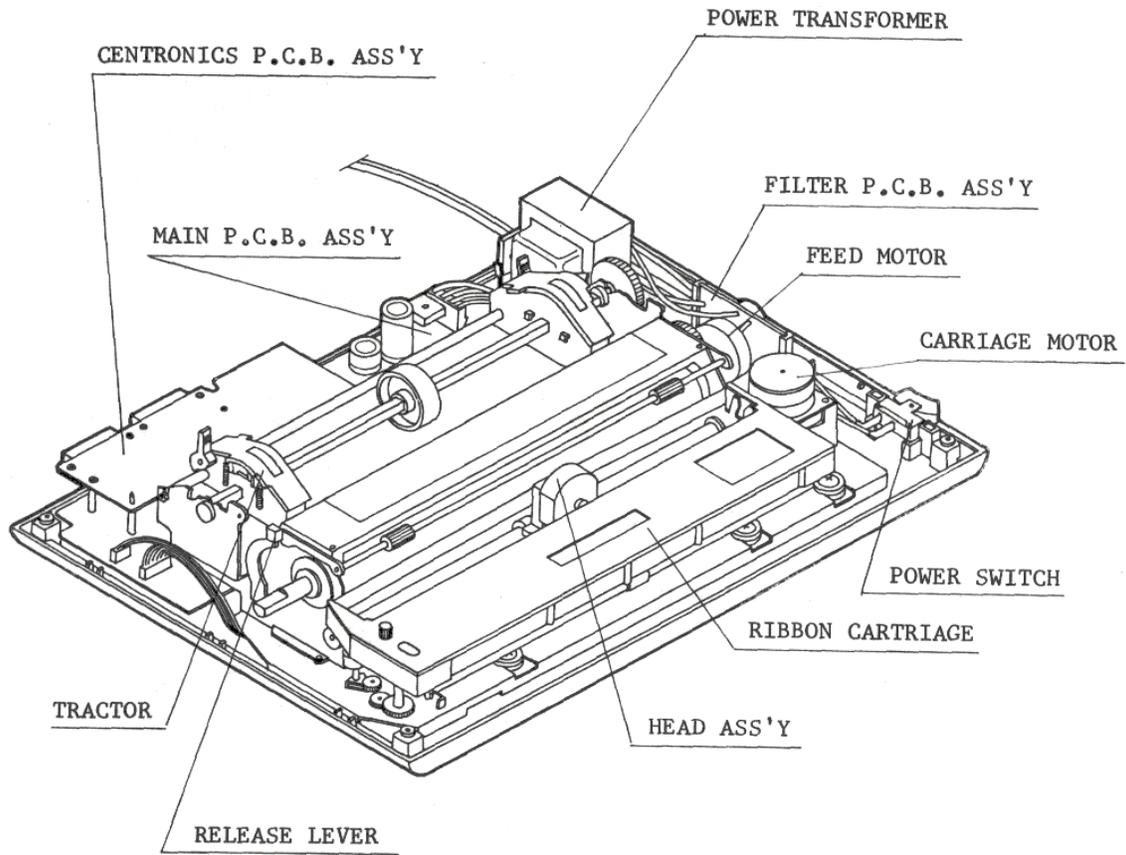
INDEX	PART NUMBER	DESCRIPTION	Q'TY
1-7	XMM8-L010	Brand Plate	1
	XMM8-L030	Serial Plate (220V)	1
CASE ASSEMBLY UL TYPE B			
1-3	XMM8-M010UK	Upper Case "UL-94V0"	1
1-4	XMM8-M02AUK	Bottom Case "UL-94V0"	1
1-5	4023-I010	Rubber Foot, Ø 16x3t	4
1-6	XMM8-M030HN	Printer Cover	1
1-7	XMM8-L010	Brand Plate	1
	XMM8-L020	Serial Plate (117V)	1
CASE ASSEMBLY EUROPEAN TYPE B			
1-3	XMM8-M010HM	Upper Case "UL-94HB"	1
1-4	XMM8-M-02AHM	Bottom Case "UL-94HB"	1
1-5	4023-I010	Rubber Foot, Ø 16x3t	4
1-6	XMM8-M030HN	Printer Cover	1
1-7	XMM8-L010	Brand Plate	1
	XMM8-L030	Serial Plate (220V)	1
ASSEMBLY, UL TYPE B			
1-8	AV80-I010	Rubber Foot for Printer Head	2
1-9	XMM8-M040HU	Manual Knob	1
2-27	4023-P040	Steel Plate for Transformer	2
1-19	VP80-E010	Special Screw, M4 Tapping (Printer)	3
2-21	S+ISP4010FR	Screw, M4x10 +PH SEMS (Trans)	2
2-22	S+ZSP4006FR	Screw, M4x6 +PH SEMS (Ground)	4
1-11	S+PTB3006FR	Screw, M3x6 +PTB (Buzzer, Power, Chassis)	6
2-23	S+STB3006FR	Screw, M3x6 +ST3 (Heat Sink)	2
1-12	S+PTP4020FR	Screw, M4x29 +PTP (Case)	4
2-24	S+PTB3008FR	Screw, M3x8 +PTB (Switch Frame 4 , Main PCB 4)	8
1-13	S+ISP4015FR	Screw, M4x15 +PH SEMS "Black" (Shipping)	2
	TP80-I010	Tube (Lead Wire Stopper)	2
1-14	XMM8-I010	Lumirror Sheet	1
1-15	BL80-M010HM	Rear Cover for Printer	1
	S+ISP2506FR	Screw, M2.5x6 Cup Screw	2
2-25	C80S-P010	Shield Plate Power Supply Chassis	1
	C80S-E050	GND Wire, UL-1737 16AWG L-90 (Yellow/Green, Spiral)	1
	C80S-E040	GND Wire, UL-1007 15AWG L-60 (Yellow/Green, Spiral)	1
	S+ISP3006FR	Screw, M3x6 +PH SEMS {Ground}	3

