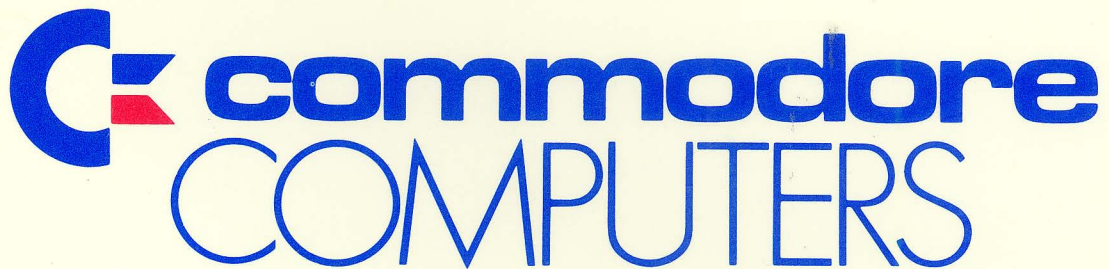


SERVICE MANUAL

MPS1200 PRINTER

APRIL, 1987

PN-601210-19



SERVICE MANUAL

MPS1200 PRINTER

APRIL, 1987

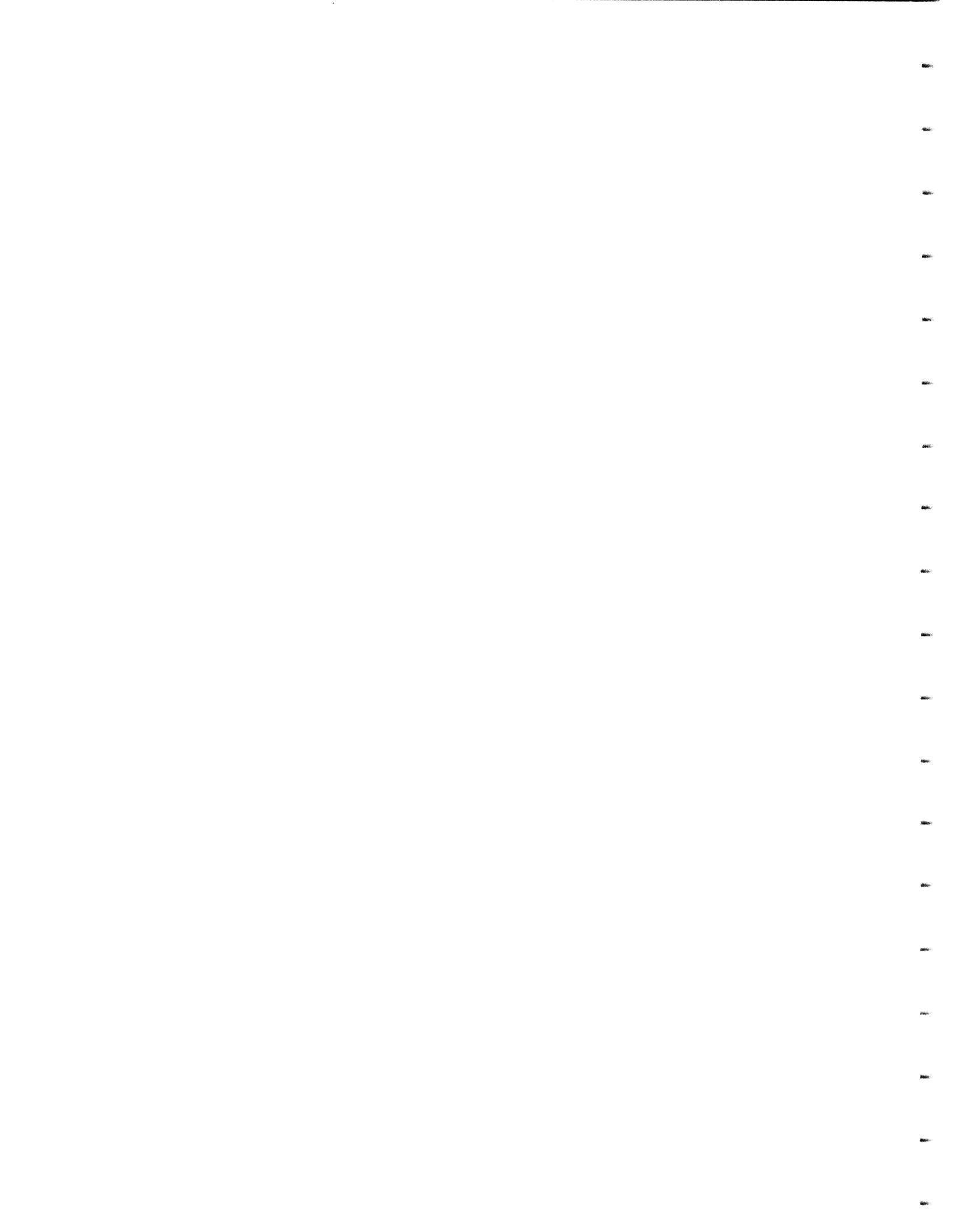
PN-601210-19

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Chapter 1 Operating Principles

Chapter 2 Disassembly and Maintenance

Chapter 3 Troubleshooting

Chapter 4 Parts Lists

Chapter 5 Circuit Diagrams

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Chapter 1

Operating Principles

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1-1. Operation of each mechanism

This printer is a serial impact dot matrix printer comprised of several mechanisms such as the print head, carriage feed, ribbon feed and paper feed parts.

This section describes the operation of each of these mechanisms.

1-1-1 Print head mechanism

The print head is of the clapper type which utilizes the attractive force of an electromagnet. It is designed to be easily mounted on and detached from the carriage assembly.

The print head is electrically connected to the control circuit via a ribbon cable.

The print head consists of the following components:

- (a) Nose assembly
- (b) Electromagnetic solenoid unit
- (c) Armature assembly

(1) Operation of print head (see Fig. 1)

The armature is held in the stand-by position by the armature spring and the print wire spring. When the appropriate drive signal required for each character is detected by the control circuit, the drive current is applied to the print coil corresponding to that signal. When the coil conducts, the attractive force is generated between the armature and core to drive the armature toward the platen, allowing the print wire attached to the armature to strike the ink ribbon and platen. When the printing stroke is completed, the armature is retracted to the rest position by the armature spring. The print wire is also reset to the rest position by way of the wire spring.

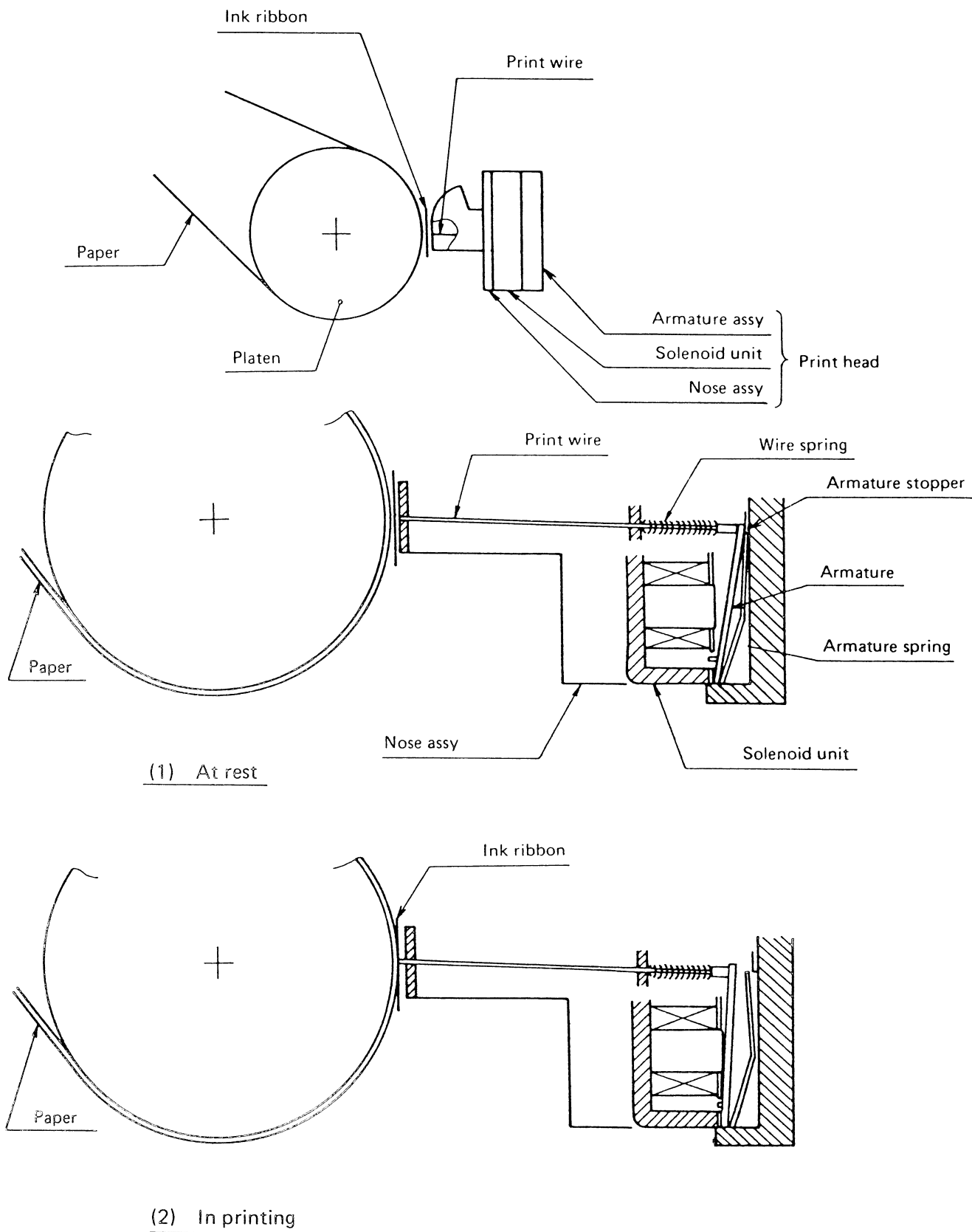


Fig. 1

1-1-2 Carriage feed mechanism

The carriage plate assembly is guided by the carriage rail mounted in parallel with the platen and is driven by the carriage pulse motor.

The major components of this mechanism are:

- (a) Pulse motor
- (b) Motor angle
- (c) Belt
- (d) Pulleys Right and Left, pulley flanges (2 pcs.), pulley R plate BK
- (e) Carriage rail
- (f) Carriage
- (g) Carriage bushings Left and Right
- (h) Home position sensor
- (i) Carriage guide plate

(1) Mechanism and operation (see Fig. 2)

The carriage is equipped with the print head and is designed to move in parallel with the platen along the carriage rail and the carriage guide plate. On the carriage the timing belt is fixed. Tension is maintained on this belt by a pulley R plate.

The carriage is driven by the pulse motor via a timing belt. A counterclockwise rotation (viewed from the top) of the motor provides the left to right movement of the carriage, while a clockwise rotation of the motor provides the right to left movement. When the pulse motor turns 45 degrees (6 steps), the carriage moves by 2.54 mm (1/10 of an inch).

(2) Carriage return operation (see Fig. 2)

When the CR code is received, a signal from the control circuit actuates the clockwise rotation (viewed from the top) of the pulse motor, resulting in the right to left movement of the carriage. This causes the home position sensor plate located at the base of the carriage to pass through the sensor part of the home position sensor.

The home position sensor is comprised of a light emitting diode and a light receiving Transistor. This sensor generates the signal for stopping the carriage motor when the home sensor plate passes through the home position sensor. This signal controls the carriage so it may stop at the home position.

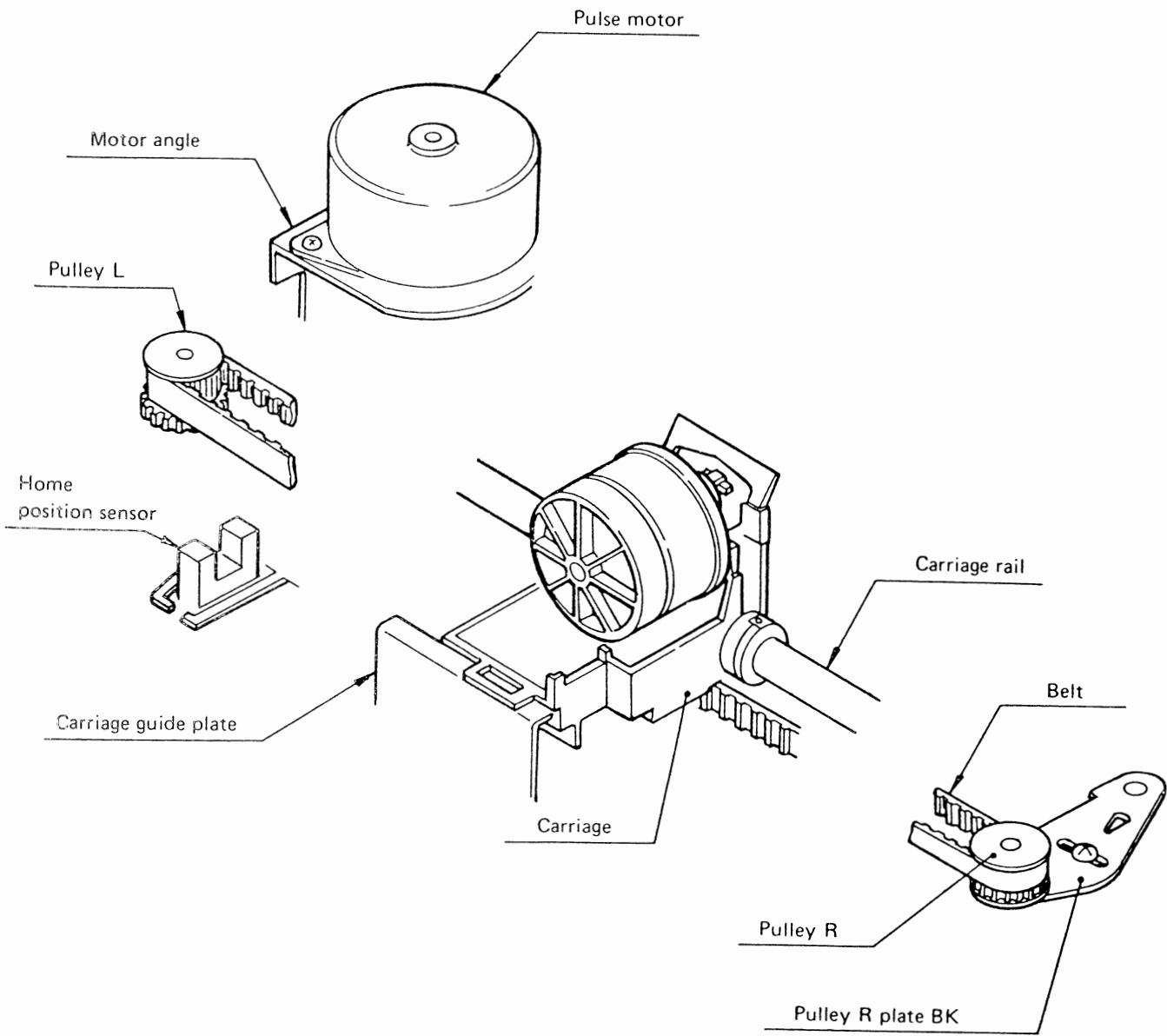


Fig. 2

1-1-3 Ribbon feed mechanism

The driving power for the ribbon feed system is derived from the carriage motor via the gear. The components of the ribbon feed mechanism are set forth below:

- (a) Carriage motor
- (b) Ribbon first gear, and ribbon second gear
- (c) Ribbon gear
- (e) Cassette first gear, and cassette second gear

(1) Ribbon feed operation (see Fig. 3)

The rotation is conveyed to the motor gear, ribbon first gear, ribbon second gear and ribbon gear, respectively.

When the carriage moves from left to right, the ribbon gear turns in the counterclockwise direction via the ribbon first gear and ribbon second gear. When the carriage moves in the opposite direction the ribbon gear plate turns clockwise, allowing the ribbon gear to turn in the same direction via two ribbon first gears and ribbon second gear each time. In other words, whichever direction the carriage moves the ribbon gear will always turn clockwise.

(2) Ribbon cassette mechanism (see Fig. 4)

The ink ribbon is formed in an endless loop, and is always fed to one direction between the cassette gear A and cassette gear B.

The rotation of the gear A which is coaxially joined with the above ribbon gear allows the ribbon to be folded and pushed in to the cassette. The ribbon is arranged in a straight line by the slit provided at the feed outlet on the other side. Appropriate back tension is maintained by the back tension leaf spring and the ribbon is fed to the print head direction.

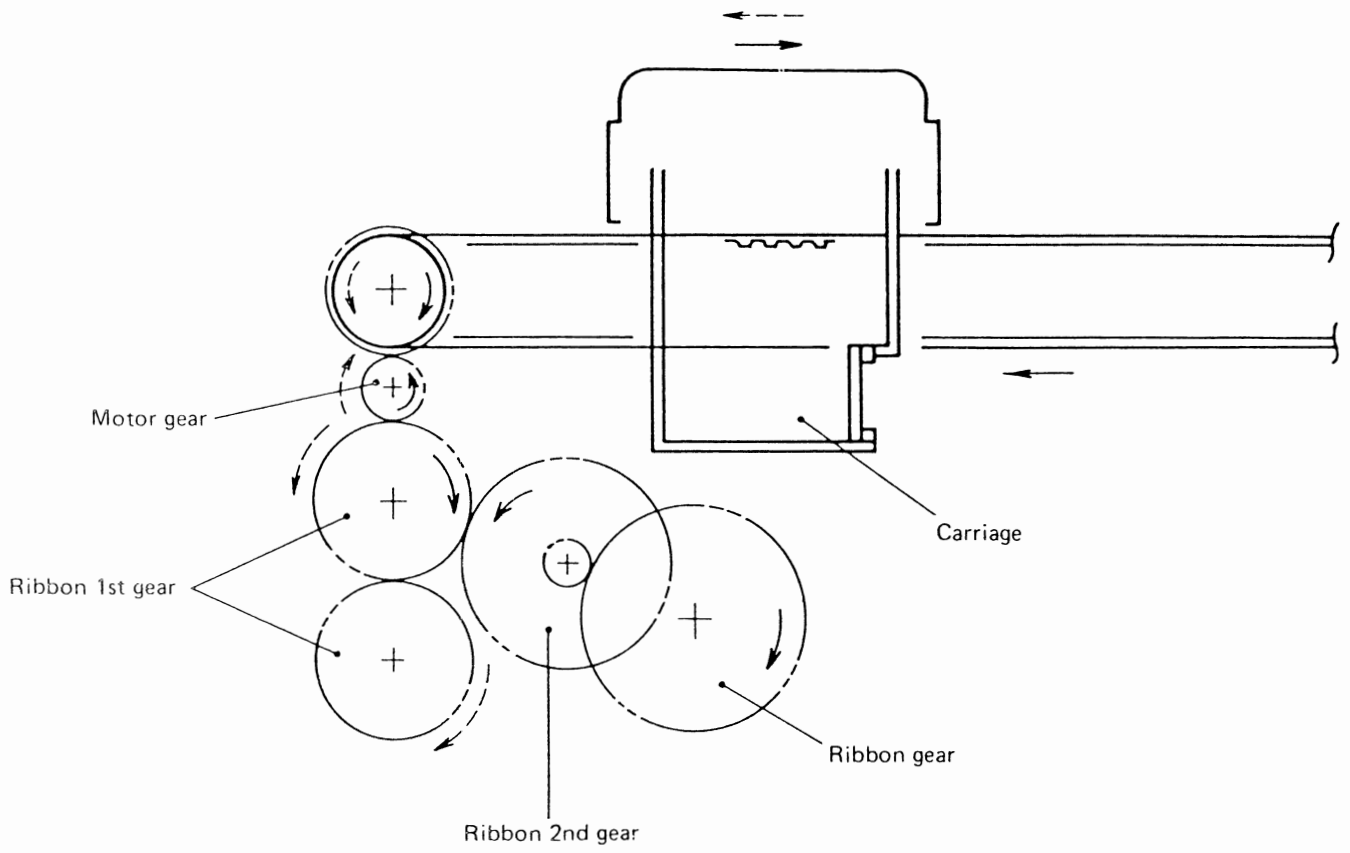


Fig. 3

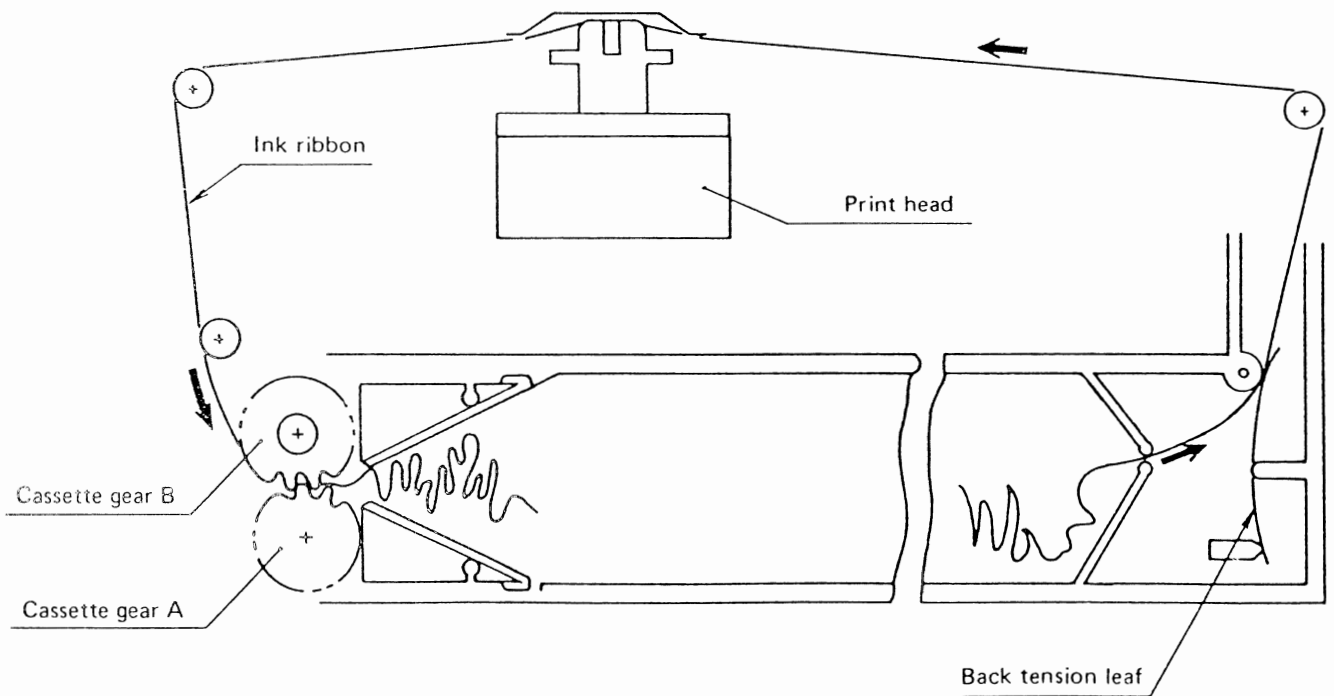


Fig. 4

1-1-4 Paper feed mechanism

The paper is advanced by the rotation of a pulse motor and is used to turn the platen via a gear train.

The paper feed mechanism consists of these major components:

- (a) Pulse motor with gear
- (b) Gear train
- (c) Platen
- (d) Tractor

(1) Paper feeding operation (see Fig. 5)

The rotation of the paper feed motor is conveyed through the reduction gear train to the drive shaft of the tractor guide block and the platen.

When the pulse motor turns for 270 degrees (36 steps), the paper is fed by 1/6 of an inch.

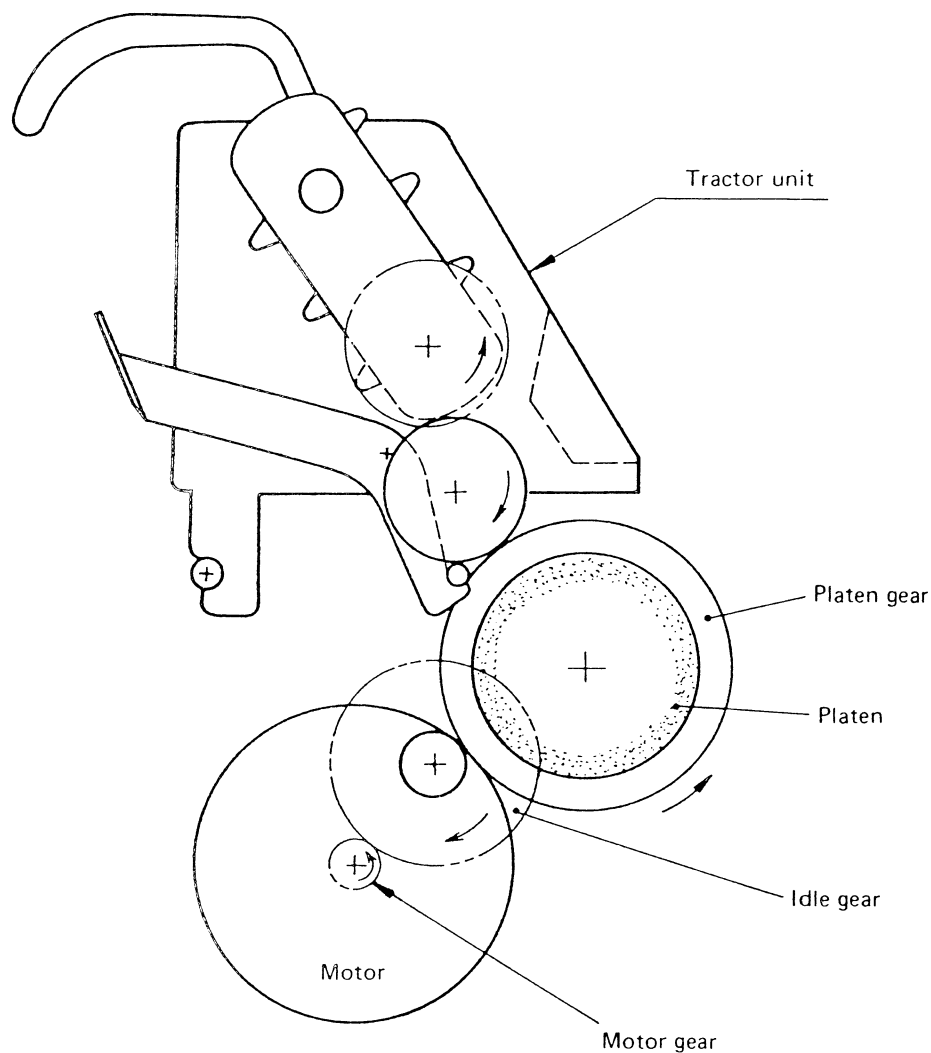


Fig. 5

(2) Paper out detection mechanism (see Fig. 6)

When the paper is inserted, the paper end lever pushes a micro-switch placing the switch in the off mode. When the paper runs out, the switch is set to detect the paper out status.

The paper out detection mechanism consists of the following components:

- (a) Paper end levers Upper and Lower
- (b) Paper end lever spring
- (c) Micro-switch

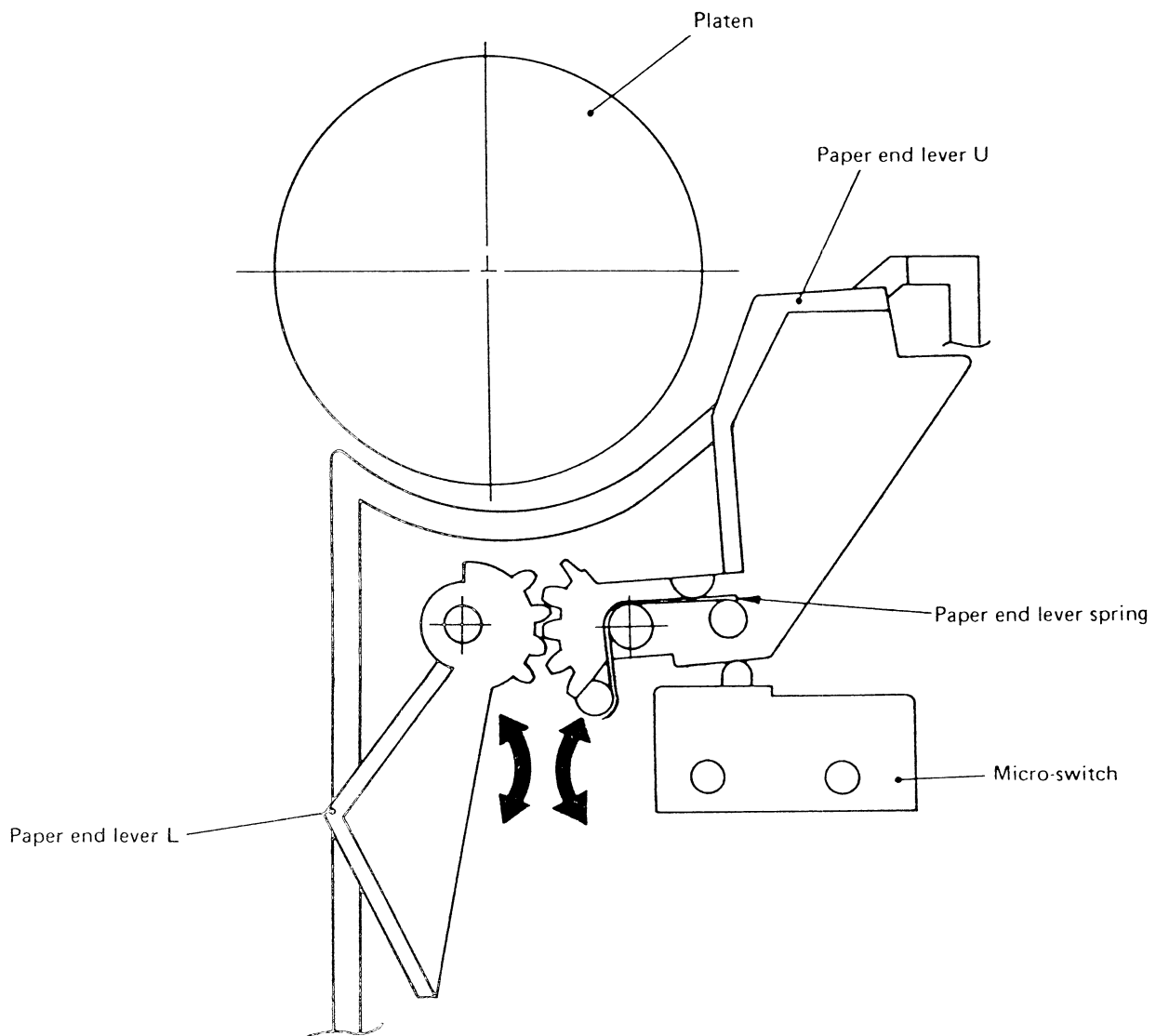


Fig. 6

1-1-5 Print head gap adjust mechanism (see Fig. 7)

The print head gap adjust mechanism moves the carriage plate forward or backward, varying the gap between the platen and print head by making the carriage rail bushing eccentric and by rotating it in order to adjust the gap to the optimum value.

The adjusting lever is located to the right side (viewing from the operating position), the gap being varied by moving that lever. Pushing the adjusting lever towards the platen decreases the distance between the platen and the print head, while pushing in the opposite direction widens the gap.

The adjusting lever is designed to adjust in fixed increments. Each interval of the adjusting lever provides a change between the platen and print head of 0.1 mm.

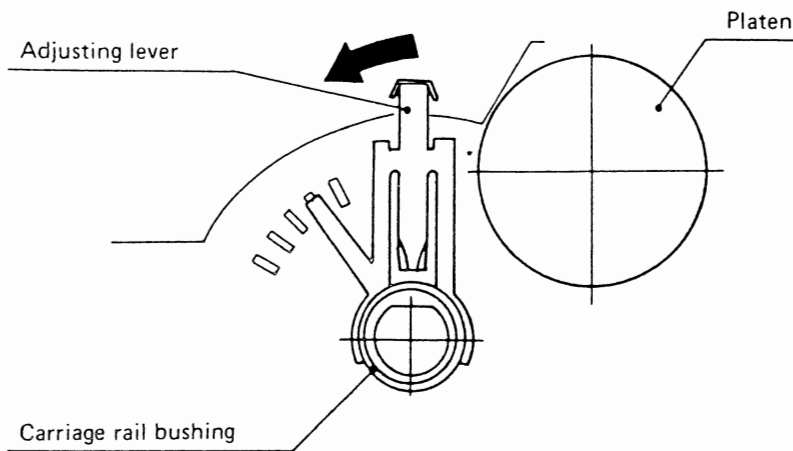


Fig. 7

1-2. Operation of control parts

1-2-1 Configuration of printer

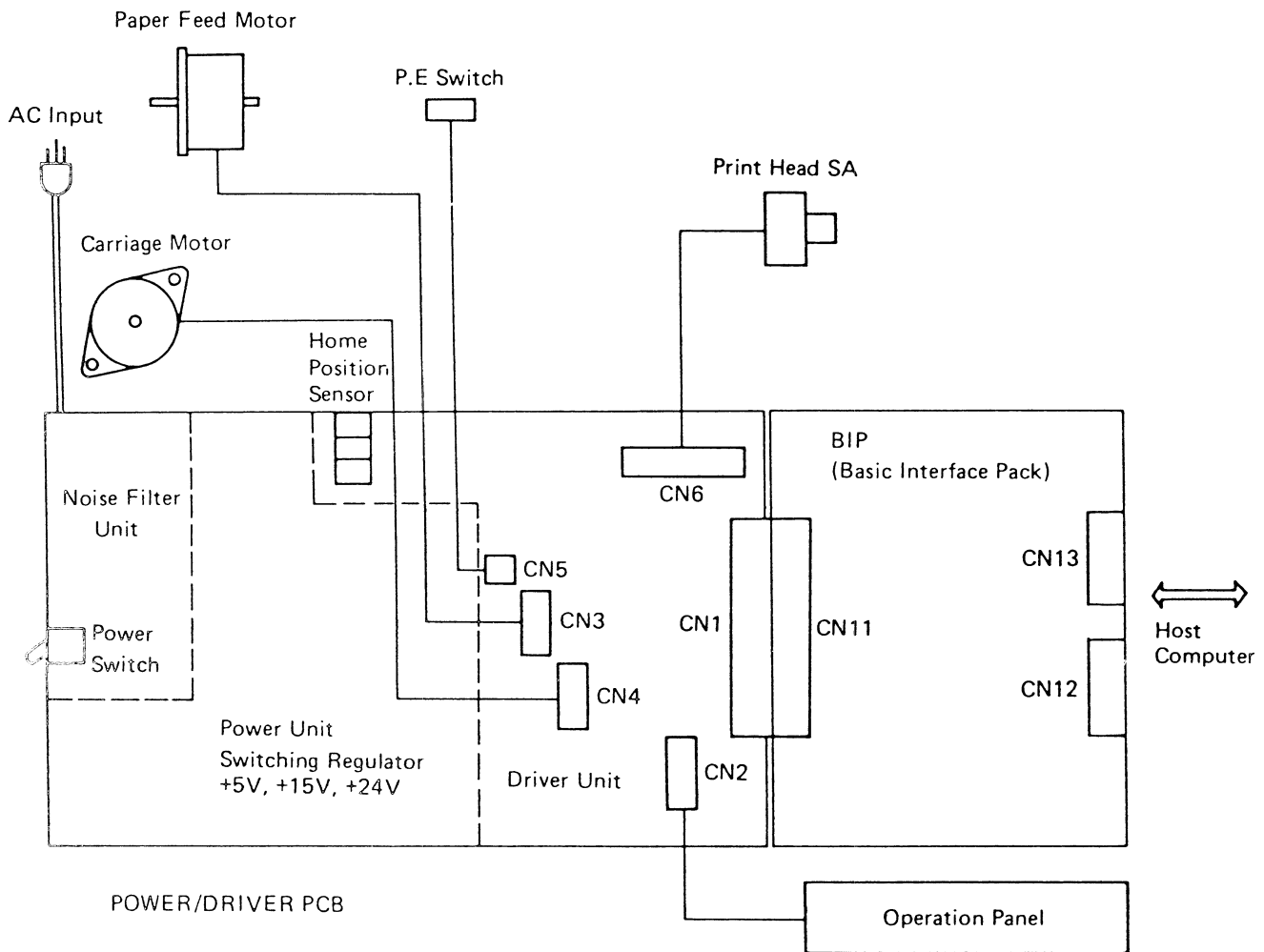
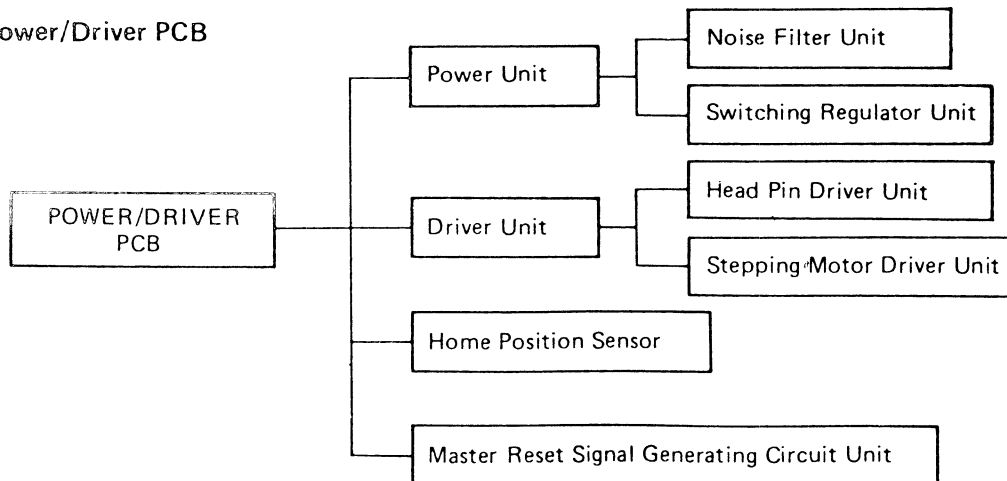


Fig. 1

As shown in Fig. 1, this machine consists of two units, Power/Driver PCB and BIP (Basic Interface Pack).

