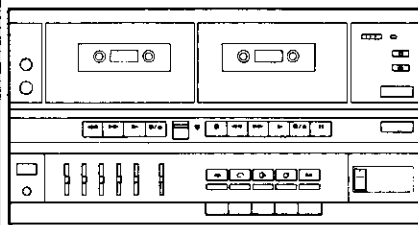


# Service Manual



**ORDER NO.  
ARP1336**

**STEREO DOUBLE CASSETTE TAPE DECK AMPLIFIER**

# DC-X77Z

**MODEL DC-X77Z COMES IN FIVE VERSIONS DISTINGUISHED AS FOLLOWS:**

| Type | Power requirement                         | Export destination |
|------|---|--------------------|
| HB   | AC220V, 240V (switchable)*                | United Kingdom     |
| HE   | AC220V, 240V (switchable)*                | European Continent |
| SD   | AC110V, 120-127V, 220V, 240V (switchable) | General market     |
| HEZ  | AC220V, 240V (switchable)*                | West Germany       |
| YP   | AC240V only                               | Australia          |

\*Change the primary wiring, please refer to page 52.

- This service manual is applicable to the HB, HE and SD types.
- As to the HE and SD types, please refer to pages 51.
- As to the other types, please refer to additional service manual.
- Ce manuel d'instruction se réfère au mode de réglage, en français.
- Este manual de servicio trata del método ajuste escrito en español.

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1. SPECIFICATIONS

Continuous Average Power Output is 27 Watts\* per channel, min., at 8 ohms from 40 Hertz to 20,000 Hertz, with no more than 0.3% total harmonic distortion.

*\*Measured pursuant to the Federal Trade Commission's Trade Regulation rules on Power Output Claims for Amplifiers.*

- Continuous Power Output
- 40 to 20,000 Hz ..... 27 W + 27 W (T.H.D. 0.3% 8 ohms)
  - 1 kHz (DIN) ..... 33 W + 33 W (T.H.D. 1% 8 ohms)
  - 1 kHz (DIN music power) ..... 50 W + 50 W (T.H.D. 1% 8 ohms)
- Graphic equalizer frequency band ..... 100 Hz, 330 Hz, 1 kHz, 3.3 kHz, 10 kHz, ±7 dB
- Hum and Noise (IHF, short-circuited, A network)
- PHONO ..... 72 dB
- Hum and Noise (DIN continuous Power/50 mW)
- PHONO ..... 68 dB/60 dB
- Total Harmonic Distortion (40 Hz to 20,000 Hz, 8 ohms)
- 15 Watts per channel power output ..... No more than 0.2%

Tape Deck Section

- Systems ..... 4 track, 2-channel stereo
- Heads ..... Recording/playback head x 1
- Playback head x 1
  - Erasing head x 1
- Motor ..... DC servo 2 speed motor x 2
- Wow and Flutter ..... No more than 0.13% (WRMS)
- Fast Winding Time ..... Approximately 105 seconds (C-60 tape)

- Frequency Response
- 20 dB recording:
  - Normal tape ..... 35 Hz to 14,000 Hz
  - CrO<sub>2</sub> ..... 35 Hz to 15,000 Hz
- Signal-to-Noise Ratio
- Dolby NR OFF ..... 56 dB
- Noise Reduction Effect
- Dolby B type NR ON ..... More than 10 dB (at 5 kHz)

Furnished Parts

- Operating Instructions ..... 1
- Turntable legs parts ..... 2

Miscellaneous

- Power requirements
- European model ..... AC 220 V, 50/60 Hz
  - U.K. model ..... AC 240 V, 50/60 Hz
  - Australian model ..... AC 240 V, 50 Hz
- Other destination models
- ..... AC 110/120-127/220/240 V (switchable) 50/60 Hz

Power Consumption

- European model ..... 210 W
  - U.K. model ..... 210 W
  - Other destination models ..... 210 W
- Dimensions ..... 360(W) × 190(H) × 283(D) mm
- 14-3/16(W) × 7-1/2(H) × 11-1/8(D) in
- Weight (without package) ..... 6.8 kg (15 lb)

*Specifications and design subject to possible modifications without notice due to improvement.*



This exploded view diagram illustrates the assembly of a control panel. The main components include:

- Top Panel (31):** The uppermost section, secured by screws (44) and pins (41).
- Internal Assembly:** A complex arrangement of mechanical and electrical components, including a motor (10), gears (16, 17, 18, 19), and a control unit (20).
- Control Panel (23):** The front-facing panel with various buttons and indicators, including a large rectangular button (25) and a smaller one (27).
- Mounting Hardware:** Various screws (44), pins (41), and brackets (33, 35) used to secure the components.
- Wiring and Connectors:** A cable (9) and various connectors (8, 10, 11, 13, 14, 16, 17, 18, 19, 20, 21, 22, 24, 26, 28, 29, 30, 32, 34, 36, 37, 38, 39, 40, 42, 43, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100) are shown connecting the internal components.







The diagram uses dashed lines to indicate the assembly path and alignment of the parts.



## NOTES:

- Parts without part number cannot be supplied.
- The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the marks **★★** and **★**.  
**★★ GENERALLY MOVES FASTER THAN ★**  
*This classification should be adjusted by each distributor because it depends on model number, temperature, humidity, etc.*
- Parts marked by "  " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

## Parts List of Exterior

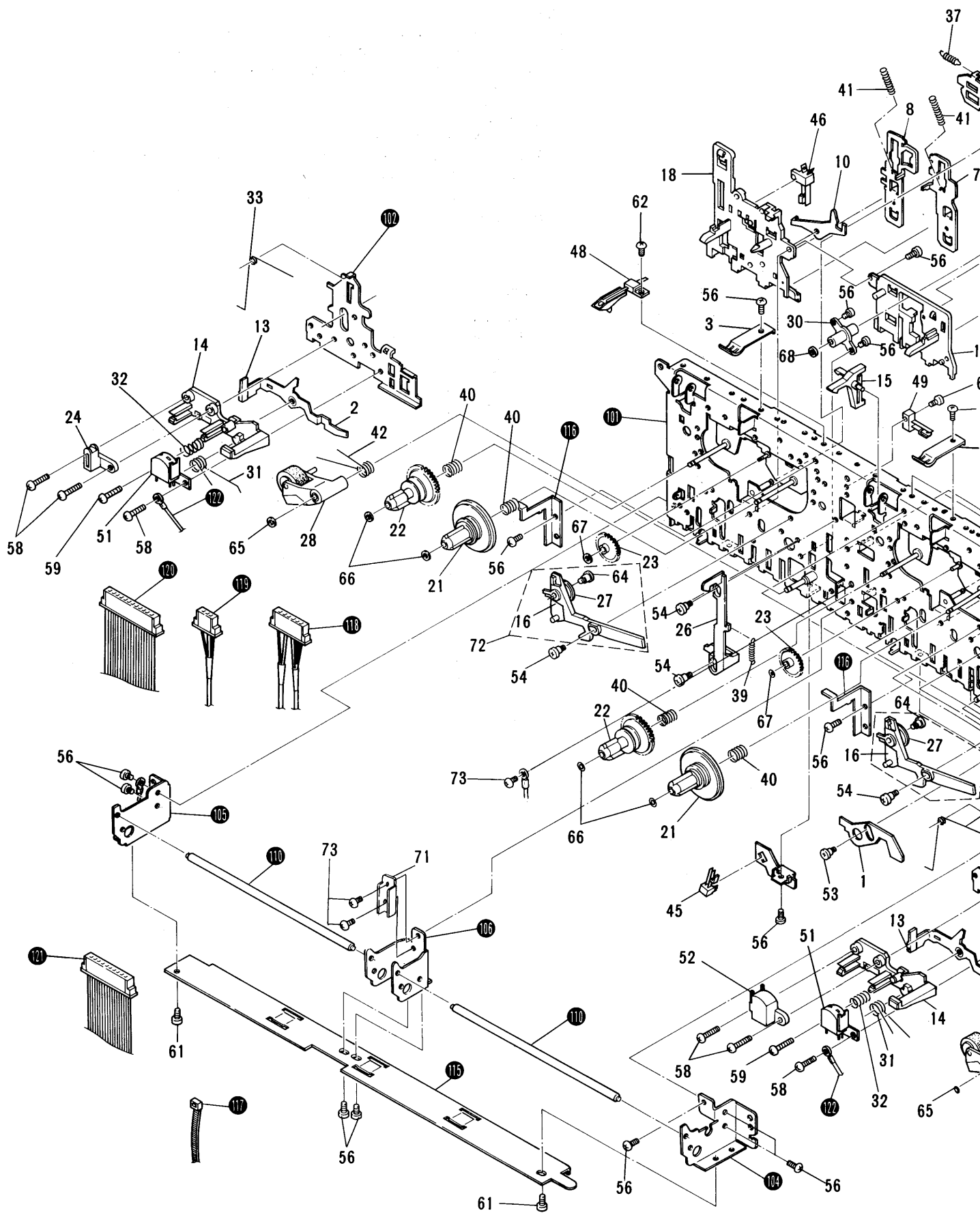
| Mark   | No. | Part No.             | Description                            | Mark | No. | Part No.     | Description             |
|--|-----|----------------------|--|------|-----|--------------|-------------------------|
|  | 1   | AWZ1289              | Main assembly                          |      | 41  | BBZ30P080FZK | Screw                   |
|  | 2   | AWZ1309              | Mechanism control assembly             |      | 42  | VBZ30P060FMC | Screw                   |
|  | 3   | AWZ1310              | REC Amp assembly                       |      | 43  | VBZ30P080FMC | Screw                   |
|  ★  | 4   | ATS1070<br>(ATS1065) | Power transformer<br>(T1, AC220V/240V) |      | 44  | VPZ30P080FZK | Screw                   |
|  ★★ | 5   | AEK-507              | Fuse (FU1, T800mA)                     |      | 45  | VPZ30P100FMC | Screw                   |
|  ★★ | 6   | AEK-510              | Fuse (FU3, T1.6A)                      |      | 46  | BBT30P080FMC | Screw                   |
|  ★★ | 7   | AEK-511              | Fuse (FU4, FU5, T2A)                   |      | 47  | VMZ30P060FMC | Screw                   |
|  | 8   | AAW1003              | Counter                                |      | 48  | AEC-194      | Nylon revet             |
|  | 9   | AMR1124              | Power joint                            |      | 101 |              | Chassis                 |
|  | 10  | AXA1004              | Damper assembly                        |      | 102 |              | Rear panel              |
|  |     |                      |  |      | 103 |              | Bottom plate            |
|  |     |                      |  |      | 104 |              | SYNC shaft              |
|  |     |                      |  |      | 105 |              | Keep plate              |
|  | 11  | AAD1003              | Knob (POWER)                           |      |     |              |                         |
|  | 12  | AAD1115              | Knob (FUNCTION)                        |      | 106 |              | .....                   |
|  | 13  | AAD1116              | Knob (DOLBY NR)                        |      | 107 |              | P.C.B Holder            |
|  | 14  | AAE1038              | Knob (REC)                             |      | 108 |              | P.C.B Support           |
|  | 15  | AAE1039              | Knob (PAUSE)                           |      | 109 |              | Heat sink               |
|  |     |                      |  |      | 110 |              | Earth lead              |
|  | 16  | AAE1040              | Knob (FAST RWD)                        |      |     |              |                         |
|  | 17  | AAE1041              | Knob (FAST FWD)                        |      | 111 |              | Cassette mechanism unit |
|  | 18  | AAE1042              | Knob (PLAY)                            |      | 112 |              | Graphic EQ assembly     |
|  | 19  | AAE1043              | Knob (STOP/EJECT)                      |      | 113 |              | Switch assembly         |
|  | 20  | AAE1044              | Knob (SYNC)                            |      | 114 |              | LED assembly            |
|  |     |                      |  |      | 115 |              | Connect assembly        |
|  | 21  | AAE1045              | Knob (VOLUME)                          |      |     |              |                         |
|  | 22  | AAK1190              | Volume base                            |      | 116 |              | Cushion rubber          |
|  | 23  | AAK1191              | Amp panel                              |      |     |              |                         |
|  | 24  | AAK1192              | Door panel R                           |      |     |              |                         |
|  | 25  | AAK1193              | Door panel L                           |      |     |              |                         |
|  |     |                      |  |      |     |              |                         |
|  | 26  | AAK1194              | Deck panel A                           |      |     |              |                         |
|  | 27  | AAK1195              | Deck panel B                           |      |     |              |                         |
|  | 28  | AAN1035              | Door R                                 |      |     |              |                         |
|  | 29  | AAN1036              | Door L                                 |      |     |              |                         |
|  | 30  | AMB1136              | Front panel                            |      |     |              |                         |
|  |     |                      |  |      |     |              |                         |
|  | 31  | ANE1002              | Bonnet case                            |      |     |              |                         |
|  | 32  | .....                | .....                                  |      |     |              |                         |
|  | 33  | AAX1054              | Fluorescent sheet                      |      |     |              |                         |
|  | 34  | ABH1025              | Door spring R                          |      |     |              |                         |
|  | 35  | ABH1026              | Door spring L                          |      |     |              |                         |
|  |     |                      |  |      |     |              |                         |
| ★★   | 36  | AEB-310              | Counter belt                           |      |     |              |                         |
|  | 37  | AEB1012              | Non slip                               |      |     |              |                         |
|  | 38  | AEC-847              | Leg assembly                           |      |     |              |                         |
|   | 39  | AEC-882              | Strain relief                          |      |     |              |                         |
|   | 40  | ADG-051              | AC power cord                          |      |     |              |                         |

