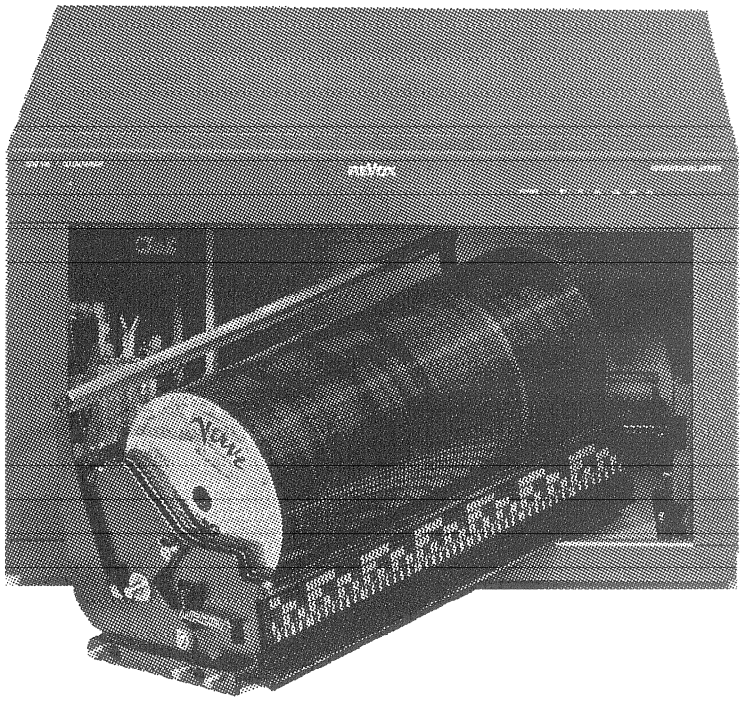
CDC 100 CD-Changer

Serviceanleitung
Service Manual
Manuel de Service



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CONTENTS

1. P.W. BOARDS

As can be seen from the circuit diagram the chassis of Model CDC100 consists of the following Units.
Each unit mounted on a printed circuit Board is described within the square enclosed by a bold dotted line on the circuit diagram.

1.Mecha Motor Drive ... Mounted on P.W. Board PM01
2.Error Indicator ..... Mounted on P.W. Board PR01
3.4 Bit Slit Sensor ..... Mounted on P.W. Board PU01
4.Disc Sensor ..... Mounted on P.W. Board PU02
5.Interface ..... Mounted on P.W. Board PU03
6.Din Connector..... Mounted on P.W. Board PW01
7.CD ..... Mounted on P.W. Board P501
8.RF Amp/ Servo Amp . Mounted on P.W. Board P502
9.3 Reg. (+5V, +12V) ... Mounted on P.W. Board P802
10.3 Reg. (-5V, -12V) ... Mounted on P.W. Board P803
11.Filter ..... Mounted on P.W. Board P851

2. SPECIFICATIONS

System ..... Optical system (compact disc system)
Wow and flutter ..... Below measurable limit
Pickup type ..... Semiconductor laser pickup
Disc capcity ..... 100 discs
Power source ..... AC 115V/230V 50/60Hz
Power consumption 30W
Dimensions ..... 420 (W) x 260 (H) x 415 (D) mm
Weight ..... approx. 21 kg
The specifications and design of this product are subject to change without notice.

3. SERVICE INFORMATION

Safety Information

During service, do not take subchassis block apart and do not adjust the H.F. amp circuit. If there is a breakdown in the H.F. circuit (including laser diode), replace the entire CD MECHA block (including PICK UP MECHA).

LASER SAFETY

This unit employs a laser. Only a qualified service person should remove the cover or attempt to service this device, due to possible eye injury.

CAUTION
USE OF CONTROLS OR ADJUSTSMENTS OR PERFORMANCE OF PROCEDURE OTHER THAN SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

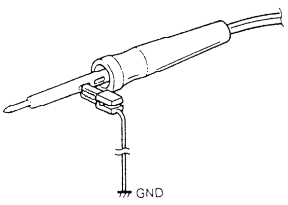
WARNING!!

When servicing, do not approach the laser exit with the eye too closely. In case it is necessary to confirm laser beam emission, be sure to observe from a distance of more than 30 cm from the surface of the objective lens on the light pen assembly.

CAUTION

● **Caution on laser radiation**

User care in the following when servicing or adjusting a product which uses laser light, such as a CD changer.
a) Once the power has been turned on, do not stare into the pickup lens directly to protect your eyes from the laser light emitted from the laser diode inside the pickup.
b) Be careful not to apply abnormal external pressure to the mechanism drive section including the pickup, for this section is assembled with a very high mechanical precision.
c) ICs such as the microcomputer and CD signal processor may be damaged by static electricity or electrical leakage from the soldering iron during servicing. To prevent the leakage, take the measure as shown in the illustration.



4. ADJUSTMENT PROCEDURES

* The CD commander is required when making adjustments.

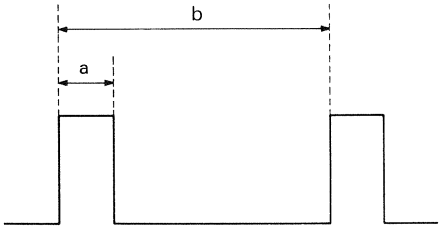
Mechanism Adjustments (on the PU03 board)

Slit Position Adjustment

(1) Connect the controller.
(2) Set the STAND BY/ OFF USE switch on the rear panel to the STAND BY position.
(3) Turn on the power of the commander and wait until the mechanism check has completed.
(4) Pull out the tray.
(5) Connect the hot side of an oscilloscope to jumper wire U14 on the circuit board, and connect the ground side to U12. Adjust the semi-fixed resistor BU17 so that the oscilloscope voltage reading is 3V.
(6) Pull the projecting lever out from the unit.
(7) Place the slit adjustment jig on the tray so that the groove on top of the jig lines up with the lever in a straight line.
(8) Using a stander (—) screwdriver, turn the adjustment shaft located below the arm bearing unit so that the oscilloscope's voltage reading is maximuized.
(9) Fix the threaded section of the adjustment shaft with bonding glue.
(10) Return the tray to its original position.
(11) Turn off the power of the controller.

Slit Width Adjustment

(1) Remove the tray and insert the slit alignment tool.
(2) Connect the hot side of a storage oscilloscope to the SLIT WIDTH TP (U72), and connect the ground side to (U1).
(3) Set the storage oscilloscope TIME/ DIV setting to 10ms.
(4) Turn on the power of the controller.
(5) The mechanisms operate and a waveform appears on the oscilloscope as ahown in the diagram below.
(6) Adjust SLIT WIDTH ADJ. (RU17) on the circuit board to 0.46 ± 0.03 mm. Since the adjustment is difficult to perform accurately in one try, repeat the adjustment steps (4) to (7) for 3 to 5 times. The slit width is calculated using the following formula: Slit width = 3 X a ÷ b.
(7) Turn off the power of the controller.
(8) Remove the slit width alignment tool and insert the tray.



4-Bit Comparator Level Adjustment

(1) Connect the hot side of an oscilloscope to COMP. LEVEL ADJ. TP. (U26) on the circuit board, and connect the ground side to (U1).
(2) Turn on the power of the controller.
(3) Wait until the mechanism check finishes.
(4) Adjust COMP. LEVEL ADJ. (RU48) so that the oscilloscope voltage reading is 3V.
(5) Turn off the power of the controller.

*The slit width alignment tool is available from us for payment.

CD Unit Adjustments

PLL Adjustment (SONY TYPE 4 disc required)

(1) Place the test disc in disc tray No. 50.
(2) Connect the hot side of a frequency counter to pin 2 of J572 (TP02) on circuit board P501, and connect the qround side to pin 4.
(3) While hoding SU01 on circuit board P501 depressed, turn on the power of the controller. (The PL LED on the front panel lights.)
(4) Short pins 1 and 2 of J574 on circuit board P502.
(5) Adjust PLL ADJ. R586 on circuit board P501 so that the frequency counter reads 4.3218MHz.

Tracking Offset Adjustment (tracking offset meter required)

(1) Connect the hot side of the tracking offset meter to pin 4 of J571 (TP01) on circuit board P501, and connect the ground side to pin 5.
(2) Press SU01 on circuit board P501 softly twice. (The LO LED on the front panel lights.)
(3) Adjust R515 on circuit board P502 so that the tracking offset meter reading becomes '0'.

Focus Offset Adjustment (jitter meter required)

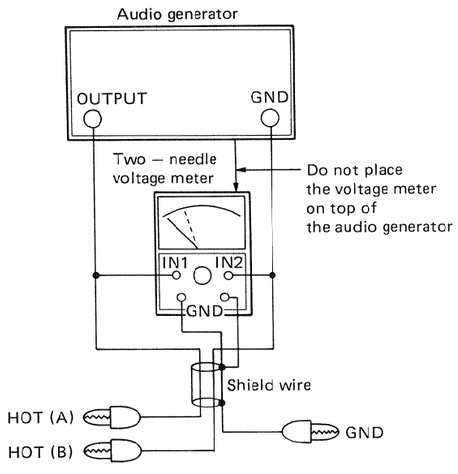
(1) Connect the hot side of the jitter meter to the RF side of J573 on circuit board P502, and connect the ground side of the meter to the GND side of J573.
(2) Press SU01 on circuit board P501 so that the unit enters play mode. (The front panel 'SA' LED lights up.)
(3) Adjust to maximize the signal level (jitter = 30 ms or less).

Focus Gain Adjustment (jig shown in Fig. 1 required)

(1) Connect HOT Ⓐ of the adjustment jig to pin 1 of J571 (TP01) on circuit board P501, connect HOT Ⓑ to pin 3, and connect GND to pin 2.
(2) With the audio generator frequency set to 1.0 kHz, adjust the generator output so that the meter reads approx. 150 mV.
(3) Adjust F GAIN ADJ. R517 on circuit board P501 so that the meter readings for both IN1 and IN2 are the same.

Tracking Gain Adjustment (jigshown in Fig. 1 required)

(1) Connect HOT Ⓐ of the adjustment jig to pin 4 of J571 (TP01) on circuit board P501, connect HOT Ⓑ to pin 6, and connect GND to pin 5.
(2) With the audio generator frequency set to 1.4 kHz, adjust the generator output so that the meter reads approx. 300 mV.
(3) Adjust T GAIN ADJ. R518 on circuit board P501 so that the meter readings for both IN1 and IN2 are the same.



