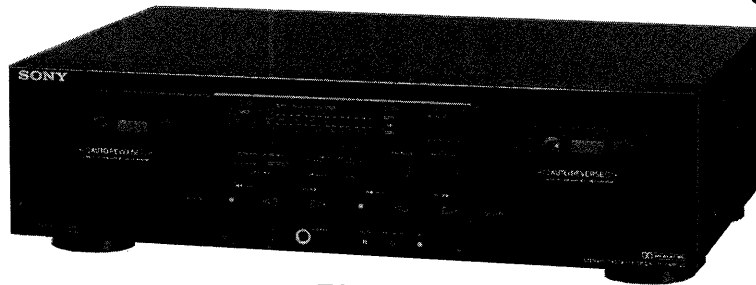


TC-W320/W320S/WR520/WR520S

SERVICE MANUAL



TC-WR520

US Model
TC-W320/W320S/WR520/WR520S

Canadian Model
AEP Model
E Model
TC-W320/WR520

UK Model
TC-W320

SPECIFICATIONS

Recording system 4-track 2-channel stereo
Fast-forward and rewind time
Approx. 90 sec. (with HF-60 cassette)
Bias AC bias
Signal-to-noise ratio (NAB, at peak level)

| Dolby NR switch Cassette | OFF | B-TYPE ON | C-TYPE ON |
|-----------------------------|-------|--------------|--------------|
| TYPE IV (Sony METAL-ES) | 58 dB | 66 dB | 73 dB |
| TYPE II (Sony UX-S) | 57 dB | 65 dB | 72 dB |
| TYPE I (Sony HF-S) | 55 dB | 63 dB | 70 dB |

Total harmonic distortion 1.0% (with Sony METAL-ES cassette)
Frequency response (Dolby NR off)

| | |
|-------------------------------------|--|
| TYPE IV cassette (Sony METAL-ES) | 30–15,000 Hz (± 3 dB) 30–13,000 Hz (OVU recording) |
| TYPE II cassette (Sony UX-S) | 30–15,000 Hz (± 3 dB) |
| TYPE I cassette (Sony HF-S) | 30–14,000 Hz (± 3 dB) |

Wow and flutter 0.08% WRMS (NAB)
Inputs

| | | |
|------------------------------|-----------------|---------------------|
| Line inputs (phono jacks) | Sensitivity | 77.5 mV (-20 dB) |
| | Input impedance | 50 kohms |

Outputs

| | | |
|--------------------------------------|--------------------|--|
| Line outputs (phono jacks) | Rated output level | 0.44 V (-5 dB) at a load impedance 47 kohms |
| | Load impedance | Over 10 kohms |
| Headphones (stereo phone jack) | Output level | 0.3 mW at a load impedance of 32 ohms |

| Model Name Using Similar Mechanism | New Mechanism | | |
|------------------------------------|---------------------|--------|-------------|
| Tape Transport Mechanism Type | TC-W320 /W320S | DECK A | TCM-190VA12 |
| | | DECK B | TCM-190VB22 |
| | TC-WR520 /WR520S | DECK A | TCM-190RA12 |
| | | DECK B | TCM-190RB22 |

General

Power requirements US, Canadian model : 120V AC, 60Hz
AEP, West Germany model : 220V
AC, 50/60Hz
UK model : 240V AC, 50/60Hz
E model : 120, 220, 240V
AC adjustable, 50/60Hz

Power consumption 23 W

Dimensions Approx. 430 x 125 x 285 mm (w/h/d)
(17 x 5 x 11 $\frac{1}{4}$ inches)
including projecting parts and
controls

Weight Approx. 4.5 kg (9 lbs 15 oz)

Supplied accessory

Audio connecting cord (2)

Design and specifications subject to change without
notice.

Dolby noise reduction manufactured under license from
Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol $\square\square$ are trademarks of
Dolby Laboratories Licensing Corporation.

STEREO CASSETTE DECK
SONY[®]

SAFETY CHECK-OUT

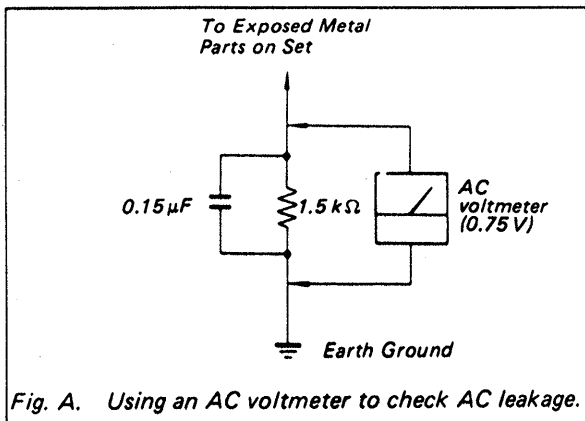
After correcting the original service problem, perform the following safety check before releasing the set to the customer:

Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

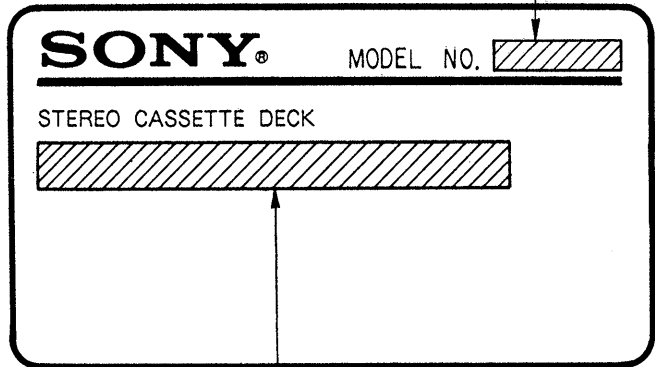
The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)



MODEL IDENTIFICATION (Specification Label)

TC-W320
TC-W320S
TC-WR520
TC-WR520S



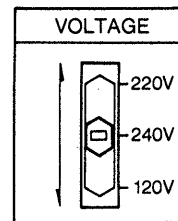
US, Canadian model: AC120V 60Hz 23W
UK model: AC240V ~50/60Hz
WG, AEP model: AC220V ~50/60Hz
E model: AC120, 220, 240V ~50/60Hz

Operating voltage

Operate the unit on either 120, 220 or 240 V AC, 50/60 Hz. Before connecting the unit to the power source, check that the operating voltage of your unit is the same as the local power line voltage.

The voltage selector is located on the rear panel. If the selector must be reset, disconnect the AC power cord and set the selector to the appropriate voltage.

VOLTAGE Selector



SAFETY-RELATED COMPONENT WARNING!!

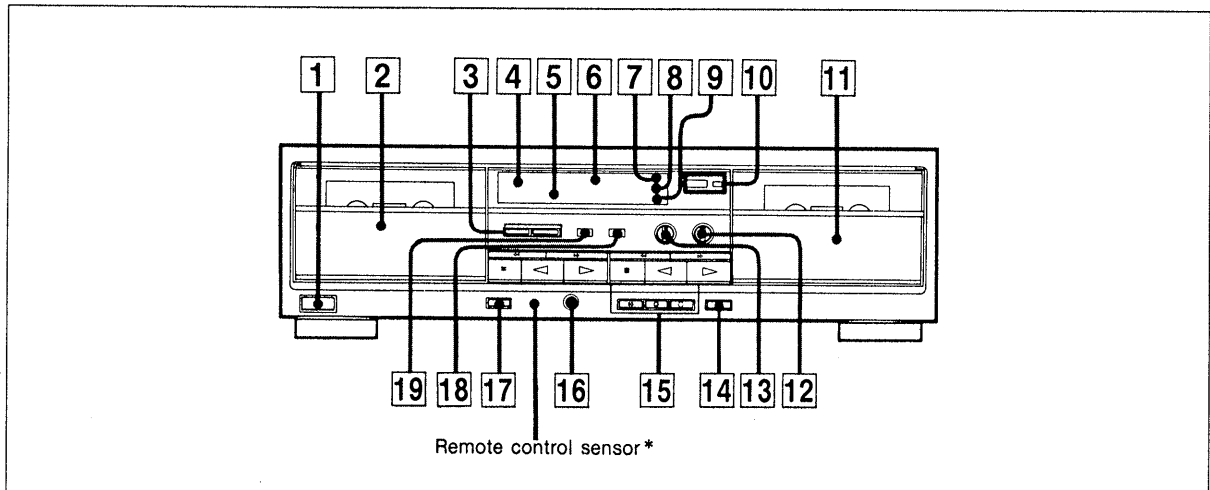
COMPONENTS IDENTIFIED BY MARK \triangle OR DOTTED LINE WITH MARK \triangle ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.



ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE \triangle SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SECTION 1 GENERAL

Identification of Front Panel Parts

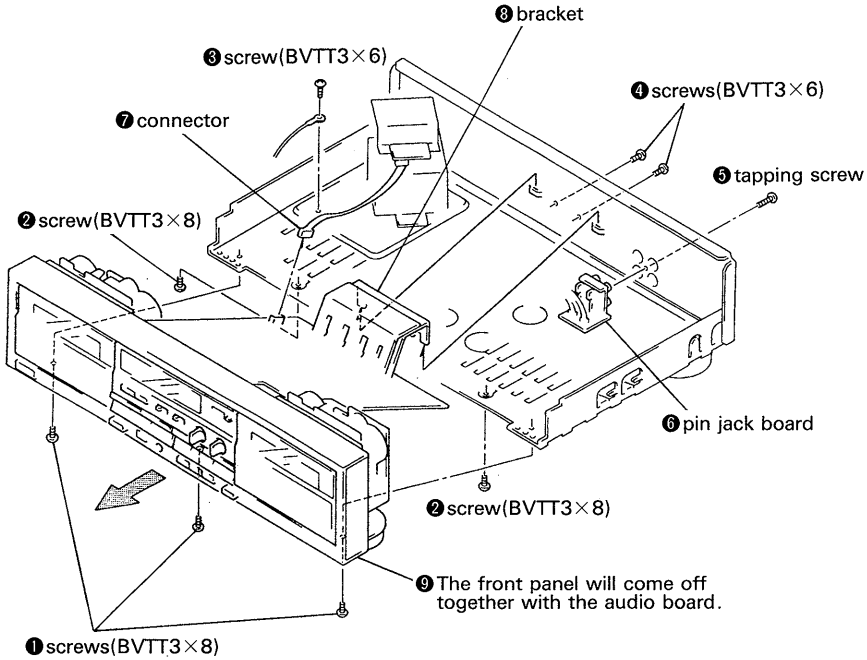


- 1** POWER switch
- 2** Cassette holder (deck A)
- 3** SYNCHRO DUBBING buttons
HIGH SPEED button/NORM. (normal) SPEED button
- 4** PLAY and < > Direction indicators (deck A)
- 5** Peak level meter
- 6** SYNCHRO DUBBING indicators
- 7** PLAY and < > Direction indicators (deck B)
- 8** || Pause indicator
- 9** REC (recording) indicator
- 10** Tape COUNTER and RESET button
- 11** Cassette holder (deck B)
- 12** REC (recording) LEVEL control
- 13** BALANCE control
- 14** ▲ (eject) button (deck B)
- 15** Tape operation buttons
■ (stop) button
◀ (reverse play) button (TC-WR520/WR520S only)
▶ (forward play) button
▶▶ (right fast winding) button
◀◀ (left fast winding) button
● REC (recording) button (deck B only)
○ REC MUTE (recording muting) button (deck B only)
|| PAUSE button (deck B only)
- 16** PHONES (headphones) jack (stereo phone jack)
- 17** ▲ (eject) button (deck A)
- 18** □ □ NR (Dolby noise reduction) switch
- 19** DIR (direction) MODE switch (TC-WR520/WR520S only)
- * Remote control sensor**
You can remotely control this cassette deck with:
— A remote commander that has an  mark and comes with a Sony amplifier or receiver and which can be used to control a cassette deck.
— An optional Sony remote commander that has an  mark.