A

B

C

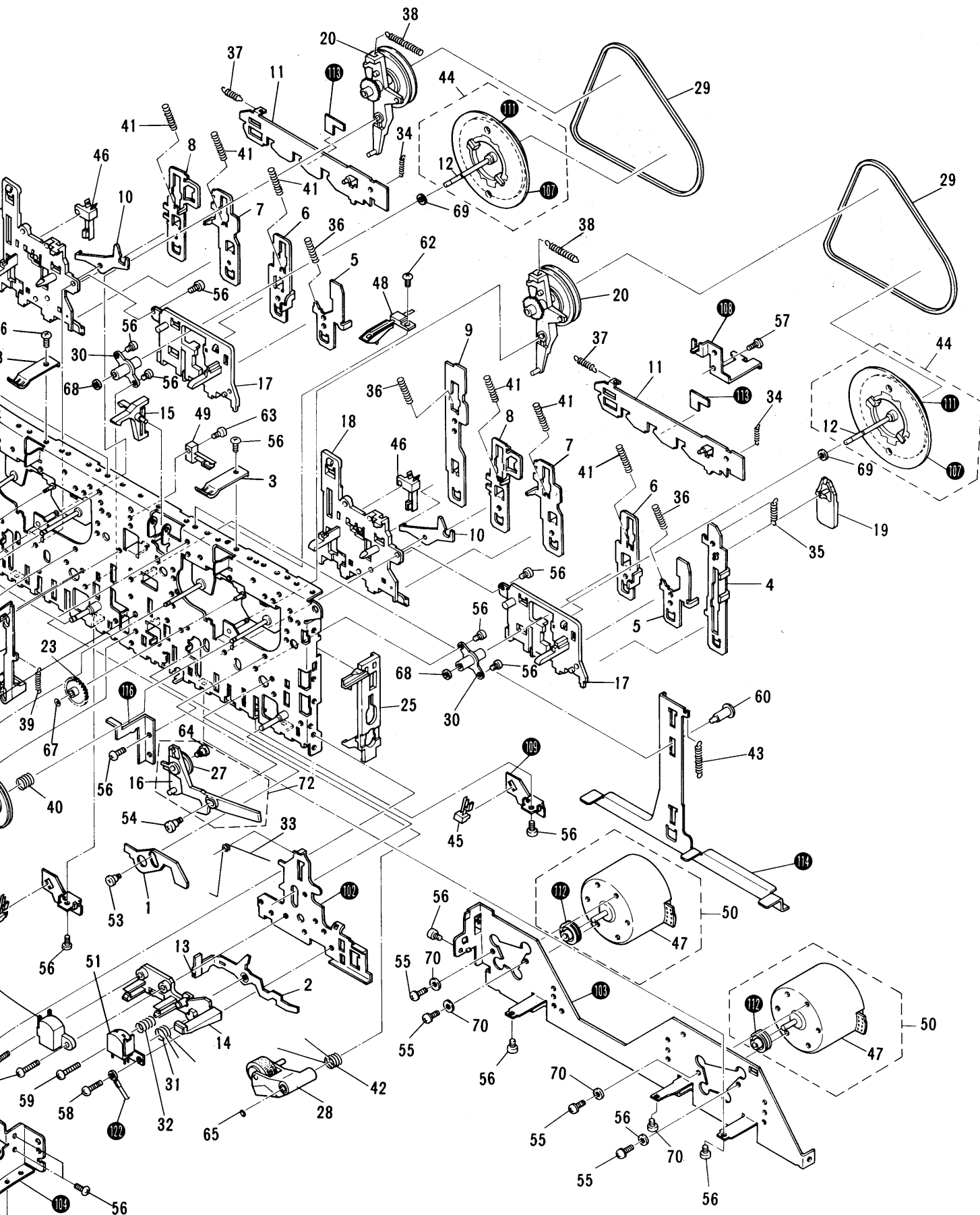
D



4

5

6



A

B

C

D

4

5

6

# Mechanism unit

| Mark | No. | Part No. | Description             | Mark | No. | Part No. | Description           |
|------|-----|----------|-------------------------|------|-----|----------|-----------------------|
|      | 1   | AZN1273  | Pause arm               | ★★   | 50  | AZX1012  | Motor assembly        |
|      | 2   | AZN1274  | AS arm                  |      |     |          |                       |
|      | 3   | AZN1241  | Pack spring             | ★★   | 51  | AZP1012  | RP head               |
|      | 4   | AZN1275  | Pause lever             | ★★   | 52  | AZP1013  | E head                |
|      | 5   | AZN1276  | Stop lever              |      | 53  | AZB1061  | Screw (A)             |
|      |     |          |                         |      | 54  | AZB1062  | Screw (P)             |
|      | 6   | AZN1277  | Play lever              |      | 55  | AZB1063  | Sems Screw            |
|      | 7   | AZN1278  | FF lever                |      | 56  | AZB1064  | Tap tite screw        |
|      | 8   | AZN1279  | REW lever               |      | 57  | AZB1065  | Tap tite screw        |
|      | 9   | AZN1280  | REC lever               |      | 58  | AZB1066  | Binding screw         |
|      | 10  | AZN1281  | REW arm (S)             |      | 59  | AZB1067  | Washer head screw     |
|      |     |          |                         |      | 60  | AZB1068  | Screw (C)             |
|      | 11  | AZN1282  | Lock cam(A) assembly    |      |     |          |                       |
|      | 12  | AZN1242  | Capstan shaft           |      | 61  | AZB1069  | Tap tite screw        |
|      | 13  | AZN1243  | Sensor cap              |      | 62  | AZB1070  | Tap tite screw        |
|      | 14  | AZN1244  | Head base               |      | 63  | AZB1071  | Tap tite screw        |
|      | 15  | AZN1245  | REC sensor              |      | 64  | AZB1072  | Bush                  |
|      |     |          |                         |      | 65  | AZB1073  | Polyslider washer     |
|      | 16  | AZN1246  | Idler arm               |      |     |          |                       |
|      | 17  | AZN1247  | Lever base (A)          |      | 66  | AZB1074  | Polyslider washer     |
|      | 18  | AZN1248  | Lever base (B)          |      | 67  | AZB1075  | Polyslider washer     |
|      | 19  | AZN1249  | Pause cam               |      | 68  | AZB1076  | Polyslider washer     |
|      | 20  | AZN1250  | Clutch arm assembly (R) |      | 69  | AZB1077  | Polyslider washer     |
|      |     |          |                         |      | 70  | AZB1078  | Plain washer (L)      |
|      | 21  | AZN1251  | T reel assembly         |      |     |          |                       |
|      | 22  | AZN1252  | S reel                  |      | 71  | ANG1113  | Mecha braket          |
|      | 23  | AZN1253  | FF gear                 |      | 72  | ANZ1359  | Idler arm assembly    |
|      | 24  | AZN1254  | Tape guide              |      | 73  | AZB1108  | Tap tite screw        |
|      | 25  | AZN1255  | Eject lever (F)         |      |     |          |                       |
|      | 26  | AZN1256  | Eject lever (W)         |      | 101 |          | Chassis (W) assembly  |
| ★★   | 27  | AZN1257  | Idler                   |      | 102 |          | Head chassis          |
|      | 28  | AZN1258  | P roller arm assembly   |      | 103 |          | Motor bracket (FW)    |
| ★★   | 29  | AZN1259  | Belt                    |      | 104 |          | Button bracket (RF)   |
|      | 30  | AZN1260  | Housing assembly        |      | 105 |          | Button bracket (LW)   |
|      |     |          |                         |      |     |          |                       |
|      | 31  | AZN1261  | Head chassis spring     |      | 106 |          | Button bracket (C)    |
|      | 32  | AZN1262  | Head spring             |      | 107 |          | Flywheel weight       |
|      | 33  | AZN1263  | Idler arm spring        |      | 108 |          | Sub bracket           |
|      | 34  | AZN1264  | Auto arm spring         |      | 109 |          | SW bracket (F)        |
|      | 35  | AZN1265  | Pause lever spring      |      | 110 |          | Button shaft (W)      |
|      |     |          |                         |      |     |          |                       |
|      | 36  | AZN1266  | Lever spring (A)        |      | 111 |          | Flywheel              |
|      | 37  | AZN1267  | Cam spring              |      | 112 |          | Motor pulley          |
|      | 38  | AZN1268  | Clutch arm spring       |      | 113 |          | Insulator seat        |
|      | 39  | AZN1269  | Eject spring            |      | 114 |          | Dubbing Lever         |
|      | 40  | AZN1270  | Back tension spring     |      | 115 |          | MD plate              |
|      |     |          |                         |      |     |          |                       |
|      | 41  | AZN1271  | Lever spring            |      | 116 |          | SW guard              |
|      | 42  | AZN1272  | P roller arm spring     |      | 117 |          | Nylon band            |
|      | 43  | AZN1283  | Dubbing spring          |      | 118 |          | 5P head wire assembly |
|      | 44  | AZN1284  | Flywheel assembly       |      | 119 |          | 3P head wire assembly |
| ★★   | 45  | AZS1029  | Leaf switch (POWER)     |      | 120 |          | 12P wire assembly     |
|      |     |          |                         |      |     |          |                       |
| ★★   | 46  | AZS1030  | Leaf switch (PLAY MUTE) |      | 121 |          | 10P wire assembly     |
| ★★   | 47  | AZX1011  | Motor                   |      | 122 |          | Earth wire            |
| ★★   | 48  | AZS1031  | Leaf switch (CrO2)      |      |     |          |                       |
| ★★   | 49  | AZS1032  | Leaf switch (REC)       |      |     |          |                       |

### 3. MECHANICAL SECTION OPERATION OUTLINE

The operation outline of this unit is as follows:

1. Operation selection system . . . . There is no power assist mechanism
2. Driving system . . . . 1 motor belt drive
3. Head . . . . Fixed head
4. Auto-stop system . . . . REC+PLAY and PLAY auto-stop
5. Operation system . . . . Lever lock system
6. EJECT system . . . . STOP→EJECT system

The following will describe operations according to their respective modes.

#### 3-1. STOP MODE

The head chassis assembly and the respective operation levers come down to their specified positions and become into stop mode when the respective switches are OFF.

#### 3-2. PLAY MODE

- (1) When PLAY lever is pressed, the lock cam moves to the left direction and the power supply switch is turned ON. At the same time, the head chassis assembly which is linked to the play lever is pushed up to the specified position with the head chassis spring and the PLAY muting switch being turned ON. In addition, the PLAY lever is locked with the lock cam.
- (2) At the same time, the head chassis, while rising, pushes up the pinch pressure contact spring within the pinch roller arm to pressure contact the pinch roller to the capstan and commences tape running.
- (3) At the same time, the PLAY idler is also pushed up causing the take-up reel table to rotate and to begin take-up of tape and becomes into PLAY mode.

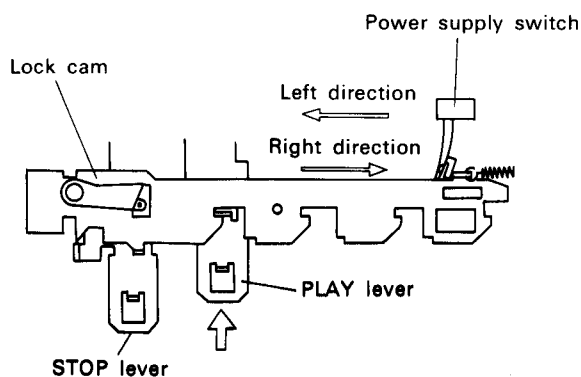


Fig. 3-1. PLAY mode diagram (motor installing side)

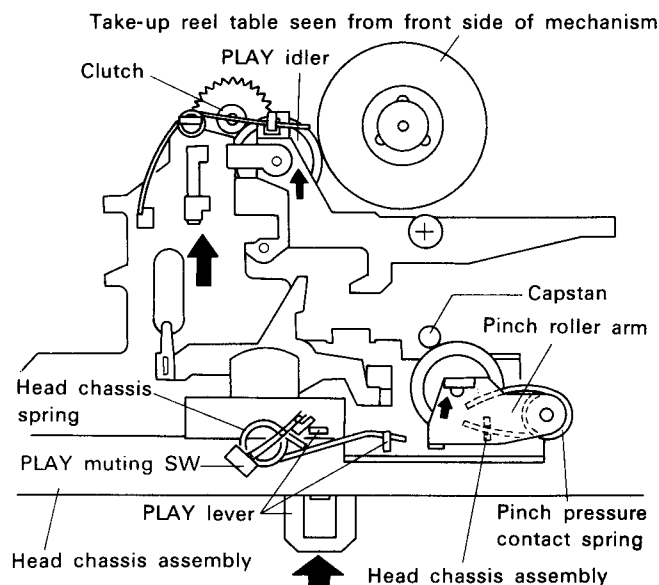


Fig. 3-2. PLAY mode diagram

#### 3-3. PLAY→STOP OPERATION

Mechanically, it operates in reverse of the aforementioned PLAY mode. (See Figs. 3-1 and 3-2.)

- (1) When STOP lever is pressed, the lock cam moves in the left direction and releases the PLAY lever. At the same time, the PLAY muting switch and power supply switch are turned OFF.
- (2) At the same time, the PLAY idler is pushed down while the head chassis comes down, and the take-up reel table stops as also the take-up of tape.
- (3) At the same time, release the pressure contact of the pinch roller and capstan by pushing up the pinch pressure contact spring and stop the tape running.

#### 3-4. PLAY→PAUSE mode→PAUSE release

##### • PAUSE mode

- (1) When the PAUSE lever is pressed in PLAY mode, the PAUSE lever pushes down the head chassis assembly (linked to pinch roller) which is linked to the PLAY idler and PAUSE arm. At the same time, the PLAY idler and pinch roller are pressed down. And with PAUSE cam, it is locked at the PAUSE position and becomes into PAUSE mode.

##### • PAUSE position

- Head comes down 1.7 mm at center value from the PLAY position
- Pinch roller does not contact with the capstan.
- PLAY idler does not contact with the reel table.
- Play muting switch and power supply switch are in ON mode.
- Clearance of pinch roller : 1.7 mm at center
- Clearance of play idler : 1.7 mm at center

• **PAUSE release**

- (2) Next, when the PAUSE lever is pressed again, the PAUSE cam is released in the movement reverse to (1). The PLAY idler and pinch roller then return to the PLAY mode and tape running recommences.

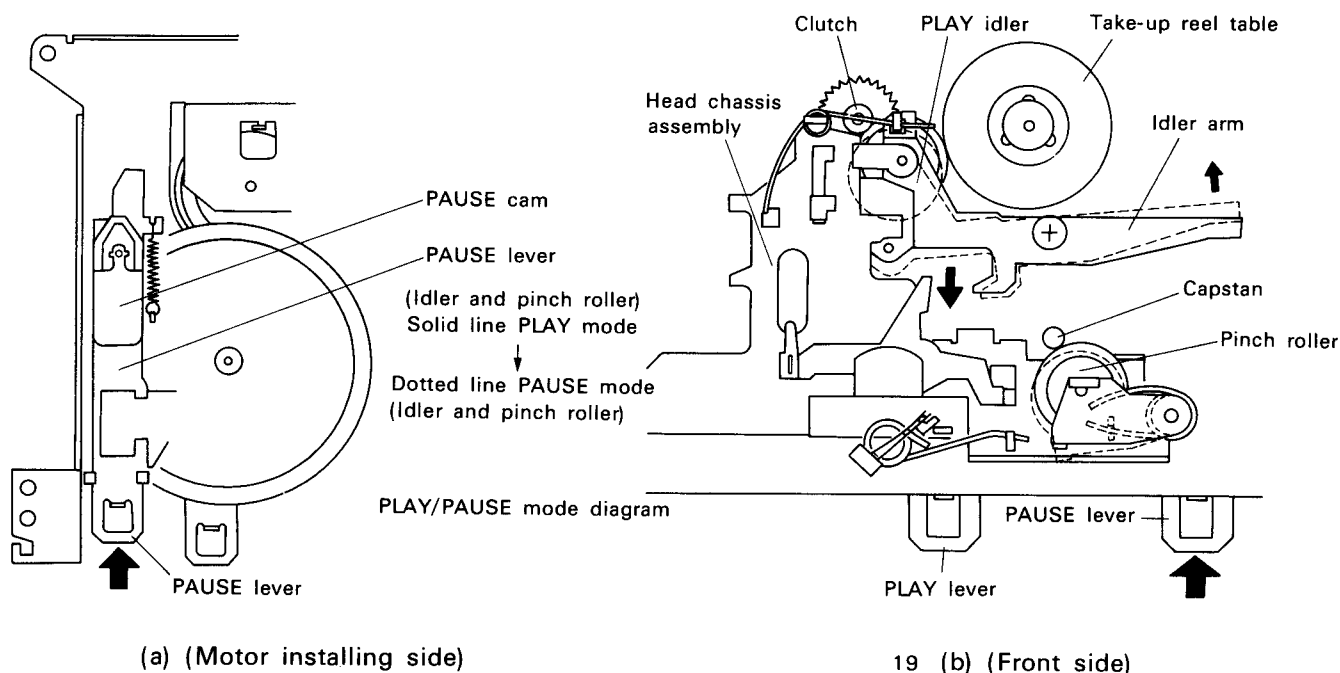


Fig. 3-3. PLAY→PAUSE→PAUSE release

### 3-5. REC DETECTION OPERATION AND REC OPERATION

#### 1. REC detection operation

REC sensor detects the existence or otherwise of erroneous erasure prevention claw of cassette half. When there is claw, recording may be performed (REC lever can be pressed.) When there is no claw, recording cannot be performed (REC lever cannot be pressed.)

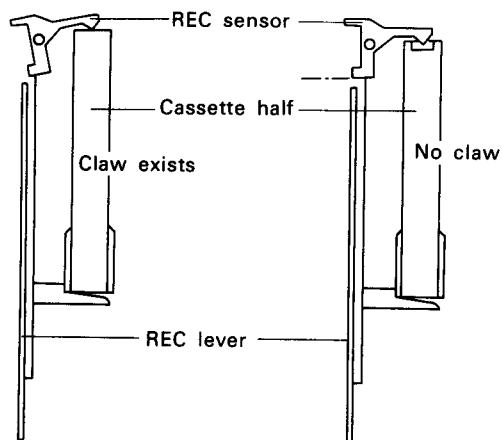


Fig. 3-4. REC detection operation

#### 2. REC operation (Be sure to press REC lever and PLAY lever simultaneously)

When REC lever is pressed, the REC switch is turned ON. The others are the same operation as PLAY mode and thereby tape running is started, and becomes into REC mode.

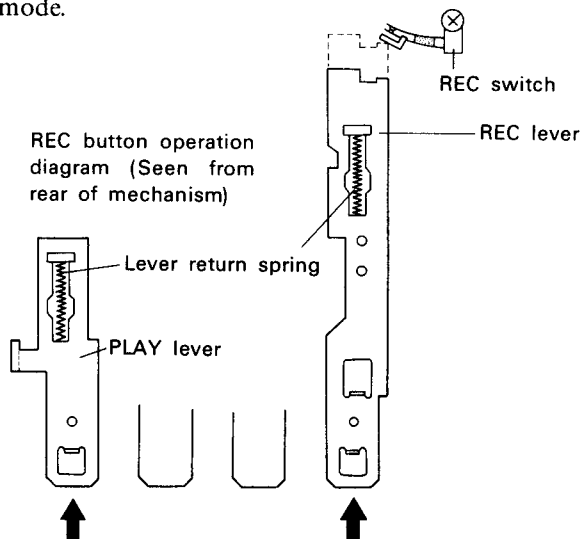


Fig. 3-5. REC operation (REC installing side)

### 3-6. REC → PAUSE → PAUSE RELEASE

Function same to the description in item 5 (PLAY → PAUSE → PAUSE RELEASE) except for the followings.