(1) Power/Driver PCB



- The power supply unit consists of the noise filter unit and the switching regulator. The noise filter, power switch and fuse are mounted in the noise filter unit. The switching regulator converts AC input to DC voltages of +5V, +15V and +24V.

Usage of each DC voltage is as follows:

- + 5V: For logic control, for driving stepping motor
- +15V: For driving carrier motor at low speed
- +24V: For driving carrier motor at high speed, for driving paper feed motor, for driving head pin

- The driver unit consists of the head pin driver unit and the stepping motor driver unit. Because the signal from I/F pack is sent serially, this serial data is converted to a parallel one for both the head pin driver and the stepping motor driver. For driving the print head, a transistor array incorporating 9 circuits is used and for driving the stepping motor, that with 4 circuits is used.

In addition, the paper feed stepping motor is always driven by +24V and the carrier stepping motor is driven by +24V in high-speed travelling and by +15V in low-speed travelling.

The photo-sensor for detecting home position and master reset signal generating circuit are also included in this PCB.

(2) BIP (Basic Interface Pack)

Control of printer mechanism and interface control with the host computer are made by CPUs mounted on BIP.

Various BIPs are provided according to the model of the host computer to connect. Refer to a manual for each BIP for detail.

1-2-2 Basic operations of printer

(1) Operation on initialization

When the power for the device is turned on or when RESET signal is sent from the host CPU, the printer will be initialized and the print head will return to home position.

At this time, the contents of the buffer will be cleared and specification setting DIP switches will also be re-set.

During initialization, no data will be received since BUSY signal of the interface becomes HIGH. After initialization is completed, the signal becomes LOW and receiving of data is enabled.

(2) Operation on data input

The data input is temporarily stored in the input buffer. Printing is started if the data reaches one line or print start command code such as LF code, CR code, etc. is received.

(3) Printing operation

The carriage motor is held by relatively a weak force with +5V when waiting.

When a line of printing data or print start command code is input, the signal *CVH1 or *CVH2 becomes LOW and +24V is applied to the motor via TRA1. During this state, the signals for driving motor CRMA ~ CRMD and those for driving printing solenoid SOL1 ~ SOL9 are output by the signals DSCK and DSdT from I/F pack and printing operation is started.

(4) Carriage return and line feed operation

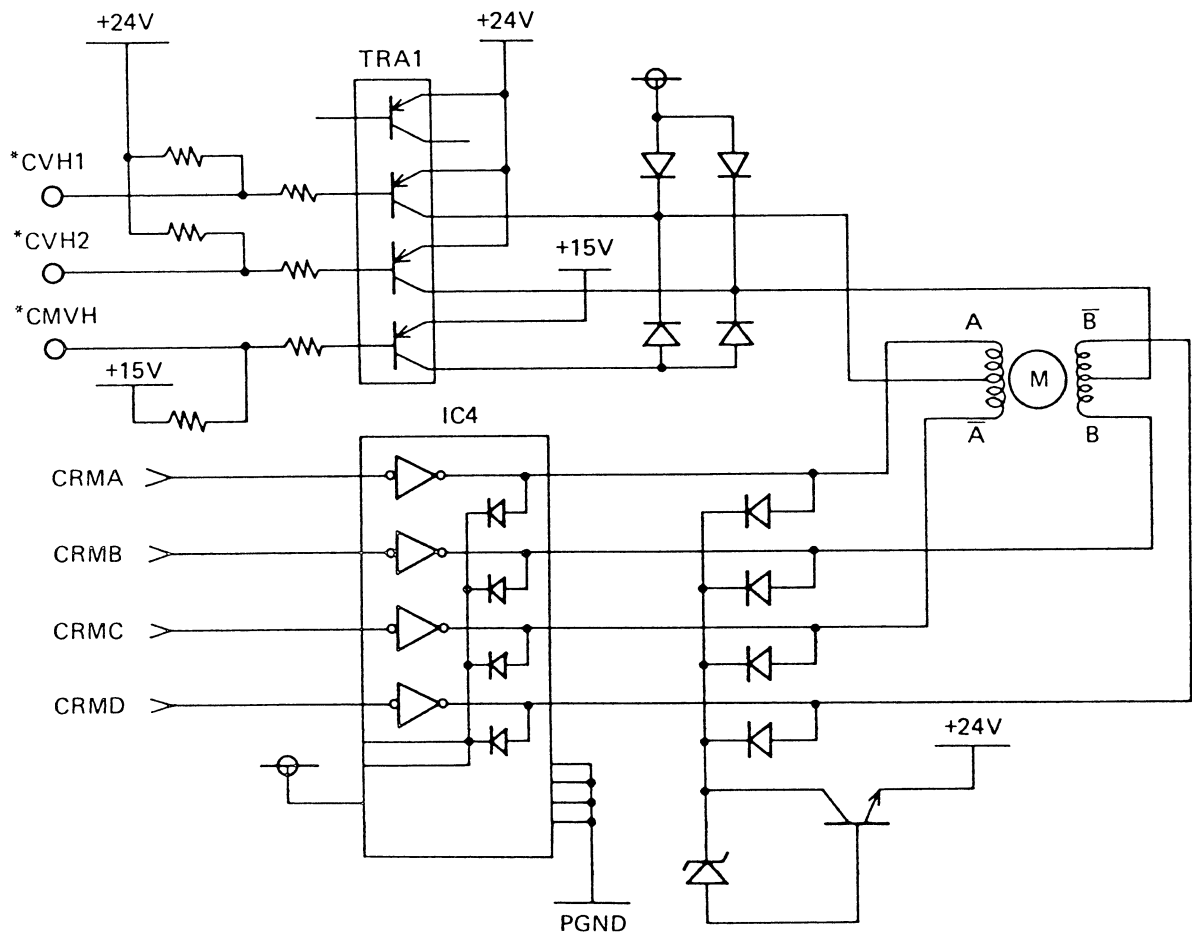
When printing of one line is finished, linefeed operation is performed. During waiting, +5V is supplied to the paper feed motor and the motor is held by relatively weak force.

When paper feed operation starts, the signal *RMVH becomes LOW first, and +24V is applied to the motor via TRA1. If the signals DSCK and DSdT from I/F pack are given during this state, the motor is driven and paper feed operation is performed.

1-2-3 Control method of carriage stepping motor

Driving method of carriage motor is as follows; it is driven in 2-phase excitation from 10 to 17 CPI of DP mode and in 1-2-phase excitation at LQ mode (or equivalent speed). The driving voltages are +24V and +15V and they are changed according to speed. Moreover, it is held with +5V during waiting.

Figs. 2 and 3 show timing charts and driving voltage at each mode.



- When the carriage is in operation, the signal *CMVH becomes LOW and +15V is always in ON condition.
- +24V is controlled by the signals *CVH1 (Phase A) and *CVH2 (Phase B). The ON time depends on the speed of motor and appropriate torque is set for each speed.
- In acceleration and deceleration, changeover between +24V and +15V will not be performed and it is driven by +24V only.

- Timing Chart for 2-phase Excitation in DP Mode

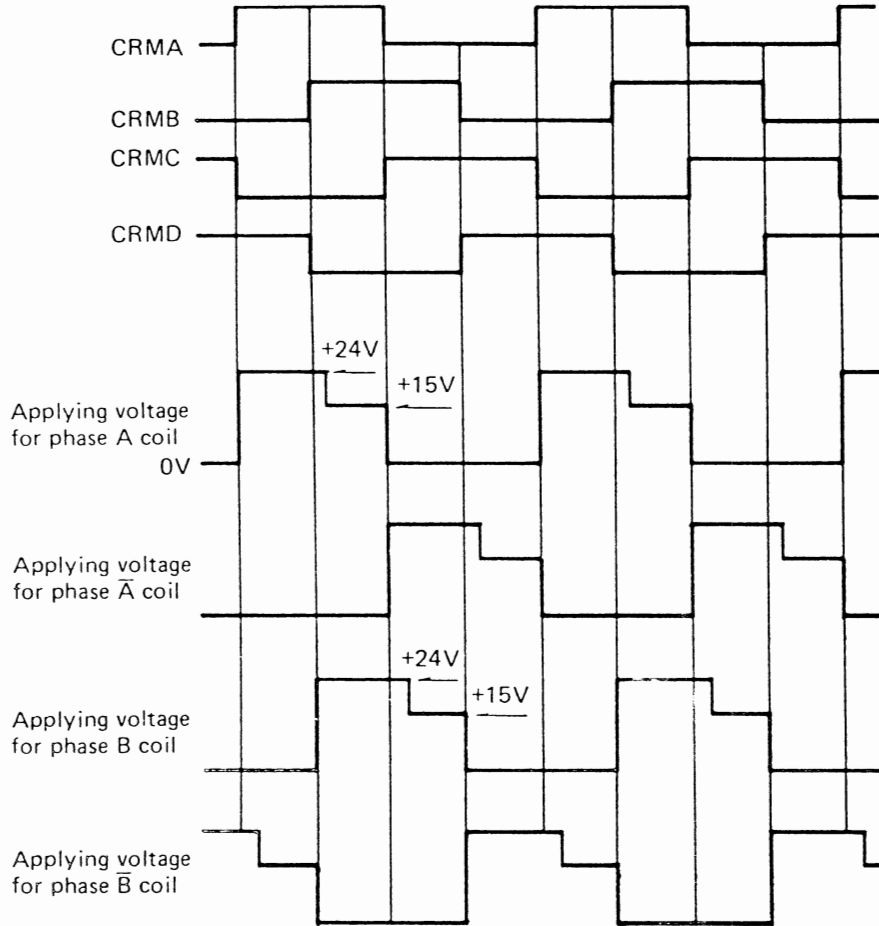


Fig. 2

- Timing Chart for 1-2-phase Excitation in LQ Mode

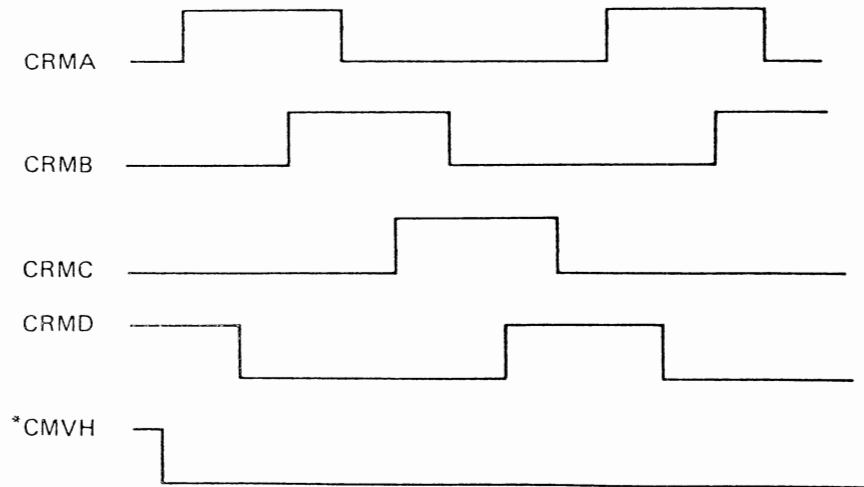


Fig. 3

- During carriage operation, the signal *CMVH becomes LOW and +15V is always in ON condition. In LQ mode, it is driven by +15V.

1-2-4 Control method of paper feed stepping motor

Unlike the carriage motor, the paper feed motor is always driven by the voltage of +24V during operation.

The paper feed motor is of the unipolar 1-2-phase driving and a minimum unit of phase change is 1/432 inch. The timing chart is shown in Fig. 4.

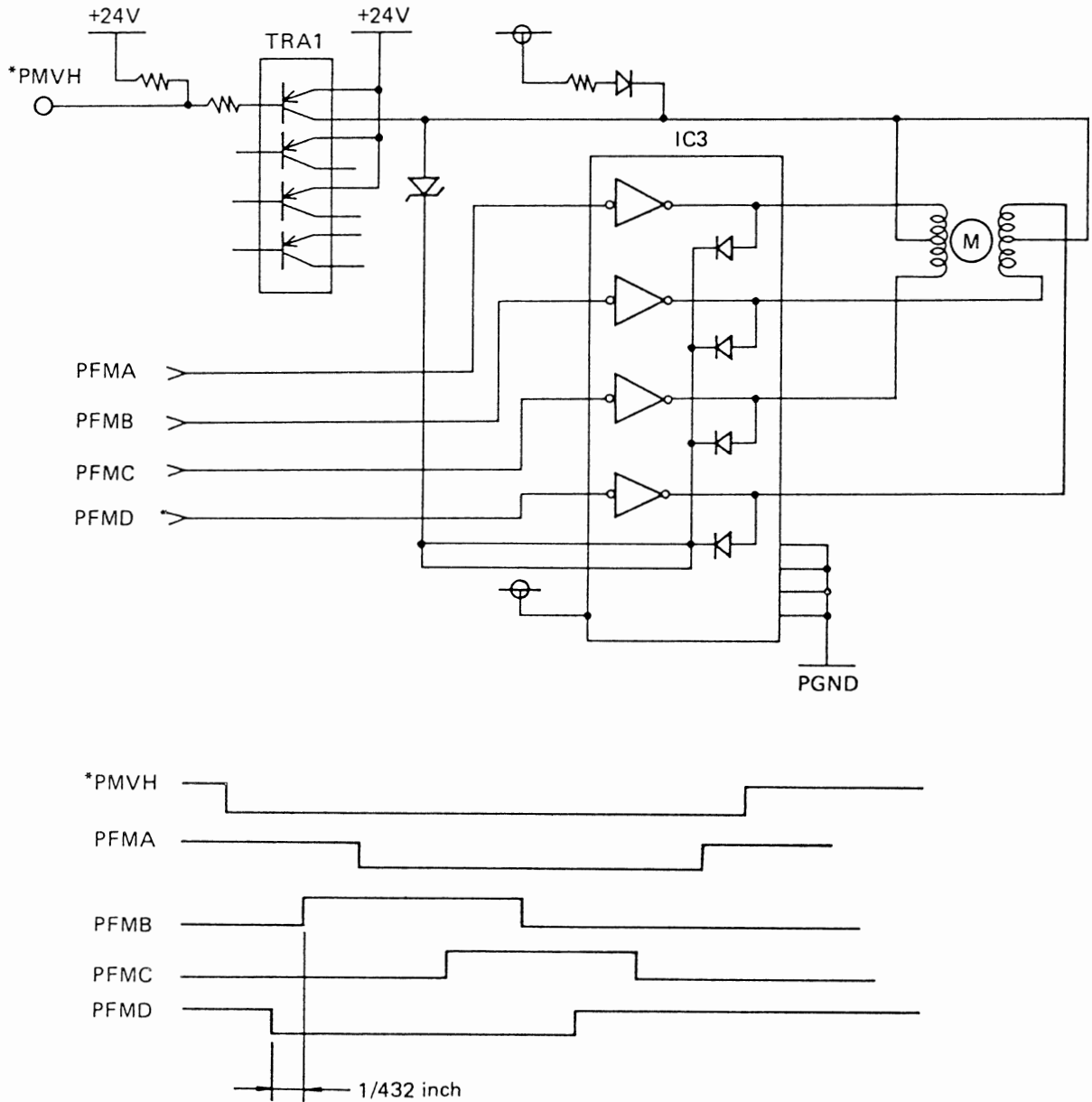


Fig. 4 Timing chart (for forward feeding)

Note: The voltage applied to the carriage motor is +24V with *PMVH set to LOW, or +5V with *PMVH set to HIGH.

1-2-5 Sensors

(1) Home position sensor

Used for detecting position of the print head.

Using a transmission type photo-interrupter, this sensor is designed so that the light shielding plate mounted on the carriage interrupts the transmitting light of the photo-interrupter at the home position.

(2) Paper sensor

Detects whether printing paper remains or not.

1-2-6 Operation panel

The operation panel is located at the front of the printer main body. The layout of the operation side is shown in Fig. 5.

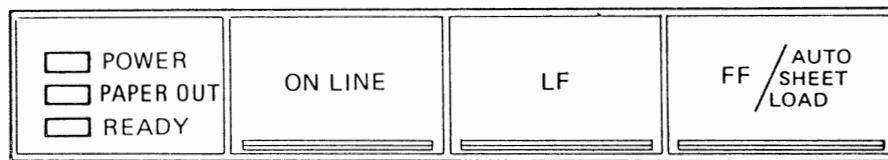


Fig. 5

(1) Indicators

◦ POWER LED

On when power is turned on.

● READY LED

On when the printer is ready to receive data from a host CPU.

◦ PAPER OUT LED

On when paper end or printer error state occurs.

(2) Operation switches

◦ ON LINE SW

Depressing this switch allows the ON LINE or OFF LINE status to be alternately changed.

◦ LF SW

Depressing this switch allows the paper to be fed in a vertical direction. The amount of paper is in accordance with the currently set paper pitch. Depressing this switch for more than 1.5 seconds provides for continuous paper feeding. LF SW is enabled when the printer is OFF LINE.

- **FF/AUTO SHEET LOAD SW**

Depressing this switch allows the paper to be fed to the next TOP OF FORM. (The paper is advanced by the preset for length minus lines already advanced.) This switch is enabled only when the printer is OFF LINE.

When Indicator shown the paper end at OFF LINE condition, this switch is valid for Auto sheet load.

Print Head will move to center of printer and to be fed to the TOP OF FORM when depress the FF SW at the paper end condition.

(3) Printer testing functions

- **SELF TEST function**

Turning the power on while depressing the LF SW starts the SELF TEST function. The printing patterns are repeated from Hex. 20H to FFH in the character code.

- **CORRESPONDENCE QUALITY MODE (NLQ) function**

When printer is ON LINE, hold down LF SW and then press the ON LINE SW. (Procedure for DP/CQ changing)

During printing, the CQ mode starts after the line in printing is finished.

The CQ mode continues until it is cancelled by the control panel operation (Refer to above procedure), a control code, or a reset of the printer.

- **HEX. DUMP function**

When the power switch is turned on with LF SW and FF SW pressed, the HEX. DUMP mode starts. In this mode, all the data from external system will be printed as hexadecimal data.

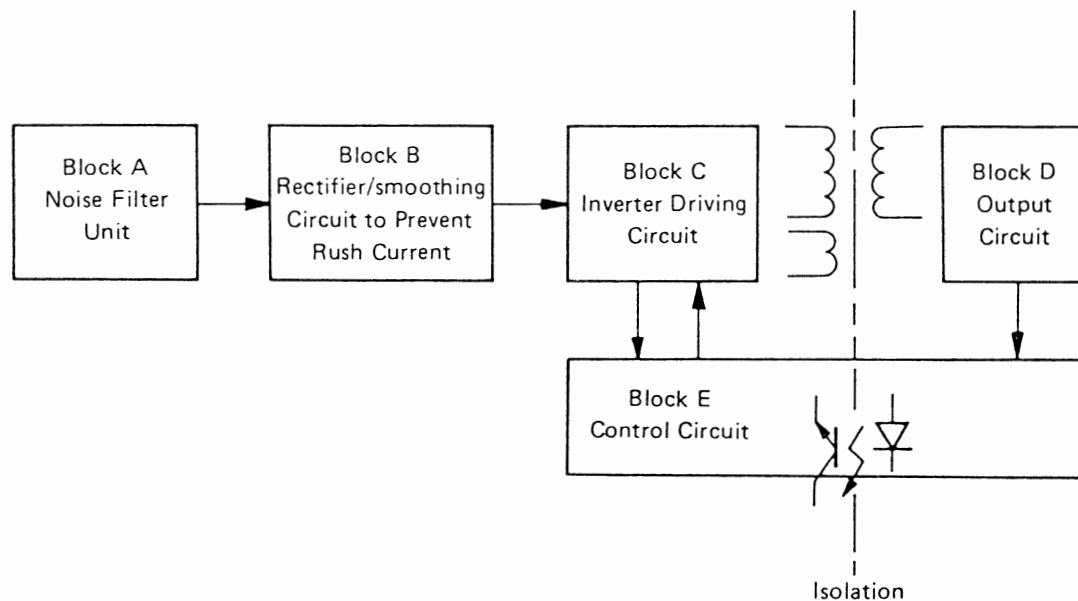
1-3. Power supply

1-3-1 General

This power supply unit uses AC input (115V or 230V) and is of a switching type multi-output DC stabilizing power unit which consists of rinding converter to output 50VA for printer's logic and driver.

1-3-2 Block diagram and description of each block

In general, this power supply consists of the following blocks:



- **Block A (Noise filter unit)**

It consists of a main switch, a fuse and noise filter. A common mode choke coil, normal mode coil, inter-line capacitor and line-ground capacitor are used for the noise filter to eliminate normal mode noise and common mode noise generated from the switching regulator, and also external noise through the power cord.

- **Block B**

(Circuit for preventing rush current)

This is to prevent a sudden charged voltage due to capacitor input type filter method from flowing into C101 when turning the AC power on and a thermister R101 is used to suppress the rush current. After starting operation, the resistance will be lowered due to the characteristics of the thermister to reduce loss as usual.

(Circuit for rectifier/smoothing)

Full wave bridge rectifying is performed by DS101 and C101, and AC input is converted to 140V or 280V.

- **Block C (Inverter driving circuit)**

The energy stored in transformer T101 is supplied to the output circuit by means of a ringing choke (reversing) method. When the power is turned on, voltage is applied to the base of transistor TR101 via resistors R102 and R104 and TR101 is going to be ON. At this time, transformer T101 starts to be ON and the coil for base wound to T101 becomes ON. Then, the voltage is applied to the base of TR101 via diode D105 and TR101 becomes completely ON. A control transistor TR102 is connected to the base of TR101 and the base current of TR101 is cut according to the output power so that TR101 becomes OFF.

- **Block D (Output circuit)**

There are three kinds in output, namely, +24V, +5V and +12V, but their circuit configuration is all the same.

First of all, the energy which transformer T101 stored while it is ON is supplied to the output circuit while the transformer is OFF. In the output circuit, the voltage is rectified and smoothed for output by means of half-wave rectifying capacitor input type filter.

In addition, in the +5V circuit, choke coils are used after capacitor to reduce noise. For protection from output overcurrent, a fuse F102 and a thermal fuse resistor R117 are used for +5V and +15V respectively. The protection is made to cut them by temperature increase due to resistance loss in generation of overcurrent. In addition, for +24V, protection is done by input dropout which is caused by feedback of detected level from R107 (current detecting resistor) of the input current to the base of TR102.

- **Block E (Control circuit)**

The output voltage of +5V is fed back and controlled. Its principle is as follows:

+5V output is divided at R114 and R115, then the divided voltage is input to the reference terminal of the shunt regulator IC101. The increase/decrease of reference level is amplified as that of current at the photo-coupler PI101 and by changing the base bias of primary side TR102 through reception side phototransistor, TR102 is turned ON and TR101 is turned OFF according to the base level signal (collector current detecting level for primary side TR101 main transistor by R107). Thus, frequency is converted. TR101 is always turned ON with inputting base current by R102 and R104.



Chapter 2

Disassembly and Maintenance

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2-1. Maintenance precautions

WARNING

- (1) Do not attempt to perform any removal/replacement or specified adjustment procedures with the power plug connected to the power source.
- (2) Do not attempt to replace fuse with the power on.
- (3) For continued protection against risk of fire, replace only with same type and rating of fuse.

Observe the following precautions in executing the maintenance service:

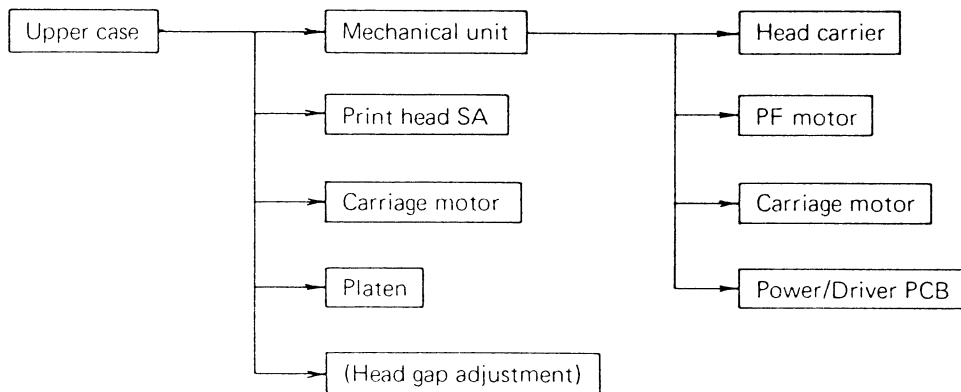
CAUTIONS

- (1) If the operation is normal, do not attempt to disassemble, reassemble or adjust without any necessity. Especially, do not loosen the setscrews on each part unnecessarily.
- (2) After completion of inspection, be sure to check for normality before turning the power on.
- (3) Never try to print without the printer paper or ribbon properly installed.
- (4) Check for normal setting of the printer paper.
- (5) Do not lay anything on the cover or lean against it during maintenance or while the printer is in operation.
- (6) Be careful not to leave the parts or screws used inside the printer during maintenance.
- (7) When handling the printed circuit board, beware of static electricity and do not touch the lead wires or windows unnecessarily for ICs such as μ CPU, RAM, ROM may be damaged by such electricity.
- (8) Do not put the printer circuit board directly on the unit or the floor.
- (9) During disassembling and reassembling, check for any damage on wires or cords and be careful not to wire forcibly.

2-2. Disassembly steps

Be sure to disassemble and reassemble the printer in accordance with the disassembly step diagram shown below.

Disassembly steps (assembly shall be in the reverse order.)



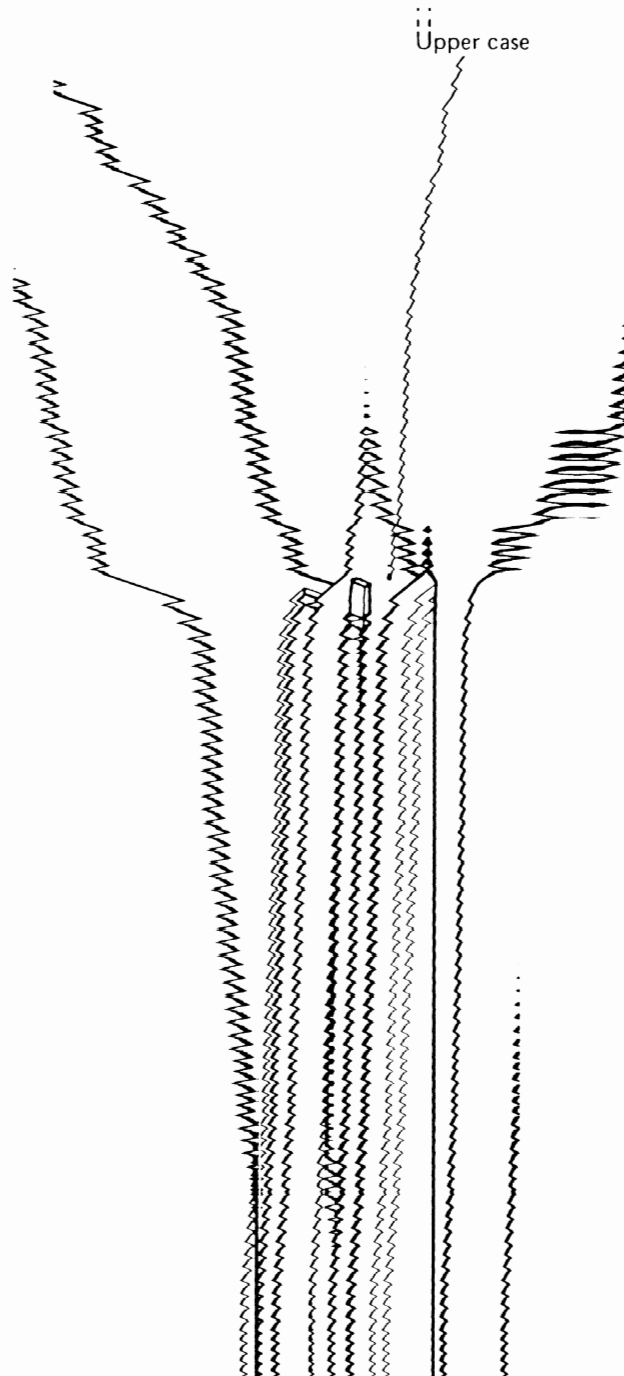
2-3. Disassembly, assembly and adjustment of each part

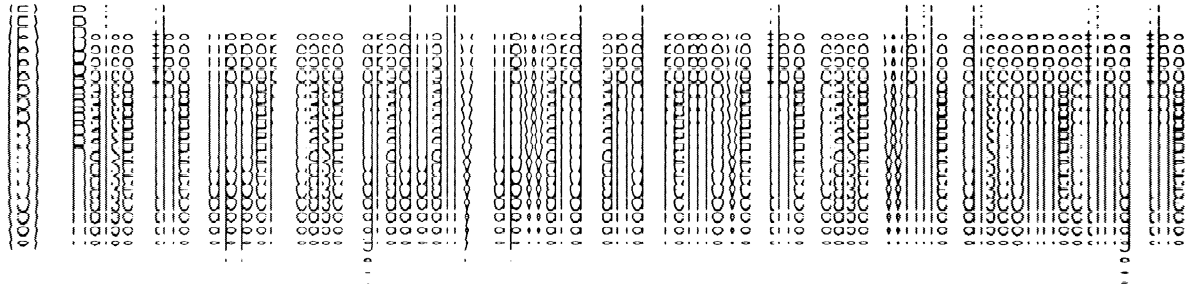
2-3-1. Detaching and assembling the upper case

Tool used:
Phillips screwdriver

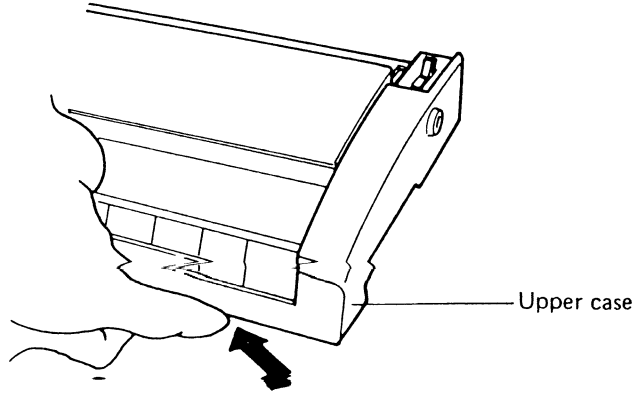
[Detaching]

- (1) Remove the tractor unit, the insertion plate and the top cover.
- (2) Pull out the platen knob.

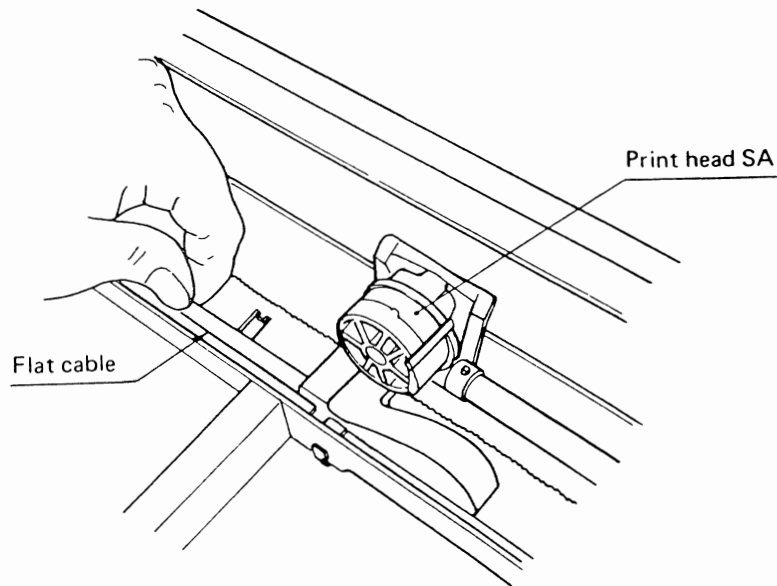




Connection with the lower case
the side of the unit



- (3) Remove the flat cable fixer and pull the head flat cable upward.



- (4) Pull out the connectors (CN3, CN4 and CN5) which are connected to Power/Driver PCB.
- (5) Raise the mechanical unit gradually upward and remove the unit while taking out the insulator on Power/Driver PCB.

