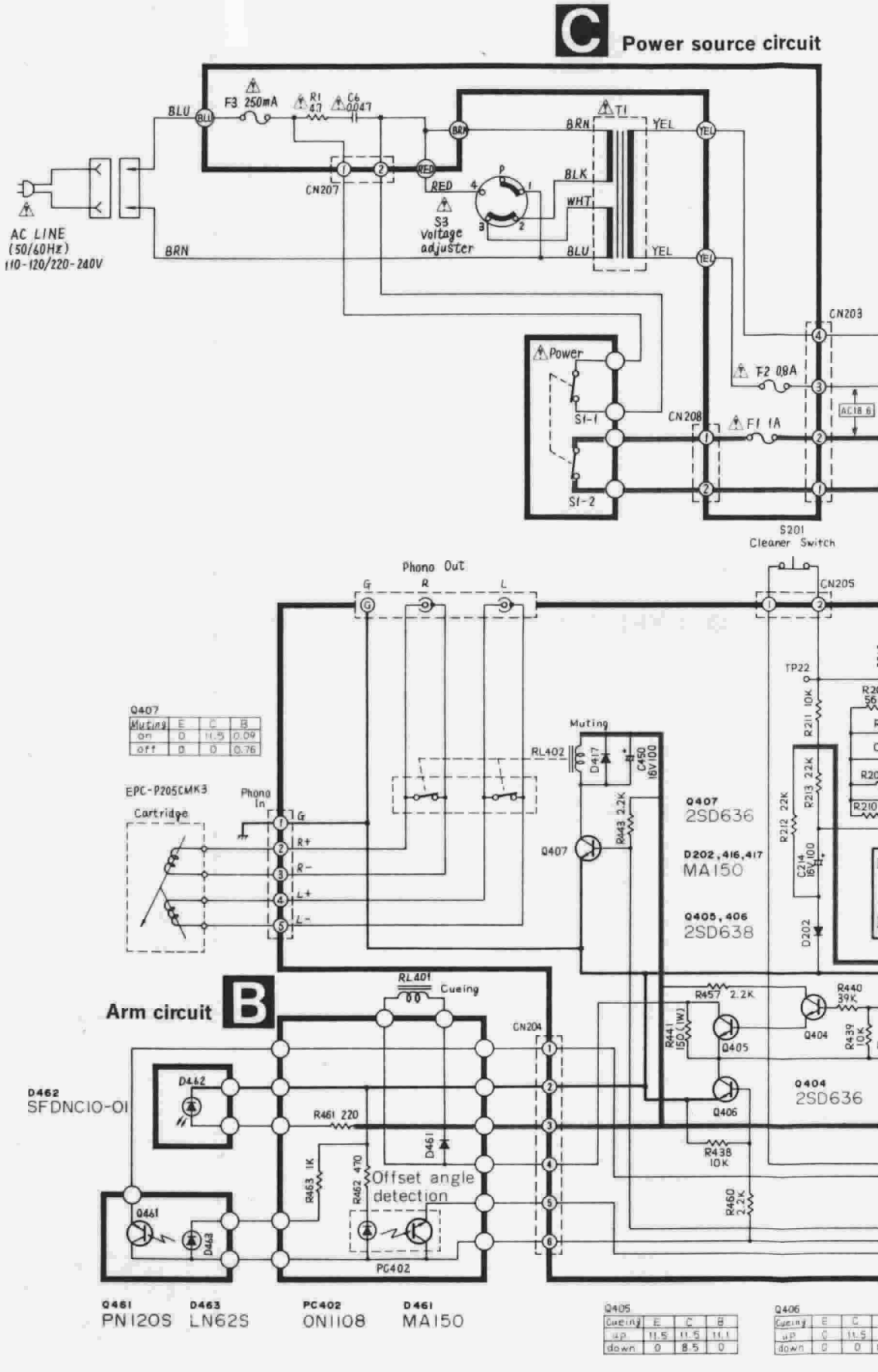
■ SCHEMATIC DIAGRAM Ⓐ (This schematic diagram may be modified at any time with the development c



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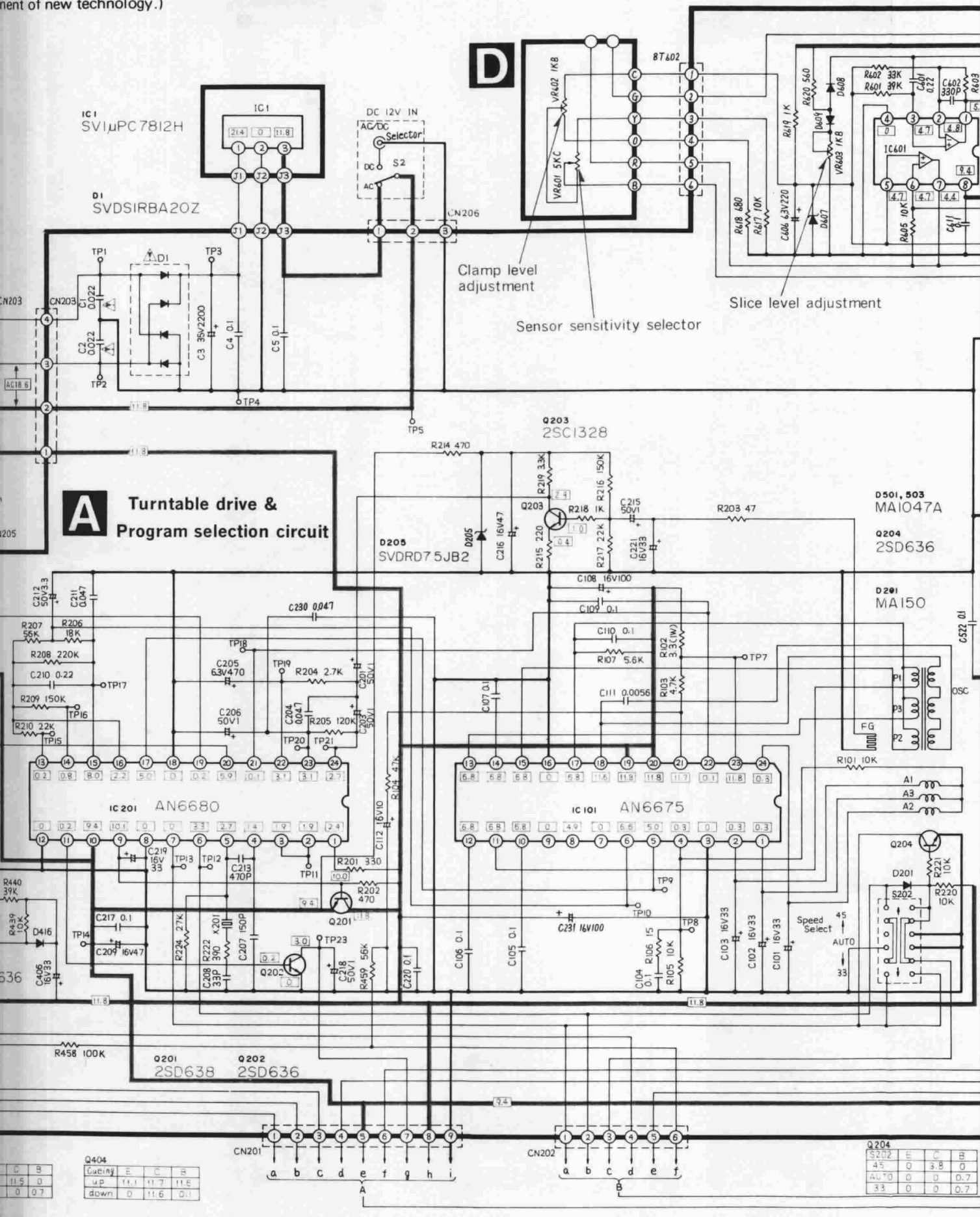
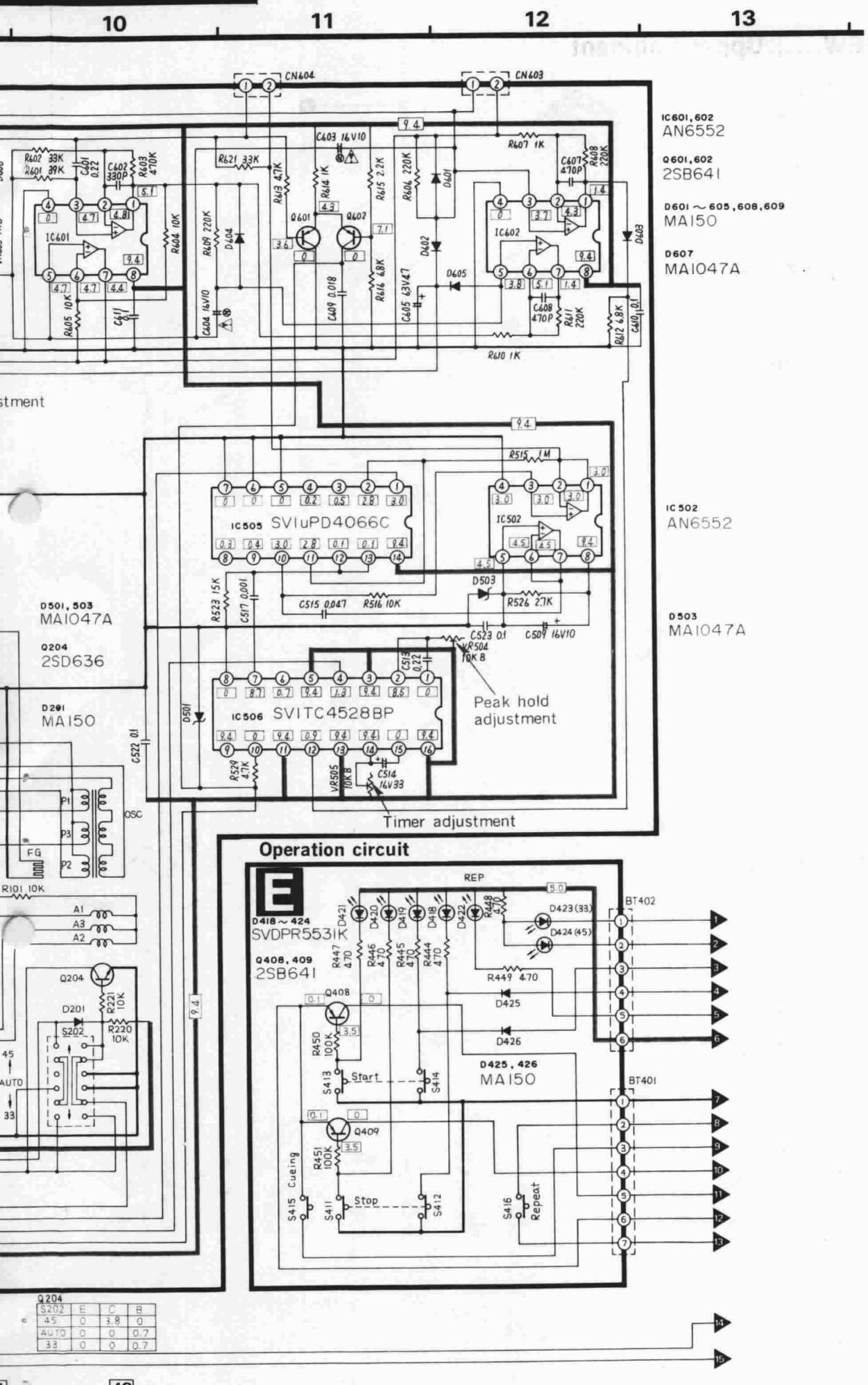