SECTION 2 DISASSEMBLY

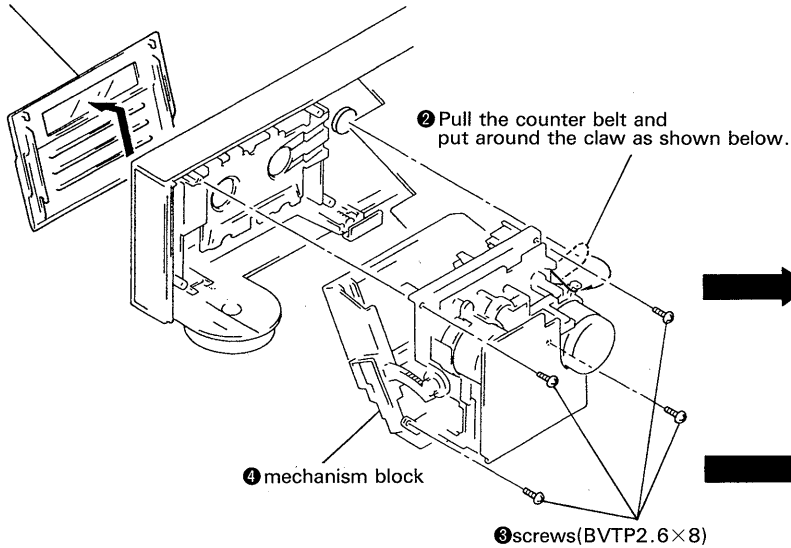
Note: Follow the disassembly procedure in the numerical order given.

[FRONT PANEL]



[MECHANISM BLOCK]

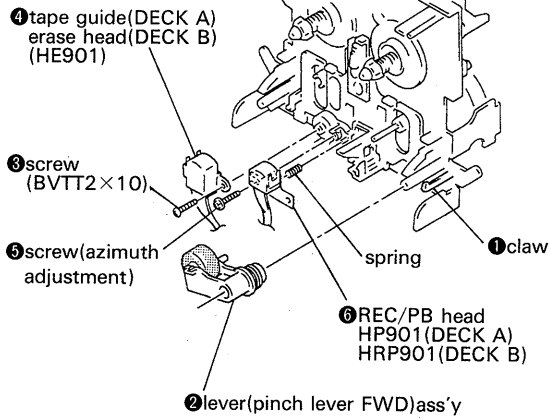
1 Press the eject button and remove the cassette lid by sliding it upward.



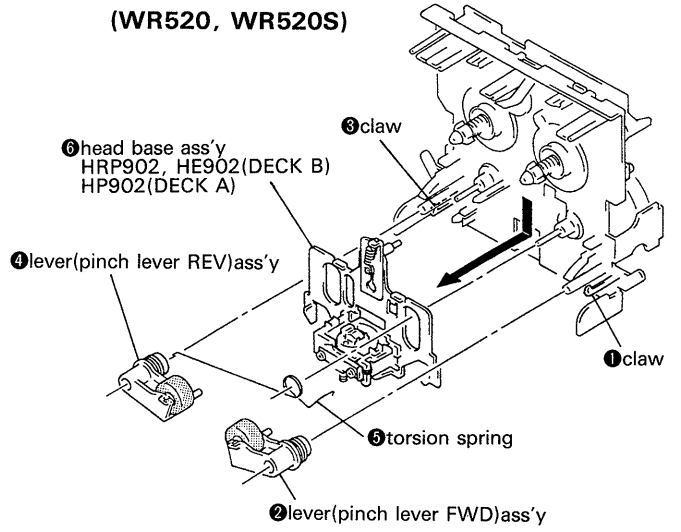
Remove the cassette holder assembly.

[HEAD]

(W320, W320S)

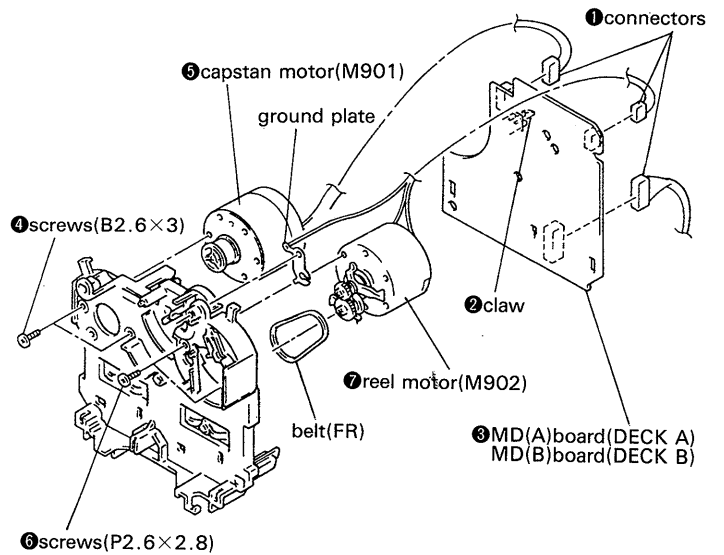
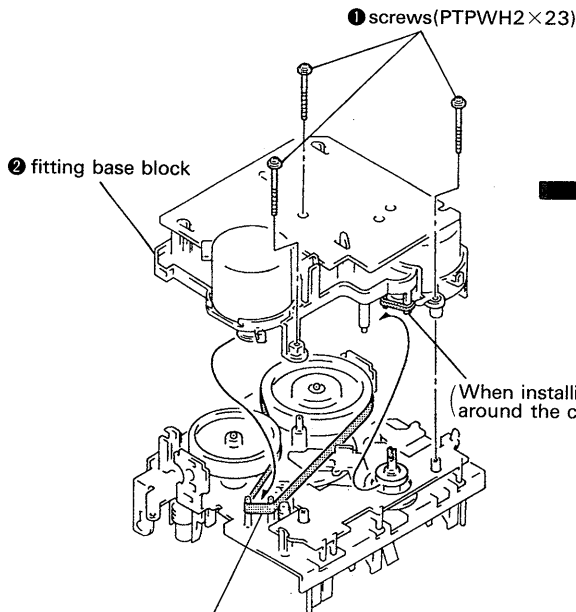


(WR520, WR520S)



[MOTOR]

[FITTING BASE BLOCK]



(When installing, pull the FR belt and put around the claws as shown below.)

(When installing, pull the capstan belt and put around the claws as shown below.)

SECTION 3 ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENTS

PRECAUTION

- Clean the following parts with a denatured-alcohol-moistened swab:

| | |
|----------------------|--------------|
| record/playback head | pinch roller |
| erase head | rubber belts |
| capstan | idler |
- Demagnetize the record/playback head with a head demagnetizer.
- Do not use a magnetized screwdriver for the adjustments
- After the adjustments, apply suitable locking compound to the parts adjusted.
- The adjustments should be performed in the rated power supply voltage unless otherwise noted.

Torque Measurement

| Torque | Torque meter | Meter reading |
|---------------------|--------------|---|
| FWD | CQ-102C | 35 to 60g · cm (0.49 to 0.83 oz · inch) |
| FWD Back tension | CQ-102C | 1 to 5g · cm (0.014 to 0.06 oz · inch) |
| REV | CQ-102RC | 35 to 60g · cm (0.49 to 0.83 oz · inch) |
| REV Back tension | CQ-102RC | 1 to 5g · cm (0.014 to 0.06 oz · inch) |
| FF, REW | CQ-201B | 70 to 110g · cm (0.98 to 1.52 oz · inch) |

3-2. ELECTRICAL ADJUSTMENT

Note: The adjustment should be performed in the order given in the service manual. As a rule, adjustment about playback should be performed before adjustment about recording.

The adjustments should be performed for both L-CH and R-CH.

- Switches and controls should be set as follows unless otherwise specified.

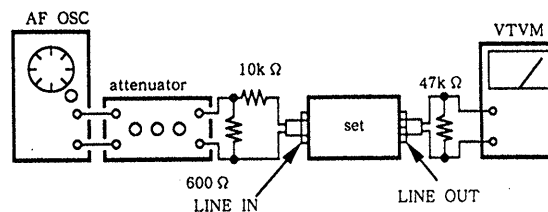
☐ NR switch : OFF

DIR MODE switch : →

- Standard Record:

Deliver the standard input signal level to the input jack and set the REC LEVEL control to obtain the standard output signal level.

– Record Mode –



Standard Input Level

| | |
|------------------|---------------|
| input terminal | LINE IN |
| source impedance | 10kΩ |
| input level | 0.25V (−10dB) |

Standard Output Level

| | |
|-----------------|--------------|
| output terminal | LINE OUT |
| load impedance | 47kΩ |
| output level | 0.44V (−5dB) |

Test tape

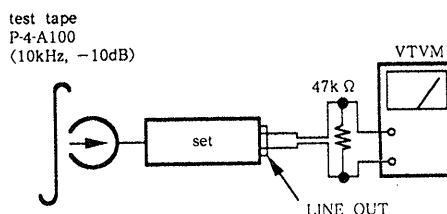
| Type | Signal | Used for |
|----------|--------------|-----------------------|
| P-4-A100 | 10kHz, −10dB | Azimuth Adjustment |
| P-4-L300 | 315Hz, 0dB | PB Level Adjustment |
| WS-48B | 3kHz, 0dB | Tape Speed Adjustment |

Record/Playback Head Azimuth Adjustment

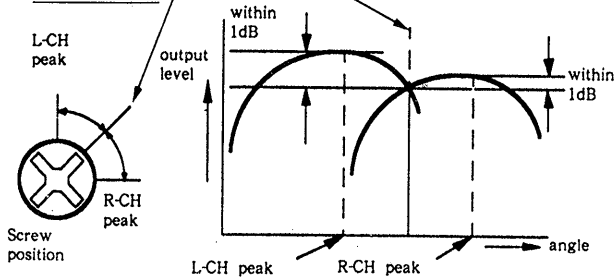
DECK A **DECK B**

Procedure :

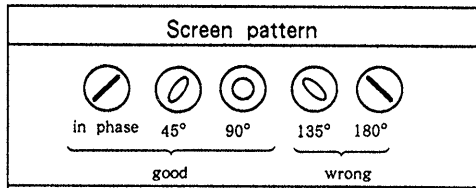
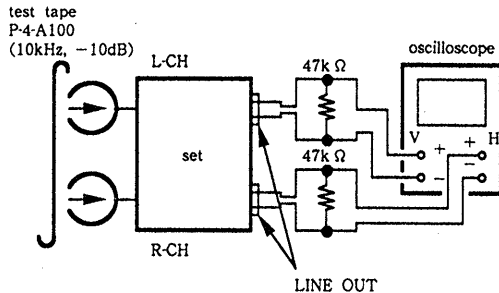
- Mode: FWD playback



- Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1dB.