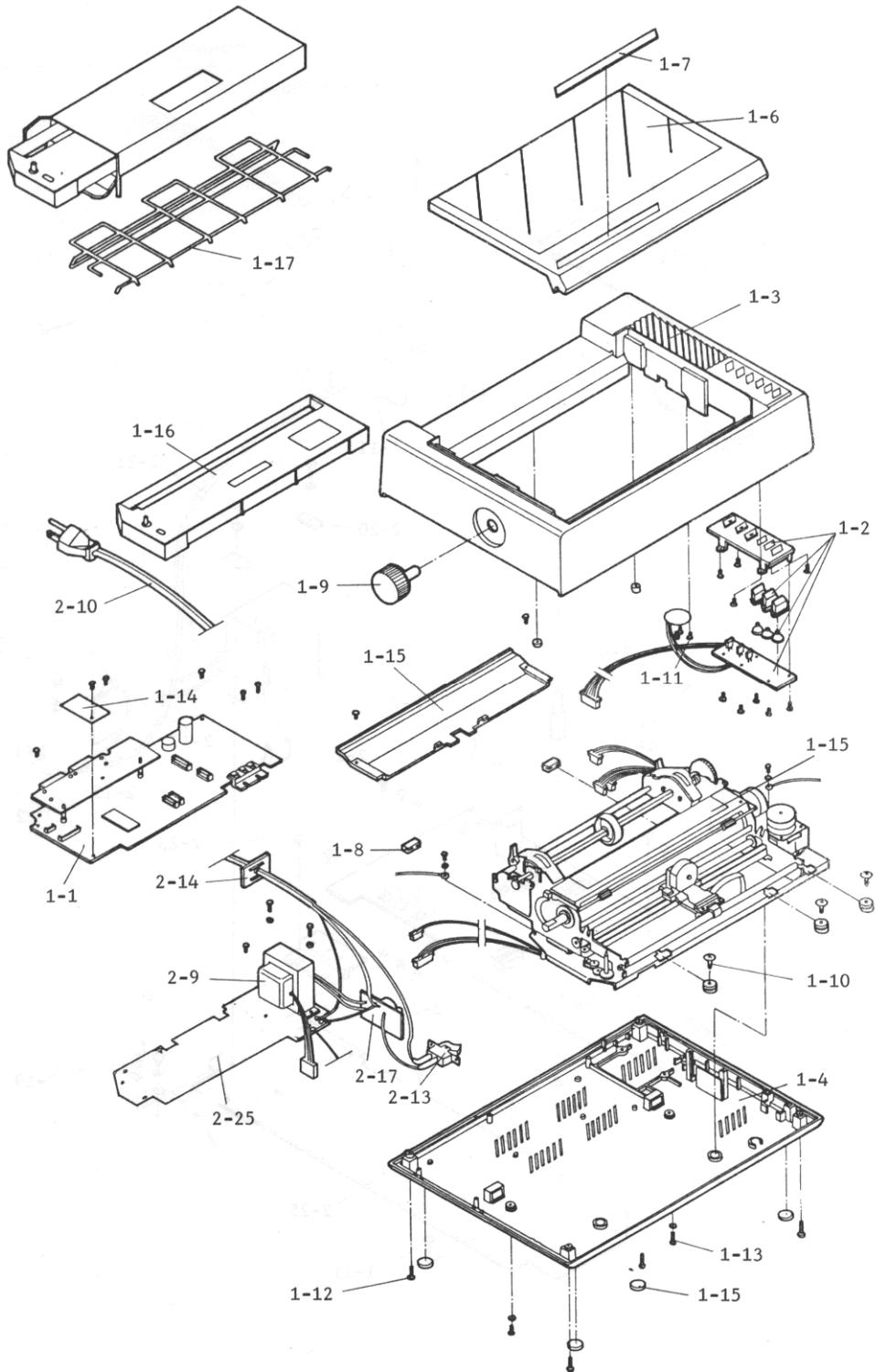
P A R T S L I S T

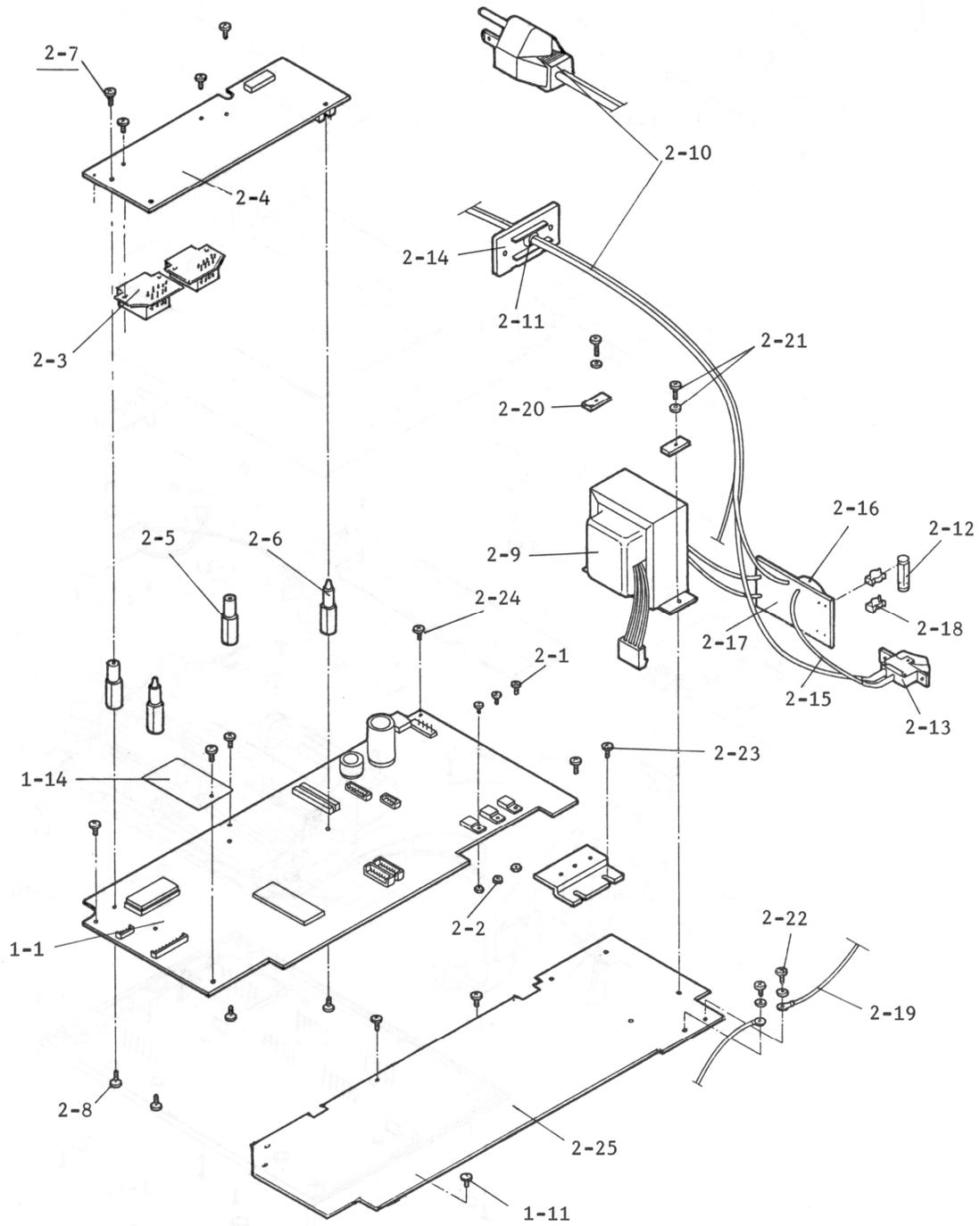
INDEX	PART NUMBER	DESCRIPTION	Q' TY
ASSEMBLY, EUROPEAN TYPE A			
1-8	AV80-I010	Rubber Foot for Printer Head	2
1-9	XMM8-M040HU	Manual Knob	1
2-27	4023-P040	Steel Plate for Transformer	2
1-19	VP80-E010	Special Screw, M4 Tapping (Printer)	3
2-21	S+ISP4010FR	Screw, M4x10 +PH SEMS (Trans)	2
2-22	S+ZSP4006FR	Screw, M4x6 +PH SEMS (Ground)	4
1-11	S+PTB3006FR	Screw, M3x6 +PTB (Buzzer, Power, Chassis)	6
2-23	S+STB3006FR	Screw, M3x6 +ST3 (Heat Sink)	2
1-12	S+PTP4020FR	Screw, M4x29 +PTP (Case)	4
2-24	S+PTB3008FR	Screw, M3x8 +PTB (Switch Frame 4 , Main PCB 4)	8