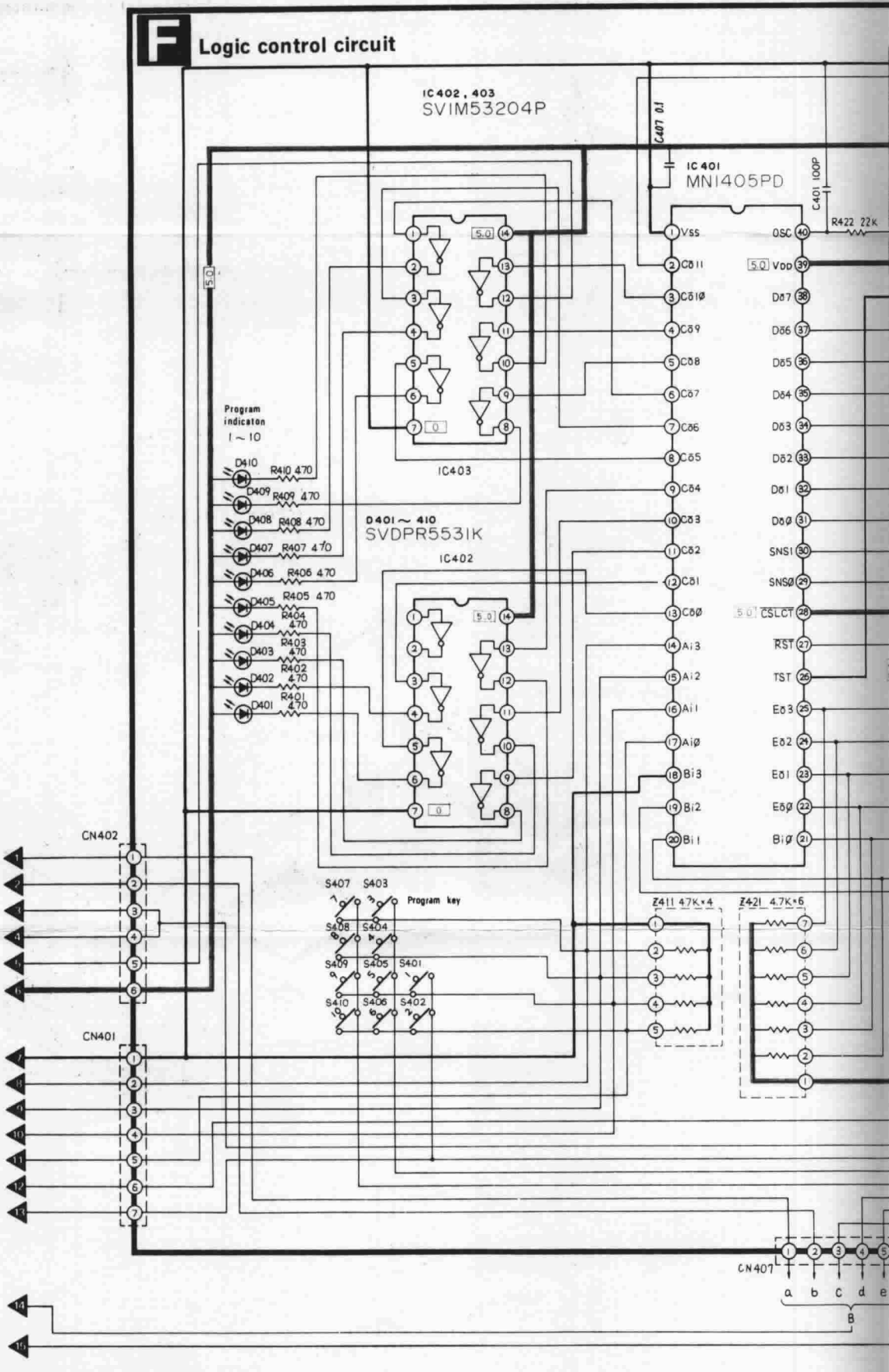
Q404			
Cueing	E	C	B
up	11.1	11.7	11.6
down	0	11.6	0.1

Q204			
S202	E	C	B
45	0	3.8	0
AUTO	0	0	0.7
33	0	0	0.7

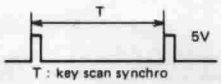

10
11
12
13
CN604
CN603
IC601,602
AN6552
Q601,602
2SB641
D601 ~ 605,608,609
MA150
D607
MA1047A
IC601
IC602
Q601
Q602
R602 33K
R601 39K
C601 0.22
C602 330P
R603 470K
R604 10K
R605 10K
C611
R621 33K
R613 4.7K
R614 1K
R615 2.2K
R606 220K
D601
D602
D603
D604
D605
R609 220K
C603 16V10
C604 16V10
C409 0.018
R616 4.8K
C405 63V47
R607 1K
C607 470P
R608 220K
C608 470P
R611 220K
R612 4.8K
C610 0.1
R610 1K
stment
IC502
AN6552
D503
MA1047A
IC505 SVIuPD4066C
IC502
R515 1M
D503
R523 15K
C517 0.001
C515 0.047
R516 10K
R526 2.7K
C523 0.1
C509 16V10
R504 10K B
C513 0.22
IC506 SVITC4528BP
D501
Peak hold adjustment
D501,503
MA1047A
Q204
2SD636
D201
MA150
C522 0.1
R529 4.7K
VR505 10K B
C514 16V33
Timer adjustment
P1
P3
P2
FG
OSC
R101 10K
A1
A3
A2
Q204
R221 10K
D201
S202
R220 10K
45
AUTO
33
Operation circuit
E
D418 ~ 424
SVDPR553IK
Q408,409
2SB641
REP
D421
D420
D419
D418
D422
R448 470
D423(33)
D424(45)
R447 470
R446 470
R445 470
R444 470
R449 470
D425
D426
D425,426
MA150
Q408
Q409
R450 100K
R451 100K
S413
Start
S414
S415 Cueing
S411
Stop
S412
S416
Repeat
BT402
BT401
Q204
S202 E C B
45 0 3.8 0
AUTO 0 0 0.7
33 0 0 0.7

