

**SAMSUNG**

# Laser Printer

ML-80(Engine)

ML-84/QwikLaser 84

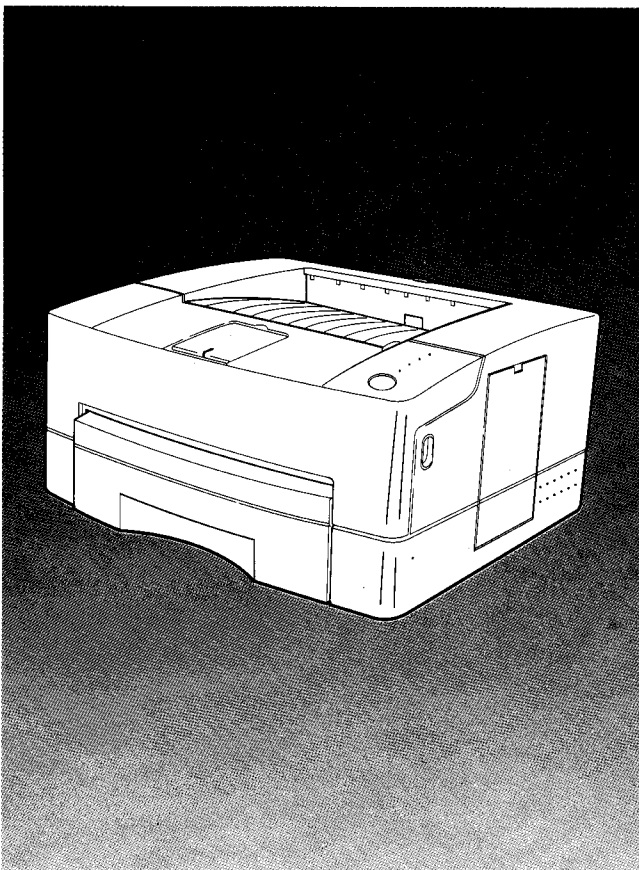
ML-85/QwikLaser 85

ML-85G/QwikLaser 85G



# **SERVICE** Manual

## LASER PRINTER



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## 2-4 Recommended Test Equipment

Samsung recommends the following equipment when servicing the Laser Printer.

Digital Multimeter	A digital multimeter with attached LED or LCD 4-digit Panel.
Oscilloscope	A digitizing oscilloscope which can measure more than 100MHz
High Voltage probe	A high voltage probe which can measure about less than 10KV
DCU (Diagnostic Control Unit)	DCU can be supplied from Samsung which can easily shows the engine's Error status

Table 2-4-1 Equipment List

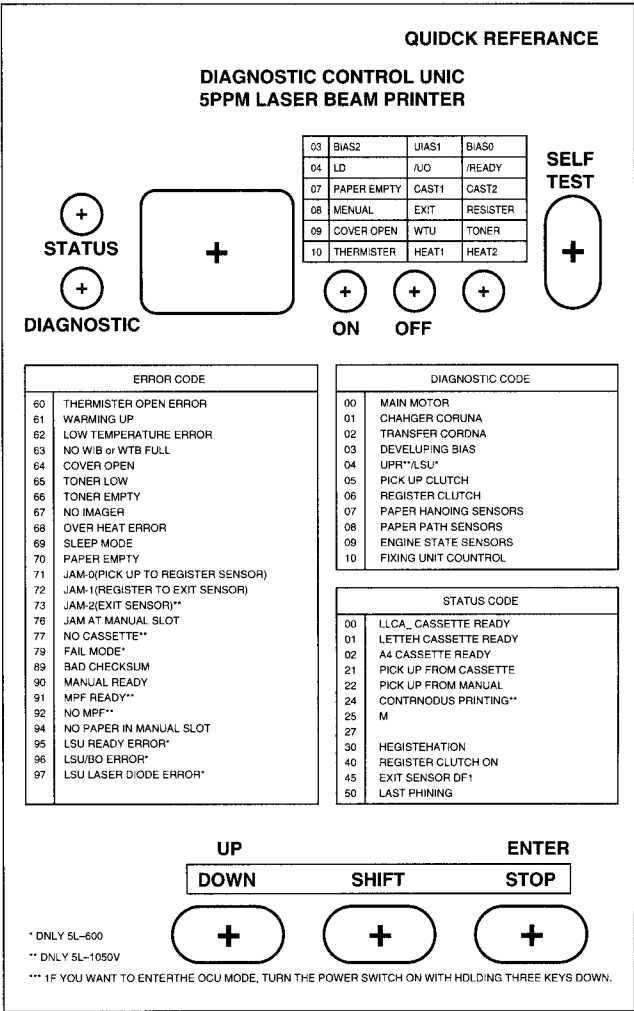


Figure 2-4-1 DCU

## 2-5 DCU Control

If you need to operate DCU, press the three buttons (DOWN+SHIFT+STOP) at one time when you plug the power cord on wall outlet ('POWER ON'). Then check the following procedure.

### 2-5-1 Diagnostic Code Specification

CODE	DESCRIPTION
00	MAIN MOTOR TEST
01	MHV TEST
02	THV NEG TEST
03	THV TEST
04	DEV BIAS TEST
05	LSU TEST
06	PICKUP CLUTCH TEST
07	PAPER EMPTY SENSOR
08	FEED & EXIT SENSOR
09	COVER OPEN SERSOR
10	FIXING UNIT TEST
11	Hot Burn Test
12	Clean Page Printing

### 2-5-2 DCU Control Method

CODE	KEY	STANDBY MODE	RUNNING MODE
00	ENTER	Run Main Motor	No Action
	SHIFT+STOP	No action	Stop Main Motor
	UP	Increment DCU Code No (01, MHV Test)	No Action
	SHIFT+DOWN	Decrement DCU Code No (10, Fuser Test)	No Action
01	ENTER	MHV On	No Action
	SHIFT+STOP	No Action	MHV Off
	UP	Increment DCU Code No (02, ThvNeg Test)	No Action
	SHIFT+DOWN	Decrement DCU Code No (00, Motor Test)	No Action
02	ENTER	TevNeg On	No Action
	SHIFT+STOP	No Action	Thv Neg Off
	UP	Increment DCU Code No (03, Thv Test)	No Action
	SHIFT+DOWN	Decrement DCU Code No (01, Mhv Test)	No Action
03	ENTER	Thv On	No Action
	SHIFT+STOP	No Action	Thv Off
	UP	Increment DCU Code No (04, DevBias Test)	No Action
	SHIFT+DOWN	Decrement DCU Code No (02, ThvNeg Test)	No Action
04	ENTER	DevBias On	No Action
	SHIFT+STOP	No Action	DevBias Off
	UP	Increment DCU Code No (05, LSU Test)	Inc ModeCount(Inc Voltage)
	SHIFT+DOWN	Decrement DCU Code No (03, Thv Test)	Dec ModeCount(Dec Voltage)
05	ENTER	LSU Motor On	No Action
	SHIFT+STOP	No Action	LSU Motor Off
	UP	Increment DCU Code No (06, P-Clt Test)	Inc ModeCount
	SHIFT+DOWN	Decrement DCU Code No (04, DevBias Test)	Dec ModeCount

CODE	KEY	STANDBY MODE	RUNNING MODE
06	ENTER	PickUp Clutch ON	No Action
	SHIFT+STOP	No Action	PickUp Clutch Off
	UP	Increment DCU Code No (07, PE Sensor)	No Action
	SHIFT+DOWN	Decrement DCU Code No (05, LSU Test)	No Action
07	ENTER	Note)	—
	SHIFT+STOP	Note)	—
	UP	Increment DCU Code No (08, Feed & Exit)	—
	SHIFT+DOWN	Decrement DCU Code No (06, P-Clt Test)	—
08	ENTER	Note)	—
	SHIFT+STOP	Note)	—
	UP	Increment DCU Code No (09, Cover Sensor)	—
	SHIFT+DOWN	Decrement DCU Code No (07, PE Sensor)	—
09	ENTER	Note)	—
	SHIFT+STOP	Note)	—
	UP	Increment DCU Cond No (10, Fuser Test)	—
	SHIFT+DOWN	Decrement DCU Code No (08, Feed & Exit)	—
10	ENTER	Fuser On	No Action
	SHIFT+STOP	No Action	Fuser OFF
	UP	Increment DCU Code No (11, Hot Burn Test)	Inc ModeCount (Inc Temperature)
	SHIFT+DOWN	Decrement DCU Code No (09, CoverSensor)	Dec ModeCount (Dec Temperature)
11	ENTER	Hot Burn Test	No Action
	SHIFT+STOP	No Action	No Action
	UP	Increment DCU Code No (12, Clean Page)	No Action
	SHIFT+DOWN	Decrement DCU Code No (10, Fuser Test)	No Action
12	ENTER	Clean Page Printing	No Action
	SHIFT+STOP	No Action	No Action
	UP	Increment DCU Code No (00, Motor Test)	No Action
	SHIFT+DOWN	Decrement DCU Code No (11, Hot Burn)	No Action

#### CODE 04) Dev Bias Test

ModeCount	Action	Led
00	Bias Light	1st LED On
01	Bias Medium	2nd LED On
02	Bias Dark	1st & 2nd LED on
03	Bias B Dark	3rd LED on

\* All LEDs are off on standby state

**CODE 05) LSU Test**

ModeCount	Action	Led
00	LSU Motor On	1st LED On
01	LSU Motor On & LD On	2nd LED On

\* In 01 Mode, The 3rd LED is on if LSU is ready. Otherwise 3rd LED is Off.

\* All LEDs are off on standby state

**CODE 07) Paper Empty Sensor (Standby State)**

Sensor State	LED
On	3rd LED On
Off	3rd LED Off

**CODE 08) Feed & Exit Sensor (Standby State)**

Exit	Feed	2nd LED	1st LED
Off	Off	Off	Off
Off	On	Off	On
On	Off	On	Off
On	On	On	On

**CODE 09) Cover Sensor (Standby State)**

Sensor State	LED
On	3rd LED On
Off	3rd LED Off

**CODE 10) Fuser Test**

ModeCount	Action	Led
00	Standby Heat	1st LED On
01	Print Heat	2nd LED On
02	Over Heat	3rd LED On

\* All LEDs are off on standby state

### 2-5-3 DCU Status Progress

<DCU CODE>

DCU CODE	
00	Ready (Legal)
01	Ready (Letter)
02	Ready (A4)
20	Print Start
23	Print Start (Second Paper)
21	Print Start (Manual)
30	Feed Sensor 1st On
33	Feed Sensor 1st On(Second Paper)
31	Feed Sensor 1st Off
34	Feed Sensor 1st Off(Second Paper)
40	Feed Seonsor 2nd ON
43	Feed Sensor 2nd On(Second Paper)
47	Feed Sensor 2nd Off
50	Paper Out
60	Open Fuser Error
61	Warm Up
62	Low Heat Error
64	Cover Open Error
68	Over Heat Error
70	No Paper or No Cassette
71	Jam0
72	Jam1
73	Jam2
90	Manual Mode

## 3 Product Information

### 3-1 Specifications

Specifications are correct at the time of printing. Product specifications are subject to change without notice.

Item		Description	Remarks
Type		Desktop Page Printer	Small Footprint
Print Method		Electrophotography with Laser Beam Imaging	
Print Speed		8PPM (page per minute)	
Resolution		True 600*600DPI (Dots per Inch)	ML-80 Engine
Paper Handling		Input Universal 150 sheet paper tray to hold the various sizes of paper, A4, Letter, Executive and Legal Paper. Output 100 sheet face down, single sheet face up	
Display Panel and Control		Key, 4LEDs indicate printer status (1 red, 2 amber, 1 green) On screen printer set up and status for DOS and Windows 3.1 Windows 3.1 Driver	
Warm Up Time		Less than 20 sec	At room temperature
First Print Time		Less than 20 sec	
Power Consumption		Maximum ; 630 watts, RMS ; 150 watts Sleep ; less than 10 watts	
Printer Life		100,000 pages printing or 5 years	
Power Requirements		AC 100 – 120V, 50/60Hz : (for North America) AC 220 – 240V, 50/60hz : (for Europe)	
External Dimensions		(W) * (D) * (H) 360 * 367 * 176 mm	
Weight		Under 9Kg	
Acoustic Noise		Printing : < 47dB(a) Standby : < 29dB(a)	
Operating Environment		Temperature : 50~90°F (10~32°C) Humidity : 20~80% Relative Humidity	
Printer Controller (CPU)	ML-84	Motorola MC68322FT20 (20MHz Printer Controller)	
	ML-85	Motorola MC68322FT20 (20MHz Printer Controller)	
	ML-85G	No CPU	Host Based Printing System
Print Mode (Emulations)	ML-84	PCL4.5 (HP LaserJet IIP) Compatible (300DPI) MicroSoft Windows Printing System (300/600DPI)	
	ML-85	PCL5e (HP LaserJet 4) Compatible MicroSoft Windows Printing System (300/600DPI)	
	ML-85G	Microsoft Windows Printing System(300/600DPI)	
Internal Fonts	ML-84	Bitmap Fonts : 7	
	ML-85	Scalable Font : 45, Bitmap Fonts : 1	
	ML-85G	Windows TrueType Soft Fonts.	
Memory	ML-84	Standard : 1.5 Mbyte or 1Mbyte One optional 72 pin SIMM Connector : (0.5Mbyte, 1Mbyte, 4Mbyte, 16Mbyte)	Up to 17.5Mbyte
	ML-85	Standard : 2 Mbyte One optional 72 pin SIMM Connector : (0.5Mbyte, 1Mbyte, 1.5Mbyte, 2Mbyte, 4Mbyte, 8Mbyte, 16Mbyte)	Up to 18Mbyte
	ML-85G	Standard : 0.5Mbyte with no option	
Interface	ML-84	Parallel : IEEE P1284 compatible Serial : RS-232C (Option)	
	ML-85	Parallel : IEEE P:284 compatible Serial : RS-232C (Option)	
	ML-85G	Parallel : IEEE P1284 compatible with no serial option	

# 7. Troubleshooting

## 7-1. Print Quality

Error Status	Check	Solution
Vertical black line and band	1. Bad blade of Imager	1. Change Imager 2. Replace blade
Vertical white line	1. LSU window contamination 2. Blade	1. Clean LSU window 2. If not LSU, change Imager
No image	1. Imager's stable position 2. Seal tape is removed? 3. GND OPC is well grounded? 4. LSU running well? 5. Lower toner? 6. Bias voltage is normal? 7. Compare new imager with present one 8. Check transfer, charger voltage output 9. Is there video data from controller?	1. Take out and again insert imager 2. Removing seal tipe 3. Measure the resistance between frame ground and the ground spring attached frame. Confirm stabel ground. Unless bad ground, detach cabinet, check where is bad point 4. Refer to LSU abnormal 5. Normal bias = -300V 6. Shake imager and print. If a liitke good, toner is empty 7. If new is good, change 8. Charger = - 1.4kV Transfer = +1.0kV±5% in DCU mode Supply = - 450V Bias = - 300V 9. Test engine test pattern with DCU
Light image	1. Check seal tape removing 2. LSU light power normal 3. Enough toner 4. High charger voltage? 5. Lower bias voltage 6. Contamination of high volatge contact 7. Transfer volatge and roller	1. Check 2. LSU light power check is difficult. Compare with new one and estimate. 3. Check 4. Measure all high voltage output. 5. Leakage toners cause bad contact and increase contact resistance. Clean the leakage toner.
Dark image	1. LSU light power normal 2. High voltage output 3. Bad high voltage contact	1. Refer to light image. 2. Refer to light image. 3. Refer to light image.
Background	1. High voltage output	1. Refer to light image.
Ghost	1. High voltage output 2. Erasing lamp 3. Bad high voltage contact	1. Refer to light image. 2. Check the turn -on led array 3. Refer to light image.
Stains on back of paper	1. Contamination of transfer roller 2. Stains of paper path 3. Fuser's contamination	1. Clean the transfer roller with soft cloth. 2. Clean the area of paper path with cloth or air cleaner. 3. Refer to fuser disassembly.



Error Status	Check	Solution
Poor Fusing	<ol style="list-style-type: none"> <li>1. Use recommended paper?</li> <li>2. Check fusing temperature</li> <li>3. Any stains?</li> </ol>	<ol style="list-style-type: none"> <li>1. Should use recommended paper</li> <li>2. Check engine controller board. If you have not thermometer, measure the thermistor voltage to CPU. If <math>2.98V \pm 5\%</math> in printing CPU works well. If not, replace CPU. If so, disassemble fuser and check the thermistor contact.</li> <li>3. Clean pressure roller and thermistor if not fixed, replace thermistor.</li> </ol>
Partial blank image (not periodic)	<ol style="list-style-type: none"> <li>1. Toner quantity</li> <li>2. Different pressure force of transfer roller</li> <li>3. Printable recommended paper</li> </ol>	<ol style="list-style-type: none"> <li>1. Change imager</li> <li>2. Check left and right spring of transfer roller.</li> <li>3. Use recommended paper</li> </ol>
Partial blank image (periodic)	<ol style="list-style-type: none"> <li>1. Charger roller scar or particle</li> <li>2. Develop roller scar or particle</li> <li>3. OPC scar or particle</li> <li>4. Transfer roller scar or particle</li> <li>5. Heat roller scar or particle</li> <li>6. Pressure roller scar or particle</li> </ol>	* Refer to each roller's period and estimate abnormal roller
Different image density (left and right)	<ol style="list-style-type: none"> <li>1. Charge roller's pressure force unbalance</li> <li>2. Dev. roller and OPC or Dev. roller and blade's pressure force unbalance</li> <li>3. Transfer roller's pressure force unbalance of each side</li> </ol>	<ol style="list-style-type: none"> <li>1. Change imager</li> <li>2. Change imager</li> <li>3. Check left and right spring</li> </ol>
Horizontal abnormal band	<ol style="list-style-type: none"> <li>1. Each high voltage contact's contamination</li> <li>2. Charge roller's contamination</li> <li>3. Bad contact of charge roller and OPC</li> <li>4. Bad contact of dev. roller and OPC</li> <li>5. Bad contact of supply and dev. roller</li> <li>6. Bad contact of OPC and transfer roller</li> <li>7. Contamination of heat roller</li> <li>8. LSU misworking</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean each contact and check good contact</li> <li>2. Clean charge roller by DCU's cleaning mode</li> <li>3. Replace imager</li> <li>4. Replace imager</li> <li>5. Replace imager</li> <li>6. Replace imager or reinsert imager</li> <li>7. Replace fuser unit</li> <li>8. Check engine controller and refer to LSU error</li> </ol>

No	Roller	Abnormal image period	Kind of abnormal image	Remark
1	OPC DRUM	94.2mm	Black spot, white spot	
2	Charge roller	37.7mm	Black spot, white spot	
3	Supply roller	21.3mm	Horizontal density band	
4	Develop roller	25.8mm	Horizontal density band	
5	Transfer roller	47.1mm	Back side contamination	
6	Heat roller	56.4mm	Black spot, white spot, vertical band	
7	Pressure roller	56.5mm	Back side contamination	

## 7-2. Malfunction

Error Status	Check	Solution
No power	<ol style="list-style-type: none"> <li>1. Check fuse F101 open</li> <li>2. Check fuse F151 open</li> </ol>	<ol style="list-style-type: none"> <li>1. <ol style="list-style-type: none"> <li>1) R114 open?</li> <li>2) pin 2 and 3 short of Q102?</li> <li>3) DB101's each pin short?</li> </ol> </li> <li>2. Measure the resistance of +5V and GND. If under 50ohm, there is shorted circuit. Find where +5V and GND is shorted and fix it.</li> </ol>
Fuser Error	<ol style="list-style-type: none"> <li>1. Thermostat open</li> <li>2. AC wire open</li> <li>3. Thermistor wire open</li> <li>4. Q101 short or open</li> <li>5. Q3 abnormal operation</li> <li>6. Overheat circuit working</li> </ol>	<ol style="list-style-type: none"> <li>1. Detach AC connector and measure the resistance between pin 1 and pin 2. If megohm, thermostat is open, Replace it.</li> <li>2. Check bad connector contact or wire is cut.</li> <li>3. Check thermistor wire and its connection 4. Check the short circuit of pin 1 and pin 2 and R103's open.</li> <li>5. If thermistor wire is connected, the collector voltage of Q3 is about 0.2 volt. If not so, Q3 may be damaged replace it.</li> <li>6. If the voltage of U5-pin7 is below 0.7V, check U5-pin 5,6 and their related parts.</li> </ol>
Cover open	<ol style="list-style-type: none"> <li>1. When close Top cover, check the lever is pressed</li> <li>2. Micro switch's contact</li> <li>3. CPU and related circuit</li> </ol>	<ol style="list-style-type: none"> <li>1. Open top cover and press the lever with pen. If controller detects cover close, there is some mechanical trouble in top cover and lever's assembly. If not so there is electrical problem.</li> <li>2. Disassemble engine board and put power and check +24V in and out of microswitch when press the switch.</li> <li>3. Measure the voltage of D4 anode. If below 3.0V, check 24Vs2's level and whether any short circuit exists between D4 anode and CPU.</li> </ol>
Jam 0	<p>Check where Jam 0 happens</p> <ol style="list-style-type: none"> <li>1. Paper is not exited from cassette</li> <li>2. Paper is stopped just after cassette</li> <li>3. Paper is stopped before feed sensor</li> </ol>	<ol style="list-style-type: none"> <li>1. Check whether solenoid is working or not. easily you can check solenoid on/off test by use of DCU mode. Please refer to DCU operation, If have not DUC, take out cassette and push paper-empty lever upward which is the same condition of paper installing. And send print command. See the solenoid. If solenoid does not operate, see the solenoid error.</li> <li>2. Even though solenoid operates, if feed roller does not rotate, paper jam happens. Refer to feed roller error.</li> </ol>

Error Status	Check	Solution
Jam0	2. Paper is stopped just after cassette 3. Paper is stopped before feed sensor 4. Paper is located in feed sensor	2. Check if double feeding happens. If double feeding, draw out cassette and check paper is well installed in its lock bar. If feed roller does not push paper enough, paper can not feed any more. Paper feeding has resistance. Check feed assy. 3. There may be any mechanical resistance exist. Check any burr. Recommended paper weight? 4. Check feed sensor malfunction. Refer to feed sensor error.
Jam1	Check where jam 1 happens 1. Paper is stopped on transfer roller. 2. Paper is stopped in just front of fuser unit 3. Paper is stopped in just after of fuser unit	1. It is mostly resulted from double feeding. Check paper is well stocked in cassette. If the stock is loosen, it may cause feeding error. 2. Check feed actuator position and actuator's operating. There may be stiff moving or double reflection. If not so, check the output voltage level of feed sensor. Accurate operation requires voltage swing from over 4volt to 0.8volt lower. But if high level is 3 volt for example, it is inaccurate actuator operation. 3. Check exit lever operation. Remove jam and check actuator moving by hand. If actuator is too stiff, it is problem. In case of that, supply some oil to the actuator shaft or replace the lever. There may be paper is wrapped around the heat roller. Disassemble fuser unit and remove rolled paper. Clean the fuser unit.
Jam2	Check where jam 2 happens 1. Paper is crumpled and can not be exited. 2. Paper is crumpled in the exit rear cover. 3. Paper is stopped just after exit roller face down	1. Remove paper using pinset or some tool and watch if separate claws have any trouble. Clean around fuser. 2. Check locking works well. Watch whether the ribs of exit cover have any burr or resistive edge. 3. Almost the same reason as No. 2 or check the roller and paper path.

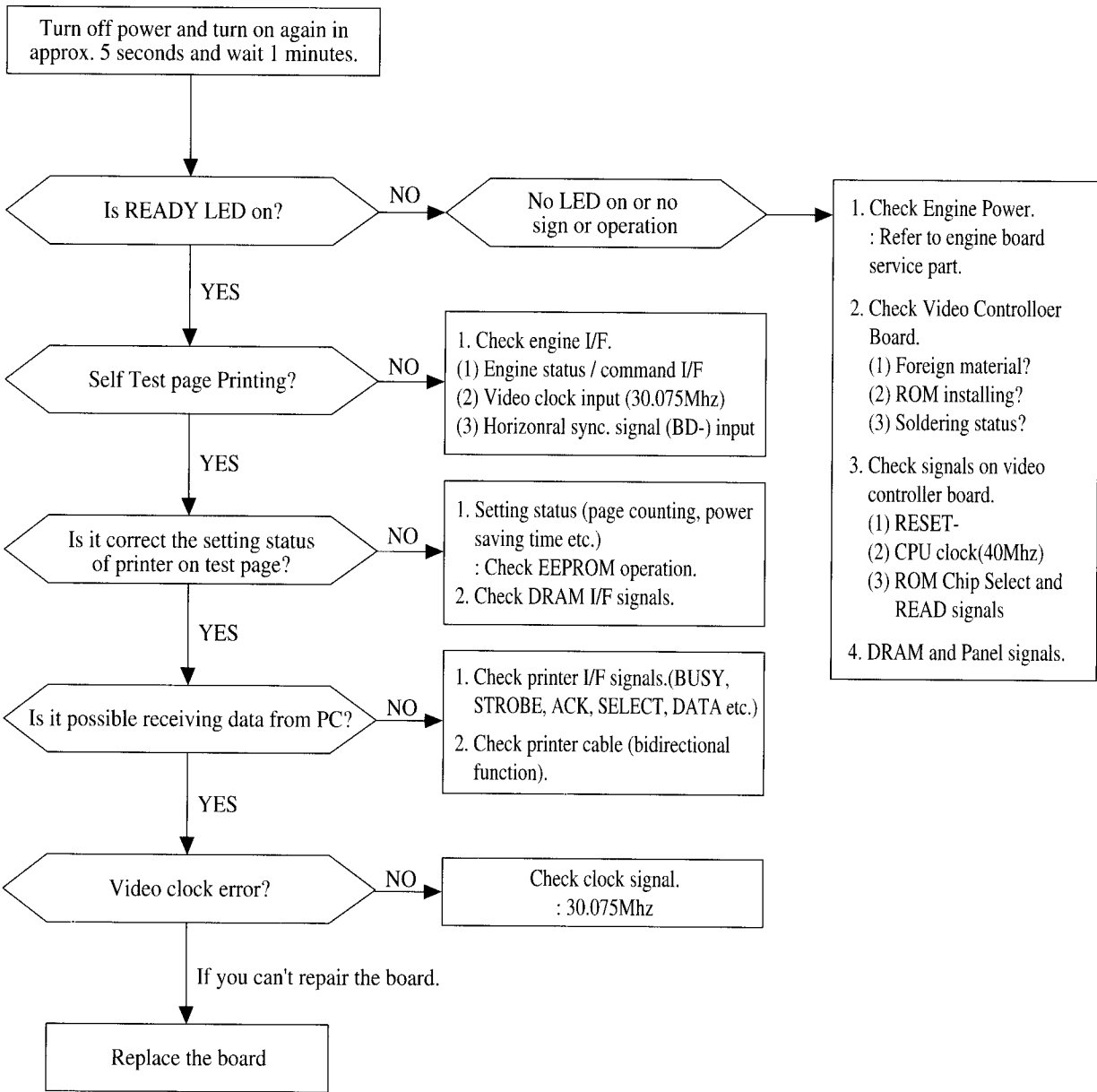
Error Status	Check	Solution
Clutch error	<ol style="list-style-type: none"> <li>1. Check the spring of solenoid</li> <li>2. Check the armature</li> <li>3. Electrical check</li> </ol>	<ol style="list-style-type: none"> <li>1. Check whether the spring is expanded or not.</li> <li>2. Check armature is well installed. It may be unstable assembly.</li> <li>3. Check +24V supply and Q4 operation. If you have DCU, select mode 5 and press on/off and check Q4 is on/off.</li> </ol>
Charger voltage error	<ol style="list-style-type: none"> <li>1. Check the voltage</li> <li>2. Check electrical parts</li> </ol>	<ol style="list-style-type: none"> <li>1. With DCU, you can easily measure the charger voltage. But if no DCU, remove imager and open cover and press cover lever and measure the voltage with high voltage probe sending printing data. Although imager is not installed, open load voltage is almost the same as imager load. If the voltage is normal, the imager has some trouble. There may be short circuit in the imager.</li> <li>2. Check Q201's switching and R217 is open or not. Check the active signal from CPU. The asserting signal is low. Most of troubles come from the watch soldering and solder pad and lead short to other parts. Board test will be easier with DCU. Detach engine board and put power and select DCU mode 1. DCU mode 1 turns on charger voltage till pressing off switch of DCU.</li> </ol>
Bias voltage error	<ol style="list-style-type: none"> <li>1. Check the voltage</li> <li>2. Check electrical parts</li> </ol>	<ol style="list-style-type: none"> <li>1. The method of the Bias voltage check is similar to the charger voltage check.</li> <li>2. They are Q204, R230 that you have to check.</li> <li>3. When you check the Bias voltage with DCU, select DCU mode 4.</li> </ol>
Transfer voltage error (negative)	<ol style="list-style-type: none"> <li>1. Check the voltage</li> <li>2. Check electrical parts.</li> </ol>	<ol style="list-style-type: none"> <li>1. The method of the Transfer voltage check is similar to the charger voltage check.</li> <li>2. It is Q202 that you have to check.</li> <li>3. When you check the Transfer voltage with DCU, select DCU mode 2.</li> </ol>
Transfer voltage error (positive)	<ol style="list-style-type: none"> <li>1. Check the voltage</li> <li>2. Check electrical parts</li> </ol>	<ol style="list-style-type: none"> <li>1. The method of the Transfer voltage check is similar to the charger voltage check.</li> <li>2. It is Q203 that you have to check.</li> <li>3. When you check the Transfer voltage with DCU, select DCU select DCU mode 3.</li> </ol>

# 7-3. Troubleshooting of Video Controller

Most electronic products are sensitive to connectors and assemblies that are not completely seated. Therefore, before starting the troubleshooting procedure, do a mechanical check of all the connectors and assemblies to make sure that everything is properly seated.

- 1. For a complex malfunction, check first for a bad weld, short circuit or loose wire on the solder area of the board.
- 2. Input Low level is standard for the TTL logic level below 0.8V.  
Input High level is standard for the TTL logic level above 2.0V.  
Also, for MC68322, the input Low level is less than 0.8V, and the input High level is more than 2.0V.
- 3. use an oscilloscope or logic analyzer for inspecting the crystal oscillator or its waveform.