1-13	S+ISP4015FR	Screw, M4x15 +PH SEMS "Black" (Shipping)	2
	TP80-I010	Tube (Lead Wire Stopper)	2
1-14	XMM8-I010	Lumirror Sheet	1
1-15	BL80-M010HM	Rear Cover for Printer	1
	S+ISP2506FR	Screw, M2.5x6 Cup Screw	2
	S+PTP2312FR	Screw, M2.3x12 +PTP	1
2-25	C80S-P010	Shield Plate Power Supply Chassis	1
	C80S-E050	GND Wire, UL-1737 16AWG L-90 (Yellow/Green, Spiral)	1
	C80S-E040	GND Wire, UL-1007 15AWG L-60 (Yellow/Green, Spiral)	1
	S+ISP3006FR	Screw, M3x6 +PH SEMS (Ground)	1
	S+ISP3008FR	Screw, M3x8 +PH SEMS (Ground)	2
		Rubber Stopper, Ø 11x Ø 4x8t	1
	4023-I010	Rubber Foot Ø 16x3t	2
ASSEMBLY, EUROPEAN TYPE B			
1-8	AV80-I010	Rubber Foot for Printer Head	2
1-9	XMM8-M040HU	Manual Knob	1
2-27	4023-P040	Steel Plate for Transformer	2
1-19	VP80-E010	Special Screw, M4 Tapping (Printer)	3
2-21	S+ISP4010FR	Screw, M4x10 +PH SEMS (Trans)	2
2-22	S+ZSP4006FR	Screw, M4x6 +PH SemS (Ground)	4
1-11	S+PTB3006FR	Screw, M3x6 +PTB (Buzzer, Power, Chassis)	6
2-23	S+STB3006FR	Screw, M3x6 +ST3 (Heat Sink)	2
1-12	S+PTP4020FR	Screw, M4x29 +PTP (Case)	4
2-24	S+PTB3008FR	Screw, M3x8 +PTB (Switch Frame 4 , Main PCB 4)	8
1-13	S+ISP4015FR	Screw, M4x15 +PH SEMS "Black" (Shipping)	2
	TP80-I010	Tube (Lead Wire Stopper)	2
1-14	XMM8-I010	Lumirror Sheet	1