[Assembly]

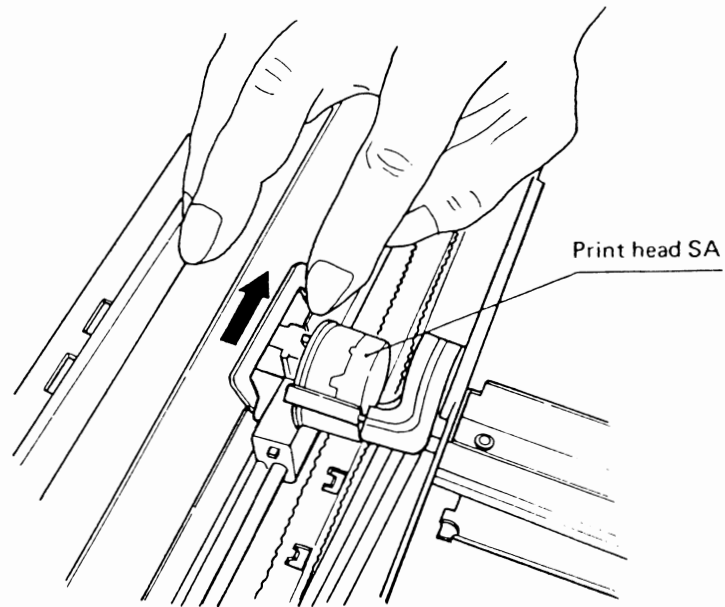
- (1) Assemble in the reverse order of detaching.

2-3-3. Detaching and assembling the print head SA

Tool used: Phillips screwdriver

[Detaching]

- (1) Remove the upper case. (See 2-3-1.)
- (2) Remove the flat cable fixer and pull the head flat cable upward.
- (3) Pull the print head SA upward while pulling the lock lever which secures the print head SA on the carriage to the arrowed direction.



[Assembly]

- (1) Assemble in the reverse order of detaching.

2-3-4. Adjusting the print head SA gap

Tools used:

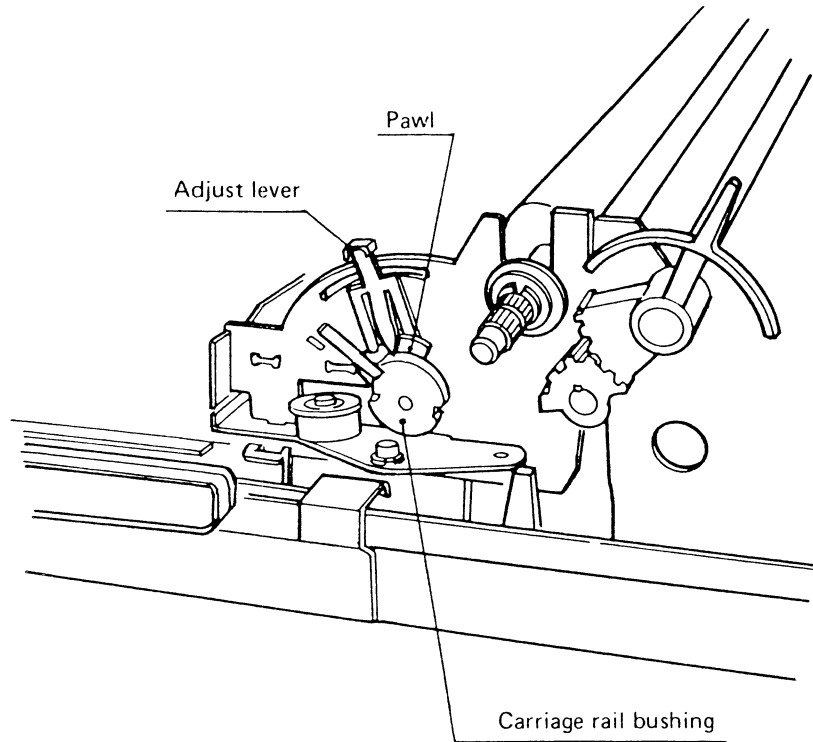
Phillips screwdriver

Tweezers

Thickness gauge

[Detaching]

- (1) Remove the upper case. (See 2-3-1.)
- (2) Set the adjust lever at the scale position #2 and confirm that the gap between the platen and the print head is $0.5 \text{ mm} \pm 0.05 \text{ mm}$.
- (3) If the gap is not the proper value, make adjustment of the gap by changing the position of the fine groove on the carriage rail bushing R which is held by the pawl of the adjust lever tip.

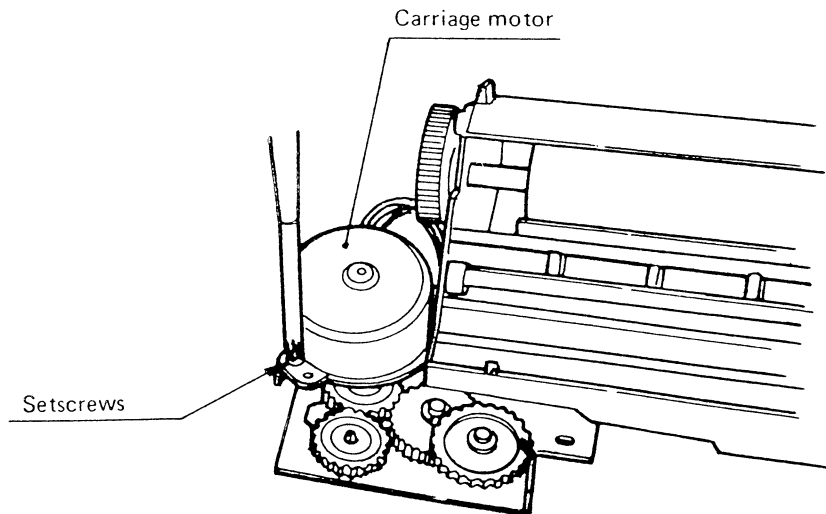


2-3-5. Detaching and assembling the carriage motor

Tools used:
Phillips screwdriver

[Detaching]

- (1) Remove the upper case. (See 2-3-1.)
- (2) Remove the mechanical unit. (See 2-3-2.)
- (3) Remove the two setscrews for the motor (pan-head machine screws M3 x 4) and detach the motor.



[Assembly]

- (1) Assemble in the reverse order of detaching.

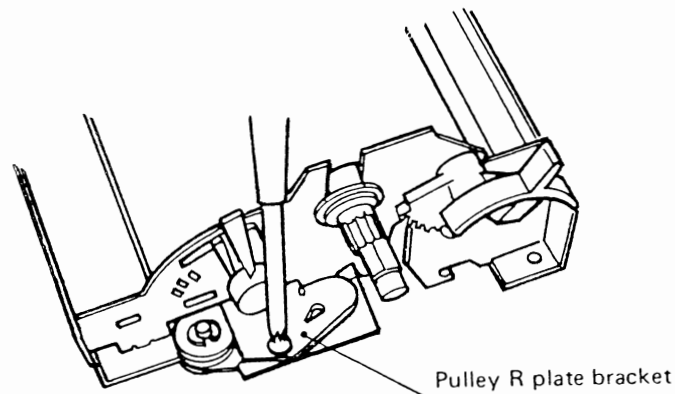
2-3-6. Detaching and assembling the head carrier

Tools used:

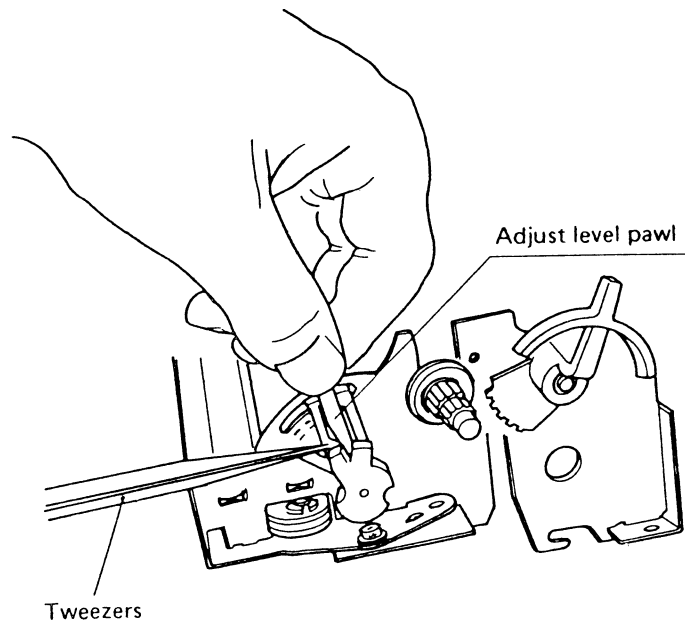
- Phillips screwdriver
- Tweezers
- Thickness gauge

[Detaching]

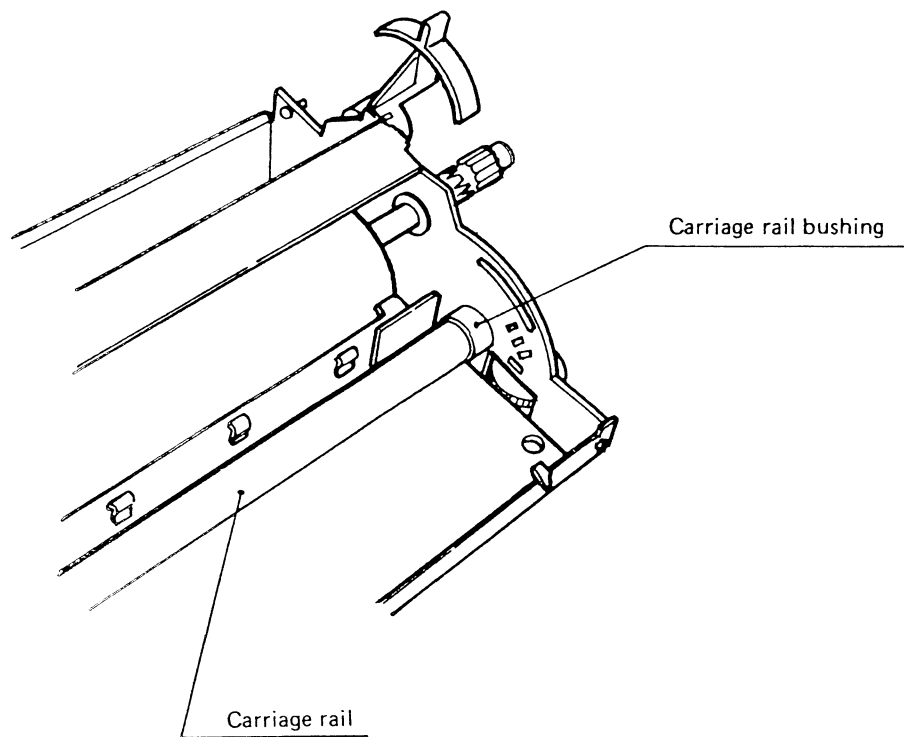
- (1) Remove the upper case. (See 2-3-1.)
- (2) Remove the print head SA. (See 2-3-3.)
- (3) Remove the mechanical unit. (See 2-3-2.)
- (4) Loosen the setscrew (Double Sems Screw M3 x 5) on the pulley R plate BK and loosen the tension of the timing belt.



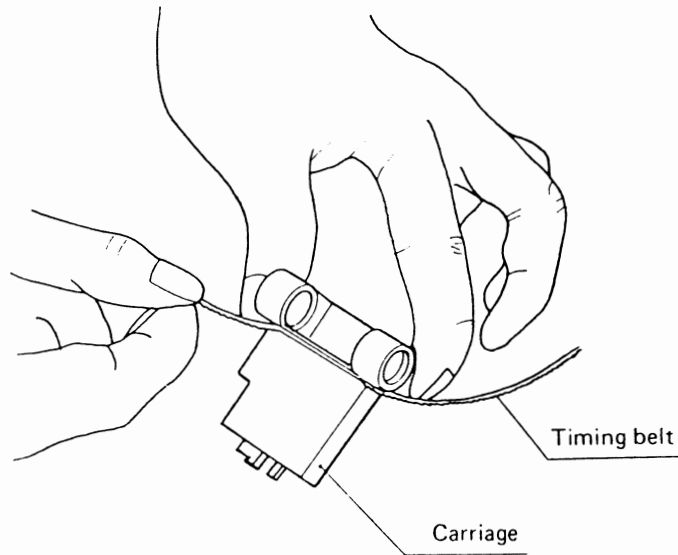
- (5) Remove the timing belt from the left and the right pulleys.



- (6) Pull on the adjust lever.
- (7) Turn the carriage rail bushings on both sides to match its projecting part and the projecting hole of the side plate and pull the bushings outward.



- (8) Pull the carriage rail gradually while releasing the combination with the carriage.
- (9) Take the carriage out and remove the timing belt from the carriage.



[Assembly]

- (1) Assemble in the reverse order of detaching. However, it is necessary to check for the gap of the print head SA. (See 2-3-4.)

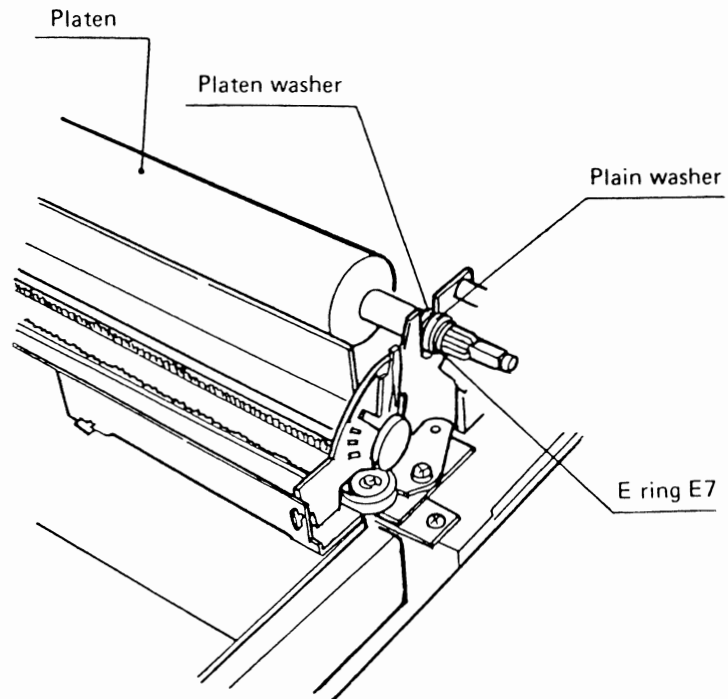
2-3-7. Detaching and assembling the platen

Tools used:

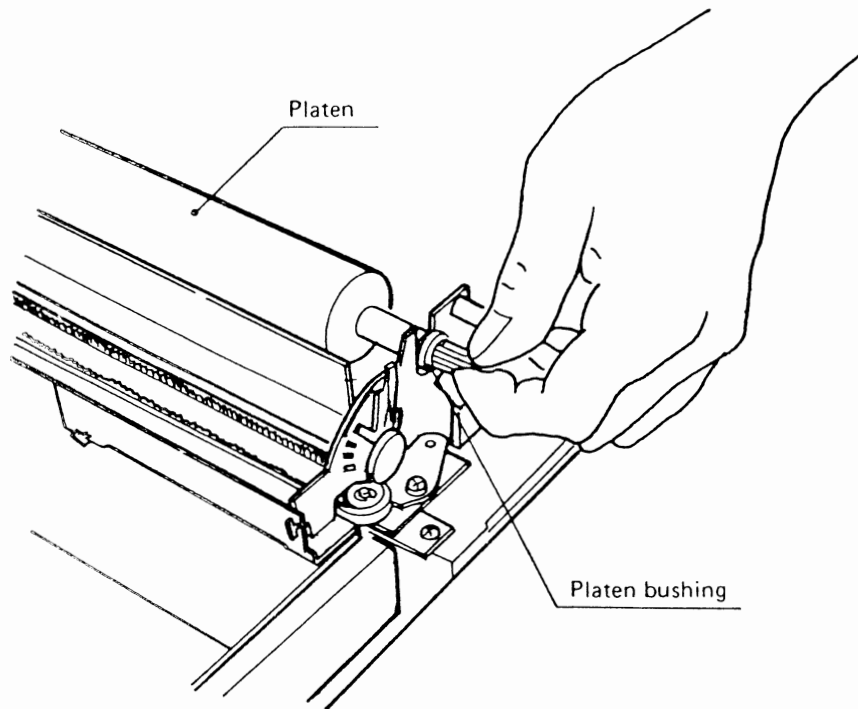
- Phillips screwdriver
- Slotted screwdriver
- Tweezers
- Cutting pliers

[Detaching]

- (1) Remove the upper case. (See 2-3-1.)
- (2) Remove the cover after removing the setscrews on both sides of the platen cover (pan-head machine screws M3 x 4).
- (3) Remove the E ring (E7) for securing the platen washer on the right of the platen and remove the plain washer and the platen washer.



- (4) Slide and remove the platen bushings on both sides and pull the platen upward, taking care not to touch the carriage.



[Assembly]

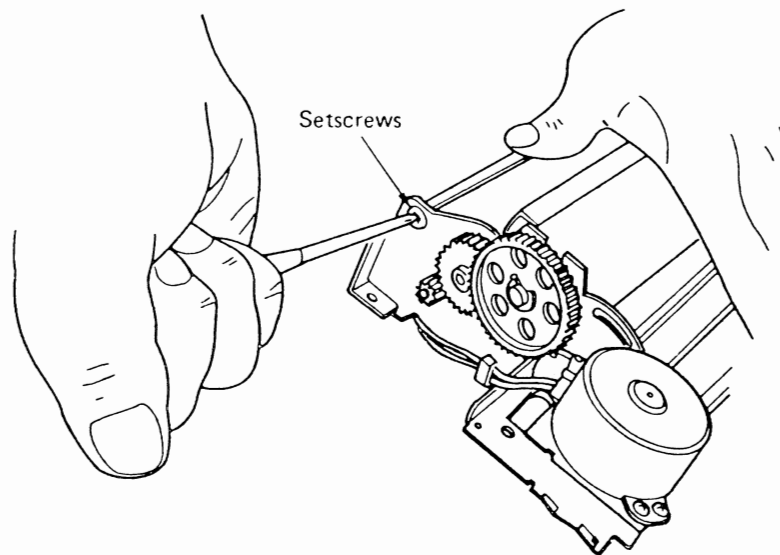
- (1) Assemble in the reverse order of detaching.

2-3-8. Detaching and assembling the paper feed motor

Tool used:
Phillips screwdriver

[Detaching]

- (1) Remove the upper case. (See 2-3-1.)
- (2) Remove the mechanical unit. (See 2-3-2.)
- (3) Remove the setscrews (pan-head machine screws M3 x 4) for the paper feed motor and detach the motor.



[Assembly]

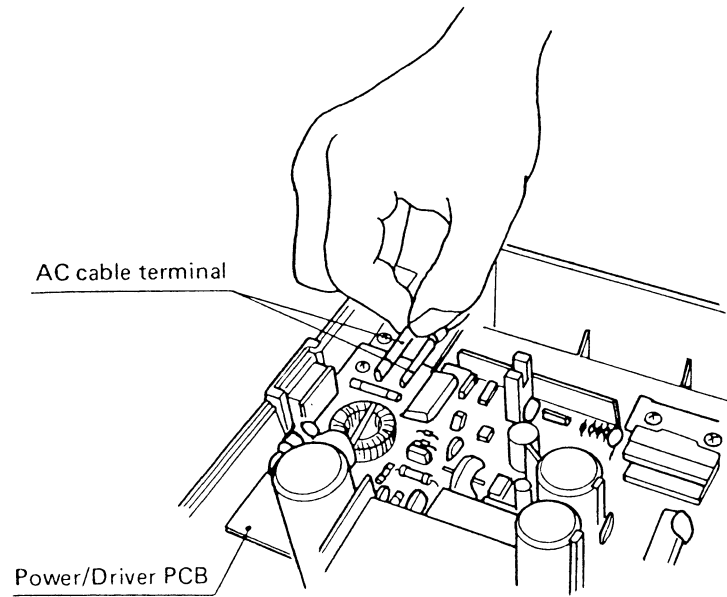
- (1) Assemble in the reverse order of detaching.

2-3-9. Detaching and assembling the Power/Driver PCB

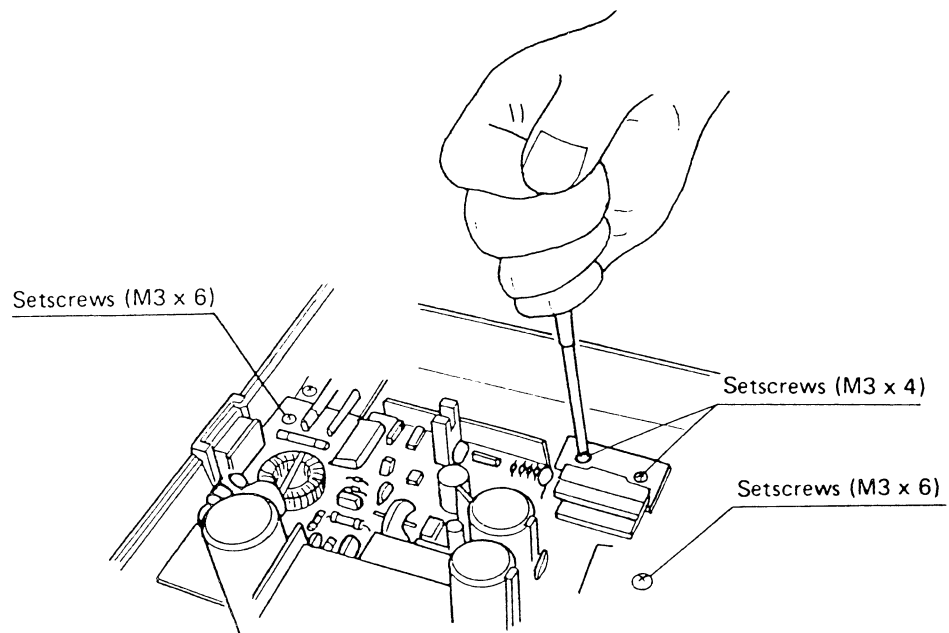
Tool used:
Phillips screwdriver

[Detaching]

- (1) Remove the upper cover. (See 2-3-1.)
- (2) Remove the mechanical unit. (See 2-3-2.)
- (3) Remove the interface pack.
- (4) Take off the insulator (transparent film).
- (5) Pull out the AC cable terminal from the PCB.



- (6) Disconnect the connectors (CN2 and CN5) on the PCB.
- (7) Remove the two setscrews (pan-head machine screws M3 x 4) and the two setscrews (Double sems screw M3 x 6) on the PCB.



[Assembly]

- (1) Assemble in the reverse order of detaching.

2-4 List of maintenance tools

In replacing the maintenance parts such as the main printed circuit boards and units in the field, the following maintenance tools are required:

List of maintenance tools

No.	Name	Quantity	Used objects	Remarks
1	Phillips screwdriver No. 1 (with shaft length 200 mm)	1	3 ~ 4 mm screws	
2	Phillips screwdriver No. 2 (with shaft length 200 mm)	1	2 ~ 2.6 mm screws	
3	Slotted screwdriver	1		
4	Tweezers	1		
5	Cutting pliers	1		
6	Thickness gauge	1 set	Adjustment of print head gap	

2-5 Cleaning

Clean the inside of the printer in accordance with these instructions:

Cleaning period: every 6 months or 300 hours of operation.
Required time: Approx. 10 minutes.
Required tool: Dry cloth (Gauze or other soft cloth)

2-5-1. Cleaning locations: listed in table below

Cleaning location	Description
Carriage rail assy	Clean out ribbon or paper dust on the carriage rail.
Paper feed assy	Clean out paper dust on or around paper feed mechanism.
Photo interrupter	Remove any dust or dirt attached.

2-6. Lubrication

2-6-1. Period of lubrication

This machine is a maintenance-free type, and lubrication under normal use is unnecessary. However, lubrication should be made when the machine is disassembled or reassembled, or cleaned.

2-6-2. Types of lubricant

- (1) Multemps PS, No. 1 (by Kyodo Yushi Co., Ltd.)
- (2) Engine Oil Mobil One (by Mobil Oil Co., Ltd.)
- (3) Epinoc Grease AP (by Nippon Oil Co., Ltd.)
- (4) Molytone Grease No. 1 (by Sumico Product Co., Ltd.)

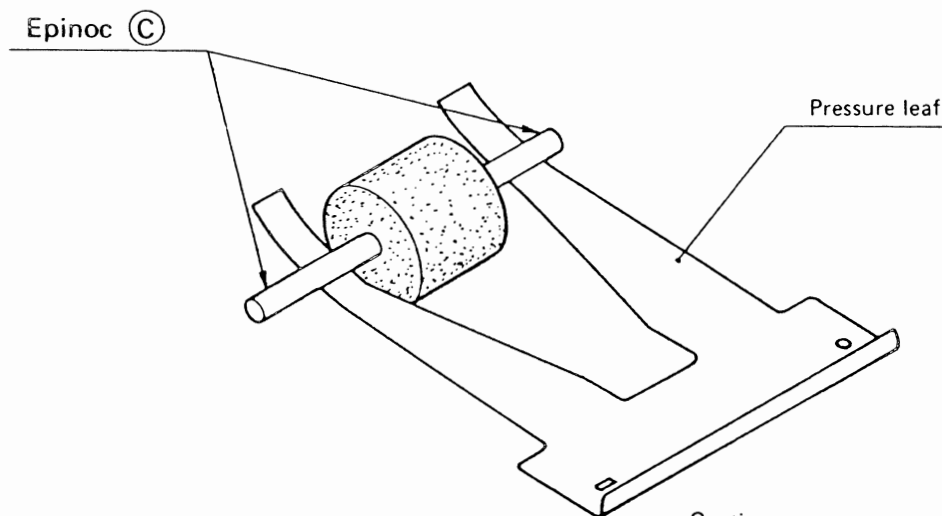
2-6-3. Quantity of lubricant

- Large quantity (A) Sufficient quantity should be applied.
Medium quantity (B) About 3 to 4 drops; or about 0.2 mm thickness
for grease
Small quantity (C) About one drop

2-6-4. Positions to lubricate

Pressure Leaf

Type and quantity of lubricant: Epinoc, (C)

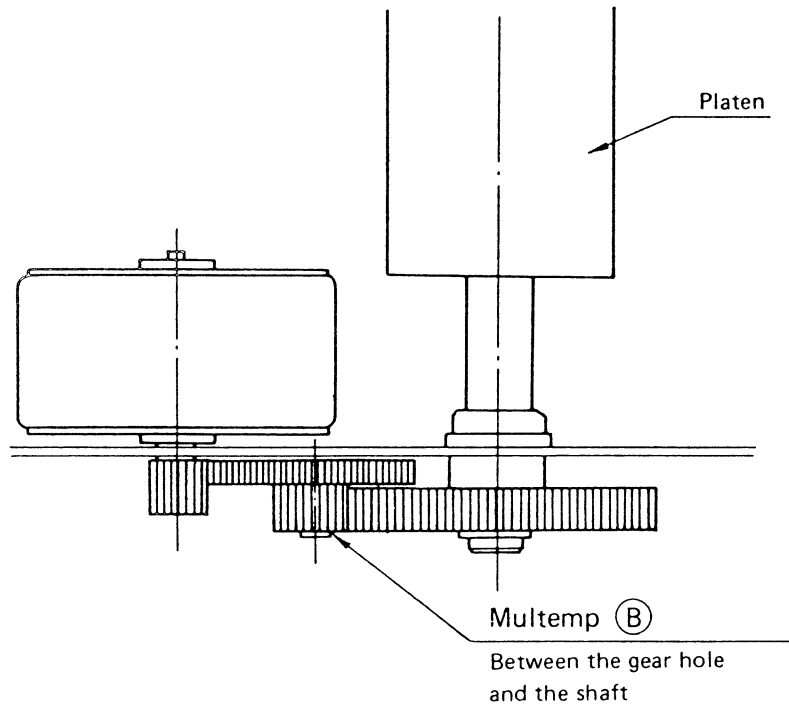


Cautions

Be careful that excessive application will cause the grease to be attached to the paper.

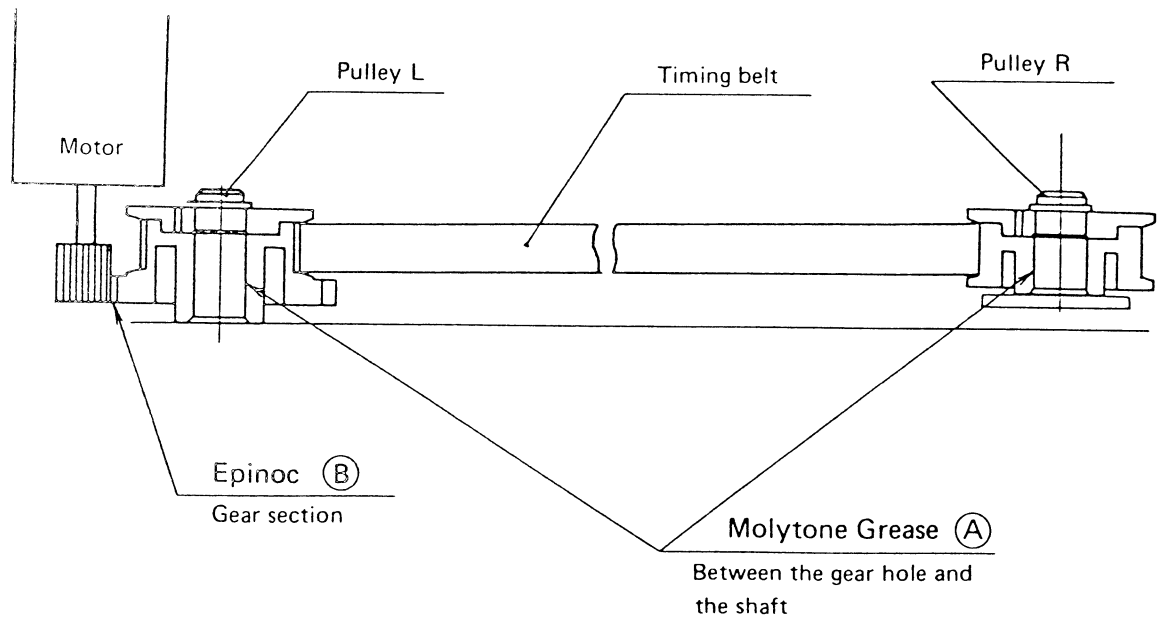
Paper feeding gear and relevant parts

Type and quantity of lubricant: Multemp, (B)

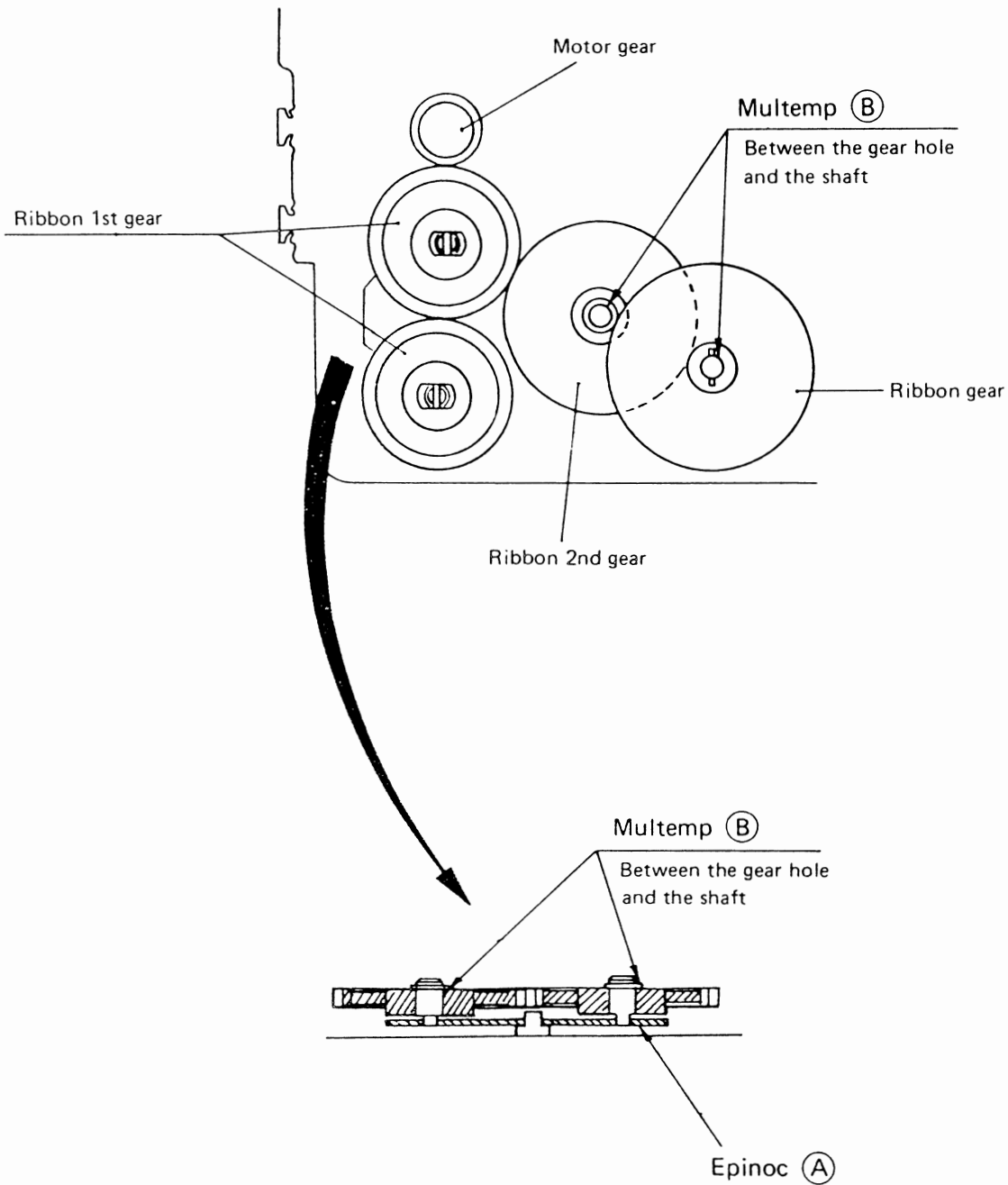


Pulley L, Pulley R

Type and quantity of lubricant: Molytone Grease, (A)
Epinoc, (B)

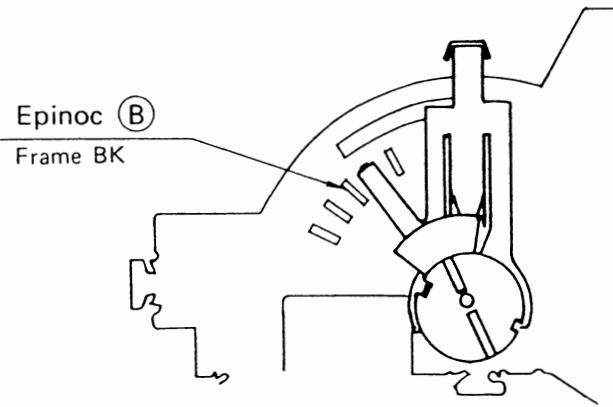


Ribbon feeding gear and relevant parts.
Type and quantity of lubricant: see the figure below.