- (1) REC → PAUSE  
REC SW and PLAY SW keep REC condition.
- (2) PAUSE → PAUSE RELEASE  
REC function starts again.

### 3-7. REC→STOP OPERATION

- (1) When STOP lever is pressed and the locks of REC lever and PLAY lever are released, the PLAY lever and REC lever are returned by the return spring, and the REC switch and PLAY muting switch are turned OFF.
- (2) The other operations are the same as PLAY→STOP operation

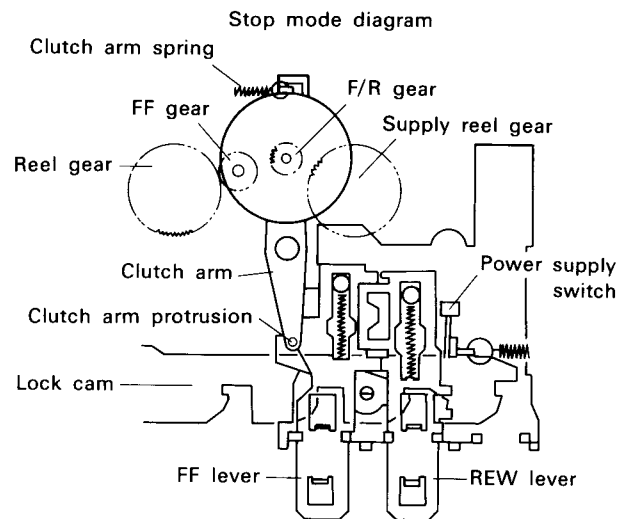
### 3-8. FF/REW OPERATION

#### • FF operation

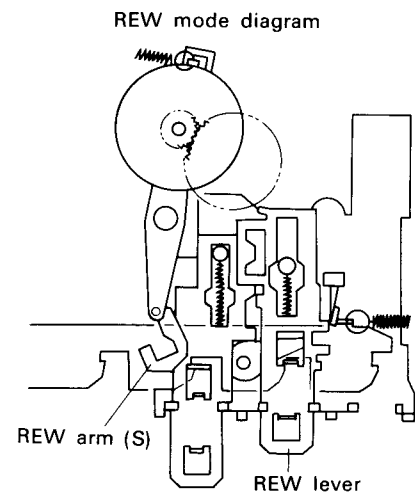
- (1) When the FF lever is pressed, lock cam moves in left direction, the power supply switch is turned ON and is locked with the lock cam.
- (2) At the same time, the protrusion of clutch arm becomes in free state due to the shape of FF lever. F/R gear is moved by nearing it to the FF gear and engages the F/R gear with FF gear (reel gear). Then the reel begins to rotate and becomes into FF operation.

#### • REW operation

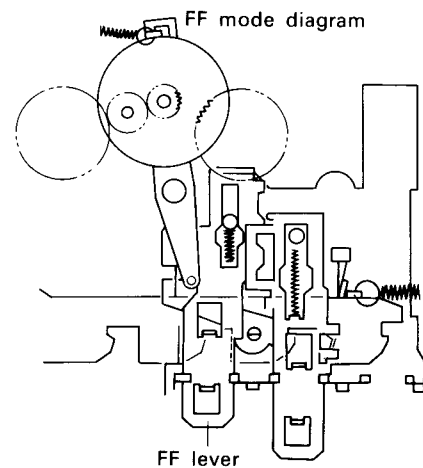
- (1) Lock cam moves in the left direction when the REW lever is pressed, the power supply switch is turned ON and is locked with the lock cam.
- (2) At the same time, when the REW arm (S), which is linked to the REW lever, pushes in to the left direction the protrusion of the clutch arm. Then the F/R gear is simultaneously moved in the direction nearing the supply reel gear and engages the F/R gear with the supply reel gear. Then the reel begins to rotate and becomes into REW operation.



(a) STOP mode



(b) REW mode



(c) FF mode

Fig. 3-6. FF/REW operation (Motor installing side)  
(Seen from rear of mechanism)

### 3-9. AUTO STOP OPERATION

After the tape has been taken up by the recording and playback operations, the auto sensor detects them. Then the linking parts release the lock cam and the operations become into STOP mode.

- (1) Auto sensor becomes lowered by the tape tension of the tape end.
- (2) At the same time, the auto arm is pushed up by the AS arm.
- (3) At the same time, the auto arm contacts the claw of flywheel, the lock cam shifts toward releasing of lever, and releases PLAY lever and REC lever.
- (4) Thereafter, they perform the same operations as REC→STOP and PLAY→STOP.

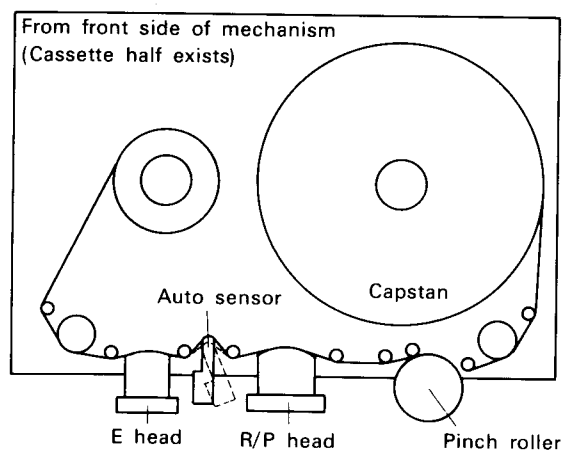


Fig. 3-7. AUTO STOP linkage diagram (Recording and playback)  
(Cassette half exists)

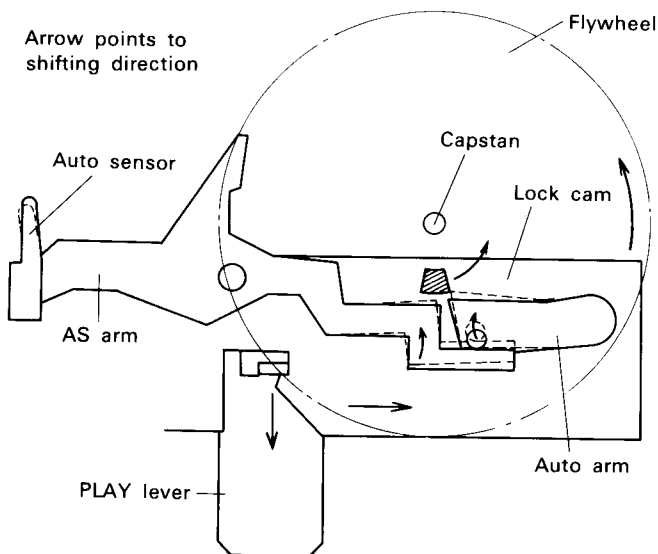


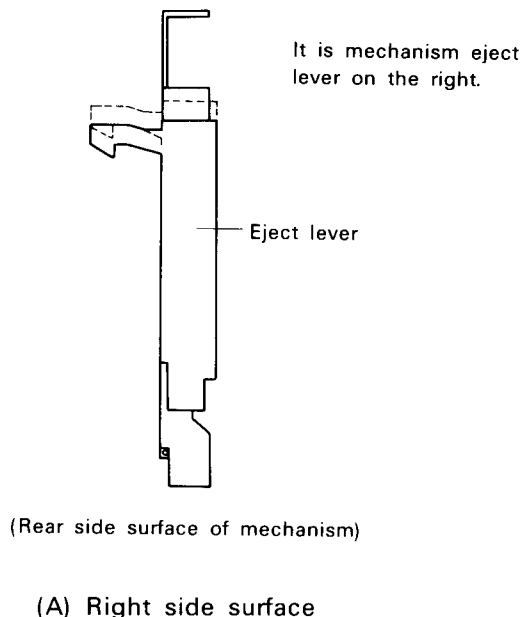
Fig. 3-8. AUTO STOP linkage diagram (Recording and playback)  
(Partial sections of auto arm, flywheel and AS arm cannot be seen)

### 3-10. STOP→EJECT MECHANISM

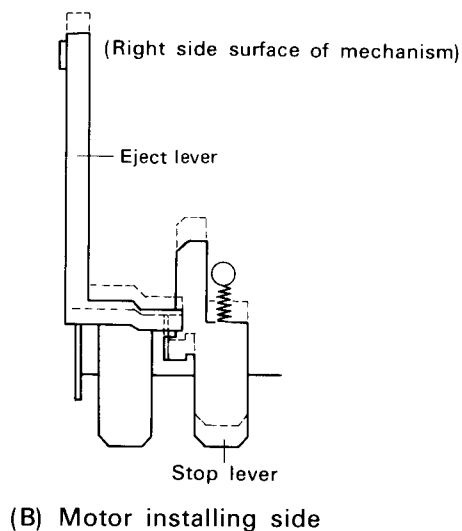
In case PLAY, REC, FF and REW lever are locked, always go through STOP mode before entering EJECT operation.

Solid line denotes STOP mode

Dotted lines denote during EJECT operation



(A) Right side surface



(B) Motor installing side

Fig. 3-9. STOP→EJECT mechanism

### 3-11. ONE TOUCH DUBBING OPERATION

#### (1) STOP→One touch dubbing operation

Since the PLAY levers of P mechanism and R/P mechanism, and REC lever are interlinked, it is possible to set the P mechanism into PLAY mode and R/P mechanism into REC mode by pressing only the dubbing lever.

Moreover, differing from other levers, the dubbing lever returns to the stop position without locking after completion of the operation.

#### (2) Dubbing→STOP operation

After completion of playback of P mechanism and after completion of recording of R/P mechanism, AUTO STOP function of the individual mechanisms becomes possible only upon take up completion of the tape. Moreover, when suspending the dubbing operation in the course of operation, press the STOP levers of respective mechanisms.

Thereafter, the operations are same as PLAY→STOP and REC→STOP operations.

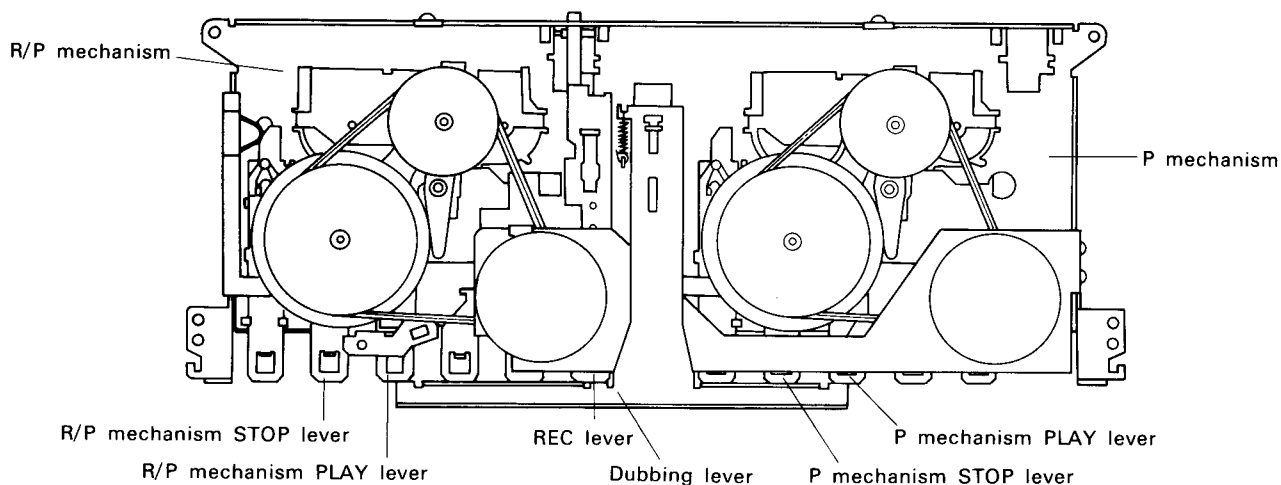


Fig. 3-10. One touch dubbing operation (1)  
(Motor installing side)

One touch dubbing operation diagram

Solid line denotes STOP mode.