5. OPERATION DESCRIPTION OF CD AUTO CHANGER

The auto changer, which is located in front of the tray where CD discs are arranged vertically, moves horizontally until the position of the specified disc and picks only the specified disc out to play it.
When the power is turned ON after connecting the CD commander, the auto changer starts the initial operation (for 15 to 20 sec.). The initial operation consists of performing all operations (CL, SA, LO, FE) of the mechanism to check if there is any trouble.
Each of the lamps on the top right of the front panel lights up during its corresponding operation, and starts to blink when a trouble is found.

◯ POWER — Power
◯ ST — Stop
◯ PL — Play
◯ FE — Feed
◯ LO — Loading arm
◯ SA — Stick-out lever
◯ CL — Clamper

Example 1) When the LO lamp blinks

There is a trouble in the loading arm operation;
1) the motor wire is disconnectcted;
2) one of the four switches on the loading arm guide is defective;
3) the arm movement is too slow, or;
4) other.

Example 2) When the ST lamp blinks

There may be one of the following troubles;
1) error of the tray present/ absent switch;
2) error of the disc present/ absent sensor in the mechanism;
3) error of the 4-bit mark and slit sensor, or;
4) other.

Note:
The ST lamp also blinks when the power is turned ON with the tray ejected.

Basic operation of mechanism

When the disc No. and track No. is selected, the mechanism moves horizontally until the position of the specified disc while reading the 4-bit marks and slits on the tray, and stops in front of the specified disc No. With the loading arm projected toward the front (toward the tray), the stick-out lever pushes up the disc and the disc is held by the loading arm and stick-out lever. Then, while holding the disc, the loading arm is returned inside the mechanism together with the the disc. The clamper places the disc on the turntable of the vertically-installed pickup, and playback starts. After playback, the mechanism returns the disc to the tray with the reverse operations to the above, and the mechanism itself returns to the initial position (outside the first disc). (The mechanism may not return to the initial position in case the next disc has been reserved).

Main troubles and countermeasures against them

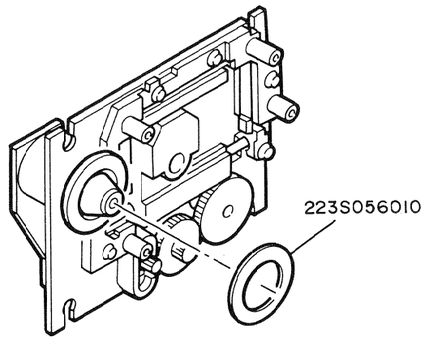
1) The loading arm is projected toward the tray, but the disc remains inside the mechanism.
This trouble occurs when the disc cannot be returned in the tray. It is due to a misalignment between the positions of the stick-out lever and tray, and readjustment of their positioning is required.
First select a disc No. and check if the stick-out lever comes on the center of the tray.
If it is in a wrong position, correct the position of the 4-bit sensor board by turning the i-grooved shaft (331M) to the right of the board.
If the stick-out lever position is deviated toward the first disc of the tray, turn the shaft counterclockwise. If it is deviated toward the hundredth disc, turn the disc clockwise.
Note:
In case this trouble occurs, also check if the tip of the tray is bent. If it is bent, it should be replaced.

2) The disc is present in the tray but it cannot be played.
a. Check if the disc is damaged or dirty.
b. If the pickup is dirty, wipe with a dry cotton swab, etc.

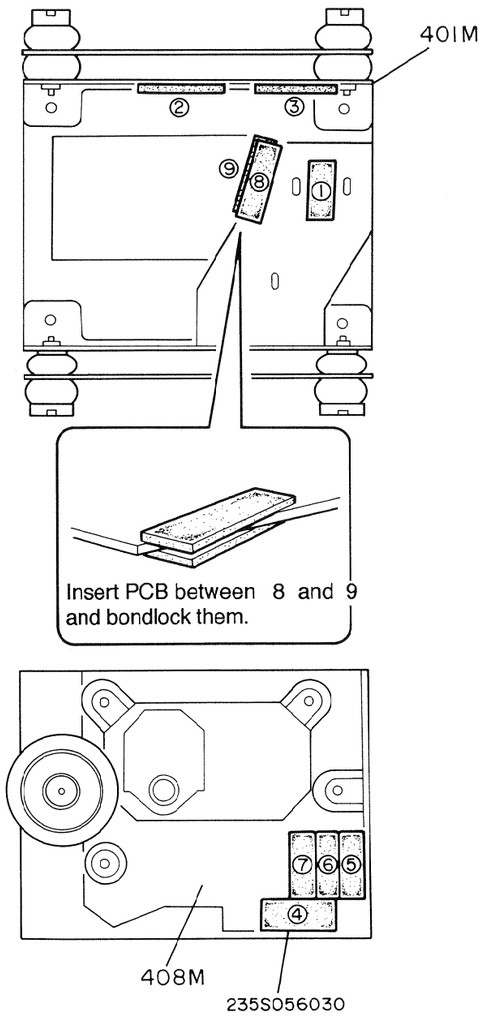
3) The loading arm does not act at all from the initial operation, and the ST lamp is blinking.
a. Check if the microswitch (053G) installed on the left tray quide (055G) is defective.
b. Check if the circuit board of the disc guide (091M) installed on the loading arm is disengaged.

When you exchange CD pickup mecha attach these parts stated below.

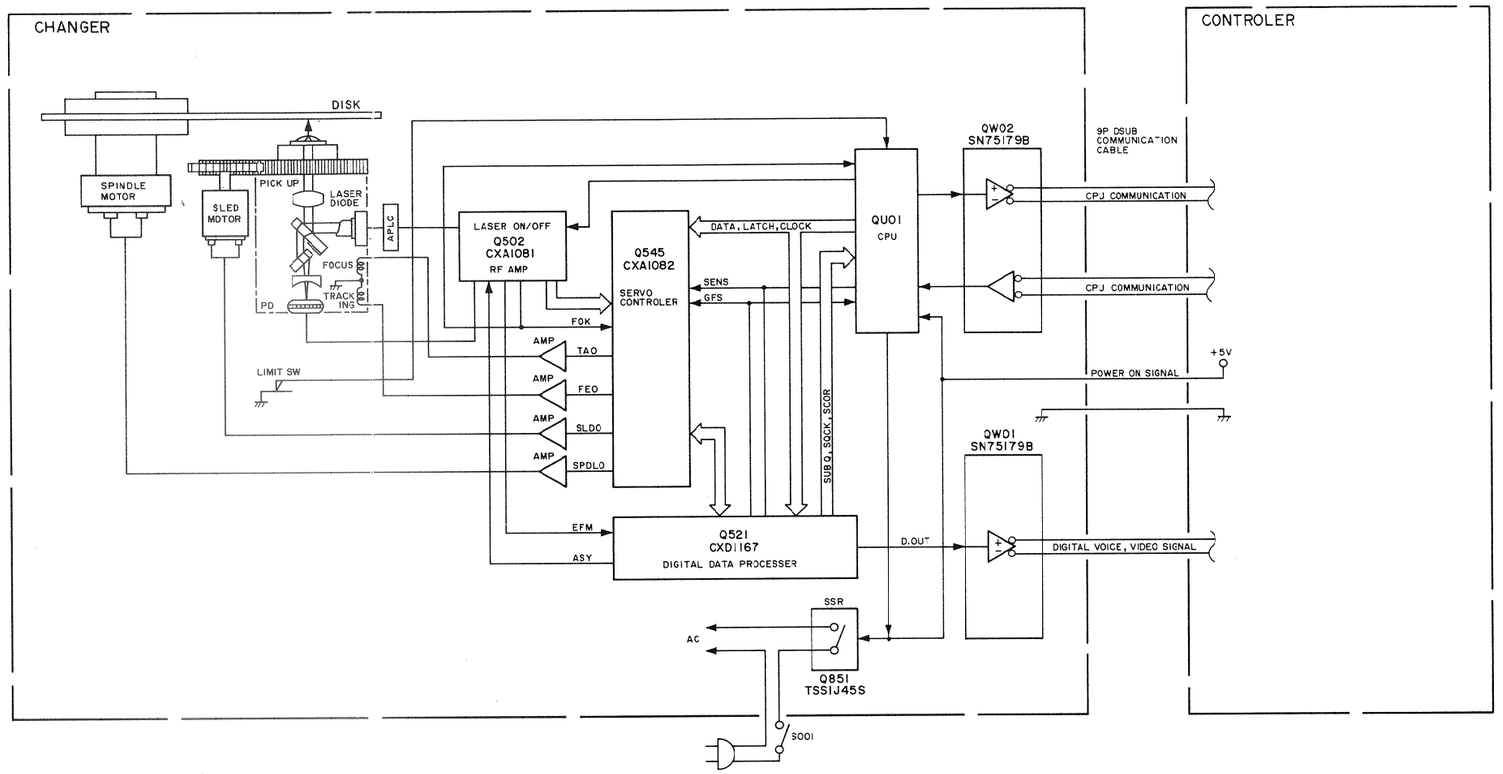
1 Attach the sheet on the turn table of CD pickup mecha assembly.