P A R T S L I S T

INDEX	PART NUMBER	DESCRIPTION	Q'TY
1-15	BL80-M010HM	Rear Cover for Printer	1
	S+ISP2506FR	Screw, M2.5x6 Cup Screw	2
	S+PTP2312FR	Screw, M2.3x12 +PTP	1
2-25	C80S-P010	Shield Plate Power Supply Chassis	1
	C80S-E050	GND Wire, UL-1737 16AWG L-90 (Yellow/Green, Spiral)	1
	C80S-E040	GND Wire, UL-1007 15AWG L-60 (Yellow/Green, Spiral)	1
	S+ISP3006FR	Screw, M3x6 +PH SEMS {Ground}	1
PRINTER UNIT			
1-15	P-CE-80S-G	Needle Printer Model CE-80S-G(8) or Model CE-80S-G(8)	1
RIBBON CARTRIDGE UNIT			
1-16	IK-SP80RC	Ribbon Cartridge	1
ACCESSORY			
	XMM8-A050	Instruction Booklet	1
1-17	XMM8-P030	Paper Tray	1
	CO-D03-13S	ATARI 13P Connector Cable D03-13S-090 (1m)	1
PACKING SET			
	XMM8-A010	Individual Box	1
	XMM8-A020	Master Carton	1/2
	XMM8-A030	Styrofoam Packing Set	1
	XMM8-A040	Vinyl Bag (for Body Unit)	1
	VP80-A070	Head Fixer	1
	XMM8-A060	Vinyl Bag (for 13P Connector Cable)	1







F. SERVICES FOR PRINTER MECHANISM

The service instructions as described below are useful for repairing in field and checking the performance of used Printer Mechanism.

Before starting adjustments and replacements for printer mechanism, following materials, tools and gauges should be prepared.

a. Materials

Material	Name	Parts	Remarks
Adhesive	Loctite®	Screw	Adhesive over ¼ of screw head and washer
Grease	Beacon 325	Special	
Alcohol			General purpose for cleaning
Solder	62Sn48Zn		With flux

b. Tools

Solder Iron	Disconnection and connection of wiring	15 ~ 17 Watt
Screw Drivers Small Medium	Screw Screw	+ bit for M2 ~ M2.6 + bit for M3 ~ M5

c. Gauges

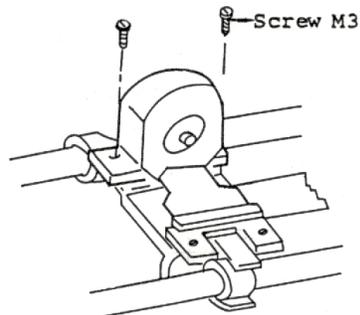
Thickness Gauge	0.05mm 0.15mm 0.5mm 0.5mm	} Paper & sensor	Available car use
Tension Gauge		Synchronous Belt	0 ~ 500G

I 3

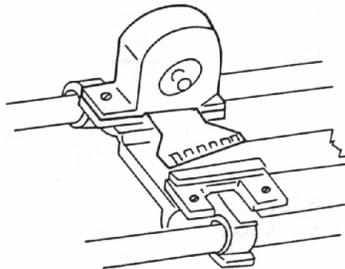
1. Adjustment & Replacement of the printer head

1-1 Disassemble and assemble

- 1) Remove two M3 Head Screws



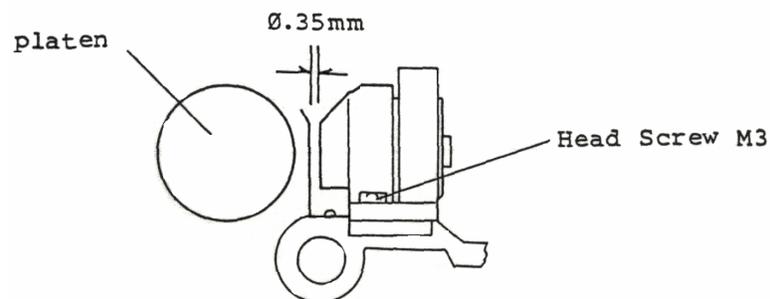
- 2) Take out the Flexible cable from connector