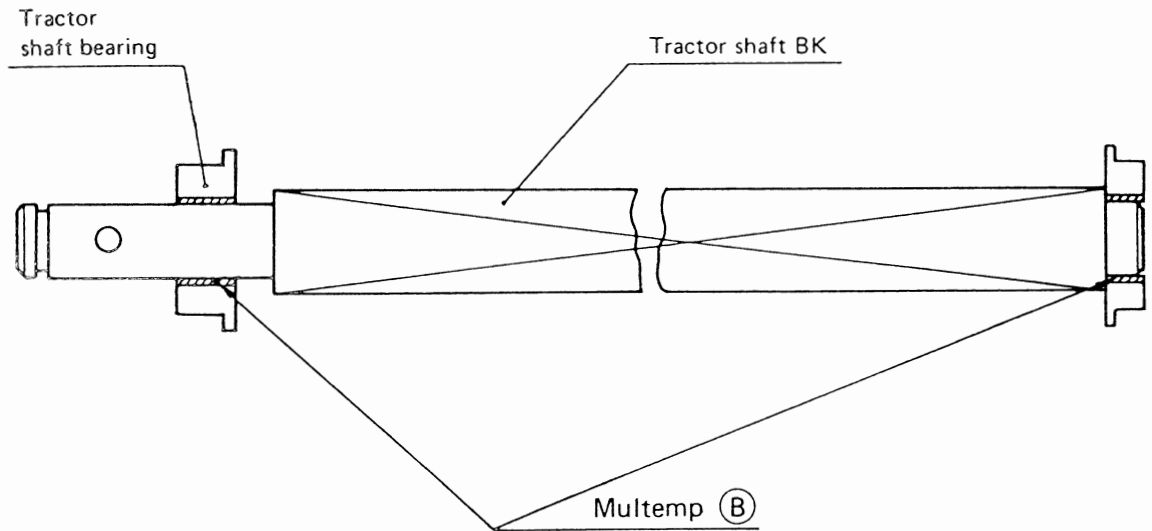
Adjusting lever

Type and quantity of lubricant: Epinoc, (B)



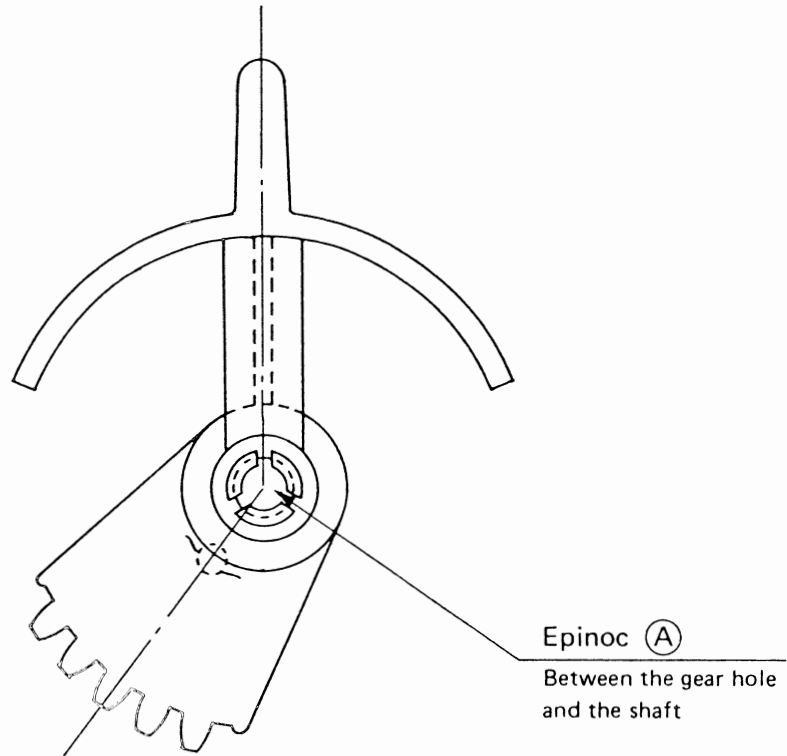
Tractor shaft bearing

Type and quantity of lubricant: Multemp, (B)



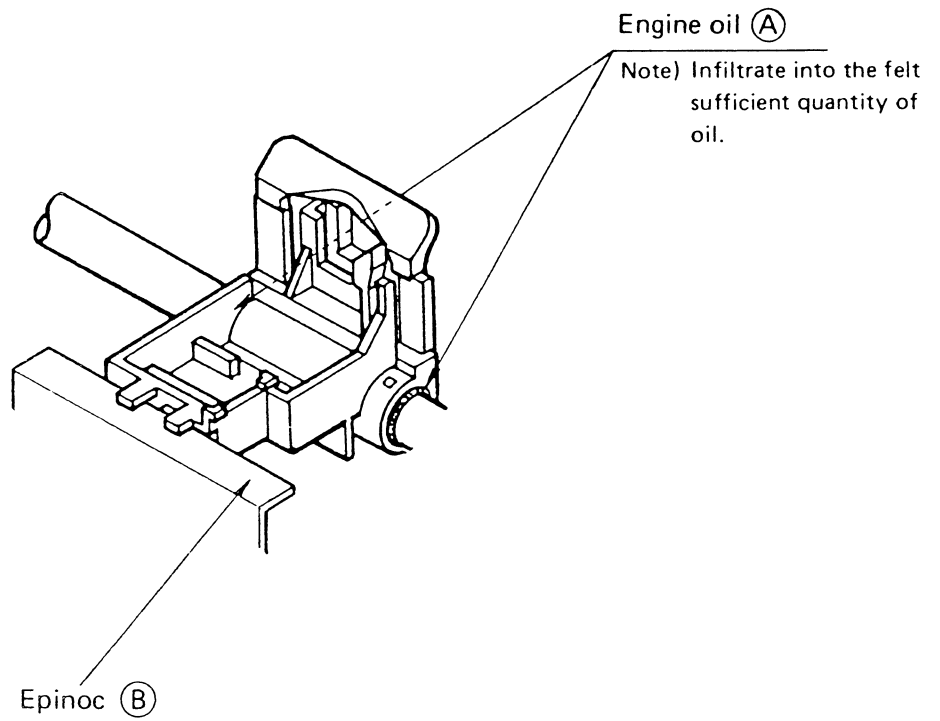
Select lever

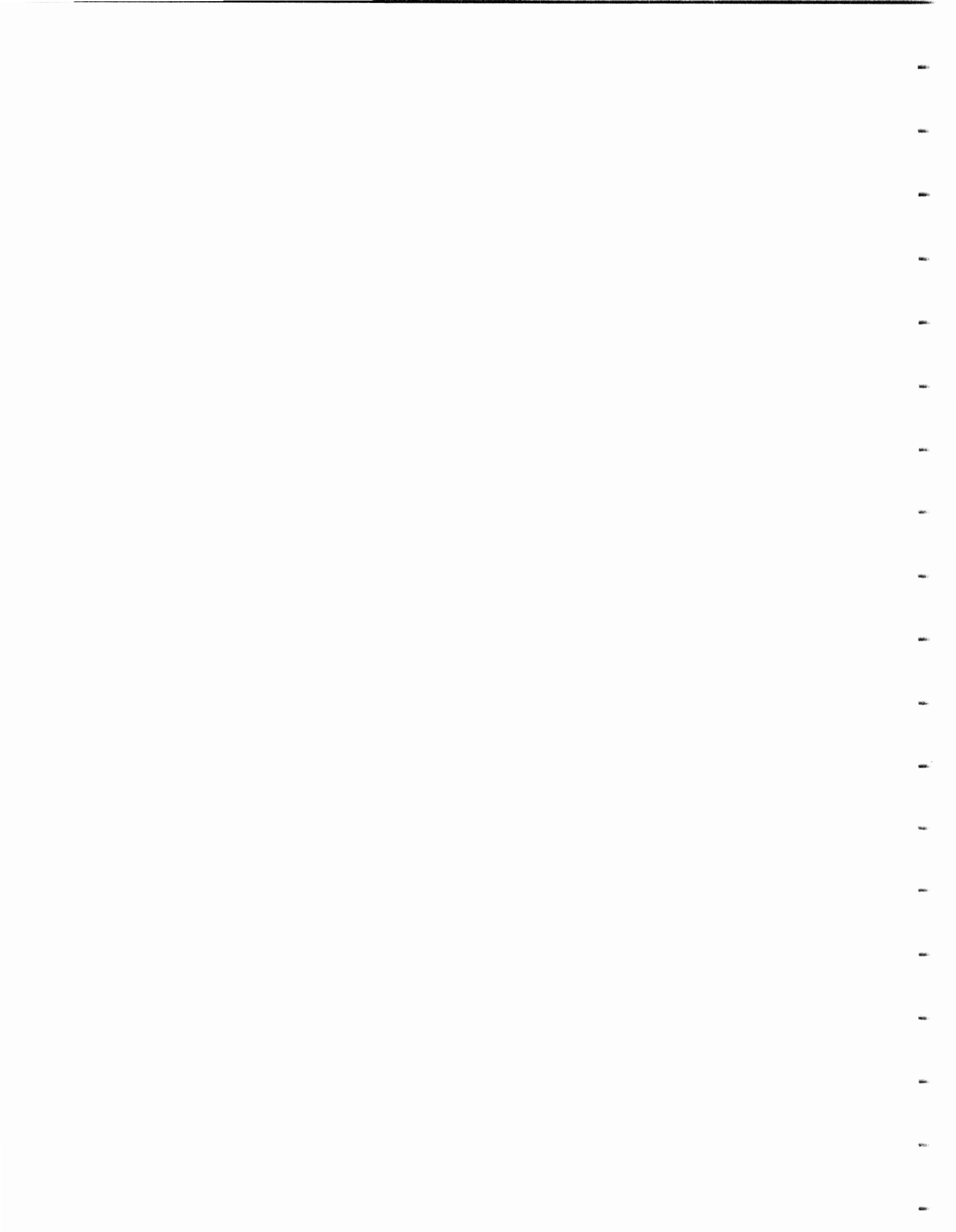
Type and quantity of lubricant: Epinoc, (A)



Carriage BK

Type and quantity of lubricant: see the figure below





Chapter 3

Troubleshooting

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3-5.	Troubles in sensors	3-4
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3-7.	Troubleshooting procedure	3-6



3-1 Troubles in turning the power ON

Symptoms	Remedies
<p>(1) No power to the machine.</p>	<p>(Electric trouble)</p> <p>(1) Is Faston terminal of the power cable connected firmly?</p> <ul style="list-style-type: none"> ○ If the connecting force is weak, it is because the Faston terminal opens too wide. Correct it with pliers, etc. and reconnect. <p>(2) Check voltage on the input power line. Acceptable supply voltage: 90V~130V AC or 180V~260V AC</p> <ul style="list-style-type: none"> * Check method Measure between P101(L) and P102(N) of Faston tabs for AC input on Power/Driver PCB with a voltmeter. <p>(3) Check the output voltages +24V and +5V with an interface pack and the connectors CN2 through CN6 disconnected.</p> <ul style="list-style-type: none"> * Checking method is covered in section 3-7-(1). ○ Replace Power/Driver PCB if the above voltages are not output or are abnormal.
<p>(2) All the lamps are turned on, and Carriage Plate does not move.</p>	<p>(Electric trouble)</p> <p>(1) Is an interface pack mounted firmly?</p> <ul style="list-style-type: none"> ○ Mount it firmly. <p>(2) Failure in an interface pack.</p> <ul style="list-style-type: none"> ○ Replace the interface pack.
<p>(3) Lamps are normal, but Carriage Plate does not move. Or, the carriage motor shows irregular motion.</p>	<p>(Electric trouble)</p> <p>(1) Is connect CN4 disconnected?</p> <ul style="list-style-type: none"> ○ Connect it firmly. <p>(2) Check for +24V.</p> <ul style="list-style-type: none"> * Checking method is covered in section 3-7-(1). ○ Replace Power/Driver PCB if the above voltage is not output or is abnormal. <p>(3) Failure in the carriage motor driver circuit.</p> <ul style="list-style-type: none"> ○ Replace Power/Driver PCB. <p>(Operational or mechanical trouble)</p> <p>(1) Is the gap between the Print Head and Platen too narrow compared to paper stock used?</p> <ul style="list-style-type: none"> ○ Reset Gap Adjusting Lever to a proper position. <p>(2) Does Carriage Plate move slowly?</p> <ul style="list-style-type: none"> ○ Check, clean and lubricate the driving part. <p>(3) Failure in Carriage Motor.</p> <ul style="list-style-type: none"> ○ Replace the Carriage Motor.

Symptoms	Remedies
(4) The Carriage Plate moves to home position and still keeps moving. Or, the Carriage Plate will not return to home position.	(Electric trouble) (1) Failure in Home Sensor. <ul style="list-style-type: none"> ○ Replace the Home Sensor on Power/Driver PCB.

3-2 Troubles in printing

Symptoms	Remedies
(1) No printing	(Electric trouble) (1) Is the print head connector CN6 disconnected? <ul style="list-style-type: none"> ○ Connect it firmly. (2) Failure in the print wire driver. <ul style="list-style-type: none"> ○ Replace Power/Driver PCB. (3) Defective interface (ON LINE connection only) <ul style="list-style-type: none"> ○ If data is not sent from the host CPU, check the connector of the host or IF Cable Connector. ○ If data is sent normally, replace IF Pack. (Operational or mechanical trouble) (1) Is the gap between the Print Head and Platen too wide? <ul style="list-style-type: none"> ○ Reset Gap Adjusting Lever to a proper position. (2) Check ribbon for proper installation. <ul style="list-style-type: none"> ○ Set the ribbon again.
(2) Same dot is always missing or faints.	(Electric trouble) (1) Is the print head connector CN6 connected firmly? <ul style="list-style-type: none"> ○ Connect it firmly. (2) Failure in the print wire driver. <ul style="list-style-type: none"> ○ Replace Power/Driver PCB. (Mechanical trouble) (1) Failure in Print Head SA. <ul style="list-style-type: none"> ○ Replace the Print Head SA.
(3) Overall faint printing.	(Electric trouble) (1) Check for +24V. <ul style="list-style-type: none"> * Checking method is covered in section 3-7-(1). ○ If voltage is abnormal, replace Power/Driver PCB.

Symptoms	Remedies
	<p>(Operational and mechanical trouble)</p> <p>(1) Check for worn ink ribbon.</p> <ul style="list-style-type: none"> ○ Replace the ribbon. <p>(2) Is the gap between the Print Head and Platen too wide?</p> <ul style="list-style-type: none"> ○ Reset Gap Adjusting Lever to a proper position. <p>(3) Check to see if the ribbon is wound properly.</p> <ul style="list-style-type: none"> ○ Set Ribbon Cassette properly again. Replace the cassette, if it is defective.

3-3 Paper feed trouble

Symptoms	Remedies
(1) No paper feeding.	<p>(Electric trouble)</p> <p>(1) Is connector CN3 disconnected?</p> <ul style="list-style-type: none"> ○ Connect it firmly. <p>(2) Failure in the paper feed motor driver.</p> <ul style="list-style-type: none"> ○ Replace Power/Driver PCB.
(2) Irregular paper feed pitch or irregular drive of Paper Feed Motor.	<p>(Electric trouble)</p> <p>(1) Is connector CN3 connected firmly?</p> <ul style="list-style-type: none"> ○ Connect it firmly. <p>(2) Failure in the paper feed motor driver.</p> <ul style="list-style-type: none"> ○ Replace Power/Driver PCB. <p>(Operational and mechanical trouble)</p> <p>(1) Is the gap between the Print Head and Platen too narrow compared to the paper used?</p> <ul style="list-style-type: none"> ○ Reset Gap Adjusting Lever to a proper position. <p>(2) Does the paper feed mechanism move slowly?</p> <ul style="list-style-type: none"> ○ Check, clean and lubricate the mechanical part.
(3) Paper jamming.	<p>(Operational and mechanical trouble)</p> <p>(1) Check to see if paper is properly set.</p> <ul style="list-style-type: none"> ○ Set the paper correctly. <p>(2) Is paper being used within manufactures specifications?</p> <ul style="list-style-type: none"> ○ Use paper within manufacturer's specs. <p>(3) Is the Select Lever in a proper position?</p> <ul style="list-style-type: none"> ○ Set it to a proper position. <p>(4) Check the paper feed mechanism and paper path for dust or other foreign matter.</p> <ul style="list-style-type: none"> ○ Remove if any.

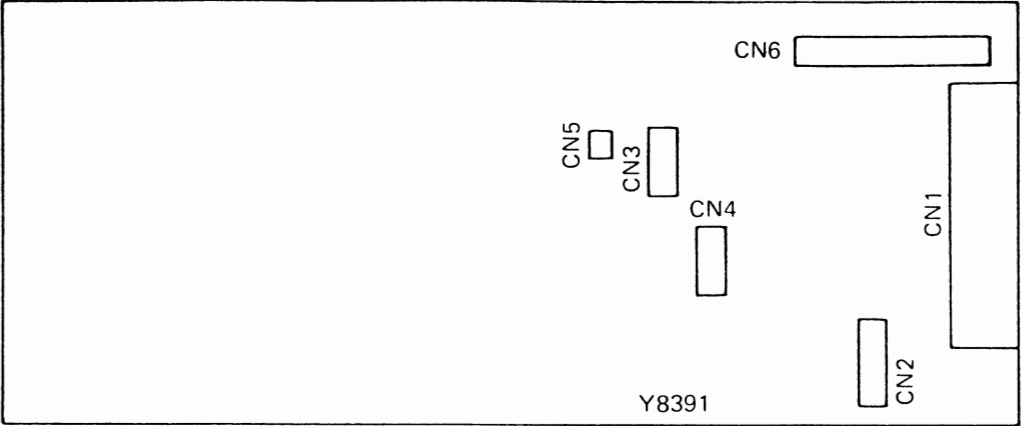
3-4. Ribbon feed trouble

Symptoms	Remedies
(1) No ribbon feeding.	<p>(Operational and mechanical trouble)</p> <p>(1) Is the Ribbon Cassette correctly installed?</p> <ul style="list-style-type: none"> ○ Set it correctly. <p>(2) Is there any failure in the ribbon feed mechanism?</p> <ul style="list-style-type: none"> ○ Check, clean and lubricate the mechanism. <p>(3) Is there any failure in the ribbon cassette? (Check by turning a knob on the cassette.)</p> <ul style="list-style-type: none"> ○ Replace the ribbon cassette.

3-5. Troubles in sensors

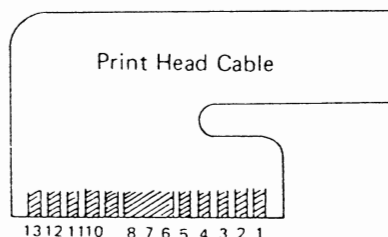
Symptoms	Remedies
(1) No PAPER OUT status can be generated, or PAPER OUT lamp comes on with the paper set.	<p>(Electric trouble)</p> <p>(1) Is connector CN5 connected firmly?</p> <ul style="list-style-type: none"> ○ Connect to firmly. <p>(2) Failure in Power/Driver PCB.</p> <ul style="list-style-type: none"> ○ Replace Power/Driver PCB. <p>(Mechanical trouble)</p> <p>(1) Defects in the paper sensor mechanism.</p> <ul style="list-style-type: none"> ○ Replace Paper Sense SA.
(2) When the power is turned on, the Carriage Plate moves to home position and still keeps moving. Or, the Carriage Plate will not return to home position.	<p>(Electric trouble)</p> <p>(1) Failure in Power/Driver PCB.</p> <ul style="list-style-type: none"> ○ Replace Power/Driver PCB.

3-6. Main PCB connector configuration



3-7. Troubleshooting procedure

- (1) Checking the voltage on the power source.
- ① Take out the connectors CN2 and CN6 and an interface pack on Power/Driver PCB.
 - ② Plug in the AC power cord to the AC power source.
 - ③ Turn on the Power Switch on Power/Driver PCB.
 - ④ Check for +5V.
Measure the voltage between pin 1 (+) and pin 8 (–) of connector CN2 with a voltmeter.
 - ⑤ Check for +24V.
Measure the voltage between pin 7 (+) of connector CN6 and pin 15B (–) of connector CN1 with a voltmeter.
 - ⑥ If no voltage is obtained, measure the AC input voltage between the AC IN terminals P101(L) and P102(N) on Power/Driver PCB.
 - If the result is found normal, Power/Driver PCB is defective and it should be replaced.
 - ⑦ If the output is normal, check for +15V power shortcircuits of interface pack and operation panel and for coil shortcircuit of the Print Head SA.
 - * To check +5V power shortcircuit of operation panel, measure the voltage between pin 15a (+5V) and pin 15b (GND) of connector CN11 with a voltmeter.
 - * To check +5V power shortcircuit of operation panel, measure the voltage between pin 1 (+5V) and pin 8 (GND) of connector CN2 on operation panel with a voltmeter.
 - * To check coil shortcircuit of the Print Head SA, check the conductivity between pins 6 to 8 (common) and pin 2 to 5, and the former pins and pins 9 to 13, respectively, with a voltmeter.



- (2) Checking the paper sensor
- With the connector CN5 disconnected, while checking the conductivity between pin 1 and pin 2 with a voltmeter, alternately depress and release Paper Sense Lever to check if the sensor is turned on and off properly.
- If not, replace Paper Sensor.

Chapter 4

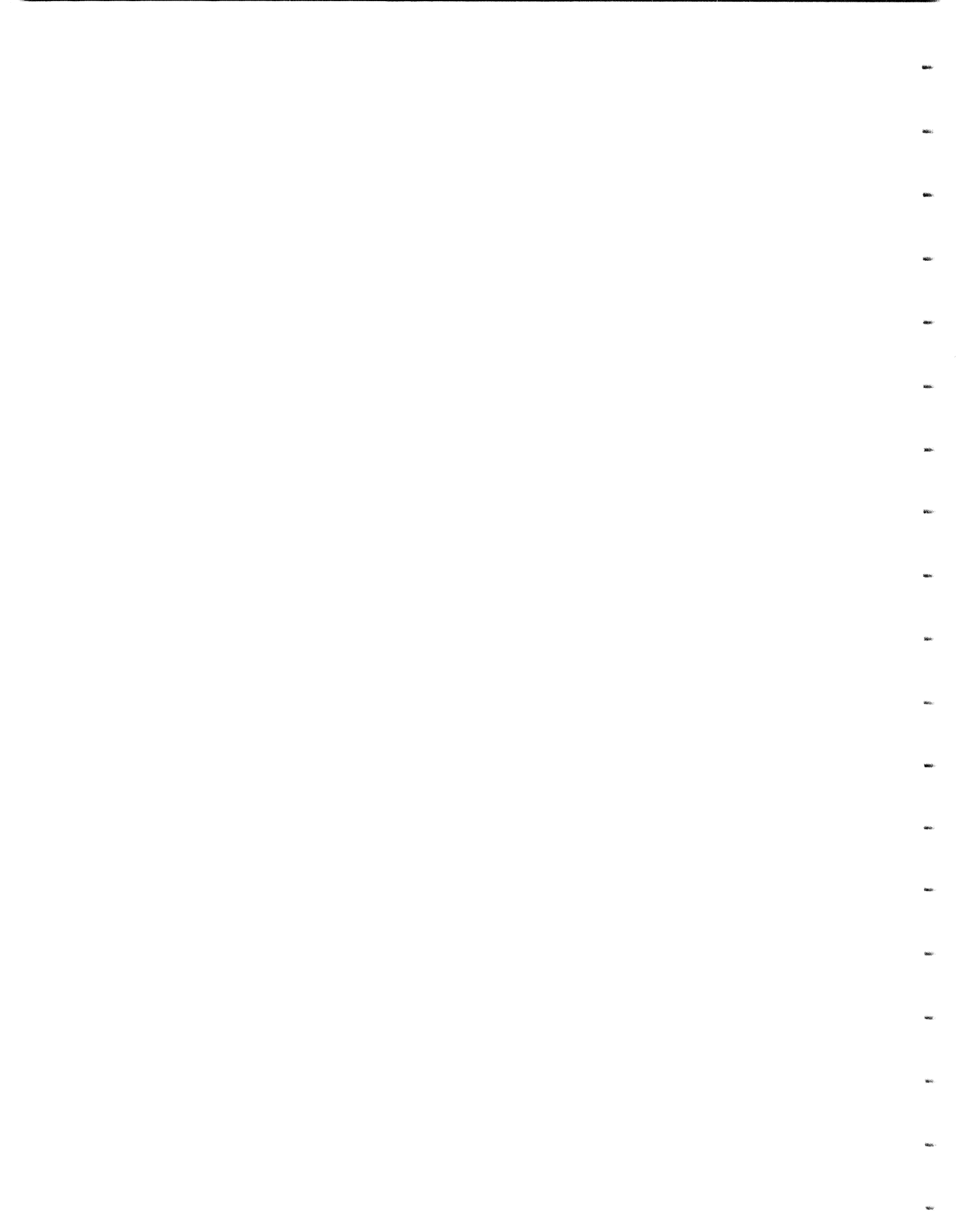
Parts Lists

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Packaging Section
Packaging Assembly

Mechanical Section
1. General Assembly
2. Mechanism Unit
3. Lower Case
4. Tractor Unit

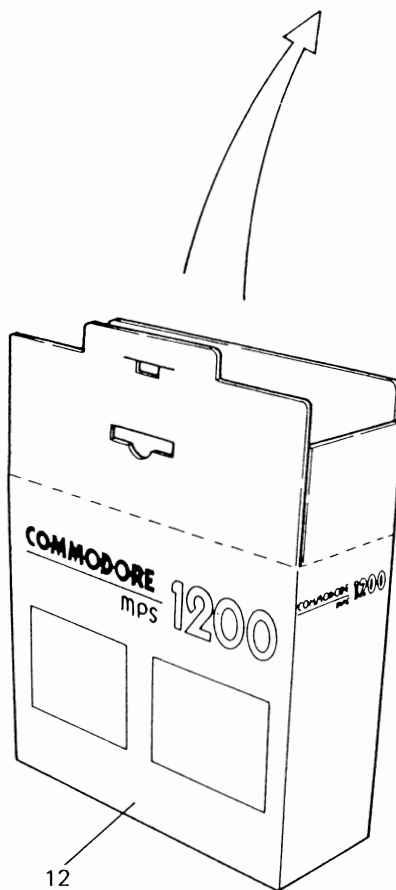
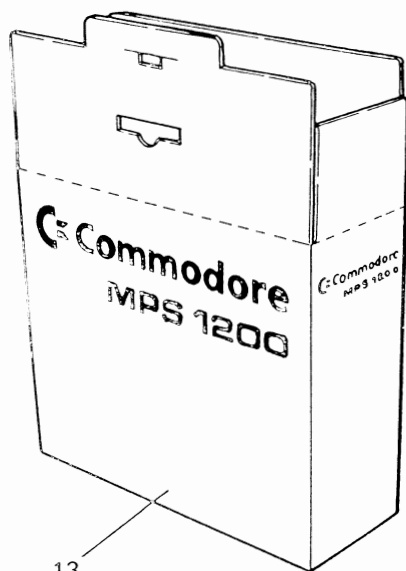
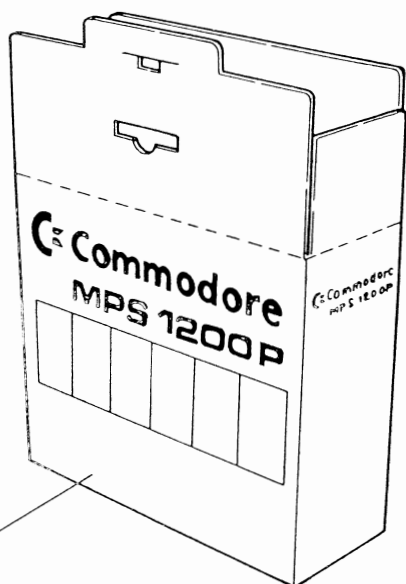
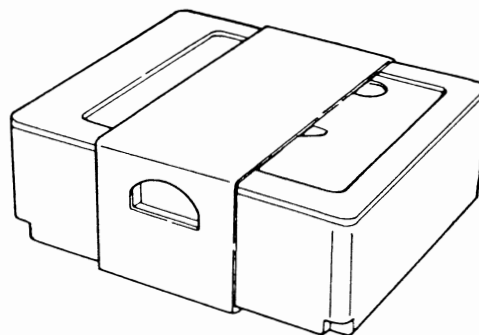
Electrical Section
Power/Drive PCB Assembly
Others



MPS 1200

PARTS LIST for PACKAGING ASSEMBLY

DRAWING NO. 1 Packaging Assembly (MPS1200/MPS1200P)

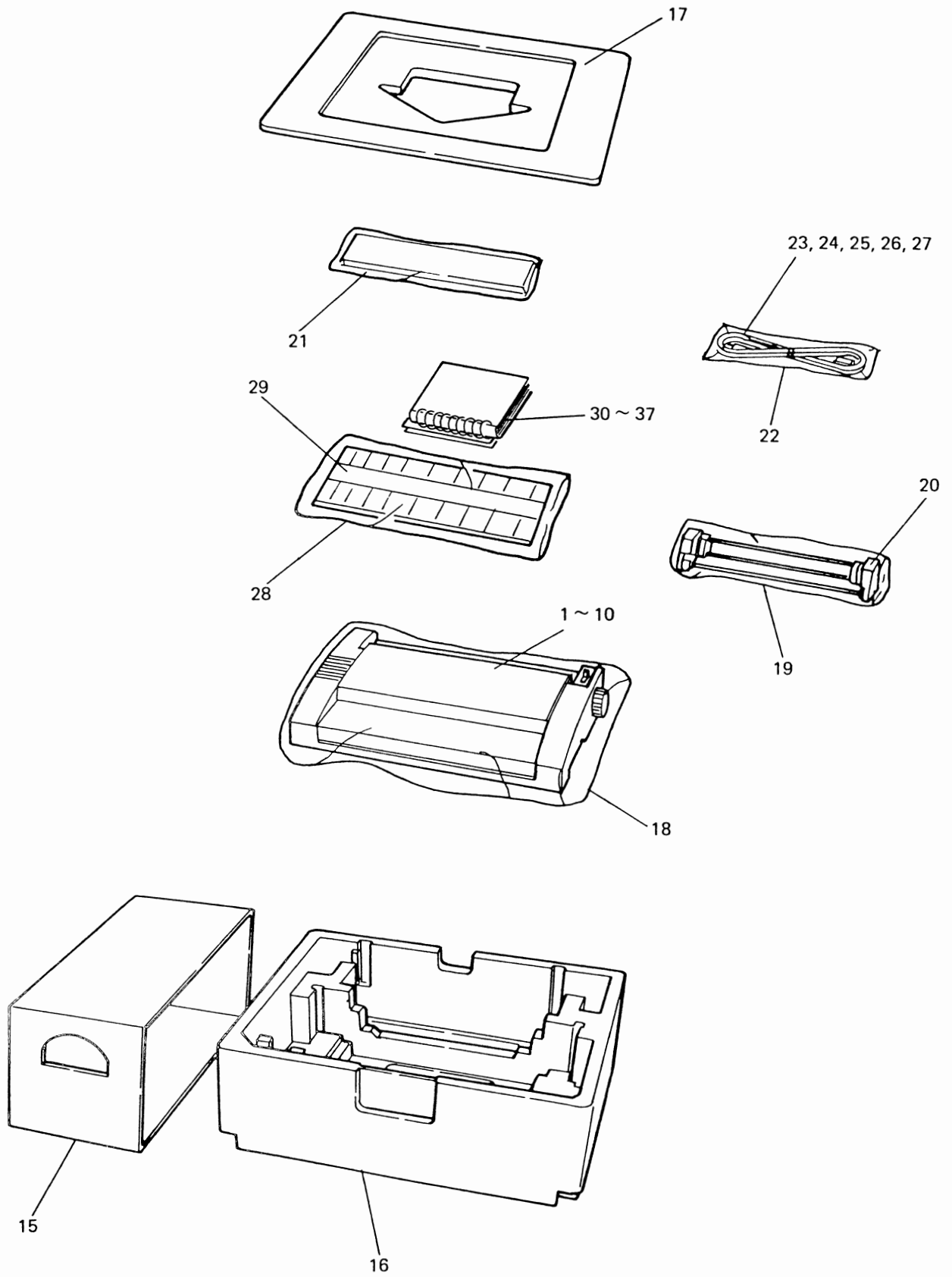


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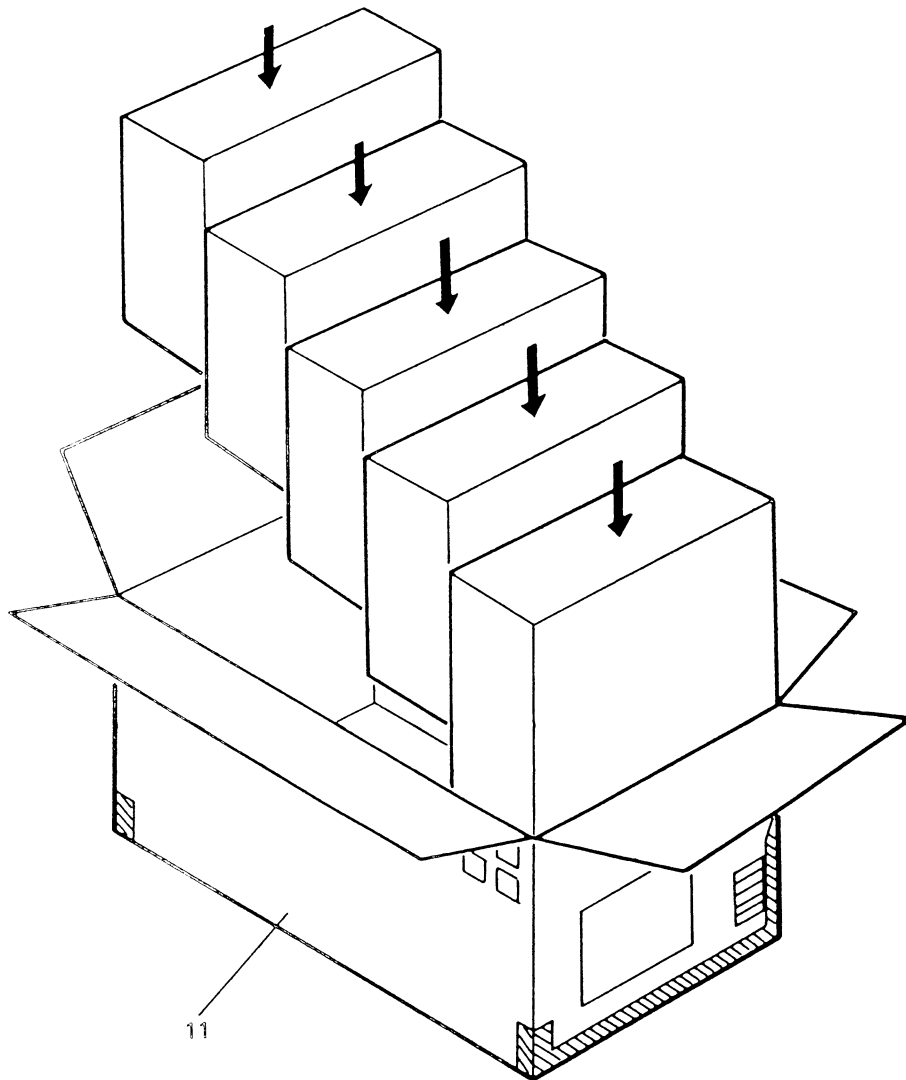
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DRAWING NO. 2 Packaging Assembly (MPS1200/MPS1200P)



DRAWING NO. 3 Packaging Assembly (MPS1200/MPS1200P)



PARTS LIST for MPS 1200

TITLE: Packaging Assembly

SA NO.