■ SCHEMATIC DIAGRAM Ⓑ

(This schematic diagram may be modified at any time with the development of n



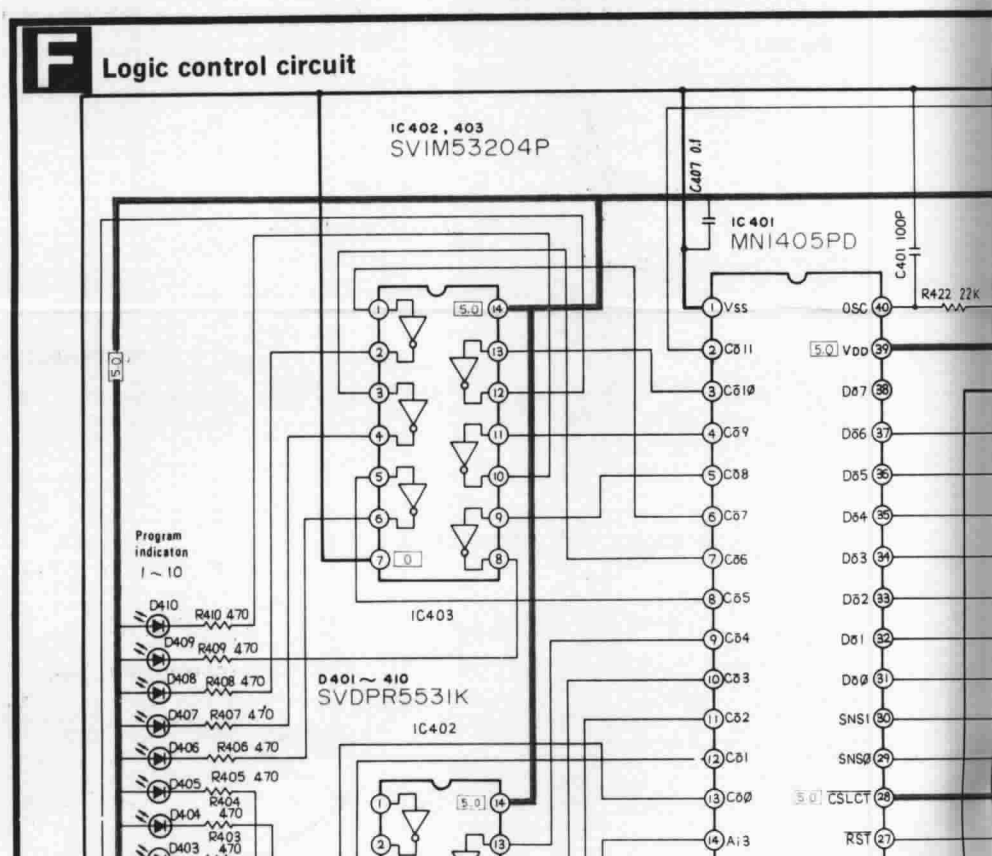
■ DESCRIPTION OF EACH TERMINAL OF MN1405PD

Terminal	Description	Remarks
① (Vss)	Ground terminal 0V	
② (Co11)	Turntable speed select output terminal 33 1/3 r.p.m. . . . . ."L" 45 r.p.m. . . . . ."H"	When microcomputer is reset (power supply is "on" or upper cabinet is open), the level changes to "L".
③ (Co10)	Repeat display output terminal It is reversed each time the repeat key is pushed. Repeat LED ON. . . . . ."H" Repeat LED OFF . . . . . ."L"	If the upper cabinet is kept open, microcomputer is reset. Therefore, pushing the key does not reverse the output and the level remains "L".
④ (Co9) ~ ⑬ (Co0)	Program LED display output terminal Each LED turns ON and OFF each time the program key is pushed. Program LED ON . . . . . ."H" Program LED OFF . . . . . ."L"	When tonearm is on the rest, pushing the key causes the output to reverse, but it depends on the mode during play.
⑭ (Ai3) ~ ⑰ (Ai0)	Key scan input terminal In the key matrix of 4 x 4, "H" pulse is entered when the key is pushed. The pules is "L" when the key is not pushed.	When input is applied, the pulse waveform is as shown below.  T somewhat varise depending on the mode, but it is about 1.2 ms when the arm is on the rest.
⑱ (Bi3)	Not used	
⑲ (Bi2)	Arm-down sensor input terminal Arm UP. . . . . ."L" Arm DOWN . . . . . ."H"	
⑳ (Bi1)	Cabinet opening/closing detection input terminal. Reset switch (S301) attached to the cabinet: Upper cabinet is open. . . . . ."H" Upper cabinet is closed . . . . . ."L"	

1 2 3 4 5

■ SCHEMATIC DIAGRAM Ⓑ (This schematic diagram may be modified at any time with the development of

F Logic control circuit



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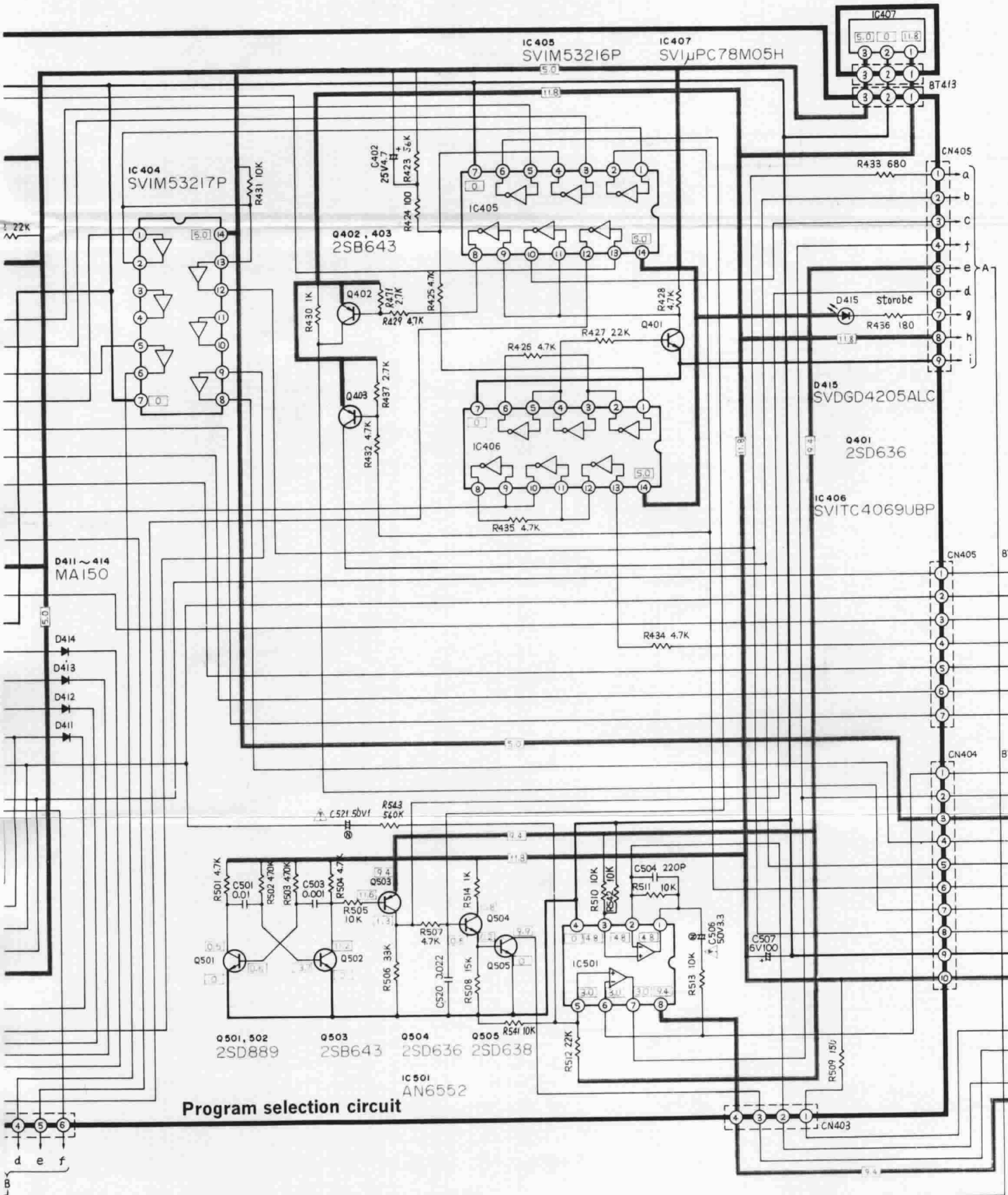
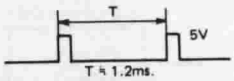


Terminal	Description	Remarks
㉑ (Bi0)	Rest position detection input terminal. Limit switch (S302) on the rest is "on" when the tonearm is on the rest, and "off" when it isn't. Tonearm is on the rest . . . . . :"L" Tonearm is not on the rest . . . . . :"H"	
㉒ (Eo0) ~ ㉕ (Eo3)	Key scan output terminal Pulse is applied to the key matrix of 4 x 4. The interval is about 1.2 ms on the rest. 	When the upper cabinet is open (S301. . . . "off"), all is at "L" because there is no key scan output.
㉖ (TST)	Test terminal. . . . . .Not used	
㉗ ($\overline{RST}$)	Reset terminal The microcomputer is reset at "L" level, and is not reset at "H".	When power supply is "on" microcomputer is once reset, and after that, it is kept at "H".
㉘ ($\overline{CSLCT}$)	Select terminal The level is set to "H" by the select terminal of the inside counter.	
㉙ (SNS0)	Blank detection input terminal When the blank is detected by the reflection type optical sensor for blank detection, the level changes to "H".	
㉚ (SNS1)	Position detection Pulse is delivered to this terminal from photo coupler (PC401) for position detection according to the movement of the arm. Pulse intervals { High speed: about 7 ms Low speed: about 14 ms	