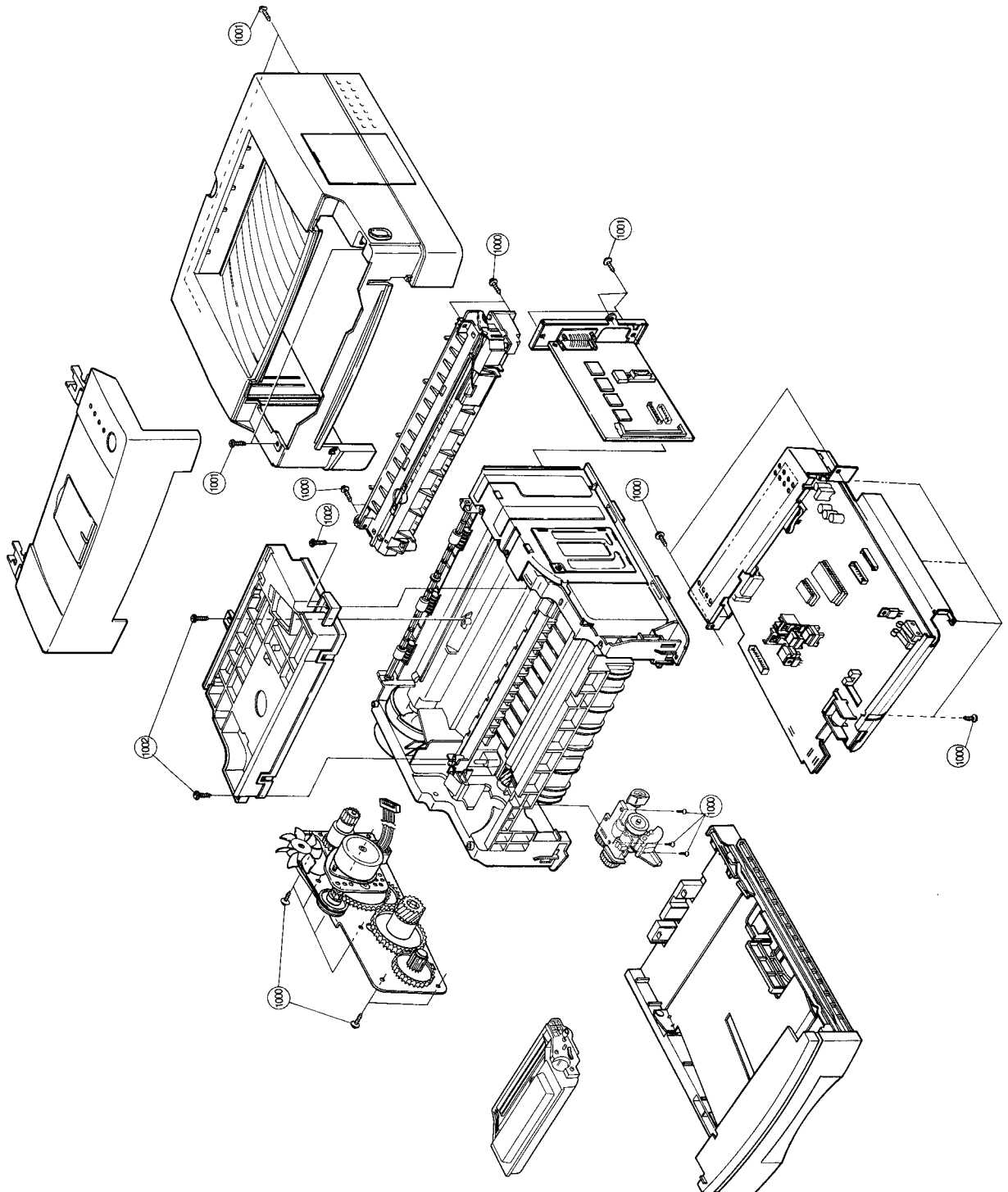
## 7-3-1 Troubleshooting Flow Chart



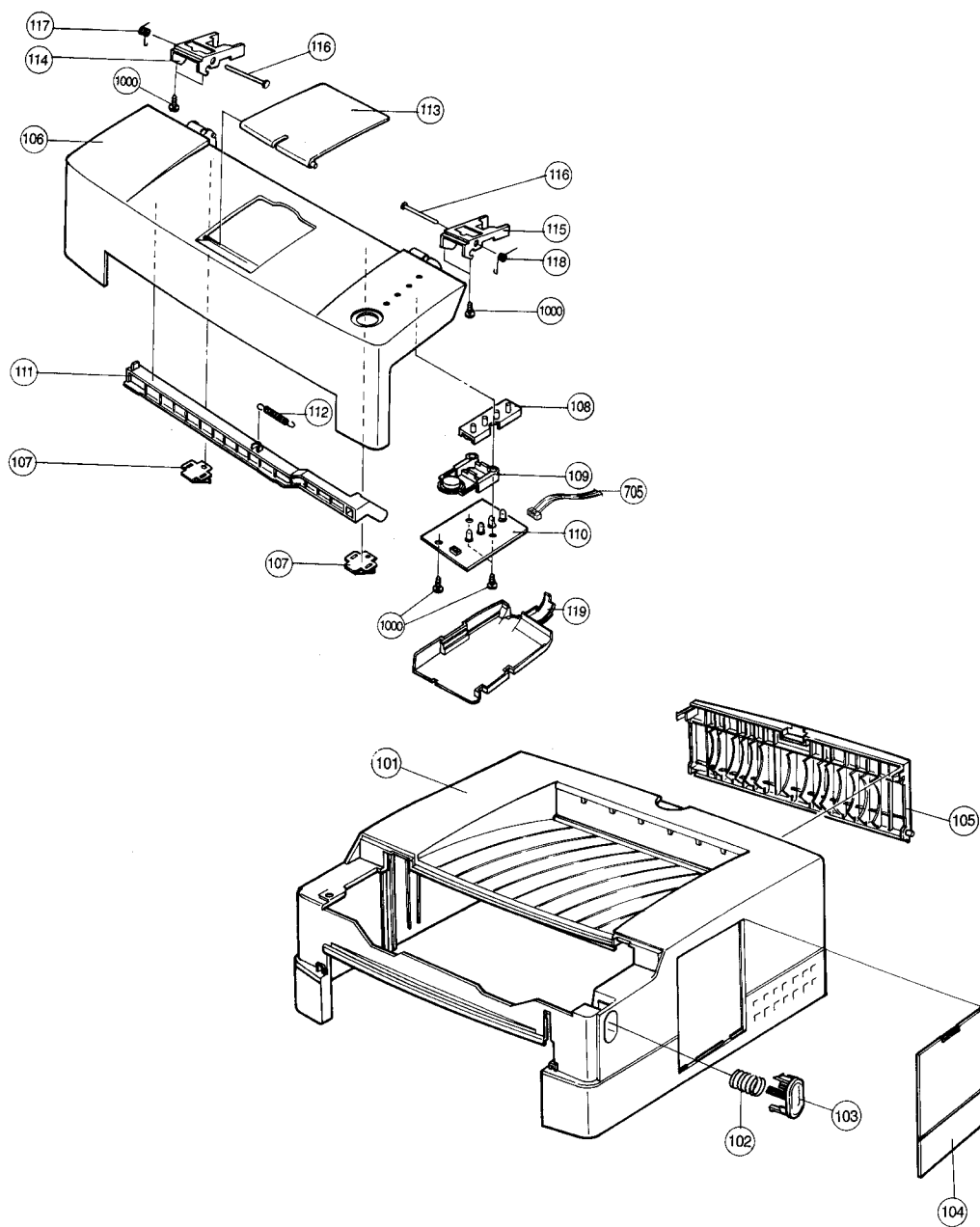
### 7-3-2 Troubleshooting Table of Video Controller Board(ML-84/85/85G)

No	Error Type	Check List	Repair
1	Power Error	Power cord connection	Connect the power cord.
		Vcc voltage (nominal is +5V) level. Vcc voltage should be in the range between +4.8 ~ +5.2V An engine power supply (SMPS) is operating by hearing the rotating sound of fan after connecting the power cord. The engine power supply AC and 5V output fuse in engine power supply unit after power off.	Replace SMPS unit. Refer to the section of engine trouble shooting. Replace the fuse.
2	Cable Error	Mutual connection of engine, panel connector cable (7 pin) and engine interface cable (24 pin). The pins of connector is straight.	Connect the cable to the connector.
3	Main Board Error (Video Controller Board)	Any component damage on a video controller board.	Repair or replace it with appropriate tools. If unable to do this, replace main board.
		Any foreign conductive chips of solder or material is on the video controller board or is laid between IC pins after power off.	Remove any foreign conductive chips on the video controller board.
4	Reset Error	■ Reset signal. Normally high during operation.	
5	CPU Clock Error	40.0Mhz	TTL compatible input
6	Video Clock Error	30.075Mhz	TTL compatible input
7	Panel Error	■ Check the connection of panel cable. ■ Check the panel PCB assembly.	
8	DRAM Error	■ Check the DRAM address signals. ■ Check the DRAM data signals.	
9	EEPROM Error	■ Check the EEPROM clock signals. ■ Check the EEPROM data signals.	
10	ROM Error	■ Check the ROM chip select signals and read signal. ■ Check the ROM data signals.	
11	Engine Error	■ Fusing Unit Error : thermister, heat lamp, etc. ■ Engine communication error : Video controller can not communicate with engine PCU board about the status of the engine such as paper jam, paper empty, ready, etc. ■ Check the connection of engine interface cable. ■ Replace the video board by the verified board, and check the operation of printer.	Messages appear on PC screen. At first turn off printer than turn it on again. Refer to engine trouble shooting section.
12	Parallel Interface Error	■ Check the operation of printer driver.	Refer to User's manual
		■ Check the printer cable (bidirectional function?)	Replace the printer cable.
13	Engine Related Problems	■ Please refer to the ML-85 engine service manual about the following. • Thermal Error • No heating • Over heating • LSU beam Error • Scanner Error • Fixing Ass'y Error	Messages appear on PC screen. At first turn off printer then turn it on again.
14	General descriptions of troubleshooting	■ Please refer to the user's manual. ■ If you can not fix the trouble of video controller board, replace the video board by the verified board.	Replace the board.

## 8. Exploded Views & Parts List

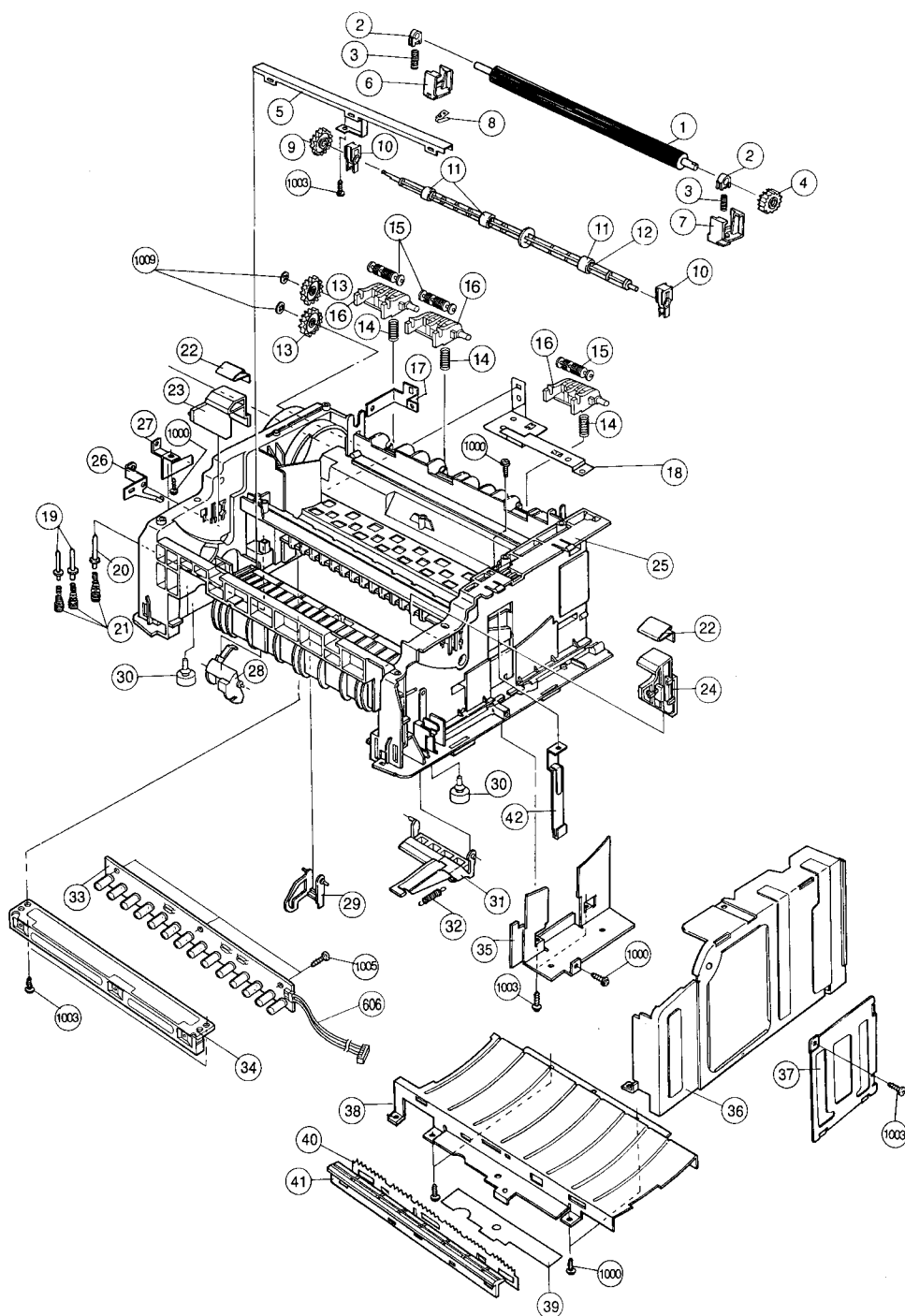






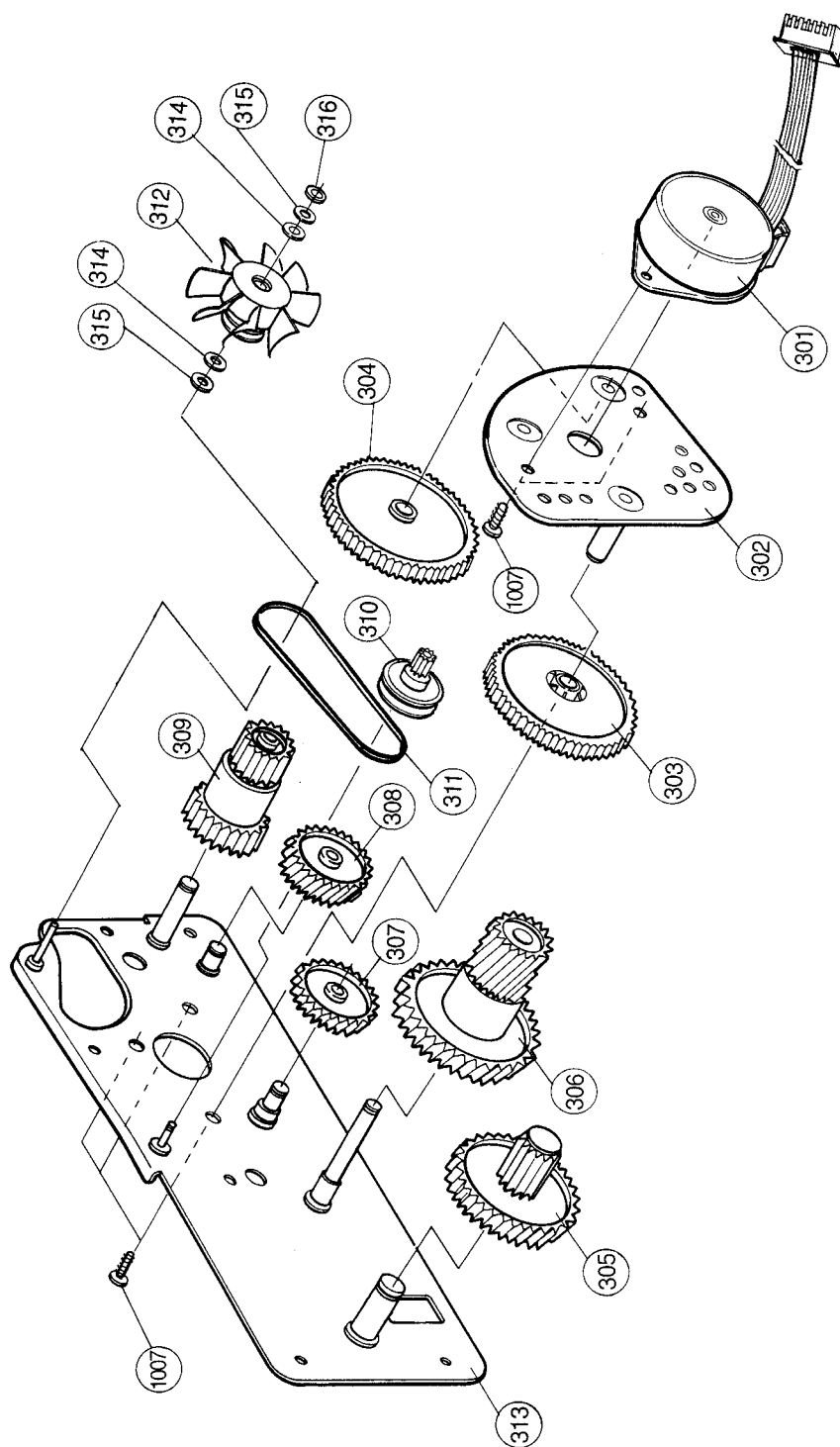
# 8-1 Assy Cover, Led Parts List

No.	Parts Name	Code No.	Qt'y	Drw No.	Material	A/S
1	ASSY-COVER, 85	JC92-10001A	1	—	—	☒
	ASSY-COVER, 84	JC92-10001A	1	—	—	☒
	ASSY-COVER, 85G	JC92-10001D	1	—	—	☒
2	COVER-MAIN	JC72-60021A	1	101	HIPS HB C7425B	☒
3	SPRING-BUTTON	831 522060FA	1	102	SUB Φ 0.5	☒
4	BUTTON-C/O	JC72-60033A	1	103	HIPS HB 73054	☒
5	COVER-SIMM	JC72-60026A	1	104	HIPS HB C7245B	☒
6	COVER-EXIT	JC72-60027A	1	105	HIPS HB C7245A	☒
7	COVER-TOP, 85	JC72-60020A	1	106	HIPS HB C7425B	☒
	COVER-TOP, 84	JC72-60005A	1	106	HIPS HB C7425B	☒
	COVER-TOP, 85G	813 4920193A	2	106	HIPS HB C7425B	☒
8	PLATE-SPRING, DEV	821 492093AA	1	107	SUS t0.3	☒
9	WINDOW-LED	821 492067AA	1	108	ACRYL	☒
10	PANEL-LED	JC92-80001A	1	109	ABS HB G6088	☒
11	PANEL-KEY	CJ72-60022A	1	110	—	☒
12	HOOK-LEVER	831 521073DA	1	111	ABS C7425A	☒
13	SPRING-HOOK LEVER	JC72-60022A	1	112	SUS Φ 0.5	☒
14	STACKER-SUB	831 521073DA	1	113	HIPS HB 75064	☒
15	HSG-HINGE, L	JC72-60032A	1	114	POM WHT	☒
16	HSG-HINGE, R	821 492091BA	1	115	POM WHT	☒
17	SHAFT-COVER OPEN	821 492091AA	2	116	SUM 24L	☒
18	SPRING-COVER OPEN, L	821 492027CB	1	117	SUS φ 1.0	☒
19	SPRING-COVER OPEN, R	831 523031CA	1	118	SUS φ 1.0	☒
20	CAP-PANEL WIRE	JC72-60031A	1	119	HIPS HB C7245A	☒



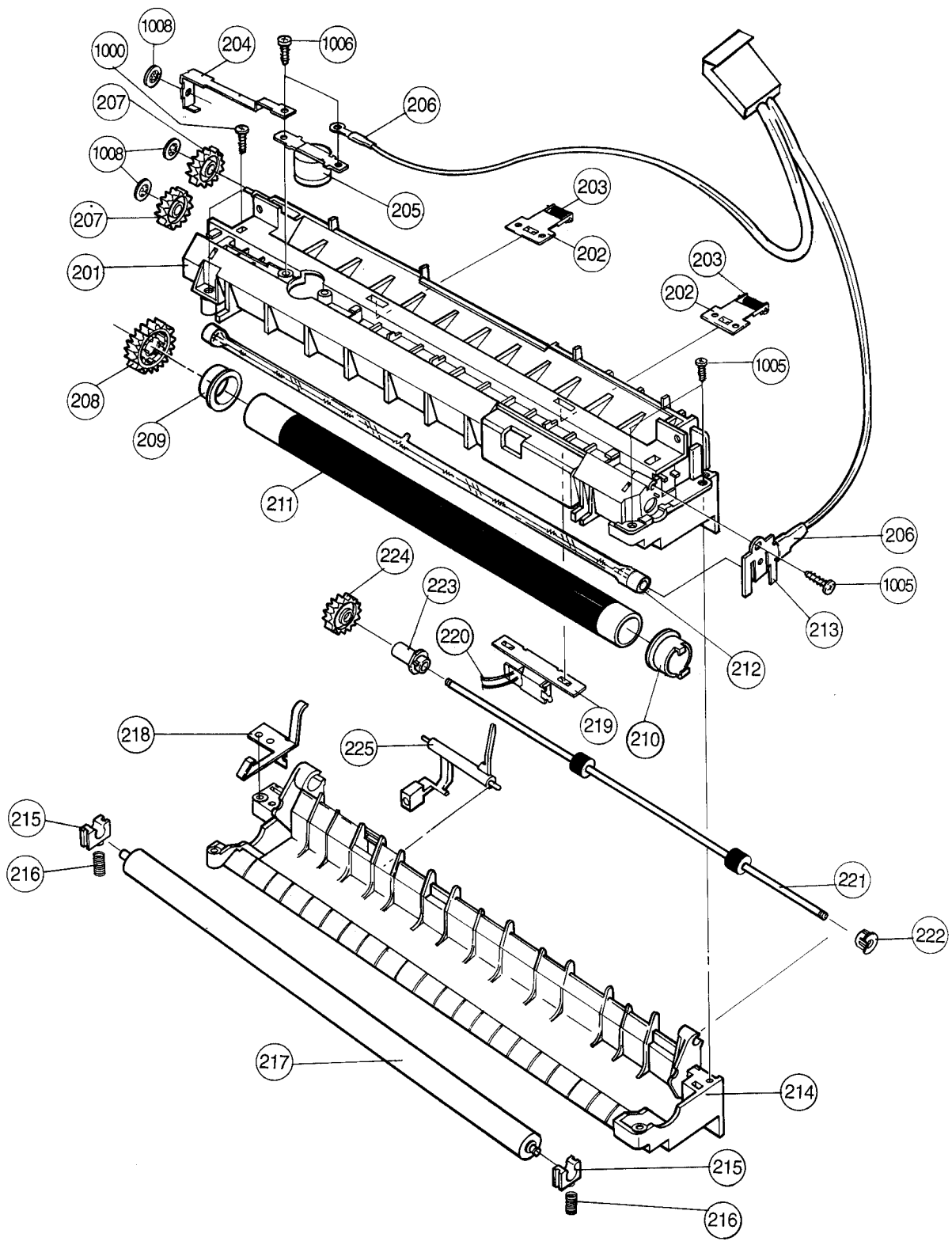
## 8-2 Assy Frame Parts List

No.	Parts Name	Code No.	Qt'y	Drw No.	Material	A/S
1	ROLLER-TRANSFER	811 492004AA	1	1	CLOROHYDRINE 발포	☒
2	BUSH TR INNER	821 492008AA	2	2	POM (CE-20), BLK	☒
3	SPRING T/R, L	831 522060BA	2	3	SUS304 WPS, $\phi$ 0.5	☒
4	GEAR-TRANSFER	821 492054AA	1	4	POM BLK	☒
5	GND-TRANSFER, PLATE	813 492011AA	1	5	SUS304 t0.3	☒
6	HOLDER-TR BEARING, L	821 492080AA	1	6	PC BLACK	☒
7	HOLDER-TR BEARING, R	821 492080AA	1	7	PC BLACK	☒
8	SPRING PLATE TR	813 492025AA	1	8	SUS304 CSP 3/4H, t0.2	☒
9	GEAR-EXIT	821 492030AA	1	9	DURACON M90	☒
10	BEARING-EXIT, F/DOWN	811 492007AA	2	10	POM NTR	☒
11	RUBBER-EXIT	821 492081AA	3	11	EPDM 60°	☒
12	SHAFT-EXIT	821 492074AA	1	12	ABS GF20% BLK	☒
13	GEAR-EXIT/U, ID	821 492032AA	2	13	DURACON M90	☒
14	SPRING-EXIT, F/DOWN	831 522050DA	3	14	SUS304 WPB, $\phi$ 0.5	☒
15	ROLLER-EXIT	821 492054AA	3	15	POM BLK	☒
16	HOLDER-EXIT, F/DOWN	821 492054AA	3	16	ABS GF20% BLK	☒
17	EARTH PLATE FU	813 49200AA	1	17	SUS CPS3/4H t0.2	☒
18	GROUND G/TR	JC70-10008A	1	18	SUS301 CSP 1/2H T0.2	☒
19	TERMINAL H/V 2	935 810040AA	2	19	SUM 24L Ni	☒
20	TERMINAL H/V 1	935 810040BA	1	20		☒
21	SPRING H/V	831 522042JA	3	21	SUS304 WPB $\phi$ 0.4	☒
22	SPRING-PLATE G/DEV	JC61-70001AA	2	22	SUS304 CSP3/4H, t0.2	☒
23	GUIDE-DEV, L	JC61-20001AA	1	23	POM BLK	☒
24	GUIDE-DEV, R	JC61-20003AA	1	24	POM BLK	☒
25	FRAME-BASE	JC72-60011A	1	25	ABS V0 GF20% BLK	☐
26	GROUND-OPC	813 492013AA	1	26	SUS304 CSP3/4H t0.2	☒
27	GROUND MOTOR	JC70-10007A	1	27	SUS301 CSP 1/2H T0.2	☒
28	ACTUATOR-FEED	821 492003AA	1	28	ABS HB BLK	☒
29	ACTUATOR-EMPTY	821 492002AA	1	29	ABS HB BLK	☒
30	FOOT-RUBBER	831 313026AA	2	30	CR60 V0 GRAY	☒
31	ACTUATOR C/O	821 492089AA	1	31	ABS V0 BLK	☒
32	SPRING C/O SENSOR	831 521073AA	1	32	SUS304 WPB $\phi$ 0.3	☒
33	ASSY-ERASE, LAMP	JC93-20007A	1	33	-	☒
34	BKT-ERASE	JC70-10002A	1	34	SECC, t0.5	☒
35	GROUND-ICU	JC70-10006A	1	35	SECC T=0.8	☒
36	SHIELD-ICU	813 492021AA	1	36	SECC t0.5	☒
37	SHIELD-COVER SIMM	813 492034AA	1	37	SECC t0.5	☒
38	GUIDE-TRANSFER	813 492016AA	1	38	SECC t0.6, 흑도장	☒
39	INSULATOR-G/TR	JC72-10002A	1	39	PVC LS080 SHEET t0.3	☒
40	PLATE-SAM	813 492057AA	1	40	SUS304 CSP t0.1	☒
41	HOLDER-SAM PLATE	821 492057AA	1	41	PC BLK	☒
42	SHIELD-CAP WIRE	JC70-10003AA	1	42	SECC, t0.6	☒



# 8-3 Assy Motor Parts List

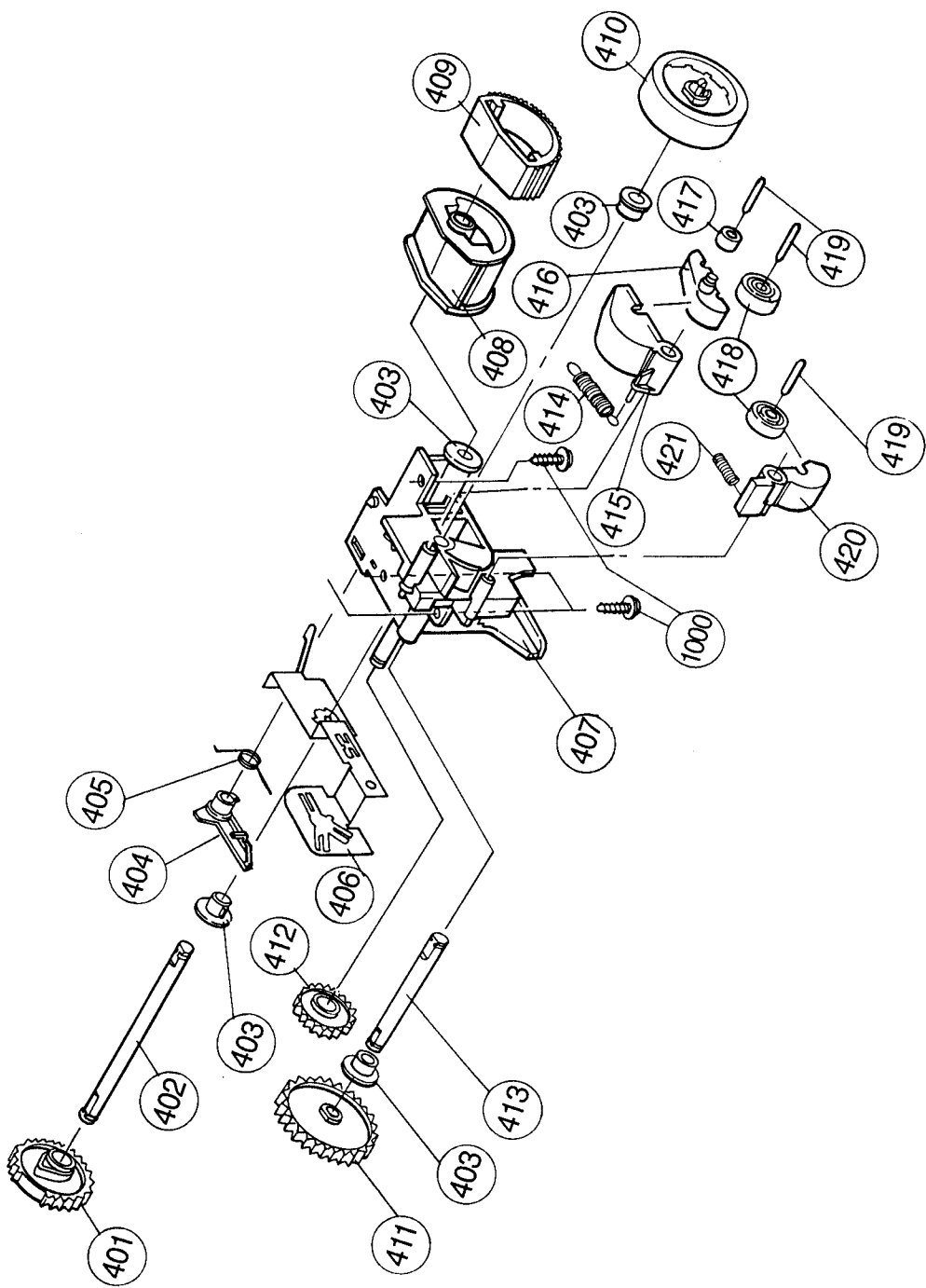
No.	Parts Name	Code No.	Qt'y	Drw No.	Material	A/S
1	ASSY-MOTOR	JC92-60004A	1	—	—	☒
2	STEP-MOTOR	953 280066AA	1	301	PM TYPE(7.5°)	☒
3	BRACKET-MOTOR	813 492017AA	1	302	SECC t1.2	☐
4	GEAR-132/25	821 402026AA	1	303	DURACON M90	☒
5	GEAR-125/18	821 492025AA	1	304	DURACON M90	☒
6	GEAR-FEED DRV	821 492034AA	1	305	DURACON M90	☒
7	GEAR-OPC DRV	821 402030AA	1	306	DURACON M90	☒
8	GEAR-IDLE OPC	821 492036AA	1	307	DURACON M90	☒
9	GEAR-IDLE, FU	821 492038AA	1	308	POM SW-01	☒
10	GEAR-FUSER, DRIVE	821 492035AA	1	309	DURACON M90	☒
11	GEAR PULLEY	821 492024AA	1	310	DURACON M90	☒
12	BELT IMPELLER	831 721004DA	1	311	EPDM	☒
13	ASSY IMPELLER	811 721004DA	1	312	PULLEY/IMPELLER/BEAR	☒
14	BRACKET-GEAR	813 492001AA	1	313	SECC t1.2	☒
15	O-RING	6031-000004	2	314	φ 3.0, t1.2	☒
16	POLYWASHER(II)	6031-000006	1	315	φ 3.0xt0.5	☒
17	POLYWASHER(I)	6031-000005	2	316	φ i3.0 x φ o5.0	☒