- 3) In case of assembling, Do reverse way of 2), 1)

1-2 Adjustment of the Head (after assembling)

- 1) Loose two M3 Head Screws
- 2) Insert the H.35mm thickness gauge between Ribbon Guide and Head Nose.
With keeping this gap, fix two M3 Head Screws.

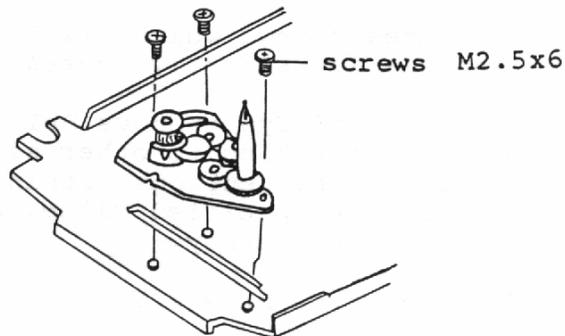


- 3) Check the gap between Ribbon Guide and Head Nose again, by inserting above thickness gauge. The gauge should be inserted smoothly. If not, back to 2.

2. Adjustment & Replacement of Ribbon Gear Ass'y

2-1 Disassemble and assemble

- 1) Remove three screws which fix the Ribbon Gear Assy on the chassis as M2.5 x 6



- 2) Take out the synchronous belt from Ribbon Gear Ass'y
- 3) In Case of Assembling, Do reverse way of 2), 1) But, Don't fix three screw completely, keep a little bit loose for adjustment of tension of synchronous Belt

2-2 Adjustment and Lubrication

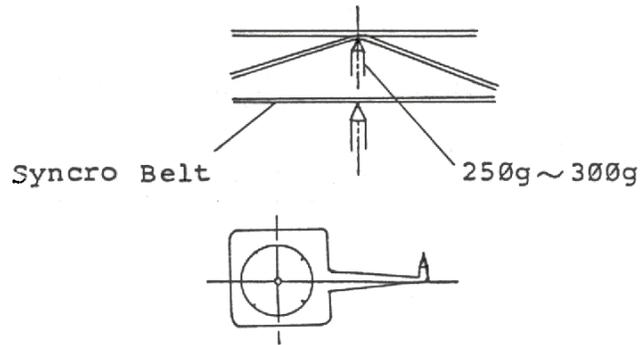
2-2-1 Lubrication

- Lubrication for Ribbon Gear Ass'y should be done before assembling on the chassis.
- Lubricate the grease (Beacon 325) to the meshing part of the gears.
- After lubricate, check the gears rotate smoothly and no eccentricaly.

2-2-2 Adjustment of Tension of Synchronous Belt

- Move the Printer Head to the right end print Head

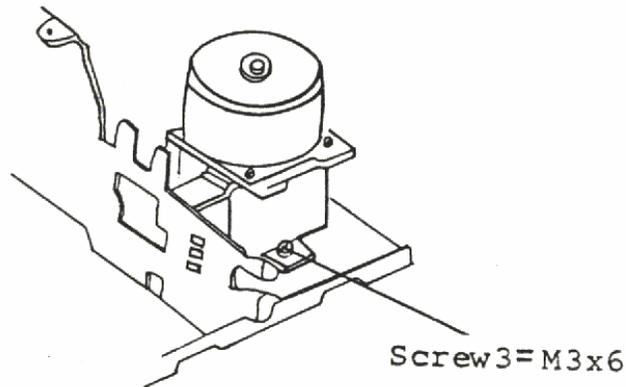
- Check the three screws which fix Ribbon Gear Ass'y on the chassis are slightly loosed.
- Push the middle of Synchronous Belt by Tension gauge until slightly touching to other side of Synchronous Belt, and check the tensions within 250g ~ 300g.
If not within the specified value, adjust the location of Ribbon Gear Ass'y.
- Then, fix the three screws firmly.