Dotted lines denote during one touch dubbing operation

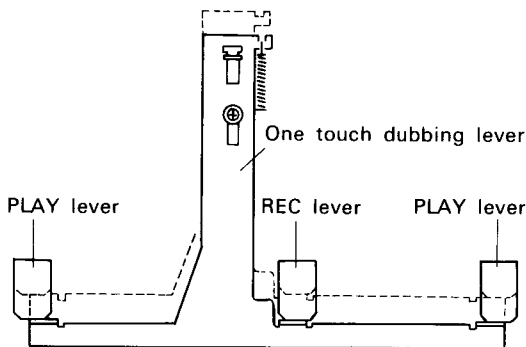
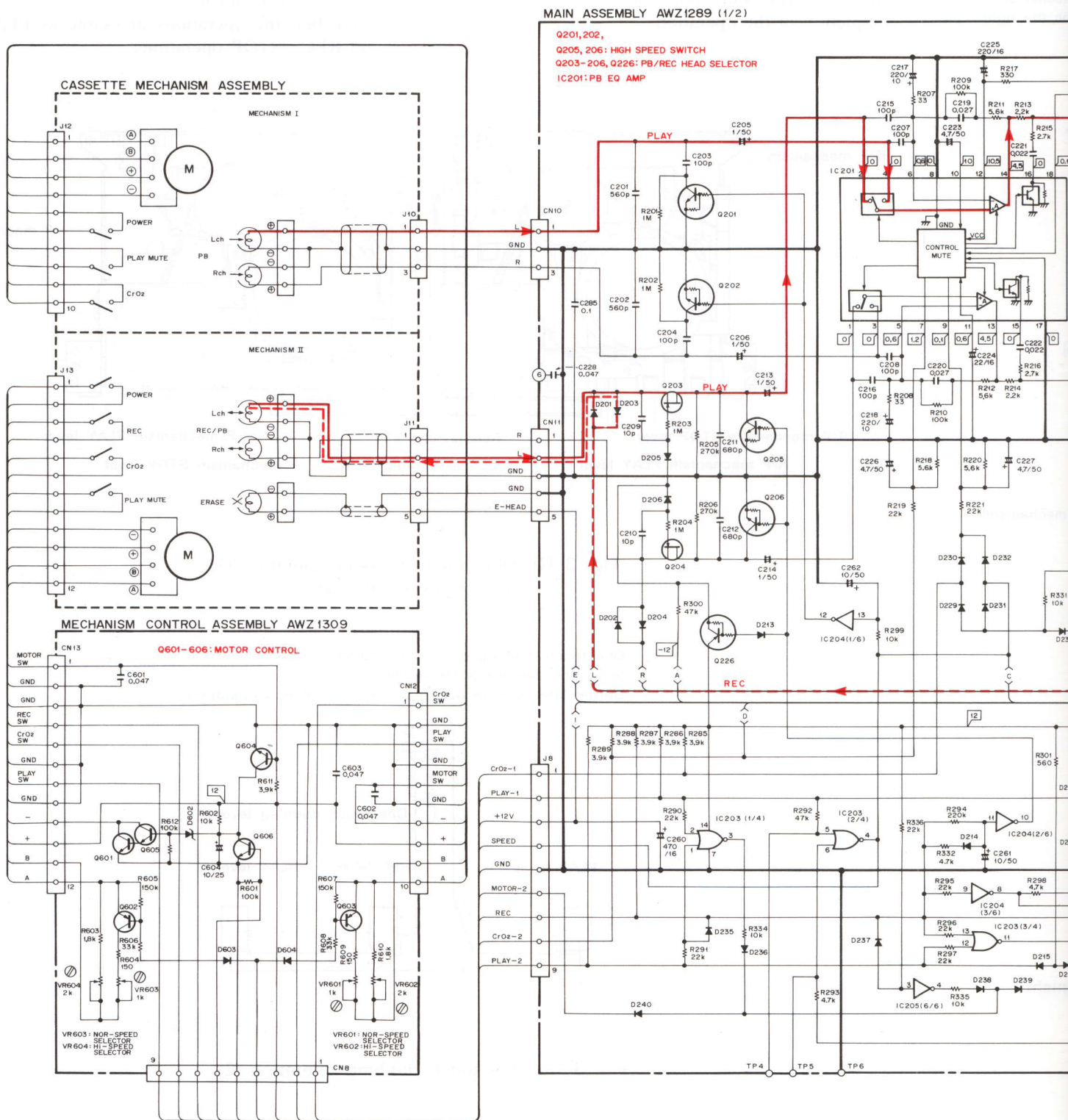
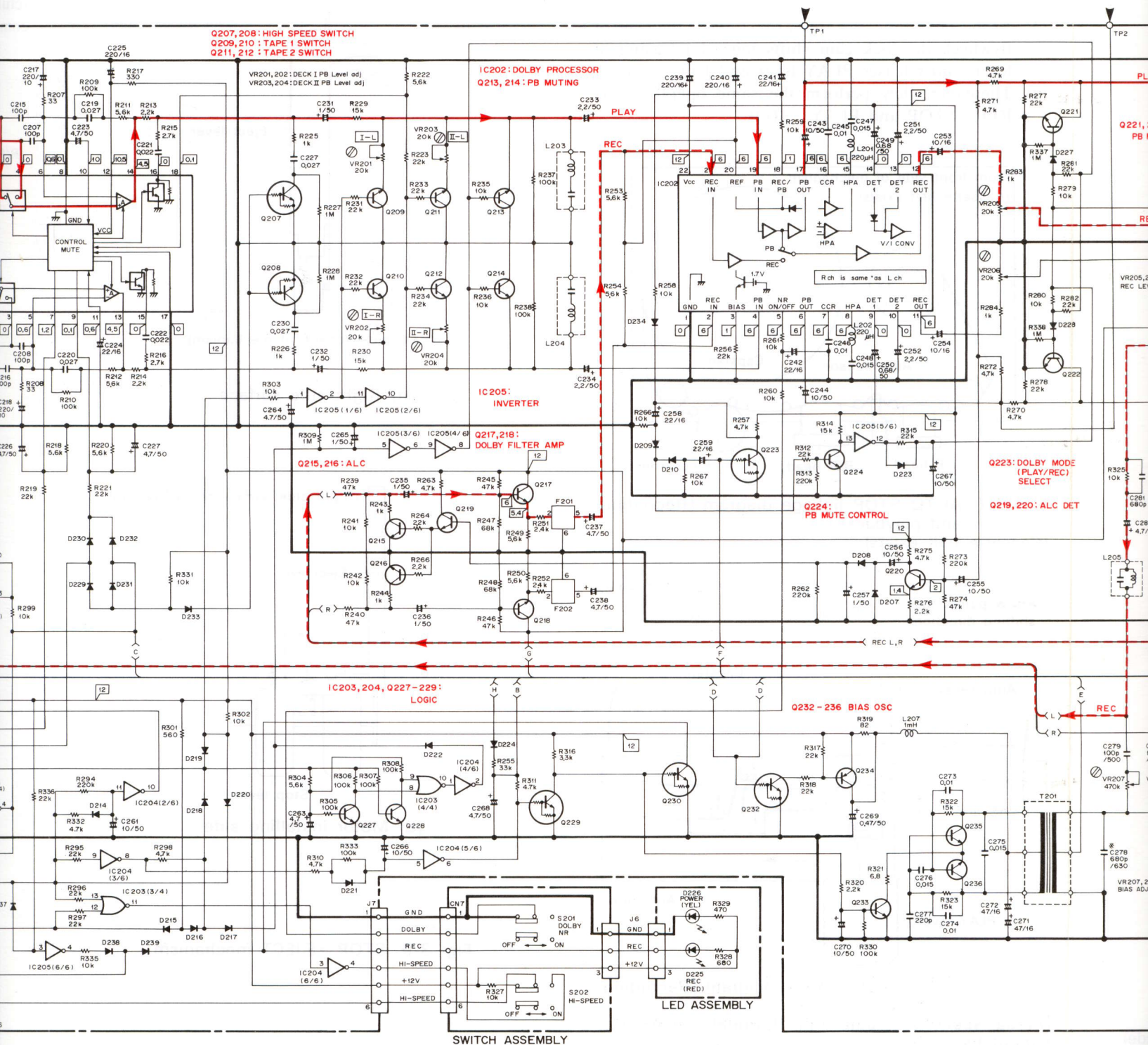
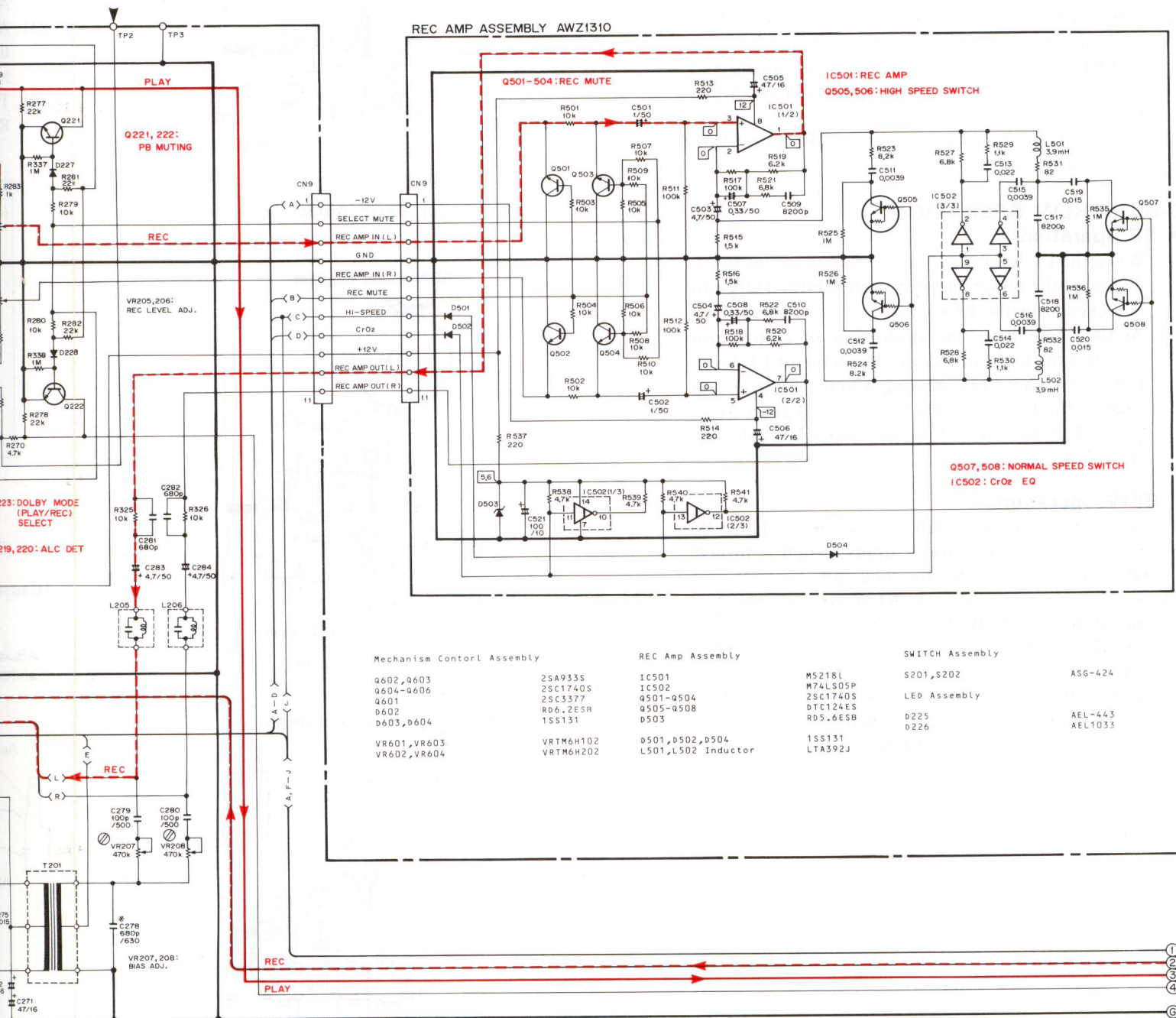


Fig. 3-11. One touch dubbing operation (2)

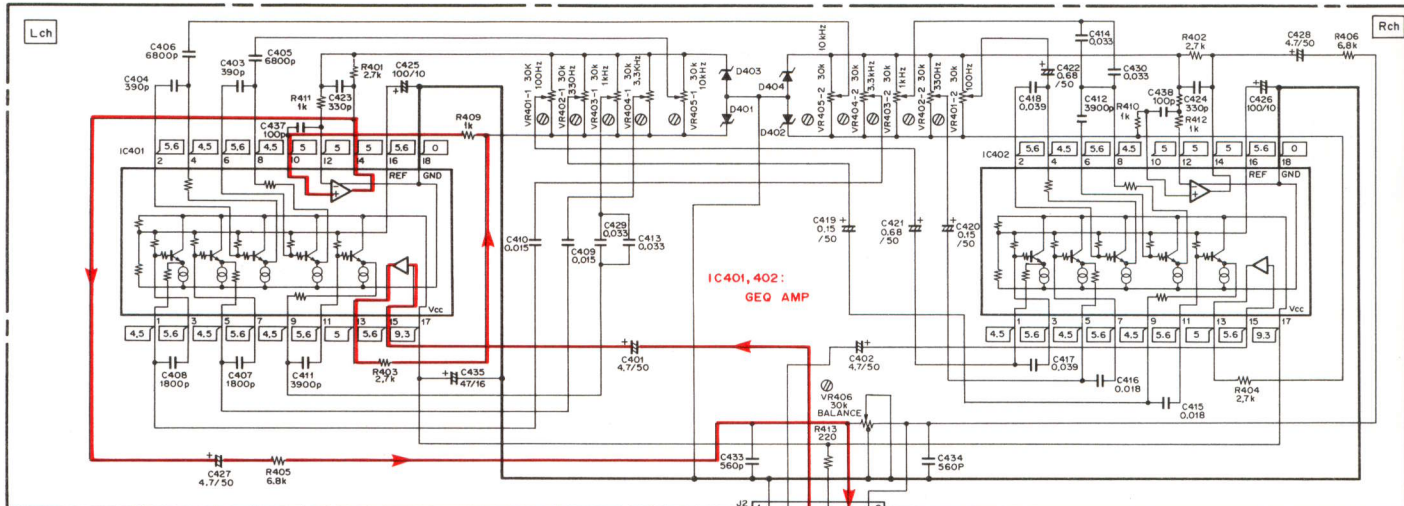
B



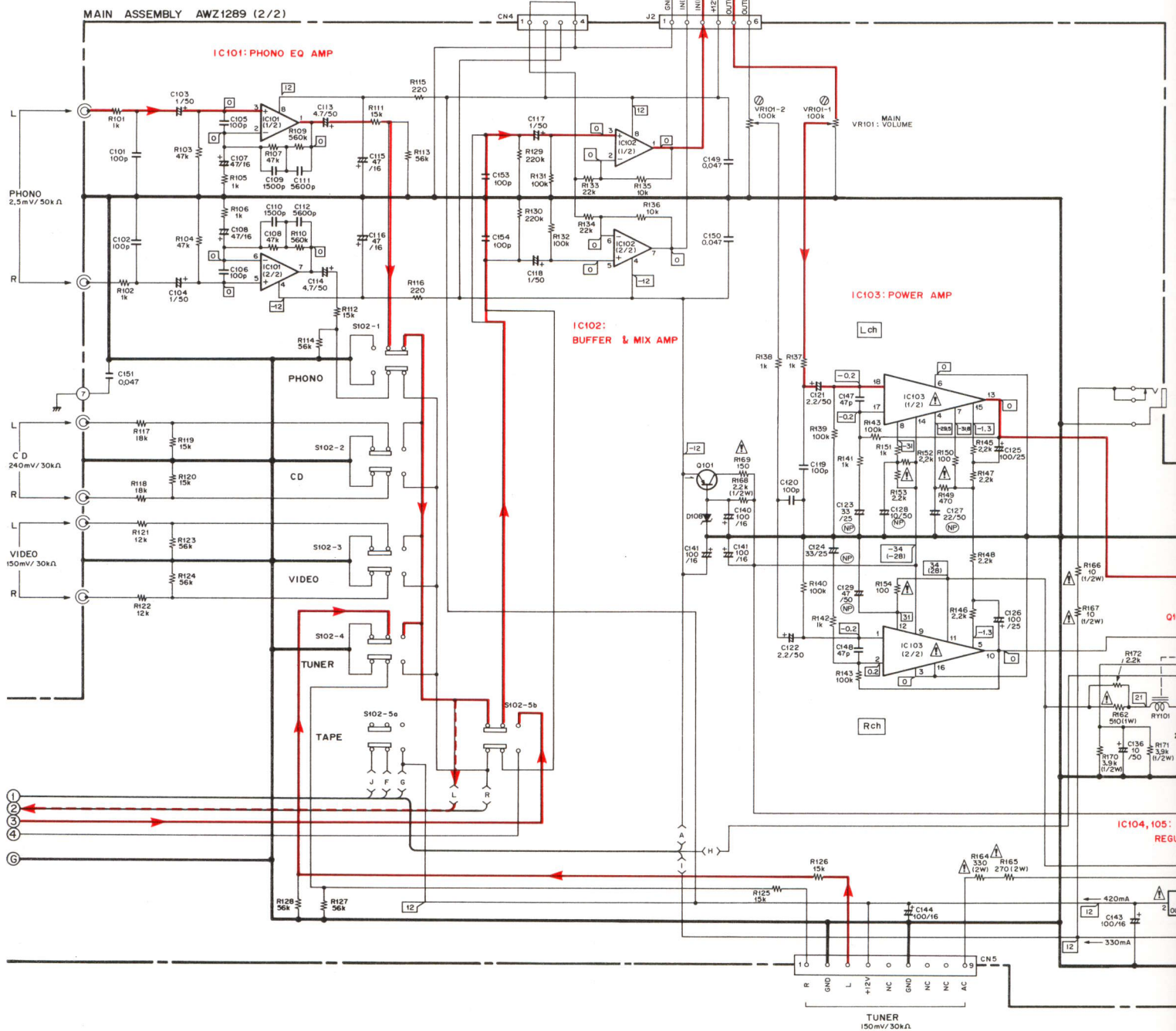


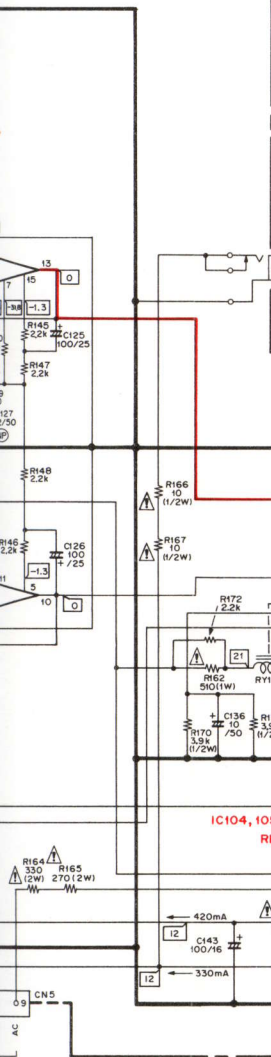


## GRAPHIC EQ ASSEMBLY (1/2)



## MAIN ASSEMBLY AWZ1289 (2/2)









## Main Assembly


|  |            |
|--|------------|
| IC201  | BA3416BL   |
| IC202  | HA12086NT  |
| IC101, IC102   | M5218P     |
| IC103  | STK4141    |
| IC203  | TC4001BP   |
|  |            |
| IC204, IC205   | TC4069UBP  |
| IC104  | uP C78M12H |
| IC105  | uP C7812H  |
| Q226   | DTA124ES   |
| Q201, Q202, Q205-Q208, Q223,<br>Q229, Q231, Q232             | DTC124ES   |
|  |            |
| Q230   | DTC143ES   |
| Q234   | 25A933S    |
| Q101   | 25B834     |
| Q102, Q103, Q209-Q216, Q219-<br>Q222, Q224, Q227, Q228, Q233 | 25C1740S   |
| Q217, Q218   | 25C1740SLN |
|  |            |
| Q104, Q235, Q236   | 25C3377    |
| Q203, Q204   | 25K373     |
| D110   | H2S15L     |
| D108   | RD13EB     |
| D102-D107  | S5566      |
|  |            |
| D109, D201-D210, D213-D224,<br>D227-D240                     | 15S131     |
| D101   | 4D4B44     |
| S101   | ASG1005    |
|  |            |
| RY101  | (ASG1007)  |
|  |            |
|  |            |
| S102   | ASR1005    |
|  |            |
|  |            |
|  |            |
| F201, F202   | ATF-210    |
| L101, L102   | ATH-133    |
| L205, L206   | ATM-037    |
| L203, L204   | ATM1001    |
| T201   | ATX-035    |
|  |            |
| L201, L202   | LAU221K    |
| L207   | LTA102J    |
| C278   | ACE-134    |
| C145, C146   | ACG1002    |
| C135   | ACG1005    |
|  |            |
| C137, C138   | ACH-249    |
| VR101  | ACU1002    |
| VR201-VR206  | VRTM6v203  |
| VR207, VR208   | VRTM6v504  |

Graphic EQ Assembly

|             |         |
|-------------|---------|
| IC401,IC402 | BA3812L |
| VR401-VR405 | ACU1011 |
| D401-D404   | RD10ESB |

BA3812L  
ACU1011  
RD10ESB

1. **RESISTORS:**  
Indicated in  $\Omega$ , 1/4W, 1/6W and 1/8W,  $\pm 5\%$  tolerance unless otherwise noted; k: k $\Omega$ , M: M $\Omega$ , (F):  $\pm 1\%$ , (G):  $\pm 2\%$ , (K):  $\pm 10\%$ , (M):  $\pm 20\%$  tolerance
2. **CAPACITORS:**  
Indicated in capacity ( $\mu$ F) (value) (V) unless otherwise noted; p: pF. Indication without voltage is 50V except electrolytic capacitor.
3. **VOLTAGE, CURRENT:**  
 V: Signal voltage at 30 W + 30 W, 8 $\Omega$  output (1 kHz)  
 V: DC voltage (V) at no input signal Value in ( ) is DC voltage at rated power.  
 mA: DC current at no input signal  
 mV: Signal voltage at FM 400 Hz  $\pm 75$  kHz DEV.