# 8-4 Fuser Parts List

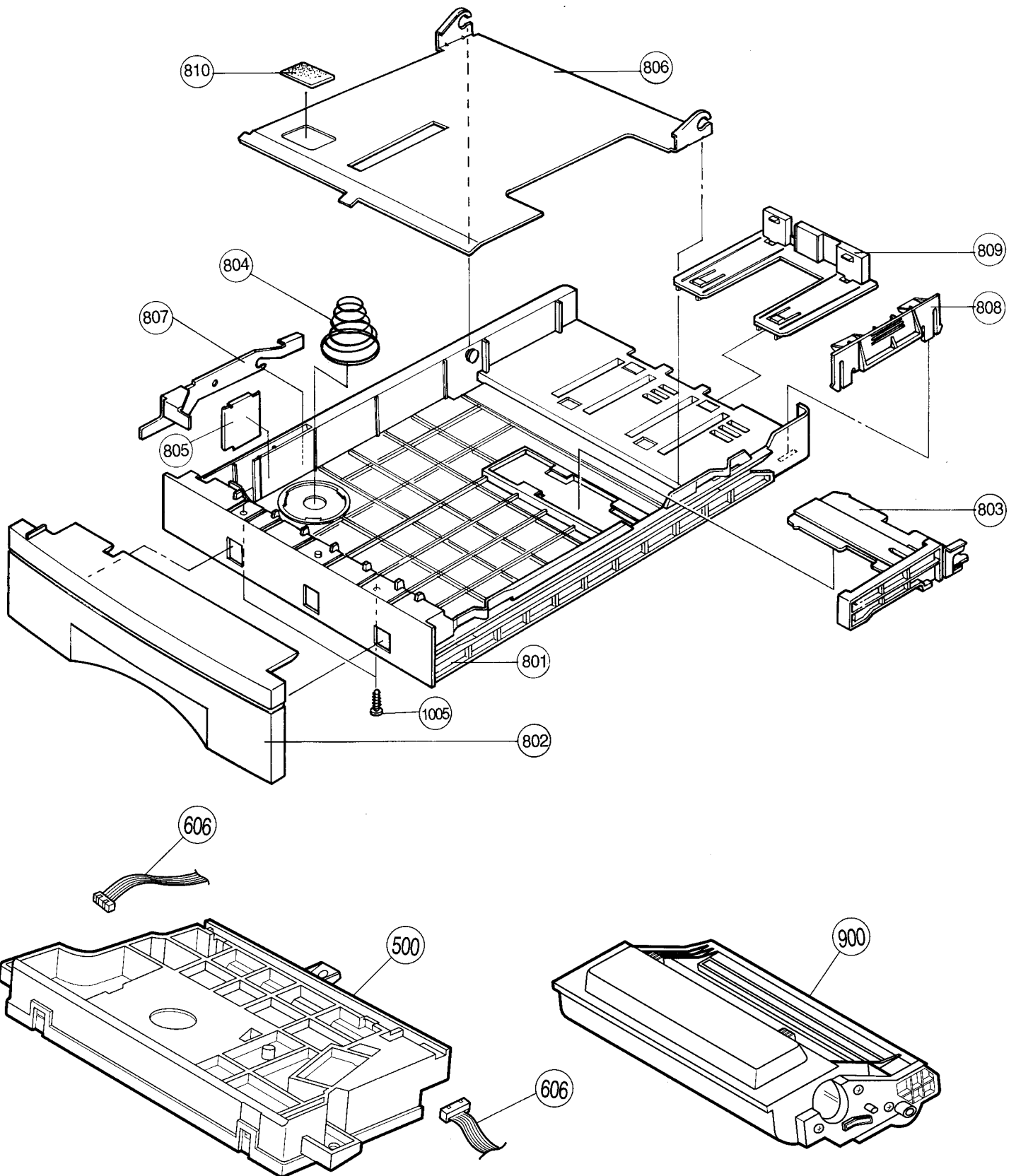
No.	Parts Name	Code No.	Qt'y	Drw No.	Material	A/S
1	ASSY-FUSER, 110V	JC93-30001A	1	—	—	<input checked="" type="checkbox"/>
2	ASSY-FUSER, 220V	JC93-30001B	1	—	—	<input checked="" type="checkbox"/>
3	FRAME-UPPER, FU	821 492022AA	1	201	PBT GF30% BLK	<input checked="" type="checkbox"/>
4	SPRING EXIT F/UP	813 492024AA	2	202	SUS304 CSP-1/2H t0.15	<input type="checkbox"/>
5	ROLLER EXIT F/UP	821 492090AA	2	203	POM M90-02, BLK	<input checked="" type="checkbox"/>
6	ELECTRODE-FU, L	815 492001AA	1	204	C521P t0.5	<input type="checkbox"/>
7	THERMOSTAT	4712-000001	1	205	PW-2N, 160°C	<input checked="" type="checkbox"/>
8	CBF-HARNESS, LAMP	JC39-40007A	1	206	3P, 475/275MM, WHT	<input checked="" type="checkbox"/>
9	GEAR-EXIT/L, ID	821 492031AA	2	207	DURACON M90	<input type="checkbox"/>
10	GEAR FUSER	821 492023AA	1	208	NY66, GF33%	<input checked="" type="checkbox"/>
11	H/R BEARING, L	821 492051AA	1	209	PPS RBA313	<input checked="" type="checkbox"/>
12	H/R BEARING, R	821 492088AA	1	210	PPS RBA313	<input checked="" type="checkbox"/>
13	H/ROLLER	815 492088AA	1	211	AL+PTFE, TEFLON	<input checked="" type="checkbox"/>
14	LAMP-HALOGEN	4713-000001	1	212	115V, 600W	<input checked="" type="checkbox"/>
15	LAMP-HALOGEN	4713-000002	1	212	220V, 600W	<input checked="" type="checkbox"/>
16	ELECTRODE-FU,R	815 492002AA	1	213	C5210P t0.8	<input checked="" type="checkbox"/>
17	FRAME-LOWER, FU	821 492021AA	1	214	PBT GF30% BLK	<input checked="" type="checkbox"/>
18	P/R BEARING	821 492044AA	2	215	PPS RBA313	<input checked="" type="checkbox"/>
19	SPRING P/R	831 522060AA	2	216	SUS304 WPB Φ 0.9	<input checked="" type="checkbox"/>
20	P/ROLLER	811 492011AA	1	217	SUM22+HTV+불소COATING	<input checked="" type="checkbox"/>
21	GROUND-PLATE, FU	813 492014AA	1	218	SUS CSP 1/2H t0.2	<input checked="" type="checkbox"/>
22	SPRING-	813 492026AA	1	219	SUS CSP 1.2H t0.2	<input type="checkbox"/>
23	THERMISTOR	1404-000001	1	220	170°C	<input checked="" type="checkbox"/>
24	EXIT ROLLER L	811 492010AA	1	221	SUM24L+CR	<input checked="" type="checkbox"/>
25	BEARING EXIT FU, R	821 492006AA	1	222	POM (CE-20) BLK	<input checked="" type="checkbox"/>
26	BEARING EXIT FU, L	821 492005AA	1	223	POM BLK	<input checked="" type="checkbox"/>
27	GEAR-EXIT, FU	821 492030AA	1	224	PEBAX	<input checked="" type="checkbox"/>
28	ACTUATOR EXIT	821 492001AA	1	225	POM BLK	<input checked="" type="checkbox"/>
29	GUIDE-CLAW	JC6120005A	4	226	LCL-4024(PEEK+PTFE+CF)	<input checked="" type="checkbox"/>
30	SPRING-CLAW	6107-00008	4	227	SUS304 WPB	<input checked="" type="checkbox"/>





# 8-5 Assy Pick-up Parts List

No.	Parts Name	Code No.	Qt'y	Drw No.	Material	A/S
1	ASSY PICK-UP	JC93-40001A	1	—	—	☒
2	GEAR-PICK UP	821 492041AA	1	401	LNP LUBLILOY R	☒
3	SHAFT-PICK, UP	813 492030AA	1	402	SUM24L, N1	☒
4	BEARING-PICK-UP	821 492007AA	4	403	POM (CE-20) BLK	☒
5	LEVEL P/UP	821 492064AA	1	404	LNP LUBLILOY R	☒
6	SPRING P/P	831 523031DA	1	405	SUS304 WPB φ 0.5	☒
7	GND-FEED	813 492010AA	1	406	SUS304 CSP 1/2H, t0.15	☒
8	FRAME-FEED	821 492020AA	1	407	PC GF30% BLK	☒
9	HOUSING-PICK, UP	821 492062AA	1	408	ABS HB BLK	☒
10	RUBBER-PICK, UP	821 492082AA	1	409	EPDM 30°	☒
11	ROLLER-FEED, DRIVE	821 492071AA	1	410	POM BLK+URETHAN	☒
12	GEAR-FEED	821 492033AA	1	411	DURACON M90	☒
13	GEAR-P/UP, DRIVE	821 492040AA	1	412	DURACON M90	☒
14	SHAFT-FEED	813 492028AA	1	413	SUN 24N NI	☒
15	SPRING-FEED, SMALL	831 521073BA	1	414	SUS304 WPB, Φ 0.6	☒
16	HOLDER-FEED, SMALL	831 521073BA	1	415	ABS GF20% BLK	☒
17	SUB HOLDER-FEED, SMALL	821 492077AA	1	416	PON NTR	☒
18	ROLLER-FEED, SMALL	821 492073AA	1	417	POM NTR	☒
19	ROLLER-FEED, LARGE	821 492072AA	2	418	POM BLK	☒
20	SHAFT-FEED, IDLE	813 492029AA	3	419	SUM 24L Ni	☒
21	HOLDER-FEED, LARGE	821 492055AA	1	420	ABS GF20% BLK	☒
22	SPRING-FEED, LARGE	831 522060EA	1	421	SUS304 WPB, Φ 0.8	☒



## 8-6 Assy Cassette Parts List

No.	Parts Name	Code No.	Qt'y	Drw No.	Material	A/S
1	ASSY-PICK/UP	JC72-60028A	1	—	—	☒
2	FRAME-CASSETTE	JC72-60028A	1	801	HIPS HB C7425B	☒
3	BUIDE-SUB, CASSETTE	821 492050AA	1	802	HIPS HB C7425B	☒
4	GUIDE-SIDE, CASSETTE	821 492049AA	1	803	HIPS HB 75064	☒
5	SPRING-KNOCK UP	831 522042AA	1	804	SWB φ 1.5	☒
6	GUIDE PLATE-PAPER	813 492014AA	1	805	SUS304CSP T0.5	☒
7	PLATE-KNOCK UP	813 492018AA	1	806	SPCC t1.0, Zn	☒
8	FINGER	813 492009AA	1	807	SPCC t1.2, Ni	☒
9	GUIDE-REAR, CASSETTE	821 492048AA	1	808	HIPS HB 75064	☒
10	EXTENSION-CASSETTE	821 492017AA	1	809	HIPS HB 75064	☒
11	PAD	829 492001AA	1	810	CORK T1.0	☒

### 8-6-1 Assy Lsu Parts List

No.	Parts Name	Code No.	Qt'y	Drw No.	Material	A/S
1	ASSY-LSU	257 253051AADB	1	500	0.3 mW	☒

### 8-6-2 Assy Deve Parts List

No.	Parts Name	Code No.	Qt'y	Drw No.	Material	A/S
1	ASSY DEV	JC93-20001A	1	900	ASSY	☒

## 8-7 Assy Engine Control Board(A)

(A:for 100-120AVC)

NO.	CODE NO	DISCRIPTION	SPECIFICATION	Q'TY	LOCATION
1	02169-201-077	DIODE-REC, DO-41	1N4003, 200V, 1A, 1.1	2	D1, D211
2	2001-000003	REF-CF	330, 5%, 1/8W	5	R25, 27, 52, 111, 151
3	2001-000005	REF-CF	390, 5%, 1/8W	3	R218, 221, 231
4	2001-000006	REF-CF	2.4K, 5% 1/8W	2	R2, 3
5	2001-000012	FEF-CF	680K, 5%, 1/8W	1	R236
6	2004-000002	REF-MF	78.7K, 5%, 1/8W	1	R247
7	2004-000003	REF-MF	16.2K, 1%, 1/8W	1	R237
8	2201-000003	CAP-CERA, 68K,3D,Y5P	68P,2KT	1	C213
9	2001-000004	CPR-CERA, 101K, 3D, Y5P	100P, 2KV	3	C203, 205, 220
10	2202-000002	CAP-MO, 103K, 500V	10NF, 500V	1	C232
11	24048-035-020	MAG-CORE, FERRITE B/D	1.2UH, 3.5*5, 7MM,	6	BD1,2,101-103, 151, 152
12	871-700007 AAND	IC-TTL	74LS07	1	U203
13	873 790574AC	IC-MOS	74HCT574	1	U4
14	881 100324 AANB	IC-LINEAR	LM324	1	U201
15	881 200393AANB	IC-LIN, COMP	LM393	1	U5
16	881 300431TANB	IC-LIN, REGULATOR	TL431	1	U151
17	881 907552AA	IC-LIN, PWM	KA7552, PWM IC	1	U101
18	891 190798XC	TR-PNP	KSA708, 80V, 0.7A	4	Q205, 207, 208, 209
19	891 391008XA	TR-NPN, TO-92, EBC	KSC1008, 80V, 0.7A	12	Q1-8, 10, 206, 210, 211
20	893 114148AANA	DIODE-SIGNAL	IN4148	12	D2, 3, 4, 5, 6, 7, 8 D101, 154, 209, 212, 213
21	893 215274AA	DIODE-ZENER	1N524BRL	1	ZD103
22	893 290031CB	DIODE-ZENER	MTZ27, 0. 5W, 5mA	1	ZD102
23	893 290031FB	DIODE-ZENER	UZP-5.1V	1	ZD202
24	893 290031KB	DIODE-ZENER	UZ-7.5BM	1	ZD151, 201
25	893 290035AE	DIODE-ZENER	UZ-5.6BCB	2	ZD152, 204, 205
26	893 290035AG	DIODE-ZENER	UZP-33B, O. 5W, 10mA	3	D103
27	893 314937AB	DIODE-REC	1N4937, 420V, 1A	1	D201-208, 210
28	893 390057AA	DIODE-HV	ESJA57-04	9	D102
29	893 394007AA	DIODE-REC	UF4007	1	R8
30	911 111007DA	REF-CF	1,5%, 1/4W	1	R113
31	911 115607DA	REF-CF	5.6,5%, 1/2W	1	R217, 230
32	911 121007FF	REF-CF, SMALL	10, 5%, 1/2W	2	R109
33	911 124707DA	REF-CF	47,5%, 1/4W	1	R216, 219
34	911 125607FF	REF-CF, SMALL	56,5%, 1/2W	2	R15, 24, 29, 30, 31, 155
35	911 131007CA	REF-CF	100, 5%, 1/8W	6	R104
36	911 131007DA	REF-CF	100, 5%, 1/4W	1	R102
37	911 131207FF	REF-CF, SMALL	120, 5%, 1/2W	1	R103
38	911 131807FF	REF-CF, SMALL	180, 5%, 1/2W	11	

No.	CODE NO	DISCRIPTION	SPECIFICATION	Q'TY	LOCATION
39	911 132707DA	REF-CF	270,5%, 1/4W	1	R112
40	911 134707CA	REF-CF	470,5%, 1/8W	1	R156
41	911 135107CA	REF-CF	510, 5%, 1/8W	1	R4, 20
42	911 141007CA	REF-CF	1K, 5% 1/8W	13	R7, 12, 18, 33, 34, 41 R42, 44-46, 49, 51, 58
43	911 141207CA	REF-CF	1. 2K, 5%, 1/8W	1	R39, 251
44	911 142207CA	REF-CF	2. 2K, 5% 1/8W	7	R225, 250, 252, 254-256, 259
45	911 143307CA	REF-CF	3. 3K, 5% 1/8	2	R37, 57
46	911 143307CA	REF-CF	4. 7K, 5%, 1/4W	2	R47, 110
47	911 144707DA	REF-CF	4. 7K, 5%, 1/5W	1	R48
48	911 145607CA	REF-CF	5. 6K, 5%, 1/8W	14	R11, 13, 17, 19, 22, 26, 28 R35, 36, 38, 43, 260, 261, 40
49	911 151207CA	REF-CF	12K, 5%, 1/8W	2	R56, 245
50	911 152207CA	REF-CF	22K, 5%, 1/8W	1	R268
51	911 152707CA	REF-CF	27K, 5%, 1/8W	1	R253
52	911 153307CA	REF-CF	33K, 5%, 1/8W	7	R249, 257, 263-266, 274
53	911 154707CA	REF-CF	47K, 5%, 1/8W	7	R9, 10, 54, 223, 224, 227, 232
54	911 155607CA	REF-CF	56K, 5%, 1/8W	2	R53, 248
55	911 156207CA	REF-CF	62K, 5%, 1/8W	1	R235
56	911 1582207CA	REF-CF	82K, 5%, 1/8W	1	R240
57	911 161007CA	REF-CF	100K, 5%, 1/8W	1	R238
58	911 161007FF	REF-CF, SMALL	100K, 5%, 1/8W	2	R106, 107
59	911 164707CA	REF-CF	150K, 5%, 1/8W	1	R215
60	911 164707CA	REF-CF, SMALL	470K, 5%, 1/8W	1	R243
61	911 164707FF	REF-CF, SMALL	470K, 5%, 1/8W	1	R101, 105
62	911 172007FF	REF-CF, SMALL	2M, 5%, 1/2W	7	R201-203, 305, 206, 208, 209
63	911 173307FF	REF-CF, SMALL	3.3M, 5%, 1/2W	5	R210, 212, 226, 229, 239
64	911 174707FF	REF-MF	4.7M, 5%, 1/8W	2	R204, 207
65	911 429765CA	REF-MF	97. 6, 1%, 1/8W	2	R1
66	911 431507CA	REF-MF	150, 5%, 1/8W	7	R16, 32
67	911 442007CA	REF-MF	2K, 5%, 1/8W	2	R152, 213
68	911 443005DA	REF-MF	3K 1%, 1/4W	1	R154
69	911 443165CA	REF-MF	3.16K, 1%, 18W	2	R153
70	911 451505CA	REF-MF	15K, 1%, 1/8W	3	R55, 222, 262
71	911 451745CA	REF-MF	17.4K, 1%, 1/8W	1	R246
72	911452155CA	REF-MF	21.5K, 1%, 1/8W	1	R241
73	911 457505CA	REF-MF	75K, 1%, 1/8W	2	R244, 269
74	911 458665CA	REF-MF	86.6K, 1%, 1/8W	1	R234
75	911 459315CA	REF-MF	93.1K, 1%, 1/8W	1	R233
76	911 462005CA	REF-MF	200K, 1%, 1/8W	1	R258

No.	CODE NO	DISCRIPTION	SPECIFICATION	Q'TY	LOCATION
77	911 463095CA	REF-MF	309K, 1%, 1/8W	1	R228
78	911 466195CA	REF-MF	619K, 1%, 1/8	1	R242
79	915 266100HZAH	CAP-MULTI CERA, 100NF	104Z, 1H, Y5V	1	C110
80	915 31220HJHH	CAP-CERA, 220J, 1H	22P, 50V	2	C20, 21
81	915 323100HKPH	CAP-CERA, 101K, 1H	100P, 50V	4	C28, 30, 31, 225
82	915 323330VKPH	CAP-CERA, 331J, 2H	330P, 500V	2	C25, 44
83	915 323470HKPH	CAP-CERA, 471J, 1H	470P, 50V	2	C4, 7
84	915 323470ZKPH	CAP-CERA, 471K, 3F, Y5P	470P, 3KV	5	C201, 202, 204, 206, 211
	915 323470ZKPH	CAP-CERA, 471K, 3F, Y5P	470P, 3KV	4	C212, 215, 216, 219
85	915 323680HKPH	CAP-CERA, 681K	680P, 50V	1	C111
86	915 324100HKPH	CAP-CERA, 102K, 1H	1NF, 50V	13	C16, 17, 22, 23, 27, 29, 38 C39, 40, 43, 41, 42, 45
87	915 324220HKPH	CAP-CERA, 222J, 1H	2.2NF, 50V	5	C2, 3, 218, 223, C230
88	915 325100HZVH	CAP-CERA, 103Z, 1H, Y5P	10NF, 50V	14	C1, 8, 9, 10, 12, 13, 14, 15 C18, 19, 24, 36, 217, 231
89	915 325100VKPX	CAP-CERA, 103K, 2H	10NF, 500V	1	C106
90	915 335330HZVH	CAP-CERA, 333Z, 1H, Y5P	33NF, 50V	5	C207, 208, 210, 214, 224
91	915 336100HZVH	CAP-CERA, 104Z, 1H, Y5P	100NF, 50V	9	C26, 32, 34, 37, C209 C222, 226, 227, 229
92	916 164470LJAH	CAP-MYLAR, 4.7NF, 100V	472J, 2A, 5P	3	C113, 221, 233
93	916 166100LJAH	CAP-MYLAR, 100NF, 100V	104J, 2A, 5P	1	C112
94	917 121470HM	CAP-ELEC, 4.7M, 50V	475M, 1H	2	C33, 35
95	917 122470HM	CAP-ELEC, 4.7M, 50V	47M, 1H	2	C5, C228
96	917 741100HM	CAP-ELEC, 1UF, 50V	105M, 1H, 105'C	2	C109, C152
97	917 742470HM	CAP-ELEC, 47UF, 50V	476M, 1H, 105'C	1	C114
98	917 822470BM	CAP-ELEC, 47UF, 10V	476M, 1A, 6X5	2	C6, 11
99	953 260023BC	HOLDER-FUSE	FUSE-CLIP, 5.22*20	4	FH101, 152
100	955 0055001AAAB	CBF-JUMPER	52MM		R32, 50, 267, JP1~
101	JC41-10008A	PWB-MAIN, PHENOL	297*247*1.6T	1	PWB-ENGINE
102	0502-000001	TR-PNP, TO126, ECB	KSE171	1	Q9
103	0604-000001	OPT-COUPPL, DIP4	PC81XF, 200mW	2	PC152, 153
104	2009-000001	REF-GRAZE	30M, 5%, 5KV	2	R211, 214
105	2009-000002	REF-FRAZE	200M, 5%, 5KV	1	R220
106	2103-000001	VR-SEMI	10K, 30%, 0.2W	2	VR201, 202
107	2305-000002	CAP-MPAPER, 47N, 250V	473K, 10%, X2, RE-RED	1	C102
108	2801-000002	X-TAL	6.94407MHZ	1	X1
109	3711-000002	CON-HEADER 06PIN	173881-6	1	CN1
110	3711-000007	CON-HEADER 13PIN	2011P13V000	1	CN3
111	3711-000042	CON-HEADER 5PIN	2011PO5V000	1	CN151
112	3712-000001	CON-TERMINAL, PLATE	THV OUTPUT TERMINAL	1	THVOUT

No.	CODE NO	DISCRIPTION	SPECIFICATION	Q'TY	LOCATION
113	813 468062AC	IMP-SPRING TR(A)SUS	FIXING THE FET	1	Q102
114	831 511011BA	COM, HEAT-SINK, TRANS	FOR THE TR	1	HS202
115	831 515034AA	COM, HEAT-SINK, HVPS	FOR THE TR	2	HS101, HS202
116	831 516035AA	COM, HEAT-SINK, SMPS	FOR TEE FET/DIODE	1	HS102
117	877 190026AA	IC-MPU, MICROPROCESS	KS88C4316	1	U3
118	881 307818KB	IC-LIN, REGULATOR	7818	1	U202
119	881 907929SA	IC-LIN, MOTOR DRIVER	SLA7029M	1	U1
120	883 627256BA	IC-MEM, EPROM	27C256	1	U2
121	889 140009AA	THY, TRIAC	BTA10-600C	1	Q101
122	891 490526AB	TR-NPN	KSD526	4	Q201-Q204
123	891 890840AANA	FET-N	IRF-840	1	Q102
124	893 391020AA	DIODE-REC	STPR1020CF	1	D152
125	893 399046AB	DIODE-BRIDGE	D3SBA60	1	DB101
126	893 990024AA	DIODE-SCHOTTKY	D10SC4M	1	D151
127	895 540006AA	OPT-COUPLER	MOC3061	1	PC151
128	895 610019AA	PHOTO-INTERRUPT	EESX1041	2	OP1, OP2
129	897 110545AA	THERMISTOR	M5R110CT	1	TH101
130	897 130532AA	VARISTOR, 470V, DISC	1NR10D47K, 460V,0.	1	TNR101
131	911 311007LF	REF-MO	1,5%, 3W	2	R5, 6
132	911 354707HF	FEF-MO	47K, 5%, 2W	1	R108
133	911 601007JVNA	RES-WIRE WOUND	0. 1,5%, 2W	1	R114
134	911 632607PW	RES-CEMENT(RADIAL)	260, 5%, 2W	11	R157
135	915 325100YZVX	CAP-CERA, 103Z, 3D, DIS	10NF, 2KV	1	C108
136	915 344220 MMVH	CAP-CERA, 2.2NF, 250V	222M, 10%, 2E, Y5P	3	C103, 104, 115
137	915 926220 QMAX	CAP-MPAPER, 220N, 250V	224K, 10%, 250	1	C101
138	917 793220PMAX	CAP-ELEC, 220UF, 200V	227M, 105C	1	C107
139	923 490001CA	TRANS-POWER	190UH	1	T101
140	933 250056AB	SW-MICRO LEVER, SPST	MPS1034MLB0	1	SW1
141	933 250501GA	SW-MICRO ROLLER, SPDT	SS-5GL2, COVER OPEN	2	SW151, 152
142	935 155128DC	CON-IC SOCKET, 28P	DIP28, 2. 54	1	U2
143	935 240104JD	CON-HEADER 04PIN	2011P04V000	1	CN2
144	935 240324GA	CON-HEADER 24PIN		1	CN4
145	935 240902DHSA	CON-WELL, HEADER	3P, 3.96mm, STRAIGHT	1	CN102
146	935 240902DW	CON-WELL, HEADER	2PIN, ST, 2.5MM	1	
147	935 240903DLSA	CON-WELL, HEADER	YW396-03AV	1	CN101
148	937 330009AA	MAG-SOLENOID	SOLENOID	1	CLUTCH
149	949 110028CH	FUSE-GLASS, FAST-ACT	125V, 5A	1	F151
150	949 115103ST	FUSE-CLASS, TIME-LAG	8A, 125V	1	F101
151	JC27-20002A	COIL-LINE FILTER	11mH	1	L101
152	JC39-40005A	AC-INLET ASSY	BPC-03A,	1	



NO.	CODE NO	DISCRIPTION	SPECIFICATION	Q'TY	LOCATION
153	0601 - 000002	LED-QUENCHING	SR 5317-V	23	D1-23
154	3711 - 000023	CON-BOX, HEADER, ANGLE	2011P0H000	1	CN1
155	911 122007CA	FEF-CF	1, 1.4W, 5%	3	R1, 3, 5
156	JC41 - 10007A	PWB-LED ARRAY	239 × 16 × 1.2T(S)	1	PWB-QUENCH

## 8-7 Assy Engine Control Board(B)

(B ; for220-240VAC)

NO.	CODE NO	DISCRIPTION	SPECIFICATION	Q'TY	LOCATION
1	02169-201-077	DIODE-REC, DO-41	1N4003, 200V, 1A, 1.1	2	D1, D211
2	2001-000003	REF-CF	330, 5%, 1/8W	5	R25, 27, 52, 111, 151,
3	2001-000005	REF-CF	390, 5%, 1/8W	3	R218, 221, 231
4	2001-000006	REF-CF	2.4K, 5% 1/8W	2	R2, 3
5	2001-000012	REF-CF	680K, 5%, 1/8W	1	R236
6	2004-000002	REF-MF	78.7K, 1%, 1/8W	1	R247
7	2004-000003	REF-MF	16.2K, 1%, 1/8W	1	R237
8	2201-000003	CAP-CERA, 68K, 3D, Y5P	68P, 2KV	1	C213
9	2201-000004	CAP-CERA, 101K, 3D, Y5P	100P, 2KV	3	C203, 205, 220
10	2202-000002	CAP-MO, 103K, 500V	10NF, 500V	1	C232
11	24048-035-020	MAG-CORE, FERRITE B/D	1.2UH, 3.5 × 5, 7MM,	6	BD1, 2 101-103, 151, 151
12	871 700007AAND	IC-TTL	74LS07	1	U203
13	873 790574AC	IC-MOS	74HCT574	1	U4
14	881 100324AANB	IC-LINEAR	LM324	1	U201
15	881 200393AAND	IC-LIN, COMP	LM393	1	U5
16	881 300431TANB	IC-LIN, REGULATOR	TL431	1	U151
17	881 907552AA	IC-LIN, PWM	KA7552, PWM IC	1	U101
18	891 190708XC	TR-PNP	KSA708, 80V, 0.7A	4	Q205, 207, 208, 209
19	891 391008XA	TR-NPN, TO-92, EBC	KSC1008, 80V, 0.7A	12	Q1-8, 10, 206, 210, 211
20	893 114148AANA	DIODE-SIGNAL	1N4148	12	D2, 3, 4, 5, 6, 7, 8 D101, 154, 209, 212, 213
21	893 215274AA	DIODE-ZENER	1N5274BRL	2	ZD101, 203
22	893 290031CB	DIODE-ZENER	MTZ27, 0.5W, 5mA	1	ZD103
23	893 290031FB	DIODE-ZENER	UZP-5.1V	1	ZD102
24	893 290031KB	DIODE-ZENER	UZ-7.5BM	1	ZD202
25	893 290035AE	DIODE-ZENER	UZ-5.6BCB	2	ZD151, 201
26	893 290034AG	DIODE-ZENER	UZP-33B, 0.5W, 10mA	3	ZD152, 204, 205
27	893 314937AB	DIODE-REC	1N4937, 420V, 1A	1	D103
28	893 390057AA	DIODE-HV	ESJA57-04	9	D201-208, 210
29	893 394007AA	DIODE-REC	UF4007	1	D102
30	911 111007DA	REF-CF	1, 5%, 1/4W	1	R8
31	911 115607DA	REF-CF	5.6, 5%, 1/4W	1	R113
32	911 121007FF	REF-CF, SMALL	10,5%, 1/2W	2	R217, R230
33	911 124707DA	REF-CF	47,5%, 1/4W	1	R109
34	911 125607FF	REF-CF, SMALL	56,5%, 1/2W	2	R216, 219
35	911 131007CA	REF-CF	100, 5%, 1/8W	6	R15, 24, 29, 30, 31, 155
36	911 131007DA	REF-CF	100, 5%, 1/4W	1	R104
37	911 131207FF	REF-CF, SMALL	120, 5%, 1/2W	1	R102
38	911 131807FF	REF-CF, SMALL	180, 5%, 1/2W	1	R103

NO.	CODE NO	DISCRIPTION	SPECIFICATION	Q'TY	LOCATION
39	911 132707DA	REF-CF	270, 5%, 1/4W	1	R112
40	911 134707CA	REF-CF	470, 5%, 1/8W	1	R156
41	911 135107CA	REF-CF	210, 5%, 1/8W	1	R4,20
42	911 141007CA	REF-CF	1K, 5%, 1/8W	13	R7, 12, 18, 33, 34, 41 R42, 44-46, 49, 51, 58
43	911 141207CA	REF-CF	1. 2K, 5%, 1/8W	1	R39, 251
44	911 142207CA	REF-CF	2. 2K, 5%, 1/8W	7	R225,250,252,254-256,259
45	911 143307CA	REF-CF	3. 3K, 5%, 1/8W	2	R37, 57
46	911 144707CA	REF-CF	4. 7K, 5%, 1/8W	2	R47, 110
47	911 144707DA	REF-CF	4. 7K, 5%, 1/4W	1	R48
48	911 145607CA	REF-CF	5. 6K, 5%, 1/8W	14	R11, 13, 17, 19, 22, 26, 28 R35, 36, 38, 43, 260, 261, 40
49	911 151207CA	REF-CF	12K, 5%, 1/8W	2	R56, 245
50	911 152207CA	REF-CF	22K, 5%, 1/8W	1	R268
51	911 152707CA	REF-CF	27K, 5%, 1/8W	1	R253
52	911 153307CA	REF-CF	33K, 5%, 1/8W	7	R249, 257, 263-266, 274
53	911 154707CA	REF-CF	47K, 5%, 1/8W	7	R9, 10, 54, 223, 224, 227 232
54	911 155607CA	REF-CF	56K, 5%, 1/8W	2	R53, 248
55	911 156207CA	REF-CF	62K, 5%, 1/8W	1	R235
56	911 158207CA	REF-CF	82K, 5%, 1/8W	1	R240
57	911 161007CA	REF-CF	100K, 5%, 1/8W	1	R238
58	911 161507CA	REF-CF	150K, 5%, 1/8W	1	R215
59	911 162007FF	REF-FF	200K, 5%, 1/2W	1	R107
60	911 164707CA	REF-CF	470K, 5%, 1/8W	1	R243
61	911 164707FF	REF-CF, SMALL	470K, 5%, 1/2W	2	R101, 105
62	911 172007FF	REF-CF, SMALL	2M, 5%, 1/2W	7	R201-203, 205, 206, 208, 209
63	911 173307FF	REF-CF, SMALL	3. 3M, 5%, 1/2W	5	R210, 212, 225, 229, 239
64	911 174707FF	REF-CF, SMALL	4. 7M, 5%, 1/2W	2	R204, 207
65	911 429765CA	REF-MF	97.6, 1%, 1/8W	1	R1
66	911 431507CA	REF-MF	150, 5%, 1/8W	2	R16, 23
67	911 442007CA	REF-MF	2K, 5%, 1/8W	2	R152, 213
68	911 443005DA	REF-MF	3K, 1%, 1/4W	1	R154
69	911 443165CA	REF-MF	3. 16K, 1% 1/8W	1	R153
70	911 451505CA	REF-MF	15K, 1%, 1/8W	3	R55, 222, 262
71	911 451745CA	REF-MF	17. 4K, 1%, 1/8W	1	R246
72	911 452515CA	REF-MF	21. 5K, 1%, 1/8W	1	R241
73	911 457505CA	REF-MF	75K, 1%, 1/8W	1	R244, R269
74	911 458665CA	REF-MF	86. 6K, 1%, 1/8W	1	R234
75	911 459315CA	REF-MF	93. 1K, 1%, 1/8W	1	R233
76	911 462005CA	REF-MF	200K, 1%, 1/8W	1	R258

NO.	CODE NO	DISCRIPTION	SPECIFICATION	Q'TY	LOCATION
77	911 463095CA	REF-MF	309K, 1%, 1/8W	1	R228
78	911 466195CA	REF-MF	619K, 1%, 1/8W	1	R242
79	915 266100HZAH	CAP-MULT CERA, 100NF	104Z, 1H, Y5V	1	C110
80	915 312220HJHH	CAP-CERA, 220J, 1H	22P, 50V	2	C20, 21
81	915 323100HKPH	CAP-CERA, 101K, 1H	100P, 50V	4	C28, 30, 31, 225
82	915 32330VKPH	CAP-CERA, 331J, 2H	330P, 500V	2	C25, 44
83	915 323470HKPH	CAP-CERA, 471J, 1H	470P, 50V	2	C4, 7
84	915 323470ZKPH	CAP-CERA, 471K, 3F, Y5P	470P, 3KV	5	C201, 202, 204, 206, 211
	915 323470ZKPH	CAP-CERA, 471K, 3F, Y5P	470P, 3KV	4	C212, 215, 216, 219
85	915 323680HKPH	CAP-CERA, 681K	680P, 5-V	1	C111
86	915 324100HKPH	CAP-CERA, 102K, 1H	1NF, 50V	13	C16, 17, 23, 27, 29, 38 C39, 40, 43, 41, 42 45
87	915 324220HKPH	CAP-CERA, 222J, 1H	2.2NF, 50V	5	C2, 3, 218, 223, C230
88	915 325100HZVH	CAP-CERA, 103Z, 1H, Y5P	10NF, 50V	14	C1, 8, 9, 10, 12, 13, 14, 15 C18, 19, 24, 36, 217, 231
89	915 325100VKPX	CAP-CERA, 103K, 2H	10NF, 500V	1	C106
90	915 335330HZVH	CAP-CERA, 333Z, 1H, Y5P	33NF, 50V	5	C207, 208, 210, 214, 224
91	915 336100HZVH	CAP-CERA, 104Z, 1H, Y5P	100NF, 50V	9	C26, 32, 34, 37, C209 C222, 226, 227, 229
92	916 164470LJAH	CAP-MYLAR, 4.7NF, 100V	472J, 2A, 5P	3	C113, 221, 223
93	916 166100LJAH	CAP-MYLAR, 100NF, 100V	104J, 2A, 5P	1	C112
94	917 121470HM	CAP-ELEC, 4.7M 50V	475M, 1H	2	C33, 35
95	917 122470HM	CAP-ELEC, 47M, 50V	47M, 1H	2	C5, C228
96	917 741100HM	CAP-ELEC, 1UF, 50V	105M, 1H, 105°C	2	C109, C152
97	917 742470HM	CAP-ELEC, 47UF, 50V	476M, 1H, 105°C	1	C114
98	917 822470BM	CAP-ELEC, 47UF, 10V	476M, 1A 6X5	2	C6, 11
99	953 260023BC	HOLDER-FUSE	FUSE-CLIP, 5.2 × 20	4	FH101, 152, R32, 50, 267, JP1~
100	955 005001AAAB	CBF-JUMPER	52MM	1	PWB-ENGINE
101	JC41-10008A	PWB-MAIN, PHENOL	297 × 247 × 1.6t	1	Q9
102	0502-000001	TR-PNP, T0126, ECB	KSE171	1	PC152, 153
103	895 520123AA	OPT-COUPPL	PC123FY	2	R211, 214
104	2009-000001	REF-GRAZE	30M, 5%, 5KV	1	R220
105	2009-000002	REF-GRAZE	200M, 5%, 5KV	2	VR201, 202
106	2103-000001	VR-SEMI	10K, 30%, 0.2W	1	X1
107	2801-000002	X-TAL	6. 94407MHZ	1	CN1
108	3711-000007	CON-HEADER 06PIN	173881-6	1	CN3
109	3711-000016	CON-HEADER 13PIN	2011P13V000	1	CN151
110	3711-000042	CON-HEADER 5PIN	2011P05V000	1	THVOUT
111	3712-000001	CON-TERMINAL, PLATE	THV OUTPUT TERMINAL	1	Q102
112	813 468062AC	IMP-SPRING TR(A) SUS	FIXING THE FET	1	