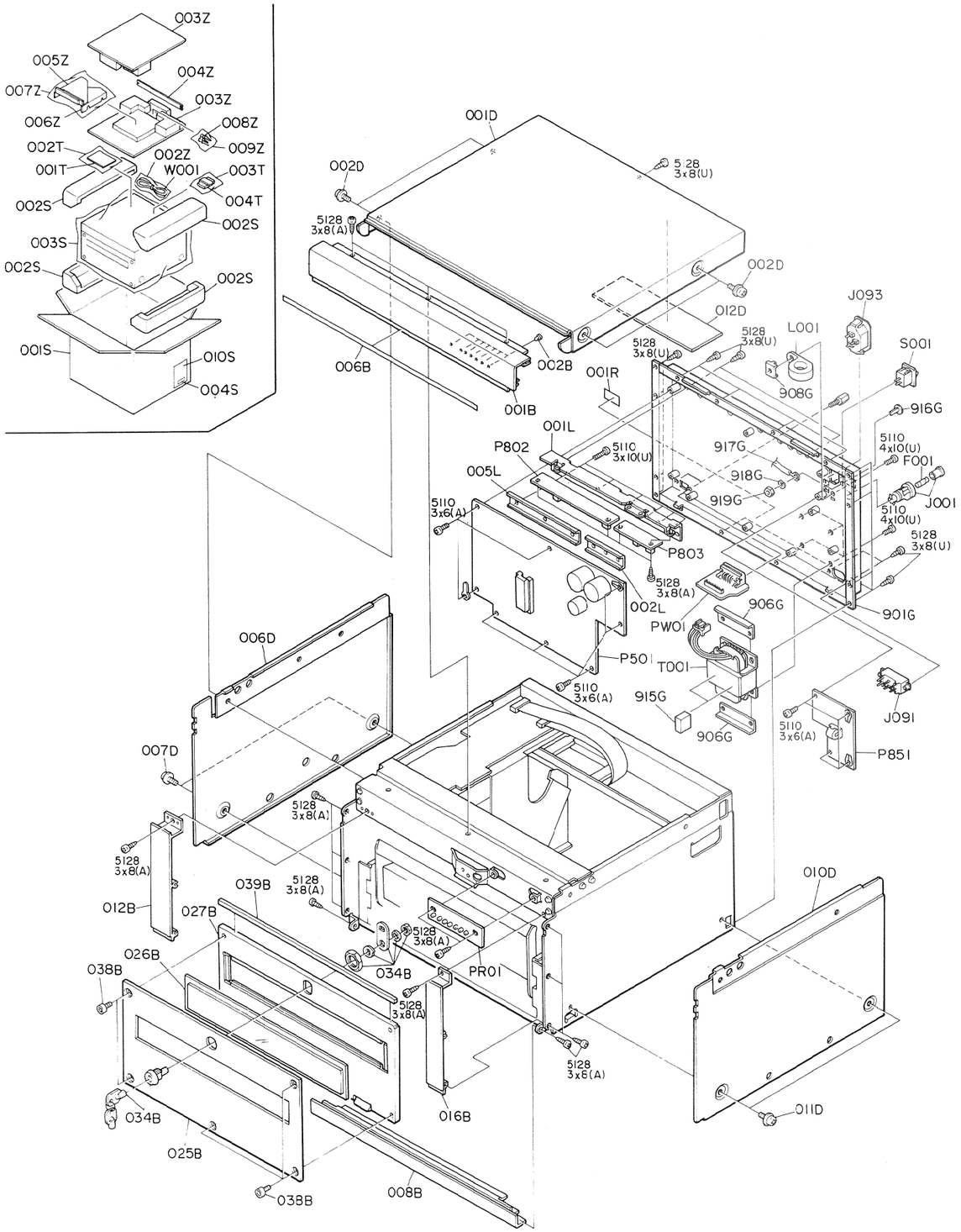
2 Attach the buffer on each of pickup cover and CD pickup mecha assembly.



6. BLOCK DIAGRAM

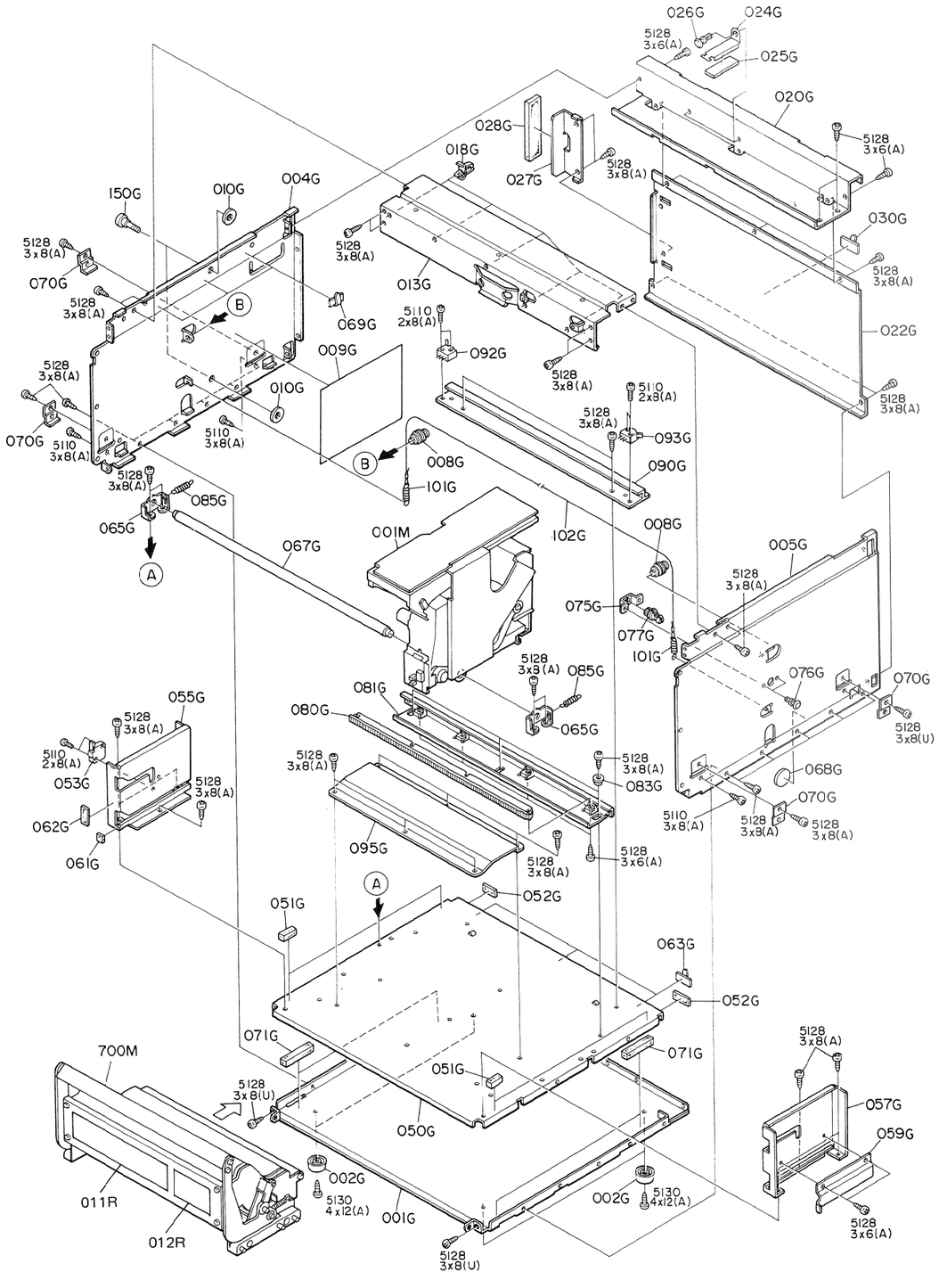


7. EXPLODED VIEW AND PARTS LIST

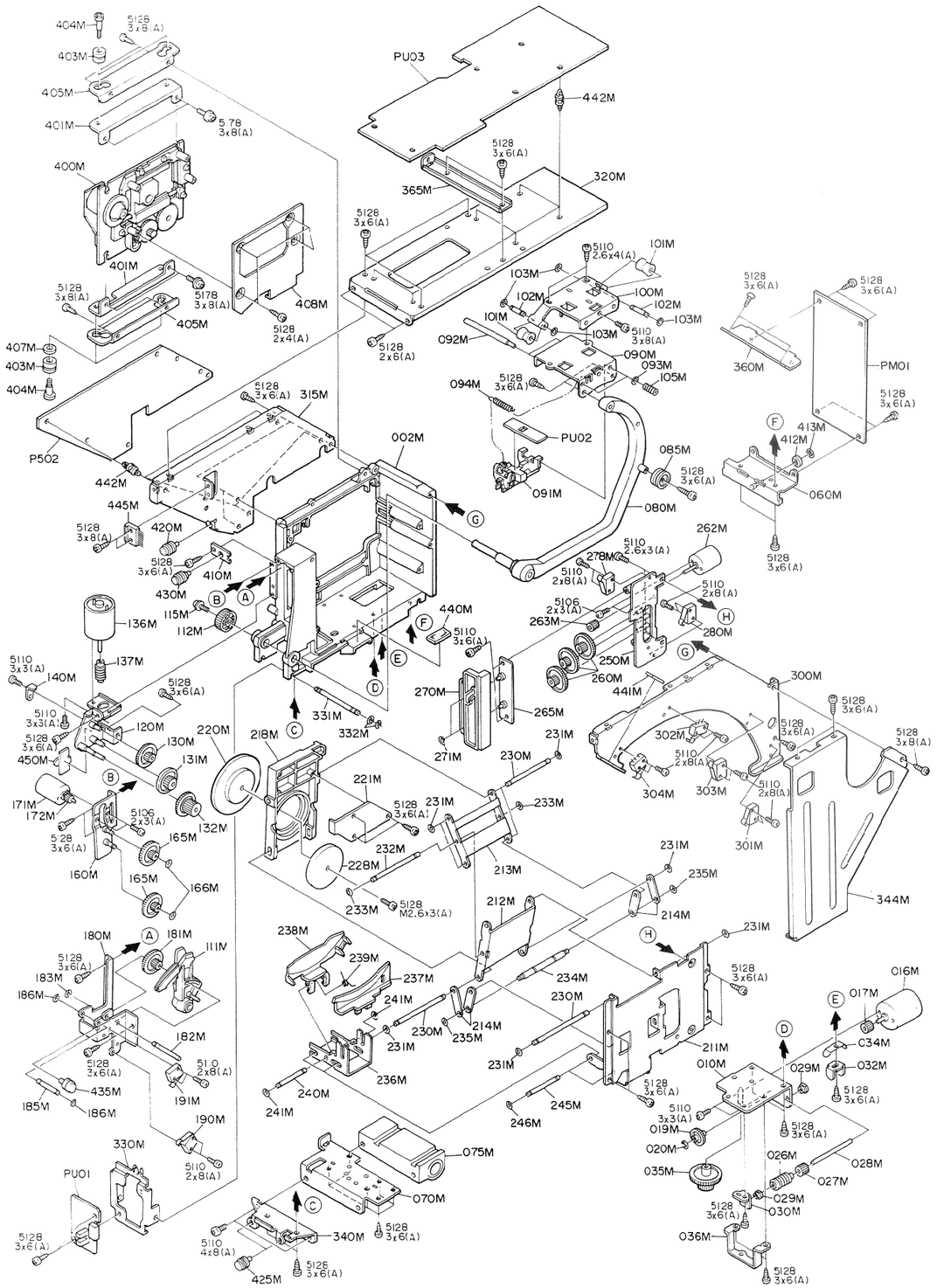


REF. DESIG.	PART NO.	DESCRIPTION
001B	244S248010	Front Panel, Upper
002B	238H355020	Lens
006B	083S056060	Buffer
008B	083S248220	Front Panel, Lower
012B	083S248230	Front Panel, L
016B	083S248240	Front Panel, R
025B	244S248020	Front Panel, Main
026B	083S158010	Window
027B	083S105510	Chassis Assembly, Front
038B	52730406S0	H.S. Head Bolt M4 x 6
039B	083S056050	Buffer
001D	083S257010	Lid, Top Cover
002D	51260408U0	B. T. Screw (W/ W) B4 x 8
006D	083S257020	Lid, Left Side Cover
007D	51260408U0	B. T. Screw (W/ W) B4 x 8
010D	083S257030	Lid, Right Side Cover
011D	51260408U0	B. T. Screw (W/ W) B4 x 8
012D	083S120020	Insulator
901G	244S250500	Rear Panel
906G	083S160310	Bracket, Transformer
908G	083S160320	Bracket, Filter
915G	242H056010	Buffer, Trans
916G	244S010010	Screw
917G	62040029W0	Lug, GND
918G	54040402A0	Spring Washer
919G	53110401A0	Nut M4
001L	083S267010	Heatsink
002L	083S104020	Retainer, S
005L	083S104030	Retainer, L
001R	105K861070	Label. Class-1
⚠ F001	FS10063850	Fuse 630mA 250V
⚠ J001	YJ08000290	Jack, Fuse Holder
⚠ J091	SS02021330	Voltage Selector
⚠ J093	YJ04001440	AC Inlet AC-P03CS05
⚠ L001	FC50290010	Ferrite Core
⚠ S001	SC01020530	Switch, Power
⚠ T001	TS16403020	Power Transformer