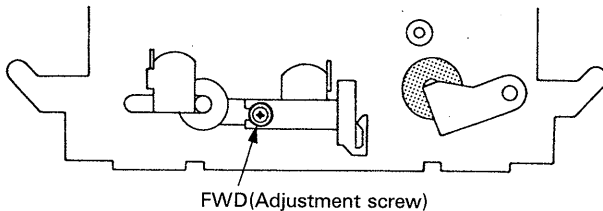
- Phase Check
Mode: playback



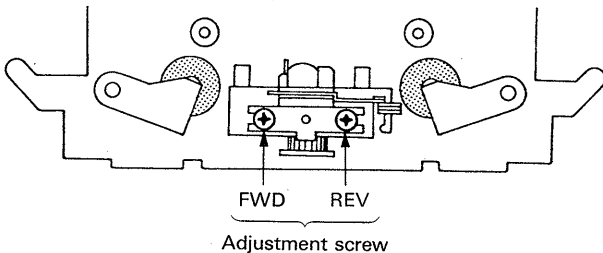
- Set in the REV mode and repeat the step 1-3. (WR520)
- After the adjustment, lock the screws with locking compound.

Adjustment Location: Record/playback head

TC-W320/W320S



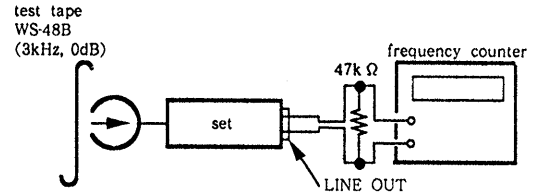
TC-WR520/WR520S



Tape Speed Adjustment DECK A DECK B

Procedure:

Mode: playback



Perform high speed adjustment before normal speed adjustment.

(high speed adjustment)

- Short test pin CN805 on audio board and turn POWER switch on.
- Set to FWD playback mode.
- Keep on pressing the HIGH SPEED DUBBING switch.
- Adjust RV72A, B so that the frequency counter reading becomes $6,000 \pm 20\text{Hz}$.
- After adjustment, disconnect CN805 shorted in step 1.

(normal speed adjustment)

- Set to FWD playback mode.
- Adjust RV71A, B so that the frequency counter reading becomes $3,000 \pm 10\text{Hz}$.

Frequency difference between the beginning and the end of the tape should be within 3%.

Frequency difference between deck A and deck B the beginning of the tape should be within 1.5%.

Adjustment Location:

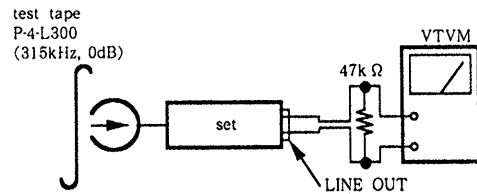
MD(A), MD(B) board

Playback Level Adjustment

DECK A DECK B

Procedure :

Mode: playback



Adjust RV11A, B (L-CH), RV21A, B (R-CH) so that the reading on VTVM meets the adjustment limits below.

Adjustment Limits :

LINE OUT level: $-5 \pm 0.5\text{dB}$ (0.42–0.46V)

Level difference between channels: less than 0.5dB

Check that the LINE OUT level does not change in playback mode while changing the mode from playback to stop several times.

Adjustment Location : MD(A), MD(B) board

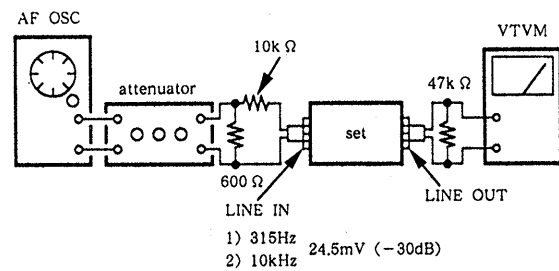
Record Bias Adjustment DECK B

Setting :

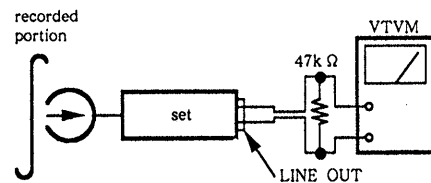
REC LEVEL control: Standard Record (See page 6.)

Procedure :

1. Mode: record



2. Mode: playback



Playback the signal recorded in step 1. Confirm that the 10kHz playback output is $0 \pm 0.5\text{dB}$ relative to the 315Hz output. If necessary, adjust RV12 (L-CH), RV22 (R-CH) and repeat the steps given above.

Adjustment Location : MD(A), MD(B) board

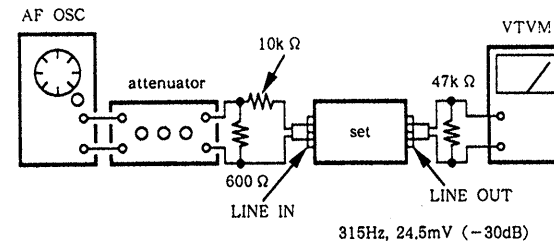
Record Level Adjustment DECK B

Setting :

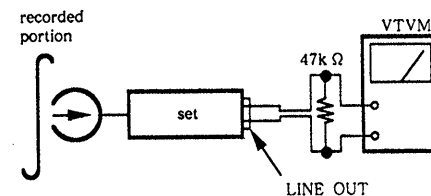
REC LEVEL control: Standard Record (See page 6.)

Procedure :

1. Mode: record



2. Mode: playback



3. Playback the signal recorded in step 1.

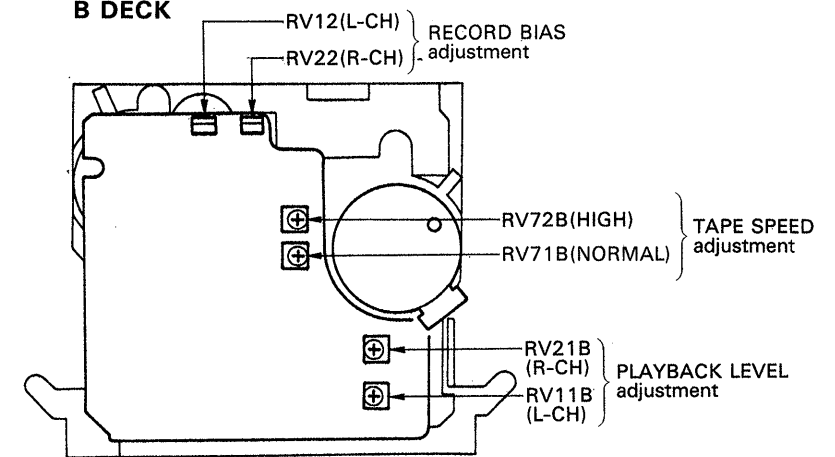
Confirm that the signal level is within the adjustment limits below. If necessary, adjust RV101 (L-CH), RV 201 (R-CH) and repeat the step1-2.

Adjustment Limits : $-25\text{dB} \pm 0.5\text{dB}$ (42–46mV)

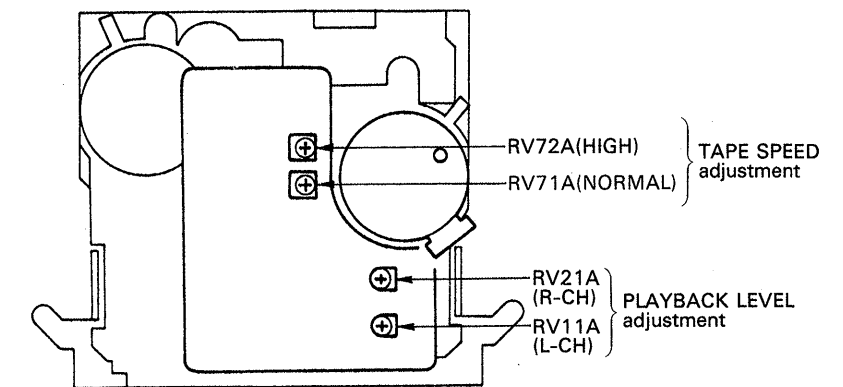
Adjustment Location : audio board (component side)

Adjustment Parts Location Diagrams

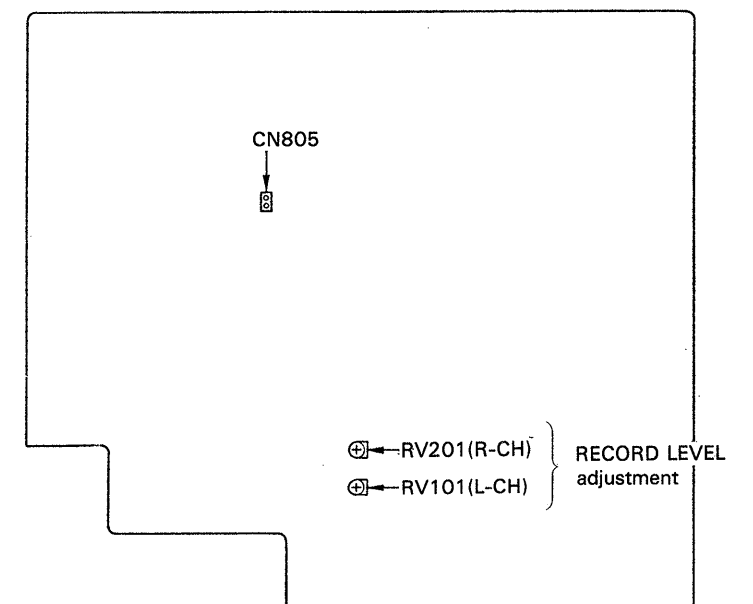
B DECK



A DECK



AUDIO BOARD (COMPONENT SIDE)