3. Replacement and Adjustment of Carriage Motor Ass'y

3-1 Disassemble and Assemble

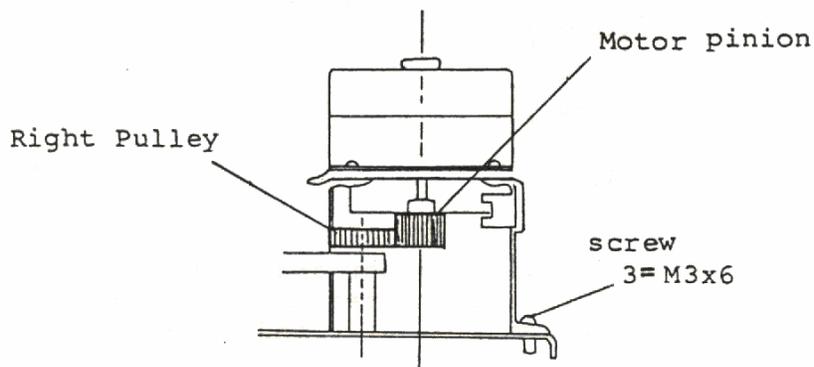
- 1) Remove the Connector CON 6, 8 (Connected from Carriage Motor) from Main P.C.B Assembly.
- 2) Take out the three M3x6 screws which fix the Carriage Motor Assembly.



3) In case of assembling, Do reverse way of 2), 1)

3-2 Adjustment of Carriage Motor Assembly

- 1) Check the backlash of the mesh part between pinion gear of the carriage motor and right pulley by jogging horizontally the Printer Head, and adjust the carriage motor so slightly that backlash way not make even with minor force.
- 2) Fix four M3x6 screws firmly.
- 3) After above process, check once again the backlash is minor enough and Printer Head can move smoothly.



- ### 3-3 Lubrication for Carriage Motor Ass'y.
- Specified grease (Beacon 325) is required to the mesh part of pinion gear of Carriage Motor and the Upper gear of Right Pulley.

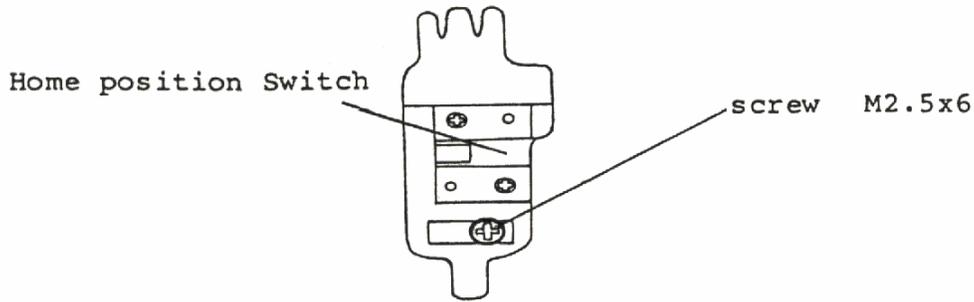
4. Adjustment and Replacement of Home position Switch Ass'y

4-1 Disassemble and Assemble

- 1) Remove the M2.5x6 screw which fix the Home position Switch Ass'y to the chassis.
- 2) Resold the lead wires from Home position Switch terminals.
- 3) In case of assembling, do reverse way of 2), 1).

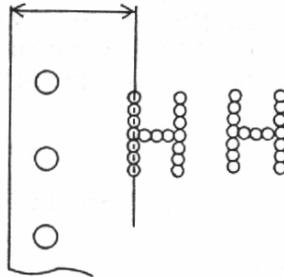
4-2 Adjustment of the Home position Switch

- 1) Lose slightly the M2.5x6 screw which fix the Home position Switch Ass'y to the chassis as possible to move by finger.



- 2) Insert the 10 inches width paper and print out. Check the left end of the printed character must be located at $25.6 \pm 0.5\text{mm}$ from left end of paper.