REF. DESIG.	PART NO.	DESCRIPTION
		PACKING
001S	244S801010	Packing Case
002S	083S809020	Cushion
003S	040S811010	Polyethylene Bag
004S	2112265010	Indicator, Serial No.
010S	244S861010	Label, PKG
001T	244S851310	User Manual
003T	083S811010	Polyethylene Bag
004T	024S005030	Clamper
011T	083S851220	Caution, Inst
002Z	9011535010	Polyethylene Bag
003Z	224S807010	Reinforcing
004Z	244S063010	Escutchion
005Z	234S253110	Ruck Handle (L)
006Z	234S253120	Ruck Handle (R)
007Z	9013040010	Polyethylene Bag
008Z	51260415U0	B. T. Sctrew (W/ W) B4 x 15
009Z	9011025010	Polyethylene Bag
⚠ W001	ZC02003090	AC, Power Cord

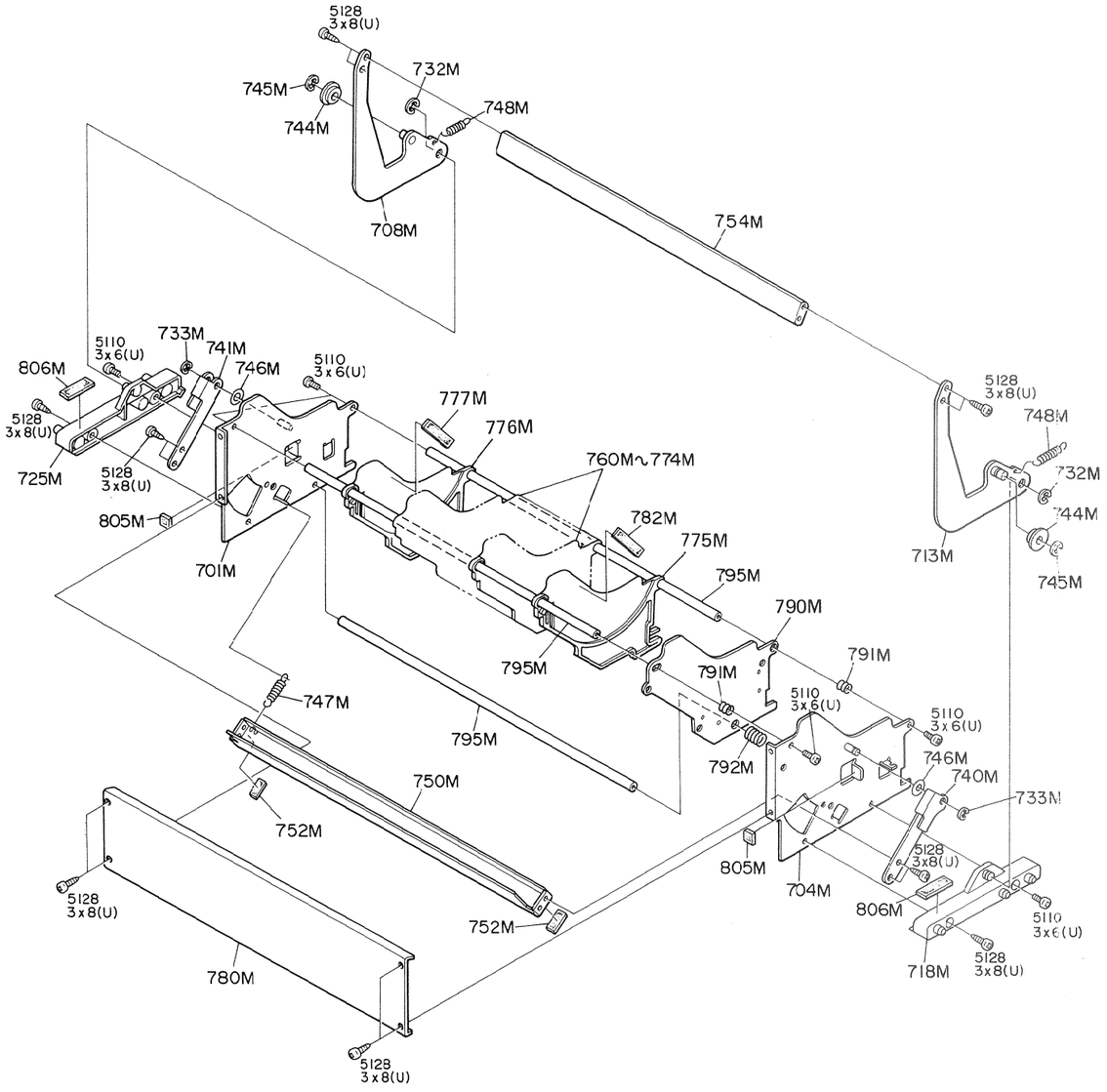


REF. DESIG.	PART NO.	DESCRIPTION
001G	083S105080	Chassis, Bottom
002G	3889057010	Leg
004G	083S105060	Chassis, Left Side
005G	083S105070	Chassis, Right Side
008G	083S262010	Pulley
009G	083S120010	Insulator
010G	083S056040	Buffer
013G	083S126010	Stay, Front
018G	2886005060	Clamper, Wire
020G	083S126020	Stay, Rear
022G	083S105100	Chassis, Rear
024G	083S104010	Retainer, S
025G	083S056010	Buffer
026G	2276005050	Clamper, Push Rivet
027G	083S104040	Retainer, L
028G	083S056020	Buffer
050G	083S105050	Chassis, Mecha Base
051G	008H056010	Buffer
052G	221K056080	Buffer
053G	SM01020570	Mini Switch, Tray
055G	083S051050	Guide, Tray L
057G	083S051060	Guide, Tray R
059G	083S116010	Leaf Spring
061G	083S056070	Buffer
062G	221K056080	Buffer
063G	024S005030	Clamper, Wire
065G	083S106020	Sustainer, Mecha Guide
067G	083S112350	Shaft, Mech Guide
068G	284T057010	Leg, Buffer
069G	024S005030	Clamper, Wire
070G	083S104050	Retainer, Base
071G	281H056010	Buffer
075G	083S160330	Bracket, Wire Stopper
076G	2276005050	Clamper, Push Rivet
077G	024S101010	Support, Wire
080G	083S058010	Gear, Ruck
081G	083S051070	Guide, Ruck Gear
083G	083S055010	Collar
085G	083S115030	Spring, Guide
090G	083S051020	Guide, Mecha
092G	SM01020530	Mini Switch, Feed B
093G	SM01020530	Mini Switch, Feed E
095G	083S105110	Chassis, Tray
101G	083S115030	Spring, Disc Stop
102G	083S006010	String
150G	083S010020	Screw
001M	083S304500	Mechanism, CD
700M	083S163700	Tray Assembly, Disc
011R	083S861120	Label
012R	083S861110	Label



REF. DESIG.	PART NO.	DESCRIPTION
002M	083S105010	Chassis, Main
010M	083S160510	Bracket K, Feed Motor
016M	MM01300010	D.C. Motor, Feed
017M	083S058090	Gear, Feed
019M	083S058100	Gear, Feed (1st)
020M	083S114130	Stopper
026M	083S058110	Gear, Worm (2nd)
027M	083S058090	Gear, Spur
028M	083S112180	Shaft
029M	083S106060	Sustainer
030M	083S106030	Sustainer
032M	083S114020	Stopper
034M	083S107010	Sheet
035M	083S058120	Gear (3rd)
036M	083S160130	Bracket
060M	083S160530	Bracket K, Rear Roller
070M	083S160060	Bracket, Mecha Guide
075M	083S106500	Sustainer
080M	083S002500	Arm K, Disc Lording
085M	083S358030	Roller, Lording
090M	083S160080	Bracket, Disc Guide
091M	083S051010	Guide, Disc
092M	083S112190	Shaft
093M	083S114120	Stopper
094M	083S115020	Spring
100M	083S160090	Bracket, Roller
101M	083S358010	Roller
102M	083S112150	Shaft
103M	083S114110	Stopper
105M	083S115040	Spring
111M	083S354013	Lever, Stick Out
112M	083S058080	Gear, Lording
115M	51480306A0	F. Washer Screw M3 x 6
120M	083S160540	Bracket K Disc Lord Gear
130M	083S058050	Gear (1st)
131M	083S058060	Gear (2nd)
132M	083S058070	Gear (3rd)
136M	MM01200180	D.C. Motor, Disc Lord
137M	083S058040	Gear, Worm
140M	083S114010	Stopper, Worm Gear
160M	083S160500	Bracket K, Stick Out Gear
165M	083S058020	Gear
166M	083S114120	Stopper
171M	MM00350020	D. C. Motor, Stic Out
172M	083S058030	Gear
180M	083S160160	Bracket, Stick Out Lever
181M	083S058020	Gear
182M	083S112210	Shaft
183M	083S114120	Stopper
185M	083S112230	Shaft
186M	083S114120	Stopper
190M	SM01020580	Mini Switch (B)
191M	SM01020580	Mini Switch (E)
211M	083S160010	Bracket, Clamp Mecha
212M	083S360010	Lifter, Out Side
213M	083S360020	Lifter, In Side
214M	083S121010	Link
218M	083S064013	Case, Clamp