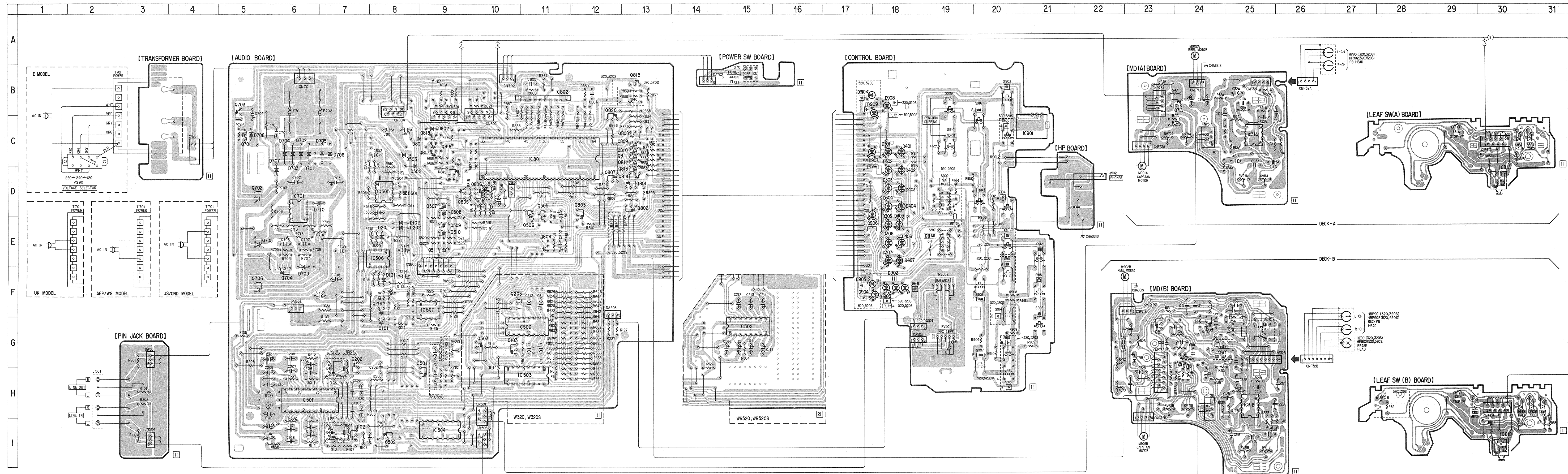
**SECTION 4
DIAGRAMS**

SEMICONDUCTOR LOCATION

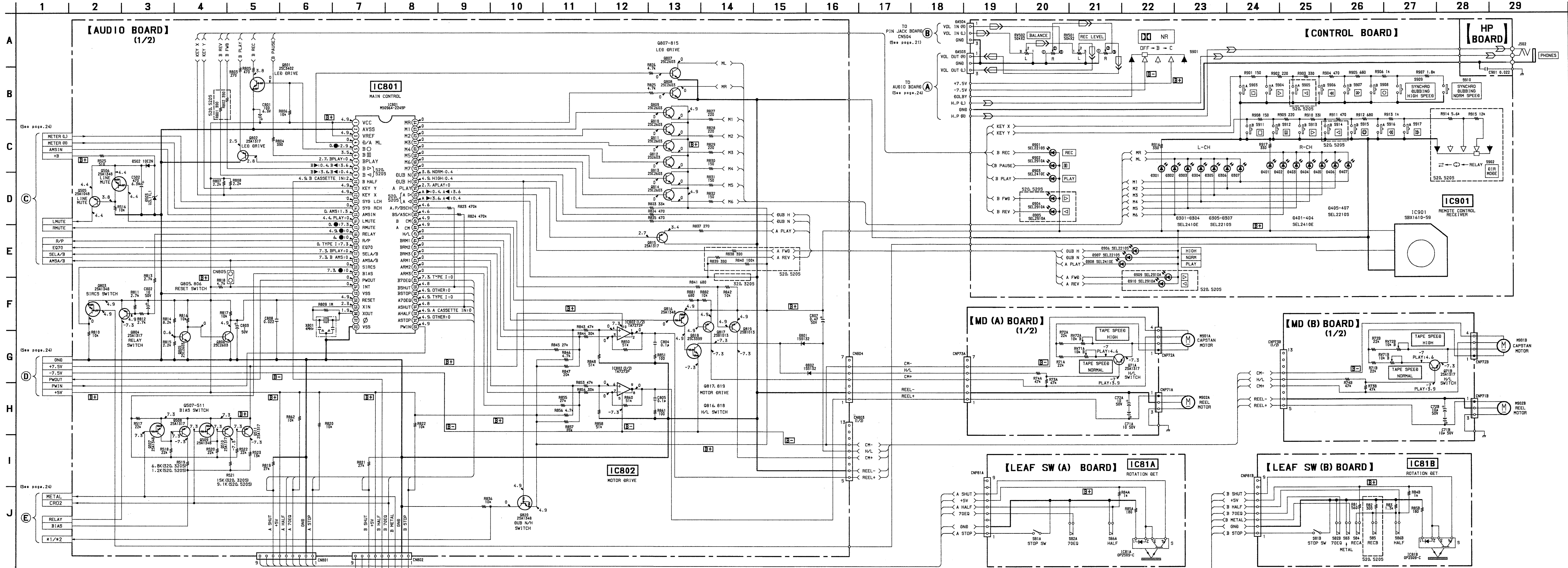
| Ref. No. | Location | Ref. No. | Location |
|----------|----------|----------|----------|
| D31 | G-25 | IC507 | F-9 |
| D101 | F-8 | IC701 | D-6 |
| D102 | E-8 | IC801 | C-11 |
| D201 | E-8 | IC802 | B-11 |
| D202 | E-8 | IC901 | C-21 |
| D301 | C-18 | | |
| D302 | D-18 | Q71A | B-24 |
| D304 | D-18 | Q71B | G-24 |
| D305 | E-18 | Q51 | G-23 |
| D306 | E-18 | Q52 | G-24 |
| D307 | E-18 | Q53 | G-24 |
| D401 | C-18 | Q101 | G-8 |
| D402 | D-18 | Q102 | I-8 |
| D403 | D-18 | Q103 | G-10 |
| D404 | D-18 | Q201 | F-8 |
| D405 | E-18 | Q202 | G-7 |
| D406 | E-18 | Q203 | F-10 |
| D407 | E-18 | Q501 | H-9 |
| D501 | D-8 | Q502 | I-8 |
| D502 | C-8 | Q503 | G-10 |
| D503 | C-8 | Q505 | D-11 |
| D701 | C-6 | Q506 | D-11 |
| D702 | C-6 | Q507 | D-9 |
| D703 | C-6 | Q508 | D-9 |
| D704 | C-6 | Q509 | E-9 |
| D705 | C-7 | Q510 | E-9 |
| D706 | C-7 | Q511 | E-9 |
| D707 | D-6 | Q701 | C-5 |
| D708 | C-5 | Q702 | D-5 |
| D709 | E-6 | Q703 | B-5 |
| D710 | D-6 | Q704 | F-6 |
| D801 | C-8 | Q705 | E-5 |
| D802 | C-9 | Q706 | F-5 |
| D901 | F-18 | Q801 | D-13 |
| D902 | F-18 | Q802 | D-13 |
| D903 | F-18 | Q803 | D-12 |
| D904 | F-17 | Q804 | E-11 |
| D905 | F-17 | Q805 | D-9 |
| D906 | D-18 | Q806 | D-10 |
| D907 | C-18 | Q807 | D-12 |
| D908 | B-18 | Q808 | C-13 |
| D909 | B-17 | Q809 | C-13 |
| D910 | B-17 | Q810 | C-13 |
| | | Q811 | C-13 |
| IC31A | C-25 | Q812 | C-13 |
| IC31B | H-25 | Q813 | D-13 |
| IC81A | D-30 | Q814 | D-13 |
| IC81B | I-30 | Q815 | B-13 |
| IC501 | H-6 | Q816 | C-9 |
| IC502 | G-11 | Q817 | C-9 |
| IC503 | H-11 | Q818 | C-9 |
| IC504 | I-9 | Q819 | D-9 |
| IC505 | D-8 | Q820 | B-12 |
| IC506 | E-8 | | |

Note:
 ● : parts extracted from the component side.
 ○ : parts extracted from the conductor side.
 ○ : indicates side identified with part number.
 ● : Canadian model
 WG : West Germany model

4-1. PRINTED WIRING BOARDS



4-2. SCHEMATIC DIAGRAM - System Control Section -



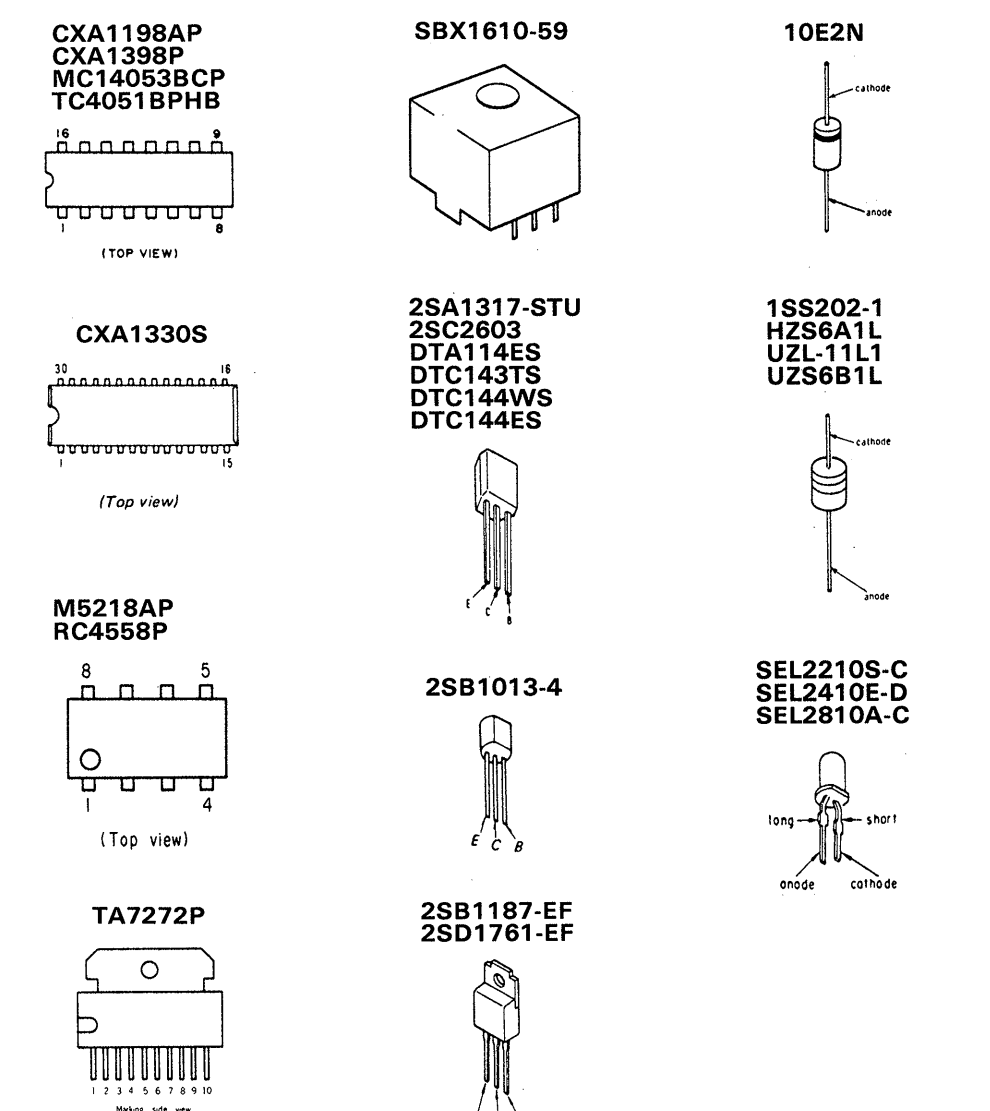
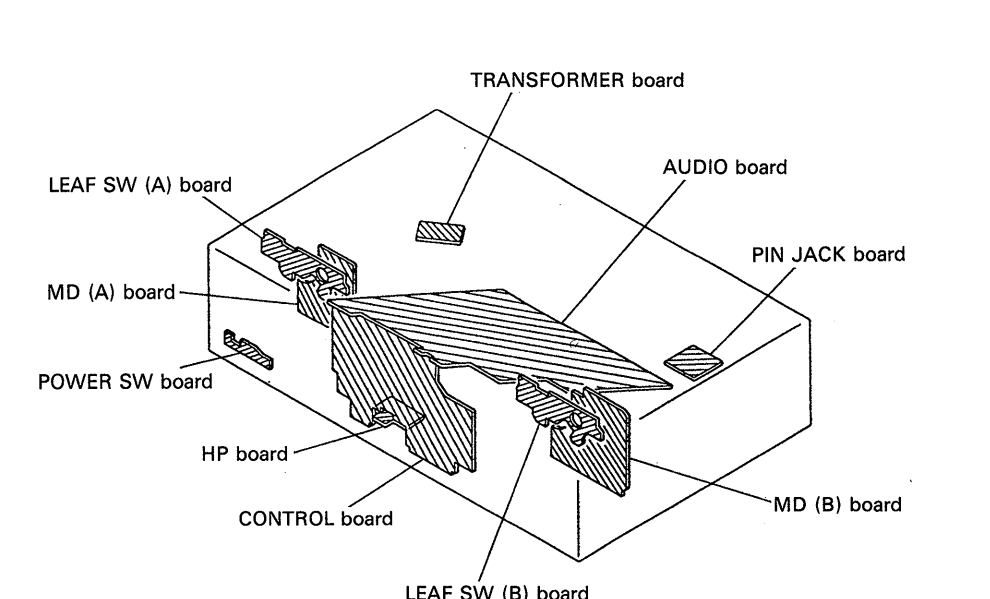
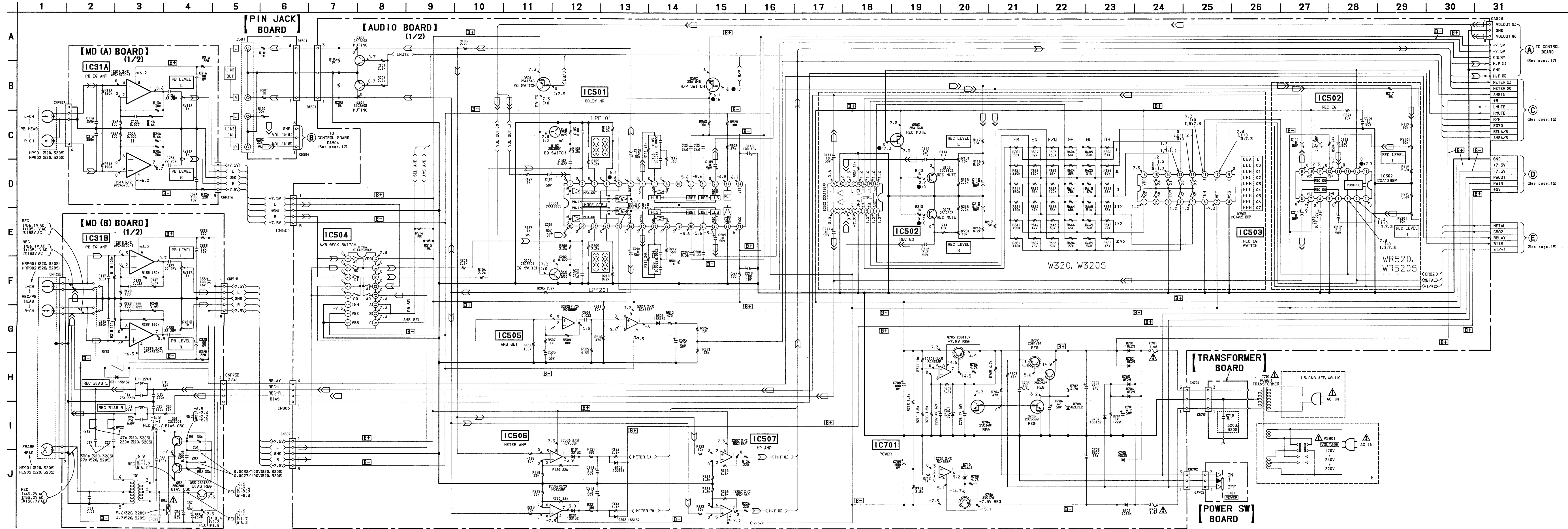
Note:

- All capacitors are in μF unless otherwise noted. $\text{pF} = \mu\text{F} / 100$.
- All resistors are in Ω and $1/4\text{W}$ or less unless otherwise specified.
- % : indicates tolerance.
- --- : fusible resistor.

Note:
The components identified by mark Δ or \triangle are critical for safety. Replace only with part number specified.

Note:
Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- \square : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal
- no mark: STOP
- \blacktriangleright : FWD
- \blacktriangleleft : REV
- \bullet : REC
- Voltages are taken with a VOM (Input Impedance $10\text{M}\Omega$)
- Voltage variations may be noted due to normal production tolerances.
- Signal path:
 - --- : PB (DECK A)
 - --- : PB (DECK B)
 - --- : REC (DECK B)
- CND : Canadian model
- WG : West Germany model



SECTION 5 EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

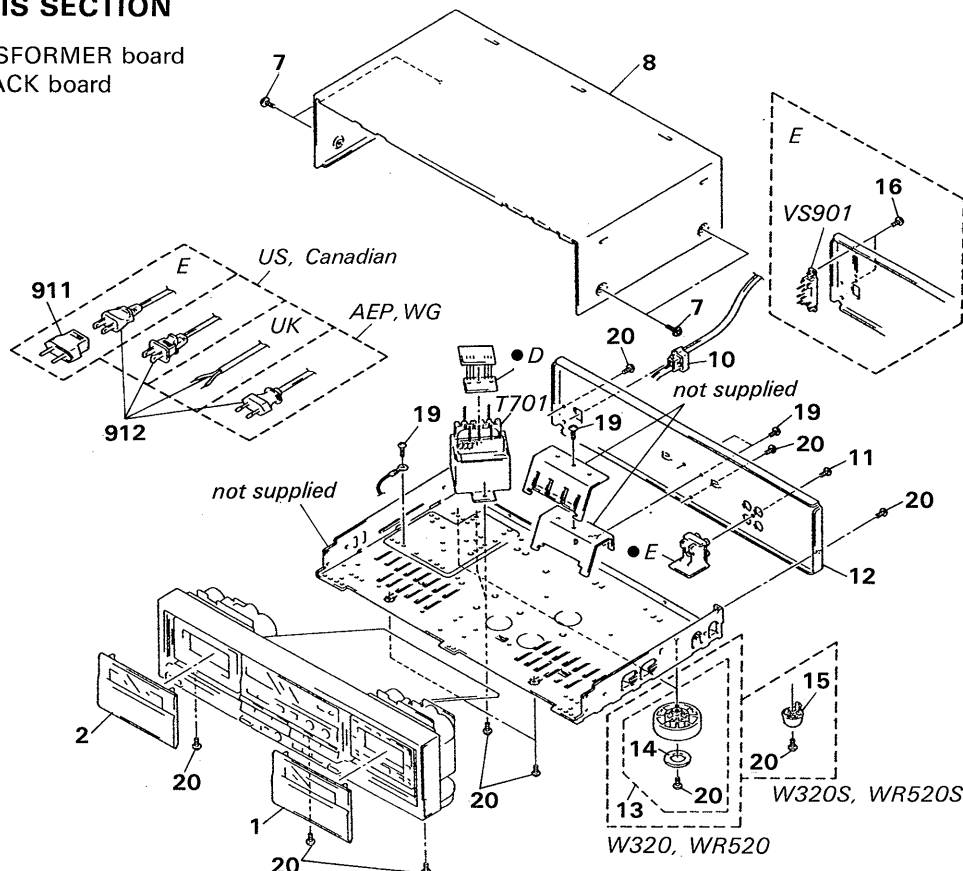
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
Example:
(RED) ... KNOB, BALANCE (WHITE)
↑ Cabinet's Color ↑ Parts' Color
- WG: West Germany model

The components identified by mark \triangle or dotted line with mark \triangle are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque \triangle sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

5-1. CHASSIS SECTION

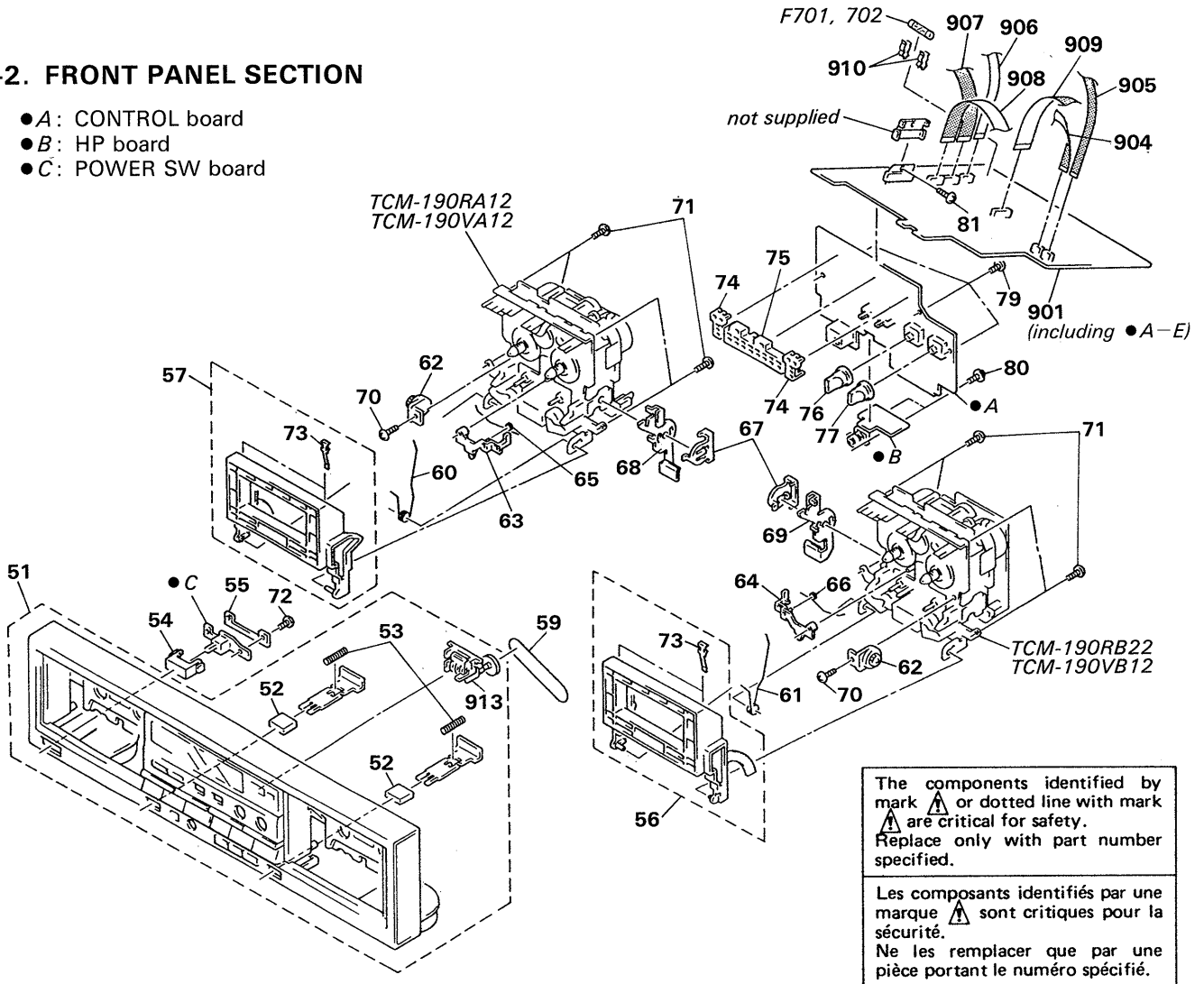
- D: TRANSFORMER board
- E: PIN JACK board