4. OTHERS:
- ➡ : Signal route.
  - ⦿ : Adjusting point.
- The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- ⓧ marked capacitors and resistors have parts numbers.
- The underlined indicates the switch position.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

5. SWITCHES:

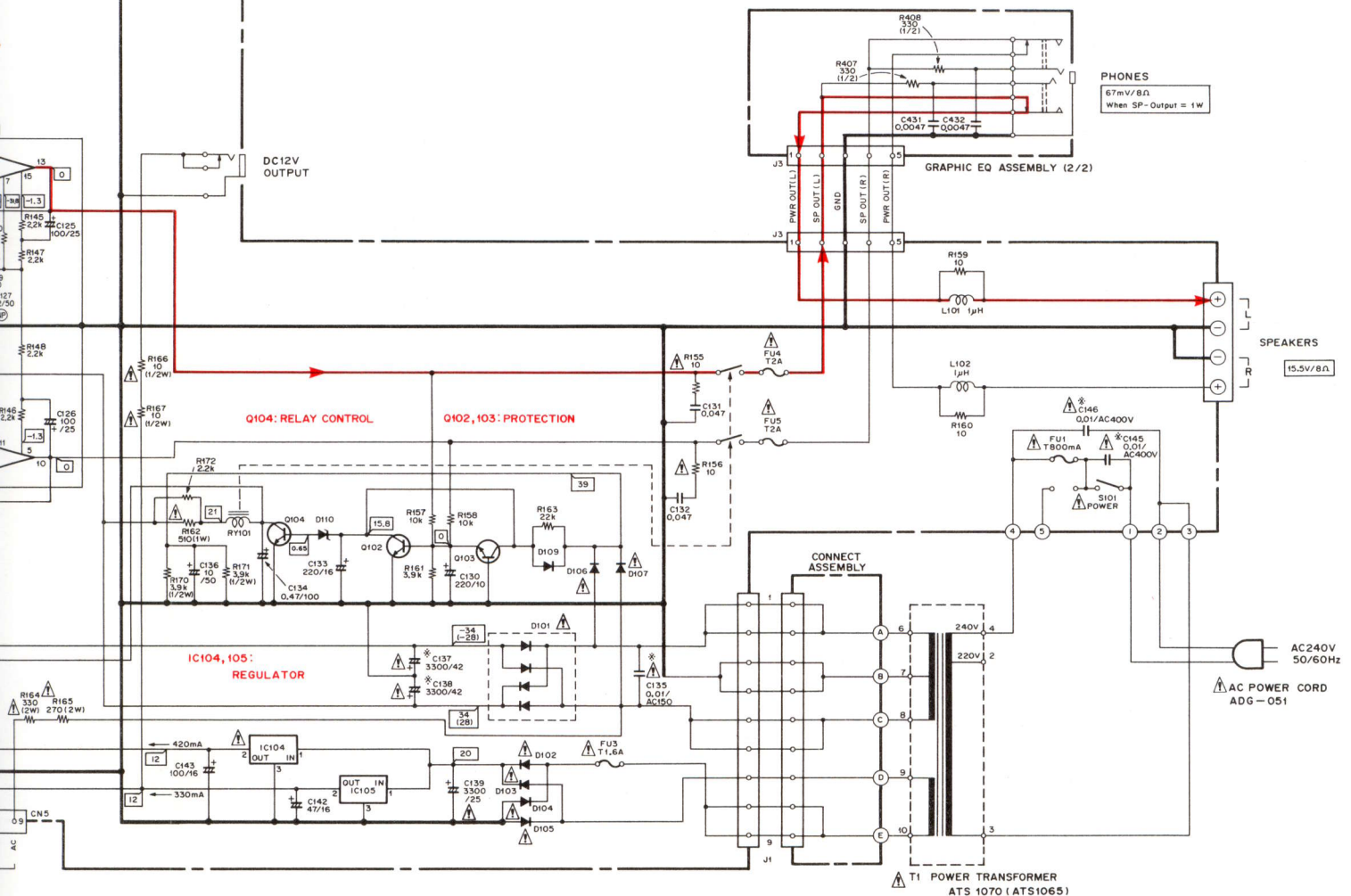
THE UNDERLINED INDICATES THE SWITCH POSITION

## Main Assembly

|        |       |               |
|--------|-------|---------------|
| S101   | POWER | <u>ON-OFF</u> |
| S102-1 | PHONO | <u>ON-OFF</u> |
| S102-2 | CD    | <u>ON-OFF</u> |
| S102-3 | VIDEO | <u>ON-OFF</u> |
| S102-4 | TUNER | <u>ON-OFF</u> |
| S102-5 | TAPE  | <u>ON-OFF</u> |

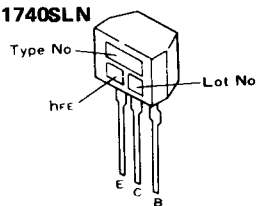
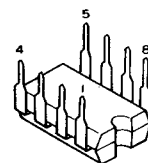
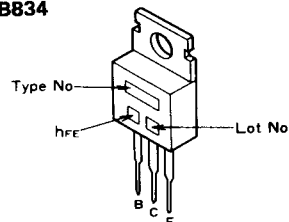
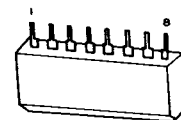
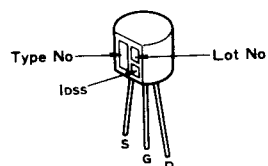
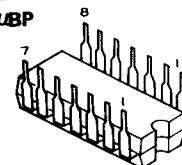
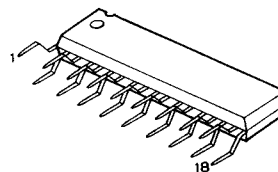
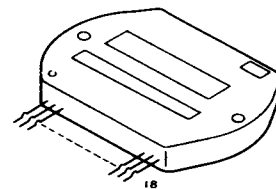
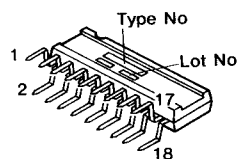
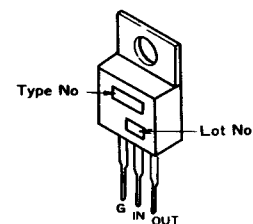
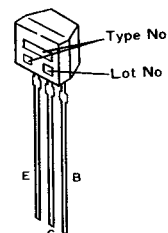
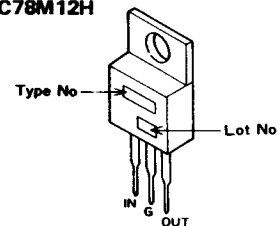
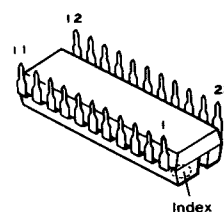
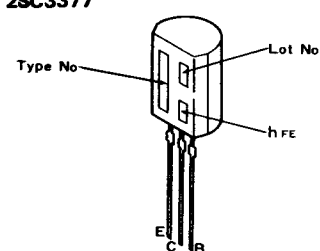
## Switch Assembly

|      |          |                |
|------|----------|----------------|
| S201 | DOLBY NR | ON- <u>OFF</u> |
| S202 | Hi-SPEED | ON- <u>OFF</u> |



**NOTE:**

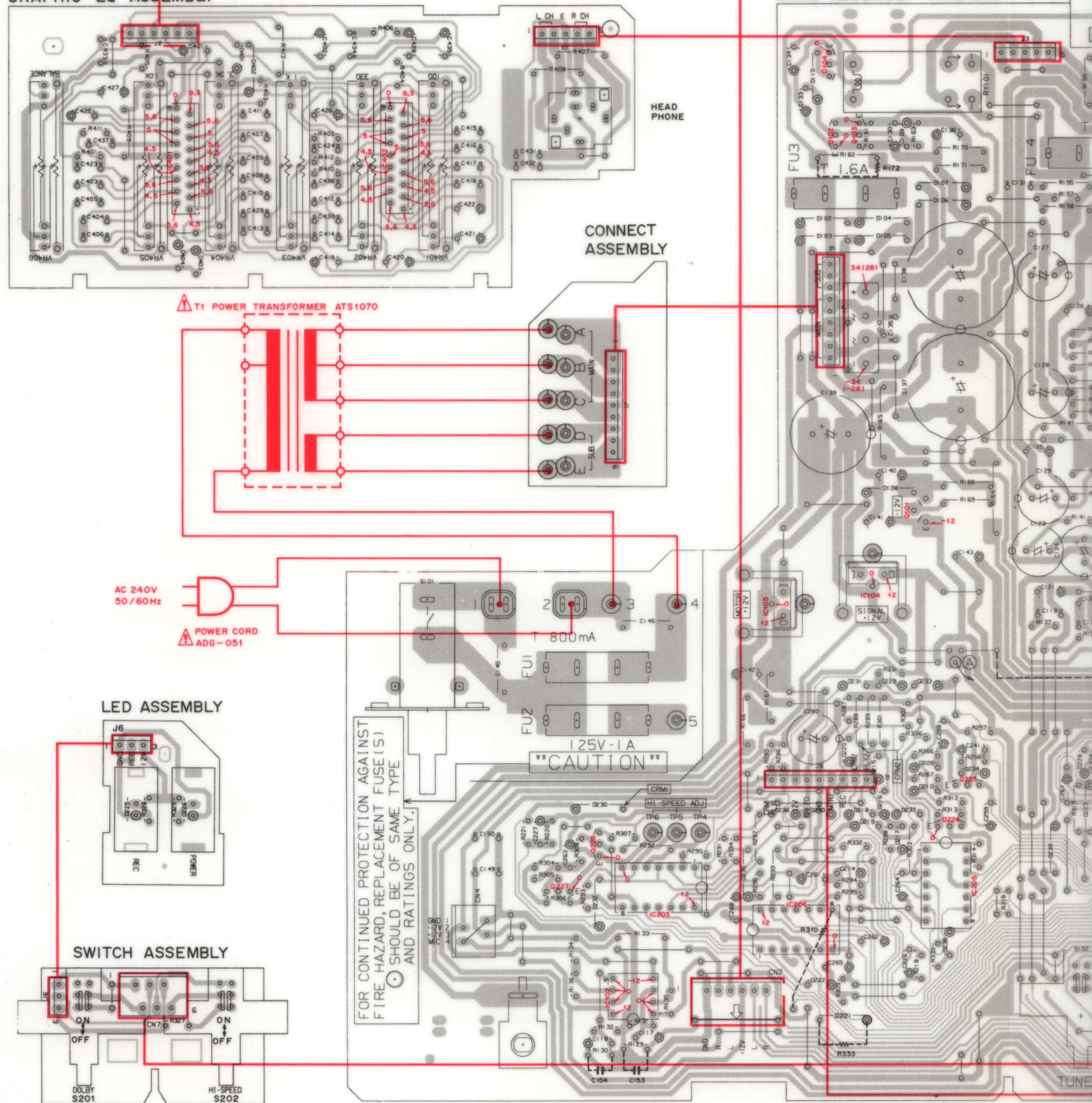
The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.

**External Appearance of Transistor and ICs****2SA933S****2SC1740S****2SC1740SLN****M5218P****A****2SB834****M5218L****2SK373****M74LS05P****TC4001BP****TC4069/4BP****B****BA3812L****STK4141****BA3416BL****μPC7812H****C****DTA124ES****DTC124ES****DTC143ES****μPC78M12H****HA12086NT****2SC3377****D**

# 5. P.C.BOARDS CONNECTION DIAGRAM


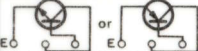

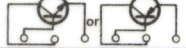
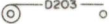







GRAPHIC EQ ASSEMBLY

MAIN ASSEMBLY AWZ1289





[illegible]

| P.C.B. pattern diagram indication   | Corresponding part symbol   | Part Name                   |
|---|---|-----------------------------|
| <br>Q504 | <br>E or E | Transistor                  |
| <br>Q215 | <br>E or E | Radiator type transistor    |
| <br>D203  | <br>D203   | Diode                       |
| <br>R237 | <br>R237   | Resistor                    |
| <br>C513 | <br>+      | Capacitor<br>(Polarity)     |
| <br>C518 |            | Capacitor<br>(Non-polarity) |

| P.C.B. pattern diagram indication | Part Name                                |
|-----------------------------------|--|
| IC                                | IC                                       |
| S                                 | Switch                                   |
| RY                                | Relay                                    |
| L                                 | Coil                                     |
| F                                 | Filter                                   |
| VR                                | Variable resistor or Semi-fixed resistor |

3. The capacitor terminal marked with  $\ominus$  (double circles) shows negative terminal.
4. The diode terminal marked with  $\ominus$  (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

## 6. ELECTRICAL PARTS LIST

### NOTES:

- Parts without part number cannot be supplied.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.  
★★ **GENERALLY MOVES FASTER THAN ★**  
This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

|              |                  |          |                                      |
|--------------|------------------|----------|--------------------------------------|
| 560 $\Omega$ | 56 $\times 10^1$ | 561..... | RD1/4PS $\Delta$ $\Delta$ $\Delta$ J |
| 47k $\Omega$ | 47 $\times 10^3$ | 473..... | RD1/4PS $\Delta$ $\Delta$ $\Delta$ J |
| 0.5 $\Omega$ | 0R5.....         |          | RN2H $\Delta$ $\Delta$ $\Delta$ K    |
| 1 $\Omega$   | 010.....         |          | RS1P $\Delta$ $\Delta$ $\Delta$ K    |

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

|                |                   |           |   |
|----------------|-------------------|-----------|---|
| 5.62k $\Omega$ | 562 $\times 10^1$ | 5621..... | RN1/4SR $\Delta$ $\Delta$ $\Delta$ $\Delta$ F |
|----------------|-------------------|-----------|---|

### Miscellaneous Parts

#### P.C.BOARD ASSEMBLIES

| Mark | Symbol & Description       | Part No. | Mark | Symbol & Description   | Part No.   |
|------|----------------------------|----------|------|--|------------|
|      | Main assembly              | AWZ1289  | ★★   | Q230   | DTC143ES   |
|      | Mechanism control assembly | AWZ1309  | ★★   | Q234   | 2SA933S    |
|      | REC Amp assembly           | AWZ1310  | ★★   | Q101   | 2SB834     |
|      | Graphic EQ assembly        |          | ★★   | Q102, Q103, Q209—Q216,<br>Q219—Q222, Q224, Q227,<br>Q228, Q233 | 2SC1740S   |
|      | Switch assembly            |          | ★★   | Q217, Q218   | 2SC1740SLN |
|      | LED assembly               |          |      |  |            |
|      | Connect assembly           |          |      |  |            |

### OTHERS

| Mark        | Symbol & Description                  | Part No.             | Mark       | Symbol & Description                     | Part No. |
|-------------|---------------------------------------|----------------------|------------|--|----------|
| $\Delta$ ★  | T1 Power transformer<br>(AC220V/240V) | ATS1070<br>(ATS1065) | ★★         | Q104, Q235, Q236                         | 2SC3377  |
| $\Delta$ ★★ | FU1 Fuse (T800mA)                     | AEK-507              | ★★         | Q203, Q204                               | 2SK373   |
| $\Delta$ ★★ | FU3 Fuse (T1.6A)                      | AEK-510              | ★          | D110                                     | HZS15L   |
| $\Delta$ ★★ | FU4, FU5 Fuse (T2A)                   | AEK-511              | ★          | D108                                     | RD13EB   |
| $\Delta$    | AC Power cord                         | ADG-051              | $\Delta$ ★ | D102—D107                                | S5566    |
|             |                                       |                      | ★          | D109, D201—D210,<br>D213—D224, D227—D240 | 1SS131   |
|             |                                       |                      | $\Delta$ ★ | D101                                     | 4D4B44   |