REF. DESIG.	PART NO.	DESCRIPTION
220M	083S005500	Clamper Assembly
221M	083S114030	Stopper
228M	083S114040	Stopper, Clamper
230M	083S112090	Shaft, Lifter
231M	083S114130	Stopper
232M	083S112080	Shaft, Center Lifter
233M	083S114130	Stopper
234M	083S112250	Shaft, Link
235M	083S114130	Stopper
236M	083S127010	Control Board, Disc
237M	083S051030	Guide, Disc
238M	083S051040	Guide, Disc
239M	083S115010	Spring
240M	083S112110	Shaft, Disc Guide
241M	083S114110	Stopper
245M	083S112100	Shaft, Movement
246M	083S114130	Stopper
250M	083S160550	Bracket K, Clamp Gear
260M	083S058020	Gear, Clamp Cam
262M	MM00350020	D. C. Motor, Clamp
263M	083S058030	Gear
265M	083S160560	Bracket K, Can Guide
270M	083S054010	Cam, Clamp
271M	083S114110	Stopper
278M	SM01020580	Mini Switch, Clamp
280M	SM01020580	Mini Switch, Non Clamp
300M	083S105020	Chassis, R
301M	SM01020580	Mini Switch (B)
302M	SM01020580	Mini Switch (M1)
303M	SM01020580	Mini Switch (M2)
304M	SM01020580	Mini Switch (E)
315M	083S105030	Chassis, L
320M	083S105040	Chassis, Top
330M	083S160100	Bracket, Sensor PCB
331M	083S112200	Shaft
332M	64002500R0	RG Ring E Type ø2.5
340M	083S160110	Bracket, Pulley
344M	083S105120	Chassis
360M	083S160150	Bracket, Mecha Rear PCB
365M	083S160300	Bracket
400M	083S304020	Pickup Mecha Assembly
401M	083S160030	Bracket, Pickup
403M	083S130010	Dumper, Pickup
404M	083S010010	Screw
405M	083S160020	Bracket, Damper
407M	083S118010	Spacer
408M	083S053010	Cover, Pickup
410M	083S160190	Bracket, Pulley
412M	083S358040	Roller
413M	64002500R0	RG Ring E Type ø2.5
420M	083S262010	Pulley
425M	083S262010	Pulley
430M	083S262010	Pulley
435M	083S262010	Pulley
440M	204K056020	Buffer
441M	262C056050	Buffer
442M	135H101010	Support
445M	083S071010	Cleaner
450M	024S005030	Clamper



REF. DESIG.	PART NO.	DESCRIPTION
701M	083S160580	Bracket K, Side (L)
704M	083S160590	Bracket K, Side (R)
708M	083S002520	Arm K, Disc Stopper (L)
713M	083S002530	Arm K, Disc Stopper (R)
718M	083S269500	Protector K, (R)
725M	083S269510	Protector K, (L)
732M	64000500R0	RG Ring, E Type ø5
733M	64000300R0	RG Ring, E Type ø3
740M	083S114220	Stopper, Lock (R)
741M	083S114210	Stopper, Lock (L)
744M	083S358210	Roller
745M	64000500R0	RG Ring, E Type ø5
746M	59046505G0	Washer
747M	083S115210	Spring, Lock
748M	083S115220	Spring, Disc
750M	083S253210	Handle, Unlock
752M	132K056120	Buffer
754M	083S253220	Handle, Disc
760M	083S163013	Tray, Disc (1)
761M	083S163023	Tray, Disc (2)
762M	083S163033	Tray, Disc (3)
763M	083S163043	Tray, Disc (4)
764M	083S163053	Tray, Disc (5)
765M	083S163063	Tray, Disc (6)
766M	083S163073	Tray, Disc (7)
767M	083S163083	Tray, Disc (8)
768M	083S163093	Tray, Disc (9)
769M	083S163103	Tray, Disc (A)
770M	083S163113	Tray, Disc (B)
771M	083S163123	Tray, Disc (C)
772M	083S163133	Tray, Disc (D)
773M	083S163143	Tray, Disc (E)
774M	083S163153	Tray, Disc (F)
775M	083S163163	Tray, Disc
776M	083S163163	Tray, Disc
777M	083S056030	Buffer
780M	083S160230	Bracket, Front
782M	083S056030	Buffer
790M	083S104210	Retaner
791M	083S115230	Spring
792M	083S115240	Spring
795M	083S112310	Shaft
805M	122C056020	Buffer
806M	221K056080	Buffer

8. ELECTRICAL PARTS LIST

ASSIGNMENT OF COMMON PARTS CODES.

RESISTOR

R*** : (1) GD05 x x x 140, Carbon film fixed resistor, ± 5 % 1/4W
R*** : (2) GD05 x x x 160, Carbon film fixed resistor, ± 5 % 1/6W

① —— Resistance value

Examples ;
① Resistance value

0.1Ω...001	10Ω...100	1kΩ...102	100kΩ...104
0.5Ω...005	18Ω...180	2.7kΩ...272	680kΩ...684
1Ω...010	100Ω...101	10kΩ...103	1MΩ...105
6.8Ω...068	390Ω...391	22kΩ...223	4.7MΩ...475

(Note) Please distinguish 1/4W from 1/6W by the shape of parts used actually.

C*** : CERAMIC CAP.
(1) DD1x x x x 370, Ceramic capacitor
Disc type
Temp.coeff.P350~N1000.50V

① Capacity value
② Tolerance

Examples
① Tolerance (Capacity deviation)
± 0.25pF ... 0
± 0.5pF ... 1
± 5 % ... 5
* Tolerance of COMMON PARTS handled here are as follows :
0.5pF~ 5pF...± 0.25pF
6pF~ 10pF...± 0.5pF
12pF~ 560pF...± 5 %
② Capacity value

0.5pF...005	3pF...030	100pF...101
1pF...010	10pF...100	220pF...221
1.5pF...015	47pF...470	560pF...561

C*** : CERAMIC CAP.
(1) DK16 x x x 300, High dielectric constant ceramic capacitor
Disc type
Temp.chara. 2B4, 50V

① Capacity value

Examples
② Capacity value

100pF...101	1000pF...102	10000pF...103
470pF...471	2200pF...222	

C*** : ELECTROLY CAP.(⧺), FILM CAP.(⫩)
(1) EA x x x x x x 10, Electrolytic capacitor
One-way lead type, Tolerance ± 20 %

① Capacity value
② Working voltage

Examples
① Capacity value

0.1μF...104	4.7μF...475	100μF...107
0.33μF...334	10μF...106	330μF...337
1μF...105	22μF...226	1100μF...108
		2200μF...228

② Working voltage

6.3V...006	25V...025
10V...010	35V...035
16V...016	50V...050

(2) DF15 x x x 350, Plastic film capacitor
One-way type, Mylar ± 5 % 50V

① Capacity value

Examples
① Capacity value

0.001μF(1000pF)...102	0.1μF...104
0.0018μF.....182	0.56μF...564
0.01μF.....103	1μF...105
0.015μF.....153	

REF. DESIG.	PART NO.	DESCRIPTION
		PM01-MECHA MOTOR DRIVE CIRCUIT BOARD
PM01	YK083S1730	P.W. Board, Mecha Motor Drive
		PM01-CAPACITORS
CM01 ~ CM04	DK18103310	Ceramic 0.01μF +80% -20%
CM05 ~ CM08	DK18473310	Ceramic 0.047μF +80% -20%
		PM01-RESISTORS
RM01 ~ RM04	NH05068120	6.8Ω ±5% 1/2W, Fusible
		PM01-SEMICONDUCTORS
DM02	HD30391000	Zener MTZJ3.9A
DM04	HD30391000	Zener MTZJ3.9A
DM05	HD30681000	Zener RD6.8JB2/ MTZ6.8C
QM01 ~ QM04	HC10093210	IC BA6219
QM05	HT30001000	Transistor 2SC536SP, etc.
		PM01-MISCELLANEOUS
JM01	YL01010110	Terminal, Earth
JM22	YP06003940	Plug, 4P
JM23	YP06003940	Plug, 4P
		PR01-ERROR INDICATOR CIRCUIT BOARD
PR01	YK083S1740	P.W. Board, Error Indicator
DR01 ~ DR07	HI10062320	L.E.D. LT3H8B (RED)
QR01 ~ QR06	HT30001000	Transistor 2SC536SP, etc.
JU19	YJ06006280	Jack, 8P
		PU01-4BIT SLIT SENSOR CIRCUIT BOARD
PU01	YN083S0210	P.W. Board, 4Bit Slit Sensor
QU11	HW10022320	Photo Unit GP1S52
QU12 ~ QU15	HW10013320	Photo Unit GP2S05
JU55	YJ06006470	Jack, 7P
		PU02-DISC SENSOR CIRCUIT BOARD
PU02	YN083S0220	P.W. Board, Disc Sensor
DU21	HI20004320	L.E.D. GL430
QU21	HF00004000	F.E.T. PT431F
JU54	YJ06006430	Jack, 3P

REF. DESIG.	PART NO.	DESCRIPTION
		PU03-INTERFACE CIRCUIT BOARD
PU03	YK083S1710	P.W. Board, Interface
		PU03-CAPACITORS
CU16	EG10601650	Elect 10μF 16V
CU19	EG47601650	Elect 47μF 16V
CU48	EG10601650	Elect 10μF 16V
CU49	EG10505050	Elect 1μF 50V
CU50	EG10601650	Elect 10μF 16V
C601	EG10601650	Elect 10μF 16V
C602	DD38104010	Ceramic 0.1μF +80% -20%
C603	DD38104010	Ceramic 0.1μF +80% -20%
C604	EG10601650	Elect 10μF 16V
		PU03-RESISTORS
RU17	RA04731100	47K Ω (B), Trimming
RU48	RA04721100	4.7K Ω (B), Trimming
RU50	RA04721100	4.7K Ω (B), Trimming
		PU03-SEMICONDUCTORS
DU19	HD30391000	Zener HTZJ3.9A
DU48	HD30391000	Zener HTZJ3.9A
DU50	HD30391000	Zener HTZJ3.9A
QU20	HC10005000	IC, Comparater 311
QU43	HC10081060	IC, μPC339C
		PU03-MISCELLANEOUS
JU11	YP06011880	Plug, 8P
JU12	YP06003940	Plug, 4P
JU13	YP06003940	Plug, 4P
JU14	YP06003930	Plug, 3P
JU15	YP06003960	Plug, 7P
JU64	YJ07005340	Jack
JM21	YP06011930	Plug, 13P
J516	YP06011920	Plug, 12P
J517	YP06011910	Plug, 11P
J565	YJ07005320	Jack
J566	YP06003960	Plug, 7P
		PW01-D-SUB CIRCUIT BOARD
PW01	YK083S1770	P.W. Board, D-Sub
JW30	YP06011710	Plug, 9P
JW32	YJ09001080	Jack D-Sub JEY-9S-1A3F90
		P501-CD CIRCUIT BOARD
P501	YK244S1310	P.W. Board, CD
		P501-CAPACITORS
CU01	DD15120300	Ceramic 12pF ±5%
CU02	DD15120300	Ceramic 12pF ±5%
CU03	EX10400520	Elect, Big 0.1F 5V
CU05	DD18103310	Ceramic 0.01μF +80% -20%
CU62	DD38104010	Ceramic 0.1μF +80% -20%
CU63	DD38104010	Ceramic 0.1μF +80% -20%
CU64	DD38104010	Ceramic 0.1μF +80% -20%
CU71	DD38104010	Ceramic 0.1μF +80% -20%
CW11	DD38104010	Ceramic 0.1μF +80% -20%
CW20	DD38104010	Ceramic 0.1μF +80% -20%
CW21	DD15510300	Ceramic 51pF ±5%
CW22	DD38104010	Ceramic 0.1μF +80% -20%
C516	DD38104010	Ceramic 0.1μF +80% -20%
C517	DD38104010	Ceramic 0.1μF +80% -20%
C518	DD38104010	Ceramic 0.1μF +80% -20%
C519	DD15510300	Ceramic 51pF ±5%
C520	DD15510300	Ceramic 51pF ±5%
C521	DD38104010	Ceramic 0.1μF +80% -20%