NO.	CODE NO	DISCRIPTION	SPECIFICATION	Q'TY	LOCATION
113	831 511011BA	COM, HEAT-SINK, TRANS	FOR THE TR	1	HS202
114	831 515034AA	COM, HEAT-SINK, HVPS	FOR THE TR	2	HS101, HS201
115	831 516035AA	COM, HEAT-SINK, SMPS	FOR THE FET/DIODE	1	HS102
116	877 190026AA	IC-MPU, MICROPROCESS	KS88C4316	1	U3
117	881 307818KB	IC-LIN, REGULATOR	7818	1	U202
118	883 907929SA	IC-LIN, MOTOR DRIVER	SLA7029M	1	U1
119	883 627256BA	IC-MEM, EPROM	27C256	1	U2
120	889 140009AA	THY, TRIAC	BTA10-600C	1	Q101
121	891 490526AB	TR-NPN	KSD526	4	Q201-Q204
122	891 890590AA	FET-N	SSP5N90	1	Q102
123	893 391020AA	DIODE-REC	STPR1020CF	1	D152
124	893 399046AB	DIODE-BRIDGE	D3SBA60	1	DB101
125	893 990024AA	DIODE-SCHOTTKY	D10SC4M	1	D151
126	895 540006AA	OPT-COUPLER	MOC3061	1	PC151
127	895 610019AA	PHOTO-INTERRUPT	EESX1041	2	OP1, OP2
128	897 110545AA	THERMISTOR	M5R110CT	1	TH101
129	897 130532AA	VARISTOR, 470V, DISC	INR10D471K, 460V, 0.	1	TNR101
130	911 311007LF	REF-MO	1,5%, 3W	2	R5, 6
131	911 354707JF	FEF-MO	47K, 5%, 2W	1	R108
132	911 602207JVNA	RES-WIRE WOUND	0. 22, 5%, 2W	1	R114
133	911 632607PW	RES-CEMENT(RADIAL)	260, 5%, 5W	1	R157
134	915 325100YZVX	CAP-CERA, 103Z, 3D, DIS	10NF, 2KV	1	C108
135	915 344220MMVH	CAP-CERA, 2.2NF, 250V	222M, 10%, 2E, Y5P	3	C103, 104, 115
136	916 926100QKAX	CAP-CERAMIC	104K, 10%, 250V	1	C102
137	917 793150TMAX	CAP-AL, ELEC	157M, 105C	1	C107
138	918 146470QK	CAP-MPAPER	474K, 10%, 250V	1	C101
39	923 490001DA	TRANS-POWER	900UH	1	T101
140	933 250056AB	SW-MICRO LEVER, SPST	MPS1034MLB0	1	SW1
141	933 250051GA	SW-MICRO ROLLER, SPDT	SS-5GL2, COVER OPEN	2	SW151, 152
142	935 155128DC	CON-IC SOCKET, 28P	DIP28, 2.54	1	U2
143	935 240104JD	CON-HEADER 04PIN	2011P04V000	1	CN2
144	935 240324GA	CON-HEADER 24PIN		1	CN4
145	935 240902DHSA	CON-WELL, HEADER	3P, 3.96mm, STRAIGHT	1	CN102
146	935 240902DW	CON-WELL, HEADER	2PIN, ST, 2.5MM	1	
147	935 240903DLSA	CON-WELL, HEADER	YW396-03AV	1	CN101
148	937 330009AA	MAG-SOLENOID	SOLENOID	1	CLUTCH
149	949 110028CH	FUSE-GLASS, FAST-ACT	250V, 5A	1	F151
150	949 110034AW	FUSE-GLASS, TIME-LAG	5A, 250V, HBC	1	F101
151	JC27-20002A	COIL-LINE FILTER	11mH	1	L101
152	JC39-40005A	AC-INLET ASSY	BCP-03A,	1	

NO.	CODE NO	DISCRIPTION	SPECIFICATION	Q'TY	LOCATION
153	0601 - 000002	LED-QUENCHING	SR 5317-V	23	D1-23
154	3711 - 000023	CON-BOX, HEADER, ANGLE	2011P0H000	1	CN1
155	911 122007CA	FEF-CF	1, 1.4W, 5%	3	R1, 3, 5
156	JC41 - 10007A	PWB-LED ARRAY	239×16×1.2T(S)	1	PWB-QUENCH

## 8-8 Assy Video Control Board (Include Panel/Serial Board/SIMM)

### 8-8-1 ML-84

#### ML-84 DISKETTES

NO.	CODE	DISCRIPTION	Q'TY	LOCATION	S/A
1	JC82-10010A	S/W-WPS;ML-84,1/1,1.4MB,3	1		
2	JC82-10011A	S/W-PCL:ML-84,1/1,1/4MB,3	1		

#### Ass'y ML-84 Control : JC92-50002G(1.5M)/JC92-50002B(1.0M)

NO.	CODE	DISCRIPTION	Q'TY	LOCATION	S/A
1	813 492002AA	IMP, BRACKET-ICU:SECC t0.8	1		NA
2	847 501007EE	SPECAIL, TAPTITE, BH+, M3×6:	2	BRACKET, CONTROLLER	
3	871 730014GA	IC-TTL, 74F14, INVERTER:SOL	1	U9	
4	871 730032GANB	IC-TTL, 74F32, GATE:SOP, 14	1	U8	
5	871 760273GA	IC-TTL, 74LS273, D-F/F:SOP,	1	U2	
6	873 810245GA	IC-MOS, 74ACT245, TRANSCEIV	1	U4	
7	877 168322EA	IC-MCU,XC68322, U-PROCESSO	1	U6	
8	881 800204GC	1 CI-LIN, 204, DIODE ARRAY:SM	7	D1, D2, D3, D4, D5, D6, D7	
9	881 800204GC	2 CI-LIN, 204, DIODE ARRAY:SM	5	D8, D9, D10, D11, D12	
10	881 800204GC	3 CI-LIN, 204, DIODE ARRAY:SM	5	D13, D14, D15, D16, D17	
11	881 907705GA	IC-LIN, 7705, VOLTAGE DETEC	1	U10	
12	883 299026GA	1 IC-MEM, DRAM, 416C256, 4M:SO	3	U7, U11	
				U12 : 1.0M Default(Not Install)	
13	883 609366GANA	IC-MEM, EEPROM, 93C66, 255×1	1	U1	
14	911 700007BS	1 REF-CHIP, 0.5%, 1/10W:150V,	1	R77	
15	911 722707BS	1 REF-CHIP 27,5%, 1/10W:150V	5	R13, R14, R29, R61, R62	
16	911 722707BS	2 REF-CHIP 27,5%, 1/10W:150V	5	R63, R64, R65, R66, R67	
17	911 722707BS	3 REF-CHIP 27,5%, 1/10W:150V	5	R71, R73, R74, R75, R88	
18	911 722707BS	6 REF-CHIP 27,5%, 1/10W:150V	1	R89	
19	911 723307BS	1 REF-CHIP, 33,5%, 1/10W:150V	5	R4, R6, R11, R15, R18	
20	911 723307BS	2 REF-CHIP, 33,5%, 1/10W:150V	5	R19, R21, R22, R25, R26	
21	911 723307BS	3 REF-CHIP, 33,5%, 1/10W:150V	5	R31, R33, R34, R35, R39	
22	911 723307BS	4 REF-CHIP, 33,5%, 1/10W:150V	3	R43, R44, R55	
23	911 726807BS	1 REF-CHIP 68,5%, 1/10W:150V	5	R37, R38, R49, R50, R56	
24	911 726807BS	2 REF-CHIP 68,5%, 1/10W:150V	5	R57, R69, R70, R72, R79	
25	911 731007BS	REF-CHIP, 100,5%, 1/10W:150	2	R59, R60	
26	911 734707BS	REF-CHIP, 470,5%, 1/10W:150	1	R86	
27	911 741007BS	1 REF-CHIP, 1K, 5%, 1/10W:150V	5	R2, R12, R16, R17, R20	
28	911 741007BS	2 REF-CHIP, 1K, 5%, 1/10W:150V	5	R23, R24, R27, R28, R41	
29	911 741007BS	3 REF-CHIP, 1K, 5%, 1/10W:150V	5	R42, R45, R46, R47, R48	
30	911 741007BS	4 REF-CHIP, 1K, 5%, 1/10W:150V	5	R51, R52, R53, R54, R83	
31	911 741007BS	6 REF-CHIP, 1K, 5%, 1/10W:150V	2	R87, R91	
32	911 751007BS	1 REF-CHIP, 10K, 5%, 1/10W, 150	6	R1, R3, R5, R7, R8, R10	
33	911 751007BS	2 REF-CHIP, 10K, 5%, 1/10W, 150	5	R30, R32, R36, R40, R58	

NO.	CODE NO	DISCRIPTION	Q'TY	LOCATION	S/A
34	911 751007BS 3	REF-CHIP, 10K, 5%, 1/10W, 150	5	R68, R76, R78, R80, R82	
35	911 751007BS 4	REF-CHIP, 10K, 5%, 1/10W, 150	2	R84, R85	
36	915 412680HJXHNA	CAP-CERAMIC, 680J, 1H, CHIP:	5	C93, C94, C100, C101, C102	
37	915 413100HJXH 1	CAP-CERAMIC, 101J, 1H, CHIP:	5	C3, C23, C28, C55, C56	
38	915 413100HJXH 2	CAP-CERAMIC, 101J, 1H, CHIP:	5	C60, C61, C62, C63, C64	
39	915 413100HJXH 3	CAP-CERAMIC, 101J, 1H, CHIP:	5	C65, C66, C67, C68, C69	
40	915 413100HJXH 4	CAP-CERAMIC, 101J, 1H, CHIP:	5	C70, C71, C72, C82, C84	
41	915 413100HJXH 5	CAP-CERAMIC, 101J, 1H, CHIP:	5	C85, C86, C87, C88, C89	
42	915 413100HJXH 6	CAP-CERAMIC, 101J, 1H, CHIP:	3	C90, C91, C92	
43	915 413100HJXH 7	CAP-CERAMIC, 101J, 1H, CHIP:	4	C95, C96, C97, C103	
44	915 413100HJXH 8	CAP-CERAMIC, 101J, 1H, CHIP:	1	C104	
45	915 413100HJXH 9	CAP-CERAMIC, 101J, 1H, CHIP:	1	C98	
46	915 413220HJXH	CAP-CERAMIC, 221J, 1H, 0805:	3	C73, C74, C75	
47	915 413470HJXH 1	CAP-CERAMIC, 471J, 1H, 0805:	5	C7, C8, C11, C13, C14	
48	915 413470HJXH 2	CAP-CERAMIC, 471J, 1H, 0805:	5	C22, C35, C36, C37, C44	
49	915 413470HJXH 3	CAP-CERAMIC, 471J, 1H, 0805:	1	C45	
50	915 414100HJXH 1	CAP-CERAMIC, 102J, 1H, 0805:	5	C6, C48, C49, C50, C51	
51	915 414100HJXH 2	CAP-CERAMIC, 102J, 1H, 0805:	1	C52	
52	915 416100HZAHA 1	CAP-CERAMIC, 104Z, 1H, 0805:	6	C1, C2, C4, C9, C10, C12	
53	915 416100HZAHA 2	CAP-CERAMIC, 104Z, 1H, 0805:	5	C15, C16, C17, C18, C19	
54	915 416100HZAHA 3	CAP-CERAMIC, 104Z, 1H, 0805:	5	C20, C21, C24, C25, C26	
55	915 416100HZAHA 4	CAP-CERAMIC, 104Z, 1H, 0805:	5	C27, C29, C30, C31, C32	
56	915 416100HZAHA 5	CAP-CERAMIC, 104Z, 1H, 0805:	5	C33, C34, C38, C39, C40	
57	915 416100HZAHA 6	CAP-CERAMIC, 104Z, 1H, 0805:	5	C41, C42, C43, C46, C47	
58	915 416100HZAHA 7	CAP-CERAMIC, 104Z, 1H, 0805:	1	C53	
59	915 416100HZAHA 8	CAP-CERAMIC, 104Z, 1H, 0805:	5	C76, C77, C78, C79, C80	
60	915 416100HZAHA 9	CAP-CERAMIC, 104Z, 1H, 0805:	1	C81,	
61	917 612330BMAH 1	CAP-TA, ELEC 336M, 1A, 7343:	3	C5, C54, C83	
62	943 150012BB	FIL-LPF(EMI), LC, CHIP, 151:	4	LF1, LF2, LF3, LF4, LF5	
63	947 490017DA	PCB-MAIN, ML-84, 4LAYER:155	1	PCB	NA
64	883 627240BA	IC-MEM, EPROM, 27C240, 4M:DI	2	U3, U5(EPROM)	NA
	JC 11-10002A	MASK 4M, KM23C4200C-12	1	U3 : Mask1	
	JC 11-10003A	MASK 4M, KM23C4200C-12	1	U5 : Mask2	
65	935 130236AH	CON-MICRO RIBBON, 36P:-,-,	1	J2 : Printer Connector	
66	935 155140DC	CON-IC SOCKET, 40P:DIP, STR	2	U3, U5	
67	935 240104JD	CON-BOX, HEADER, 4P, 2MM:1R,	1	J6 : DCU Connector	
68	935 240107KC	CON-BOX, HEADER, 7P, 2.5MM, 2R	1	J4 : Panel Connector	
69	935 240324GA	CON-BOX HEADER, 24P, 2MM, 2R,	1	J3 : Engine Connector	
70	935 240420AA	CONDIN, 20P, PLUG:2R, STRAI	1	J5 : Serial B'D Connector	
71	935 335572EA	CON-SIMM, SOCKET, 72P, ANGLE	1	J1 : SIMM Connector	
72	941 130601AA	OSC-CLOCK, 40M, 100:SCO-061	1	OSC1 : System Clock	NA
73	941 130602AA	OSC-CLOCK, 30.075M, 200:DXO	1	OSC2 : Video Clock	



## 8-8-2 ML-85

### ML-85 DISKETTES

NO.	CODE NO	DISCRIPTION	Q'TY	LOCATION	S/A
1	JC82-10008A	S/W-WPS;ML-85,1/1,1.4MB,3	1		
2	JC82-10009A	S/W-PCL:ML-85, MAGNETIC_DI	1		

#### Ass'y ML-85 Control : JC92-50002A

NO.	CODE NO	DISCRIPTION	Q'TY	LOCATION	S/A
1	813 492002AA	IMP, BRACKET-ICU:SECC t0.8	1		
2	847 501007EE	SPECAIL, TAPTITE, BH+, M3×6:	2	BRACKET, CONTROLLER	
3	JC41-10010A	PCB Main ML-85	1	PCB	NA
4	871 730014GA	IC-TTL, 74F14, INVERTER:SOL	1	U12	
5	871 730032GANB	IC-TTL, 74F32, GATE:SOP, 14,	1	U11	
6	871 760273GA	IC-TTL, 74LS273, D-F/F:SOP,	1	U2	
7	873 810245GA	IC-MOS, 74ACT245, TRANSCEIV	1	U3	
8	877 168322EA	IC-MCU,XC68322, U-PROCESSO	1	U9	NA
9	881 800204GC 1	CI-LIN, 204, DIODE ARRAY:SM	7	D2, D3, D4, D5, D6, D7, D8	
10	881 800204GC 2	CI-LIN, 204, DIODE ARRAY:SM	5	D9, D10, D11, D12, D13	
11	881 800204GC 3	CI-LIN, 204, DIODE ARRAY:SM	5	D14, D15, D16, D17, D18	
12	881 907705GA	IC-LIN, 7705, VOLTAGE DETEC	1	U13	
13	883 299025GA 1	IC-MEM, DRAM, 416C1200, 1M×1	1	U10	
14	883 609366GANA	IC-MEM, EEPROM, 93C66, 256×1	1	U1	
15	911 700007BS 1	REF-CHIP, 0.5%, 1/10W:150V,	1	R79	
16	911 722707BS 1	REF-CHIP 27.5%, 1/10W:150V	4	R10, R11, R61, R71	
17	911 723307BS 1	REF-CHIP, 33.5%, 1/10W:150V	5	R2, R4, R13, R15, R18	
18	911 723307BS 2	REF-CHIP, 33.5%, 1/10W:150V	5	R19, R21, R22, R25, R26	
19	911 723307BS 3	REF-CHIP, 33.5%, 1/10W:150V	5	R31, R33, R34, R35, R39	
20	911 723307BS 4	REF-CHIP, 33.5%, 1/10W:150V	3	R43, R44, R55	
21	911 726807BS 1	REF-CHIP 68.5%, 1/10W:150V	5	R29, R38, R50, R62, R63	
22	911 726807BS 2	REF-CHIP 68.5%, 1/10W:150V	5	R64, R65, R66, R67, R69	
23	911 726807BS 3	REF-CHIP 68.5%, 1/10W:150V	5	R72, R74, R75, R76, R77	
24	911 726807BS 4	REF-CHIP 68.5%, 1/10W:150V	5	R81, R91, R92, R93, R94	
25	911 726807BS 5	REF-CHIP 68.5%, 1/10W:150V	5	R95, R96, R97, R98, R99	
26	911 726807BS 6	REF-CHIP 68.5%, 1/10W:150V	4	R100, R101, R102, R103	
27	911 726807BS 7	REF-CHIP 68.5%, 1/10W:150V	4	R104, R105, R106, R108	
28	911 726807BS 8	REF-CHIP 68.5%, 1/10W:150V	4	R109, R110, R111, R112	
29	911 726807BS 9	REF-CHIP 68.5%, 1/10W:150V	4	R113, R114, R115, R116	
30	911 726807BS 10	REF-CHIP 68.5%, 1/10W:150V	4	R117, R118, R119, R120	
31	911 726807BS 11	REF-CHIP 68.5%, 1/10W:150V	4	R121, R122, R123, R124	
32	911 726807BS 12	REF-CHIP 68.5%, 1/10W:150V	4	R125, R126, R127, R128	
33	911 726807BS 13	REF-CHIP 68.5%, 1/10W:150V	4	R129, R130, R131, R132	
34	911 726807BS 14	REF-CHIP 68.5%, 1/10W:150V	4	R133, R134, R135, R136	

NO.	CODE NO	DISCRIPTION	Q'TY	LOCATION	S/A
35	911 726807BS 15	REF-CHIP 68,5%, 1/10W:150V	4	R137, R138, R139, R140	NA
36	911 726807BS 16	REF-CHIP 68,5%, 1/10W:150V	4	R141, 142, R143, R144	
37	911 726807BS 17	REF-CHIP 68,5%, 1/10W:150V	1	R145	
38	911 731007BS 1	REF-CHIP, 100,5%, 1/10W:150	5	R37, R49, R56, R57, R59	
39	911 731007BS 2	REF-CHIP, 100,5%, 1/10W:150	2	R60, R73	
40	911 734707BS	REF-CHIP, 470,5%, 1/10W:150	1	R88	
41	911 741007BS 1	REF-CHIP, 1K, 5%, 1/10W:150V	5	R12, R14, R16, R17, R20	
42	911 741007BS 2	REF-CHIP, 1K, 5%, 1/10W:150V	5	R23, R24, R27, R28, R41	
43	911 741007BS 3	REF-CHIP, 1K, 5%, 1/10W:150V	5	R42, R45, R46, R47, R48	
44	911 741007BS 4	REF-CHIP, 1K, 5%, 1/10W:150V	5	R51, R52, R53, R54, R85	
45	911 741007BS 5	REF-CHIP, 1K, 5%, 1/10W:150V	2	R89, R146	
46	911 751007BS 1	REF-CHIP, 10K, 5%, 1/10W:150	6	R1, R3, R5, R6, R8, R9	
47	911 751007BS 2	REF-CHIP, 10K, 5%, 1/10W:150	5	R30, R32, R36, R40, R58	
48	911 751007BS 3	REF-CHIP, 10K, 5%, 1/10W:150	5	R68, R78, R80, R82, R83	
49	911 751007BS 4	REF-CHIP, 10K, 5%, 1/10W:150	4	R84, R86, R87, R90	
50	915 413100HJXH 1	CAP-CERAMIC, 101J, 1H, CHIP:	5	C26, C31, C46, C58, C59	
51	915 413100HJXH 2	CAP-CERAMIC, 101J, 1H, CHIP:	5	C60, C61, C62, C63, C64	
52	915 413100HJXH 3	CAP-CERAMIC, 101J, 1H, CHIP:	5	C66, C67, C68, C69, C70	
53	915 413100HJXH 4	CAP-CERAMIC, 101J, 1H, CHIP:	5	C71, C72, C73, C74, C75	
54	915 413100HJXH 5	CAP-CERAMIC, 101J, 1H, CHIP:	5	C76, C77, C78, C79, C83	
55	915 413100HJXH 6	CAP-CERAMIC, 101J, 1H, CHIP:	4	C91, C92, C93, C94	
56	915 413100HJXH 7	CAP-CERAMIC, 101J, 1H, CHIP:	1	C95	
57	915 413220HJXH	CAP-CERAMIC, 221J, 1H, 0805:	3	C80, C81, C82	
58	915 413470HJXH 1	CAP-CERAMIC, 471J, 1H, 0805:	6	C4, C5, C8, C15, C16, C25	
59	915 413470HJXH 2	CAP-CERAMIC, 471J, 1H, 0805:	4	C44, C45, C47, C48	
60	915 414100HJXH 1	CAP-CERAMIC, 102J, 1H, 0805:	5	C13, C51, C52, C53, C54	
61	915 414100HJXH 2	CAP-CERAMIC, 102J, 1H, 0805:	1	C55	
62	915 416100HJXH 1	CAP-CERAMIC, 104J, 1H, 0805:	6	C1, C2, C6, C7, C10, C11	
63	915 416100HZAH 2	CAP-CERAMIC, 104J, 1H, 0805:	5	C12, C14, C17, C18, C19	
64	915 416100HZAH 3	CAP-CERAMIC, 104J, 1H, 0805:	5	C20, C21, C22, C23, C24	
65	915 416100HZAH 4	CAP-CERAMIC, 104J, 1H, 0805:	5	C27, C28, C29, C30, C32	
66	915 416100HZAH 5	CAP-CERAMIC, 104J, 1H, 0805:	5	C33, C34, C35, C36, C37	
67	915 416100HZAH 6	CAP-CERAMIC, 104J, 1H, 0805:	5	C38, C39, C40, C41, C42	
68	915 416100HZAH 7	CAP-CERAMIC, 104J, 1H, 0805:	4	C43, C49, C50, C56	
69	915 612330BMAH	CAP-TA.ELEC 336M, 1A, 7343:	3	C9, C57, C90	
70	935 155344BC	CON-IC SOCKET, 44P, PLCC:PL	4	U4, U5, U6, U7	
71	943 150012BB	FIL-LPF(EMI), LC, CHIP, 151:	1	LF5	
72	883 627040BC	IC-MEM,OTP ROM,27C4096,4M * Q'ty would be dependent on MASK ROM status.	4	U4 : Kernal & WPS U5 : PCL5e U6 : PCL Font(1/2) U7 : PCL Font(2/2)	

NO.	CODE NO	DISCRIPTION	Q'TY	LOCATION	S/A
73	JC11-10001A	MASK 16M, KM23C16000AG-12	1	U8 (MASK ROM) Kernel, WPS, PCL5e, Font	NA
74	935 130236AH	CON-MICRO RIBBON, 36P:-,-,	1	J2 : Printer Connector	NA
75	935 240104JD	CON-BOX, HEADER, 4P, 2MM:1R,	1	J6 : DCU Connector	
76	935 240107KC	CON-BOX HEADER, 7P 2,5MM:1	1	J4 : Panel Connector	
77	935 240324GA	CON-BOX HEADER, 24P, 2MM:2R	1	J3 : Engine Connector	
78	935 240420AA	CON-DIN, 20P, PLUG:2R, STRAI	1	J5 : Serial B'D Connector	
79	935 335572EA	CON-SIMM, SOCKET, 72P:ANGLE	1	J1 : SIMM Connector	NA
80	941 130601AA	OSC-COLCK, 40M, 100:SCO-061	1	OSC1 : System Clock	
81	941 130602AA	OSC-COLCK, 30.075M, 100:DXO	1	OSC2 : Video Clock	

### 8-8-3 ML-85G

#### ML-85G DISKETTES

NO.	CODE NO	DISCRIPTION	Q'TY	LOCATION	S/A
1	JC82-10014A	S/W-WPS;ML-85G,1/1,1.4MB,3	1		
2	JC82-10014B	S/W-WPS;ML-85G,1/1,1.4MB,3	1		
3	JC82-10015A	S/W-PCL:ML-85G,1/1,1/4MB,3	1		

#### Ass'y ML-85G : JC92-50002D

NO.	CODE NO	DISCRIPTION	Q'TY	LOCATION	S/A
1	JC96-50003B	ASS'Y-SHIELD, CONTROL:ML-8	1		
2	813 492002AA	IMP, BRACKET-ICU:SECC t0.8	1		
3	847 501007EE	SPECAIL, TAPTITE, BH+, M3×6:	2	BRACKET, CONTROLLER	
4	JC41-10011A	PCB-CONTROL, ML-85G, 2L	1	PCB	NA
5	JC13-10001A	IC-ASIC, ML-85G, KG6114, PQFP	1	U3	NA
6	871 760014GA	IC-TTL, 74LS14, INVERTER:SOL	1	U4	
7	881 800204GC	1 IC-LIN,204,DIODE ARRAY:SM	6	D2, D3, D4, D5, D6, D7	
8	881 800204GC	2 IC-LIN,204,DIODE ARRAY:SM	5	D8, D9, D10, D11, D12	
9	881 800204GC	3 IC-LIN,204,DIODE ARRAY:SM	5	D13, D14, D15, D16, D17, D18	
10	881 907705GA	IC-LIN,7705,VOLTAGE DETEC	1	U1	
11	883 244800KA	IC-MEM, DRAM, 44800, 4M:SO	1	U5	
12	911 700007BS	1 REF-CHIP,0,5%,1/10W:150V,	3	R57, R58, R59	
13	911 700007BS	2 REF-CHIP,0,5%,1/10W:150V,	1	R60	
14	911 721007BS	REF-CHIP,10,5%,1/10W:150V	5	R24, R25, R26, R30, R84	
15	911 723307BS	1 REF-CHIP,33,5%,1/10W:150V	3	R3, R9, R12	
16	911 723307BS	2 REF-CHIP,33,5%,1/10W:150V	3	R32, R46, R55	
17	911 723307BS	3 REF-CHIP,33,5%,1/10W:150V	5	R62, R63, R64, R65, R66	
18	911 723307BS	4 REF-CHIP,33,5%,1/10W:150V	4	R67, R68, R69, R70	
19	911 723307BS	5 REF-CHIP,33,5%,1/10W:150V	1	R71	
20	911 726807BS	REF-CHIP,68,5%,1/10W:150V	1	R15	
21	911 731007BS	1 REF-CHIP,100,5%,1/10W:150V	5	R31, R36, R37, R38, R42	
22	911 731007BS	2 REF-CHIP,100,5%,1/10W:150V	5	R43, R44, R45, R47, R48	
23	911 731007BS	3 REF-CHIP,100,5%,1/10W:150V	3	R49, R72, R83	
24	911 732207BS	REF-CHIP,220,5%,1/10W:150	2	R8, R14	
25	911 734707BS	REF-CHIP,470,5%,1/10W:150	1	R1	
26	911 741007BS	REF-CHIP,1K,5%,1/10W:150V	5	R4, R18, R19, R50, R85	
27	911 742407BS	1 REF-CHIP,2.4K,5%,1/10W:150V	5	R6, R7, R10, R11, R13	
28	911 742407BS	2 REF-CHIP,2.4K,5%,1/10W:150	5	R20, R21, R22, R23, R27	
29	911 742407BS	3 REF-CHIP,2.4K,5%,1/10W:150V	5	R28, R29, R33, R34, R35	
30	911 742407BS	4 REF-CHIP,2.4K,5%,1/10W:150V	5	R39, R40, R41, R51, R52	
31	911 742407BS	5 REF-CHIP,2.4K,5%,1/10W:150V	5	R53, R54, R75, R76, R77	
32	911 742407BS	6 REF-CHIP,2.4K,5%,1/10W:150V	1	R78	
33	911 751007BS	REF-CHIP,10K,5%,1/10W:150	5	R2, R16, R17, R73, R74	
34	915 4161000HZA	1 CAP-CERAMIC,104Z,1H,0805:	3	C1, C3, C12	
35	915 4161000HZA	2 CAP-CERAMIC,104Z,1H,0805:	5	BC1, BC2, BC3, BC4, BC5	

NO.	CODE NO	DISCRIPTION	Q'TY	LOCATION	S/A
36	915 416100HZAH 3	CAP-CERAMIC,104Z,1H,0805:	5	BC6, BC7, BC8, BC9, BC10	NA
37	915 416100HZAH 4	CAP-CERAMIC,104Z,1H,0805:	4	BC11, BC12, BC13, BC14	
38	915 416100HZAH 5	CAP-CERAMIC,104Z,1H,0805:	4	BC15, BC16, BC17, BC18	
39	915 416100HZAH 6	CAP-CERAMIC,104Z,1H,0805:	4	BC19, BC20, BC22, BC23	
40	915 414100HJXH 1	CAP-CERAMIC,102J,1H,0805:	4	C39, C40, C41, C42	
41	915 414100HJXH 2	CAP-CERAMIC,102J,1H,0805:	1	BC21	
42	915 413470HJXH 1	CAP-CERAMIC,471J,1H,0805:	4	C5, C18, C19, C20	
43	915 413470HJXH 2	CAP-CERAMIC,471J,1H,0805:	4	C21, C22, C23, C24	
44	915 413470HJXH 3	CAP-CERAMIC,471J,1H,0805:	2	C25, C34	
45	915 413100HJXH 1	CAP-CERAMIC,101J,1H,CHIP:	2	C2, C26	
46	915 413100HJXH 2	CAP-CERAMIC,101J,1H,CHIP:	6	C27, C28, C29, C30, C31, C32	
47	915 413100HJXH 3	CAP-CERAMIC,101J,1H,CHIP:	5	C33, C35, C36, C37, C38	
48	915 413100HJXH 4	CAP-CERAMIC,101J,1H,CHIP:	5	C43, C44, C45, C46, C47	
49	915 415100HKXH	CAP-CERAMIC,103K,1H,0805	7	C4, C6, C7, C8, C13, C14, C15	
50	917 612330BMAH	CAP-TA.ELEC 335M, 1A, 7343:	3	C9, TC1, TC5	
51	943 150012BA	FIL-LPF(EMI),LC,CHIP,223;	1	L2	
52	943 150012BB	FIL-LPF(EMI),LC,CHIP,151:	1	L1	
53	935 155108DC	CON-IC SOCKET,8P:DIP,STR	1	U2B	
54	883 602401AA	IC-MEM,EEPROM,X24C01P	1	U2B	
55	935 130236AH	CON-MICRO RIBBON,36P:-,-,	1	J2	
56	935 240104JD	CON-BOX,HEADER,4P,2MM:1R,	1	J6	
57	935 240107KC	CON-BOX HEADER,7P,2.5MM:1	1	J4	
58	935 240324GA	CON-BOX HEADER,24P,2MM:2R	1	J3	
59	937 120207AB	MAG-CORE,FERRITE,BEAD	5	BD1, BD2, BD3, BD4, BD5	
60	941 130602AA	OSC-CLOCK,30.075M,100:D×O	1	OSC2	