SHEET NO. 1/2

DRAWING NO. 1-8

REV. NO. A

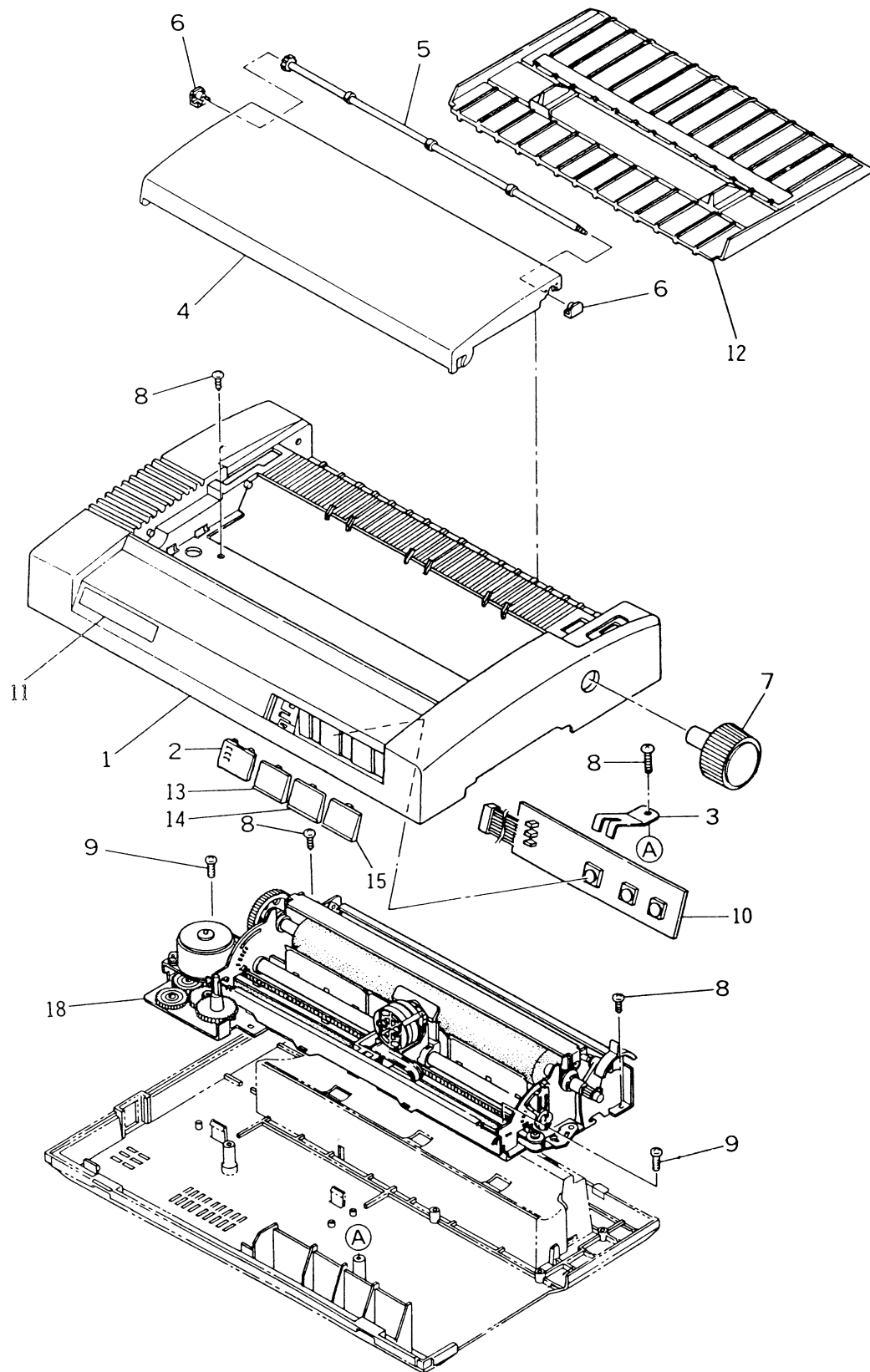
ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	QTY	COMMENT	MANUFACTURER	@¥
1		601210-00E	Y053-1006	MPS 1200 PRINTER (UL)		1			
2		601210-00D	Y053-1006	MPS 1200 PRINTER (CSA)		1			
3		601210-00A	Y063-2007	MPS 1200 PRINTER (VDE)		1			
4		601210-00B	Y063-7007	MPS 1200 PRINTER (BSI)		1			
5		601210-00F	Y063-6007	MPS 1200 PRINTER (SEV)		1			
6		601210-00C	Y063-8007	MPS 1200 PRINTER (AUST)		1			
7		601220-00A	Y063-2009	MPS 1200P PRINTER (VDE)		1			
8		601220-00B	Y063-7009	MPS 1200P PRINTER (BSI)		1			
9		601220-00F	Y063-6009	MPS 1200P PRINTER (SEV)		1			
10		601220-00C	Y063-8009	MPS 1200P PRINTER (AUST)		1			
11		601210-01	Y0610-21*	Master Carton		1			
12		601210-02	Y0612-21*	Indivisual Box (USA)		1			
13		601210-03	Y0612-22*S	Indivisual Box (Europe)		1			
14		601220-01	Y0612-22*P	Indivisual Box (1200P)		1			
15		601210-04	Y0630-21*	Sleeve		1			
16		601210-05	Y0623-01*	Lower Pad		1			
17		601210-06	Y0624-01*	Upper Pad		1			
18		601210-07	Y0629-01*	Poly Bag (for Unit)		1			
19		601210-08	Y0627-01*	Poly Bag (for Tractor Unit)		1			
20		601210-09	Y0815-21*	Tractor Unit		1			

ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	QTY	COMMENT	MANUFACTURER	@¥
21		601210-10	Y0810-01*	Ribbon Cartridge SA		1			
22		601210-11	Y0627-01*	Poly Bag (for Power Cord)		1			
23		601210-12	Y6002-01*	Power Cord (UL/CSA)		1			
24		601210-13	Y6002-21*	Power Cord (VDE)		1			
25		601210-14	Y8110-31*	Power Cord (BSI)		1			
26		601210-15	Y6002-61*	Power Cord (SEV)		1			
27		601210-16	Y6002-41*	Power Cord (AUST)		1			
28		601210-17	Y0625-01*	Poly Bag (for Insertion Plate)		1			
29		601210-18	Y0813-01*	Insertion Plate		1			
30		319893-01	Y99760-15*	User's Manual (USA)		1			
31		319893-02	Y99760-17*	User's Manual (Europe)		1			
32		601220-02		User's Manual (1200P)		1			
33		320957-02	Y99651-13*	Warranty Card (USA)		1			
34		319772-01	Y99651-15*	Read This First Sheet		1			
35		314075-02	Y99651-14*	Service Center List		1			
36		324244-01		Warranty Pack (UK)		1			
37		252506-01		Warranty Card (AUSTRALIA)		1			

MPS 1200

PARTS LIST & LOCATION for GENERAL ASSEMBLY

DRAWING NO. 4 General Assembly (MPS1200)



PARTS LIST for MPS1209

TITLE: General Assembly

ASSY NO.

SHEET NO. 1/1

DRAWING NO. 4

REV. NO. A

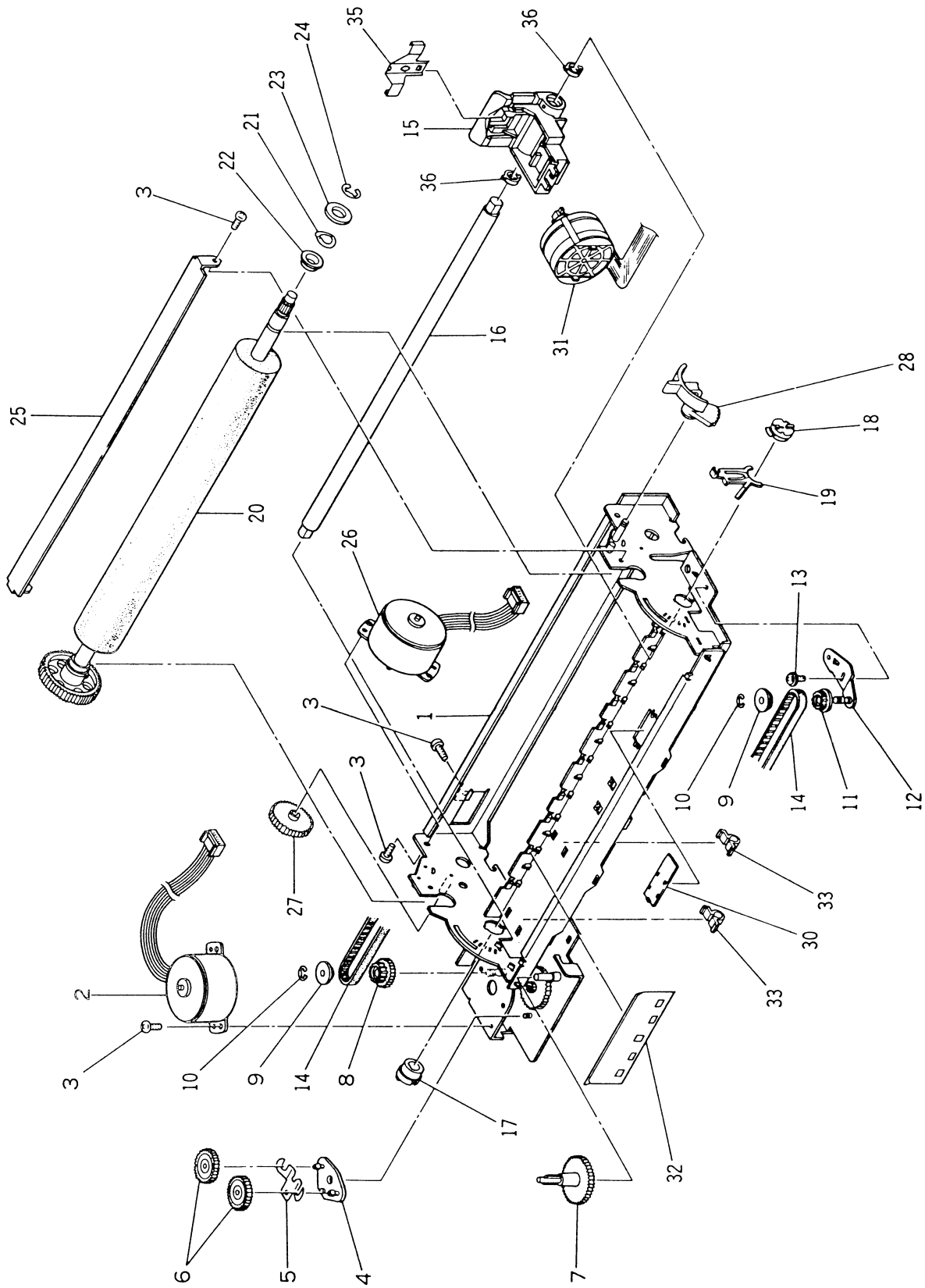
ITEM NO	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	QTY	COMMENT	@ ¥
1	601210-21	Y0401-21	Upper Case	1		
2	601210-22	Y0822-21	LED Panel PCB SA	1		
3	601210-23	Y0417-11	PCB Fixer	1		
4	601210-24	Y0403-01	Top Cover	1		
5	601210-25	Y0812-01	Bail Roller Shaft BK	1		
6	601210-26	Y0406-01	Bail Roller Bushing	2		
7	601210-27	Y0408-21	Platen Knob	1		
8	601210-28	E96130-08	(+) PH Tapping Screw M3x8	4		
9	601210-29	E90530-05	(+) PH Screw (SW + PW) M3x5	2		
10	601210-30	Y8331-02	Operation Panel PCB SA	1		
11	601210-31	Y0602-21	Name Plate (USA)	1		
	601210-19	Y0602-22S	Name Plate (EU, Serial)			
	601210-20	Y0602-22P	Name Plate (EU, Parallel)			
12	601210-32	Y0813-21	Insertion Plate Unit	1		
13	601210-33	Y0416-21*A	Switch Key (ON LINE)	1		
14	601210-34	Y0416-21*B	Switch Key (LF)	1		
15	601210-35	Y0416-21*C	Switch Key (FF / AUTO SHEET LOAD)	1		
16	601210-36		Mechanism Unit	1		

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MPS 1200

PARTS LIST & LOCATION for MACHANISM UNIT

DRAWING NO. 5 Mechanism Unit (MPS1200)



PARTS LIST for MPS 1200

TITLE: Mechanism Unit

ASSY NO.

SHEET NO. 1/2

DRAWING NO. 5

REV. NO. A

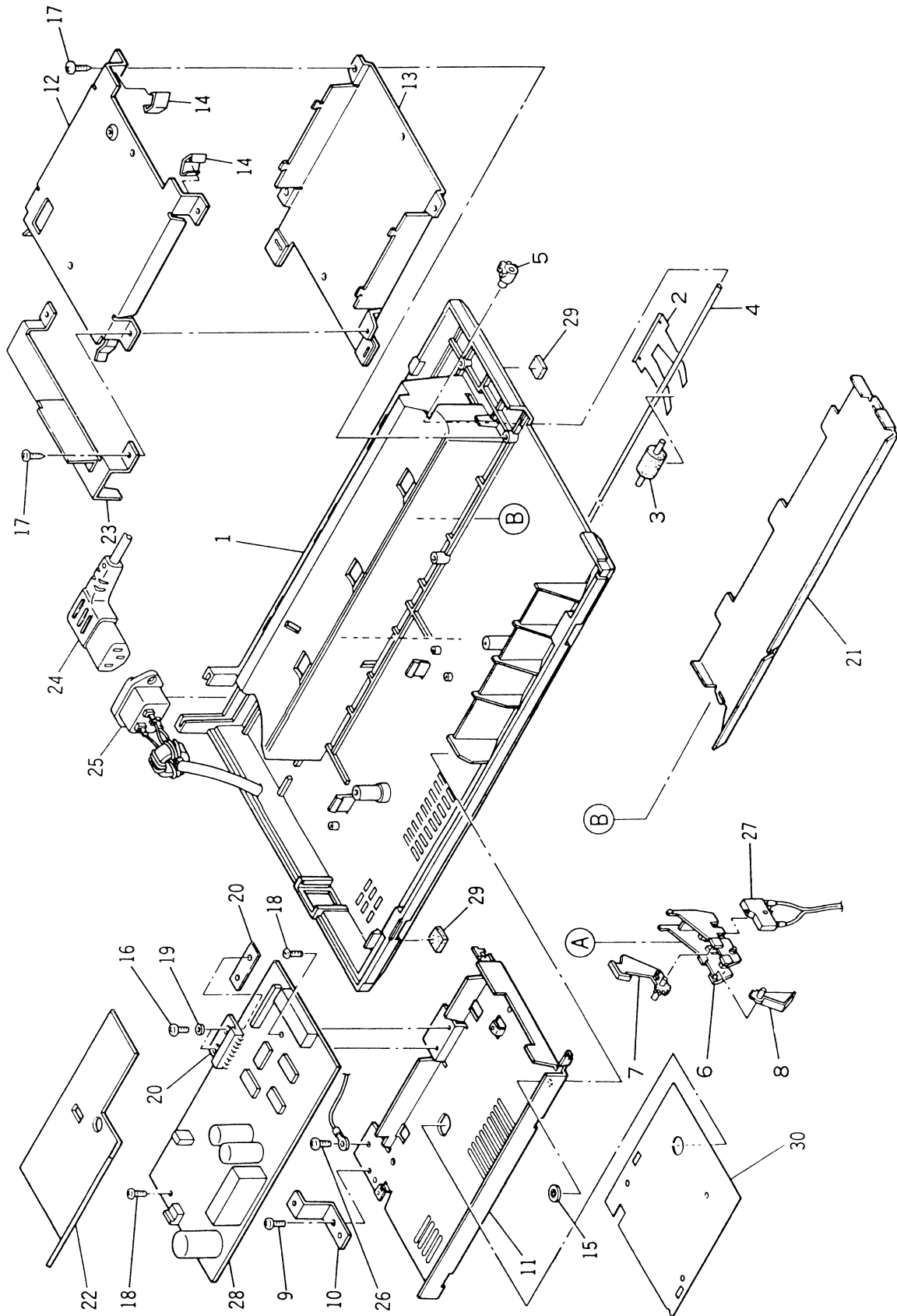
ITEM NO	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	QTY	COMMENT	@ ¥
1	601210-37	Y0801-01	Frame BK	1		
2	601210-38	Y0805-01	Carriage Motor BK	1		
3	601210-39	E90130-05	(+) PH Screw M3x5	7		
4	601210-40	Y0017-01	1st Gear Plate	1		
5	601210-41	Y0018-01	1st Gear Leaf	1		
6	601210-42	Y0019-01	1st Gear	2		
7	601210-43	Y0020-01	Ribbon Gear	1		
8	601210-44	Y0021-01	Pulley L	1		
9	601210-45	Y0022-01	Pulley Frange	2		
10	601210-46	E94330-00	E Ring E3	2		
11	601210-47	Y0023-01	Pulley R	1		
12	601210-48	Y0807-01	Pulley R Plate BK	1		
13	601210-49	E90530-05	(+) PH Screw (SW + PW) M3x5	1		
14	601210-50	Y0026-01	Timing Belt (328MxL3.2)	1		
15	601210-51	Y0806-01	Carriage BK	1		
16	601210-52	Y0032-01	Carriage Rail	1		
17	601210-53	Y0033-01	Carriage Rail Bushing L	1		
18	601210-54	Y0034-01	Carriage Rail Bushing R	1		
19	601210-55	Y0035-01	Adjust Lever	1		
20	601210-56	Y0808-01	Platen BK	1		

ITEM NO	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	QTY	COMMENT	@ ¥
21	601210-57	Y0039-01	Platen Washer	1		
22	601210-58	Y0038-01	Platen Bushing	1		
23	601210-59	E93180-00	PW #3 ϕ 8	1		
24	601210-60	E94370-00	E Ring E7	1		
25	601210-61	Y0040-01	Platen Cover	1		
26	601210-62	Y0809-01	P.F. Motor BK	1		
27	601210-63	Y0042-01	Idle Gear	1		
28	601210-64	Y0047-01	Select Lever	1		
29			None			
30	601210-65	Y0053-21	Dip Switch Cover	1		
31	601210-66	Y0901-01	Print Head SA	1		
32	601210-67	Y0059-01	Paper Pressure	3		
33	601210-68	Y0062-01	Cord Clip	2		
34			None			
35	601210-69	Y0029-01	Ribbon Mask	1		
36	601210-70	Y0030-01	Felt	2		

MPS 1200

PARTS LIST & LOCATION for LOWER CASE

DRAWING NO. 6 Lower Case (MPS1200)



PARTS LIST for MPS 1200

TITLE: Lower Case

ASSY NO.

SHEET NO. 1/2

DRAWING NO. 6

REV. NO. A

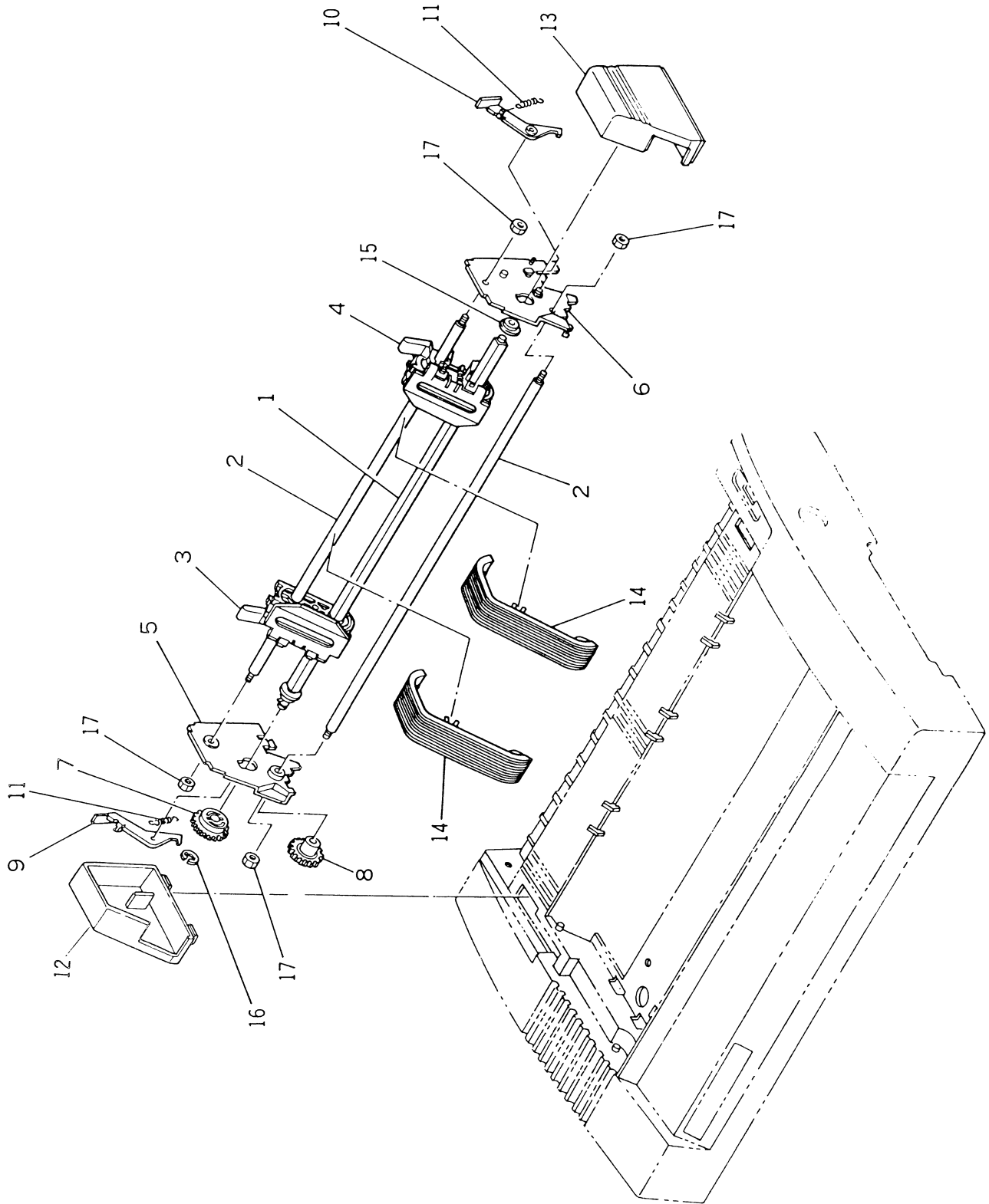
ITEM NO	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	QTY	COMMENT	@ ¥
1	601210-71	Y0402-21	Lower Case	1		
2	601210-72	Y0043-01	Pressure Leaf	3		
3	601210-73	Y0044-01	Pressure Roller	3		
4	601210-74	Y0045-01	Friction Control	1		
5	601210-75	Y0046-01	Friction Control Gear	1		
6	601210-76	Y0048-01	Paper End Frame	1		
7	601210-77	Y0049-01	Paper End Lever U	1		
8	601210-78	Y0050-01	Paper End Lever L	1		
9	601210-79	E90530-05	(+) PH Screw (SW + PW) M3x5	1		
10	601210-80	Y0054-01	Earth Angle	1		
11	601210-81	Y0055-02	Shield Plate	1		
12	601210-82	Y0056-01	Rom Cassette Guide U	1		
13	601210-83	Y0057-01	Rom Cassette Guide L	1		
14	601210-84	Y0058-01	Earth Leaf	2		
15	601210-85	E92830-00	Push Nut ϕ 3	4		
16	601210-86	E90130-05	(+) PH Screw M3x5	2		
17	601210-87	E96130-08	(+) PH Tapping Screw M3x8	4		
18	601210-88	E90530-06	(+) PH Screw (SW + PW) M3x6	2		
19	601210-89	Y7101-030	Bush	2		
20	601210-90	Y7101-003	Cool Sheet	1		

ITEM NO	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	QTY	COMMENT	@¥
21	601210-91	Y0060-01	Bottom Plate	1		
22	601210-92	Y0061-01	Insulator	1		
23	601210-93	Y0063-01	Insulation Plate	1		
24	601210-12	Y6002-01	Power Cord (UL/CSA)	1		
	601210-13	Y6002-21	Power Cord (VDE)			
	601210-14	Y8110-31	Power Cord (BSI)			
	601210-15	Y6002-61	Power Cord (SEV)			
	601210-16	Y6002-41	Power Cord (AUST)			
25	601210-95	Y8410-01	Inlet SA	1		
26	601210-96	E90440-05	(+) PH Screw (SW) M4x5	1		
27	601210-97	Y8001-01	Paper Sense SA	1		
28	601211-98	Y8391-03	Power / Driver PCB SA (USA)	1	117V	
	601212-06	Y8392-23	Power / Driver PCB SA (EU)		200V	
29	601210-99	Y0409-02	Leg	4		
30	601211-00	Y0066-01	Insulator L	1	200V ONLY	

MPS 1200

PARTS LIST & LOCATION for TRACTOR UNIT

DRAWING NO. 7 Tractor Unit (MPS1200)



PARTS LIST for MFS-1000

TITLE: Tractor Unit

ASSY NO.

SHEET NO. 1/1

DRAWING NO. Y

REV. NO. A

ITEM NO	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	QTY	COMMENT	@¥
	601211-01	Y0815-21	Tractor Unit	1	ITEM No.1~No.18	
1	601211-02	Y0816-01	Tractor Shaft BK	1		
2	601211-03	Y0453-01	Tractor Rail	2		
3	601211-04	Y0817-01	Tractor L SA	1		
4	601211-05	Y0818-01	Tractor R SA	1		
5	601211-06	Y0454-03	Tractor Frame L	1		
6	601211-07	Y0455-02	Tractor Frame R	1		
7	601211-08	Y0456-01	Tractor Gear	1		
8	601211-09	Y0457-01	Tractor Idle Gear	1		
9	601211-10	Y0458-02	Set Lever L	1		
10	601211-11	Y0459-02	Set Lever R	1		
11	601211-12	Y0460-01	Set Lever Spring	2		
12	601211-13	Y0461-21	Tractor Cover L	1		
13	601211-14	Y0462-21	Tractor Cover R	1		
14	601211-15	Y0463-21	Paper Guide	2		
15	601211-16	Y0114-01	Tractor Bushing	1		
16	601211-17	E94340-00	E Ring E4	1		
17	601211-18	E93340-00	Nut #1(Ext.TW) M4	4		

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MPS 1200 (USA)

PARTS LIST & LOCATION
for Power/Driver PCB SUB ASSEMBLY

(Y8391 SA)

ITEM NO	LOCATION	COMMODORE PARTSNO	VENDOR PARTSNO	PARTS NAME	TYPE	QTY	COMMENT	MANUFACTURER	@¥
1		601211-19	Y8391-04*	Power / Driver PCB SA		1		Eastern	
2		601211-20	Y8291-04*	Power / Driver PWB <u>Driver Section</u>	ETP150-G	1		Eastern	
3	IC6	601211-21	Y2101-006	IC	7406	1			
4	IC7	601211-22	Y2900-001	IC	M51958BL	1		Mitsubishi	
5	IC2	601211-23	Y2900-002	IC	M54977P	1		Mitsubishi	
6	IC5	601211-24	Y2201-094	IC	M4094BP or Equivalent	1		Mitsubishi	
7	IC1	601211-25	Y3531-408	Transistor array	HA13408	1		Hitachi	
8	IC3,4	601211-26	Y3511-567	Transistor array	M54567	2		Mitsubishi	
9	TRA1	601211-27	Y3540-769	Transistor array	FT5769M	1		Fujitsu	
10	TR3	601211-28	Y3100-844	Transistor	2SA844 2SA933	1		Hitachi Rohm	
11	TR2	601211-29	Y3401-769	Transistor	2SD1769 2SD1308	1		Sanken NEC	
12	PI-1	601211-30	Y8420-010	Photo-interruptor	SG-CZ02 1N1400R	1		Koudenshi I.M.T	
13	D2	601211-31	Y3600-030	Diode	1S2473 1S2075K	1		Rohm Hitachi	
14	D4~11	601211-32	Y3600-032	Diode	1N4002 SM-1XN-06	8		Rectron Origin	

ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	QTY	COMMENT	MANUFACTURER	@¥
1	D12	601211-33	Y3713-240	Zener diode	HZ24 MTZ24	1		Hitachi Rohm	
2	D3	601211-34	Y3704-091	Zener diode	RD9.1F EQB01-09	1		NEC Fuji Elec.	
3	RN1,2	601211-35	Y4400-332	Res. array 1/8W 3.3KΩ 5%	RGLD10X332J RGSD10X332J SE10332J MRNSA-11P-332J	2		Murata Murata Fukushima Futaba Kyocera	
4	R12,19	601211-36	Y4114-151	Res. carbon 1/4W 150Ω 5%		2			
5	R4~11	601211-37	Y4114-103	Res. carbon 1/4W 10KΩ 5%		8			
6	R13	601211-38	Y4114-152	Res. carbon 1/4W 1.5KΩ 5%		1			
7	R16,20	601211-39	Y4114-332	Res. carbon 1/4W 3.3KΩ 5%		2			
8	R14	601211-40	Y4114-362	Res. carbon 1/4W 3.6KΩ 5%		1			
9	R17	601211-41	Y4114-472	Res. carbon 1/4W 4.7KΩ 5%		1			
10	R15	601211-42	Y4114-562	Res. carbon 1/4W 5.6KΩ 5%		1			
11	R1	601211-43	Y4114-362	Res. carbon 1/4W 3.6KΩ 5%		1			
12	R2	601211-44	Y4114-183	Res. carbon 1/4W 18KΩ 5%		1			
13	R18	601211-45	Y4114-752	Res. carbon 1/4W 7.5KΩ 5%		1			
14	(CN6)	601211-46	Y8502-011	Flat cable guide		1		Muramatsu	

PARTS LIST for MPS 1200 (USA)

TITLE: Power/DriverPCB SA

SA NO. Y8391SA

SHEET NO. 3/8

PARTS NO. 601211-19 (Y8391-04*)

REV. NO. B

ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	QTY	COMMENT	MANUFACTURER	@¥
1	C1,6,7,9,11	601211-47	Y5251-104	Cap. ceramic 0.1µF 25V	RT-DSKC85TK-YF104Z DD308-959F104Z25 SS45D1C104ZYR	5		KCK Murata TDK	
2	C10	601211-48	Y5216-102	Cap. ceramic 1000PF 50V	RT-HE50TK-YB102K DD104-989B102K50 CK45B1H102KYR	1		KCK Murata TDK	
3	CN1	601211-49	Y6147-030	Connector	128D-030P2B-L14N 00 8272 230 001 162 XC5A-3072-1	1		DDK Elco OMRON	
4	CN2	601211-50	Y6108-008	Connector	5233-08A	1		Molex	
5	CN3	601211-51	Y6108-006	Connector	5233-06A	1		Molex	
6	CN5	601211-52	Y6108-002	Connector	5233-02A	1		Molex	
7	CN6	601211-53	Y6150-113	Connector	HBLB13S-1J	1		Burndy	
8	CN4	601211-54	Y6108-006Y	Connector	5233-06A-YE	1		Molex	

ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	QTY	COMMENT	MANUFACTURER	@¥
				<u>Power Supply Section</u>					
1	IC101	601211-55	Y2601-431	IC	NJM431C TL431AWC MC431C μA431C μPC1093J	1		JRC T.I. Motorola F.C. NEC	
2	PI-101	601211-56	Y3802-101	Photo-coupler	TLP521-1 ON3111	1		Toshiba Matsushita	
3	TR101	601211-57	Y3303-822	Transistor	2SC3822-Y or O 2SC3158 2SC2810-Y or O 2SC3795 2SC3723	1		Sanken NEC Sanken Matsushita Fuji Elec.	
4	TR102	601211-58	Y3303-668	Transistor	2SC3668	1		Toshiba	
5	DS101	601211-59	Y3603-002	Diode Stack 400V 1.5A	LB154 LB156	1		Sanken Sanken	
6	ZD101	601214-16	Y3713-075A	Zener diode	RD7.5EB1 05Z7.5X	1	Adjust. Diode	NEC Toshiba	
7	D112	601214-00	Y3601-016	Diode	ERC30-02 ERB93-02	1		Fuji Elec. Fuji Elec.	

ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	QTY	COMMENT	MANUFACTURER	@¥
1	D105	601211-61	Y3602-001	Diode 200V 1A	RGP10D FR103 SM-1A-02FR	1		GI Rectron Origin	
2	D106	601211-62	Y3602-003	Diode 600V 1A	RGP10J FR105 SM-1A-06FR	1		GI Rectron Origin	
3	D107	601211-63	Y3600-031	Diode	FDH9615 1S954	1		F.C. NEC	
4	D108	601211-64	Y3600-020	Diode	1S1588 1S953	1		Toshiba NEC	
5	D109~111	601211-65	Y3601-013	Diode	EGP30D HER303 ERC91-02 ERD32-02	3		GI Rectron Fuji Elec. Fuji Elec.	
6	R101	601211-66	Y4600-007	Thermistor	5D-11 NTH-11D5R0LB	1		Ishizuka Murata	
7	R109,113	601211-67	Y4114-221	Res. carbon 1/4W 220Ω 5%		2			
8	R115	601211-68	Y4114-112	Res. carbon 1/4W 1.1KΩ 5%		1			
9	R114	601214-10	Y4114-112 ~ 132	Res. carbon 1/4W 1.1K~1.3KΩ 5%		1	Adjust.Res.		

ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	QTY	COMMENT	MANUFACTURER	@ ¥
1	R105,106	601211-70	Y4114-471 ~ 472	Res. carbon 1/4W 470Ω~4.7KΩ 5%		2	Adjust. Res.		
2	R110	601211-71	Y4114-471 ~ 103	Res. carbon 1/4W 470Ω~10KΩ 5%		1	Adjust. Res.		
3	R118	601211-72	Y4114-333	Res. carbon 1/4W 33KΩ 5%		1			
4	R116	601211-73	Y4114-105	Res. carbon 1/4W 1MΩ 5%		1			
5	R102	601211-75	Y4112-334	Res. carbon 1/2W 330KΩ 5%		1			
6	R117	601211-76	Y4800-001	Res. fuse 1W 2Ω	ERQ1CK2RO	1		Matsushita	
7	R108	601214-11	Y4221-470	Res. oxydized metal film 1W 47Ω	RSS1X-47ΩJ ERG1SJ470P	1		Fukushima Futaba Matsushita	
8	R107	601211-77	Y4312-075	Res. oxydized metal film 1W 0.75Ω	RNS1X-R75J ERX1SJ-R75P	1		Fukushima Futaba Matsushita	
9	R103	601211-78	Y4222-473	Res. oxydized metal film 2W 47KΩ	RSS2X-473J ERG2SJ473P	1		Fukushima Futaba Matsushita	
10	R104	601211-79	Y4222-390	Res. oxydized metal film 2W 39Ω	RSS2X-39J ERG2SJ-390P	1		Fukushima Futaba Matsushita	
11	R111	601211-80	Y4223-681	Res. oxydized metal film 3W 680Ω	RSS3X-681J ERG3SJ-681P	1		Fukushima Futaba Matsushita	
12	C102,103	601211-81	Y5259-472	Cap. ceramic 250V 4700PF	DE0807F472Z AC250V	2		Murata	
13	C116	601211-83	Y5259-222	Cap. ceramic 250V 2200PF	DE0807E222Z AC250V	1		Murata	

PARTS LIST for MPS 1200 (USA)

TITLE: Power/DriverPCB SA

SA NO. Y8391SA

SHEET NO. 7/8

PARTS NO. 601211-19 (Y8391-04*)

REV. NO. B

ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	QTY	COMMENT	MANUFACTURER	@ ¥
1	C108	601214-12	Y5229-471	Cap. ceramic 1KV 470PF	DE0707R471K DE0907R471K-2KV DE0907BN471K-2KV	1		Murata Murata Murata	
2	C106,115	601211-84	Y5802-103	Cap. MP 630V 0.01µF	ECQ-E6103KZ YM-MD103K-630V MDD22J103K	2		Matsushita Yamato Nittsuko	
3	C101	601211-85	Y5803-224	Cap. MP 200V 0.22µF	CFD22D224 MDD200AC224	1		Nittsuko Hitachi	
4	C105,113	601211-86	Y5804-154	Cap. film 50V 0.15µF	YM92WS1H154K ECQ-V1H154JZ	2		Yamato Matsushita	
5	C109	601211-87	Y5804-333	Cap. film 50V 0.033µF	YM92WS1H333K ECQ-B1H333KH-1	1		Yamato Matsushita	
6	C117	601211-88	Y5173-221	Cap. electrolytic 25WV 220µF	CESEM1E221 SME25VB220	1		Marcon Nippon chemi-con	
7	C104	601211-89	Y5178-331	Cap. electrolytic 200WV 330µF	SME200VNSN330-22C CETSW2D331M	1		Nippon chemi-con Marcon	
8	C107	601211-90	Y5565-047	Cap. electrolytic 50WV 0.47µF	CEBPM1HR47 SM50VBR47BPD	1		Marcon Nippon chemi-con	
9	C110,111	601211-91	Y5174-332	Cap. electrolytic 35WV 3300µF	SME35VB3300 CESEM1V332	2		Nippon chemi-con Marcon	

ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	QTY	COMMENT	MANUFACTURER	@¥
1	C112, 114	601214-01	Y5171-332	Cap. electrolytic 10WV 3300µF	SME10VB3300 CESEM1A332	2		Nippon chemi-con Marcon	
2	S101	601211-94	Y7601-101	Seesaw switch	1801.5123 WK2A44 5211-22-3	1		Marquardt Kautt & Bux Kanbayashi	
3	F101	601211-95	Y7301-701	Fuse 250V 1.6A	ULCSAMT3-1.6A	1		S.O.C.	
4	F102	601214-17	Y7301-301	Fuse 125V 3A	ULCSATSCR-3A	1		S.O.C.	
5	P101,102	601211-97	Y7321-101 Y6400-001	Fuse Clip Holder Faston terminal	22006	2		Kyoshin	
6	T101	601214-18	Y7520-009	Transformer	CT1922-3	1		Eastern	
7	L101	601211-99	Y7511-002	SC coil	CT0724-4	1		Tokin	
8	L102,103	601212-00	Y7510-005	SN coil	SK-8M-5S SN8S-500 FN8S-50	2		Toho Aen Tokin Nihon Felight	
9	L104	601212-01	Y7511-001	Choke coil	CT0723-4	1		Eastern	
10	(TR101)	601212-02	Y7101-002	Insulating sheet	5051-1674	1		Fujikura	
11	(TR101)	601212-03	Y7101-032	Insulating bush	G-17 G21	1		NEC NEC	
12	(TR101)	601212-04	Y7800-006	Heat sink (1)	CT1951-4 OSH4733SP-C	1		Eastern Ryosan	
13	(D109,110)	601214-19	Y7800-015	Heat sink (2)	CT1953-4	1		Eastern	

MPS 1200 (EU)

PARTS LIST & LOCATION
for Power/Driver PCB SUB ASSEMBLY

(Y8392 SA)

ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	QTY	COMMENT	MANUFACTURER	@¥
1		601212-06	Y8392-25*	Power / Driver PCB SA		1		Eastern	
2		601212-07	Y8291-25*	Power / Driver PWB <u>Driver Section</u>	ETP171-G	1		Eastern	
3	IC6	601212-08	Y2101-006	IC	7406	1			
4	IC7	601212-09	Y2900-001	IC	M51958BL	1		Mitsubishi	
5	IC2	601212-10	Y2900-002	IC	M54977P	1		Mitsubishi	
6	IC5	601212-11	Y2201-094	IC	M4094BP or Equivalent	1		Mitsubishi	
7	IC1	601212-12	Y3531-408	Transistor array	HA13408	1		Hitachi	
8	IC3,4	601212-13	Y3511-567	Transistor array	M54567	2		Mitsubishi	
9	TRA1	601212-14	Y3540-769	Transistor array	FT5769M	1		Fujitsu	
10	TR3	601212-15	Y3100-844	Transistor	2SA844 2SA933	1		Hitachi Rohm	
11	TR2	601212-16	Y3401-769	Transistor	2SD1769 2SD1308	1		Sanken NEC	
12	PI-1	601212-17	Y8420-010	Photo-interruptor	SG-CZ02 1N1400R	1		Koudenshi I.M.T	
13	D2	601212-18	Y3600-030	Diode	1S2473 1S2075K	1		Rohm Hitachi	
14	D4~11	601212-19	Y3600-032	Diode	1N4002 SM-1XN-06	8		Rectron Origin	

ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	QTY	COMMENT	MANUFACTURER	@¥
1	D12	601212-20	Y3713-240	Zener diode	HZ24 MTZ24	1		Hitachi Rohm	
2	D3	601212-21	Y3704-091	Zener diode	RD9.1F EQB01-09	1		NEC Fuji Elec.	
3	RN1,2	601212-22	Y4400-332	Res. array 1/8W 3.3KΩ 5%	RGLD10X332J RGSD10X332J SE10332J MRNSA-11P-332J	2		Murata Murata Fukushima Futaba Kyocera	
4	R12,19	601212-23	Y4114-151	Res. carbon 1/4W 150Ω 5%		2			
5	R4~11	601212-24	Y4114-103	Res. carbon 1/4W 10KΩ 5%		8			
6	R13	601212-25	Y4114-152	Res. carbon 1/4W 1.5KΩ 5%		1			
7	R16,20	601212-26	Y4114-332	Res. carbon 1/4W 3.3KΩ 5%		2			
8	R14	601212-27	Y4114-362	Res. carbon 1/4W 3.6KΩ 5%		1			
9	R17	601212-28	Y4114-472	Res. carbon 1/4W 4.7KΩ 5%		1			
10	R15	601212-29	Y4114-562	Res. carbon 1/4W 5.6KΩ 5%		1			
11	R1	601212-30	Y4114-362	Res. carbon 1/4W 3.6KΩ 5%		1			
12	R2	601212-31	Y4114-183	Res. carbon 1/4W 18KΩ 5%		1			
13	R18	601212-32	Y4114-752	Res. carbon 1/4W 7.5KΩ 5%		1			
14	(CN6)	601212-33	Y8502-011	Flat cable guide		1		Muramatsu	

ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	Q'TY	COMMENT	MANUFACTURER	@¥
1	C1,6,7,9,11	601212-34	Y5251-104	Cap.ceramic 0.1µF 25V	RT-DSKC85TK-YF104Z DD308-959F104Z25 SS45D1C104ZYR	5		KCK Murata TDK	
2	C10	601212-35	Y5216-102	Cap.ceramic 1000PF 50V	RT-HE50TK-YB102K DD104-989B102K50 CK45B1H102KYR	1		KCK Murata TDK	
3	CN1	601212-36	Y6147-030	Connector	128D-030P2B-L14N 00 8272 230 001 162 XC5A-3072-1	1		DDK Elco OMRON	
4	CN2	601212-37	Y6108-008	Connector	5233-08A	1		Molex	
5	CN3	601212-38	Y6108-006	Connector	5233-06A	1		Molex	
6	CN5	601212-39	Y6108-002	Connector	5233-02A	1		Molex	
7	CN6	601212-40	Y6150-113	Connector	HBLB13S-1J	1		Burndy	
8	CN4	601212-41	Y6108-006Y	Connector	5233-06A-YE	1		Molex	

ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	QTY	COMMENT	MANUFACTURER	@¥
				<u>Power Supply Section</u>					
1	IC101	601212-42	Y2601-431	IC	NJM431C TL431AWC MC431C μ A431C μ PC1093J	1		JRC T.I. Motorola F.C. NEC	
2	PI-101	601212-43	Y3802-002	Photo-coupler	TLP-580	1		Toshiba	
3	TR101	601212-44	Y3303-148	Transistor	2SC3148 2SC3531	1		Toshiba NEC	
4	TR102	601212-45	Y3303-668	Transistor	2SC3668	1		Toshiba	
5	DS101	601212-46	Y3603-001	Diode Stack 600V 1.5A	LB156	1		Sanken	
6	ZD101	601212-47	Y3713-075A	Zener diode	RD7.5EB1 05Z7.5X	1	Adjust. Diode	NEC Toshiba	
7	ZD102	601212-48	Y3713-068A	Zener diode	RD6.8EB1	1		NEC	
8	D105, 113	601212-49	Y3602-001	Diode 200V 1A	RGP10D FR103 SM-1A-02FR	2		GI Rectron Origin	
9	D106	601212-50	Y3602-004	Diode 800V 1A	SM-1A-08FR RGP10K	1		Origin GI	

ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTSNAME	TYPE	QTY	COMMENT	MANUFACTURER	@¥
1	D107	601212-51	Y3600-031	Diode	FDH9615 1S954	1		F.C. NEC	
2	D108	601212-52	Y3600-020	Diode	1S1588 1S953	1		Toshiba NEC	
3	D109,110	601212-53	Y3601-013	Diode	EGP30D HER303 ERC91-02 ERD32-02	2		GI Rectron Fuji Elec. Fuji Elec.	
4	D111	601212-54	Y3600-004	Diode	SB340 SR304 RK44	1		GI Rectron Sanken	
5	D112	601214-02	Y3601-016	Diode	ERC30-02 ERB93-02	1		Fuji Elec. Fuji Elec.	
6	R101	601212-55	Y4600-005	Thermistor	NTH9D160LB 16D-9	1		Murata Ishizuka	
7	R113	601212-56	Y4114-750	Res. carbon	1/4W 75Ω 5%	1			
8	R114	601214-13	Y4117-112 ~ 132	Res. carbon	1/6W 1.1K~1.3KΩ 5%	1	Adjust. Res.		
9	R106	601212-58	Y4114-471 ~ 472	Res. carbon	1/4W 470Ω~4.7KΩ 5%	1	Adjust. Res.		

ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	QTY	COMMENT	MANUFACTURER	@¥
1	R118	601214-14	Y4117-333	Res. carbon 1/6W 33KΩ 5%		1			
2	R116	601212-60	Y4114-105	Res. carbon 1/4W 1MΩ 5%		1			
3	R109	601212-61	Y4114-151	Res. carbon 1/4W 150Ω 5%		1			
4	R102	601212-62	Y4112-754	Res. carbon 1/2W 750KΩ 5%		1			
5	R105	601212-63	Y4114-331	Res. carbon ~ 472 1/4W 330Ω~4.7KΩ 5%		1	Adjust. Res.		
6	R110	601214-03	Y4117-471	Res. carbon ~ 103 1/6W 470~10KΩ 5%		1	Adjust. Res.		
7	R119	601214-04	Y4114-102	Res. carbon 1/4W 1KΩ 5%		1			
8	R120	601214-05	Y4117-101	Res. carbon 1/6W 100Ω 5%		1			
9	R115	601214-15	Y4117-102	Res. carbon ~ 122 1/6W 1.0K~1.2KΩ 5%		1	Adjust. Res.		
10	R117	601212-64	Y4800-001	Res. fuse 1W 2Ω	ERQ1CK2RO	1		Matsushita	
11	R107	601212-65	Y4312-150	Res. oxydized metal film 1W 1.5Ω	RNS1X-1.5ΩJ ERX1SJ-1R5P	1		Fukushima Futaba Matsushita	
12	R103	601212-66	Y4222-473	Res. oxydized metal film 2W 100KΩ	RSS2X-104J ERG2SJ-104P	1		Fukushima Futaba Matsushita	
13	R104	601212-67	Y4221-560	Res. oxydized metal film 2W 56Ω	RSS2X-560J ERG2SJ-560P	1		Fukushima Futaba Matsushita	

ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	QTY	COMMENT	MANUFACTURER	@¥
1	R111	601212-68	Y4223-681	Res. oxydized metal film 3W 680Ω	RSS3X-681J ERG3SJ-681P	1		Fukushima Futaba Matsushita	
2	C102,103	601212-70	Y5259-222	Cap. ceramic 250V 2200PF	PME265MA422 PME271Y422	2		Rifa Rifa	
3	C116	601214-06	Y5259-102	Cap. ceramic 250V 1000PF	PME265MA410 PME271Y410	1		Rifa Rifa	
4	C106,115	601212-71	Y5802-103	Cap. MP 630V 0.01μF	ECQ-E6103KZ YM-MD103K-630V MDD22J103K	2		Matsushita Yamato Nittsuko	
5	C101	601212-72	Y5809-002	Cap. MP 250V 0.22μF	ECQ-U2A224MN	1		Matsushita	
6	C118	601212-73	Y5809-003	Cap. MP 250V 0.1μF	ECQ-U2A104MN	1		Matsushita	
7	C105,113	601212-74	Y5804-154	Cap. film 50V 0.15μF	YM92WS1H154K ECQ-V1H154JZ	2		Yamato Matsushita	
8	C109	601212-75	Y5804-223	Cap. film 50V 0.022μF	YM92WS1H223K ECQ-B1H223KH-1	1		Yamato Matsushita	
9	C107	601212-76	Y5165-010	Cap. electrolytic 50V 1μF	CEBPM1H010 SM50VB010BPD	1		Marcon Nippon chemi-con	
10	C117	601212-77	Y5173-221	Cap. electrolytic 25WV 220μF	CESEM1E221 SME25VB220	1		Marcon Nippon chemi-con	

ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	QTY	COMMENT	MANUFACTURER	@¥
1	C104	601212-78	Y5180-151	Cap. electrolytic 400WV 150 μ F	ECES2GU151M CETSW2G151M	1		Matsushita Marcon	
2	C110,111	601212-79	Y5174-332	Cap. electrolytic 35WV 3300 μ F	SME35VB3300 CESEM1V332	2		Nippon chemi-con Marcon	
3	C112,114	601214-07	Y5171-332	Cap. electrolytic 10WV 3300 μ F	SME10VB3300 CESEM1A332	2		Nippon chemi-con Marcon	
4	C119	601214-08	Y5171-101	Cap. electrolytic 10WV 100 μ F	CESEM1A101 SME10VB100	1		Marcon Nippon chemi-con	
5	S101	601212-82	Y7601-101	Seesaw switch	1801.5123 WK2A44	1		Marquardt Kautt & Bux	
6	F101	601212-83	Y7302-701	Fuse 250V 1.25A	EAK1.25A (T) 9195-1.25A	1		Olvis Wick Man	
7	F102	601214-20	Y7301-301	Fuse 125V 3A	ULCSATSCR-3A	1		S.O.C.	
8	(F101)	601212-85	Y7321-101	Fuse clip	FP-213	2		Nagasawa	
9	P101,102	601212-86	Y6400-001	Faston terminal	22006	2		Kyoshin	
10	T101	601214-21	Y7520-008	Transformer	CT2223-3	1		Eastern	
11	L101	601212-88	Y7511-004	SC coil	CT0923-4	1		Tokin	
12	L102,103	601212-89	Y7510-005	SN coil	SK-8M-5S SN8S-50 FN8S-50	2		Toho Aen Tokin Nihon Felight	

ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	QTY	COMMENT	MANUFACTURER	@¥
1	L104	601212-90	Y7511-001	Choke coil	CT0723-4	1		Eastern	
2	(TR101)	601212-91	Y7101-002	Insulating sheet	5051-1674	1		Fujikura	
3	(TR101)	601212-92	Y7101-032	Insulating bush	G-17	1		NEC	
					G21			NEC	
4	(TR101)	601212-93	Y7800-006	Heat sink (1)	CT1951-4	1		Eastern	
					OSH4733SP-C			Ryosan	
5	(D109,110)	601214-22	Y7800-015	Heat sink (2)	CT1953-4	1		Eastern	

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MPS 1200

PARTS LIST & LOCATION for OTHERS

1. Options



PARTS LIST for MPS 1200

TITLE: Option I

SA NO.

SHEET NO. 1/1

DRAWING NO.

REV. NO. A

ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	QTY	COMMENT	MANUFACTURER	@¥
1		601210-19	Y99704-710	Service Manual	First Edition			Citizen	



Chapter 5

Circuit Diagrams

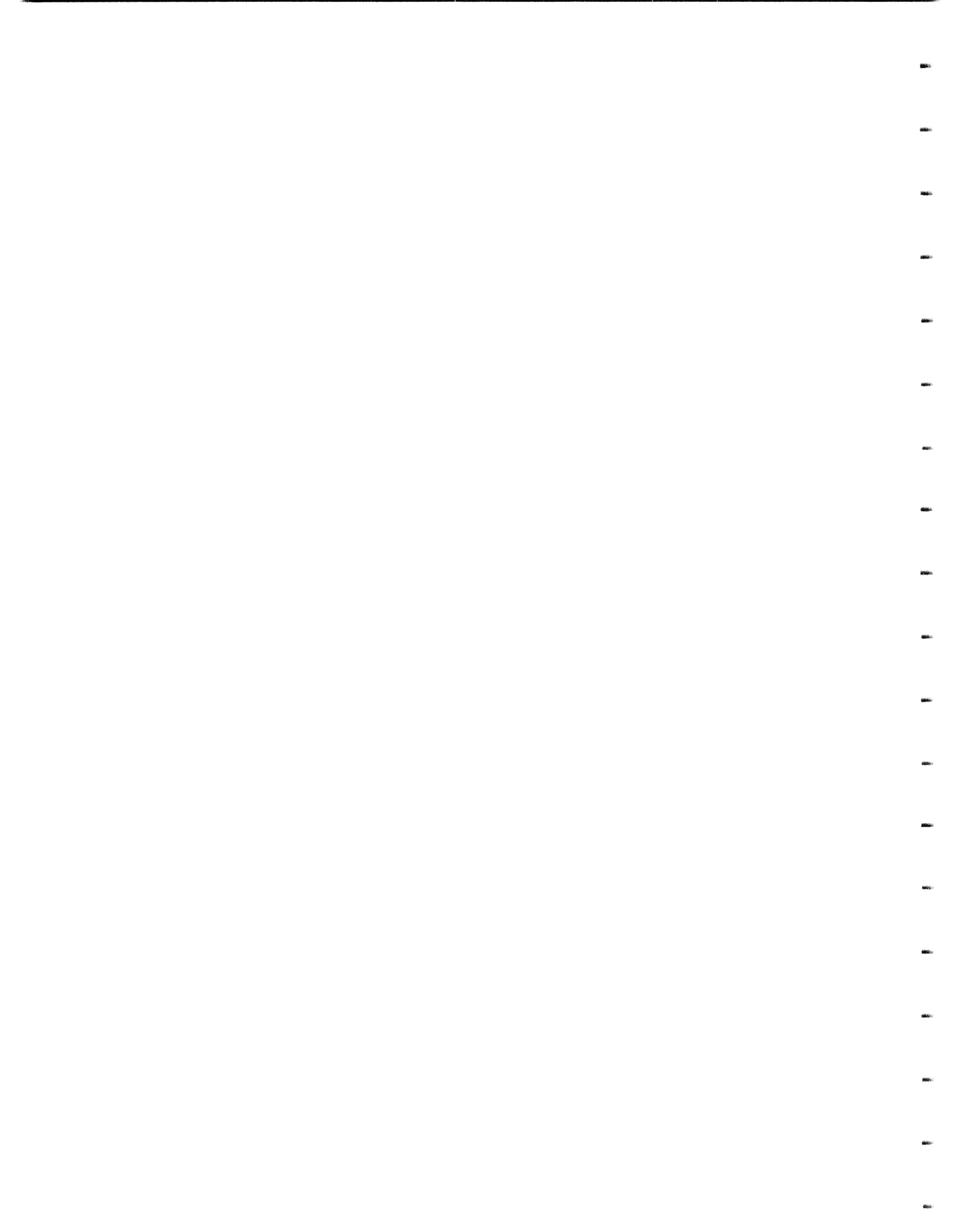
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Interconnection

Mounting Diagram (Power/Driver PCB)

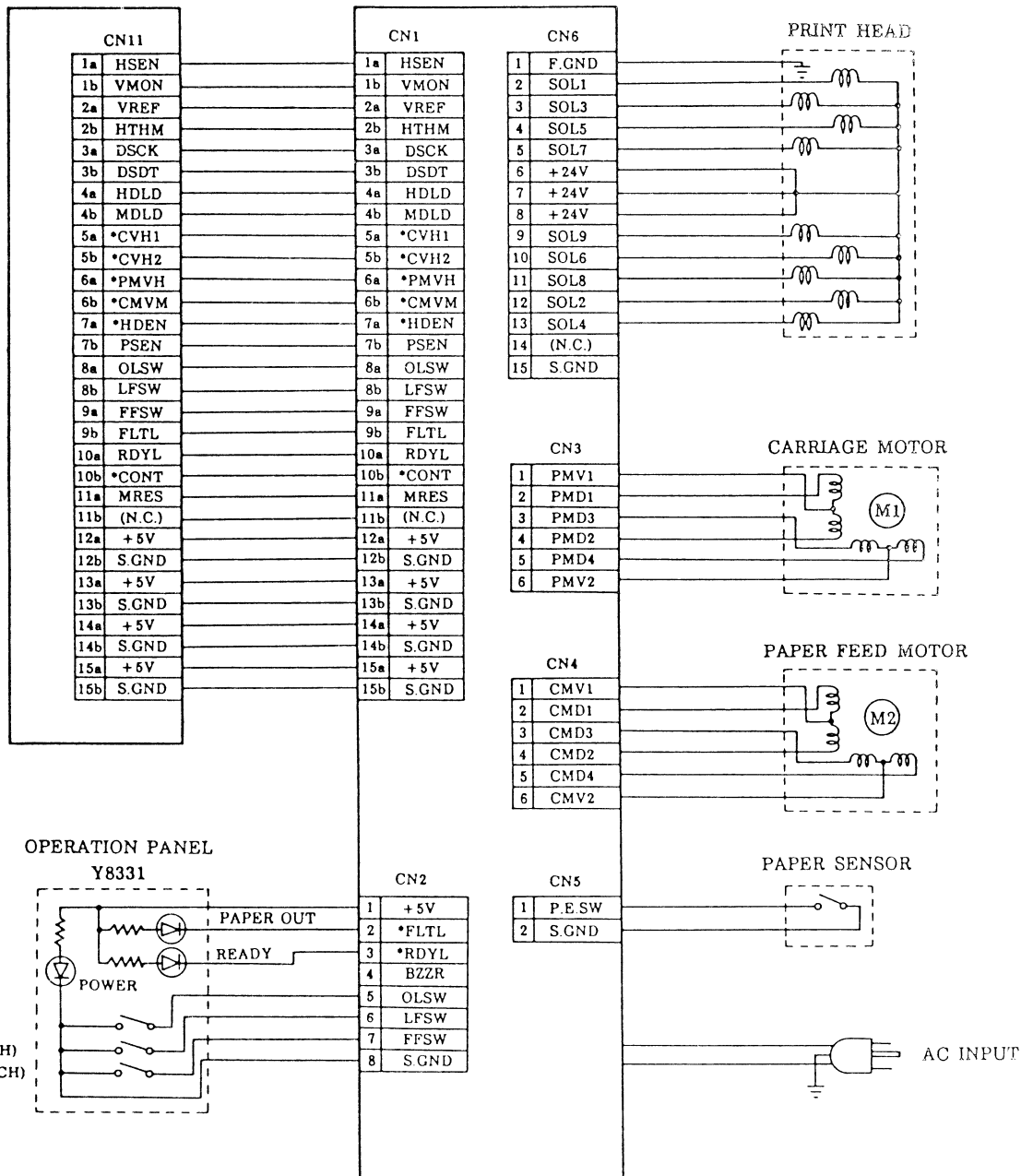
Circuit Diagram (Power/Driver PCB)

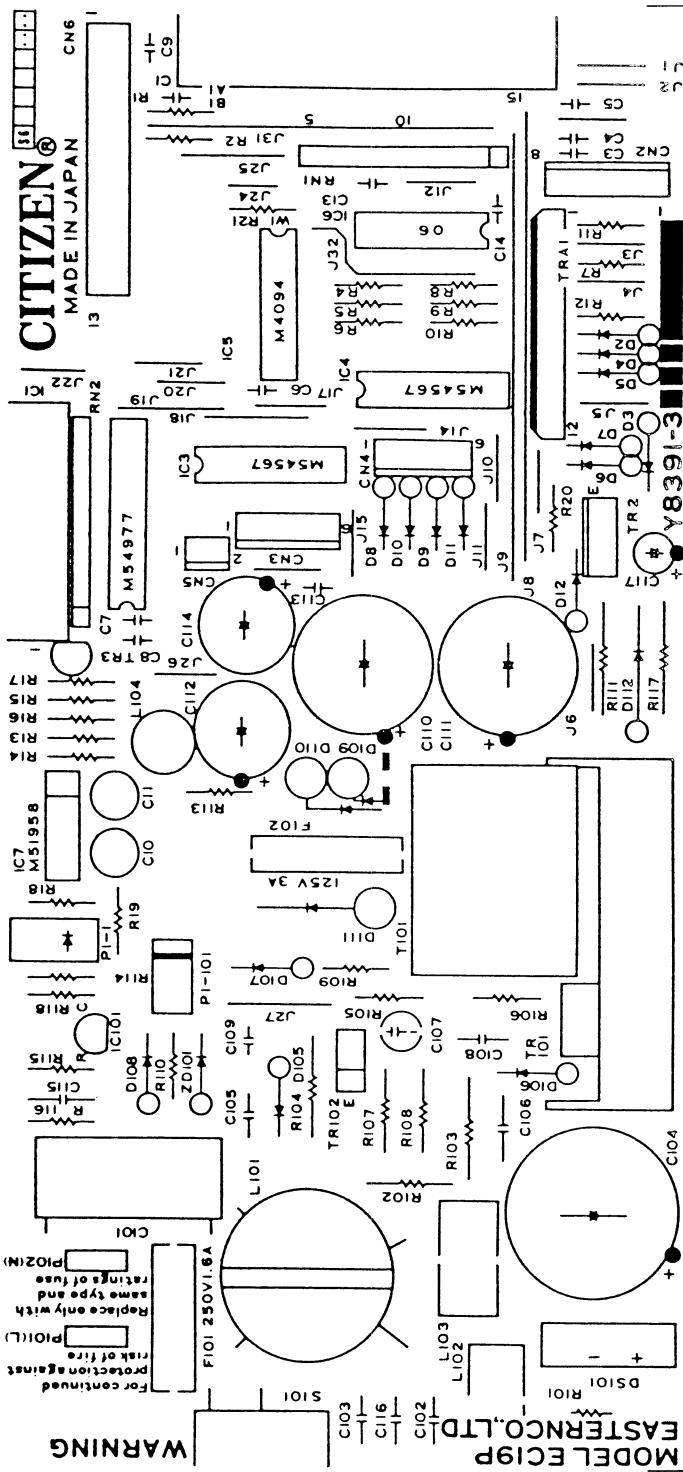




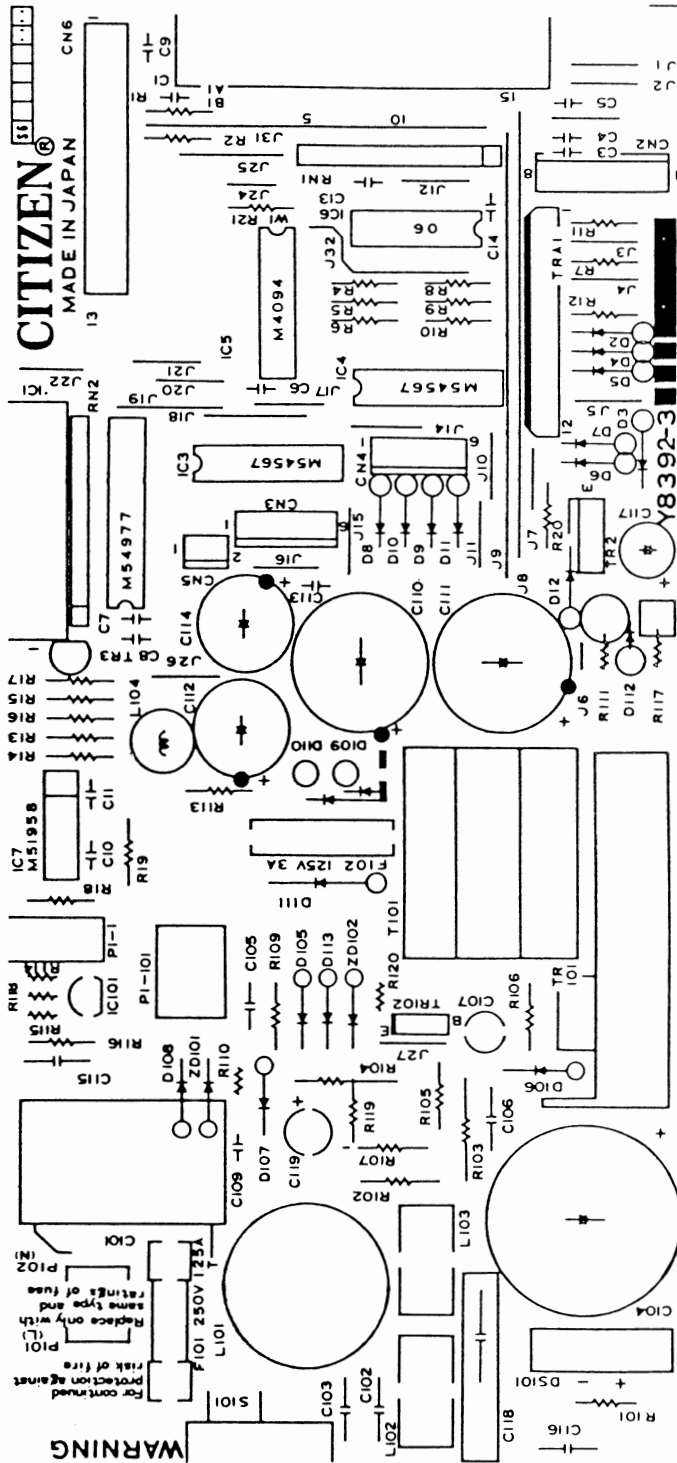
INTERFACE PACK
Y802*/Y803*

POWER/DRIVER PCB
Y8391/Y8392

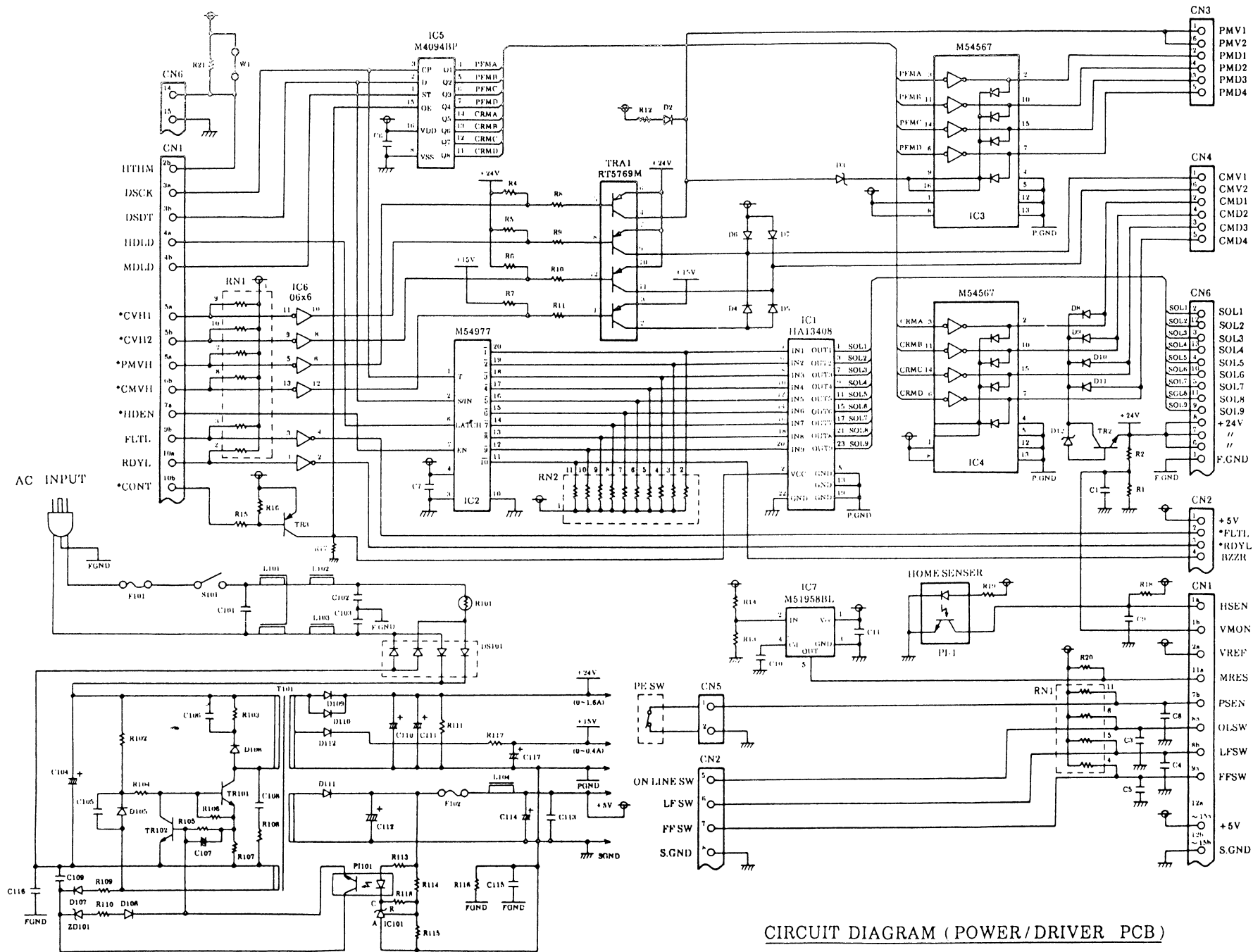




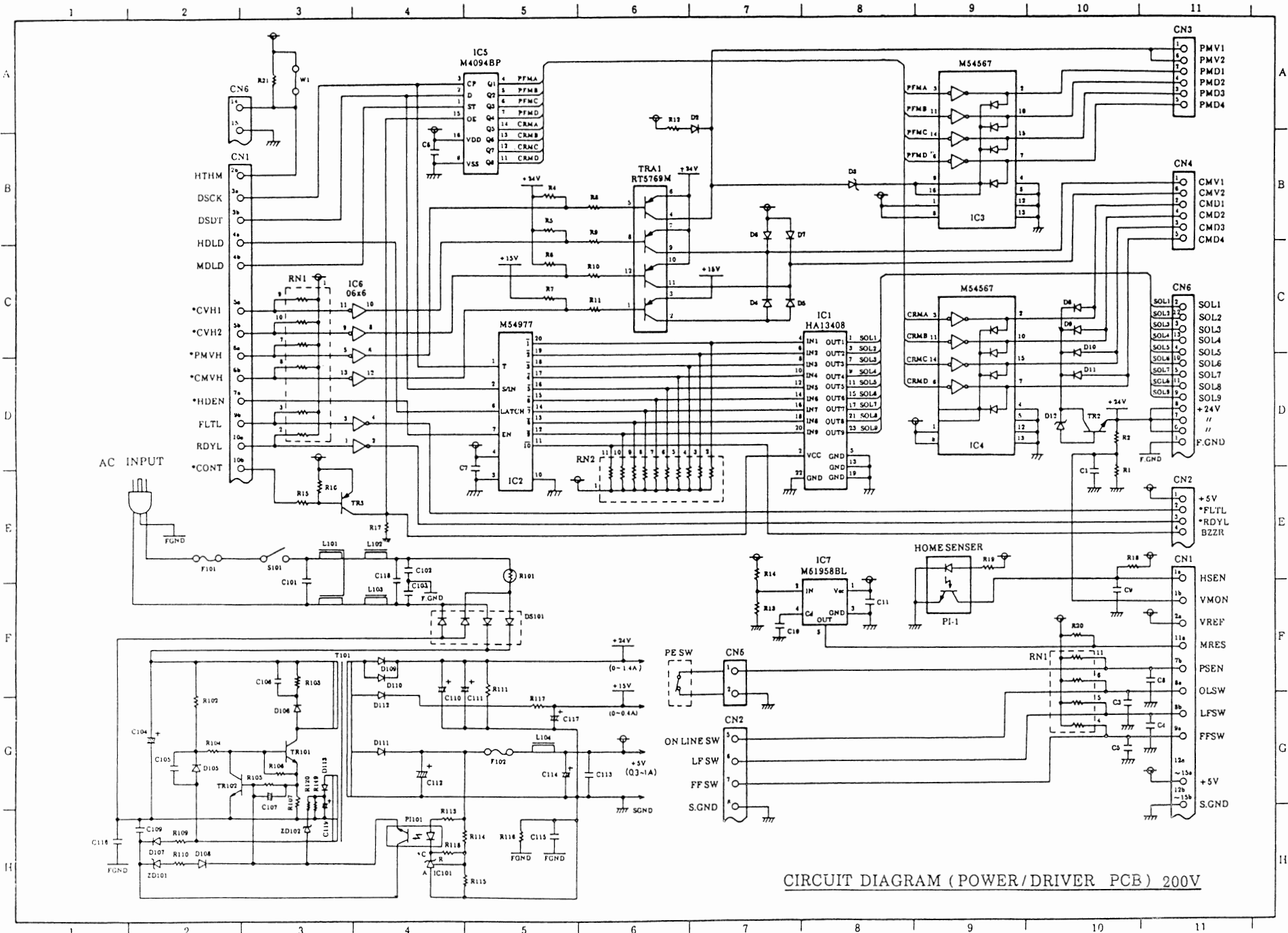
Mounting Diagram (Power/Driver PCB) 115V