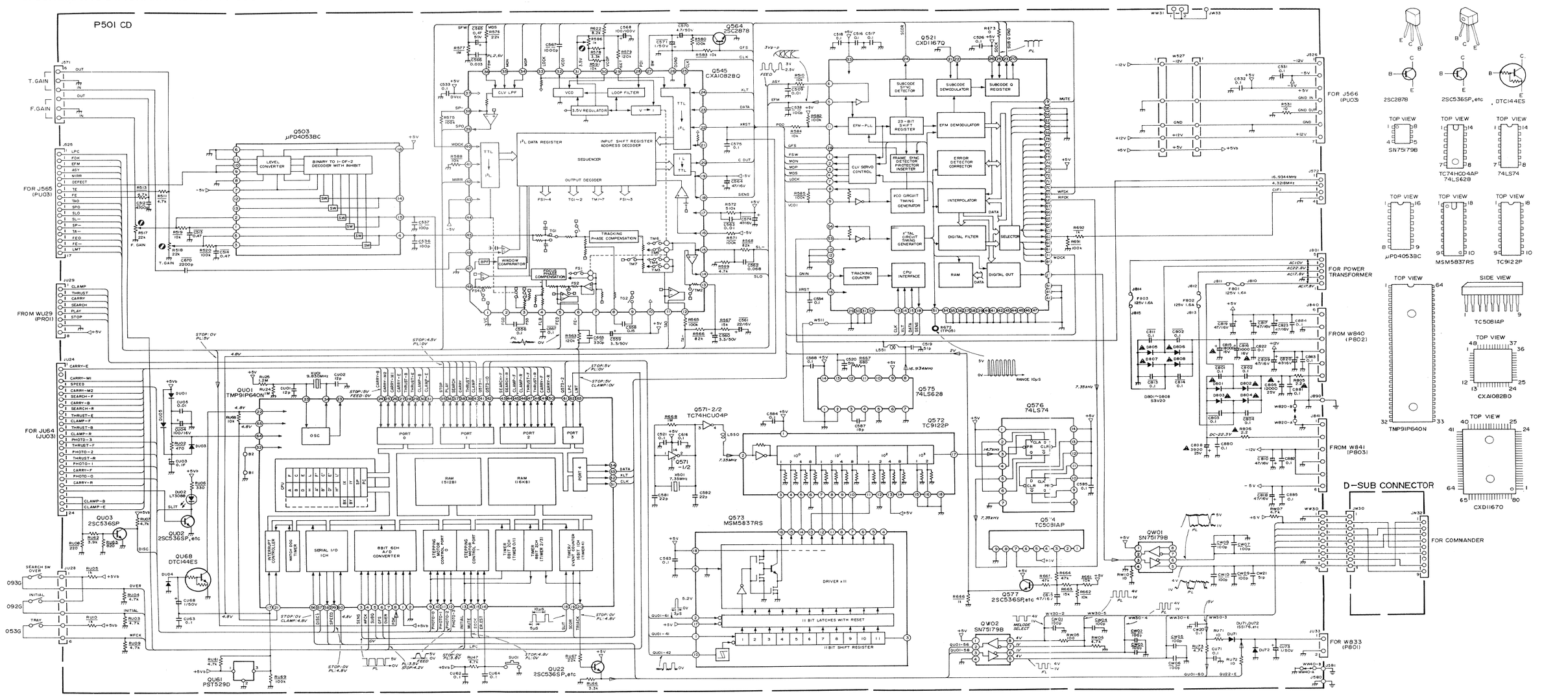
REF. DESIG.	PART NO.	DESCRIPTION
C524	DD38104010	Ceramic 0.1μF +80% -20%
C526	DD38104010	Ceramic 0.1μF +80% -20%
C531	DD38104010	Ceramic 0.1μF +80% -20%
C534		
C575	DD38104010	Ceramic 0.1μF +80% -20%
C581	DD15220300	Ceramic 22pF ±5%
C582	DD15220300	Ceramic 22pF ±5%
C583	DD38104010	Ceramic 0.1μF +80% -20%
C584	DD38104010	Ceramic 0.1μF +80% -20%
C585	DD38104010	Ceramic 0.1μF +80% -20%
C587	DD15180300	Ceramic 18pF ±5%
C588	DD38104010	Ceramic 0.1μF +80% -20%
C616	DD38104010	Ceramic 0.1μF +80% -20%
⚠ C805	EB12902520	Elect 12000μF 25V
⚠ C808	EB39802510	Elect 3900μF 25V
⚠ C815	EB18901610	Elect 18000μF 16V
C822	DD38104010	Ceramic 0.1μF +80% -20%
C880 ~ C885	DD38104010	Ceramic 0.1μF +80% -20%
		P501-RESISTORS
RU71	GG05100160	10 Ω ±5% 1/6W
RU72	GG05100160	10 Ω ±5% 1/6W
RW05	GG05101140	100 Ω ±5% 1/4W
R517	RA02230780	22K Ω, Trimming
R518	RA02230780	22K Ω, Trimming
R572	GD05514160	510K Ω ±5% 1/6W
R586	RA01020780	1K Ω, Trimming
R672	GD05000140	0 Ω ±5% 1/4W
R673	GD05000140	0 Ω ±5% 1/4W
⚠ R805	NH05022140	2.2 Ω 1/4W, Fusible
⚠ R806	NH05022140	2.2 Ω 1/4W, Fusible
		P501-SEMICONDUCTORS
DU01	HD20002000	Diode 1SS176, etc.
DU02	HI10062320	L.E.D. LT3D8B (RED)
DU03	HD20002000	Diode 1SS176, etc.
DU04	HD20002000	Diode 1SS176, etc.
DU05	HD20002000	Diode 1SS176, etc.
DU71	HD20002000	Diode 1SS176, etc.
DU73	HD20002000	Diode 1SS176, etc.
⚠ D801 ~ ⚠ D808	HD20011290	Diode S3V20
QU01	HU10039050	Microprocessor TMP91P640N
QU02	HT30001000	Transistor 2SC536SP, etc.
QU03	HT30001000	Transistor 2SC536SP, etc.
QU22	HT30001000	Transistor 2SC536SP, etc.
QU61	HC10020550	IC PST529D
QU68	BA20012210	Transistor, Digital DTC144ES
QW01	HC10062370	IC RS-422A
QW02	HC10062370	IC RS-422A
Q503	HC405300B0	IC μPD4053BC
Q521	HC10032250	IC CXD1167Q
Q545	HC10033250	IC CXA1082BQ
Q564	HT328781A0	Transistor 2SC3287 (A)
Q571	HC700405B0	IC TC74HCU04P
Q572	HC10047050	IC TC9122P
Q573	HC10002260	IC MSM5837RS
Q574	HC10046050	IC TC5081AP
Q575	HC762800A0	IC 74LS628
Q576	HC707400A0	IC 74LS74
Q577	HT30001000	Transistor 2SC536SP, etc.
		P501-FUSE
⚠ F801	FS10160850	Fuse 1.6A 250V
⚠ F802	FS10160850	Fuse 1.6A 250V
⚠ F803	FS10160850	Fuse 1.6A 250V

REF. DESIG.	PART NO.	DESCRIPTION
		P501-MISCELLANEOUS
JU24	YJ07005330	Jack, 24P
JU28	YJ06006260	Jack, 6P
JU29	YJ06006280	Jack, 8P
JU33	YP06003850	Plug, 2P
JU99	YJ90000720	Jack, 64P; IC Socket
J525	YJ07005310	Jack, 17P
J526	YP06010460	Plug, 7P
J571	YP06003420	Plug, 6P
J572	YP06003440	Plug, 4P
J580	YL01010110	Terminal, Earth
J581	YL01010110	Terminal, Earth
J801	YP06010950	Plug, 5P
J810	YJ08000450	Jack, Fuse Clip
J811	YJ08000430	Jack, Fuse Clip
J812	YJ08000450	Jack, Fuse Clip
J813	YJ08000430	Jack, Fuse Clip
J814	YJ08000450	Jack, Fuse Clip
J815	YJ08000430	Jack, Fuse Clip
J840	YP06003840	Plug, 6P
J841	YP06003840	Plug, 6P
J890	YL01010110	Terminal, Earth
L550	FC90050100	Ferrite Core
L551	FC90050100	Ferrite Core
SU01	SP01011280	Push Switch, Tact
XU01	JX09001260	Crystal 9.830MHz
X501	JX07003260	Crystal 7.35MHz
		P502-RF AMP/ SERVO AMP CIRCUIT BOARD
P502	YK083S1720	P.W.Board, RF Amp/ Servo Amp
		P502-CAPACITORS
C501	DD15330300	Ceramic 33pF ±5%
C597	DD11100300	Ceramic 10pF ±0.5pF
C598	DD11100300	Ceramic 10pF ±0.5pF
C664	DK18473310	Ceramic 0.047μF +80% -20%
C667	DK18473310	Ceramic 0.047μF +80% -20%
		P502-RESISTORS
R515	RA02230760	22K Ω, Trimming
R516	RA04720760	4.7K Ω, Trimming
R521	GG05220160	22 Ω ±5% 1/6W
R562	GA05560020	56 Ω ±5% 2W
R597	GA05120020	12 Ω ±5% 2W
R598	GA05120020	12 Ω ±5% 2W
		P502-SEMICONDUCTORS
Q501	HT111752D0	Transistor 2SA1175 (FF, EF)
Q502	HC10011250	IC CXA1081S
Q541	HT113581Y0	Transistor 2SA1358 (Y)
Q542	HT334211Y0	Transistor 2SC3421 (Y)
Q543	HC10002080	IC STA341M
		P502-MISCELLANEOUS
J518	YJ06006280	Jack
J519	YJ06008670	Jack
J520	YJ06006240	Jack
J573	YP06003410	Plug, 2P
J574	YP06003410	Plug, 2P
L501	LC11030140	Choke Coil 10μH
		P802-3 REG. (+5V, +12V) CIRCUIT BOARD
P802	YK083S1750	P.W.Board, 3 REG. (+5V, +12V)
▲ Q801	HC38905090	IC NJM7805FA
▲ Q802	HC38912090	IC NJM7812FA