## 8-8-4 Panel

Ass'y Panel PCB : JC92-80001A

NO.	CODE NO	DISCRIPTION	Q'TY	LOCATION	S/A
1	JC41-10003A	PCB-PANEL/LED:ML-85/84,2L	1	PCB-LED	NA
2	911 131507DA 1	REF-CF,150,5%,1/4W:250V,-	2	R2,R3	
3	911 131807DA 1	REF-CF,180,5%,1/4W,250V,-	2	R1,R5	
4	915 256100HZAHNE	CAP-CERAMIC,104Z,1H,Z5U:1	1	C1	
5	895 110041GA 1	LED,G,ROUND,5MM:5MM,N,75M	1	LED1	
6	895 110041RA	LED,R,ROUND,5MM:5MM,N,60M	1	LED4	
7	895 110041YA 1	LED,Y,ROUND,5MM:5MM,N,75m	2	LED2, LED3	
8	933 213008AA	SWITCH-TACT,6×6×4.3MM:-,1	1	SW1	
9	935 240507KD	CON-BOX HEADER,7P,2.5MM:1	1	J1	
10	JC39-40003A	CBF-HARNESS:7P,370MM,WHT,	1	Panel Cable	

8-8-5 Serial Board : JC92-50003A

NO.	CODE NO	DISCRIPTION	Q'TY	LOCATION	S/A
1	JC70-10010B	BRKT-SERIAL:ML-80(1HOLE),	1		
2	JC41-10005A	PCB-SERIAL;ML-85/84/66H,4	1	PCB-SERIAL	NA
3	0904-000005	IC-PERIPHERAL/PERIPH:85C3	1	U301	NA
4	871 100232GA	IC-TTL,232,DRIVER:SOP,16,	1	U302	
5	911 726807BS	REF-CHIP 68,5%,1/10W:150V	1	R303	
6	911 731007BS	REF-CHIP,100,5%,1/10W:150	1	R302	
7	911 751007BS	REF-CHIP,10K,5%,1/10W:150	1	R301, R304	
8	915 412330HJXHNA	CAP-CERAMIC,330J,1H,CHIP:	2	C303	
9	915 413330HJXH	CAP-CERAMIC,331J,1H,0805:	1	C309, C310, C311, C312	
10	915 416100HZAH	CAP-CERAMIC,104Z,1H,0805:	4	C301, C302, C304	
11	937 120210AA	MAG-CORE,FERRITE,BEAD:CHI	3	L301, L302, L303, L304	
12	943 150012BB	FIL-LPF(EMI),LC,CHIP,151:	4	LF301	
13	2804-000003	OSCILLATOR-CLOCK:7.3728MH	1	OSC301	
14	887 13541SH	IC-HYB,R-NETWORK,10P:SIP,	1	RA1, RA2	
15	917 821100HM	CAP-AL.ELEC,105M,1H,4×5:(	2	C305, C306, C307, C308	
16	935 100109FG	CON-D-SUB,9P.RECEPTACLE:A	4	J302 : Serial 9-pin Connector	
17	935 145320AD	CON-DIN,20P.RECEPTACLE:2R	1	J301 : Serial B'D Connector	

8-8-6 SIMM

0.5M(E) : 0.5Mbyte OPTION SIMM : JC92-50004C

NO.	CODE NO	DISCRIPTION	Q'TY	LOCATION	S/A
1	JC41-10006A	PCB-ROM/0.5M/1M/2M:ML-85/	1	PCB-RAM	NA
2	883 299026GA	IC-MEM,DRA,416C256,4M:SO	1	U1	
3	915 416100HZAH	CAP-CERAMIC,104Z,1H,0805:	3	C1, C2, C3	

1M(E) : 1Mbyte OPTION SIMM : JC92-50004A

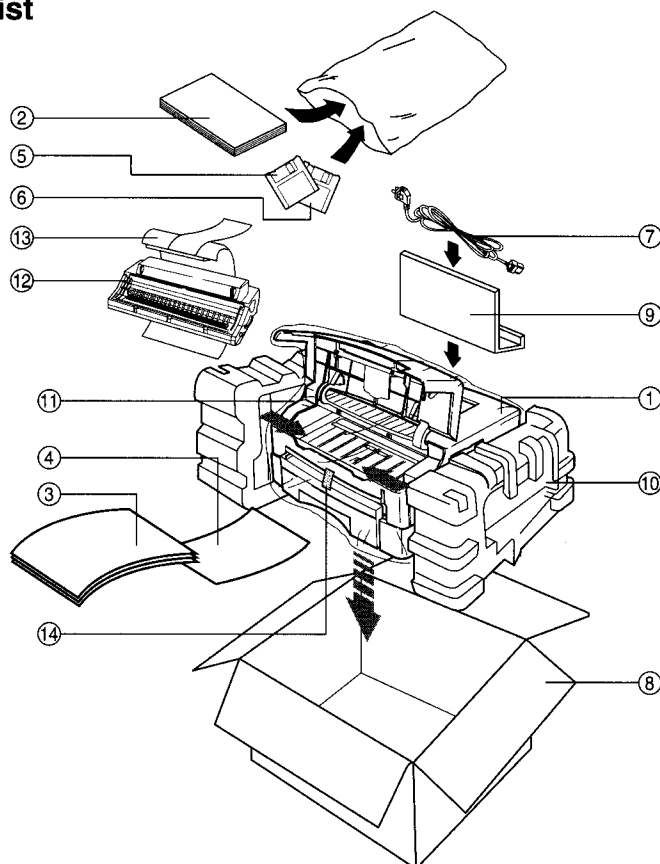
NO.	CODE NO	DISCRIPTION	Q'TY	LOCATION	S/A
1	JC41-10006A	PCB-ROM/0.5M/1M/2M:ML-85/	1	PCB-RAM	NA
2	883 299026GA	IC-MEM,DRA,416C256,4M:SO	2	U1, U3	
3	915 416100HZAH	CAP-CERAMIC,104Z,1H,0805:	6	C1, C2, C3, C7, C8, C9	

2M(E) : 2Mbyte OPTION SIMM : JC92-50004B

NO.	CODE NO	DISCRIPTION	Q'TY	LOCATION	S/A
1	JC41-10006A	PCB-ROM/0.5M/1M/2M:ML-85/	1	PCB-RAM	NA
2	883 299026GA	IC-MEM,DRA,416C256,4M:SO	4	U1, U3	
3	915 416100HZAH	CAP-CERAMIC,104Z,1H,0805:	7	C1, C2, C3, C7, C8, C9	
4	915 416100HZAH	CAP-CERAMIC,104Z,1H,0805:	5	C8, C9, C10, C11, C12	

## 9. Packing Diagram and Parts List

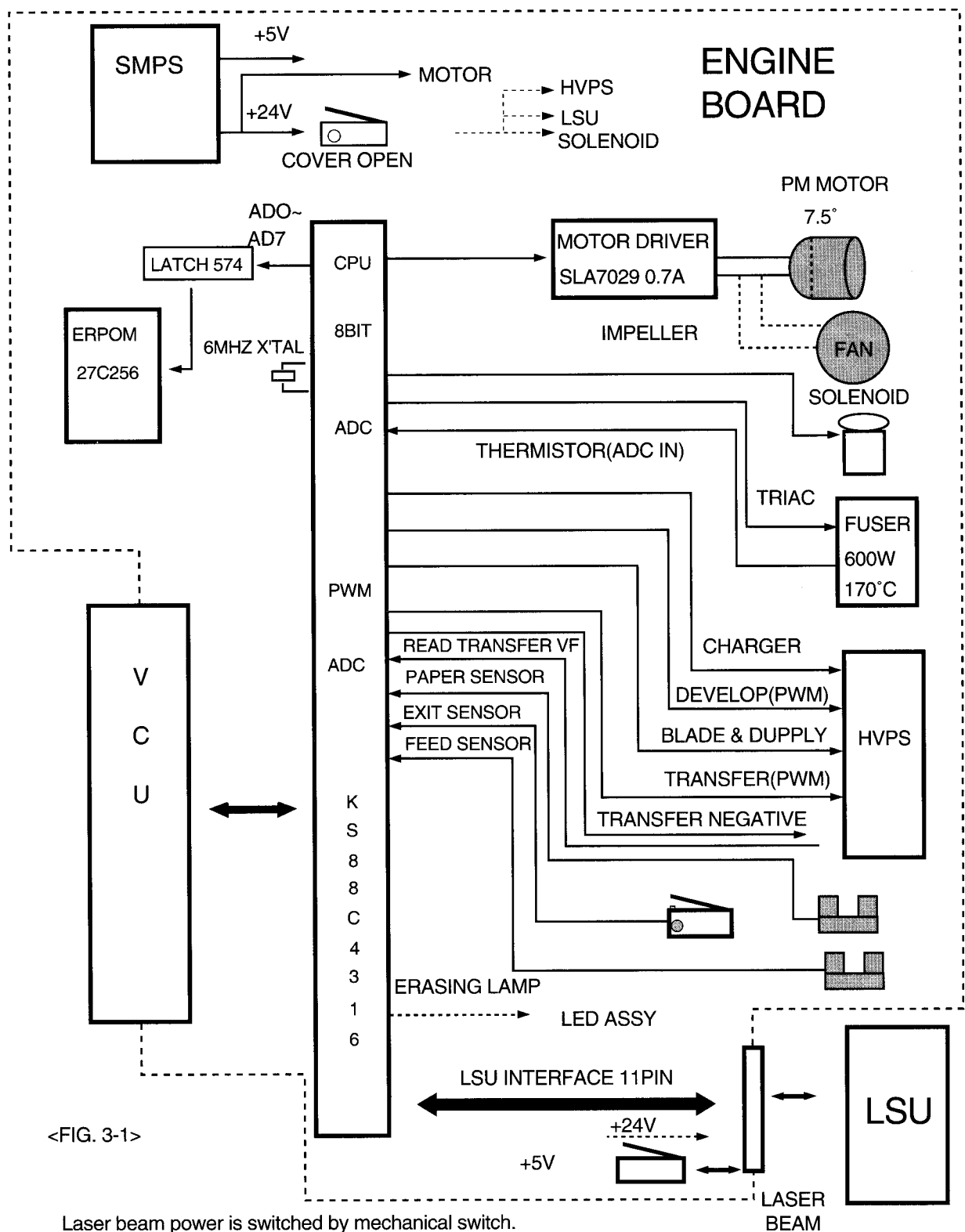
### Packing & Parts List



NO	NAME	CODE NO	SPEC
1	LASER BEAM PRINTER	ML-80(Engine)/ML-84, 85, 85G QwikLaser 84, 85, 85G	
2	MANUAL-USER/S	JC68-60034A JC68-60036A JC68-60052A	ML-84/QwikLaser 84 ML-85/QwikLaser 85 ML-85G/QwikLaser 85G
3	QUICK-REPLACE GUIDE	JC68-70013A	
4	MANUAL-UNPACKING	JC68-70003A	
5	S/W-PCL	JC82-10011A JC82-10009A JC82-10015A	1.4MB 1.4MB 1.4MB
6	S/W-WPS	JC82-10010A JC82-10008A JC82-10014A JC82-10014B	1.4MB 1.4MB 1.4MB 1.4MB
7	POWER-CORD	25053-200-010 955 001445AAAA 955 001407AAAA 955 001400AAAA 955 001414AAAB	120V 240V, GRY 240V, BLK 240V, AUSTRARIA 240V, UK
8	BOX-MAIN	JC69-10011B JC69-10011A JC69-10011C	ML-84/QwikLaser 84 ML-85/QwikLaser 85 ML-85G/QwikLaser 85G
9	PAD-ACCESSORY	JC69-40005A	DW-3, YEL
10	CUSHION-SET	JC69-20003A	EPS, M45
11	PE-BAG	827 149069AC	T0.015 × 850 × 800
12	ASS'Y-DEVE/KIT	JC97-20001A	BASIC
13	CUSHION-INNER LOWER	JC69-20001A	NITRON+PE
14	TYPE-FILAMENT	961 160108AB	3M #893 W:25

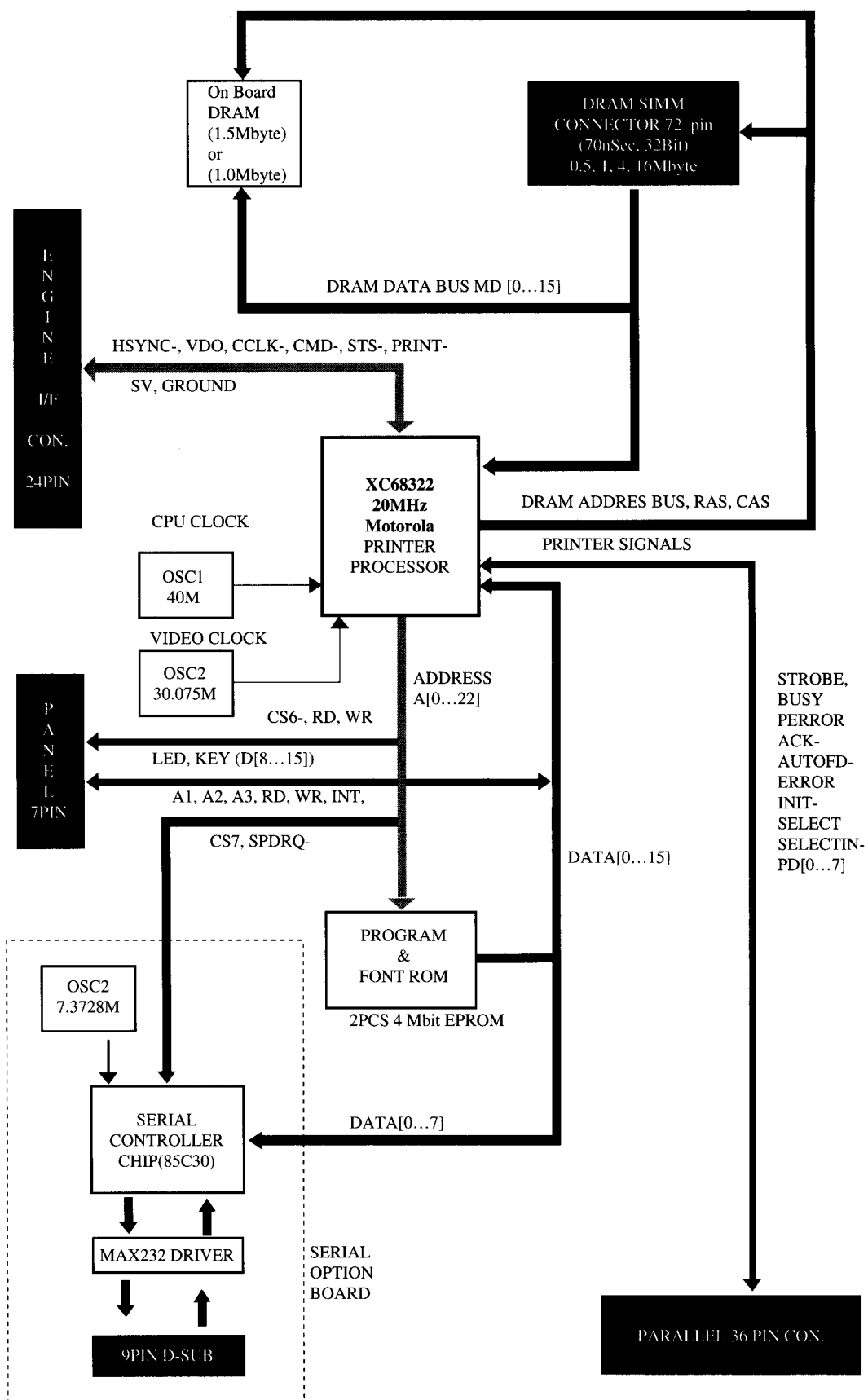
# 10. BLOCK DIAGRAM

## 10-1. Engine Board

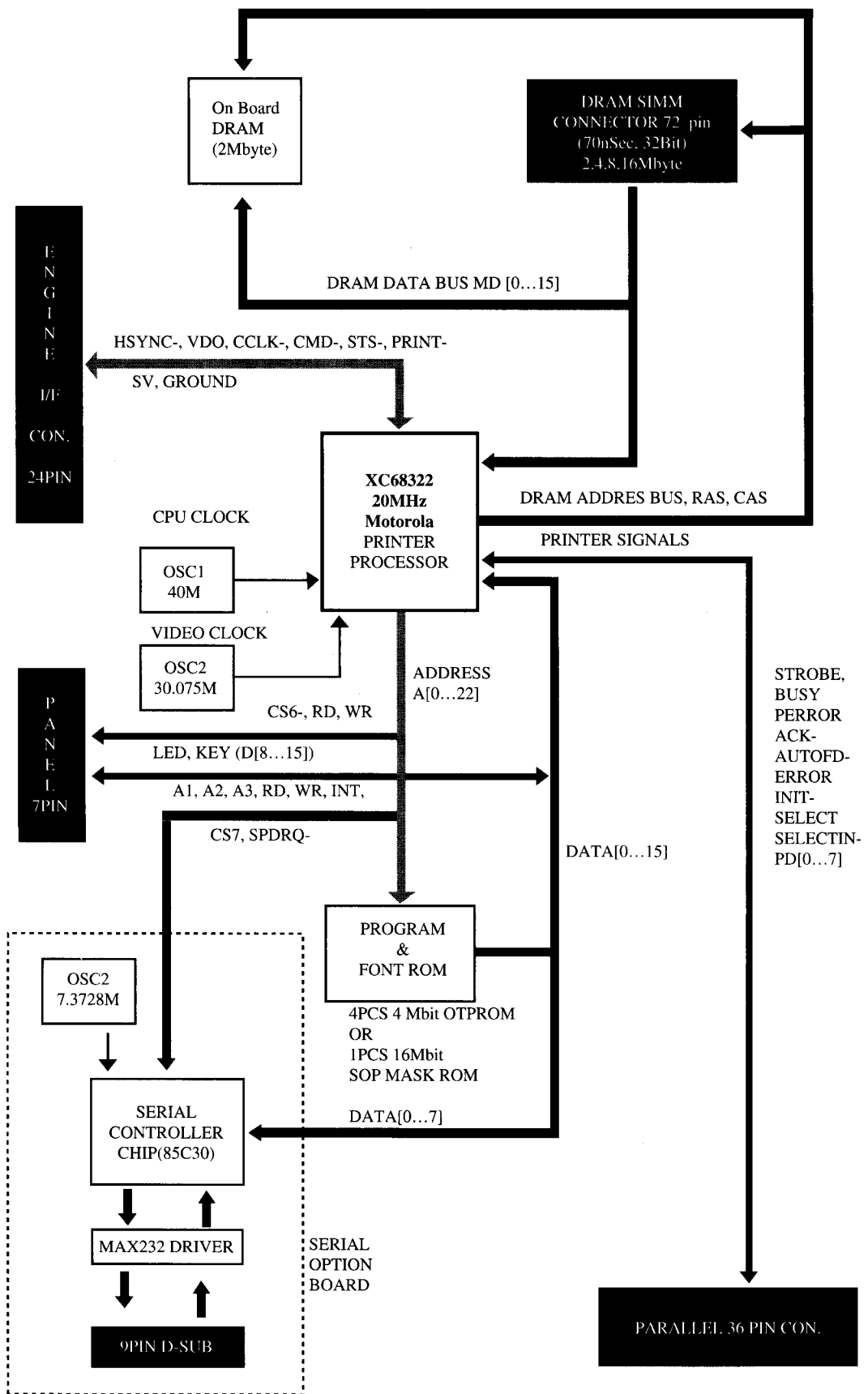




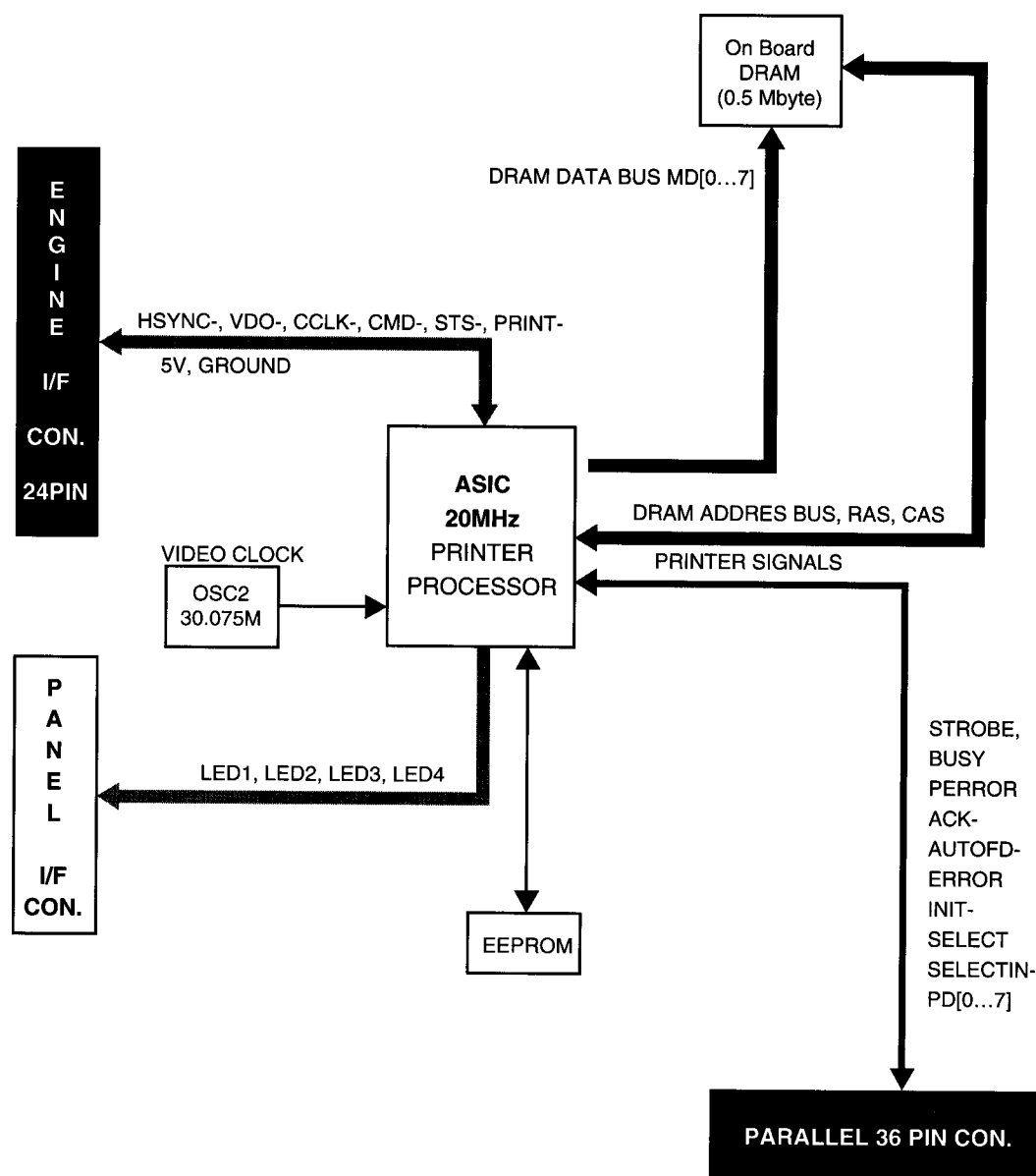
# 10-2 Video Controller (84)



# 10-3 Video Controller (85)



# 10-4 Video Controller(ML-85G)

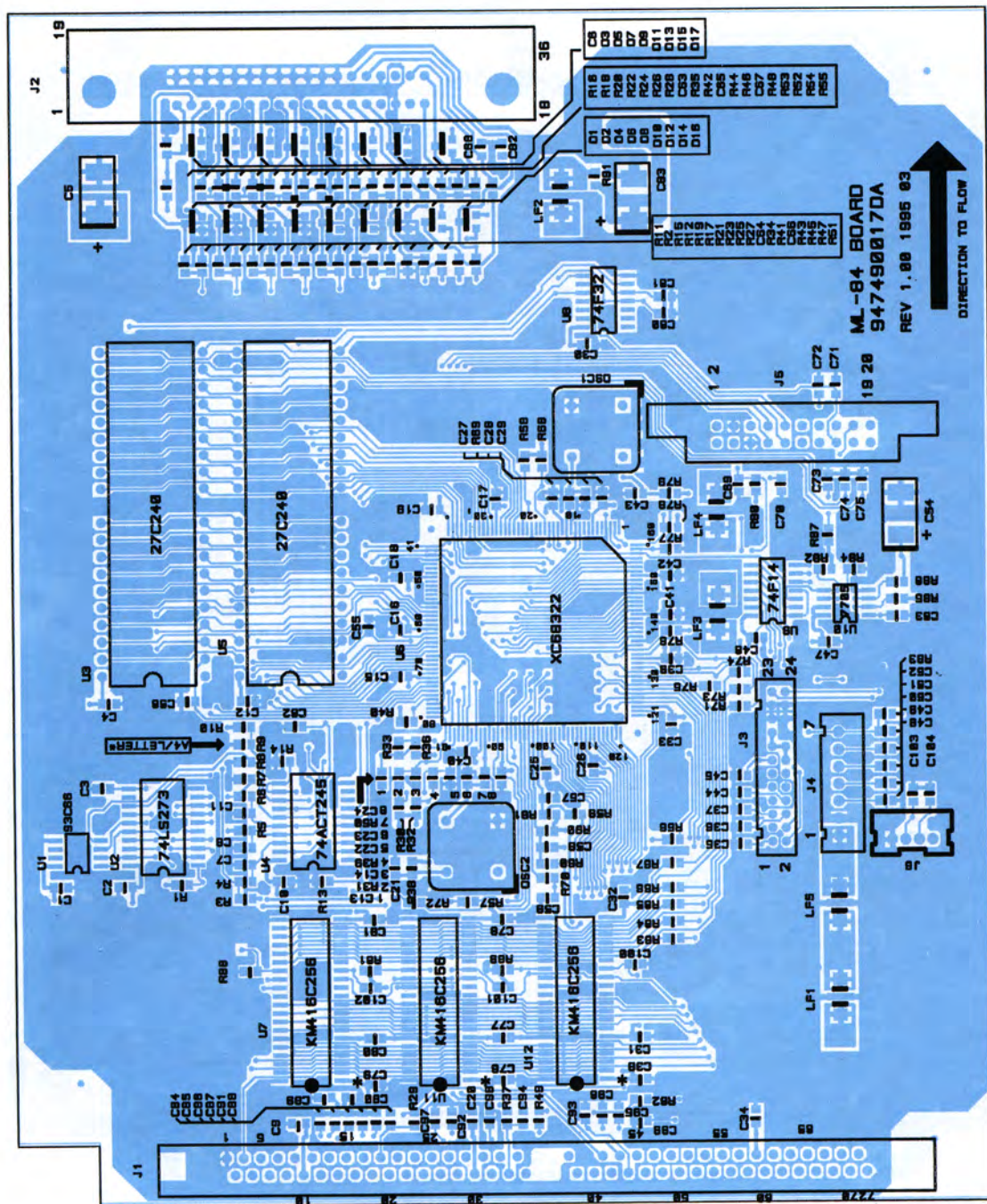


## 11-1 Engine Board



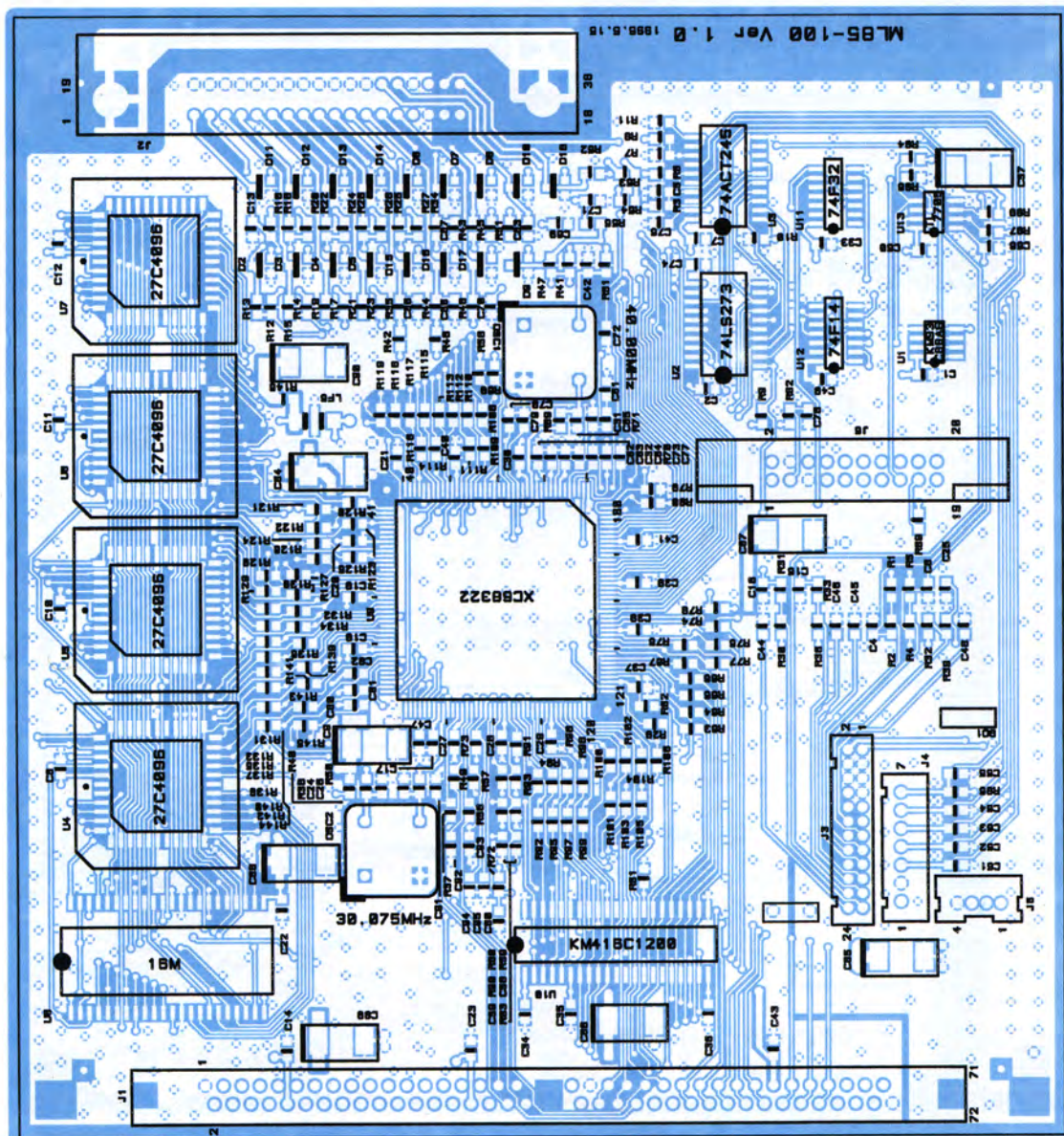


## 11-2 Video Controller (ML-84)





### 11-3 Video Controller (ML-85)

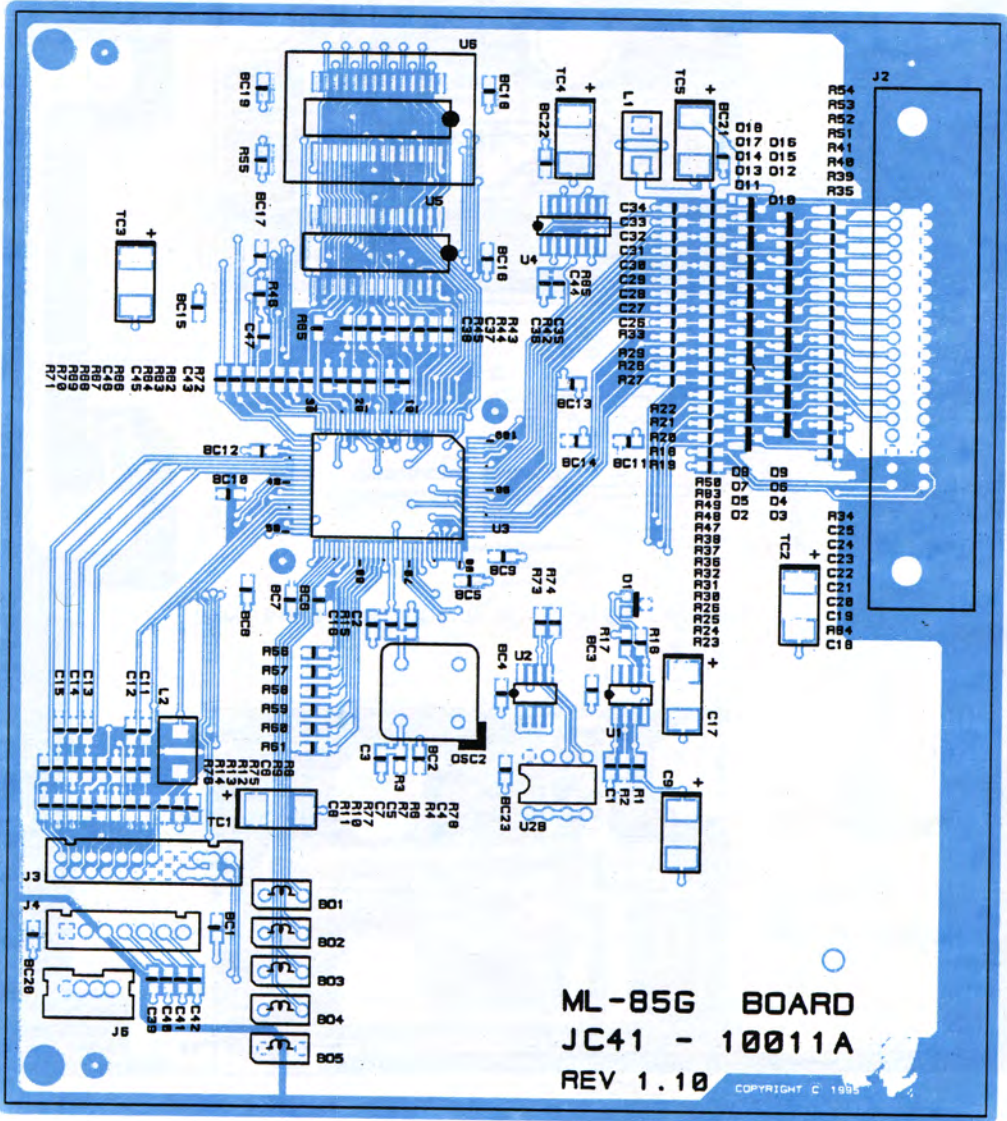




# 11-4 Video Controller(ML-85G)

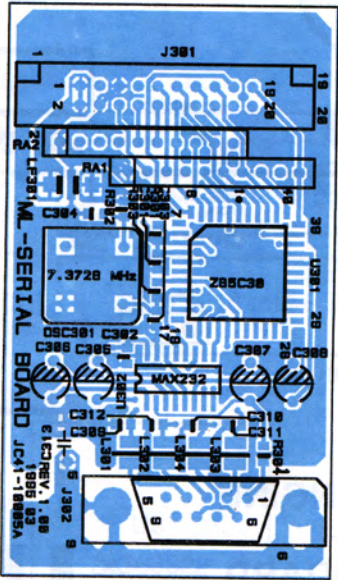
SASIC PRINTER CONTROLLER REV C

SILKSCREEN

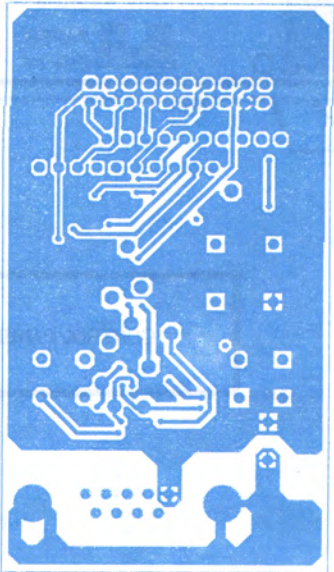


# 11-7 ML-SERIAL BOARD

SAMSUNG OA LBP SERIAL COMP SIDE layer (1/4)