| No. | Part No. | Description | Remarks | No. | Part No. | Description | Remarks |
|-----|---|--|---------|-------|--|--|----------|
| 1 | 3-359-914-11 3-359-914-31 | (520,520S)...LID, CASSETTE (DECK B) (320,320S)...LID, CASSETTE (DECK B) | | 13 | X-4885-950-1 X-3304-938-2 | (320:US,Canadian,520:US,Canadian) ...FOOT ASSY (320:E,AEP,WG,UK,520:E,AEP,WG) ...FOOT ASSY | 14 14 |
| 2 | 3-359-914-01 3-359-914-21 | (520,520S)...LID, CASSETTE (DECK A) (320,320S)...LID, CASSETTE (DECK A) | | 14 | 4-923-836-11 | (320,520)...CUSHION | |
| 7 | 3-704-366-01 | SCREW (CASE) (M3X8) | | 15 | 4-930-848-01 | (320S,520S)...FOOT | |
| 8 | 3-332-578-61 | CASE | | 16 | 7-685-534-19 | (E)...SCREW +BVTP 2.6X8 TYPE2 N-S | |
| 10 | *3-703-244-00 *3-703-571-11 | (AEP,WG,UK)...BUSHING (2104), CORD (US,Canadian,E)..BUSHING (S)(4516), CORD | | 19 | 7-682-547-04 | SCREW +BVTT 3X6 (S) | |
| 11 | 7-621-849-00 | SCREW, TAPPING | | 20 | 7-682-548-09 | SCREW +BVTT 3X8 (S) | |
| 12 | *3-354-941-01 *3-354-941-21 *3-354-941-31 *3-354-941-41 *3-354-942-01 *3-354-942-11 *3-354-942-31 *3-354-942-41 *3-354-942-51 | (520:US,Canadian)...PANEL, BACK (520:AEP,WG)...PANEL, BACK (520:E)...PANEL, BACK (520S)...PANEL, BACK (320:US,Canadian)...PANEL, BACK (320:UK)...PANEL, BACK (320:AEP,WG)...PANEL, BACK (320:E)...PANEL, BACK (320S)...PANEL, BACK | | 911 | \triangle .1-569-007-11 | (E)...ADAPTOR, CONVERSION 2P | |
| | | | | 912 | \triangle .1-551-188-XX \triangle .1-551-506-XX \triangle .1-555-795-00 \triangle .1-556-035-00 | (E)...CORD, POWER (US,Canadian)...CORD, POWER (AEP,WG)...CORD, POWER,EULO PLUG (UK)...CORD, POWER | |
| | | | | T701 | \triangle .1-449-661-21 | (AEP,WG,UK)...TRANSFORMER, POWER | |
| | | | | T701 | \triangle .1-449-666-21 | (E)...TRANSFORMER, POWER | |
| | | | | T701 | \triangle .1-449-420-21 | (US,Canadian)...TRANSFORMER, POWER | |
| | | | | VS901 | \triangle .1-570-307-11 | (E)...SWITCH, VOLTAGE CHANGE (VOLTAGE) | |

5-2. FRONT PANEL SECTION

- A: CONTROL board
- B: HP board
- C: POWER SW board



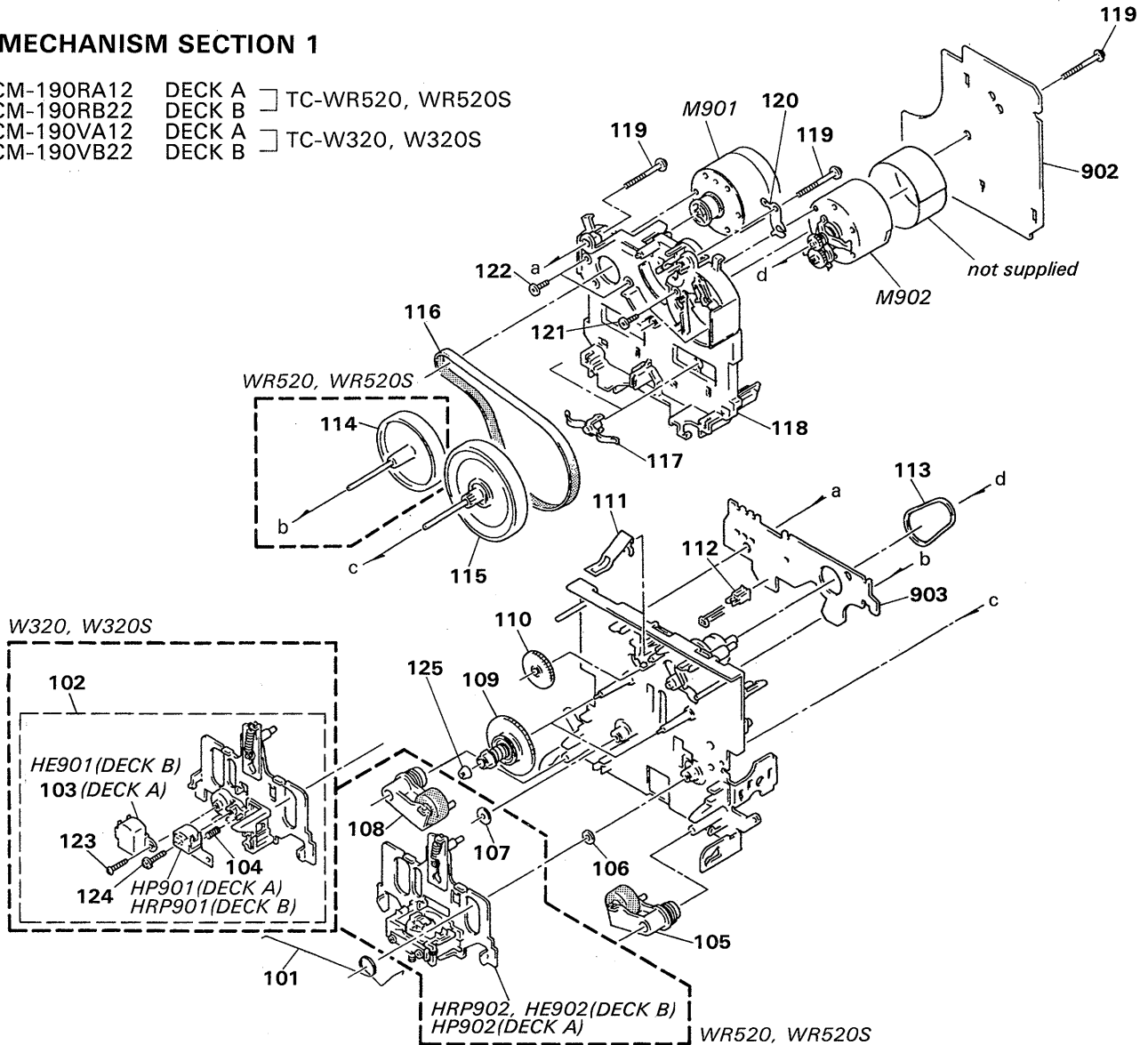
The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

| No. | Part No. | Description | Remarks | No. | Part No. | Description | Remarks |
|-----|---------------|--|-----------|------|---------------|---------------------------------------|---------|
| 51 | X-3346-306-1 | (520:E,AEP,WG) ...PANEL ASSY, FRONT | 52,53,913 | 74 | *3-354-966-01 | HOLDER (DIR), LED | |
| | X-3346-307-1 | (320:US,Canadian,320S) ...PANEL ASSY, FRONT | 52,53,913 | 75 | *3-354-972-01 | HOLDER (METER), LED | |
| | X-3346-308-1 | (320:E,AEP,WG,UK) ...PANEL ASSY, FRONT | 52,53,913 | 76 | 3-354-968-01 | KNOB (RT)(BALANCE) | |
| | X-3346-309-1 | (520:US,Canadian,520S) ...PANEL ASSY, FRONT | 52,53,913 | 77 | 3-354-968-11 | KNOB (RT)(REC LEVEL) | |
| 52 | 3-359-907-01 | BUTTON (EJECT) | | 79 | 4-928-635-01 | SCREW, +BV (2.6X8) TAPPING | |
| 53 | 3-359-906-01 | SPRING, COMPRESSION | | 80 | 7-685-134-19 | SCREW (+ PTPWH)(2.6X8) | |
| 54 | 3-354-932-01 | BUTTON (POWER) | | 81 | 7-682-547-04 | SCREW +BVTT 3X6 (S) | |
| 55 | 3-359-910-01 | REINFORCEMENT | | 901 | *A-2006-250-A | (320)...MOUNTED PCB, AUDIO | |
| 56 | X-3340-194-1 | HOLDER (L) ASSY, CASSETTE | 73 | | *A-2006-251-A | (520)...MOUNTED PCB, AUDIO | |
| 57 | X-3340-195-1 | HOLDER (R) ASSY, CASSETTE | 73 | | *A-2006-301-A | (520S)...MOUNTED PCB, AUDIO | |
| 59 | 3-305-524-00 | BELT | | | *A-2006-302-A | (320S)...MOUNTED PCB, AUDIO | |
| 60 | 3-354-960-01 | SPRING (LOADING R), TORSION | | 904 | 1-575-847-11 | WIRE, FLAT TYPE (5 CORE) | |
| 61 | 3-354-959-01 | SPRING (LOADING L), TORSION | | 905 | 1-575-779-11 | WIRE, FLAT TYPE (5 CORE) | |
| 62 | 3-354-963-01 | DAMPER | | 906 | 1-575-968-11 | WIRE, FLAT TYPE (7 CORE) | |
| 63 | 3-354-956-01 | LEVER (EJ SAFTY LEVER R) | | 907 | 1-575-781-11 | WIRE, FLAT TYPE (9 CORE) | |
| 64 | 3-354-955-01 | LEVER (EJ SAFTY LEVER L) | | 908 | 1-575-782-11 | WIRE, FLAT TYPE (9 CORE) | |
| 65 | 3-354-962-01 | SPRING (EJ SAFTY SPRING R) | | 909 | 1-575-784-11 | WIRE, FLAT TYPE (13 CORE) | |
| 66 | 3-354-961-01 | SPRING (EJ SAFTY SPRING L) | | 910 | 1-533-213-31 | HOLDER, FUSE | |
| 67 | 3-354-957-01 | JOINT (LOCK LEVER) | | 913 | 1-548-596-31 | COUNTER, TAPE (MIDDLE TYPE) | |
| 68 | *3-354-954-01 | LEVER (LOCK LEVER R) | | F701 | .1-532-259-00 | (E,AEP,WG,UK)...FUSE, TIME-LAG 1.6A | |
| 69 | *3-354-953-01 | LEVER (LOCK LEVER L) | | F701 | .1-532-742-11 | (US,Canadian)...FUSE, GLASS TUBE 1.6A | |
| 70 | 7-621-773-95 | SCREW +BVTT 2.6X6 (S) | | F702 | .1-532-259-00 | (E,AEP,WG,UK)...FUSE, TIME-LAG 1.6A | |
| 71 | 4-928-635-01 | SCREW, +BV (2.6X8) TAPPING | | F702 | .1-532-742-11 | (US,Canadian)...FUSE, GLASS TUBE 1.6A | |
| 72 | 4-928-635-21 | SCREW, +BV (2.6X10) TAPPING | | | | | |
| 73 | 3-308-823-11 | SPRING | | | | | |