6 7 8 9 10

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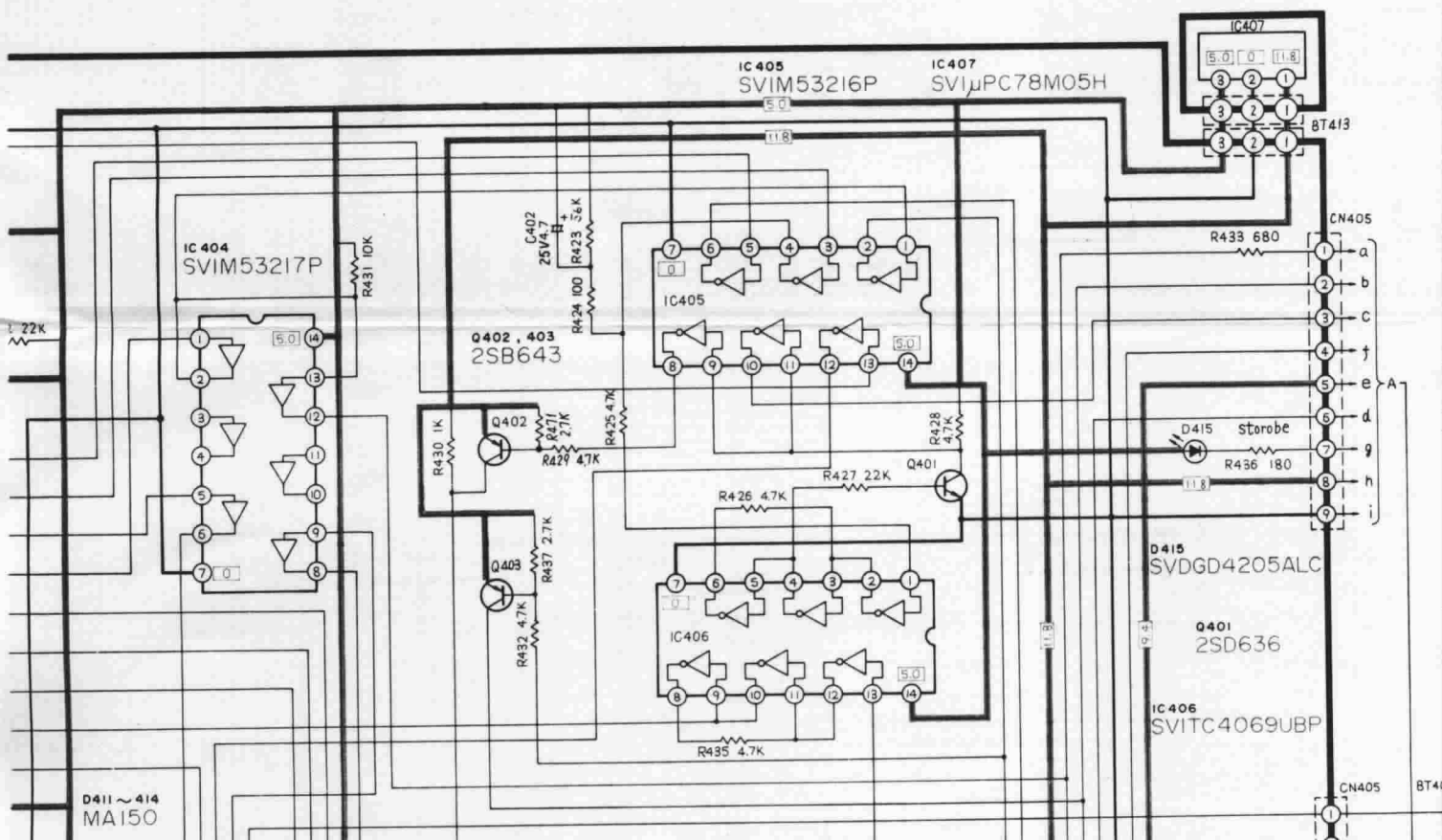
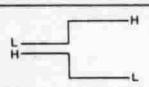


Terminal	Description	Remarks
㉛ (Do0) ~ ㉞ (Do3)	Arm drive control terminal The arm drive is controlled in the modes mentioned below.	
㉟ (Do4)	Turntable start/stop select terminal Start . . . . . ."H" Stop . . . . . ."L"	
㊱ (Do5)	Muting control terminal "H" changes to "L" when the arm-down sensor input is "H" after the arm finishes cueing-down.	
㊲ (Co6)	Band detection sensor control terminal. The sensor is in operation when the arm is cueing-up, but it is stopped when the arm is cueing-down. Cueing-up . . . . . ."L" Cueing-down. . . . . ."H"	
㊳ (Do7)	Not used	
㊴ (VDD)	Power supply terminal . . . . . .+5V	
㊵ (OSC)	Oscillation terminal In case of C401 and R442, the clock of micro-computer is set by constant.	When probe is connected to this terminal, the oscillation synchro changes making it impossible to measure correct values. Clock must be measured from the synchro of the key scan output terminal.

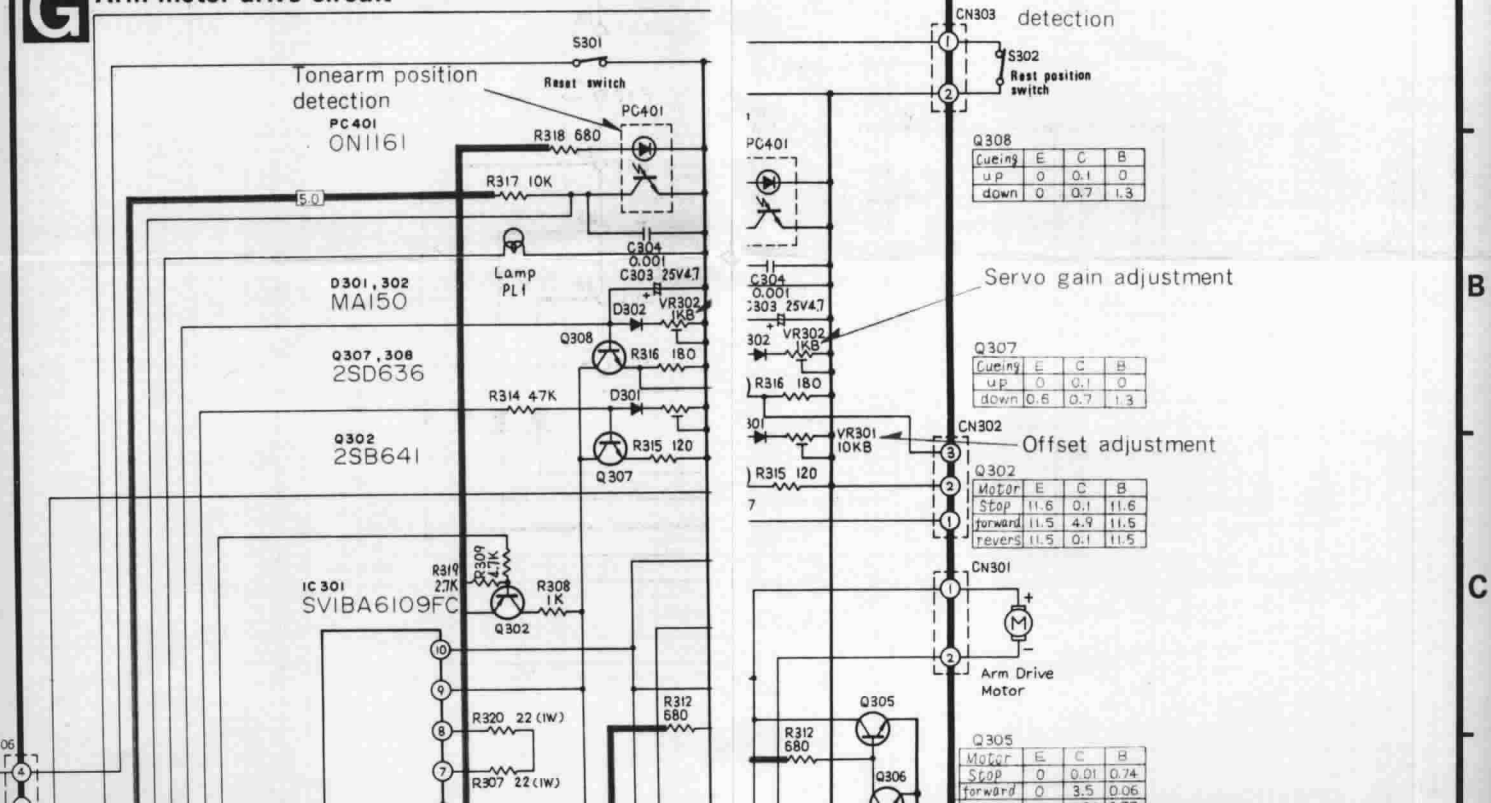
Terminal \ Mode	㉞	㉝	㉜	㉛
Stop	L	L	L	L
Forwand (High)	L	H	L	L
Reverse (High)	L	L	H	L
Forward (Low)	L	H	L	H
Reverse (Low)	L	L	H	H
Cueing down	H	L	L	L
Offset servo ON	H	H	L	L