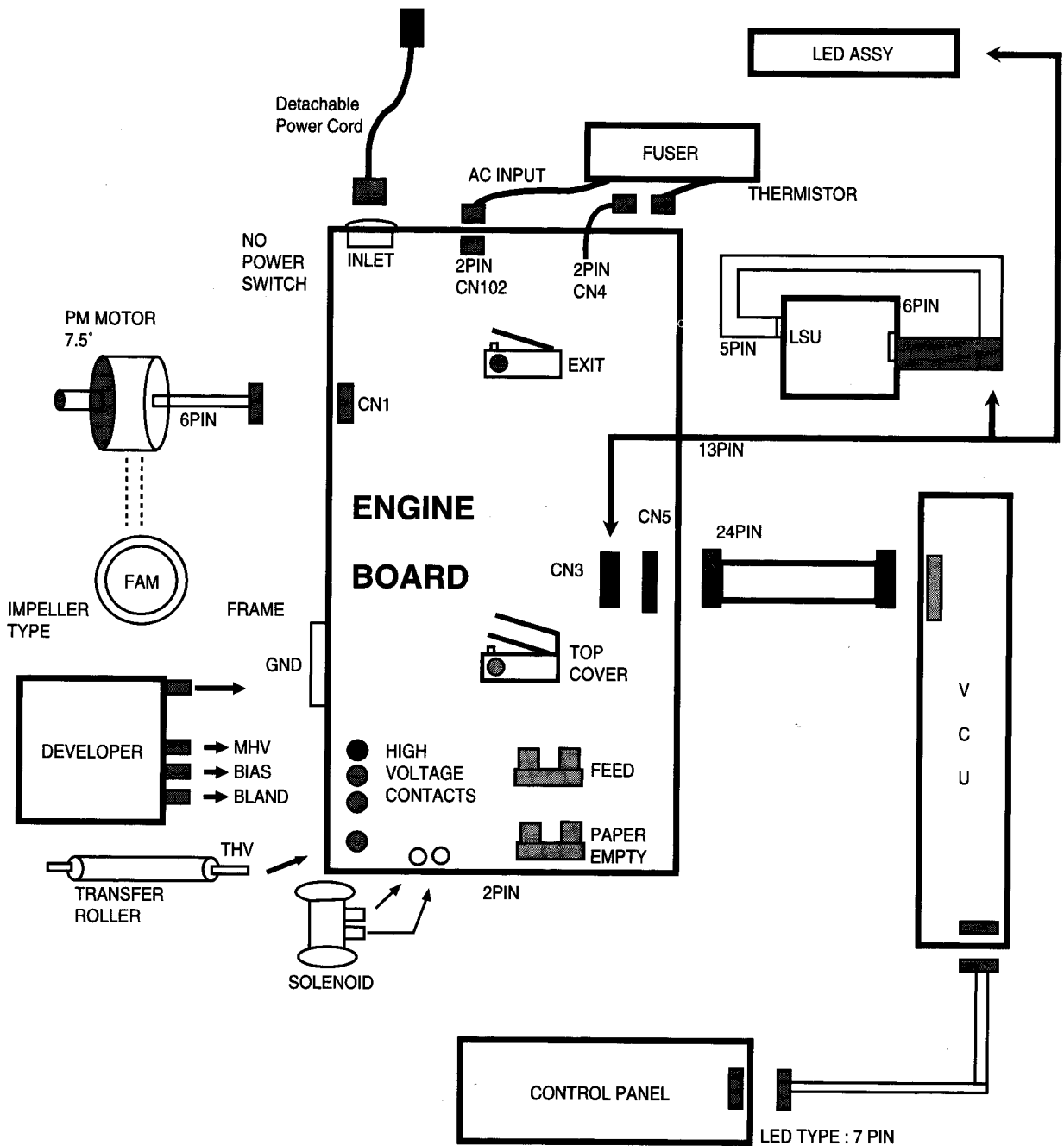
SAMSUNG OA LBP SERIAL SOLD SIDE LAYER (4/4)



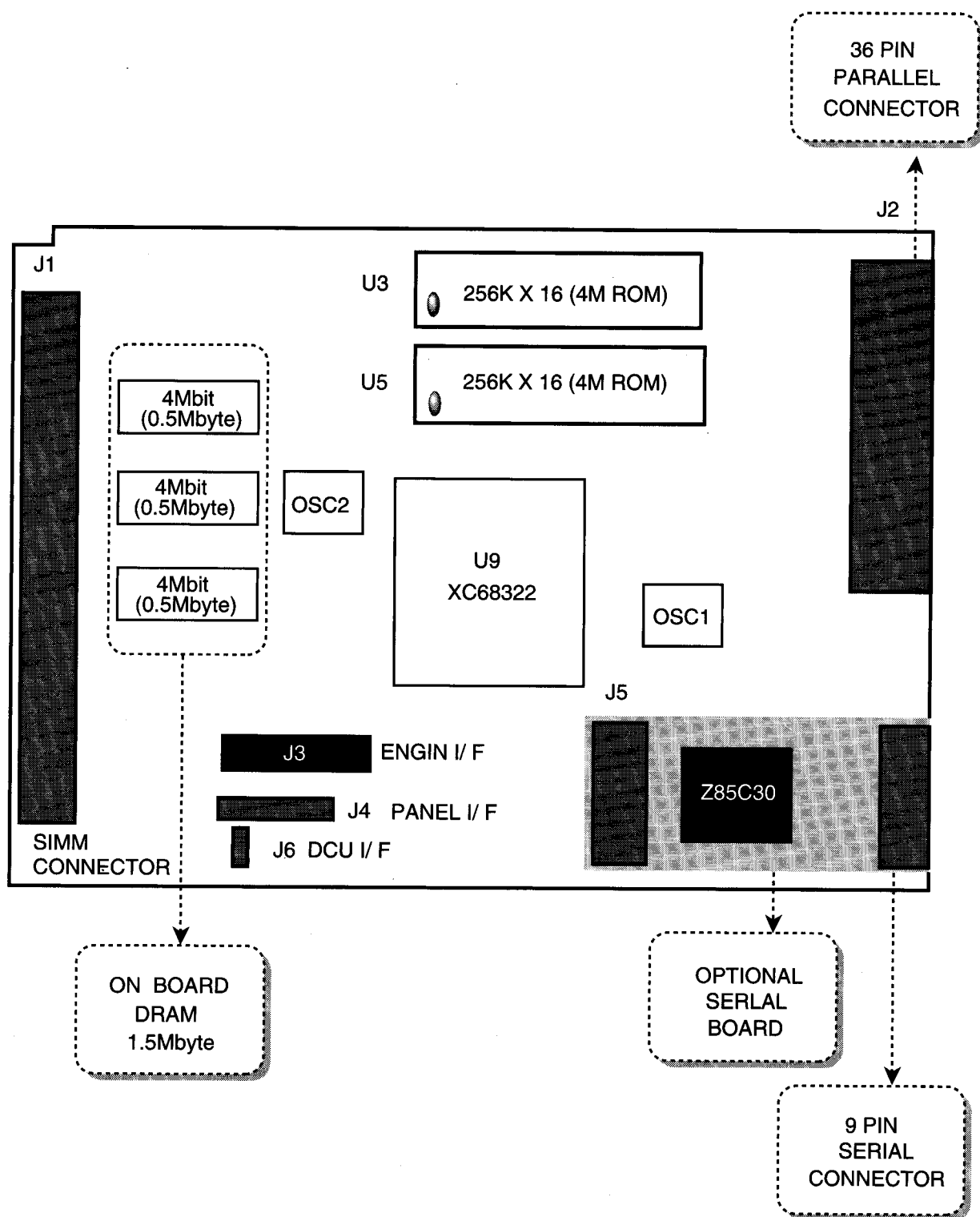


# 12. WIRING DIAGRAM

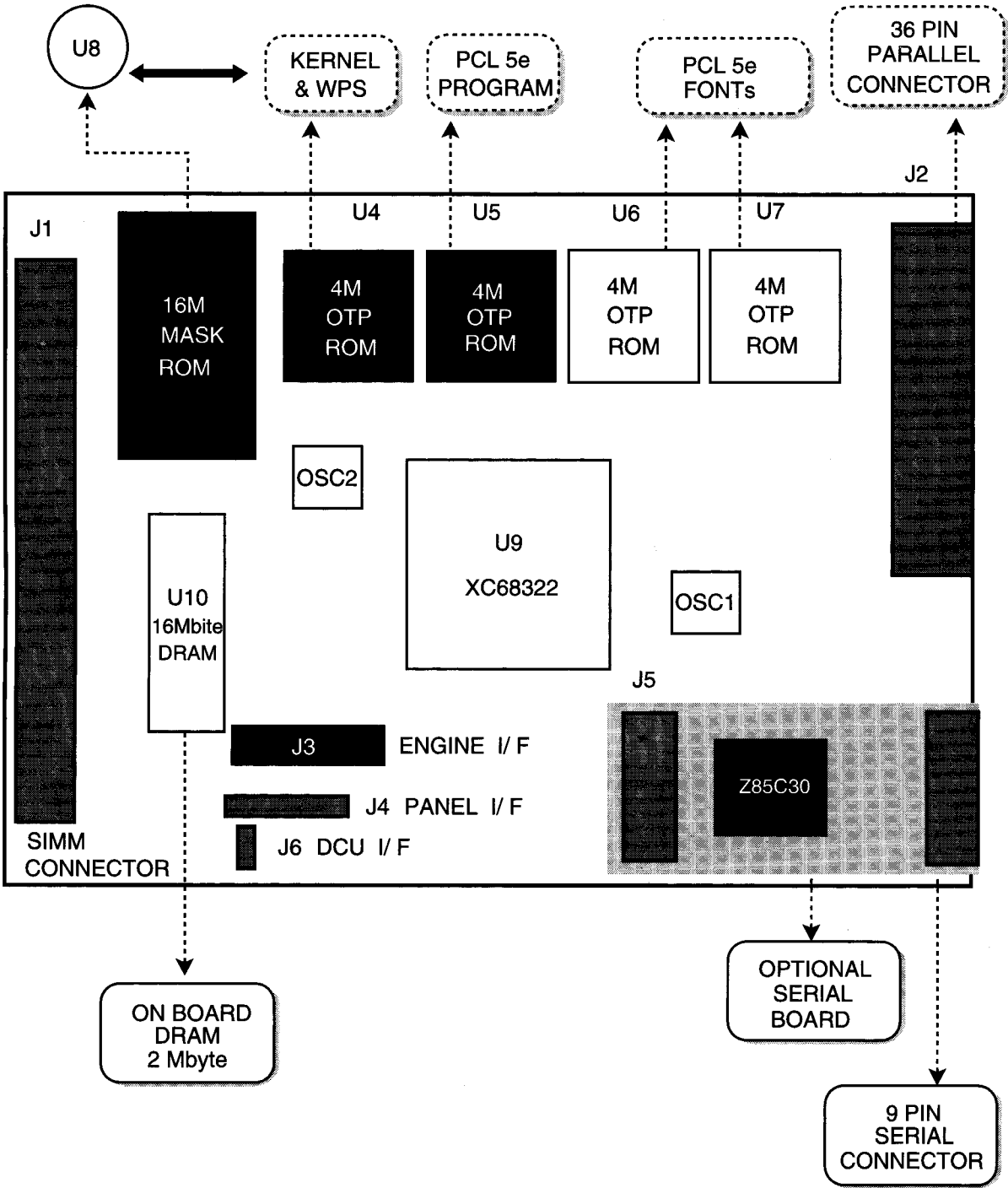
## 12-1 Engine Board



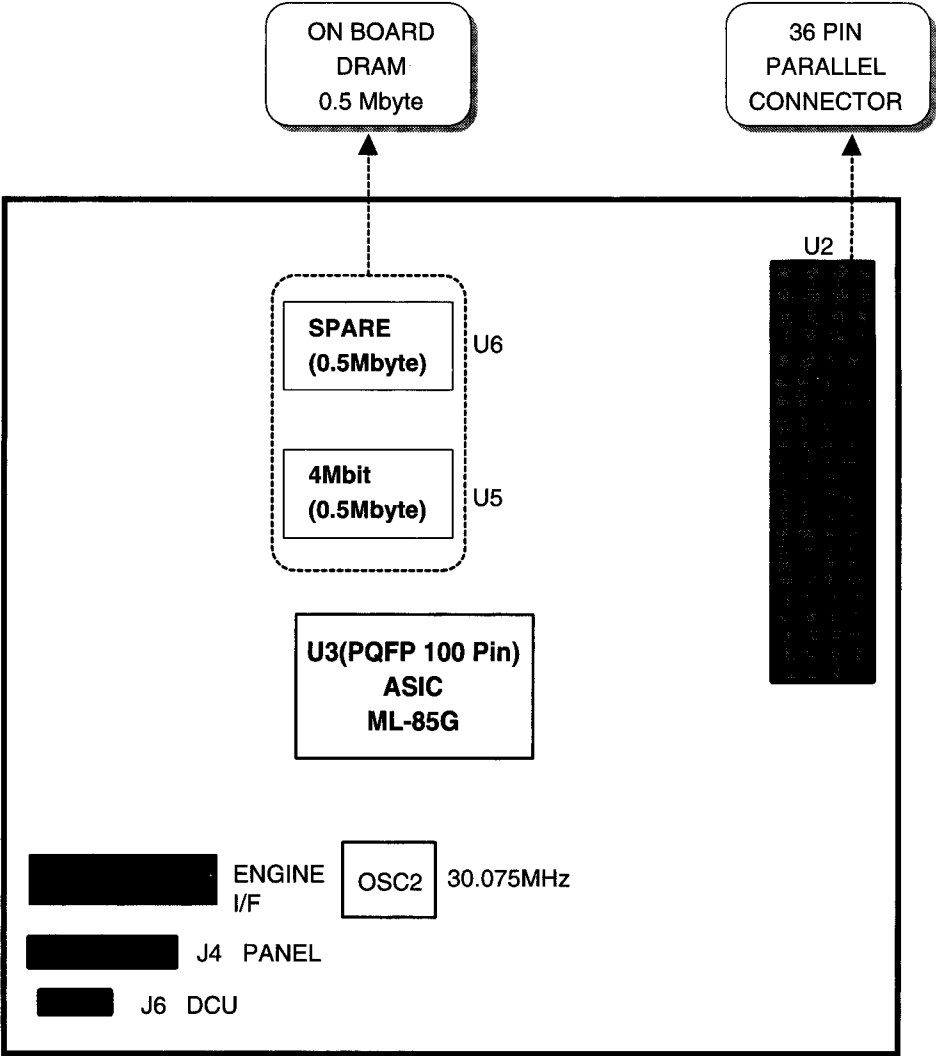
## 12-2 Video Controller (ML-84)



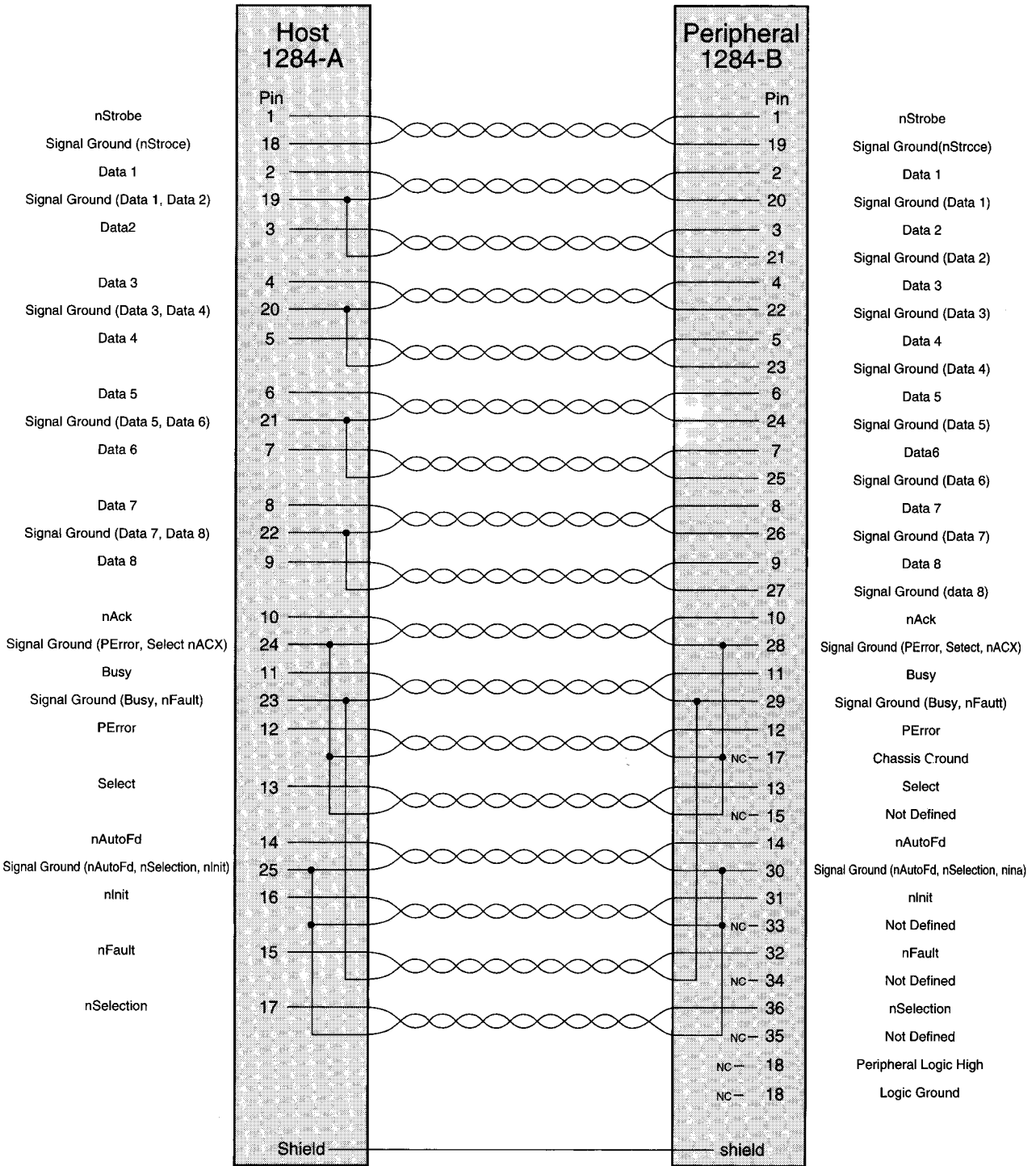
# 12-3 Video Controller (ML-85)



# 12-4 Video Controller(ML-85G)



**ML-85G VIDEO  
CONTROLLER  
BOARD LAYOUT**

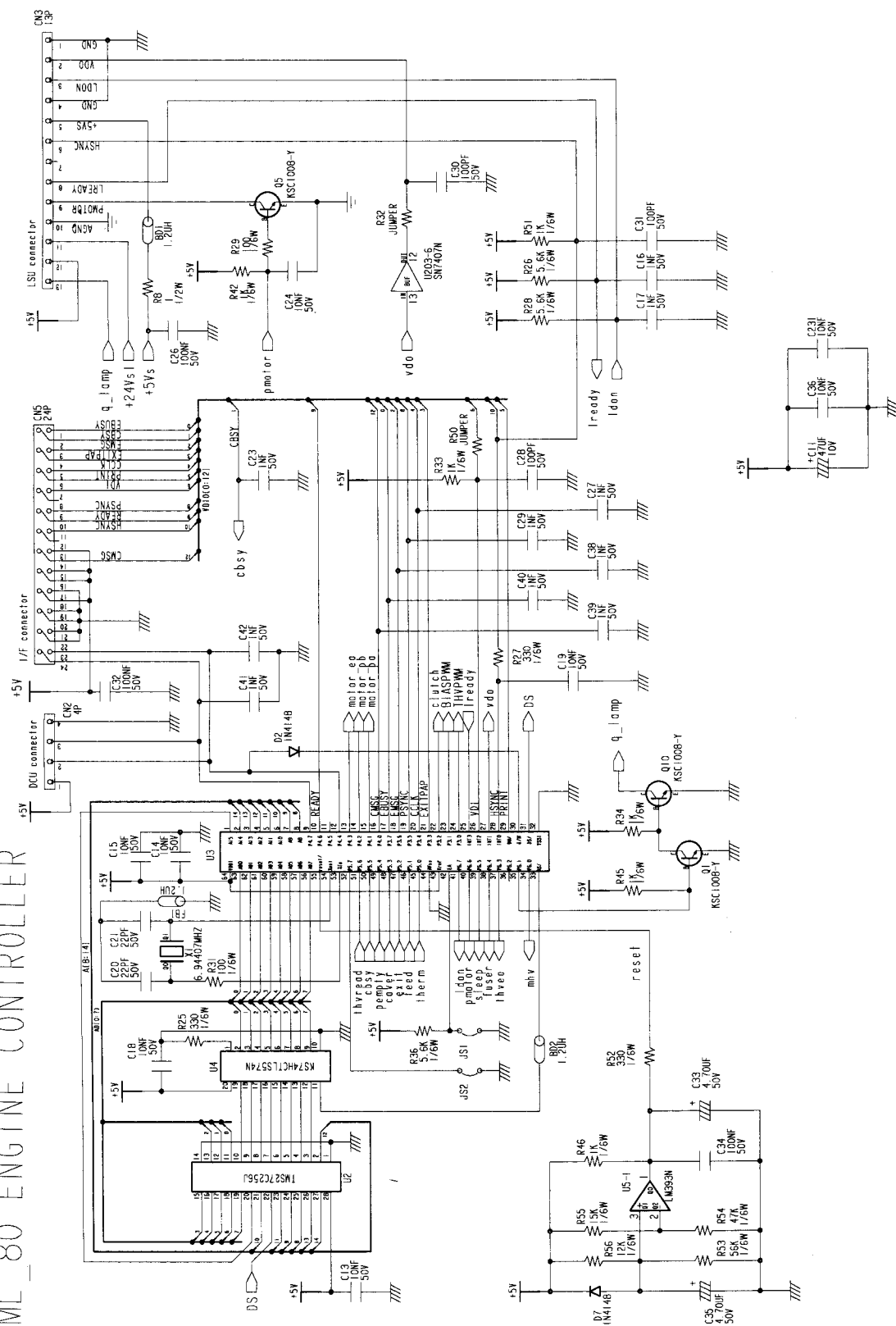


1284-A (Host) to 1284-B (Peripheral) Wiring Diagram

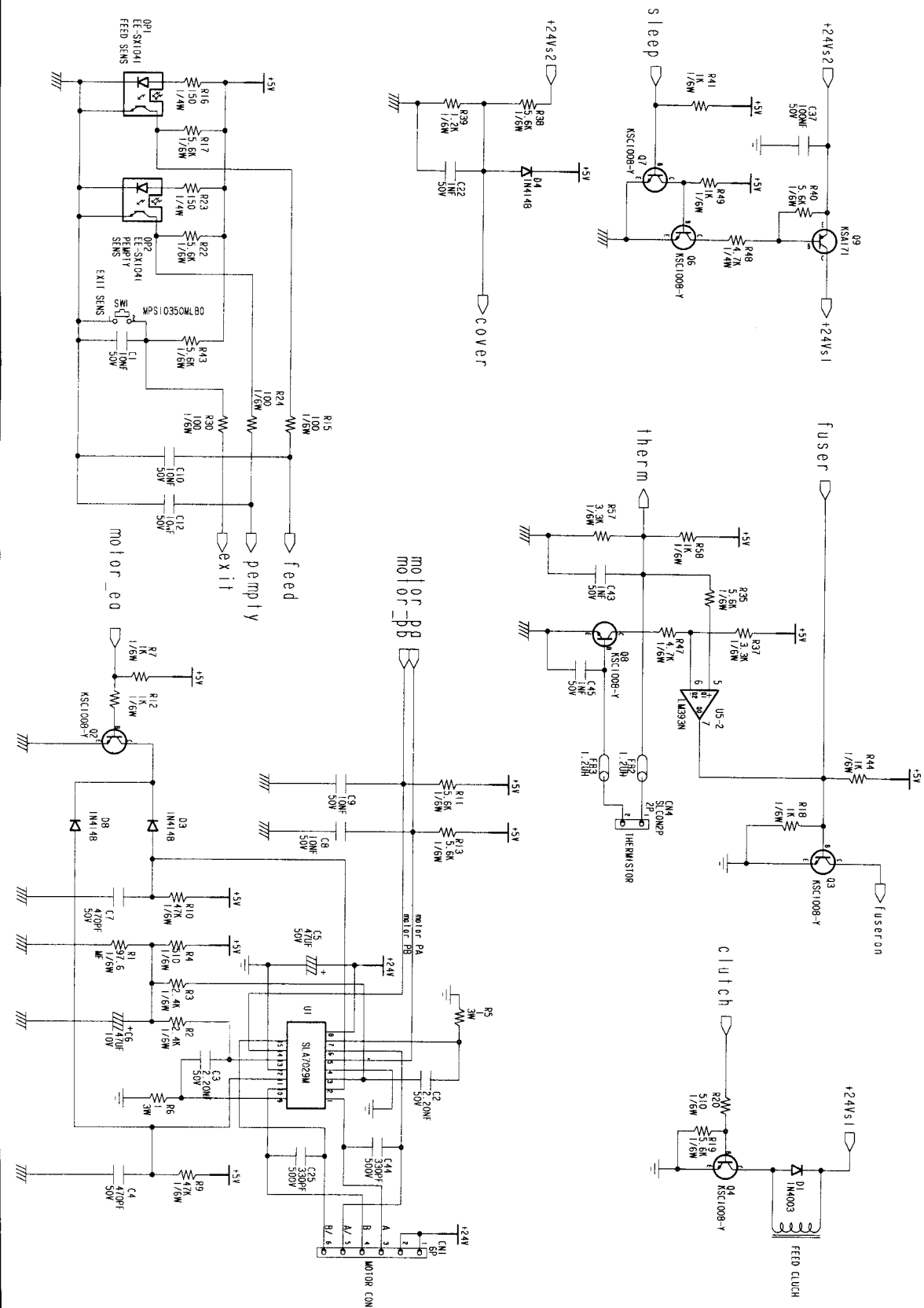
# 13. Schematic Diagram

## 13-1 Engine Control Unit

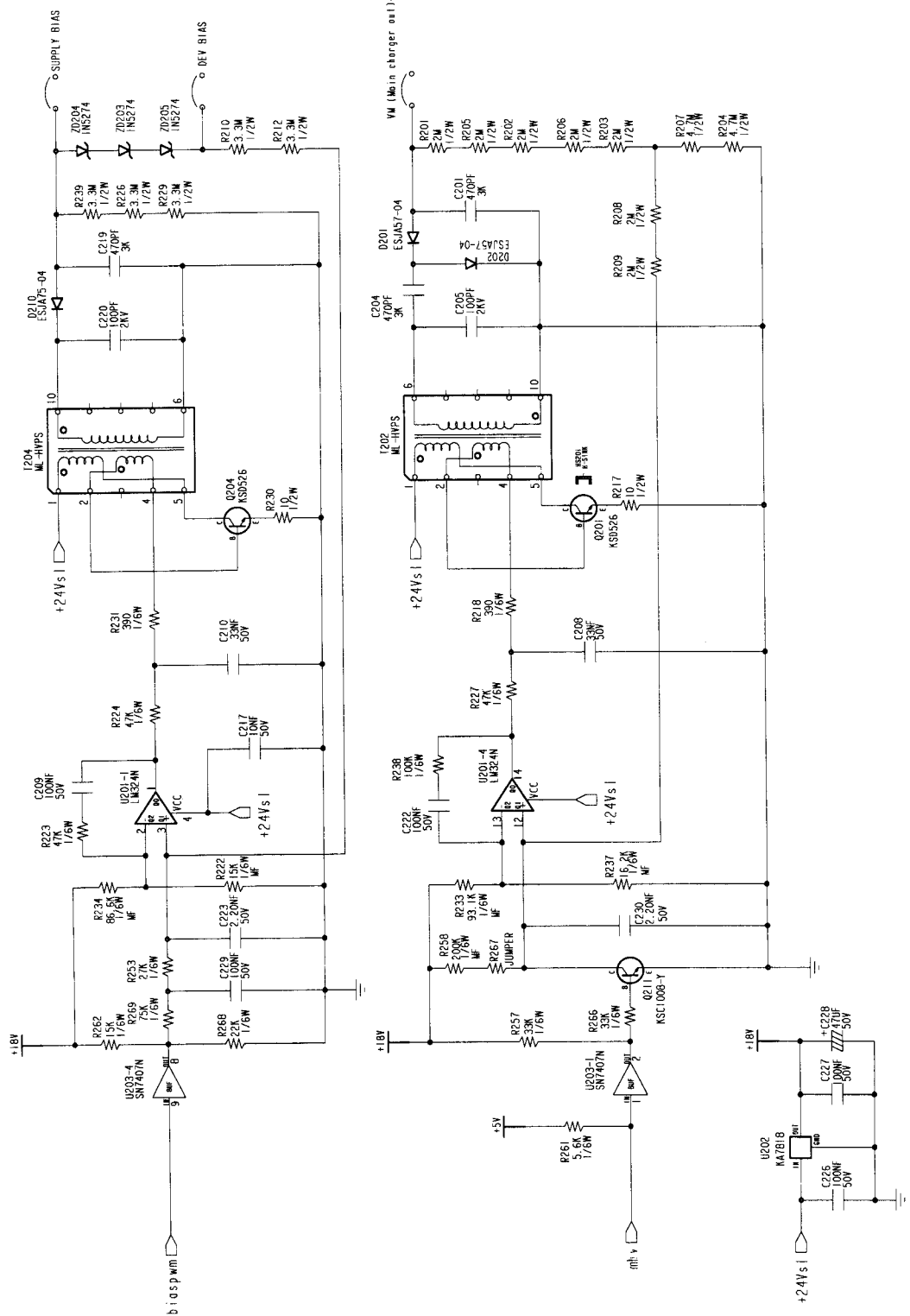
SCHEMATIC DIAGRAM  
ML\_80 ENGINE CONTROLLER