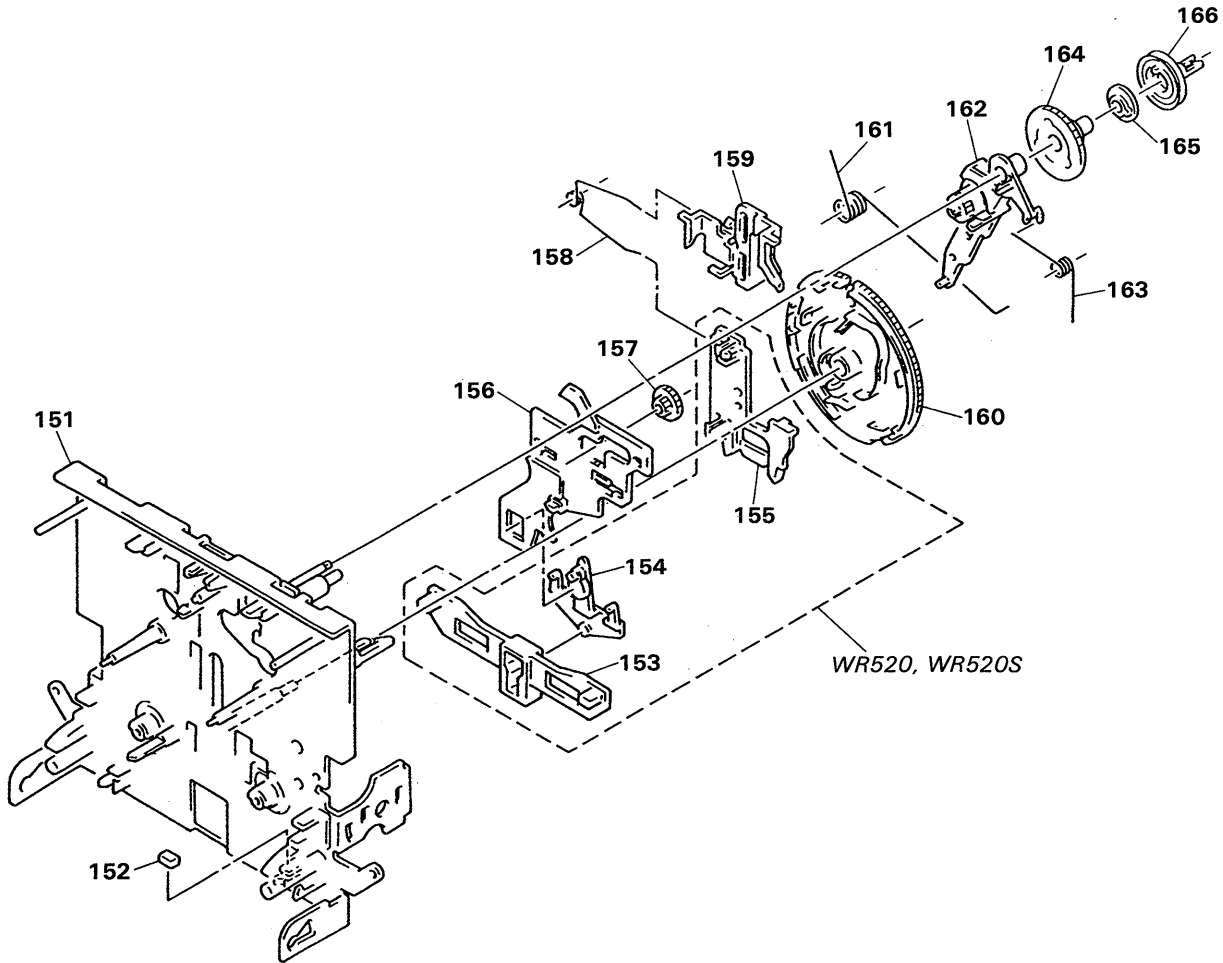
5-3. MECHANISM SECTION 1

- TCM-190RA12 DECK A □ TC-WR520, WR520S
- TCM-190RB22 DECK B □ TC-WR520, WR520S
- TCM-190VA12 DECK A □ TC-W320, W320S
- TCM-190VB22 DECK B □ TC-W320, W320S



| No. | Part No. | Description | Remarks | No. | Part No. | Description | Remarks |
|-----|---------------|--|---------|--------|---------------|--|---------|
| 101 | 3-359-455-01 | SPRING, TORSION | | 120 | 3-359-450-01 | PLATE, GROUND | |
| 102 | A-2003-475-A | (320,320S DECK A)...BASE(ONE) ASSY, HEAD | | 121 | 7-627-556-08 | SCREW +P 2.6X2.8 | |
| | A-2003-476-A | (320,320S DECK B)...BASE(ONE) ASSY, HEAD | | 122 | 7-621-775-00 | SCREW +B 2.6X3 | |
| 103 | 3-319-716-01 | (320,320S DECK A)...GUID, TAPE | | 123 | 7-621-255-65 | (320,320S).....+BVTT 2X10 (S) | |
| 104 | 3-343-484-01 | (320,320S)...SPRING, COMPRESSION | | 124 | 3-359-446-01 | SCREW(AZIMUTH ADJUSTMENT) | |
| 105 | X-3359-408-1 | LEVER (PINCH LEVER FWD) ASSY | | 125 | 3-356-618-01 | CAP(REEL) | |
| 106 | 3-356-713-01 | WASHER | | 902 | *1-634-840-11 | (DECK A)...PC BOARD, MD (A) | |
| 107 | 3-356-714-01 | (520,520S)...WASHER | | | *1-634-843-11 | (DECK B)...PC BOARD, MD (B) | |
| 108 | X-3359-409-1 | (520,520S)...LEVER(PINCH LEVER REV) ASSY | | 903 | *1-634-841-11 | PC BOARD, LEAF SW | |
| 109 | X-3359-404-1 | TABLE ASSY, REEL | | HE901 | 1-543-535-11 | (320,320S DECK B)...HEAD, MAGNETIC (ERASE) | |
| 110 | 3-359-424-01 | GEAR (REV GEAR) | | HP901 | 1-543-536-11 | (320,320S DECK A)...HEAD, MAGNETIC (PLAYBACK) | |
| 111 | 3-359-430-01 | SPRING(CASSETTE RETAINER),LEAF | | HP902 | A-2003-418-A | (520,520S DECK A)...BASE ASSY, HEAD | |
| 112 | 3-343-419-01 | HOLDER (S SENS R A) | | HRP901 | 1-543-537-11 | (320,320S DECK B)...HEAD, MAGNETIC (REC/PB) | |
| 113 | 3-359-466-01 | BELT (FR), SQUARE | | HE902 | A-2003-477-A | (520,520S DECK B)...BASE ASSY, HEAD (REC/PB/ERASE) | |
| 114 | X-3359-410-1 | (520,520S)...FLYWHEEL (REV) ASSY | | HRP902 | | | |
| 115 | X-3359-406-1 | FLYWHEEL (FWD) COMPLETE ASSY | | M901 | X-3359-417-1 | MOTOR ASSY | |
| 116 | 3-359-417-01 | (520,520S)...BELT (FLAT), CAPSTAN | | M902 | A-2003-474-A | MOTOR (REEL MOTOR) ASSY | |
| | 3-359-467-01 | (320,320S)...BELT (1 WAY FLAT BELT) | | | | | |
| 117 | 3-575-321-00 | RETAINER, THRUST, CAPSTAN | | | | | |
| 118 | *3-359-436-01 | BASE (THRUST RETAINER),FITTING | | | | | |
| 119 | 3-359-414-01 | SCREW (+PTPW 2X23) | | | | | |

5-4. MECHANISM SECTION 2



| No. | Part No. | Description | Remarks | No. | Part No. | Description | Remarks |
|-----|------------------------------|--|---------|-----|--------------|----------------------------------|---------|
| 151 | X-3359-415-1 X-3359-416-1 | (520,520S)...CHASSIS ASSY, MECHANICAL (320,320S)...CHASSIS ASSY, MECHANICAL | | 158 | 3-359-454-01 | SPRING, TORSION | |
| 152 | 3-359-469-01 | SPACER | | 159 | 3-359-429-01 | SLIDER (BRAKE PLATE) | |
| 153 | *3-359-425-01 | (520,520S)...SLIDER (REVERSE SLIDER) | | 160 | 3-359-420-01 | GEAR (CAM GEAR) | |
| 154 | 3-359-426-01 | (520,520S)...LEVER (REVERSE LEVER) | | 161 | 3-359-456-01 | SPRING (TRIGGER SPRING), TORSION | |
| 155 | *3-359-427-01 | (520,520S)...SLIDER (LEVERSE SLIDER) | | 162 | X-3359-405-1 | LEVER (FR ARM) ASSY | |
| 156 | *3-359-415-01 | SLIDER (TRIGGER SLIDER) | | 163 | 3-359-453-01 | SPRING (FR ARM), TORSION | |
| 157 | 3-359-448-01 | GEAR (TRIGGER) | | 164 | 3-359-419-01 | GEAR (FR GEAR) | |
| | | | | 165 | 3-359-421-01 | CLUTCH (REEL DISK) | |
| | | | | 166 | 3-359-418-01 | PULLEY (FR PULLEY) | |

SECTION 6 ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

MF: μF , PF: $\mu\mu F$.

RESISTORS

- All resistors are in ohms.
- F: nonflammable

COILS

- MMH: mH, UH: μH

SEMICONDUCTORS

In each case, U: μ , for example:
 UA...: μA ..., UPA...: μPA ...,
 UPC...: μPC , UPD...: μPD ...