Timing chart
Down screw output
Terminal ㊱



11 12 13 14

G Arm motor drive circuit

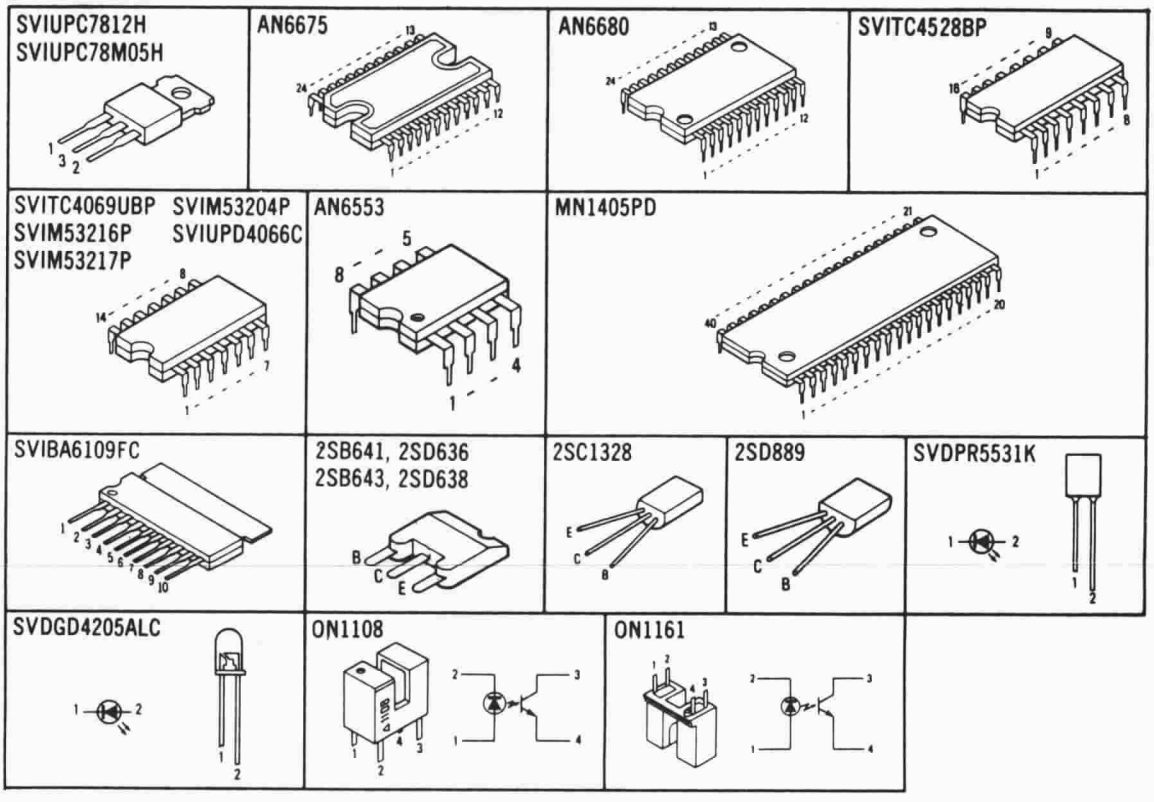


A B C

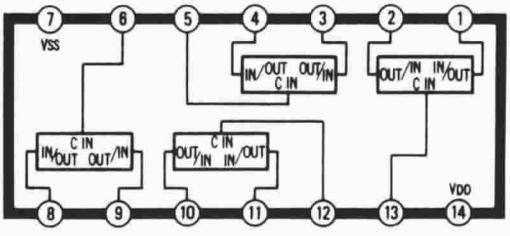
Notes:

1. **S1-1** : Power switch in "**on**" position. (Primary side)
2. **S1-2** : Power switch in "**on**" position. (Secondary side)
3. **S2** : AC/DC select switch in "**AC**" position.
   (AC/DC input terminal built-inswitch – AC priority)
4. **S3** : Voltage adjuster switch in "**220V – 240V**" position.
   110V – 120V ⟷ 220V – 240V
5. **S201** : Turntable drive (cleaner) switch in "**off**" position.
6. **S202** : Speed select switch in "**auto**" position. (**33** ⟷ **auto** ⟷ **45**)
7. **S301** : Reset switch in "**on**" position.
8. **S302** : Rest detecting switch in "**on**" position.
9. **S401 ~ 410** : Program switch (Program key 1 ~ 10) in "**off**" position.
   (not push condition)
10. **S411** : Stop/clear switch (▶ ▷) in "**off**" position. (not push condition)
11. **S412** : Fast rewind switch (▶ ▶) in "**off**" position. (not push condition)
12. **S413** : Start switch (◁ ◀) in "**off**" position. (not push condition)
13. **S414** : Fast forward switch (◀ ◀) in "**off**" position. (not push condition)
14. **S415** : Cueing switch in "**off**" position. (not push condition)
15. **S416** : Repeat switch in "**off**" position. (not push condition)
16. The value in ▭ is the reference voltage at stop of the turntable, measured by DC electronic circuit tester (high-impedance) on the basis of chassis.
    Therefore, the measured value may include some error depending on the internal impedance of the DC circuit tester and other conditions.
17. ▬ + Ⓑ voltage line.
18. Important safety Notice:
    Components identified by ⚠ mark have special characteristics important for safety.
    When replacing any of these components, use only manufacturer's specified parts.

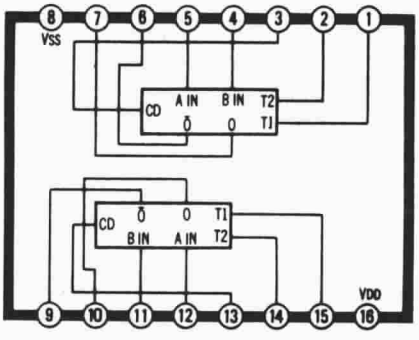
• Terminal guide of transistors, diodes and IC's