$25.6 \pm 0.5\text{mm}$



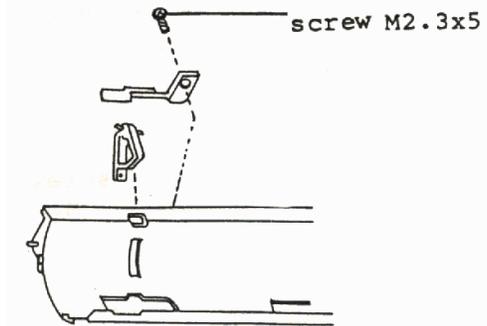
- 3) If not within the specified area, adjust the location of Home position Switch Ass'y and fix the M2.5x6 screws

- 4) After fix the M2.5x6 screw firmly, check once more the location of left end of printed character which is within the specification.

5. Replacement and Adjustment of paper End Sensor

5-1 Disassemble and assemble

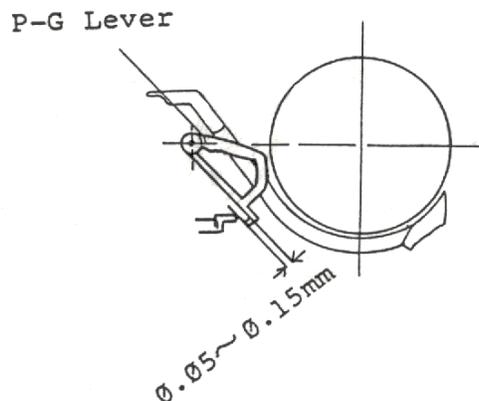
- 1) Take out the Leaf Switch Ass'y and M2.3x5 screw by loosening the screw as shown below.



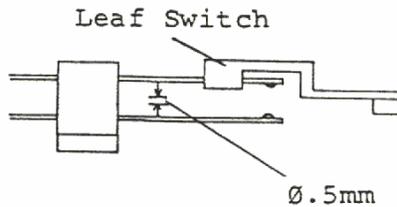
- 2) P-G Lever also is removed accordingly with the Leaf Switch Ass'y.
- 3) Resolder the lead wires from Leaf Switch terminal.
- 4) In case of assembling, do reverse way of 3), 2), 1).

5-2 Adjustment of Paper End Sensor

- 1) With holding the P-G Lever against the Platin, check the gap between P-G Lever and the tip of Leaf Switch which is within 0.05~0.15mm by inserting Thickness Gauge. And if not, adjust the Leaf Switch Ass'y, then fix the M2.3x6 screw firmly.

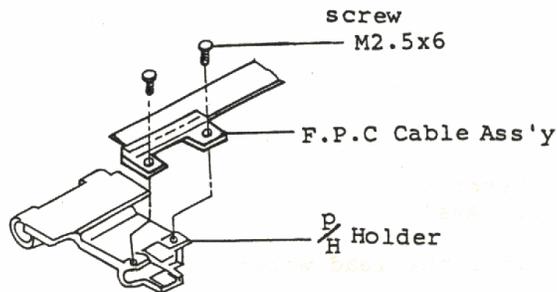


- 2) Insert the paper to print out and check the gap of the contact points of the Leaf Switch shall be more than 0.5mm (measured with thickness gauge).

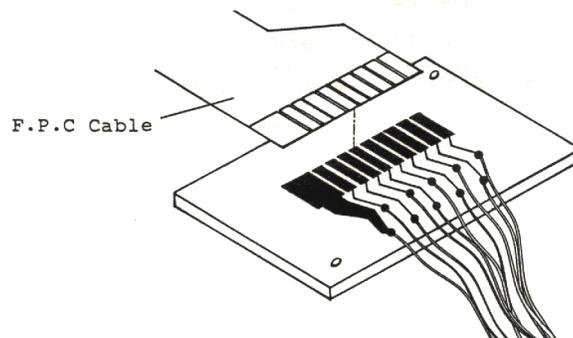


6. Replacement of F.P.C Ass'y

- 1) Remove the Flexible Cable of the Printer Head from F.P.C cable Ass'y on Printer Head Holder.
- 2) Remove two M2.5x6 screws, and take out the F.P.C Cable Ass'y from the Printer Head Holder.



- 3) Resolder the F.P.C Cable from the Connection P.C.B F.P.C Cable



- 4) In case assembling, Do reverse of 3), 2), 1)