REF. DESIG.	PART NO.	DESCRIPTION
		P803-3 REG. (-5V, -12V) CIRCUIT BOARD
P803	YK083S1760	P.W.Board, 3REG. (-5V, -12V)
▲ Q803	HC39905090	IC NJM7905FA
▲ Q804	HC39912090	IC NJM7912FA
		P851-FILTER CIRCUIT BOARD
P851	YK244S1330	P.W. Board, Filter
▲ C852	DF17223810	Film Cap. 0.022μF ±20%
▲ C853	DF17223810	Film Cap. 0.022μF ±20%
▲ G851	DK17103840	Ceramic Cap. 0.01μF +80% -20%
▲ G852	DK17103840	Ceramic Cap. 0.01μF +80% -20%
▲ Q851	HW10007050	Photo Unit TSS1J45S
J852 ~ J857	YP06011170	Plug
J860	YP06011170	Plug
J861	YP06011170	Plug
J862	YP06011170	Plug
▲ L851	LC22260120	Choke Coil 22mH

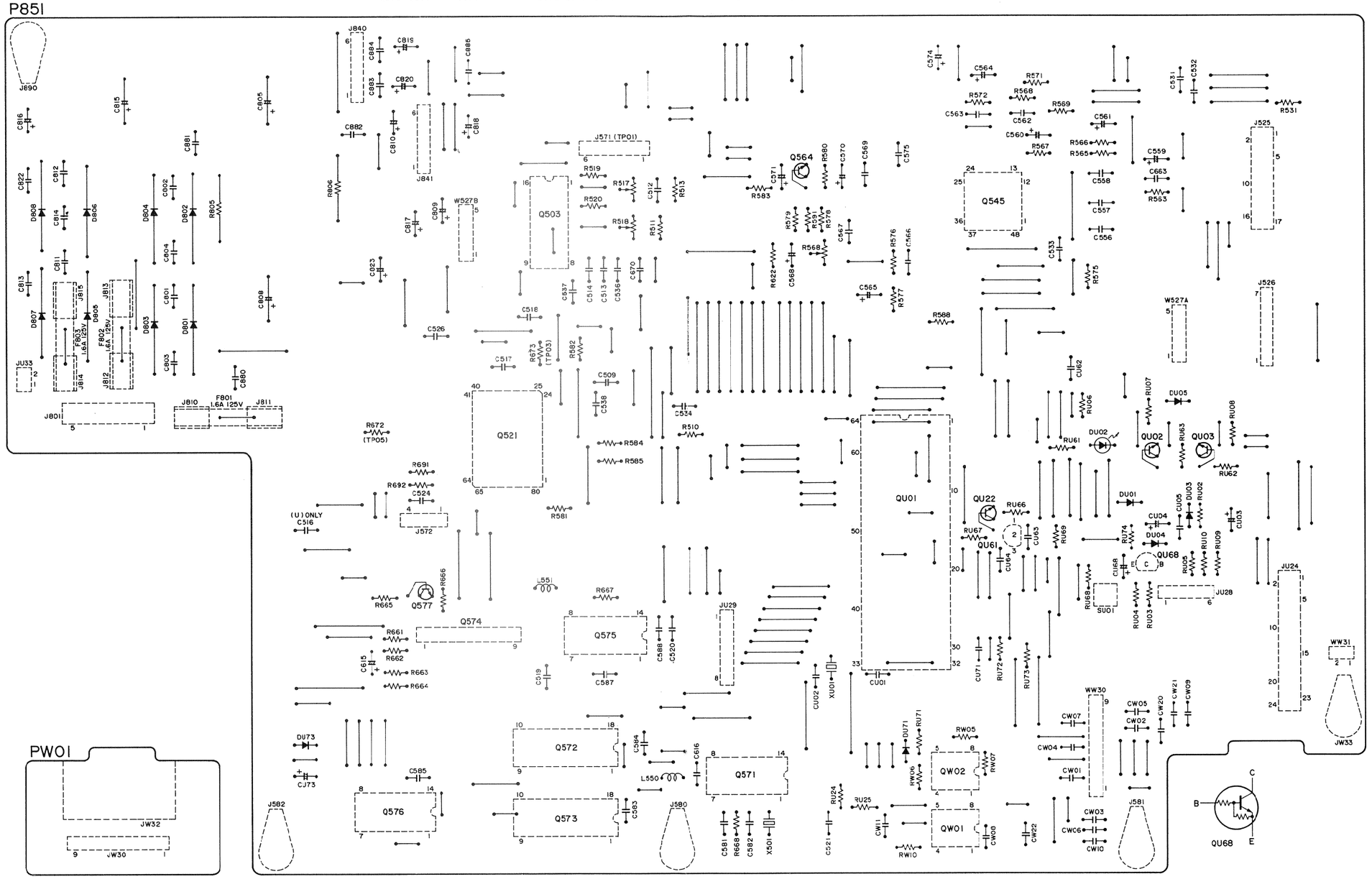
NOTE ON SAFETY :
Symbol ▲ Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol ▲ . Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

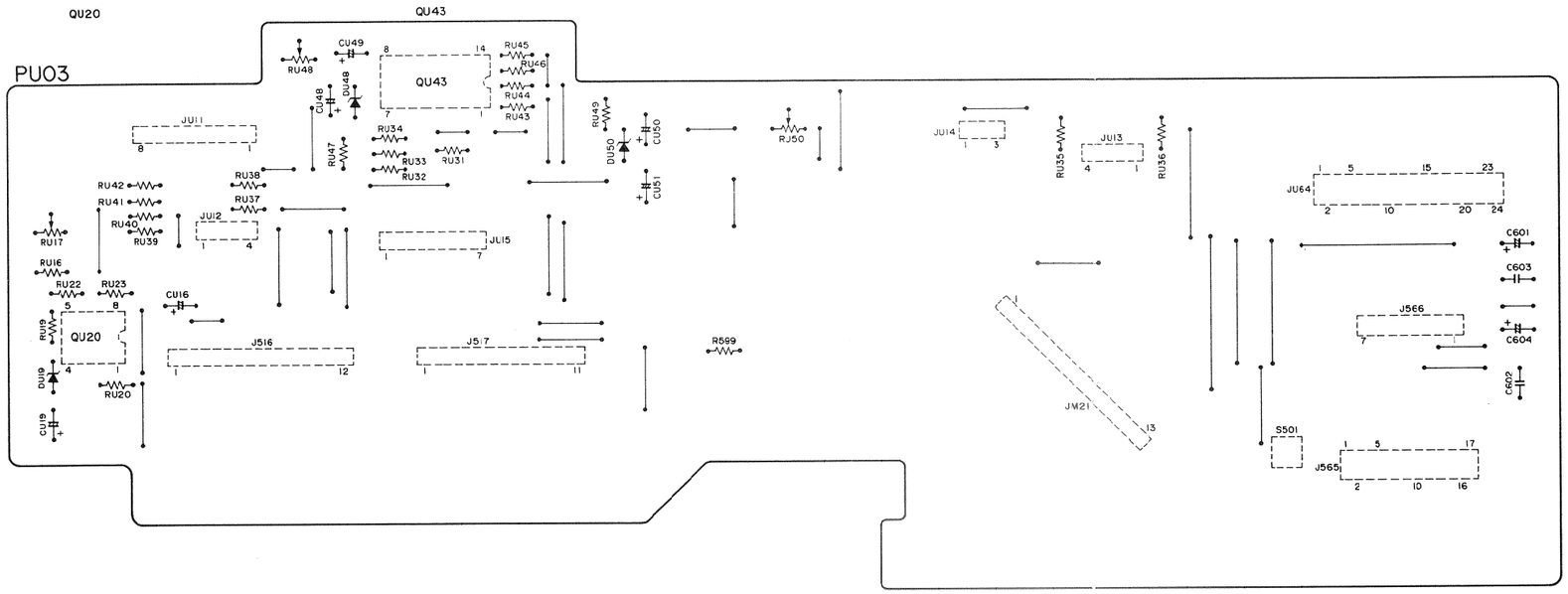
9. SCHEMATIC DIAGRAM AND PARTS LOCATIONS