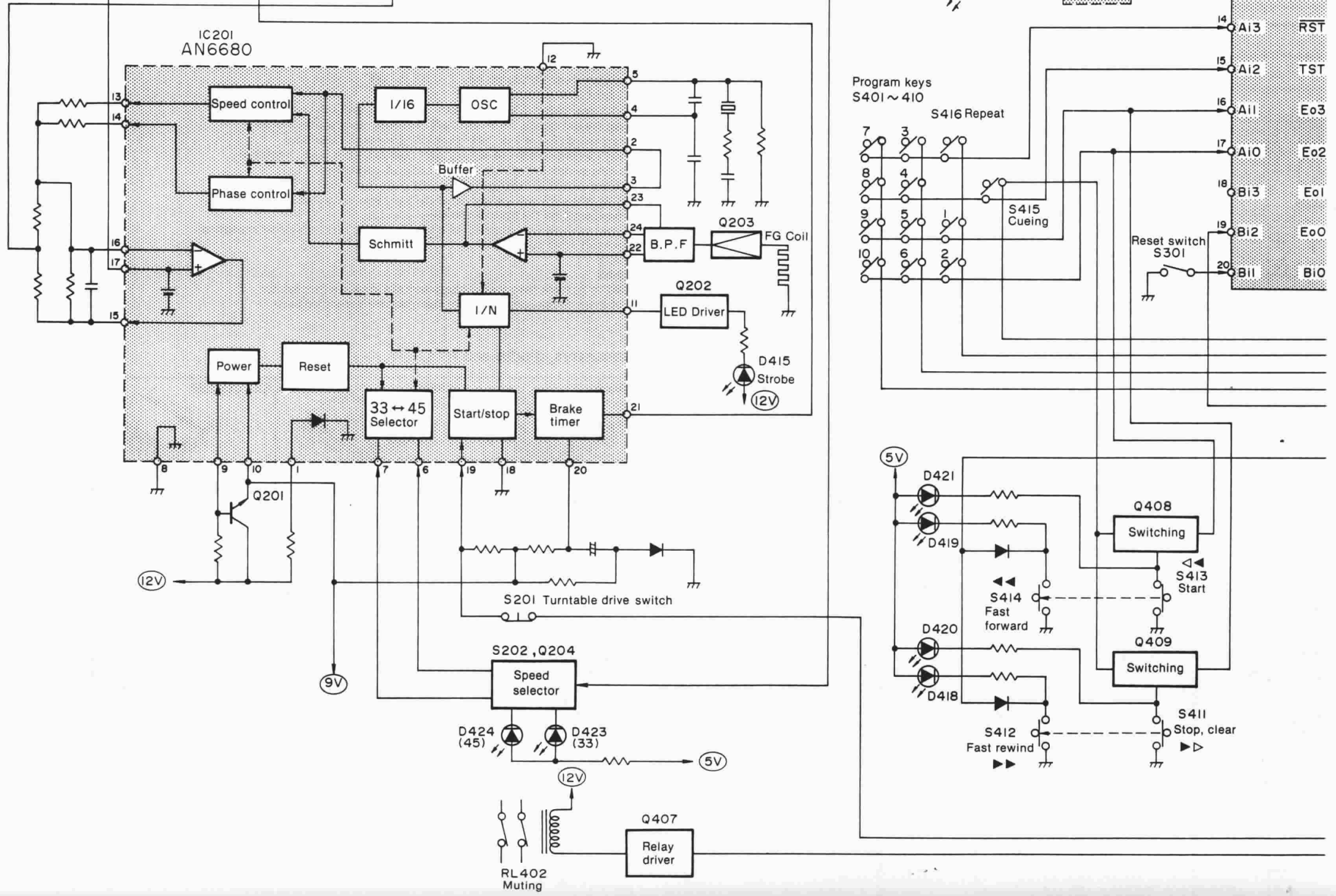
• Block diagram of IC's



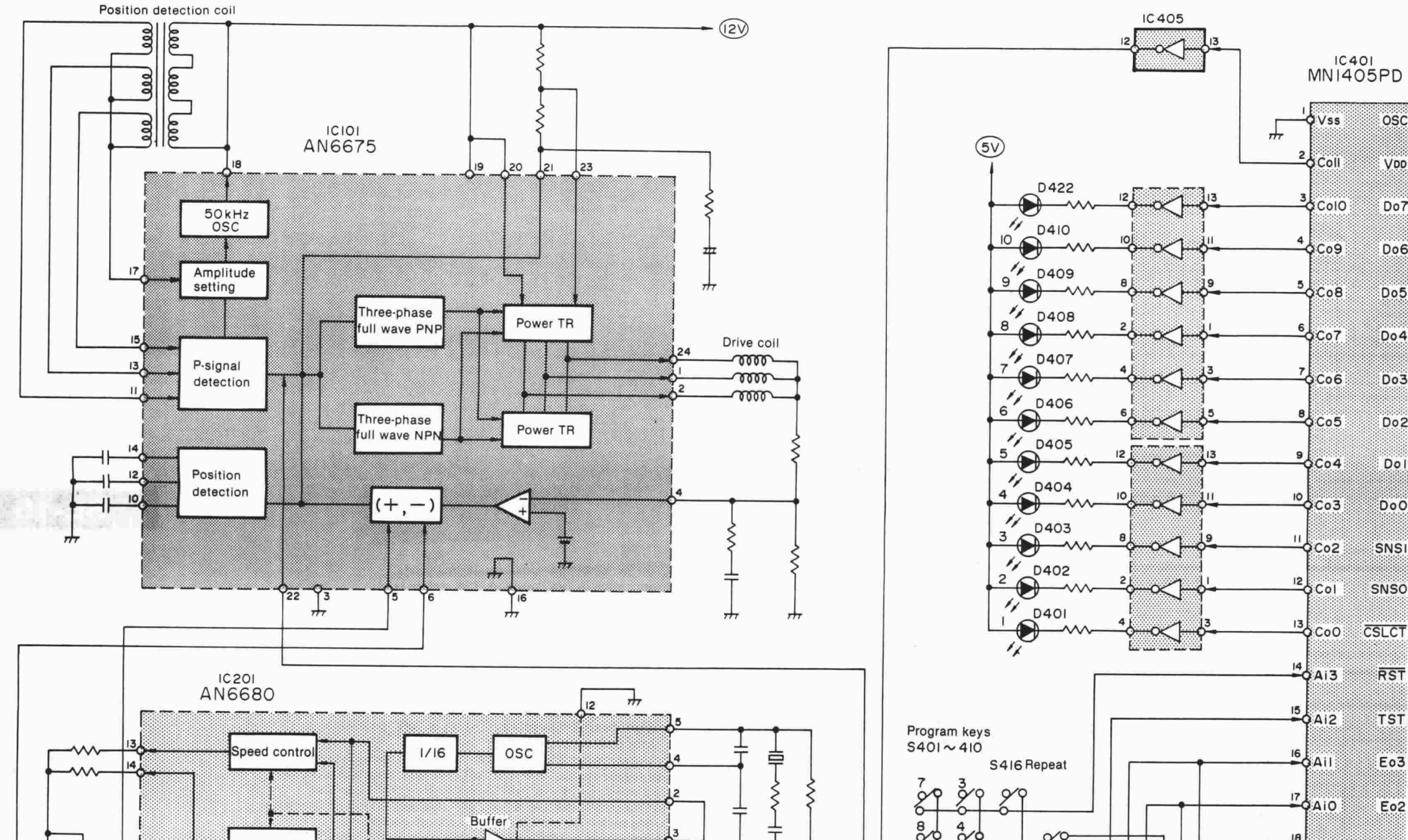
IC505 (SVITC4069)