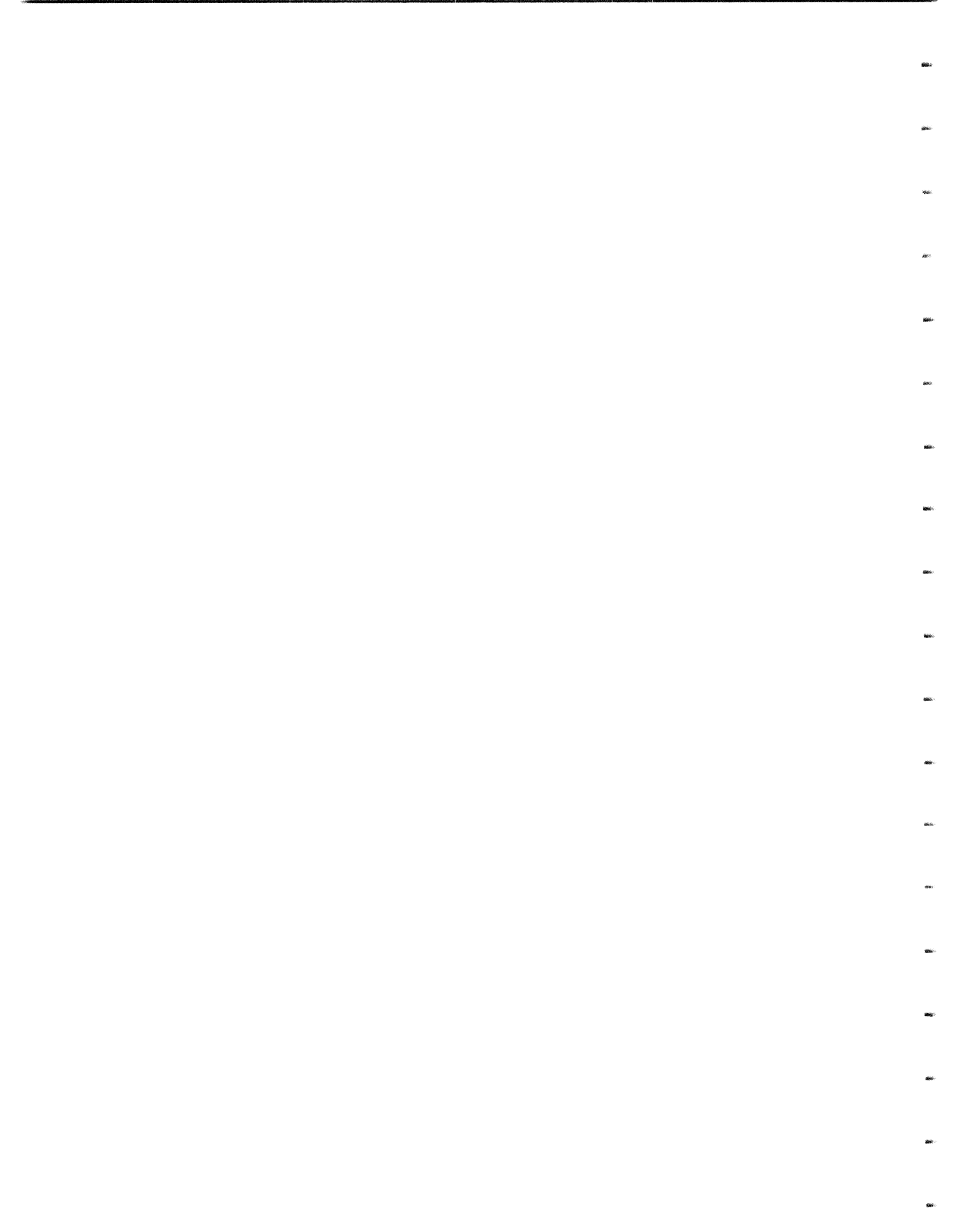
Mounting Diagram (Power/Driver PCB) 200V



CIRCUIT DIAGRAM (POWER/DRIVER PCB)



CIRCUIT DIAGRAM (POWER/DRIVER PCB) 200V

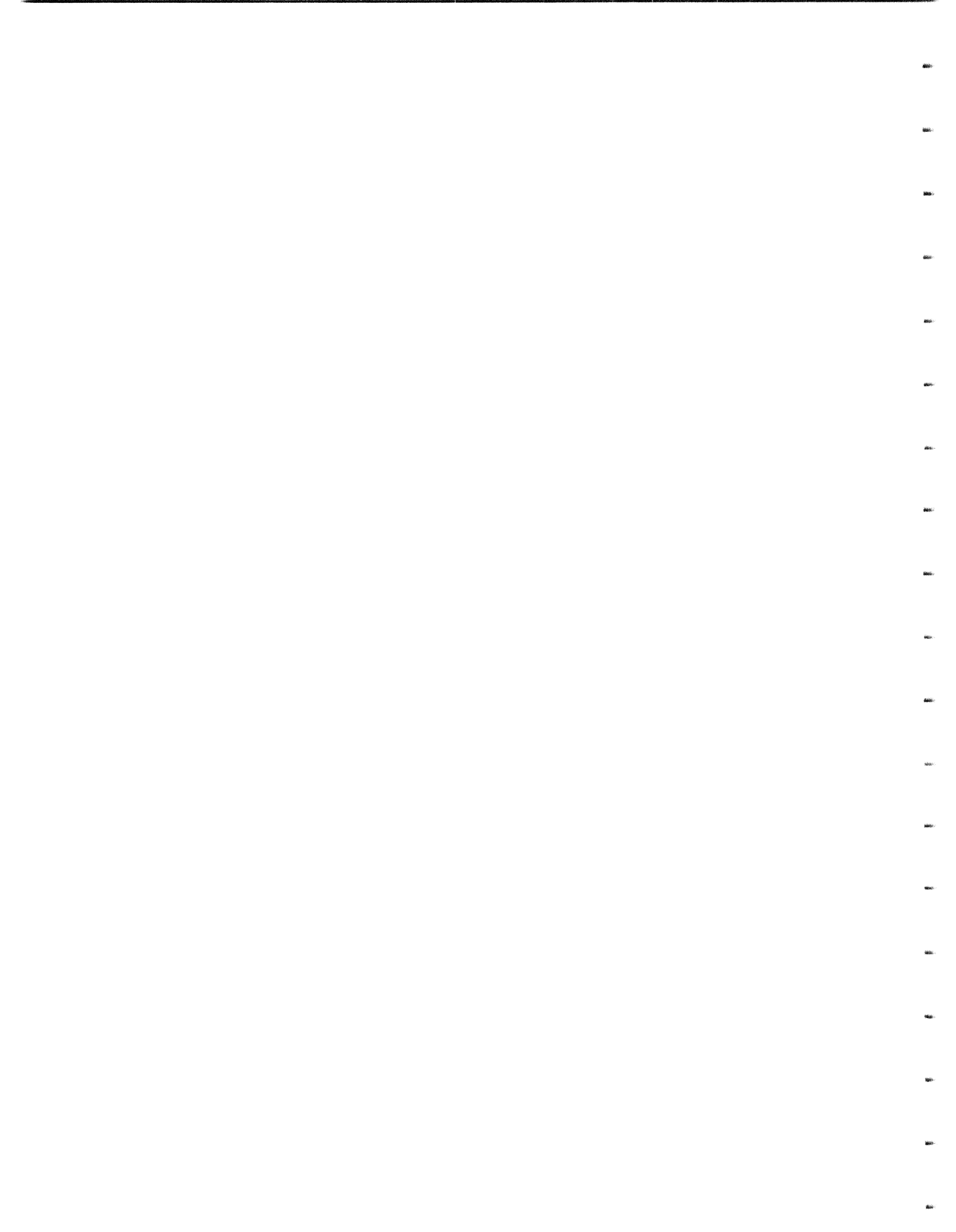


Appendices

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1. STANDARD PARALLEL BIP	A
2. COMMODORE SERIAL BIP	B





Standard Parallel BIP

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5.	Circuit Diagrams	
	(1) Mounting Diagram	
	(2) Circuit Diagram	



STANDARD PARALLEL BIP (Basic Interface Pack)

1. Control Circuit Block Diagram

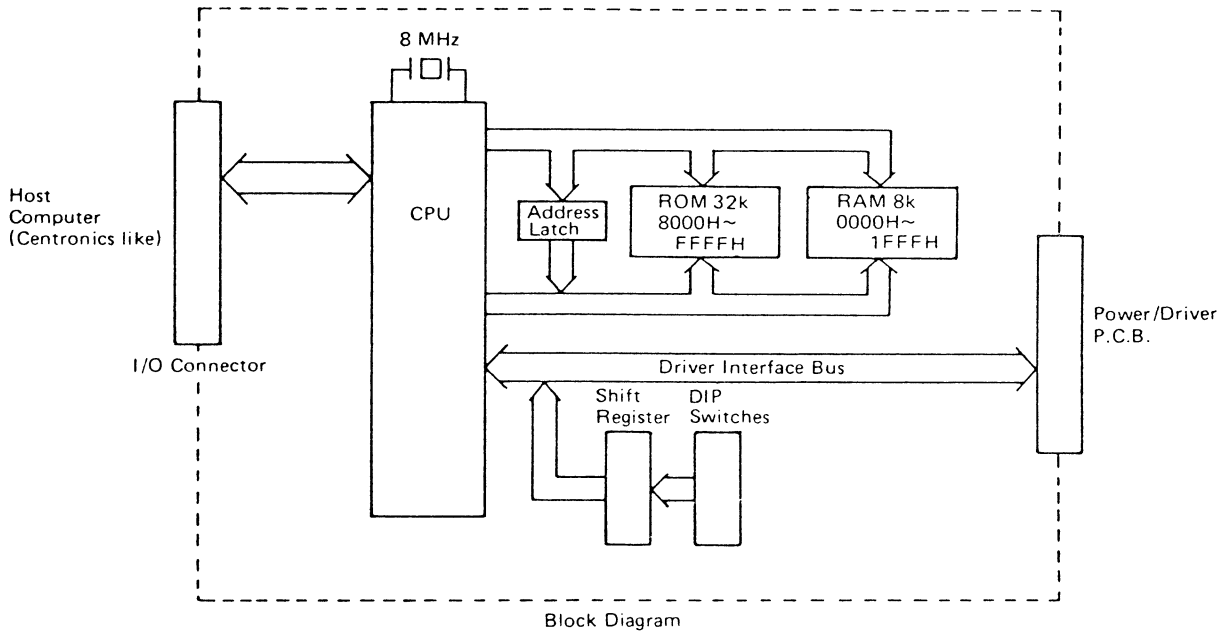


Fig. 1

A block diagram for the standard parallel BIP is shown in Fig. 1. Parallel data of 8 bits (*DATA1 to *DATA8) is input via the I/O connector. Strobe signal (*DSTB) is also input together with the data.

At input of the strobe signal, BUSY signal becomes HIGH and *DATA1 to *DATA8 will be stored inside. When CPU finishes processing the data, BUSY signal becomes LOW again and inputting of data is enabled.

Printing is started if the data input reaches one line or print start command code such as LF code, CR code, etc. is received.

This unit is controlled by an 8-bit one-chip microcomputer. The clock of CPU is 8 MHz and instructions will be executed with a minimum unit of 1 μ S. The CPU has 36 I/O ports and they are assigned to interface lines for host CPU and interface bus with Power/Driver PCB.

In addition, the CPU has six independent timers and each of them is used to control printing timing, stepping motor driving timing, print head current flowing time, etc.

As the memory, ROM of 32 kilobytes and RAM of 8 kilobytes are provided as standard and the lower 8 bits of address bus are the ones which are generated by latching the multiplexed data bus with ALE signal. The address assignment of memory is as shown below.

RAM of 8 kilobytes: 0000H ~ 1FFFH

ROM of 32 kilobytes: 8000H ~ FFFFH

o Connection to Power/Driver PCB will be done by the driver interface bus and this bus consists of the following control lines.

- Clocked serial data bus
- Stepping motor voltage control line
- Operation panel control line
- Sensors input signal line
- Master reset signal line

Phase data of stepping motor and printing data of print head are transmitted to Power/Driver PCB at high speed via the above-mentioned clocked serial data bus. Moreover, the data of DIP switches becomes serial data by means of a shift register and it is taken to CPU by the clocked serial data bus.

2. Interface Specifications

(1) Specifications

Data Transmitting Type : 8 bit Parallel
Synchronizing Method : By externally supplied strobe
Handshake : By *ACK or BUSY
Logic Level : TTL compatible

(2) Pin No. and signal name

PIN No.	RETURN PIN No.	Signal name	PIN No.	RETURN PIN No.	Signal name
1	19	*DSTB	16	—	0 V
2	20	*DATA1	17	—	FRAME GND
3	21	*DATA2			
4	22	*DATA3	18	—	+5 V
5	23	*DATA4	19 ~ 30	—	TWIST PAIR GND
6	24	*DATA5			
7	25	*DATA6			
8	26	*DATA7	31	—	*PRIME
9	27	*DATA8			
10	28	*ACK	32	—	*FAULT
11	29	BUSY	33	—	GND
12	30	PE	34	—	NC
13	—	SLECT	35	—	*FUSE (Note 1)
14	—	*AFXT	36	—	*SLCT IN
15	—	NC			

(Note 1) *FUSE is connected to +5 V via a 3.3 K Ω resistor.

(3) Description on interface signals

- *DSTB: Synchronized pulse of parallel data. The pulse width of this signal must be more than $0.5\mu\text{S}$ at the receiving end.
- *DATA1 to *DATA8: The parallel 8-bit data sent from the host CPU. High level for a logical 1 and LOW level for a logical 0.
- *ACK: Data demanding signal sent from the printer to the host CPU. The pulse width is approximately $5\mu\text{S}$. This is a strobe sent out when the printer goes to READY state.
- BUSY: HIGH level indicates a "printer busy" status to the host CPU. Data sent during BUSY state may not be guaranteed. When this signal goes to LOW level, the printer is in READY condition.
BUSY conditions are as follows:
 - a. During data receive time
 - b. OFF LINE
 - c. In an alarm condition
- PE: Goes to HIGH level when paper runs out. In paper out status, the printer is automatically set to OFF LINE. It cannot be reset to ON LINE status until new paper is inserted.
- SLECT: Connected to +5V via a $3.3\text{K}\Omega$ resistor.
- *AFXT (*AUTO FEED XT): When this signal is set to LOW level, one line is automatically fed after printed by CR code.
- *PRIME (*INIT): Printer initializing signal. When this signal is set to LOW level, that indicates the printer is in the same condition as power on. The contents of the print buffer are cleared. The pulse width of this signal must be more than $50\mu\text{S}$ at the receiving end.
- *FAULT (ERROR): When this signal is in LOW level, the printer is in one of the following three conditions:
 - a. Paper Out
 - b. OFF LINE
 - c. Printer ErrorPrinter error conditions are as follows:
 - Home position sensor cannot be detected by moving the print head at power on.
 - During printing, collation of the current address and the home position sensor did not match.
- *SLCT IN: When this signal is in LOW level, the printer is selected.

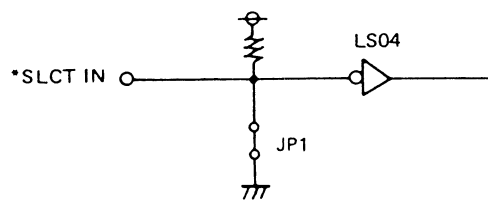


Fig. 2

Since the signal *SLCT IN has the circuitry shown in Fig. 2, caution should be paid to the connection on the HOST side. Driving with TTC IC may cause damage.

- +5 V: Power supply of +5 V. This line must not be used at the HOST side. If used, the printer may be damaged.

The timing chart for data input is shown in Fig.3.

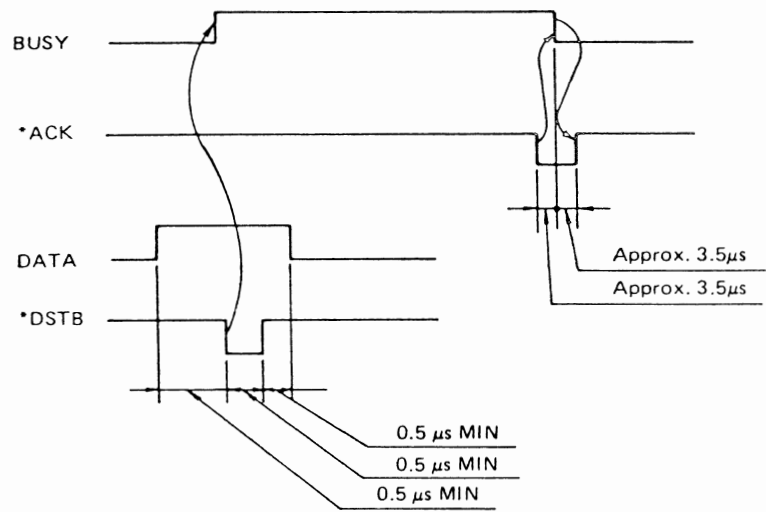


Fig. 3. Timing Chart

3. Specification Setting DIP Switches

3-1. Switches SWI-1, 2 means the following:

SW No.	Function	ON	OFF
SW-1	Cut sheet feeder	Enabled	Disabled
SW-2	Adds line feed to CR code	Enabled	Disabled

3-2. Switches SW1-3,4 indicates the four operation modes according to its status:

SWI-4	SW1-3	Operation mode	Control code
OFF	OFF	mode I	ESC/P
OFF	ON	mode II	
ON	OFF	mode III	
ON	ON	mode IV	IBM-PC

3-3. SW1-5,6,7,8 means the following according to the abovementioned operation mode:

3-3-1. mode I

SW No	Function	ON	OFF
SW1-5	Codes in columns 8th and 9th	Graphic character	Control character
SW1-6	Font of zero	Zero and slash	Normal
SW1-7	Print style	Correspondence quality	Draft
SW1-8	Condensed mode	17 CPI	10 CPI

3-3-2. mode II

SW No.	Function	ON	OFF
SW1-5	Selection of international character (Refer to 3-3-5.)	/	/
SW1-6			
SW1-7			
SW1-8	Page length	12 inches	11 inches

3-3-3. mode III

SW No.	Function	ON	OFF
SW1-5	Codes in columns 8th and 9th	Graphic character	Control character
SW1-6	Selection of international character (Refer to 3-3-5.)	/	/
SW1-7			
SW1-8	Condensed mode	17 CPI	10 CPI

3-3-4. mode IV

SW No.	Function	ON	OFF
SW1-5	IBM character set	SET 2	SET 1
SW1-6	6/8 LPI	8 LPI	6 LPI
SW1-7	Process of LF code	LF operation only	CR+LF operations
SW1-8	Buffer-full process	No printing	Printing

3-3-5. Selection of international character set

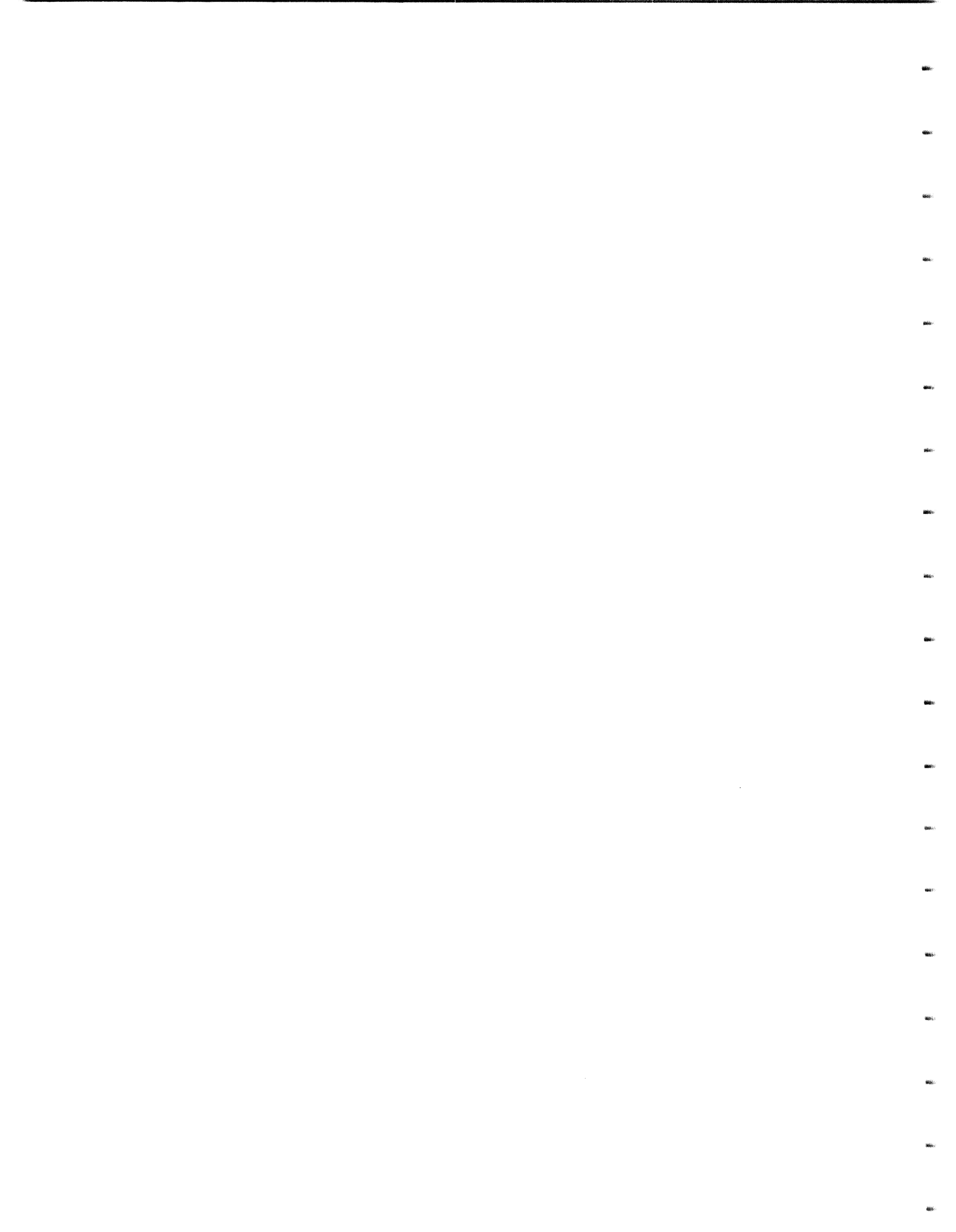
mode II			mode III		Nation
SW7	SW6	SW5	SW7	SW6	
OFF	GFF	OFF	OFF	OFF	USA
OFF	OFF	ON	OFF	ON	FRANCE
OFF	ON	OFF	ON	OFF	GERMANY
OFF	ON	ON	ON	ON	ENGLAND
ON	OFF	OFF	—	—	DENMARK
ON	OFF	ON	—	—	SWEDEN
ON	ON	OFF	—	—	ITALY
ON	ON	ON	—	—	SPAIN

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MPS 1200

PARTS LIST & LOCATION
for INTERFACE PACK (PARALLEL)

(Y8022 SA)



ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	QTY	COMMENT	MANUFACTURER	@¥
1		601212-95	Y8022-40*A	Interface Pack(Parallel) (USA)		1			
2		601212-96	Y8022-20*A	Interface Pack(Parallel) (EU)		1			
3		601212-97	Y8300-01*	Parallel PCB SA		1			
4		601212-98	Y8200-01*	Parallel PWB		1		Eastern	
5	IC8	601212-99	Y2410-102	IC	M50734SP-L	1		Mitsubishi	
6	IC5	601213-00	Y2102-373	IC	M74LS373	1		Mitsubishi Only	
7	IC1	601213-01	Y2102-165	IC	74LS165	1			
8	IC4	601213-02	Y2102-368	IC	74LS368	1			
9	IC3	601213-03	Y2102-004	IC	74LS04	1			
10	IC2	601213-04	Y2101-016	IC	7416	1			
11	(IC7)	601214-09	Y2102-000	IC	74LS00	1	Option		
12	IC10	601213-05	Y2310-312	RAM	M5M5165P-12 or Equivalent	1		Mitsubishi	
13	IC9	601213-06	Y0070-101R	ROM (USA)		1			
14	IC9	601213-07	Y0080-101R	ROM (EU)		1			
15	(IC9)	601213-09	Y7100-128	ROM Socket	DILB28P-8J	1		Burndy	
					C8828-41			Texas	
					6418743-5			AMP	
16	SW1	601213-10	Y7211-008	DIP SW	KSS08-1	1		New Ohto	
					SCS08A			Mitsumi	

ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	QTY	COMMENT	MANUFACTURER	@¥
1	Y1	601213-11	Y7403-805	Oscillator Element	KBR-8.0M	1		Kyocera	
2		601213-12	Y8501-010	Earth Plate		1			
3		601213-13	E90530-10B	(+)PH Screw M3x10 (Brass)		2			
4	RN2, 3	601213-14	Y4400-332	Res. Array	RGLD10X332J	2		Murata	
				1/8W 3.3KΩx10 5%	RGSD10X332J			Murata	
					SE10332J			Fukushima Futaba	
					MRNSA-11P-332J			Kyocera	
5	RN1	601213-15	Y4408-332	Res. Array	RGLD8X332J	1		Murata	
				1/8W 3.3KΩx8 5%	RGSD8X332J			Murata	
					SE8332J			Fukushima Futaba	
					MRNSA-9P-332J			Kyocera	
6	RN4, 5	601213-16	Y4414-103	Res. Array	RGLD4Y103J	2		Murata	
				1/8W 10KΩx4 5%	RGSD4Y103J			Murata	
					FRI4-103J			Fukushima Futaba	
					MRNSB-8P-103J			Kyocera	
7	R1, 2	601213-17	Y4114-102	Res. Carbon 1/4W 1KΩ 5%		2			
8	R4	601213-18	Y4114-105	Res. Carbon 1/4W 1MΩ 5%		1			
9	C1	601213-19	Y5102-470	Cap. Electrolytic 47μF 16V	ECEA1CU470	1		Matsushita	

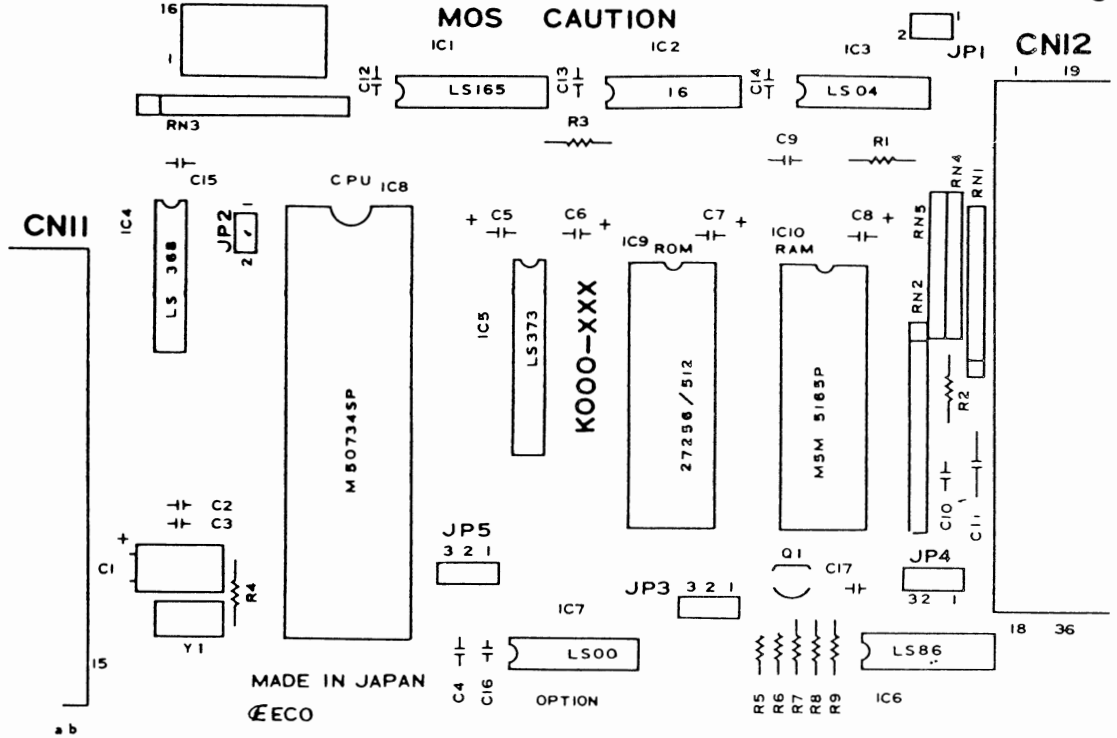
ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	Q'TY	COMMENT	MANUFACTURER	@¥
1	C2, 3	601213-20	Y5216-330	Cap. Ceramic 33pF 50V	RT-HE50TK-CH330J CC45CH1H330JYR DD105-989CH330J50	2		KCK TDK Murata	
2	C9, 10	601213-21	Y5216-102	Cap. Ceramic 1000pF 50V	RT-HE50TK-YB102K CK45B1H102KYR DD104-989B102K50	2		KCK TDK Murata	
3	C4~8,12~17	601213-22	Y5234-103	Cap. Ceramic 1000pF 25V	RT-DSSC50TK- Y5R103M SS45X1E103MYR DD404-959SR103M25	11		KCK TDK Murata	
4	C11	601213-23	Y5802-103	Cap. Film 0.01µF 630V	MDD22J103K	1		Nittsuko	
5	CN11	601213-24	Y6147-130	Connector	128D-030S2B-L14N	1		DDK	
6	CN12	601213-25	Y6140-136	Connector	57LE-40360-7700 (D3)	1		DDK	
7		601213-26	Y8503-21*	ROM Case U		1		T.K.K	
8		601213-27	Y8504-21*	ROM Case L		1		T.K.K	



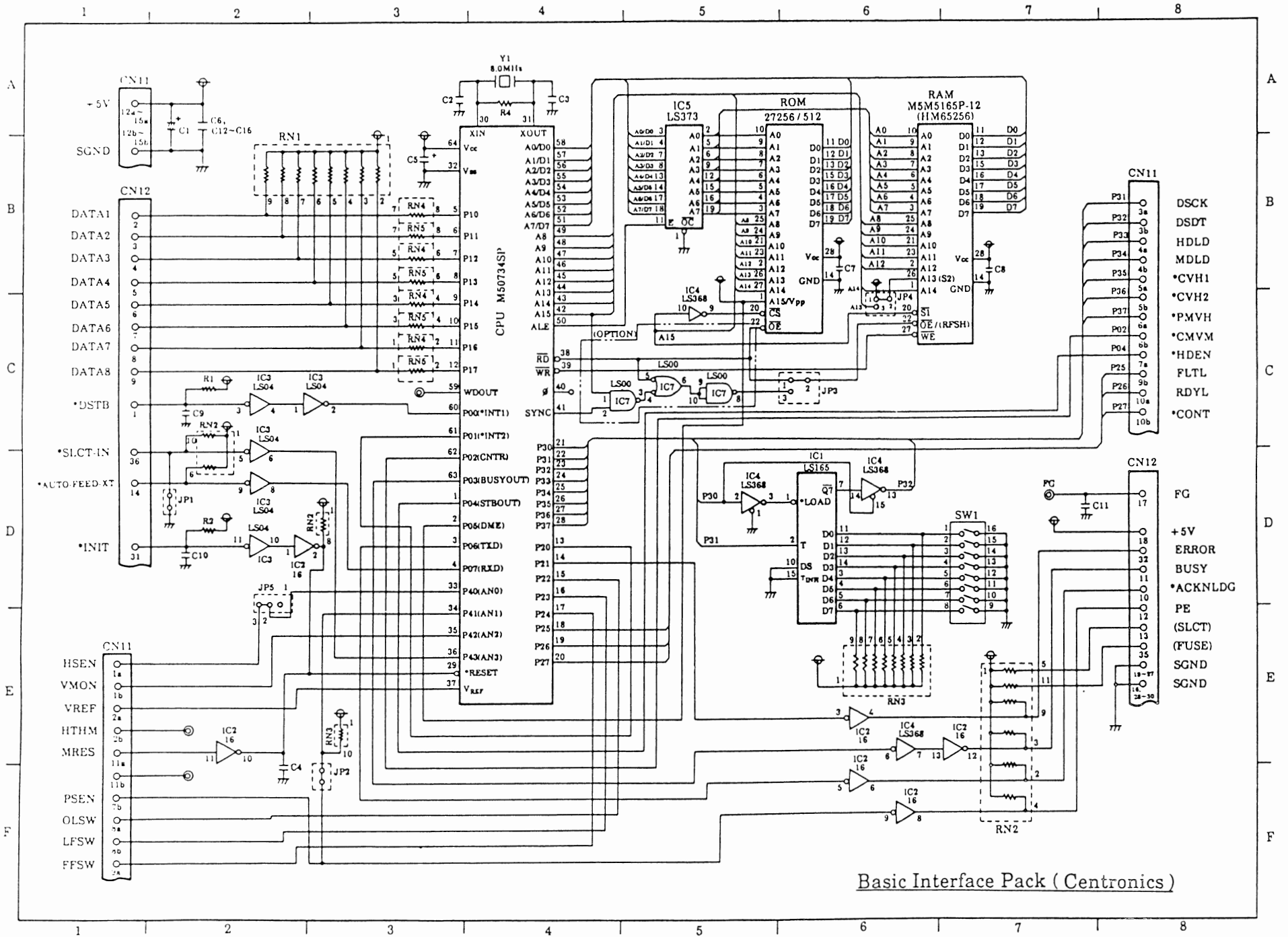
SWI Y8300-3

CITIZEN®

MOS CAUTION



Mounting Diagram (Centronics Parallel BIP)



Commodore Serial BIP

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COMMODORE SERIAL BIP (Basic Interface Pack)

1. Block Diagram

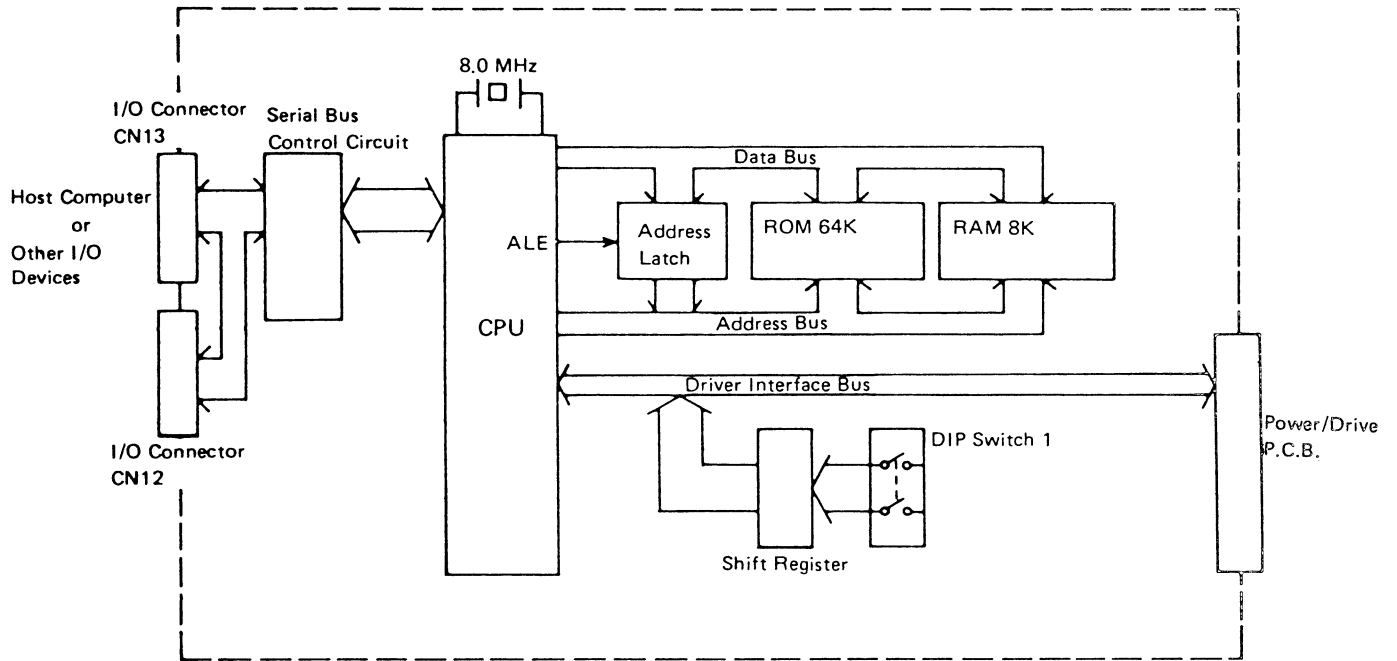


Fig. 1

A block diagram for the Commodore Serial BIP is shown in Fig. 1.