P851

Q576 Q577 Q574 Q521 Q503 Q572 Q573 Q575 Q571 Q564 Q545 QU01 QW02 QW01 QU22 QU61 QU02 QU68 QU03

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S501
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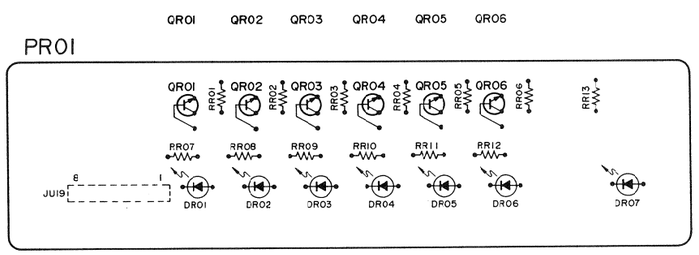
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QR04
QR05
QR06
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RR01
RR02
RR03
RR04
RR05
RR06
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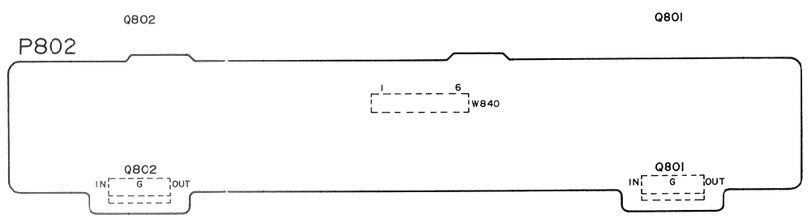
JU19
DR01
DR02
DR03
DR04
DR05
DR06
DR07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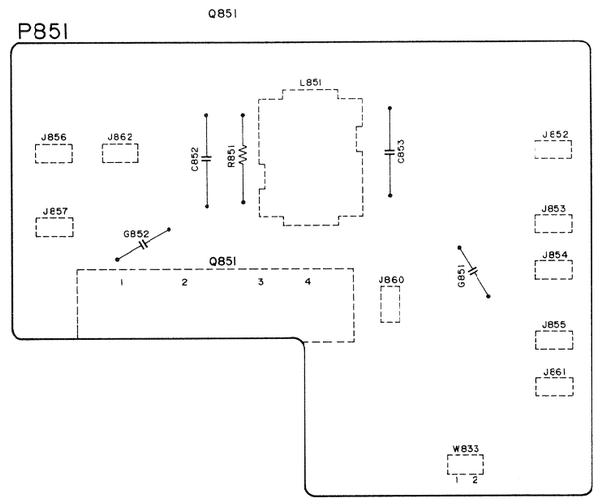
P802
W840
Q802
IN
OUT
Q801
IN
OUT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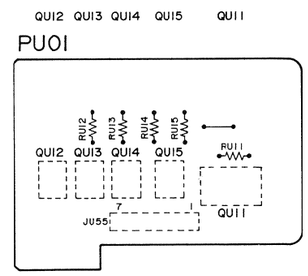
W833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QU14
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QU11
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RU12
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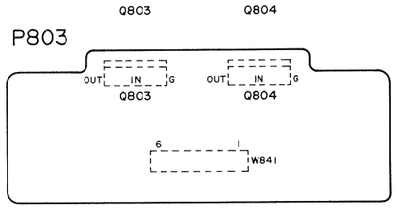
RU15
RU11
QU12
QU13
QU14
QU15
QU11
JU55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G
Q803
OUT
IN
G
Q804
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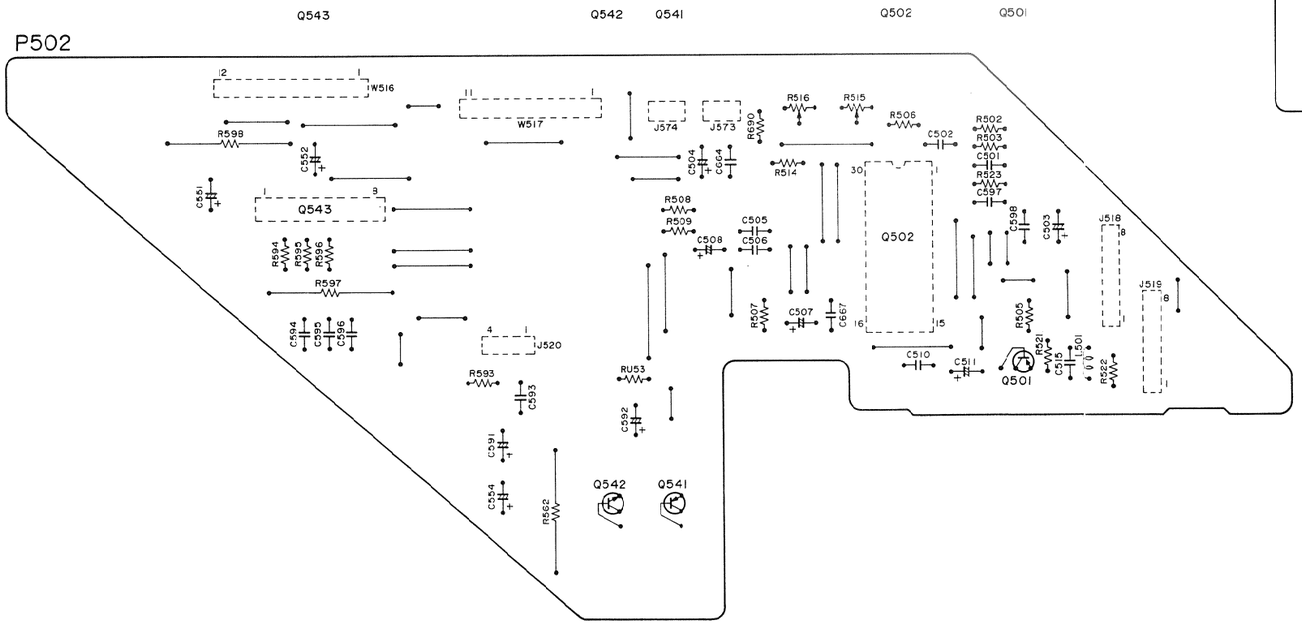
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Q501
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R502
R503
C501
R523
C597
R598
C552
C504
C604
R514
R508
R509
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C603
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Q543
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J520
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C554
R562
Q542
Q541
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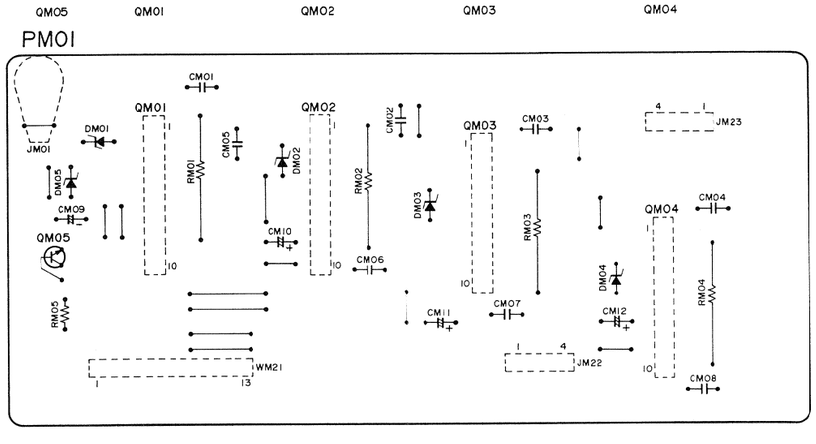
R53
C592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JM01
DM01
CM01
QM01
RM01
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QM02
DM02
CM02
RM02
DM03
QM03
CM03
RM03
JM23
DM05
CM09
QM05
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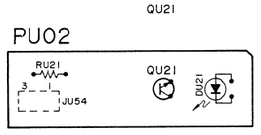
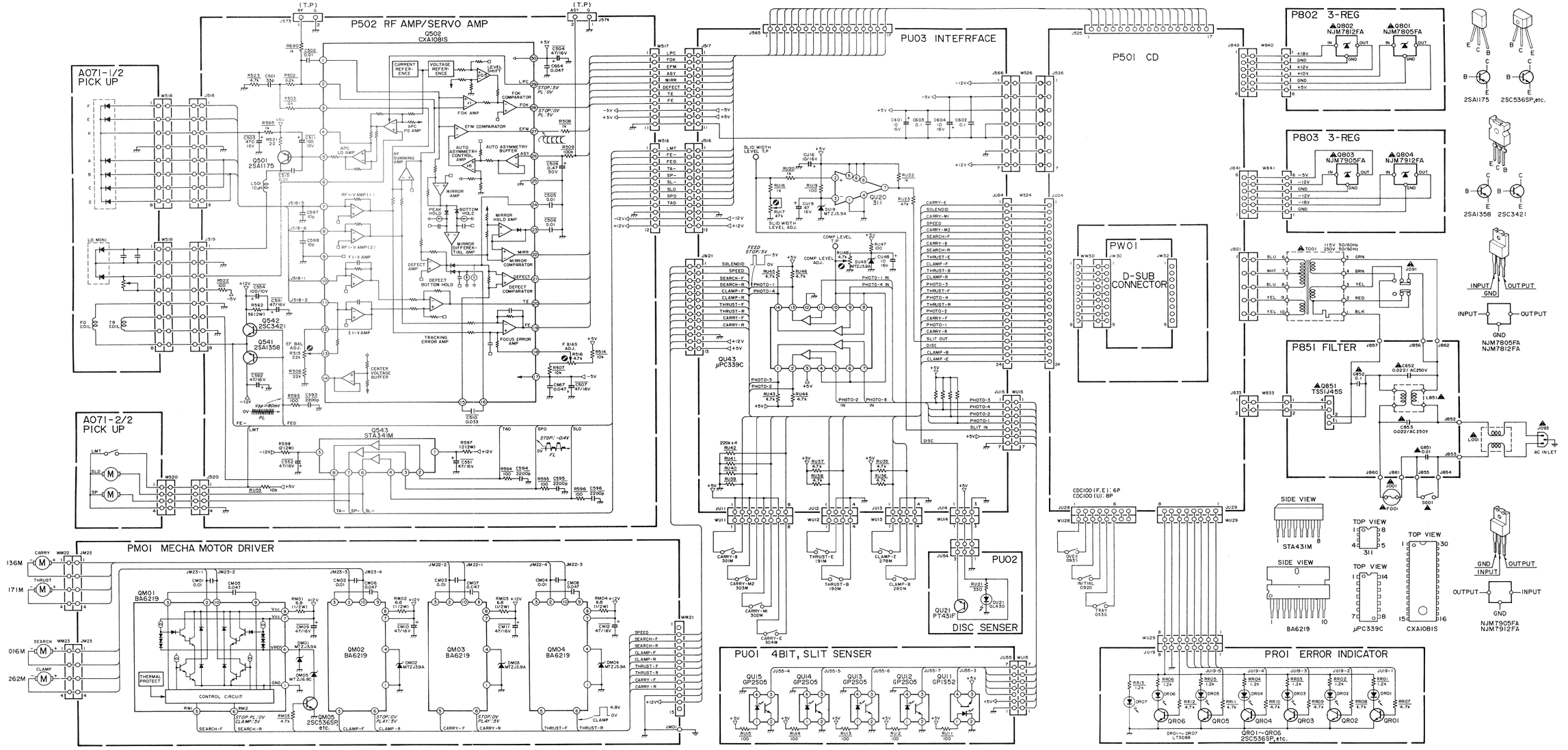
CM06
CM11
CM07
DM04
CM12
QM04
CM04
RM04
CM08
WM21
JM22


QU21
PU02
RU21
JU54
QU21
DU21


P502 RF AMP/SERVO AMP
Q502 CXA1081S
A071-1/2 PICK UP
A071-2/2 PICK UP
PU03 INTEFRFACE
P501 CD
PW01 D-SUB CONNECTOR
P802 3-REG
NJM7812FA
NJM7805FA
2SA1175
2SC536SP,etc.
P803 3-REG
NJM7905FA
NJM7912FA
2SA1358
2SC3421
P851 FILTER
TSS1J45S
STA431M
BA6219
μPC339C
CXA1081S
PM01 MECHA MOTOR DRIVER
QM01 BA6219
QM02 BA6219
QM03 BA6219
QM04 BA6219
QM05 2SC536SP etc.
PU01 4BIT, SLIT SENSER
PU02 DISC SENSER
QU21 P1743IF
PR01 ERROR INDICATOR
QR01~QR06 2SC536SP,etc.
AC IN LET
136M
171M
016M
262M
CARRY
THRUST
SEARCH
CLAMP
THERMAL PROTECT
CONTROL CIRCUIT
SEARCH-F
SEARCH-R
CLAMP-F
CLAMP-R
CARRY-F
CARRY-R
THRUST-F
THRUST-R
CARRY-E 304M
CARRY-M2 303M
CARRY-MI 302M
CARRY-B 301M
THRUST-E 191M
THRUST-B 190M
CLAMP-E 278M
CLAMP-B 280M
INITIAL 0920
TRAY 0550
DVEE 0931

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