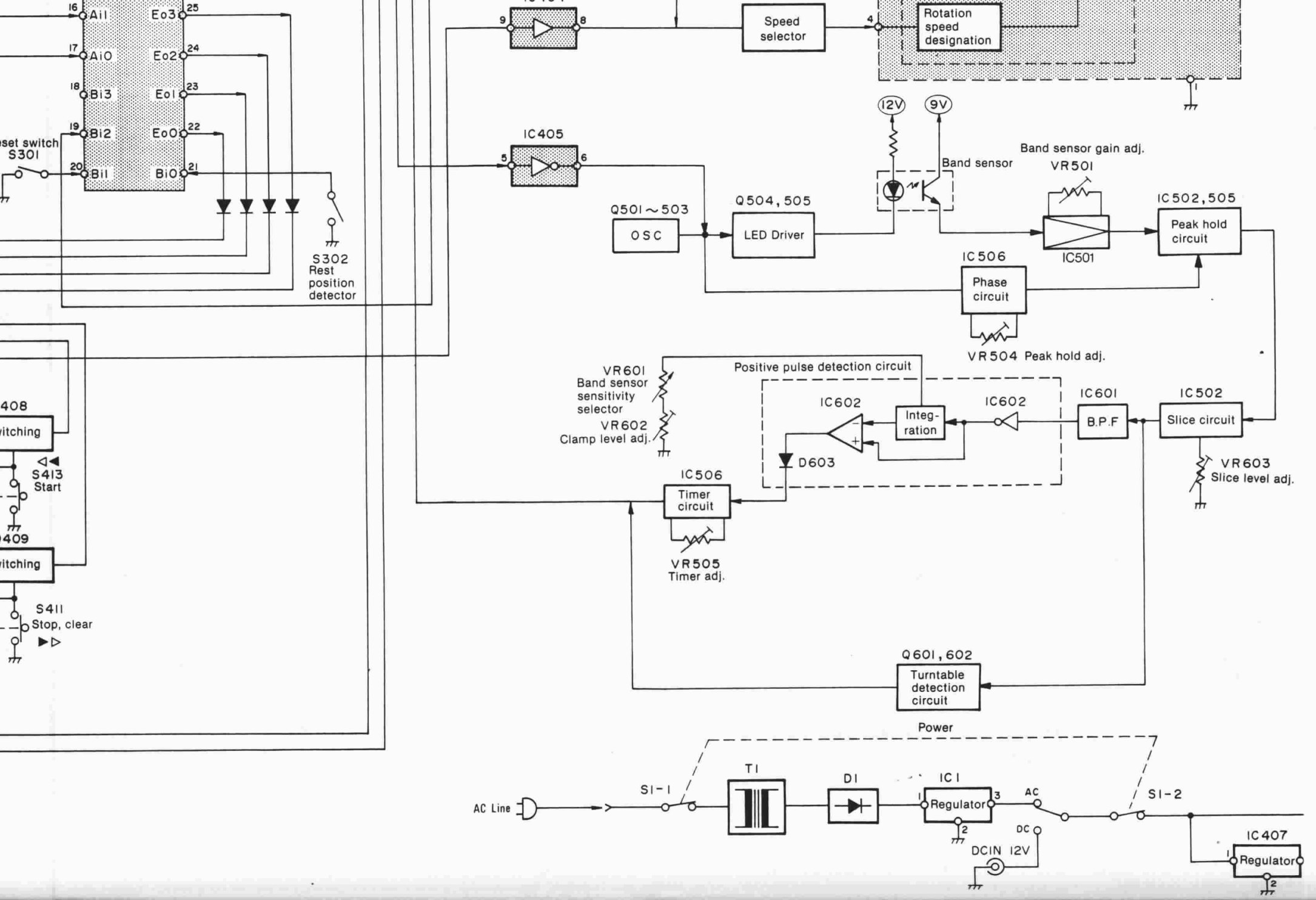


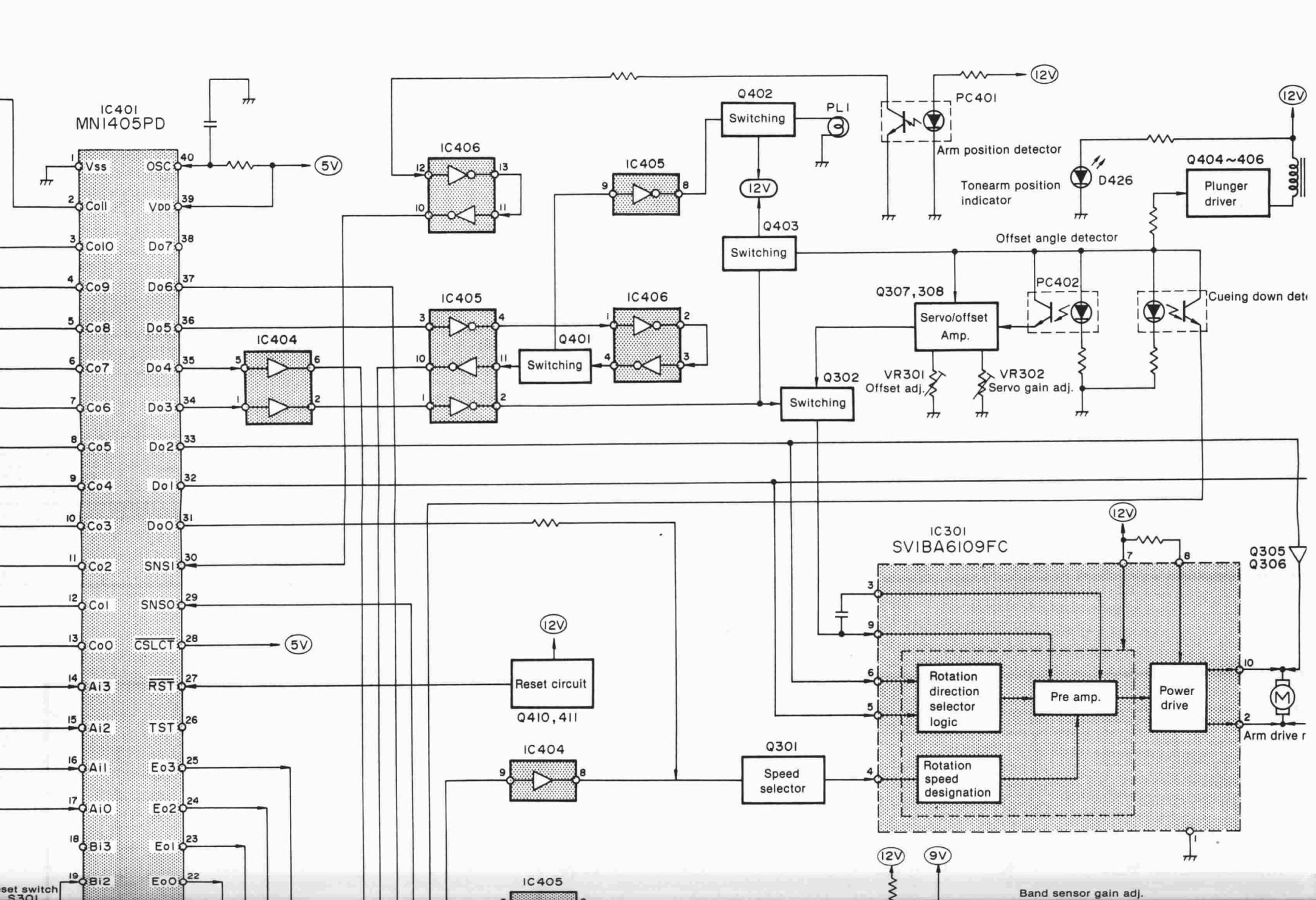
IC506 (SVITC4528BP)

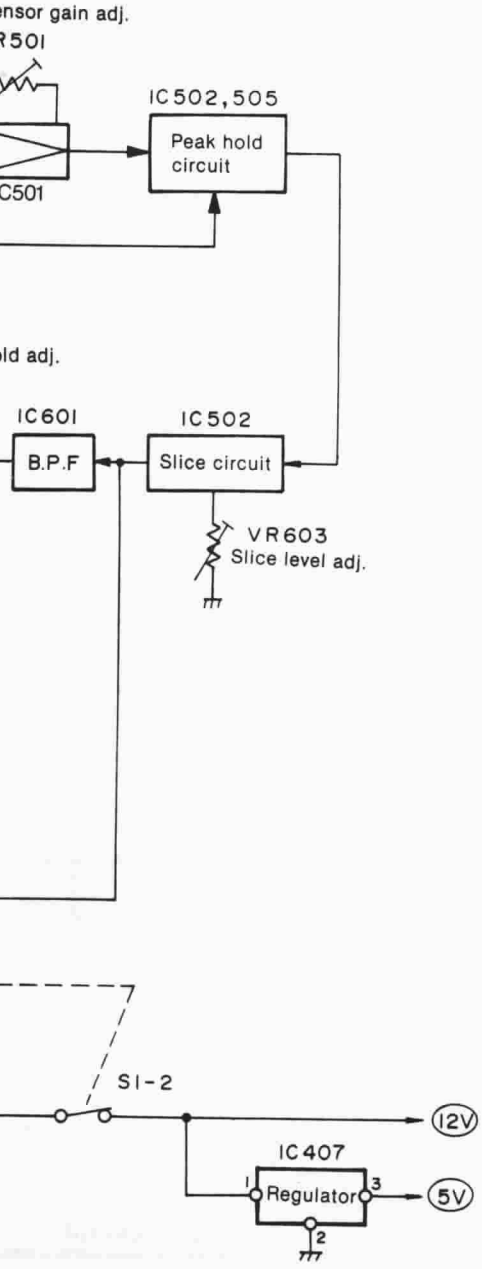

IC201
AN6680
Speed control
Phase control
1/16
OSC
Buffer
Schmitt
B.P.F
Q203
FG Coil
1/N
Q202
LED Driver
D415
Strobe
12V
Power
Reset
33 ↔ 45
Selector
Start/stop
Brake
timer
Q201
S201 Turntable drive switch
S202 ,Q204
Speed
selector
9V
D424
(45)
D423
(33)
5V
RL402
Muting
Q407
Relay
driver
Program keys
S401 ~ 410
S416 Repeat
S415
Cueing
Reset switch
S301
Ai3
Ai2
Ai1
Ai0
Bi3
Bi2
Bi1
RST
TST
Eo3
Eo2
Eo1
Eo0
Bi0
D421
D419
Q408
Switching
S413
Start
S414
Fast
forward
D420
D418
Q409
Switching
S411
Stop, clear
S412
Fast rewind

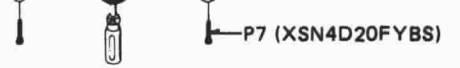
■ BLOCK DIAGRAM



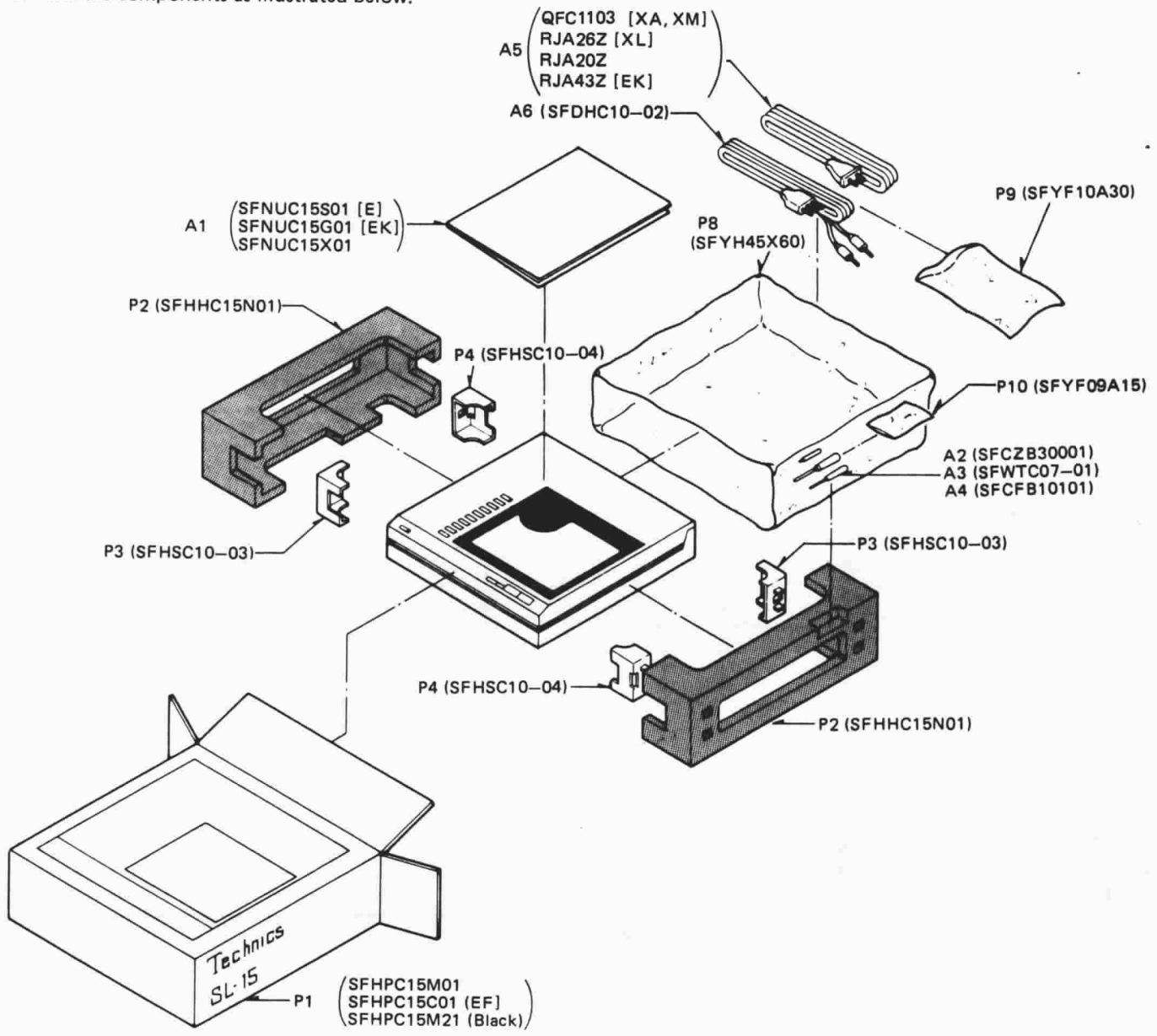

Ail
Ai0
Bi3
Bi2
Bil
Bi0
Eo3
Eo2
Eo1
Eo0
Speed selector
Rotation speed designation
IC405
12V
9V
Band sensor
Band sensor gain adj.
VR501
IC501
IC502,505
Peak hold circuit
Q501~503
OSC
Q504,505
LED Driver
IC506
Phase circuit
VR504 Peak hold adj.
VR601
Band sensor sensitivity selector
VR602
Clamp level adj.
Positive pulse detection circuit
IC602
Integ-ration
IC602
D603
IC601
B.P.F
IC502
Slice circuit
VR603
Slice level adj.
IC506
Timer circuit
VR505
Timer adj.
Q601,602
Turntable detection circuit
S302
Rest position detector
S413
Start
S411
Stop, clear
Power
AC Line
SI-1
TI
DI
IC1
Regulator
AC
SI-2
DC
DCIN 12V
IC407
Regulator