### Main Assembly (AWZ1289)

#### SEMICONDUCTORS

| Mark        | Symbol & Description                      | Part No.       |
|-------------|---|----------------|
| ★★          | IC201                                     | BA3416BL       |
| ★★          | IC202                                     | HA12086NT      |
| ★★          | IC101, IC102                              | M5218P         |
| $\Delta$ ★★ | IC103                                     | STK4141        |
| ★★          | IC203                                     | TC4001BP       |
| ★★          | IC204, IC205                              | TC4069UBP      |
| ★★          | IC104                                     | $\mu$ PC78M12H |
| ★★          | IC105                                     | $\mu$ PC7812H  |
| ★★          | Q226                                      | DTA124ES       |
| ★★          | Q201, Q202, Q205—Q208,<br>Q223, Q229—Q232 | DTC124ES       |

#### SWITCHES & RELAY

| Mark        | Symbol & Description                                   | Part No.             |
|-------------|--|----------------------|
| $\Delta$ ★★ | S101 Push switch (POWER)                               | ASG1005<br>(ASG1007) |
| ★★          | RY101 Relay  | ASR1005<br>(ASR-111) |
| ★★          | S102 Push switch<br>(PHONO, CD, VIDEO, TUNER,<br>TAPE) | SUJ8L22224L          |

**COILS, TRANSFORMER AND FILTERS**

| Mark | Symbol & Description      | Part No. |
|------|---------------------------|----------|
|      | F201, F202 DOLBY Filter   | ATF-210  |
|      | L101, L102 AF choke coil  | ATH-133  |
|      | L205, L206 Trap coil      | ATM-037  |
|      | L203, L204 Trap coil      | ATM1001  |
|      | T201 Bias OSC transformer | ATX-035  |
|      | L201, L202 Inductor       | LAU221K  |
|      | L207 Inductor             | LTA102J  |

**CAPACITORS**

| Mark | Symbol & Description   | Part No.     |
|------|--|--------------|
| △    | C278 (680PF/630V)  | ACE-134      |
|      | C145, C146 (0.01 $\mu$ F/AC125V)   | ACG1002      |
|      | C135 (0.01 $\mu$ F/AC150V )  | ACG1005      |
|      | C137, C138 (3300 $\mu$ F/42V)  | ACH-249      |
|      | C209, C210   | CCCSL100D50  |
|      | C101, C102, C105, C106, C119, C120, C203, C204, C207, C208, C215, C216, C153, C154 | CCCSL101J50  |
|      | C279, C280   | CCCSL101K500 |
|      | C277   | CCCSL221J50  |
|      | C147, C148   | CCCSL470J50  |
|      | C128   | CEANP100M50  |
|      | C127   | CEANP220M50  |
|      | C123, C124   | CEANP330M25  |
|      | C129   | CEANP470M50  |
|      | C134   | CEASR47M100  |
|      | C269   | CEASR47M50   |
|      | C249, C250   | CEASR68M50   |
|      | C117, C118, C213, C214, C235, C236, C257, C265                                     | CEAS010M50   |
|      | C136, C243, C244, C255, C256, C261, C262, C266, C267, C270                         | CEAS100M50   |
|      | C140, C141, C143, C144   | CEAS101M16   |
|      | C125, C126   | CEAS101M25   |
|      | C121, C122, C233, C234, C251, C252   | CEAS2R2M50   |
|      | C224, C241, C242, C258, C259   | CEAS220M16   |
|      | C130   | CEAS221M10   |
|      | C133, C217, C218, C225, C239, C240   | CEAS221M16   |
|      | C139   | CEHAQ332M25  |
|      | C113, C114, C223, C226, C227, C237, C238, C263, C264, C268, C283, C284             | CEAS4R7M50   |
|      | C107, C108, C115, C116, C142, C271, C272   | CEAS470M16   |
|      | C260   | CEAS471M16   |
|      | C109, C110   | CKCYB152K50  |
|      | C201, C202   | CKCYB561K50  |
|      | C111, C112   | CKCYB562K50  |
|      | C211, C212, C281, C282   | CKCYB681K50  |
|      | C131, C132, C151   | CKCYF473Z50  |
|      | C149, C150, C228   | CKCYX473M25  |

| Mark | Symbol & Description               | Part No.    |
|------|------------------------------------|-------------|
|      | C245, C246, C273, C274             | CQMA103K50  |
|      | C285                               | CKCYX104M25 |
|      | C247, C248, C275, C276             | CQMA153K50  |
|      | C221, C222                         | CQMA223K50  |
|      | C219, C220, C229, C230             | CQMA273K50  |
|      | C103, C104, C205, C206, C231, C232 | CEJA010M50  |
|      | C253, C254                         | CEJA100M16  |

**RESISTORS**

| Mark | Symbol & Description              | Part No.      |
|------|-----------------------------------|---------------|
| ★    | VR101 (100kX2)                    | ACU1002       |
| △    | R166, R167                        | RD1/2PMFL100J |
|      | R168, R170, R171                  | RD1/2PM□□□J   |
| △    | R149, R150, R152—R154             | RD1/4PMFL□□□J |
| △    | R155, R156, R169                  | RD1/4PMF□□□J  |
|      | R145—R148, R151, R159, R160, R319 | RD1/4PM□□□J   |
|      | R162                              | RS1LMF511J    |
|      | R164, R165                        | RS2LMF□□□J    |
| ★    | VR201—VR206(20k Semi fixed)       | VRTM6V203     |
| ★    | VR207, VR208(500k Semi fixed)     | VRTM6V504     |
|      | Other resistors                   | RD1/8PM□□□J   |

**OTHERS**

| Mark | Symbol & Description       | Part No. |
|------|----------------------------|----------|
|      | Jack 6P (PHONO, CD, VIDEO) | AKB-095  |
|      | Terminal 4P (SPEAKER)      | AKE-109  |
|      | Jack (DC120V OUTPUT)       | AKN-034  |

**Mechanism Control Assembly (AWZ1309)  
SEMICONDUCTORS**

| Mark | Symbol & Description | Part No. |
|------|----------------------|----------|
| ★★   | Q602, Q603           | 2SA933S  |
| ★★   | Q604—Q606            | 2SC1740S |
| ★★   | Q601                 | 2SC3377  |
| ★    | D602                 | RD6.2ESB |
| ★    | D603, D604           | 1SS131   |

**CAPACITORS**

| Mark | Symbol & Description | Part No.    |
|------|----------------------|-------------|
|      | C604                 | CEAS100M25  |
|      | C601—C603            | CKCYX473M25 |

**RESISTORS**

| Mark | Symbol & Description         | Part No.    |
|------|------------------------------|-------------|
| ★    | VR601, VR603 (1k Semi fixed) | VRTM6H102   |
| ★    | VR602, VR604 (2k Semi fixed) | VRTM6H202   |
|      | Other resistors              | RD1/8PM□□□J |

**REC Amp Assembly (AWZ1310)****SEMICONDUCTORS**

| Mark | Symbol & Description | Part No. |
|------|----------------------|----------|
| ★★   | IC501                | M5218L   |
| ★★   | IC502                | M74LS05P |
| ★★   | Q501—Q504            | 2SC1740S |
| ★★   | Q505—Q508            | DTC124ES |
| ★    | D503                 | RD5.6ESB |
| ★    | D501, D502, D504     | 1SS131   |

**COIL**

| Mark | Symbol & Description | Part No. |
|------|----------------------|----------|
|      | L501, L502 Inductor  | LTA392J  |

**CAPACITORS**

| Mark | Symbol & Description   | Part No.   |
|------|------------------------|------------|
|      | C507, C508             | CEASR33M50 |
|      | C501, C502             | CEAS010M50 |
|      | C521                   | CEAS101M10 |
|      | C503, C504             | CEAS4R7M50 |
|      | C505, C506             | CEAS470M16 |
|      | C519, C520             | CQMA153J50 |
|      | C513, C514             | CQMA223J50 |
|      | C511, C512, C515, C516 | CQMA392J50 |
|      | C509, C510, C517, C518 | CQMA822J50 |

**RESISTORS**

| Mark | Symbol & Description | Part No.    |
|------|----------------------|-------------|
|      | All resistors        | RD1/8PM□□□J |

**Graphic EQ Assembly****SEMICONDUCTORS**

| Mark | Symbol & Description | Part No. |
|------|----------------------|----------|
| ★★   | IC401, IC402         | BA3812L  |
|      | D401—D404            | RD10ESB  |

**CAPACITORS**

| Mark | Symbol & Description   | Part No.    |
|------|------------------------|-------------|
|      | C419, C420             | CEJAR15M50  |
|      | C421, C422             | CEJAR68M50  |
|      | C425, C426             | CEJA101M10  |
|      | C401, C402, C427, C428 | CEJA4R7M50  |
|      | C435                   | CEJA470M16  |
|      | C423, C424             | CKCYB331K50 |
|      | C403, C404             | CKCYB391K50 |
|      | C433, C434             | CKCYB561K50 |
|      | C431, C432             | CKCYF472Z50 |
|      | C409, C410             | CQMA153K50  |
|      | C407, C408             | CQMA182K50  |
|      | C415, C416             | CQMA183K50  |
|      | C413, C414, C429, C430 | CQMA333K50  |
|      | C411, C412             | CQMA392K50  |
|      | C417, C418             | CQMA393K50  |
|      | C405, C406             | CQMA682K50  |
|      | C437, C438             | CCCSL101K50 |

**RESISTORS**

| Mark | Symbol & Description | Part No.    |
|------|----------------------|-------------|
| ★    | VR401—VR405 (30kX2)  | ACU1011     |
| ★    | VR406 (30k)          | ACU1013     |
|      | R407, R408           | RD1/2PM331J |
|      | Other resistors      | RD1/8PM□□□J |

**OTHER**

| Mark | Symbol & Description | Part No. |
|------|----------------------|----------|
|      | Jack (PHONES)        | AKN1007  |

**Switch Assembly**

| Mark | Symbol & Description                           | Part No. |
|------|--|----------|
| ★★   | S201, S202 Push switch<br>(DOLBY NR, Hi-SPEED) | ASG-424  |

**RESISTOR**

| Mark | Symbol & Description | Part No.    |
|------|----------------------|-------------|
|      | R327                 | RD1/8PM103J |

**LED Assembly****SEMICONDUCTORS**

| Mark | Symbol & Description | Part No. |
|------|----------------------|----------|
| ★    | D225                 | AEL-443  |
| ★    | D226                 | AEL1033  |

**RESISTORS**

| Mark | Symbol & Description | Part No.    |
|------|----------------------|-------------|
|      | R329                 | RD1/8PM471J |
|      | R328                 | RD1/8PM681J |

**Connect Assembly**

No supply part inside.

## 7. ADJUSTMENTS

### Tape speed adjustment

1. Connect the frequency counter to the TP1 terminal (Dolby TP: L-ch) on the complex assembly.
2. Turn the tape switch on.
3. Mount the test tape STD-301 onto deck I.
4. Short-circuit between terminals TP4, TP5 and TP6 on the tape assembly and put the deck I into play mode.  
(STD-301 is play backed in double speed.)
5. Adjust with VR602 so that the playback signal frequency of deck I become  $6020\text{Hz} \pm 20\text{Hz}$ .
6. Release the short-circuit between terminals TP4, TP5 and TP6.
7. Put the deck I into play mode and adjust with VR601 so that the playback signal frequency becomes  $3010\text{Hz} \pm 10\text{Hz}$ .  
(Note 1: Be sure not to turn VR602 while performing the normal speed adjustment.)
8. At this point, be sure to confirm that the wow and flutter are within 0.3% both in the double and normal speeds.
9. Mount the test tape STD-301 onto deck II.
10. Short-circuit between terminals TP4, TP5 and TP6 on the tape assembly and put the deck II into play mode.  
(STD-301 is play backed in double speed.)
11. Adjust with VR604 so that the playback signal frequency of deck II becomes  $\pm 20\text{Hz}$  against that of deck I.
12. Release the short-circuit between terminals TP4, TP5 and TP6.
13. Put the deck II into play mode and adjust with VR603 so that the playback signal frequency of deck II becomes  $\pm 10\text{Hz}$  against that of deck I.  
(Note: Be sure not to turn VR604 while performing the normal speed adjustment.)
14. At this point, be sure to confirm that the wow and flutter are within 0.3% both in the double and normal speeds.

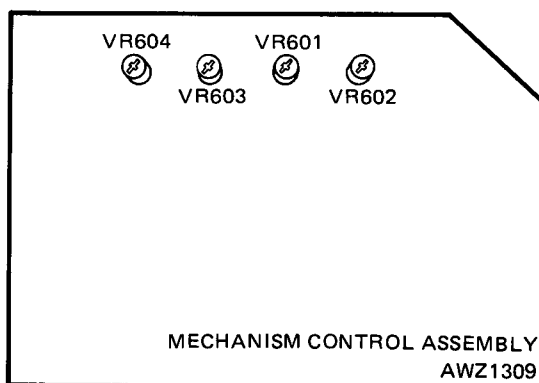
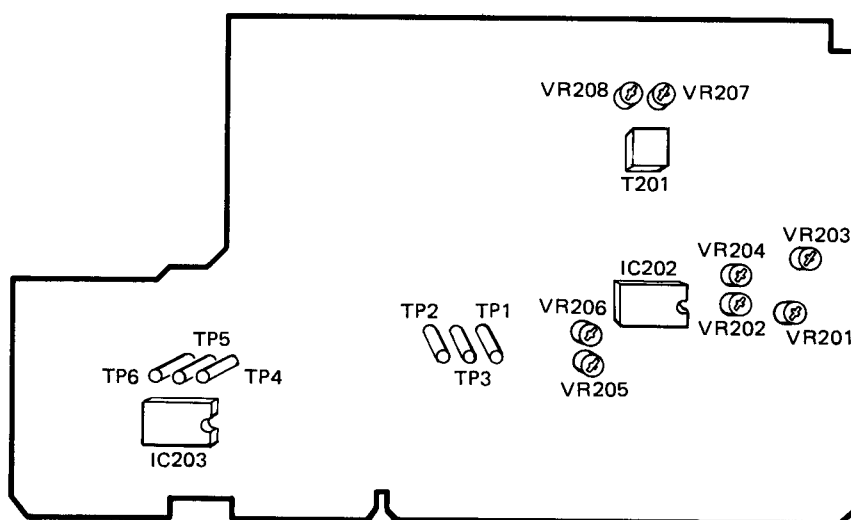


Fig. 7-1 Adjustment Point

## Electrical system adjustment

Prior to the electrical system adjustment, be sure to confirm the following items.

1. The mechanical adjustment should be completed.
2. Perform cleaning of the head and the demagnetization of head with the head eraser.
3. The level during measurement is determined at 0dBv = 1V.
4. The specified tape should be used for adjustment. Since the test tape has A side and B side, use the A side with label.

STD-331B: For playback system adjustment

STD-608A: Normal blank tape

STD-620: CrO<sub>2</sub> blank tape

5. Prepare the following measuring instruments.  
AC millivoltmeter, low frequency oscillator, attenuator, and oscilloscope.
6. For the adjustment, perform both L and R channels unless otherwise specified.
7. Turn the Dolby NR switch to off unless otherwise specified.

8. Prior to the adjustment, be sure to perform aging of the set for several minutes. Especially prior to entering the adjustment of the recording and playback frequency characteristics, aging should be performed in REC/PLAY mode for 3 to 5 minutes.
9. The adjustment should be performed in accordance with the adjustment order. If the order is not kept, it may cause the failure of the complete adjustment which induces the inferior function of the unit.

### Deck I

1. Head azimuth adjustment
2. Playback level adjustment

### Deck II

1. Head azimuth adjustment
2. Playback level adjustment
3. Adjustment of recording and playback frequency characteristics
4. Adjustment of recording level

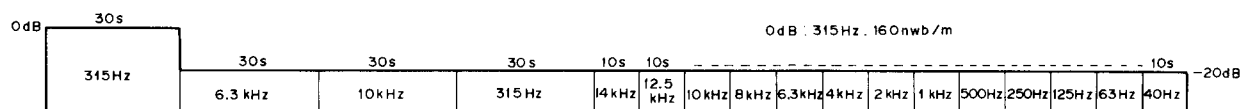


Fig. 7-2 Test tape STD-331B

**Adjustment of Deck I**

\*This deck is provided with an auto-tape-selector mechanism.