## Engine Control (2/2)

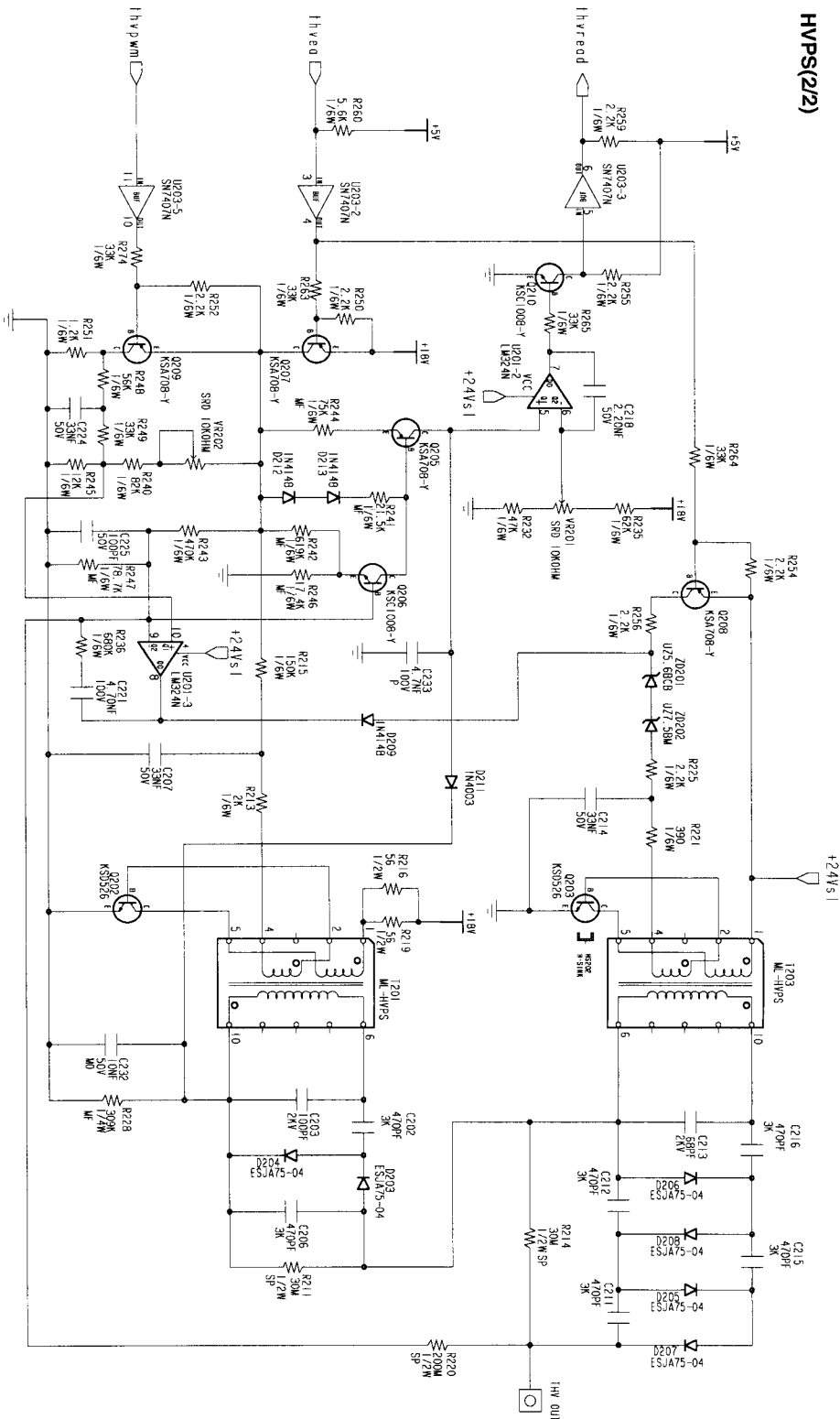


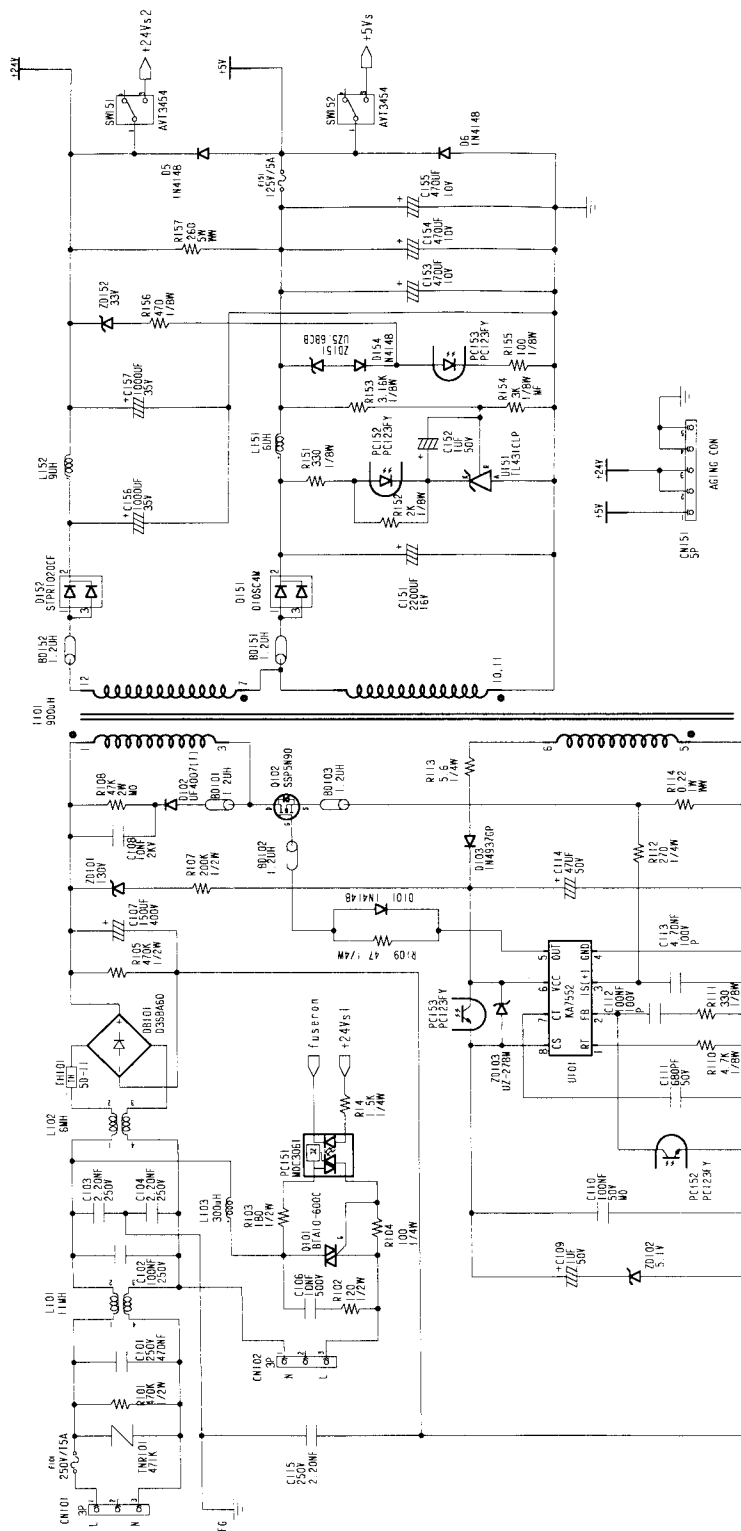
# HVPS(1/2)



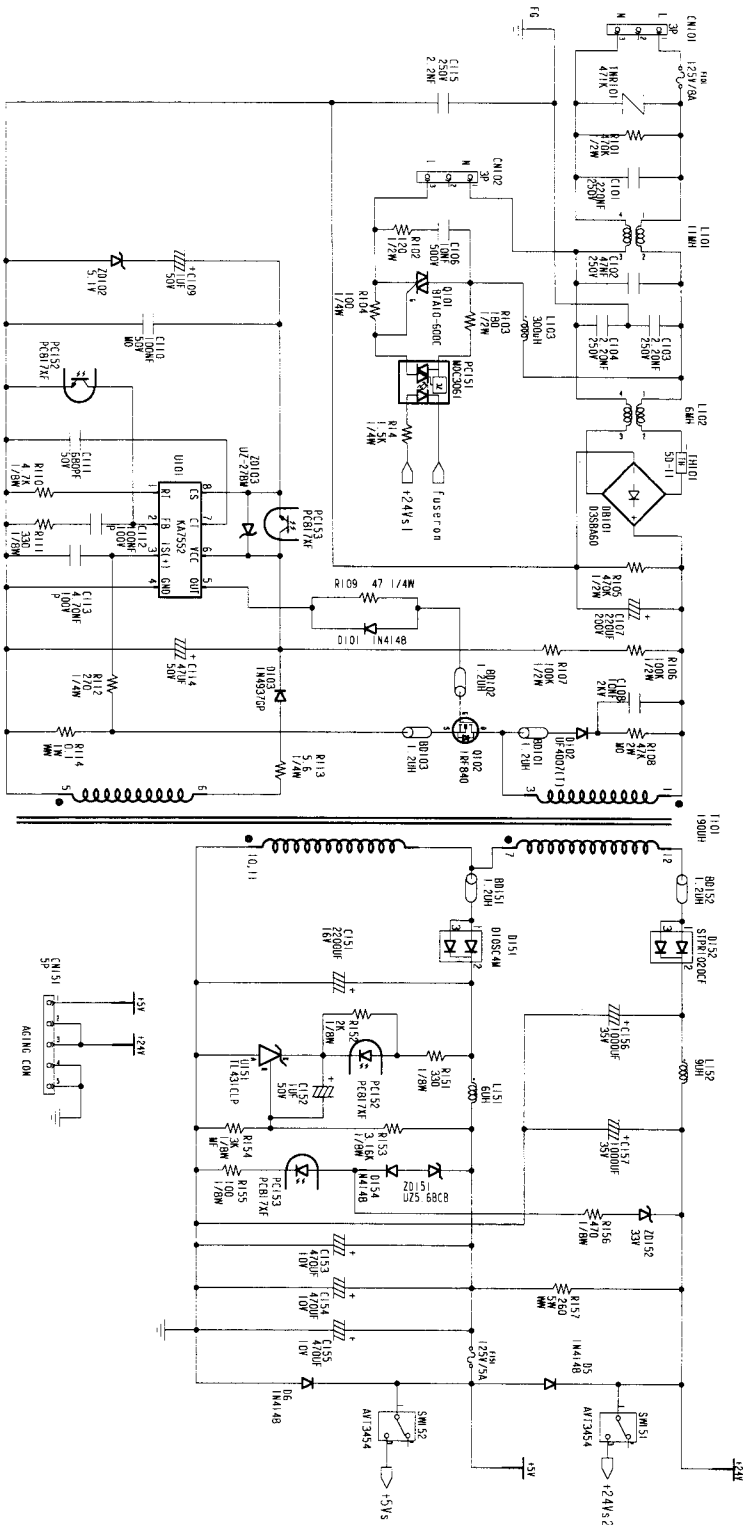


# HVPS(2/2)



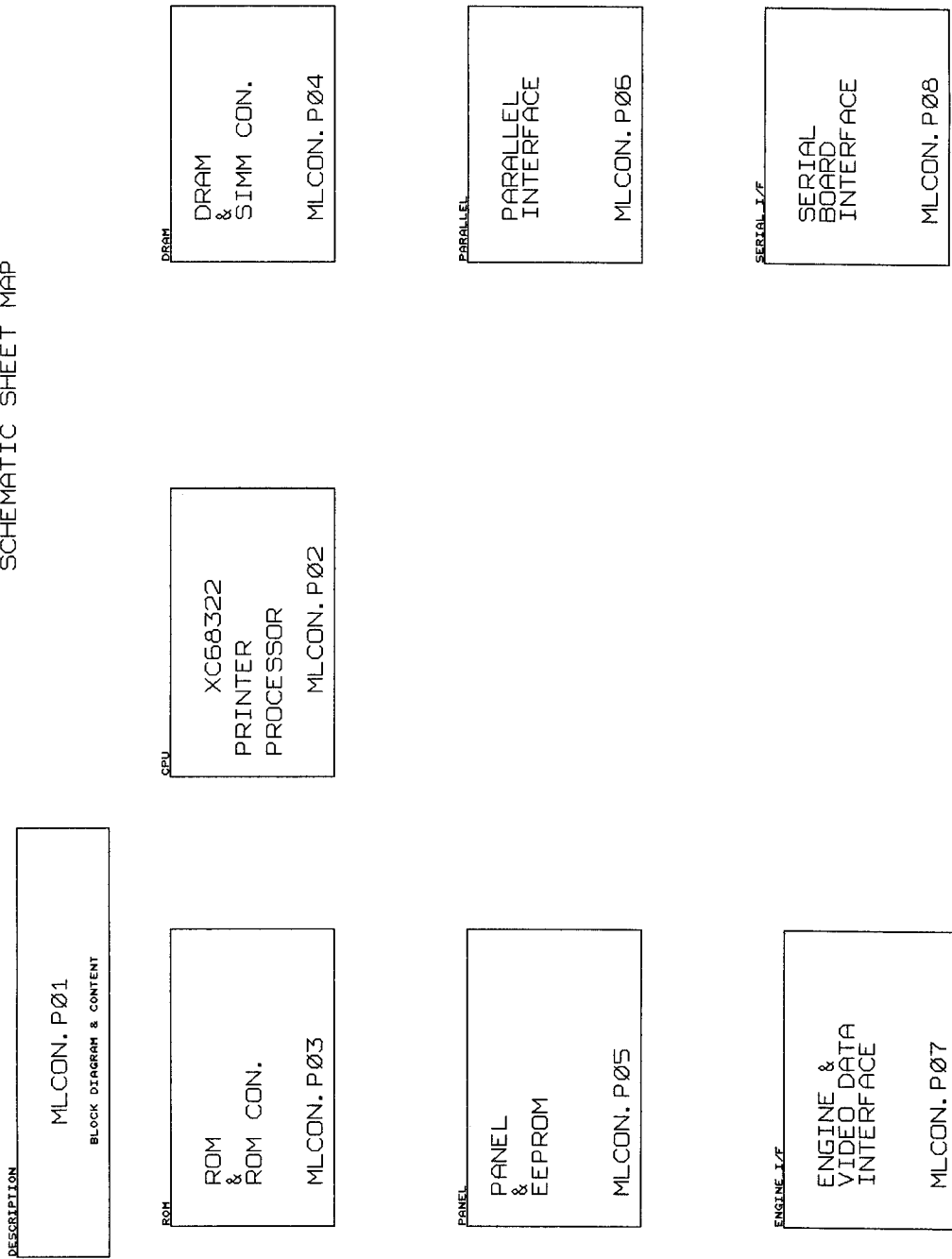


**SMPS(for 100-120VAC)**



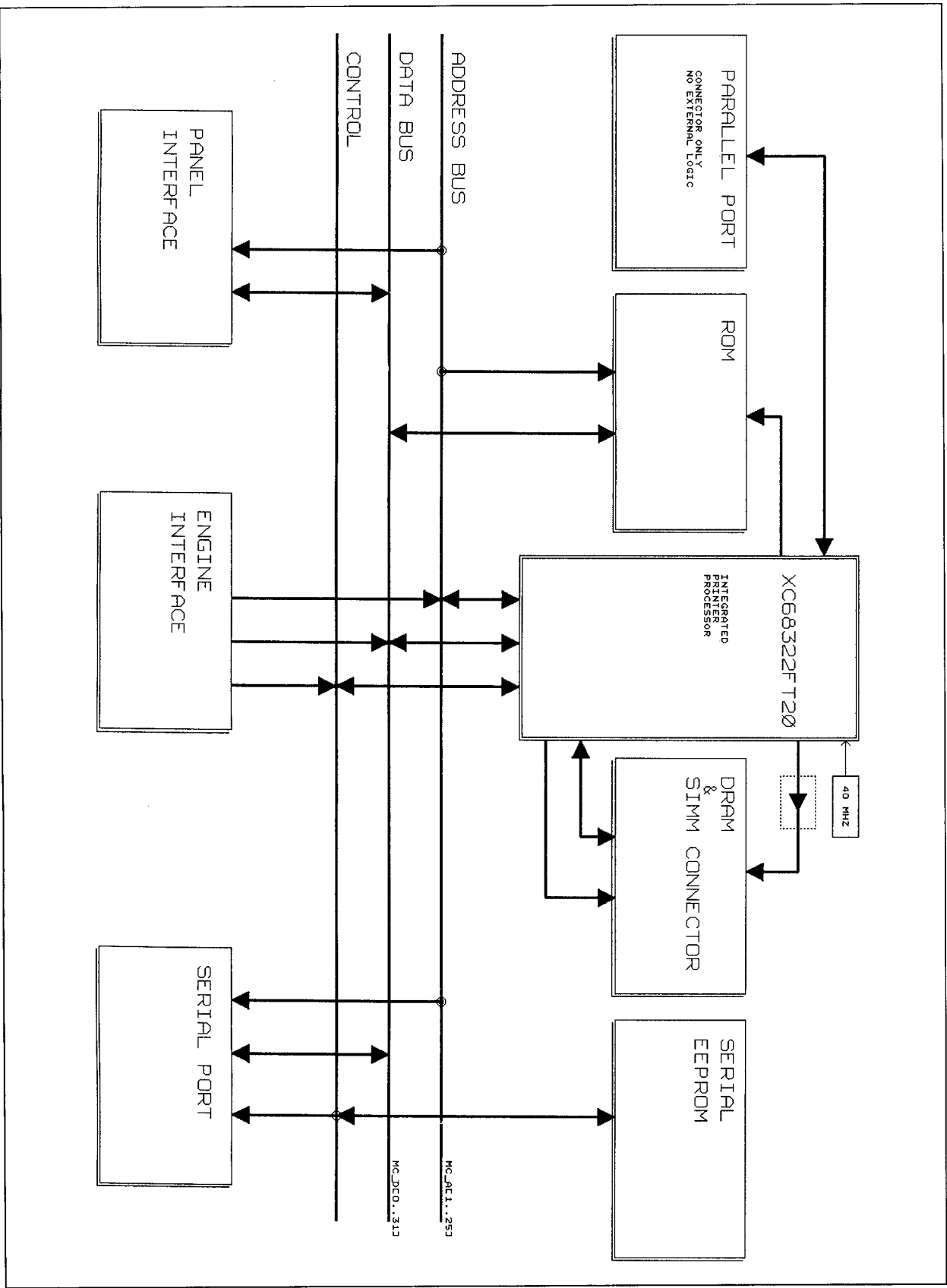
# 13-2 Video Control Unit(ML-84)