IC401
MN1405PD
Vss
OSC
Coll
VDD
Col0
Do7
Co9
Do6
Co8
Do5
Co7
Do4
Co6
Do3
Co5
Do2
Co4
Do1
Co3
Do0
Co2
SNS1
Col
SNS0
Co0
CSLCT
Ai3
RST
Ai2
TST
Ai1
Eo3
Ai0
Eo2
Bi3
Eo1
Bi2
Eo0
5V
12V
9V
IC406
IC405
IC404
Q402
Switching
PL1
Q403
Switching
Q401
Switching
Q302
Switching
PC401
Arm position detector
Tonearm position indicator
D426
Q404~406
Plunger driver
Offset angle detector
Q307,308
Servo/offset Amp.
PC402
Cueing down det
VR301
Offset adj.
VR302
Servo gain adj.
Reset circuit
Q410,411
IC301
SVIBA6109FC
Q305
Q306
Rotation direction selector logic
Pre amp.
Power drive
Arm drive r
Q301
Speed selector
Rotation speed designation
Band sensor gain adj.





4. Pack the components as illustrated below.



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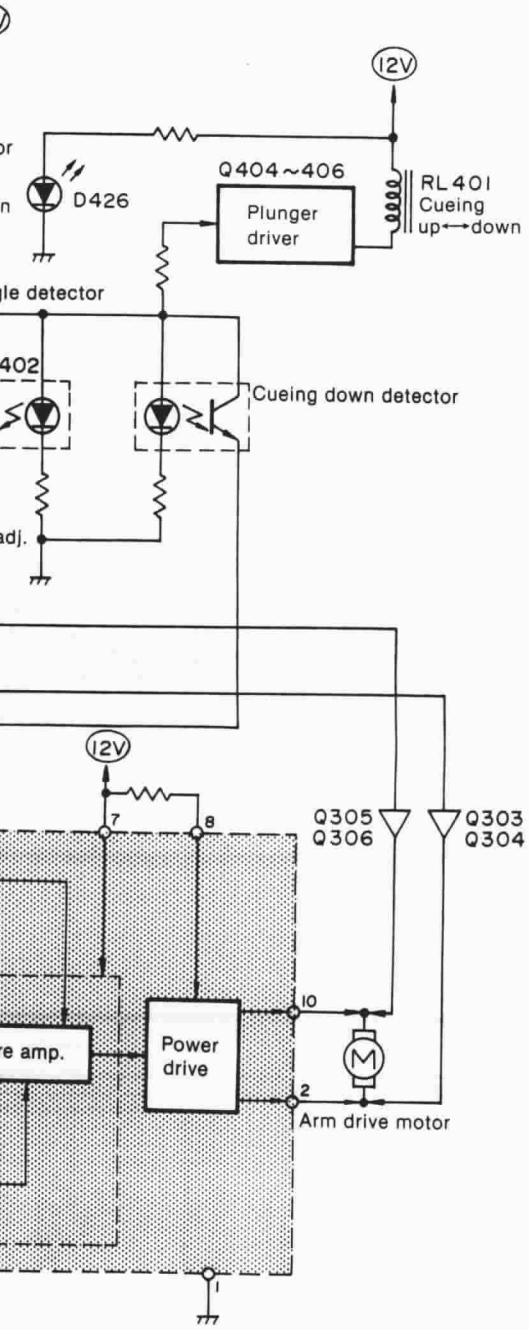
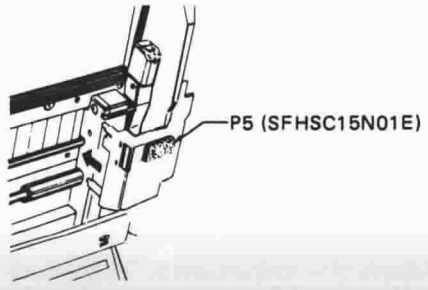
81059000 Ⓗ TK/YW



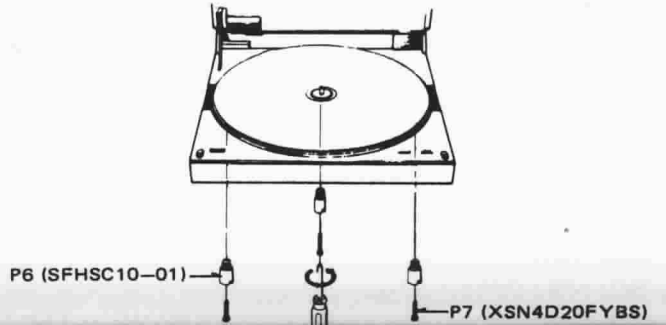
SL-15

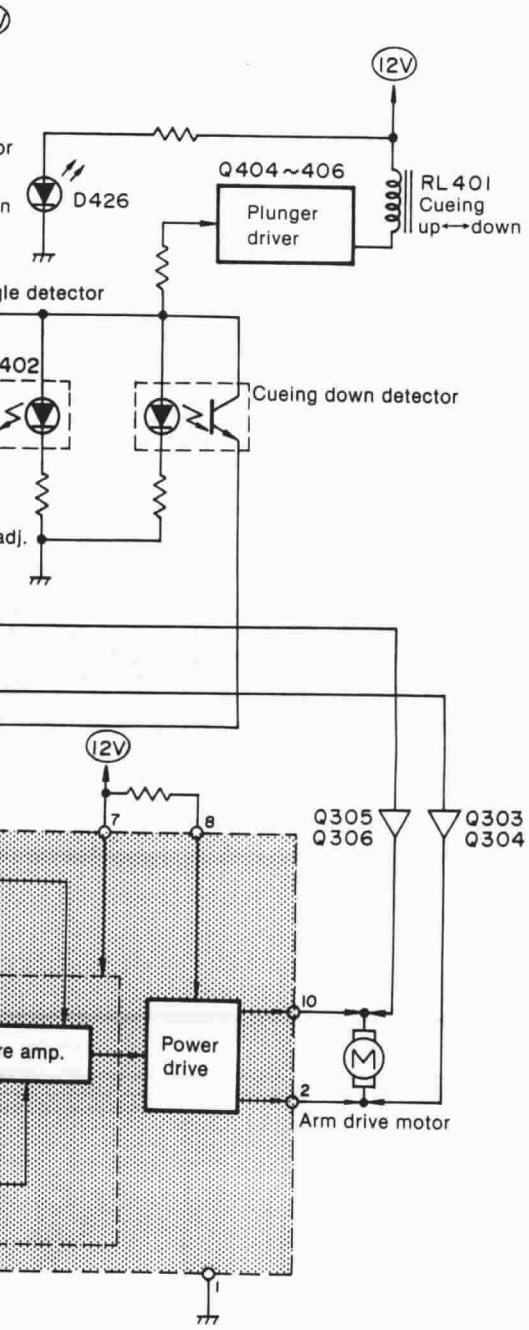
■ PACKINGS

1. Make sure the tonearm is in the rest position (the outermost periphery of turntable).
2. Attach the spacer for tonearm protection. (Do not lock the arm.)



3. To secure the turntable, adjust the positions of the 3 screw-holes provided in the back of the player body by slowly rotating the turntable.

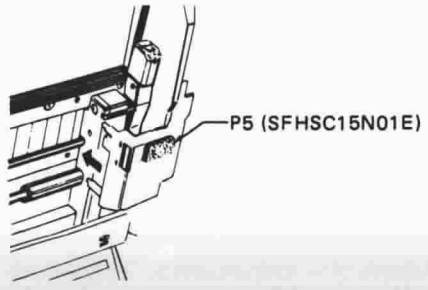




SL-15

■ PACKINGS

1. Make sure the tonearm is in the rest position (the outermost periphery of turntable).
2. Attach the spacer for tonearm protection. (Do not lock the arm.)



3. To secure the turntable, adjust the positions of the 3 screw-holes provided in the back of the player body by slowly rotating the turntable.