**1. Head azimuth adjustment**

| Procedure | Tape selector (AUTO) | Mode | Input signal/test tape                        | Adjusting point                         | Measuring point    | Adjustment value              | Remark                           |
|-----------|----------------------|------|---|---|--------------------|-------------------------------|----------------------------------|
| 1         | NORM                 | PLAY | Play back 10kHz/ - 20dB on test tape STD-331B | Head azimuth adjusting screw (Fig. 7-3) | TP1 (L)<br>TP2 (R) | Maximum playback signal level | After completion, lock the screw |

**2. Playback level adjustment**

\* Perform this adjustment precisely since this adjustment is Dolby level setting during playback.

| Procedure | Tape selector (AUTO) | Mode | Input signal/test tape                    | Adjusting point        | Measuring point    | Adjustment value       | Remark |
|-----------|----------------------|------|---|------------------------|--------------------|------------------------|--------|
| 1         | NORM                 | PLAY | Play back 315Hz/0dB on test tape STD-331B | VR202 (R)<br>VR201 (L) | TP1 (L)<br>TP2 (R) | -13.5 dBv $\pm 0.5$ dB |        |

**Adjustment of Deck II**

\*This deck is provided with an auto-tape-selector mechanism.

**1. Head azimuth adjustment**

| Procedure | Tape selector (AUTO) | Mode | Input signal/test tape                    | Adjusting point                         | Measuring point    | Adjustment value              | Remark                            |
|-----------|----------------------|------|---|---|--------------------|-------------------------------|-----------------------------------|
| 1         | NORM                 | PLAY | Play back 315Hz/0dB on test tape STD-331B | Head azimuth adjusting screw (Fig. 7-3) | TP1 (L)<br>TP2 (R) | Maximum playback signal level | After completion, lock the screw. |

**2. Playback level adjustment**

\* Perform this adjustment precisely since this adjustment is Dolby level setting during playback.

| Procedure | Tape selector (AUTO) | Mode | Input signal/test tape                    | Adjusting point        | Measuring point    | Adjustment value       | Remark |
|-----------|----------------------|------|---|------------------------|--------------------|------------------------|--------|
| 1         | NORM                 | PLAY | Play back 315Hz/0dB on test tape STD-331B | VR204 (R)<br>VR203 (L) | TP1 (L)<br>TP2 (R) | -13.5 dBv $\pm 0.5$ dB |        |

**3. Adjustment of recording and playback frequency characteristics**

\* This adjustment is performed in order to adjust the recording bias. Therefore, caution should be exercised not to worsen the distortion ratio due to under bias.

| Procedure | Tape selector (AUTO) | Mode     | Input signal/test tape  | Adjusting point                | Measuring point                 | Adjustment value  | Remark  |
|-----------|----------------------|----------|---|--------------------------------|---------------------------------|---|---|
| 1         | NORM                 | REC      | STD-608A and put into REC mode.   | Bias oscillator frequency T201 | Between (A) and (B) in Fig. 7-2 | Confirm that the oscillation frequency 105 kHz $\pm 1$ kHz.   | When it is not within the standard, put it into the standard by adjusting T201. |
| 2         | NORM                 | REC      | Apply the signal of 315Hz to the CD terminal and turn the CD switch on. | Input signal level             | TP1 (L)<br>TP2 (R)              | -33.5 dBv $\pm 0.5$ dB  |   |
| 3         | NORM                 | REC/PLAY | Record and play back 315Hz and 10kHz on test tape STD-608               | VR208 (R)<br>VR207 (L)         | TP1 (L)<br>TP2 (R)              | Repeat recording and playback, and compensate so that the playback level of 10kHz against 315Hz becomes $0 \pm 0.5$ dB. |   |

\* Select the test tape, tape selector, and Dolby NR switch and satisfy the frequency characteristic zone as shown in Figs. 7-5 and 7-8.

**4. Recording level adjustment**

\* Set the graphic equalizer and balance volume to the center and the mike mixing volume to the source side.

| Procedure | Tape selector (AUTO) | Mode     | Input signal/test tape  | Adjusting point        | Measuring point    | Adjustment value   | Remark |
|-----------|----------------------|----------|---|------------------------|--------------------|--|--------|
| 1         | NORM                 | REC      | Apply the signal of 315Hz to the CD terminal and turn the CD switch on. | Input signal level     | TP1 (L)<br>TP2 (R) | -13.5 dBv  |        |
| 2         | NORM                 | REC/PLAY | Record and play back 315Hz to the test tape STD-608A.                   | VR206 (R)<br>VR205 (L) | TP1 (L)<br>TP2 (R) | Repeat recording and playback, and compensate so that the playback level of 315Hz becomes -13.5 dBv ( $\pm 0.5$ dB). |        |
| 3         | CrO <sub>2</sub>     | REC/PLAY | Record and play back 315Hz to the test tape STD-620.                    |                        | TP1 (L)<br>TP2 (R) | Confirm that the playback level of 315Hz becomes -13.5 dBv ( $\pm 1.0$ dB).  |        |

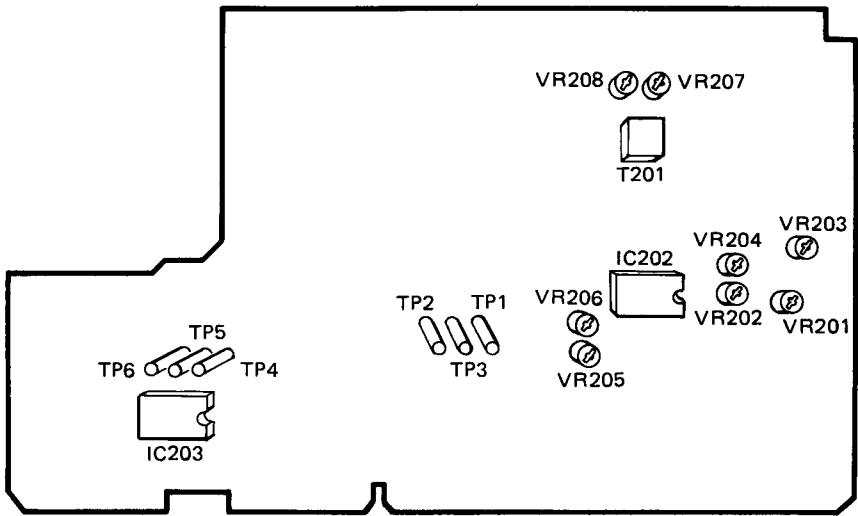


Fig. 7-3 Arrangement diagram of adjusting parts

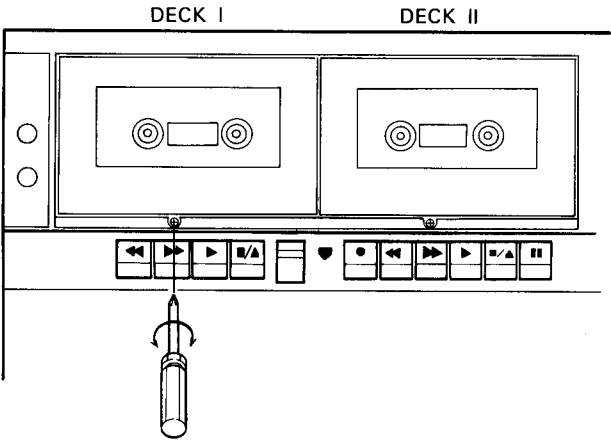


Fig. 7-4 Head azimuth adjustment

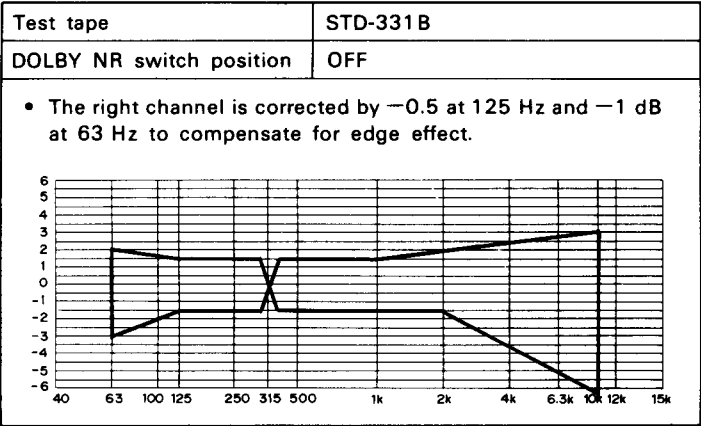


Fig. 7-5 Playback frequency response tolerance zone

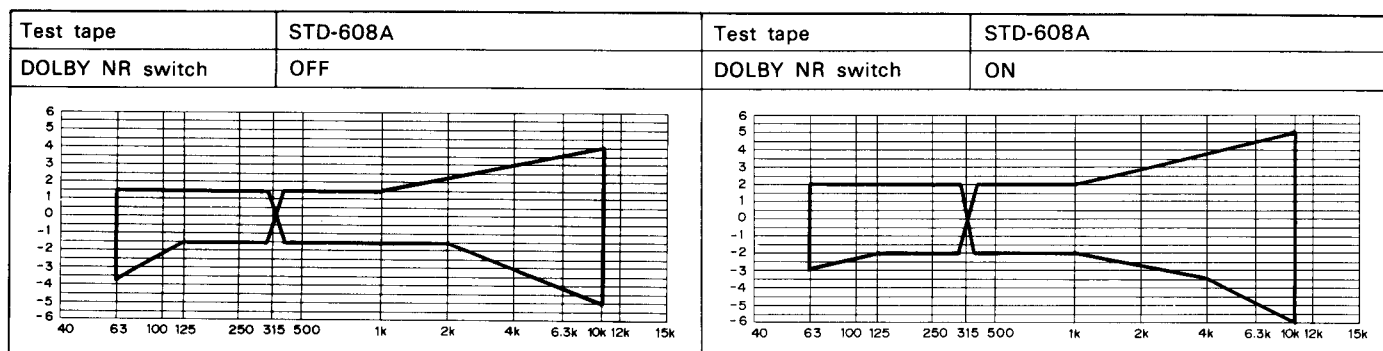


Fig. 7-6 Recording &amp; playback frequency response tolerance zone (NORM)

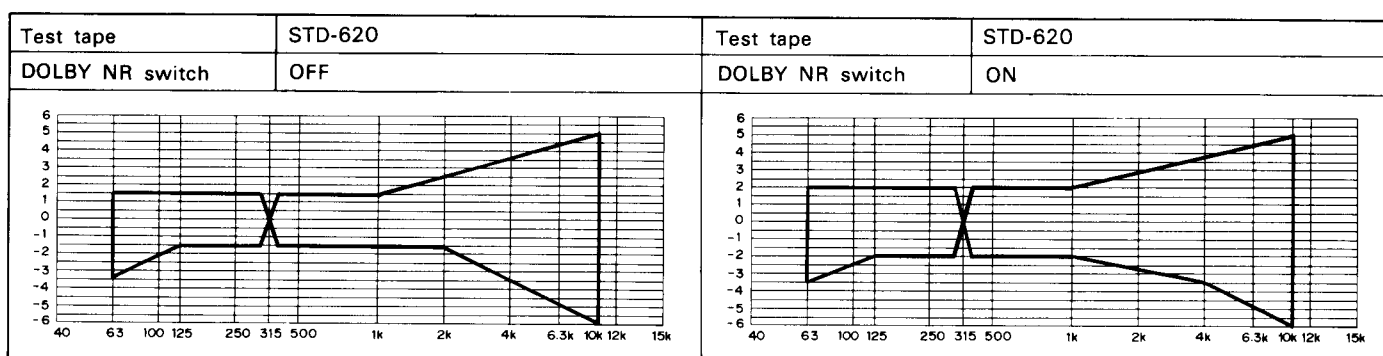


Fig. 7-7 Recording &amp; playback frequency response tolerance zone (CrO2)

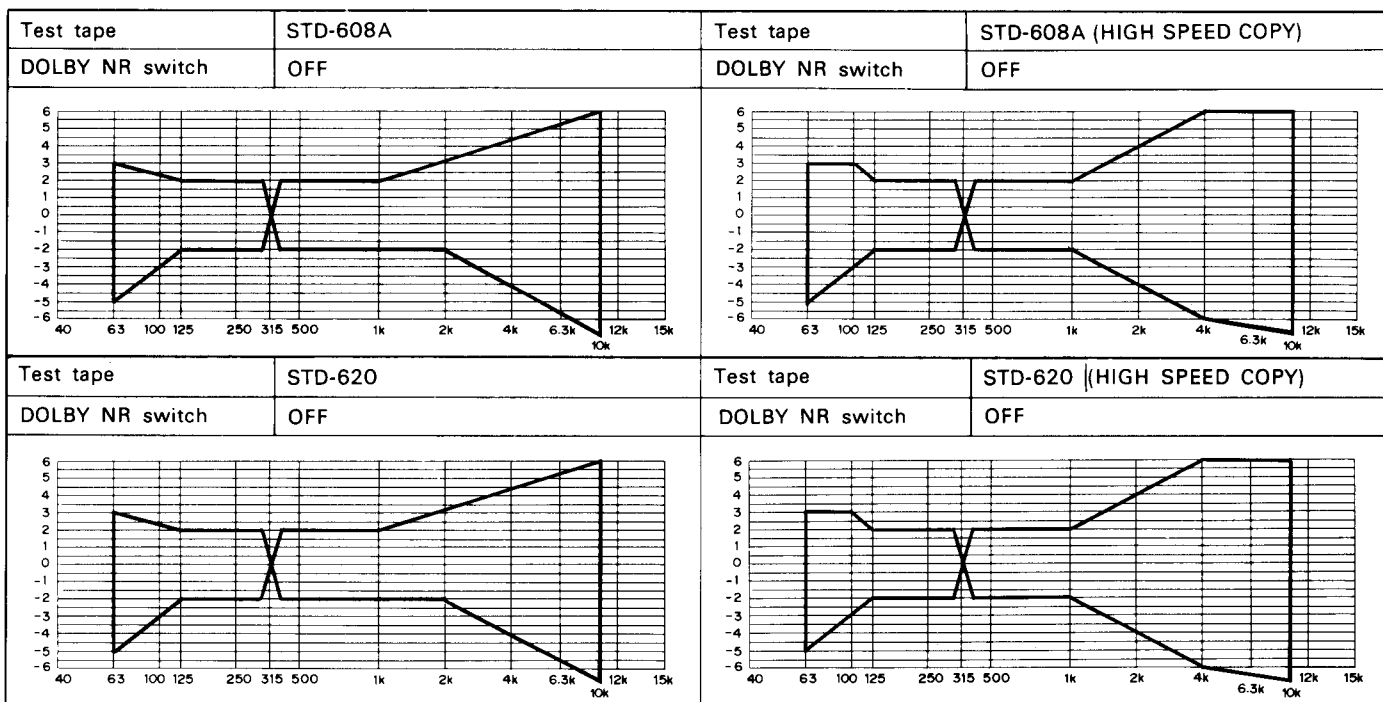
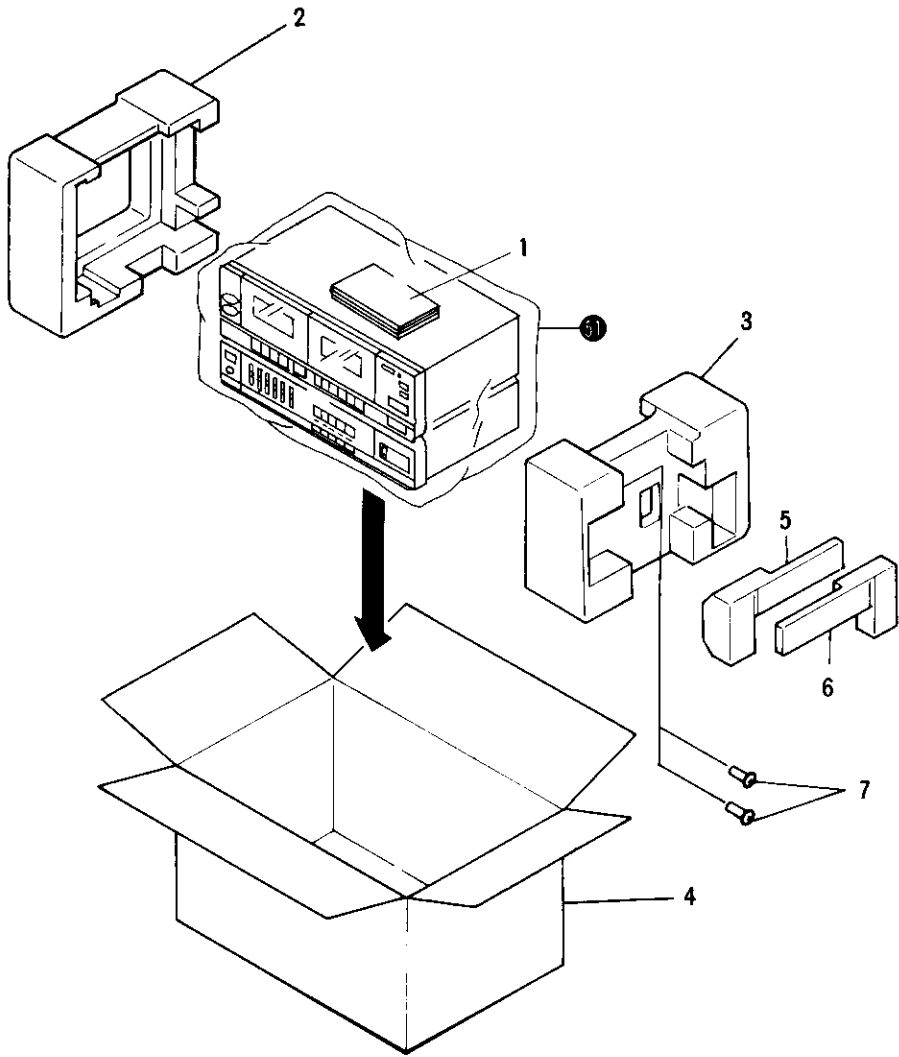


Fig. 7-8 Copy mode recording &amp; playback frequency response (for reference purposes)

8. PACKING

Parts List of Packing

| Mark | No. | Part No. | Description                         |
|------|-----|----------|-------------------------------------|
|      | 1   | ARB1050  | Operating instructions<br>(English) |
|      | 2   | AHA1062  | Side pad L                          |
|      | 3   | AHA1063  | Side pad R                          |
|      | 4   | AHD1173  | Packing case                        |
|      | 5   | AMR1060  | Player stand L                      |
|      | 6   | AMR1061  | Player stand R                      |
|      | 7   | ABA1003  | Screw                               |
|      | 51  |          | Packing sheet                       |



## 9. FOR HE AND SD TYPES

### CONTRAST OF MISCELLANEOUS PARTS

#### NOTES:

- Parts without part number cannot be supplied.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.