Serial data from the host computer is input through TTL level and converted to parallel data in the serial bus control circuit. The CPU takes in the data when transferring of 1 byte is completed. Printing is started if the data input reaches one line or print start command code such as LF code, CR code, etc. is received.

This unit is controlled by an 8-bit one-chip microcomputer. The clock of CPU is 8.0 MHz and instructions will be executed with a minimum unit of approx. 1 μ S.

The CPU has six independent timers and each of them is used for the following functions:

- Control of printing timing
- Stepping motor driving timing
- Print head current flowing time
- Control of LED indication

The CPU has 36 I/O ports and they are assigned to interface lines for host CPU and interface bus with Power/Driver PCB.

Connection of Power/Driver PCB will be done by the driver interface bus and this bus consists of the following control lines:

- Clocked serial data bus
- Clocked serial clock bus
- Operation panel control line
- Sensors input signal line
- Master reset signal line

The clocked serial data bus is used for reading the status of DIP switches as well as for phase data of stepping motor and printing data of print head, etc.

As the memory, ROM of 64 Kilo-bytes and RAM of 8 Kilo-bytes are provided as standard and the memory mapping is as follows:

RAM of 8 Kilobytes: Control/Input Buffer
ROM of 64 Kilobytes: Program Bank/Data Bank

2. Interface Specifications

(1) Specifications

Interface : Commodore Serial Bus (Clocked serial)
Word Length : 8-bit fixed
Signal Level : TTL

(2) Pin No. and signal name

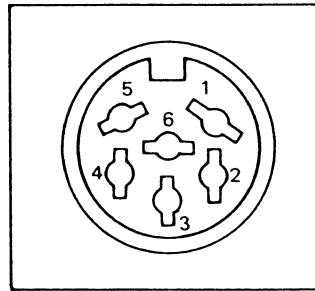


Fig. 2

Table 1

Pin No.	Signal	In/Out
1	SERIAL *SRQ	—
2	GND	—
3	SERIAL ATN	In
4	SERIAL CLK	In
5	SERIAL DATA	In/Out
6	*RESET	In

Note 1: Pin No. 1 SERIAL *SRQ is not connected to this unit.

Note 2: The signal marked with an asterisk * is designated as Active-Low.

Note 3: The column "In/Out" refers to the direction of signal flow as viewed from the printer.

(3) Description on interface signals

- SERIAL *RSQ (SERIAL Service Request): Interrupt request to the host computer. Not used for this unit.
- SERIAL ATN (SERIAL Attention): When this signal is in LOW level, the transferred data is designated as device function (device address or secondary address command) and when it is in HIGH level, the data is designated as a normal one.
- SERIAL CLK: A clock signal for data transfer. All the data are transferred with synchronization of this clock.
Moreover, prior to transferring data, this signal line becomes HIGH level to indicate that the unit is ready for transmission.

- SERIAL DATA: The data is transmitted onto this signal line with syhchronization of SERIAL CLK. The data is established at the rise edge of SERIAL CLK. Moreover, after data transfer, the receiving side sets this signal line to LOW level to indicate that the data is received. This goes to HIGH level when the data is taken in.
- *RESET: When this signal becomes LOW level, master reset is performed on the printer.

(4) Data transfer sequence

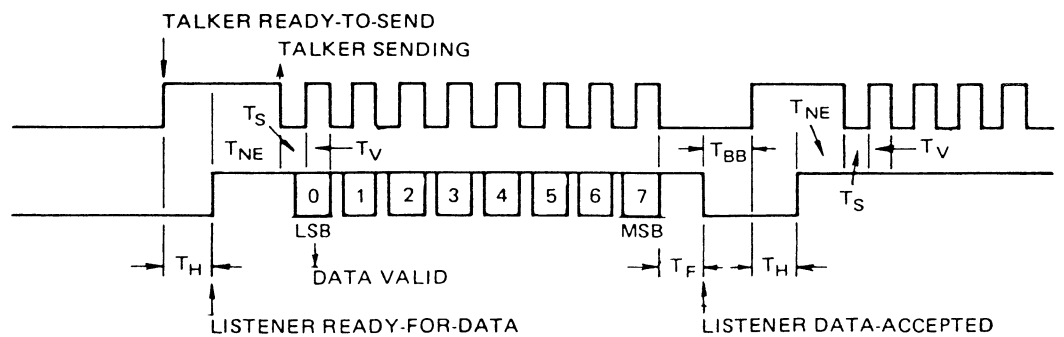
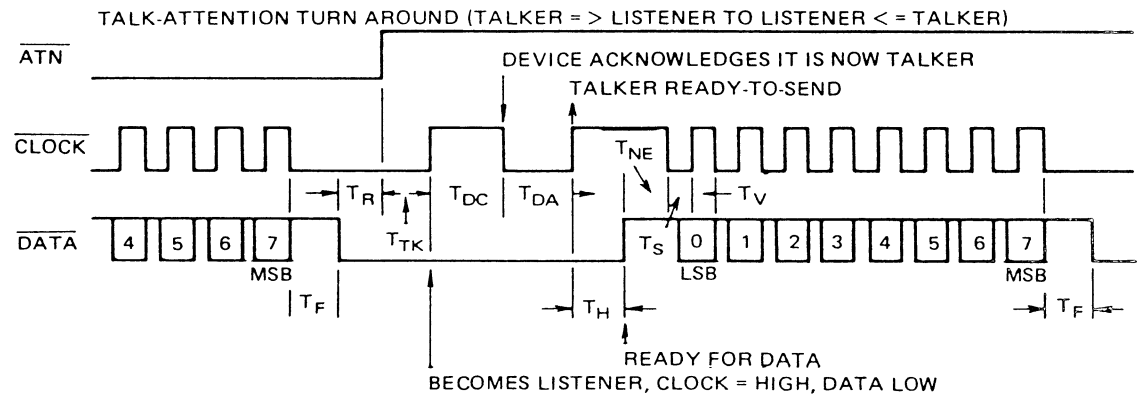
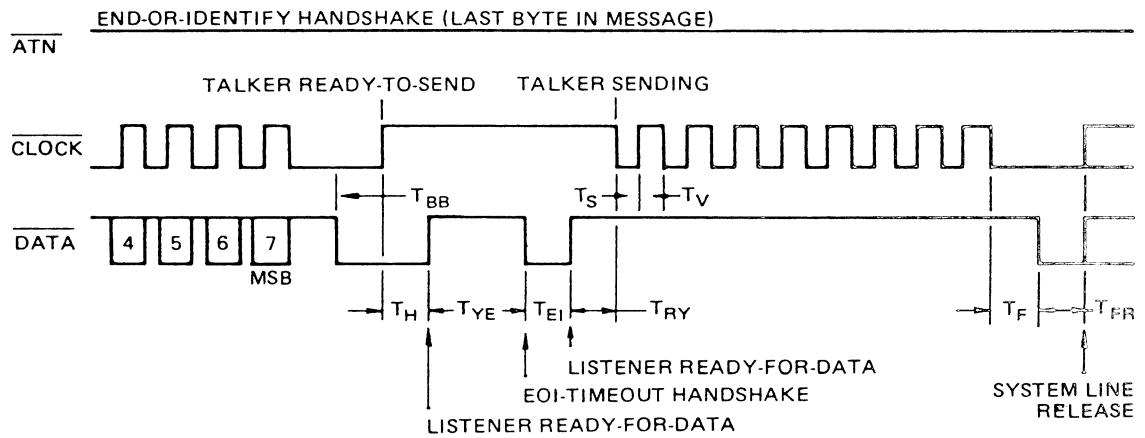
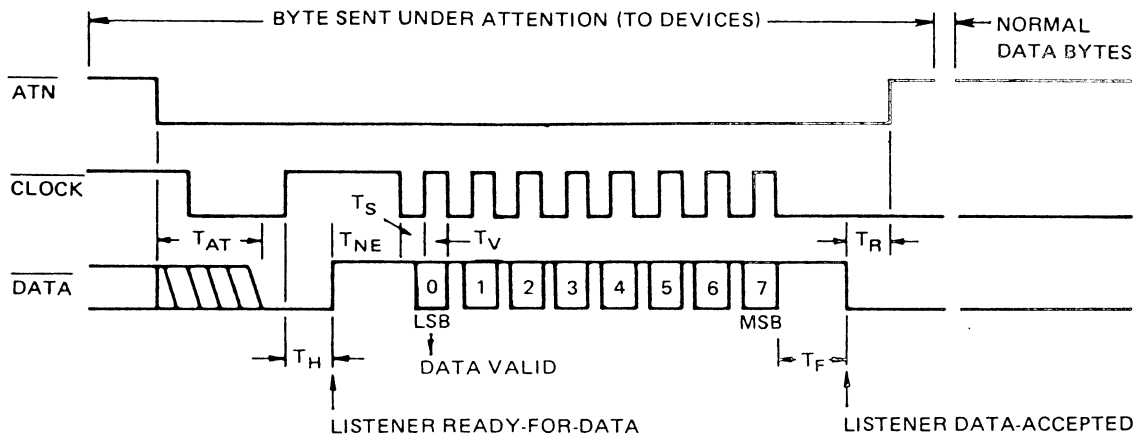


Table 2. Serial Bus Timing

Description	Symbol	Min.	Typ.	Max.
ATN RESPONSE (REQUIRED) ¹	T_{AT}	—	—	1000 μs
LISTENER HOLD OFF	T_H	0	—	∞
NON-EOI RESPONSE TO RFD ²	T_{NE}	—	40 μs	200 μs
BIT SET-UP TALKER ⁴	T_S	20 μs	70 μs	—
DATA VALID	T_V	20 μs	20 μs	—
FRAME HANDSHAKE ³	T_F	0	20 μs	1000 μs
FRAME TO RELEASE OF ATN BETWEEN BYTES TIME	T_{RB}	—	—	—
EOI RESPONSE TIME	T_{YE}	—	256 μs	—
EOI RESPONSE HOLD TIME	T_{EI}	60 μs	—	—
TALKER RESPONSE LIMIT	T_{RY}	0	30 μs	60 μs
BYTE-ACKNOWLEDGE ⁴	T_{PR}	20 μs	30 μs	—

Notes:

1. If maximum time exceeded, device not present error.
2. If maximum time exceeded, EOI response required
3. If maximum time exceeded, frame error.
4. T_Y and T_{PR} minimum must be 60 μs for external device to be a talker.

3. Specification Setting DIP Switches

Table 3. Commodore Serial Interface Switches

SW No.	Function	OFF	ON	Factory Setting
1-1	Device Select	4	5	OFF
1-2	ASCII Translation	PET ASCII	ASCII	OFF
1-3	Control Code Mode	Commodore	Epson	OFF
1-4	NLQ/Draft	Draft	NLQ	OFF
1-5	Page Length	11"	12"	OFF
1-6	Paper End Detector	Enable	Disable	OFF
1-7	Auto Line Feed*	Disable	Enable	OFF
1-8	Normal/Compressed	Normal	Compressed	OFF

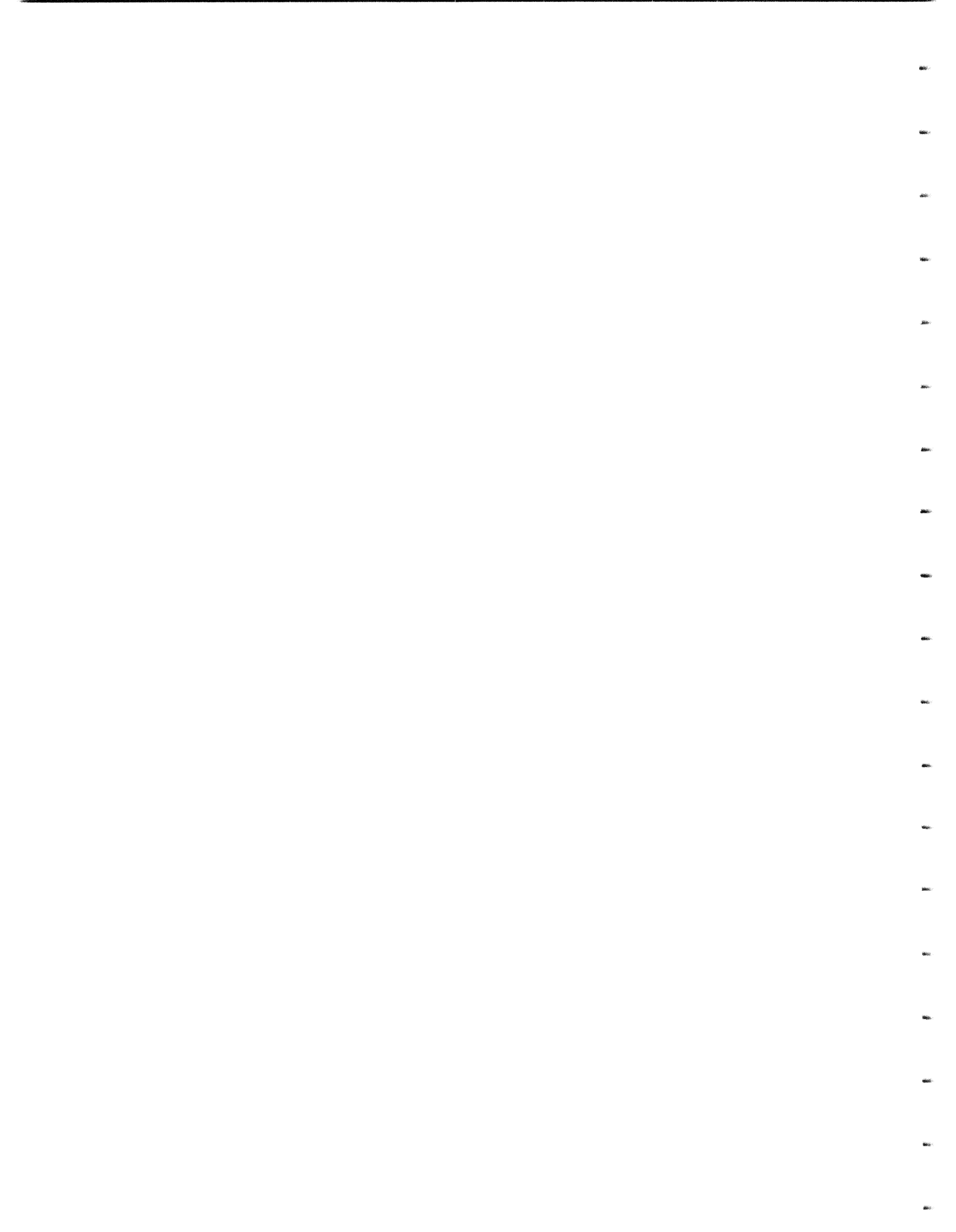
Table 4. European Versions Only:

SW No.	Function	OFF	ON	Factory Setting
2-1 2-2 2-3	Select International Character Set	Refer to (Table 5.)		OFF OFF OFF
2-4	Unused	----	----	OFF

Table 5. International Character:

Country	SW 2-1	SW 2-2	SW 2-3
USA/UK/Netherlands	OFF	OFF	OFF
Denmark/Norway	OFF	OFF	ON
Sweden/Finland	OFF	ON	OFF
Germany	OFF	ON	ON
France/Belgium	ON	OFF	OFF
Italy	ON	OFF	ON
Switzerland	ON	ON	OFF
Spain	ON	ON	ON

* Valid only when SW1-3 is "ON" Ignore if SW1-3 is "OFF".



MPS 1200 (USA)

PARTS LIST & LOCATION
for INTERFACE PACK (SERIAL)

(Y8033 SA)

PARTS LIST for MPS 1200 (USA)

TITLE: Interface Pack (Serial)

SA NO. Y8033SA

SHEET NO. 1/3

PARTS NO. 601213-28 (Y8033-40*A)

REV. NO. A

ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	QTY	COMMENT	MANUFACTURER	@¥
1		601213-28	Y8033-40*A	Interface Pack (Serial)		1			
2		601213-29	Y8306-01*	Serial PCB SA		1			
3		601213-30	Y8206-01*	Serial PWB		1		Eastern	
4	IC7	601212-99	Y2410-102	IC	M50734SP-L	1		Mitsubishi	
5	IC5	601213-00	Y2102-373	IC	M74LS373	1		Mitsubishi Only	
6	IC1	601213-01	Y2102-165	IC	74LS165	1			
7	IC4	601213-02	Y2102-368	IC	74LS368	1			
8	IC6	601213-35	Y2102-008	IC	74LS08	1			
9	IC2	601213-04	Y2101-016	IC	7416	1			
10	IC3	601213-37	Y2102-014	IC	74LS14	1			
11	IC10	601213-38	Y2102-161	IC	74LS161	1			
12	IC11	601213-39	Y2102-164	IC	74LS164	1			
13	IC12	601213-40	Y2201-040	IC	4040B	1			
14	IC9	601213-05	Y2310-312	RAM	M5M5165P-12 or Equivalent	1		Mitsubishi	
15	IC8	601213-42	Y4050-302R	ROM		1			
16	(IC8)	601213-09	Y7100-128	ROM Socket	DILB28P-8J C8828-41 6418743-5	1		Burndy Texas AMP	

ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	Q'TY	COMMENT	MANUFACTURER	@¥
1	SW1	601213-10	Y7211-008	DIP SW	KSS08-1 SCS08A	1		New Ohto Mitsumi	
2	Y1	601213-11	Y7403-805	Oscillator element	KBR-8.0M	1		Kyocera	
3		601213-47	Y8501-21*	Earth Plate		1			
4		601213-48	E90530-06	(+)PH Screw M3x6		2			
5	RN1	601213-49	Y4407-102	Res. Array 1/8W 1KΩx7 5%	RGLD7X102J RGSD7X102J SE7102J MRNSA-8P-102J	1		Murata Murata Fukushima Futaba Kyocera	
6	RN2	601213-15	Y4408-332	Res. Array 1/8W 3.3KΩx8 5%	RGLD8X332J RGSD8X332J SE8332J MRNSA-9P-332J	1		Murata Murata Fukushima Futaba Kyocera	
7	R1	601213-18	Y4114-105	Res. Carbon 1/4W 1MΩ 5%		1			
8	R2, 3, 4	601213-52	Y4114-332	Res. Carbon 1/4W 3.3KΩ 5%		3			
9	C1	601213-19	Y5102-470	Cap. Electrolytic 47μF 10V	ECEA1CU470	1		Matsushita	
10	C2, 3	601213-20	Y5216-330	Cap. Ceramic 33pF 50V	RT-HE50TK-CH330J CC45CH1H330JYR DD105-989CH330J50	2		KCK TDK Murata	

ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTSNAME	TYPE	QTY	COMMENT	MANUFACTURER	@¥
1	C4~10, 12~17	601213-22	Y5234-103	Cap. Ceramic 0.01μF 25V	RT-DSSC50TK- Y5R103M SS45X1E103MYR DD404-959SR103M25	13		KCK TDK Murata	
2	CN11	601213-97	Y6147-130	Connector	128D-030S2B-L14N	1		DDK	
3	CN12, 13	601213-57	Y6190-606	Connector	TCS-4460-01-1011 150-06-30-544	2		Hosiden Elec. Mitsumi	
4		601213-26	Y8503-21*	ROM Case U		1		T.K.K	
5		601213-27	Y8504-21*	ROM Case L		1		T.K.K	



MPS 1200 (EU)

PARTS LIST & LOCATION
for INTERFACE PACK (SERIAL)

(Y8033 SA)

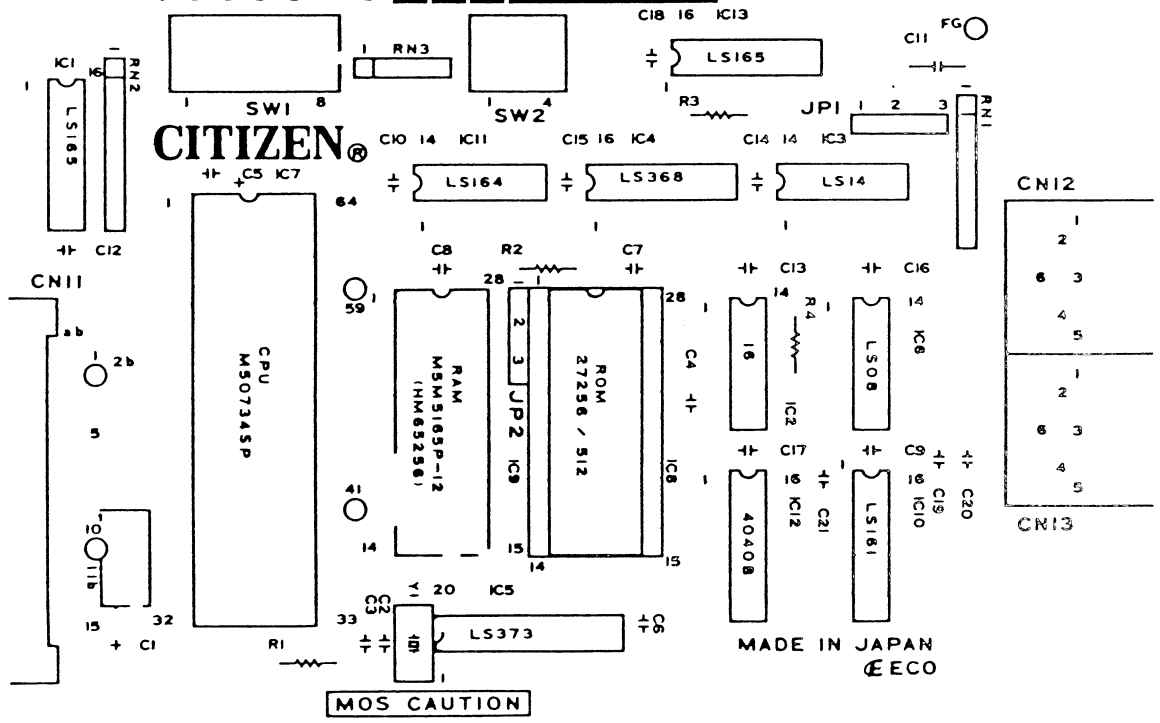
ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	QTY	COMMENT	MANUFACTURER	@¥
1		601213-60	Y8033-20*A	Interface Pack (Serial)		1			
2		601213-61	Y8306-11*	Serial PCB SA		1		Eastern	
3		601213-62	Y8206-01*	Serial PWB		1		Eastern	
4	IC7	601212-99	Y2410-102	IC	M50734SP-L	1		Mitsubishi	
5	IC5	601213-00	Y2102-373	IC	M74LS373	1		Mitsubishi Only	
6	IC1, 13	601213-01	Y2102-165	IC	74LS165	2			
7	IC4	601213-02	Y2102-368	IC	74LS368	1			
8	IC6	601213-35	Y2102-008	IC	74LS08	1			
9	IC2	601213-04	Y2101-016	IC	7416	1			
10	IC3	601213-37	Y2102-014	IC	74LS14	1			
11	IC10	601213-38	Y2102-161	IC	74LS161	1			
12	IC11	601213-39	Y2102-164	IC	74LS164	1			
13	IC12	601213-40	Y2201-040	IC	4040B	1			
14	IC9	601213-05	Y2310-312	RAM	M5M5165P-12 or Equivalent	1		Mitsubishi	
15	IC8	601213-43	Y4060-201R	ROM		1			
16	(IC8)	601213-09	Y7100-128	ROM Socket	DILB28P-8J C8828-41 6418743-5	1		Burndy Texas AMP	

ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	QTY	COMMENT	MANUFACTURER	@¥
1	SW1	601213-10	Y7211-008	DIP SW	KSS08-1 SCS08A	1		New Ohto Mitsumi	
2	SW2	601213-78	Y7211-004	DIP SW	KSS04	1		New Ohto	
3	Y1	601213-11	Y7403-805	Oscillator Element	KBR-8.0M	1		Kyocera	
4		601213-47	Y8501-21*	Earth Plate		1			
5		601213-48	E90530-06	(+)PH Screw M3x6		2			
6	RN1	601213-49	Y4407-102	Res. Array 1/8W 1KΩx7 5%	RGLD7X102J RGSD7X102J SE7102J MRNSA-8P-102J	1		Murata Murata Fukushima Futaba Kyocera	
7	RN2	601213-15	Y4408-332	Res. Array 1/8W 3.3KΩx8 5%	RGLD8X332J RGSD8X332J SE8332J MRNSA-9P-332J	1		Murata Murata Fukushima Futaba Kyocera	
8	RN3	601213-14	Y4400-332	Res. Array 1/8W 3.3KΩx4 5%	RGLD4X332J RGSD4X332J SE4332J MRNSA-5P-332J	1		Murata Murata Fukushima Futaba Kyocera	
9	R1	601213-18	Y4114-105	Res. Carbon 1/4W 1MΩ 5%		1			
10	R2, 3, 4	601213-52	Y4114-332	Res. Carbon 1/4W 3.3KΩ 5%		3			

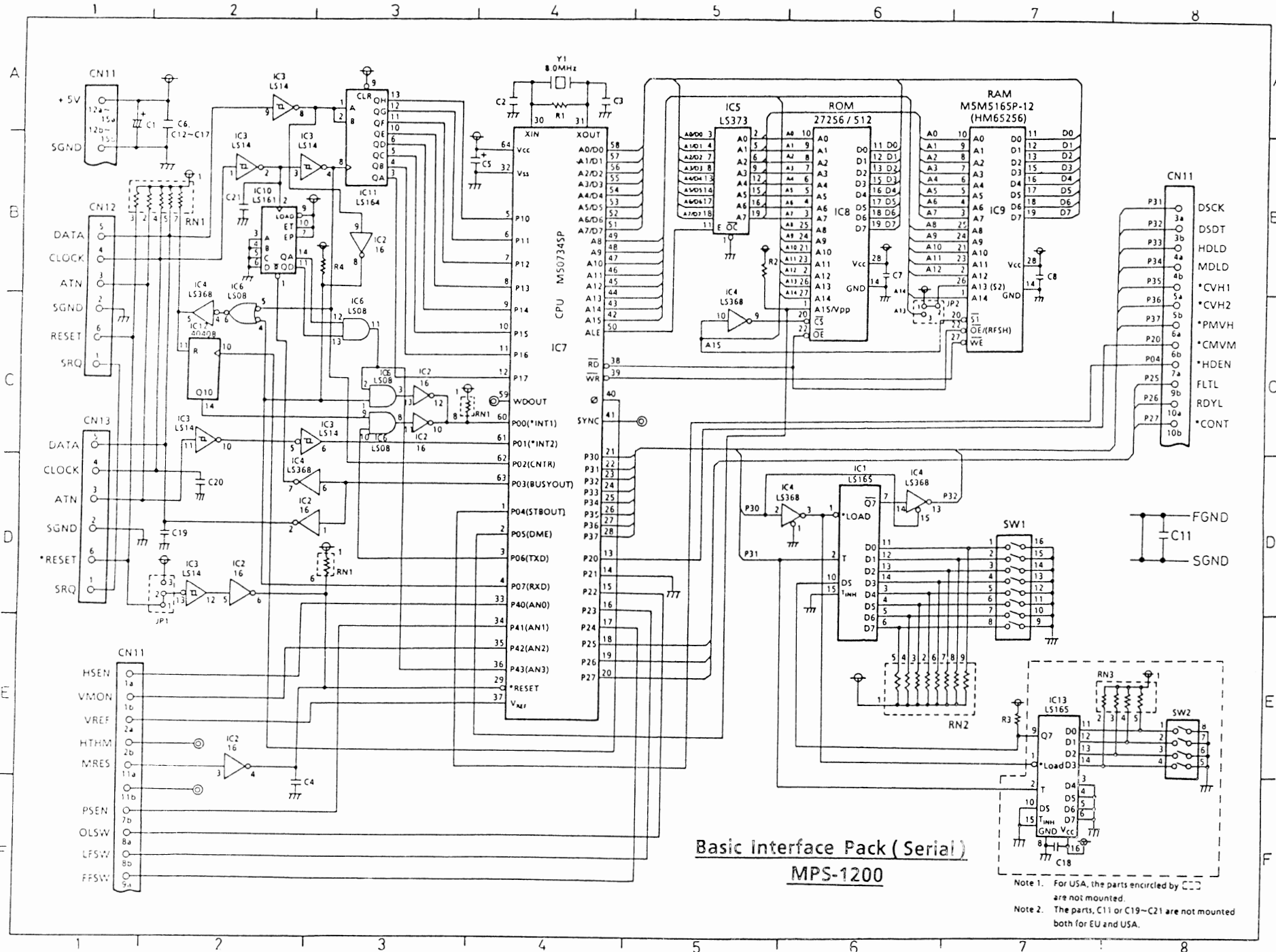
ITEM NO	LOCATION	COMMODORE PARTS NO	VENDOR PARTS NO	PARTS NAME	TYPE	QTY	COMMENT	MANUFACTURER	@¥
1	C1	601213-19	Y5102-470	Cap. Electrolytic 47µF 10V	ECEA1CU470	1		Matsushita	
2	C2, 3	601213-20	Y5216-330	Cap. Ceramic 33pF 50V	RT-HE50TK-CH330J CC45CH1H330JYR DD105-989CH330J50	2		KCK TDK Murata	
3	C4~10, 12~18	601213-22	Y5234-103	Cap. Ceramic 0.01µF 25V	RT-DSSC50TK- Y5R103M SS45X1E103MYR DD404-959SR103M25	14		KCK TDK Murata	
4	CN11	601213-24	Y6147-130	Connector	128D-030S2B-L14N	1		DDK	
5	CN12, 13	601213-57	Y6190-606	Connector	TCS-4460-01-1011 150-06-30-544	2		Hosiden Elec. Mitsumi	
6		601213-26	Y8503-21*	ROM Case U		1		T.K.K	
7		601213-27	Y8504-21*	ROM Case L		1		T.K.K	



Y8306-0



Mounting Diagram (Commodore Serial BIP)



Basic Interface Pack (Serial)
MPS-1200

Note 1. For USA, the parts encircled by \square are not mounted.
 Note 2. The parts, C11 or C19-C21 are not mounted both for EU and USA.

Date: _____

Manual Name: _____

Part Number: _____

Issue Date: _____

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