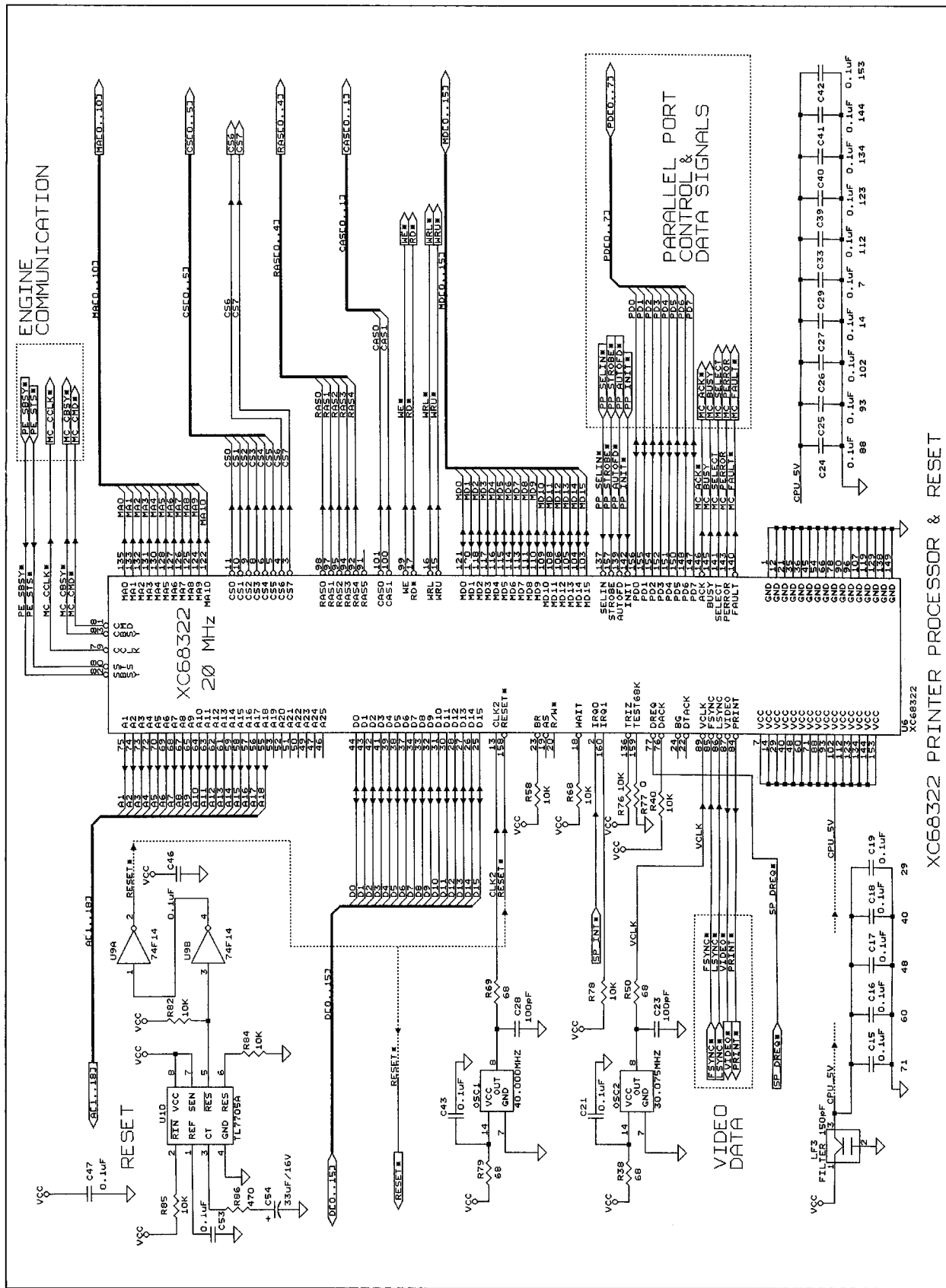
SCHEMATIC SHEET MAP

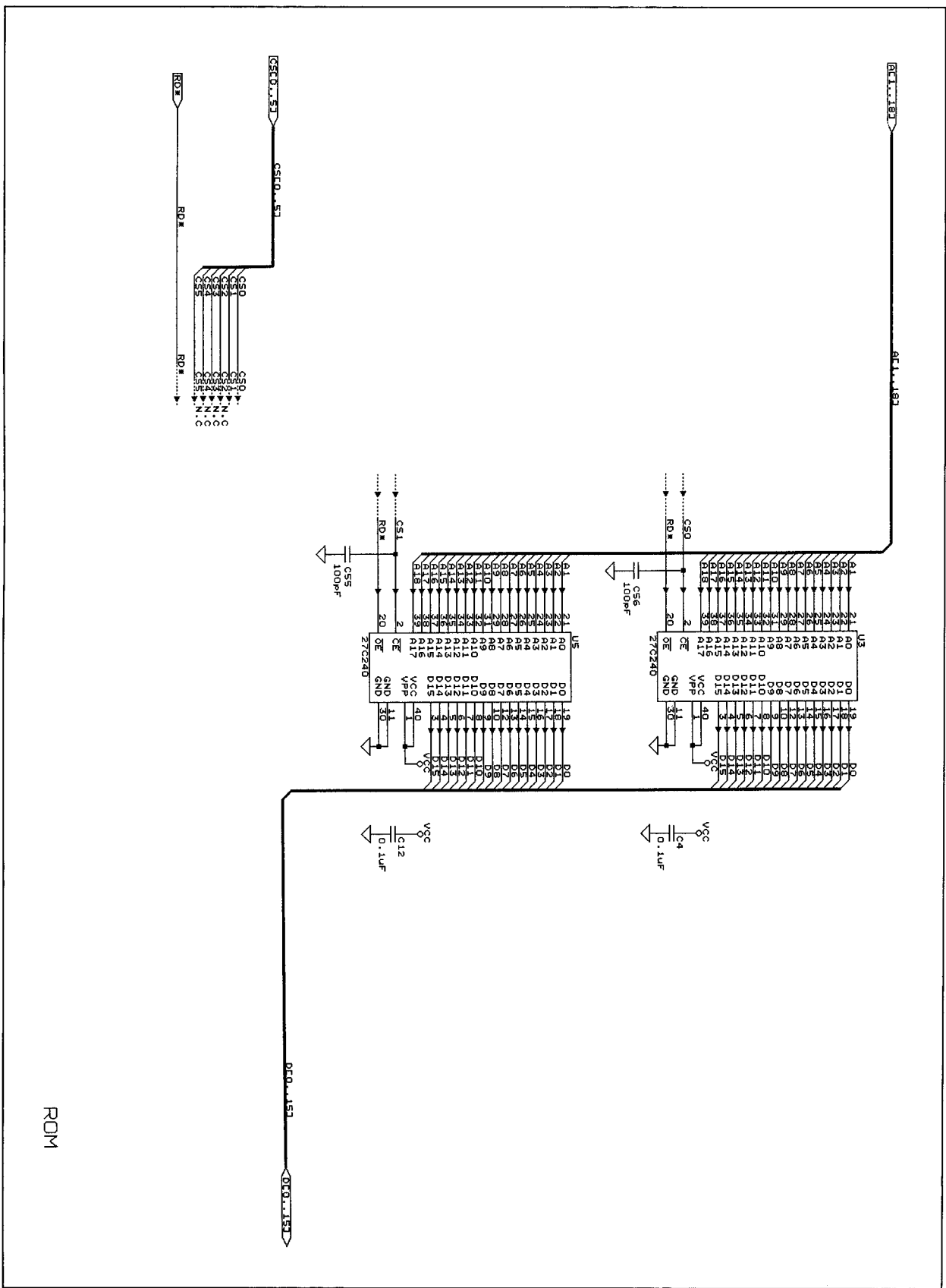


<NOTE> 051: MAIN B'D ROM  
 2: CPU  
 3: SERIAL I/F  
 4: SERIAL I/F

ML-84 MP



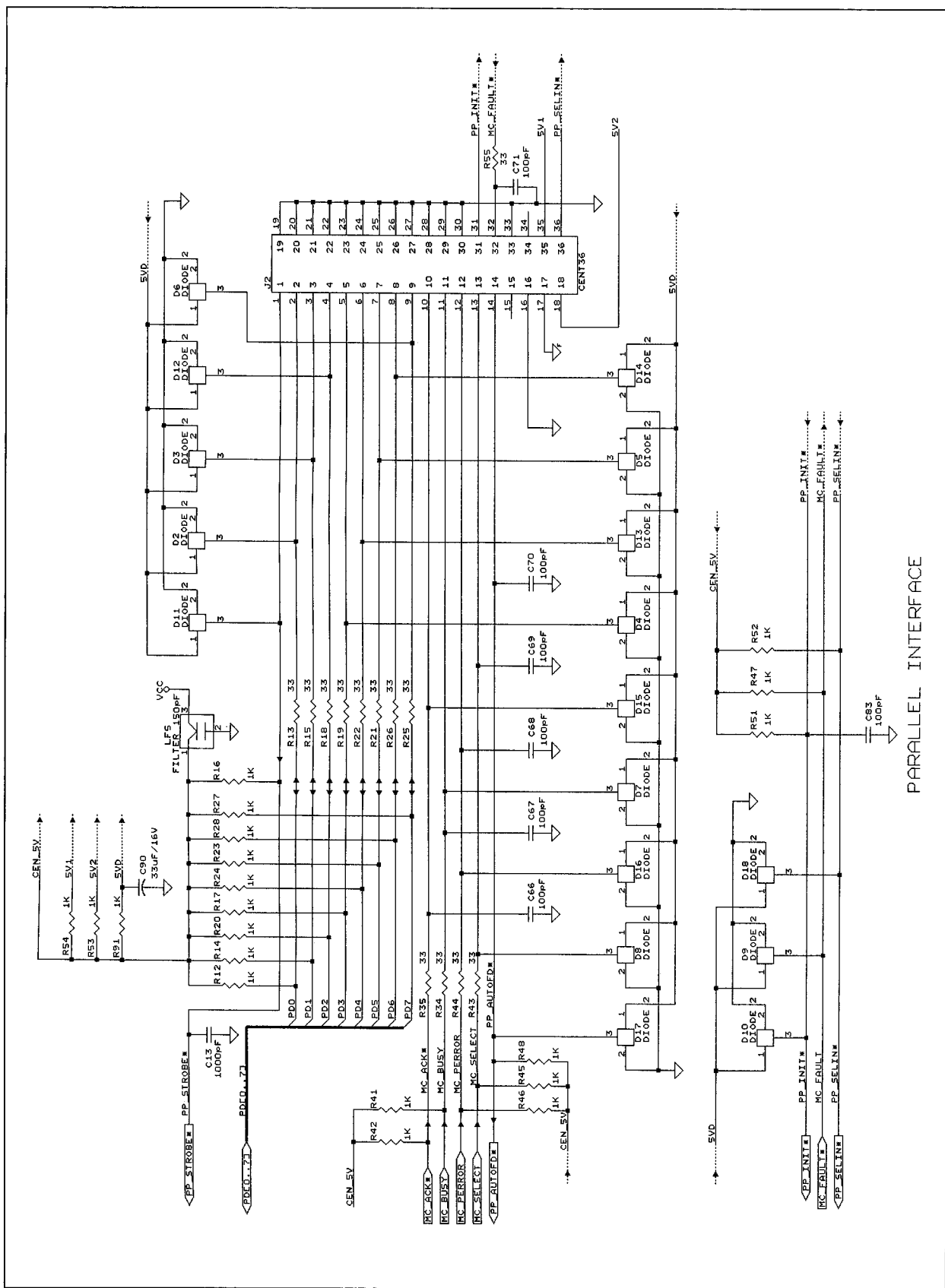


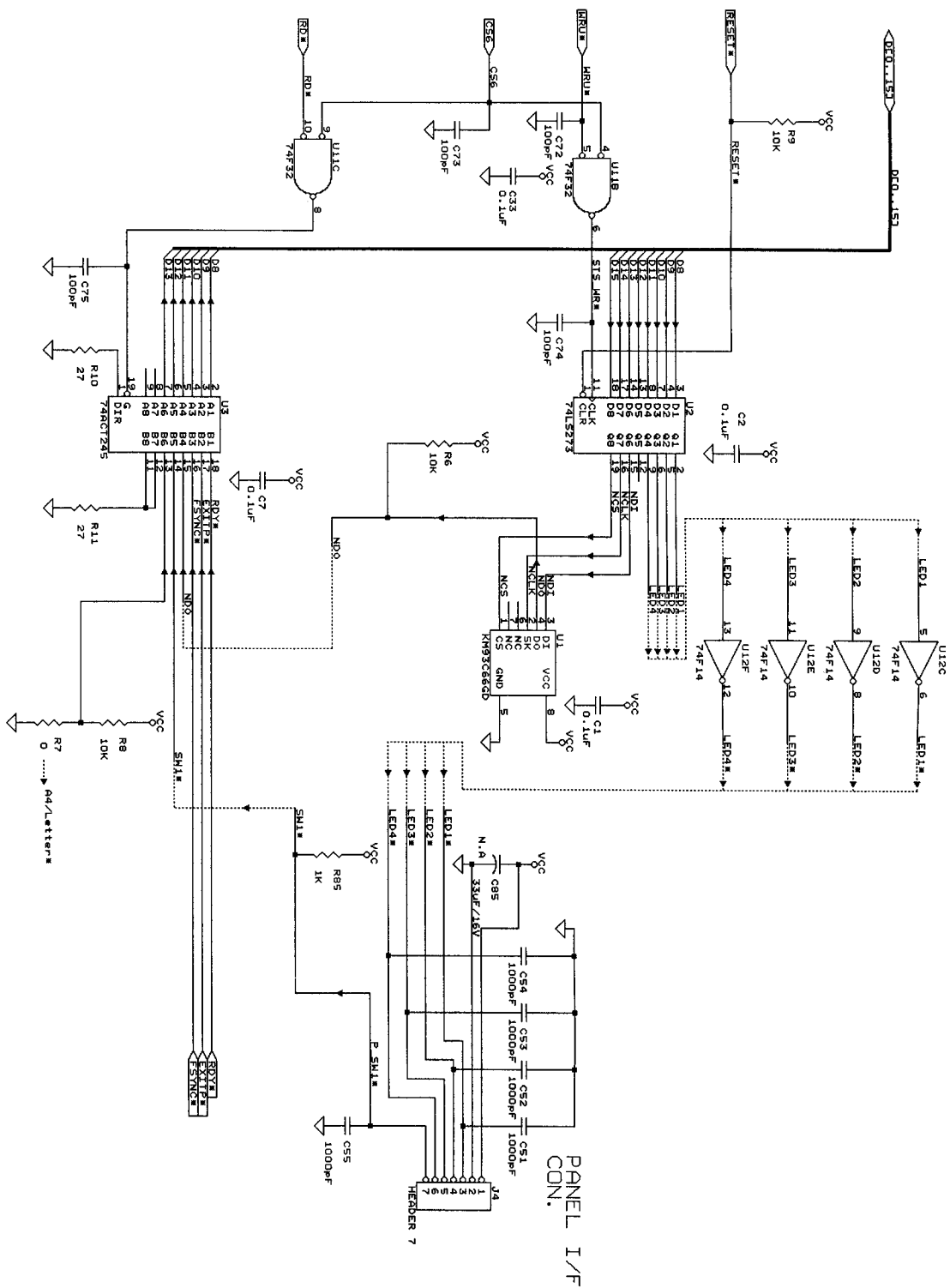




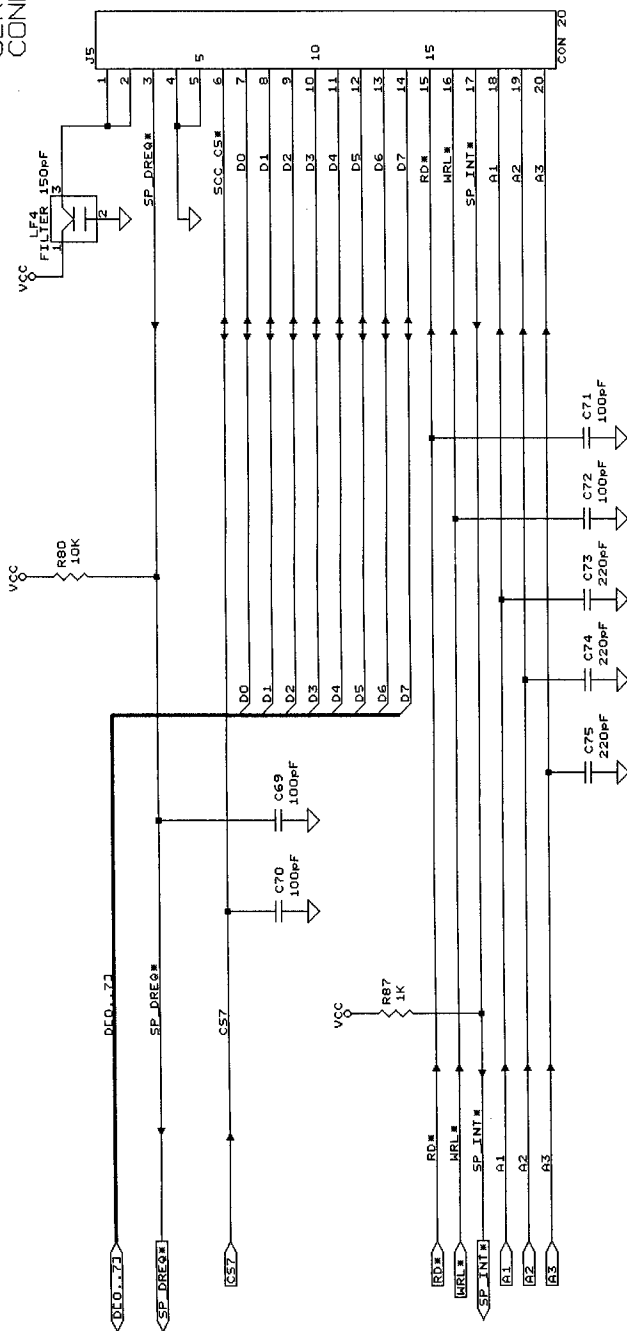






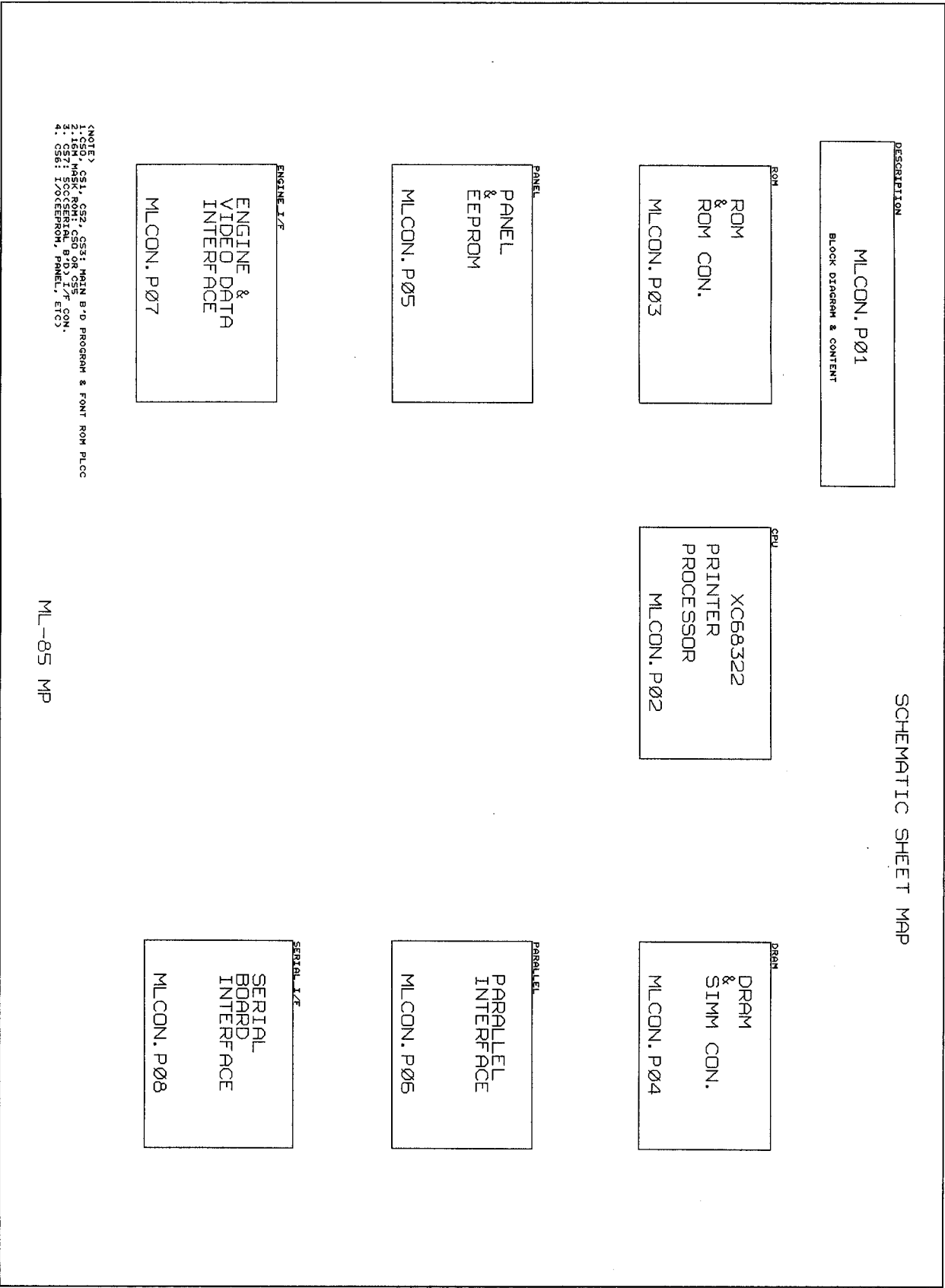


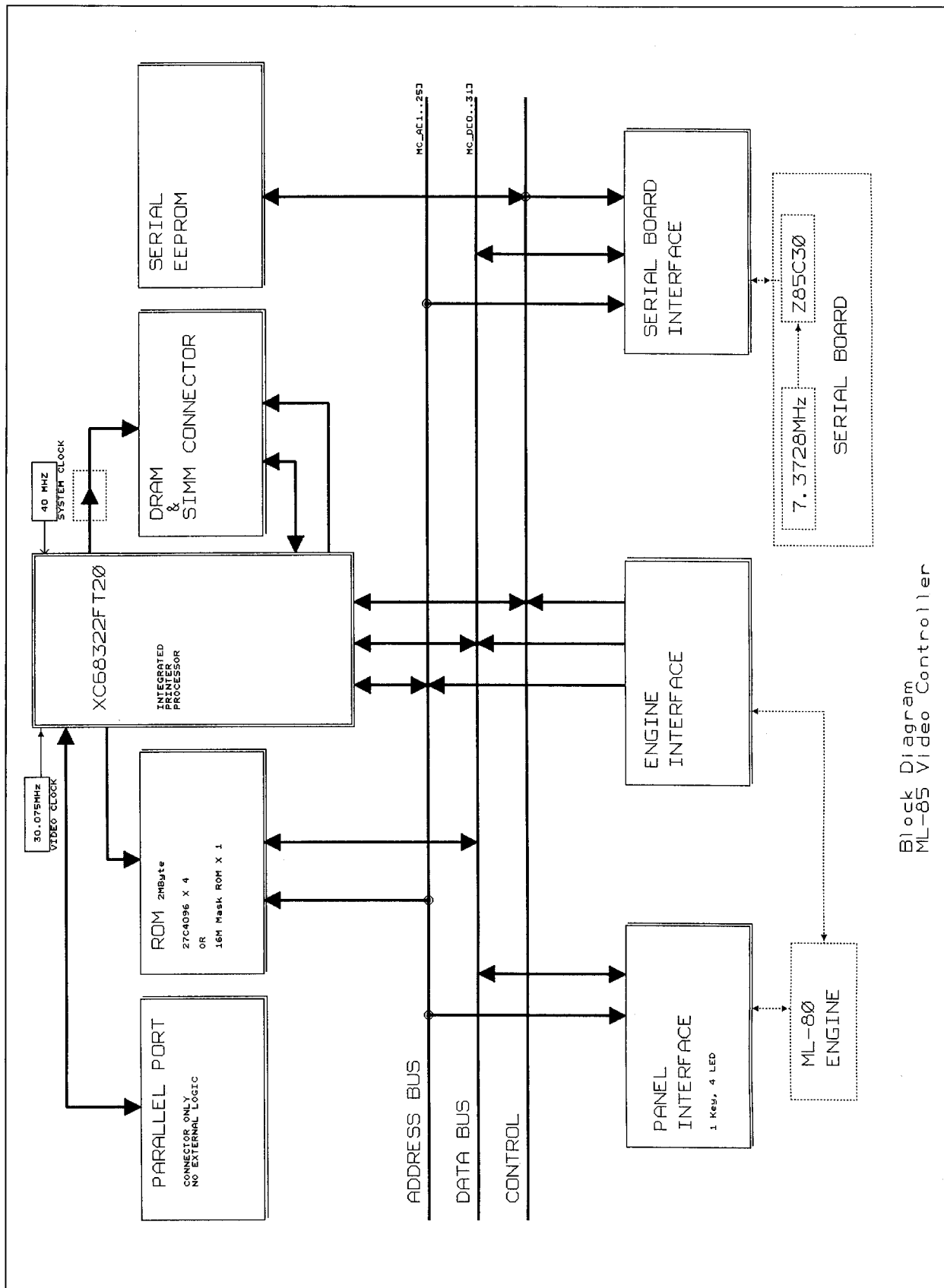
# SERIAL B'D CONNECTOR



## SERIAL BOARD INTERFACE

# 13-3 Video Control Unit(ML-85)

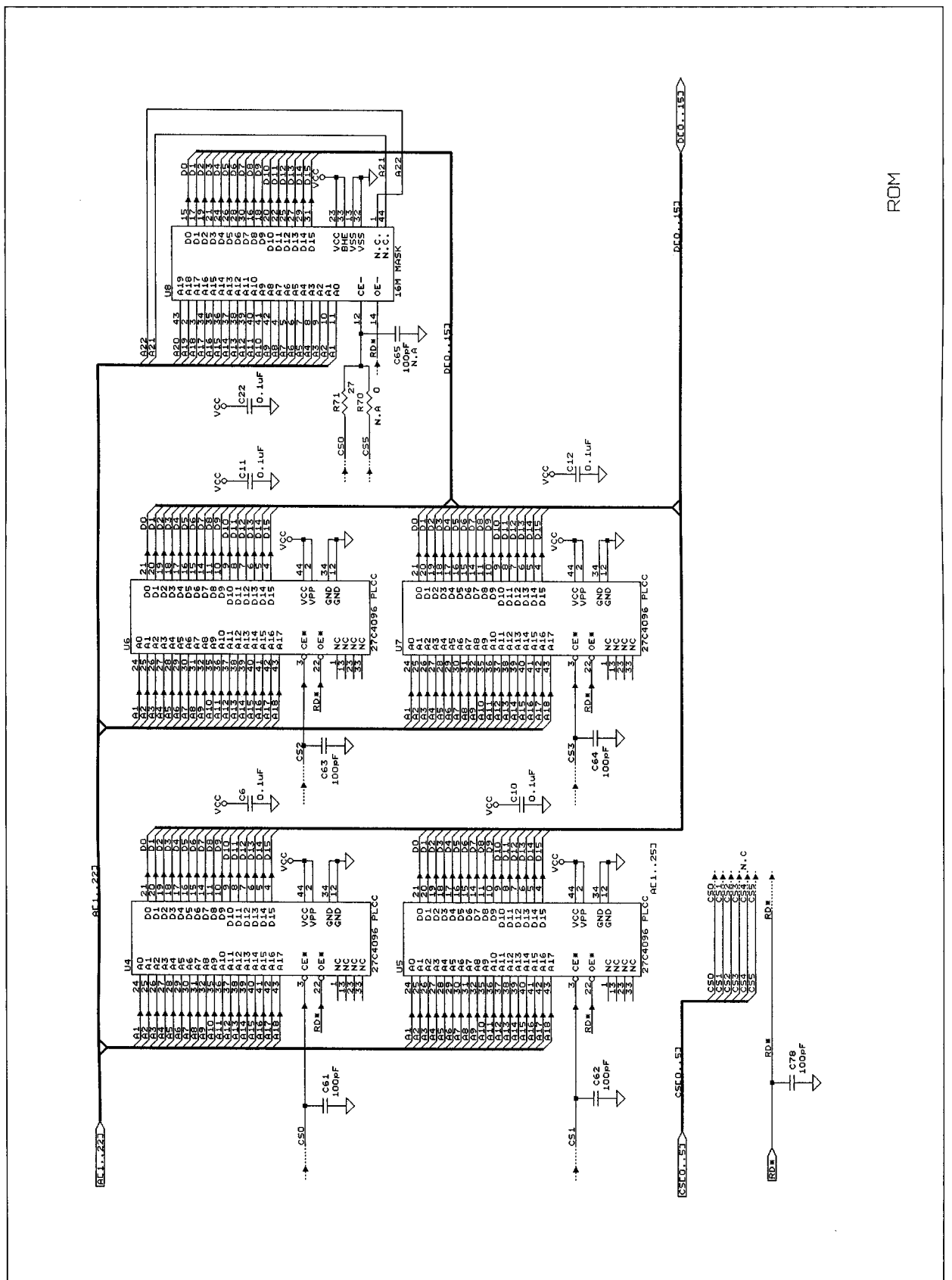




Block Diagram  
ML-85 Video Controller



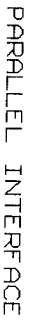
1. 本图是根据《GB/T 4754-2002 国民经济行业分类》中的“计算机、通信和其他电子设备制造业”进行分类的。  
 2. 本图是根据《GB/T 4754-2002 国民经济行业分类》中的“计算机、通信和其他电子设备制造业”进行分类的。  
 3. 本图是根据《GB/T 4754-2002 国民经济行业分类》中的“计算机、通信和其他电子设备制造业”进行分类的。  
 4. 本图是根据《GB/T 4754-2002 国民经济行业分类》中的“计算机、通信和其他电子设备制造业”进行分类的。  
 5. 本图是根据《GB/T 4754-2002 国民经济行业分类》中的“计算机、通信和其他电子设备制造业”进行分类的。  
 6. 本图是根据《GB/T 4754-2002 国民经济行业分类》中的“计算机、通信和其他电子设备制造业”进行分类的。  
 7. 本图是根据《GB/T 4754-2002 国民经济行业分类》中的“计算机、通信和其他电子设备制造业”进行分类的。  
 8. 本图是根据《GB/T 4754-2002 国民经济行业分类》中的“计算机、通信和其他电子设备制造业”进行分类的。  
 9. 本图是根据《GB/T 4754-2002 国民经济行业分类》中的“计算机、通信和其他电子设备制造业”进行分类的。  
 10. 本图是根据《GB/T 4754-2002 国民经济行业分类》中的“计算机、通信和其他电子设备制造业”进行分类的。

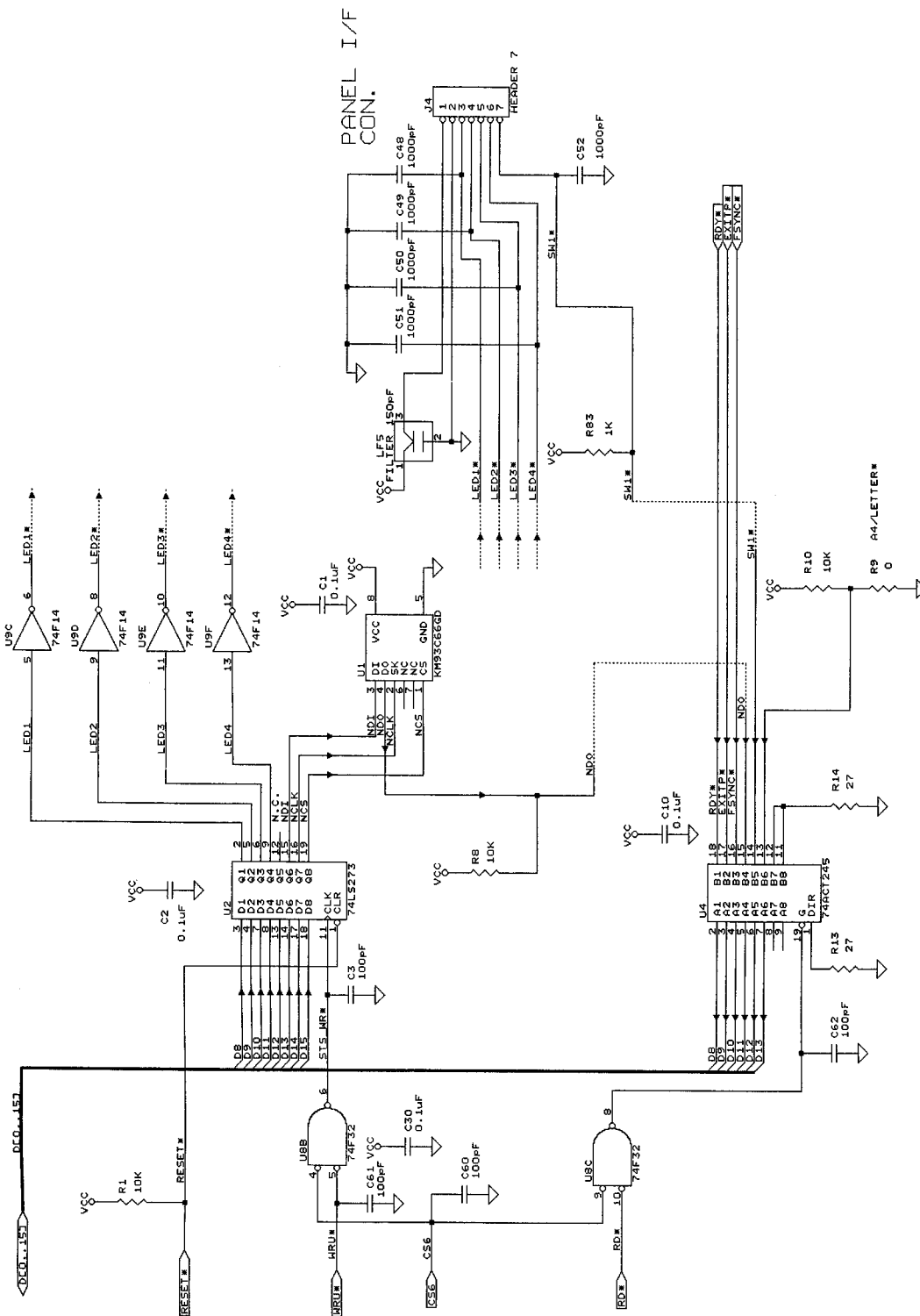




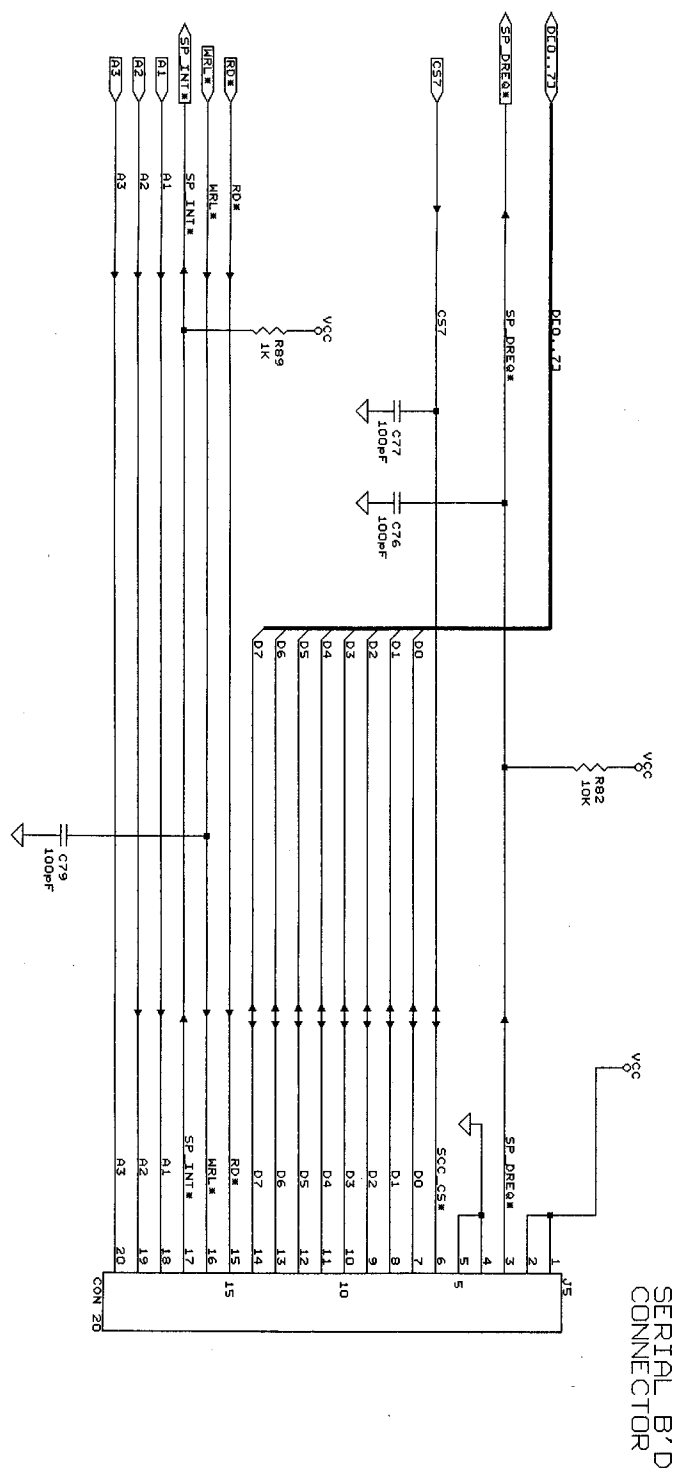






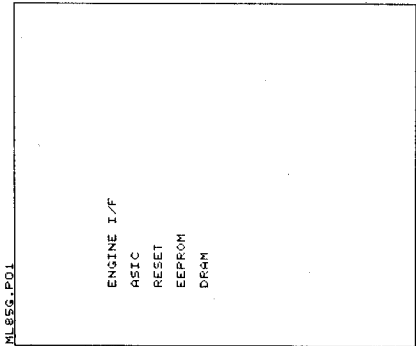
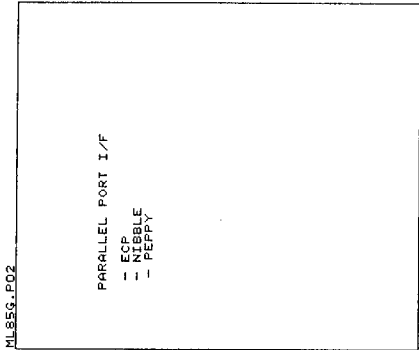


## PANEL & EEPROM



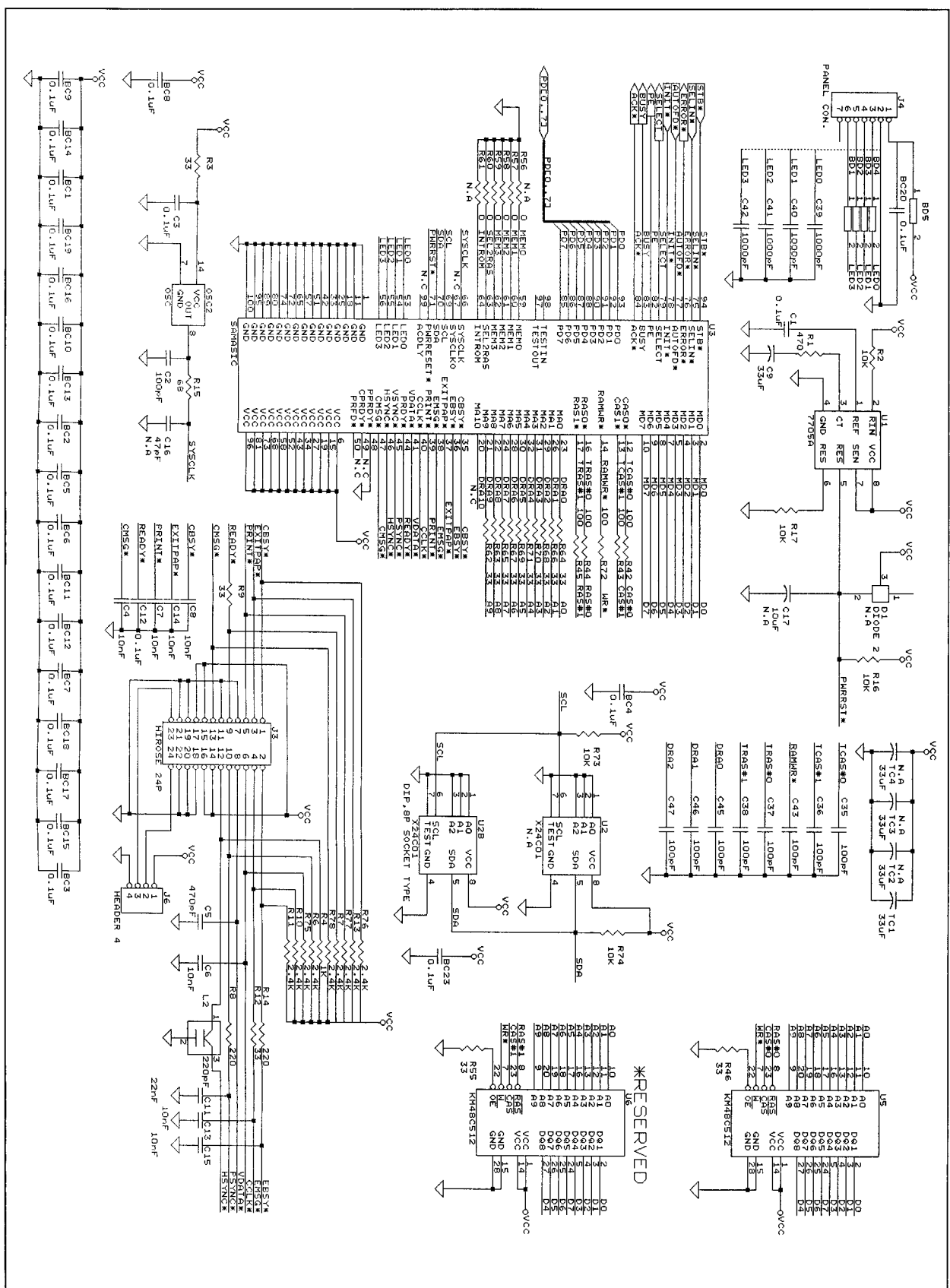
SERIAL BOARD INTERFACE

# 13-4 Video Control Unit(ML-85G)



QwikLaser 85G  
& ML-85G  
& ML-66G

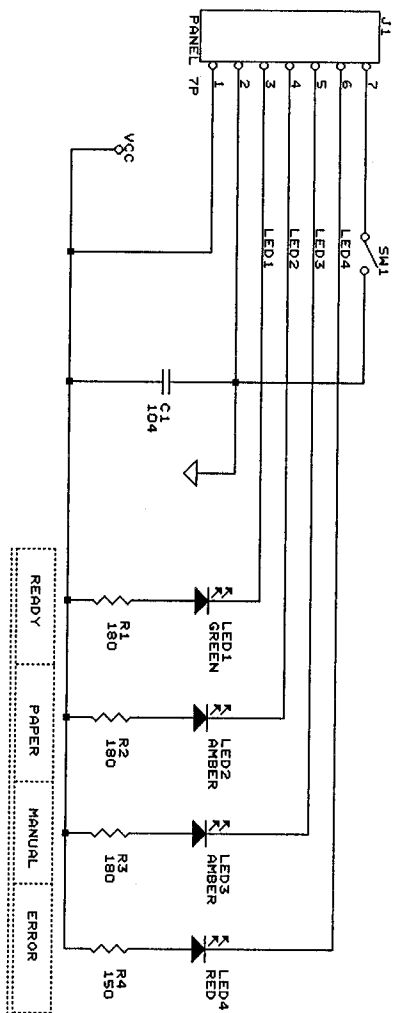
1. 本图仅供参考，具体实施时应根据实际情况进行适当调整。  
2. 图中所有元件均为贴片元件，除非特别说明。  
3. 图中所有电阻、电容均为贴片元件，除非特别说明。  
4. 图中所有信号线均应采用屏蔽线，以防止干扰。  
5. 图中所有电源线均应采用屏蔽线，以防止干扰。  
6. 图中所有地线均应采用屏蔽线，以防止干扰。  
7. 图中所有元件均应采用符合环保要求的材料。  
8. 图中所有元件均应采用符合安全要求的材料。  
9. 图中所有元件均应采用符合质量要求的材料。  
10. 图中所有元件均应采用符合性能要求的材料。







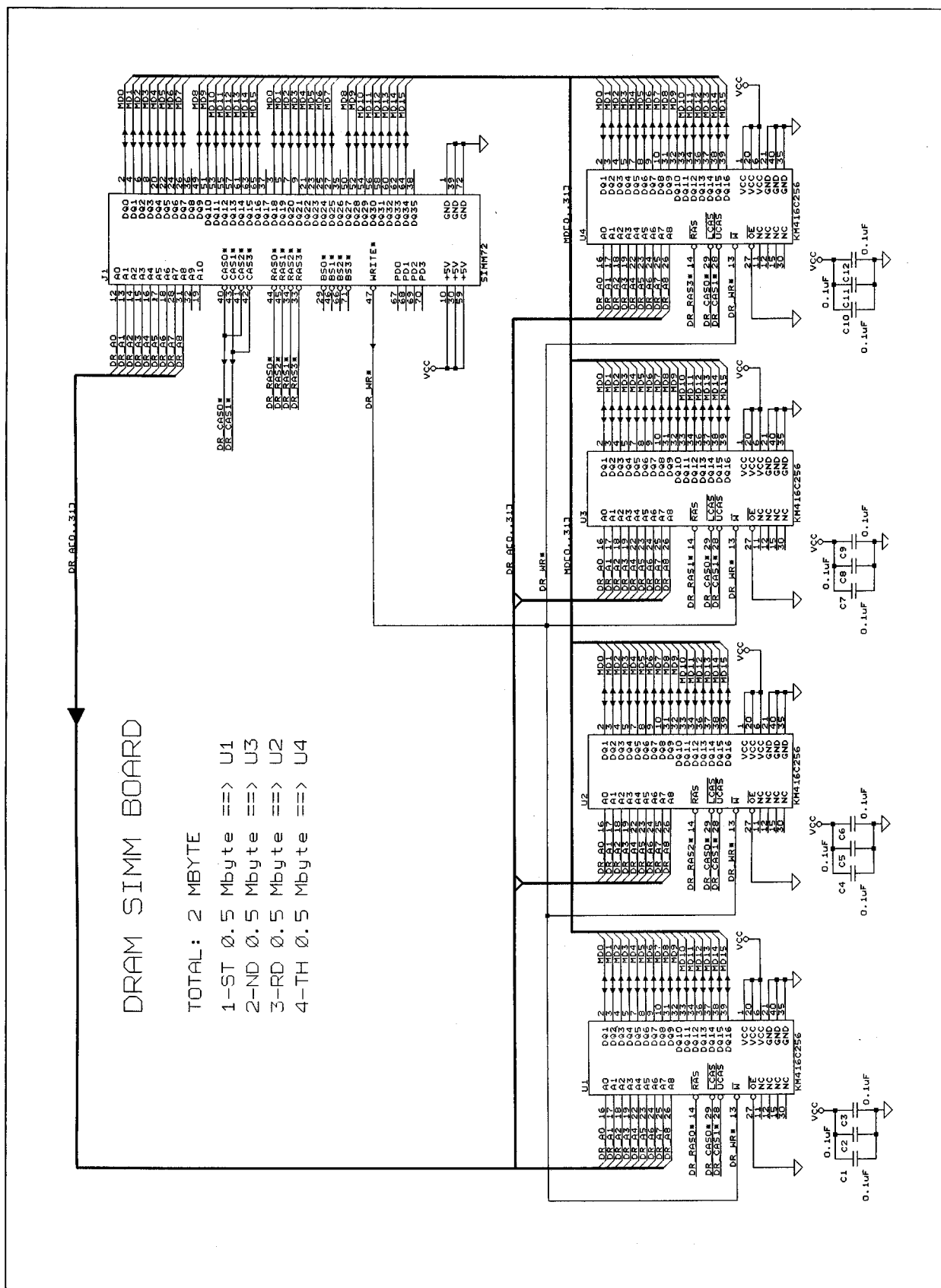
13-5 Panel Board



CONFIDENTIAL

LED PANEL ASS'Y

## 13-6 DRAM SIMM Board



## 13-7 Serial Board