#### ★★ GENERALLY MOVES FASTER THAN ★

This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

|      |                  |          |                                      |
|------|------------------|----------|--------------------------------------|
| 560Ω | $56 \times 10^1$ | 561..... | RD1/4PS $\Delta$ $\Delta$ $\Delta$ J |
| 47kΩ | $47 \times 10^3$ | 473..... | RD1/4PS $\Delta$ $\Delta$ $\Delta$ J |
| 0.5Ω | 0R5.....         |          | RN2H $\Delta$ $\Delta$ $\Delta$ K    |
| 1Ω   | 0I0.....         |          | RS1P $\Delta$ $\Delta$ $\Delta$ K    |

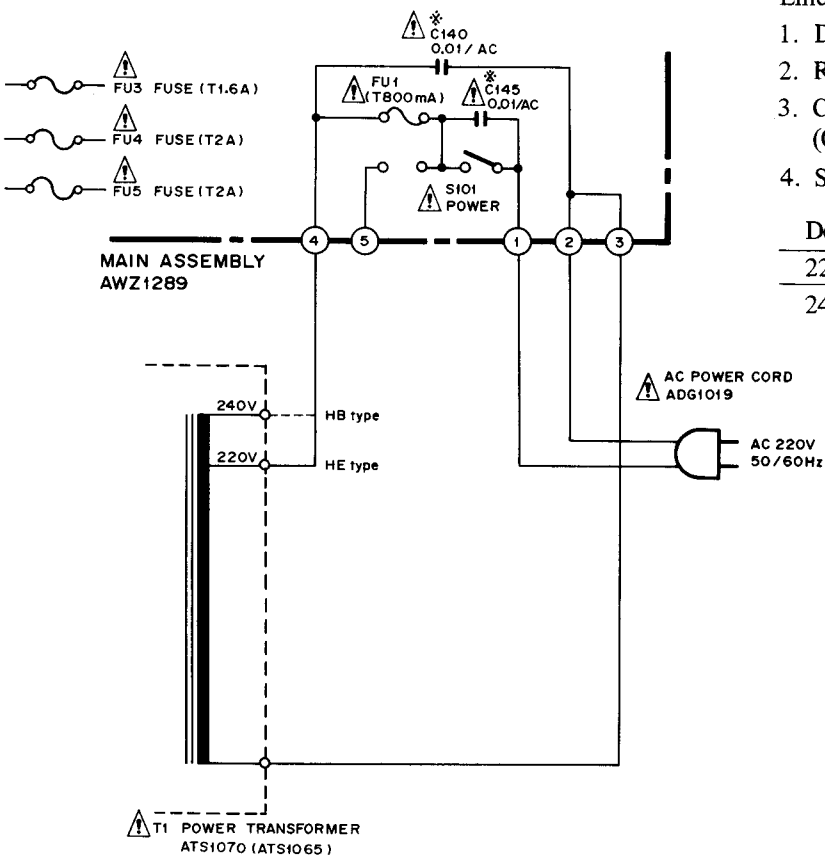
Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

|        |                   |           |   |
|--------|-------------------|-----------|---|
| 5.62kΩ | $562 \times 10^1$ | 5621..... | RN1/4SR $\Delta$ $\Delta$ $\Delta$ $\Delta$ F |
|--------|-------------------|-----------|---|

The DC-X77Z/HE and SD types are the same as the DC-X77/HB type with the exception of the following sections.

| Mark | Symbol & Description | Parts No.                        |           |           | Remarks   |
|------|----------------------|----------------------------------|-----------|-----------|-----------|
|      |                      | DC-X77Z                          |           |           |           |
|      |                      | HB type                          | HE type   | SD type   |           |
|      | T1                   | MIC Amp Assembly                 |           |           |           |
| ⚠ ★  |                      | Power transformer                | .....     | .....     |           |
|      |                      | (AC220/240V)                     | ATS1070   | ATS1070   |           |
| ⚠ ★  |                      | (AC110/120—127/220/240V)         | (ATS1065) | (ATS1065) | .....     |
|      |                      |                                  | .....     | .....     | ATS1066   |
| ⚠    |                      | AC power cord                    | ADG-051   | ADG1019   | (ATS1064) |
|      |                      |                                  |           |           | ADG1016   |
| ⚠ ★★ | S1                   | Voltage selector switch          |           |           |           |
| ⚠ ★★ |                      | (AC110/120-127/220/240V)         | .....     | .....     | AKX-507   |
| ⚠ ★★ | F1                   | Fuse (T800mA)                    | AEK-507   | AEK-031   | .....     |
|      |                      | (1A)                             | .....     | .....     | AEK-119   |
| ⚠ ★★ | F3                   | Fuse (T1.6A)                     | AEK-510   | AEK-405   | .....     |
| ⚠ ★★ |                      | (1.6A)                           | .....     | .....     | AEK-121   |
| ⚠ ★★ | F4,F5                | Fuse (T2A)                       | AEK-511   | AEK-017   | .....     |
| ⚠ ★★ |                      | (2.5A)                           | .....     | .....     | AEK-123   |
| ⚠ ★★ | F2                   | Fuse (1A)                        | .....     | .....     | AEK-119   |
|      |                      | Operating instructions (English) | ARB1050   | .....     | ARB1050   |
|      |                      | (English/German/French/Italian)  | .....     | ARE1044   | .....     |
|      |                      | (German)                         | .....     | .....     | ARC1032   |
|      |                      | Terminal (GND)                   | .....     | .....     | AAB1016   |
|      |                      | Knob (MIC MIXING)                | .....     | .....     |           |
|      |                      | M.M stay                         | .....     | .....     |           |
|      |                      | Front panel                      | AMB1136   | AMB1136   | AMB1137   |
|      |                      | Nylon rivet                      | .....     | .....     | AEC-525   |
|      |                      | Packing case                     | AHD1173   | AHD1173   | AHD1212   |

Schematic diagram for HE type



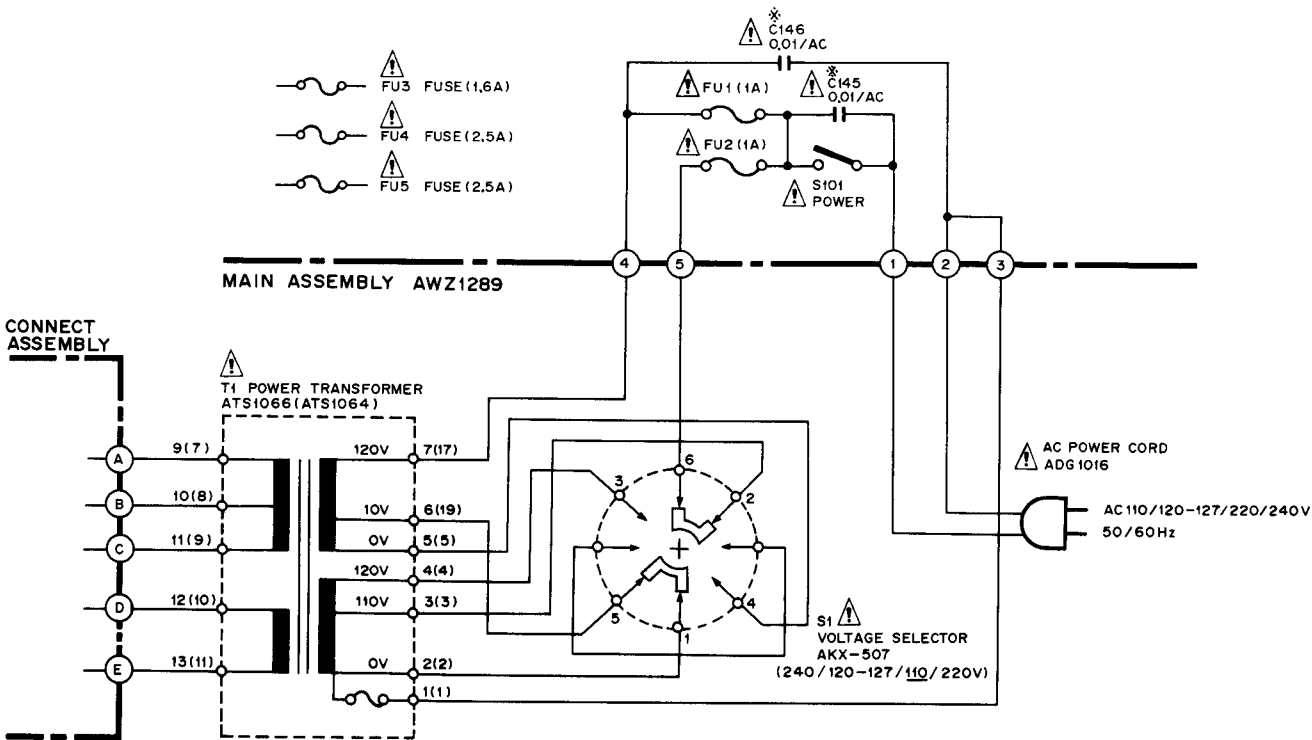
Line Voltage Selection (For HE and HB types)

Line voltage can be changed with following steps.

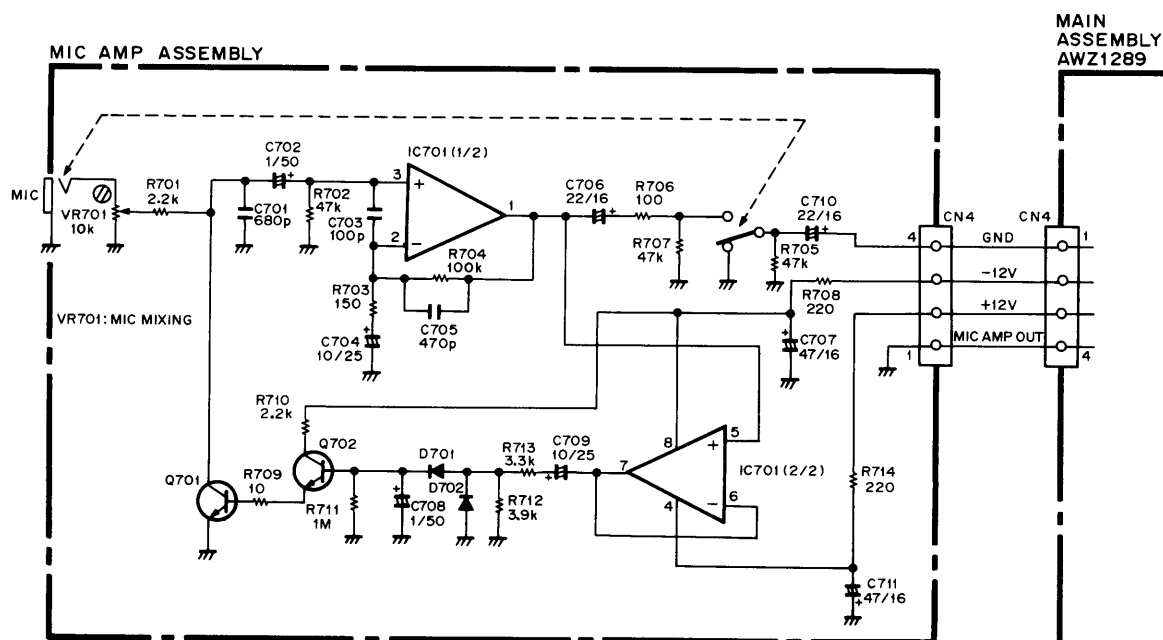
1. Disconnect the AC Power cord.
2. Remove the Bonnet case.
3. Change the connection of the primary lead wires.  
(Connect as shown in Fig.)
4. Stick the line voltage label on the rear panel.

| Description | Part No. |
|-------------|----------|
| 220V label  | AAX-193  |
| 240V label  | AAX-192  |

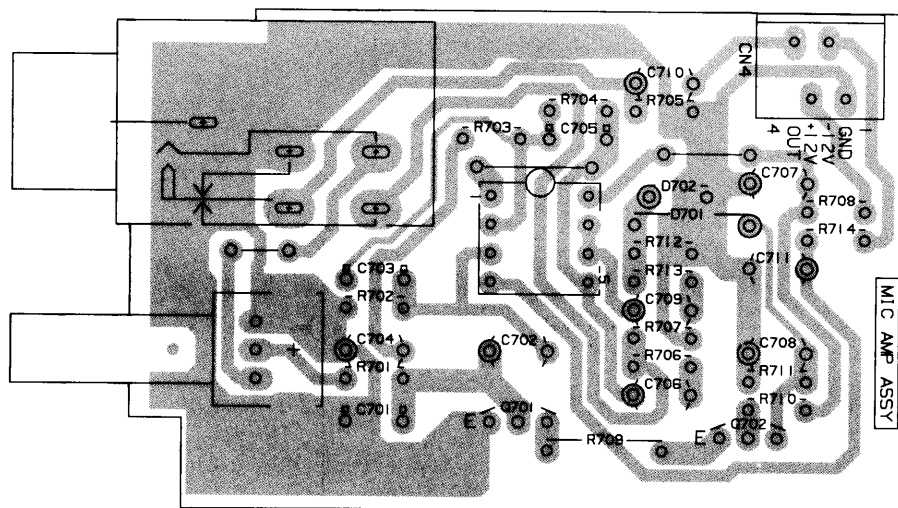
Schematic diagram for SD type



Schematic diagram of MIC AMP Assembly (SD type only)



P.C. Boards Patterns of MIC AMP Assembly (SD type only)



# Parts list of MIC Amp Assembly (SD type only)

## SEMICONDUCTORS

| Mark | Symbol & Description | Part No. |
|------|----------------------|----------|
| ★★   | IC701                | M5218PF  |
| ★★   | Q701, Q702           | 2SC1740S |
| ★    | D701, D702           | 1SS131   |

## CAPACITORS

| Mark | Symbol & Description | Part No.    |
|------|----------------------|-------------|
|      | C703                 | CCCSL101J50 |
|      | C702, C708           | CEAS010M50  |
|      | C704, C709           | CEAS100M25  |
|      | C706, C710           | CEAS220M16  |
|      | C707, C711           | CEAS470M16  |
|      | C705                 | CKCYB471K50 |
|      | C701                 | CKCYB681K50 |

## RESISTORS

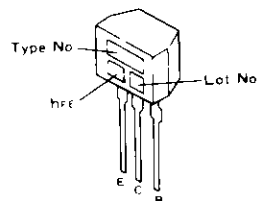
| Mark | Symbol & Description | Part No.    |
|------|----------------------|-------------|
| ★    | VR701                | ACS-012     |
|      | Other resistors      | RD1/8PM□□□J |

## OTHER

| Mark | Symbol & Description | Part No. |
|------|----------------------|----------|
|      | Jack (MIC)           | AKN1005  |

## External Appearance of Transistor and ICs

2SC1740S



M5218PF