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

• WG: West Germany model

| Ref.No. | Part No. | Description | Ref.No. | Part No. | Description |
|---------|-----------------------|-------------------------------------|---------|--------------|------------------------------------|
| 901 | *A-2006-250-A | (320)...MOUNTED PCB, AUDIO | C32A | 1-124-443-00 | ELECT 100MF 20% 10V |
| | *A-2006-251-A | (520)...MOUNTED PCB, AUDIO | C32B | 1-124-443-00 | ELECT 100MF 20% 10V |
| | *A-2006-301-A | (520S)...MOUNTED PCB, AUDIO | C33 | 1-124-119-00 | ELECT 330MF 20% 16V |
| | *A-2006-302-A | (320S)...MOUNTED PCB, AUDIO | C51 | 1-130-729-00 | (520,520S)...FILM 0.0027MF 5% 100V |
| 902 | *1-634-840-11 | (DECK A)...PC BOARD, MD (A) | C51 | 1-136-593-11 | (320,320S)...FILM 0.0033MF 5% 100V |
| | *1-634-843-11 | (DECK B)...PC BOARD, MD (B) | C52 | 1-130-729-00 | (520,520S)...FILM 0.0027MF 5% 100V |
| 903 | *1-634-841-11 | (DECK A)...PC BOARD, LEAF SW (A) | C52 | 1-136-593-11 | (320,320S)...FILM 0.0033MF 5% 100V |
| | *1-634-841-11 | (DECK B)...PC BOARD, LEAF SW (B) | C53 | 1-130-339-00 | FILM 0.0056MF 5% 100V |
| 904 | 1-575-847-11 | WIRE, FLAT TYPE (5 CORE) | C54 | 1-136-562-11 | (520,520S)...FILM 0.0082MF 5% 630V |
| 905 | 1-575-779-11 | WIRE, FLAT TYPE (5 CORE) | C54 | 1-136-601-11 | (320,320S)...FILM 0.01MF 5% 630V |
| 906 | 1-575-968-11 | WIRE, FLAT TYPE (7 CORE) | C55 | 1-161-494-00 | CERAMIC 0.022MF 25V |
| 907 | 1-575-781-11 | WIRE, FLAT TYPE (9 CORE) | C56 | 1-124-925-11 | ELECT 2.2MF 20% 50V |
| 908 | 1-575-782-11 | WIRE, FLAT TYPE (9 CORE) | C57 | 1-124-791-11 | ELECT 1MF 20% 50V |
| 909 | 1-575-784-11 | WIRE, FLAT TYPE (13 CORE) | C58 | 1-162-282-31 | CERAMIC 100PF 10% 50V |
| 910 | 1-533-213-31 | HOLDER, FUSE | C71A | 1-123-875-11 | ELECT 10MF 20% 50V |
| 911 | Δ 1-569-007-11 | (E)...ADAPTOR, CONVERSION 2P | C71B | 1-123-875-11 | ELECT 10MF 20% 50V |
| 912 | Δ 1-551-188-XX | (E).....CORD, POWER | C72A | 1-123-875-11 | ELECT 10MF 20% 50V |
| | Δ 1-551-506-XX | (US,Canadian)...CORD, POWER | C72B | 1-123-875-11 | ELECT 10MF 20% 50V |
| | Δ 1-555-795-00 | (AEP,WG).....CORD, POWER, EULO PLUG | C101 | 1-126-301-11 | ELECT 1MF 20% 50V |
| | Δ 1-556-035-00 | (UK).....CORD, POWER | C102 | 1-136-157-00 | FILM 0.022MF 5% 50V |
| 913 | 1-548-596-31 | COUNTER, TAPE (MIDDLE TYPE) | C103 | 1-162-294-31 | CERAMIC 0.001MF 10% 50V |
| C11A | 1-110-342-11 | MYLAR 390PF 5% 50V | C104 | 1-126-059-11 | ELECT 10MF 20% 50V |
| C11B | 1-110-342-11 | MYLAR 390PF 5% 50V | C105 | 1-130-475-00 | MYLAR 0.0022MF 5% 50V |
| C12A | 1-136-157-00 | FILM 0.022MF 5% 50V | C106 | 1-130-475-00 | MYLAR 0.0022MF 5% 50V |
| C12B | 1-136-157-00 | FILM 0.022MF 5% 50V | C107 | 1-136-174-00 | FILM 0.56MF 5% 50V |
| C13A | 1-124-282-00 | ELECT 22MF 20% 25V | C108 | 1-136-171-00 | FILM 0.33MF 5% 50V |
| C13B | 1-124-282-00 | ELECT 22MF 20% 25V | C109 | 1-126-059-11 | ELECT 10MF 20% 50V |
| C14 | 1-136-273-91 | FILM 75PF 5% 630V | C110 | 1-124-994-11 | ELECT 100MF 20% 10V |
| C15 | 1-162-288-31 | CERAMIC 330PF 10% 50V | C111 | 1-126-059-11 | ELECT 10MF 20% 50V |
| C17 | 1-162-209-31 | (520,520S)...CERAMIC 27PF 5% 50V | C112 | 1-126-162-11 | ELECT 3.3MF 20% 50V |
| C17 | 1-162-288-31 | (320,320S)...CERAMIC 330PF 10% 50V | C113 | 1-126-300-11 | ELECT 0.47MF 20% 50V |
| C21A | 1-110-342-11 | MYLAR 390PF 5% 50V | C114 | 1-126-162-11 | ELECT 3.3MF 20% 50V |
| C21B | 1-110-342-11 | MYLAR 390PF 5% 50V | C201 | 1-126-301-11 | ELECT 1MF 20% 50V |
| C22A | 1-136-157-00 | FILM 0.022MF 5% 50V | C202 | 1-136-157-00 | FILM 0.022MF 5% 50V |
| C22B | 1-136-157-00 | FILM 0.022MF 5% 50V | C203 | 1-162-294-31 | CERAMIC 0.001MF 10% 50V |
| C23A | 1-124-282-00 | ELECT 22MF 20% 25V | C204 | 1-126-059-11 | ELECT 10MF 20% 50V |
| C23B | 1-124-282-00 | ELECT 22MF 20% 25V | C205 | 1-130-475-00 | MYLAR 0.0022MF 5% 50V |
| C24 | 1-136-273-91 | FILM 75PF 5% 630V | C206 | 1-130-475-00 | MYLAR 0.0022MF 5% 50V |
| C25 | 1-162-288-31 | CERAMIC 330PF 10% 50V | C207 | 1-136-174-00 | FILM 0.56MF 5% 50V |
| C27 | 1-162-209-31 | (520,520S)...CERAMIC 27PF 5% 50V | C208 | 1-136-171-00 | FILM 0.33MF 5% 50V |
| C27 | 1-162-288-31 | (320,320S)...CERAMIC 330PF 5% 50V | C209 | 1-126-059-11 | ELECT 10MF 20% 50V |
| C31A | 1-124-443-00 | ELECT 100MF 20% 10V | C210 | 1-124-994-11 | ELECT 100MF 20% 10V |
| C31B | 1-124-443-00 | ELECT 100MF 20% 10V | | | |

TC-W320/W320S/WR520/WR520S

| Ref.No. | Part No. | Description | | | |
|---------|---------------|-----------------------------|---------|-----|------|
| C211 | 1-126-059-11 | ELECT | 10MF | 20% | 50V |
| C212 | 1-126-162-11 | ELECT | 3.3MF | 20% | 50V |
| C213 | 1-126-300-11 | ELECT | 0.47MF | 20% | 50V |
| C214 | 1-126-162-11 | ELECT | 3.3MF | 20% | 50V |
| C502 | 1-124-472-11 | ELECT | 470MF | 20% | 6.3V |
| C503 | 1-126-301-11 | ELECT | 1MF | 20% | 50V |
| C504 | 1-161-494-00 | CERAMIC | 0.022MF | | 25V |
| C505 | 1-126-161-11 | ELECT | 2.2MF | 20% | 50V |
| C506 | 1-126-059-11 | (520,520S)...ELECT | 10MF | 20% | 50V |
| C701 | 1-124-045-00 | ELECT | 4.7MF | 20% | 50V |
| C702 | 1-124-887-00 | ELECT | 3300MF | 20% | 16V |
| C703 | 1-124-887-00 | ELECT | 3300MF | 20% | 16V |
| C704 | 1-124-910-11 | ELECT | 47MF | 20% | 50V |
| C705 | 1-124-443-00 | ELECT | 100MF | 20% | 6.3V |
| C706 | 1-126-022-11 | ELECT | 47MF | 20% | 16V |
| C707 | 1-126-022-11 | ELECT | 47MF | 20% | 16V |
| C708 | 1-124-473-11 | ELECT | 1000MF | 20% | 10V |
| C709 | 1-124-473-11 | ELECT | 1000MF | 20% | 10V |
| C710 | 1-164-159-11 | (320,320S)...CERAMIC | 0.1MF | | 50V |
| C801 | 1-124-443-00 | ELECT | 100MF | 20% | 6.3V |
| C802 | 1-126-059-11 | ELECT | 10MF | 20% | 50V |
| C803 | 1-126-301-11 | ELECT | 1MF | 20% | 50V |
| C804 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C805 | 1-136-165-00 | FILM | 0.1MF | 5% | 50V |
| C807 | 1-126-300-11 | ELECT | 0.47MF | 20% | 50V |
| C808 | 1-161-494-00 | CERAMIC | 0.022MF | | 25V |
| C901 | 1-161-494-00 | CERAMIC | 0.022MF | | 25V |
| CNP31A* | 1-568-824-11 | SOCKET, CONNECTOR | 5P | | |
| CNP31B* | 1-568-824-11 | SOCKET, CONNECTOR | 5P | | |
| CNP32A* | 1-564-706-11 | PIN, CONNECTOR (SMALL TYPE) | 4P | | |
| CNP32B* | 1-564-709-11 | PIN, CONNECTOR (SMALL TYPE) | 7P | | |
| CNP71A* | 1-564-705-11 | PIN, CONNECTOR (SMALL TYPE) | 3P | | |
| CNP71B* | 1-564-705-11 | PIN, CONNECTOR (SMALL TYPE) | 3P | | |
| CNP72A* | 1-564-706-11 | PIN, CONNECTOR (SMALL TYPE) | 4P | | |
| CNP72B* | 1-564-706-11 | PIN, CONNECTOR (SMALL TYPE) | 4P | | |
| CNP73A* | 1-568-826-11 | SOCKET, CONNECTOR | 7P | | |
| CNP73B* | 1-568-832-11 | SOCKET, CONNECTOR | 13P | | |
| CNP81A* | 1-568-852-11 | SOCKET, CONNECTOR | 9P | | |
| CNP81B* | 1-568-852-11 | SOCKET, CONNECTOR | 9P | | |
| CN501 | *1-568-824-11 | SOCKET, CONNECTOR | 5P | | |
| CN502 | *1-568-824-11 | SOCKET, CONNECTOR | 5P | | |
| CN504 | *1-564-705-11 | PIN, CONNECTOR (SMALL TYPE) | 3P | | |
| CN701 | *1-564-506-11 | PLUG, CONNECTOR | 3P | | |
| CN702 | *1-564-337-00 | PIN, CONNECTOR | 3P | | |
| CN801 | *1-568-828-11 | SOCKET, CONNECTOR | 9P | | |
| CN802 | *1-568-828-11 | SOCKET, CONNECTOR | 9P | | |
| CN803 | *1-568-832-11 | SOCKET, CONNECTOR | 13P | | |
| CN804 | *1-568-826-11 | SOCKET, CONNECTOR | 7P | | |
| CN805 | *1-564-505-11 | PLUG, CONNECTOR | 2P | | |
| D31 | 8-719-107-94 | DIODE 1SS202-1 | | | |
| D101 | 8-719-107-94 | DIODE 1SS202-1 | | | |
| D102 | 8-719-107-94 | DIODE 1SS202-1 | | | |
| D201 | 8-719-107-94 | DIODE 1SS202-1 | | | |
| D202 | 8-719-107-94 | DIODE 1SS202-1 | | | |

| Ref.No. | Part No. | Description |
|---------|----------------|--|
| D301 | 8-719-301-44 | DIODE SEL2410E-D (L-∞) |
| D302 | 8-719-301-44 | DIODE SEL2410E-D (L-10) |
| D303 | 8-719-301-44 | DIODE SEL2410E-D (L-6) |
| D304 | 8-719-301-44 | DIODE SEL2410E-D (L-3) |
| D305 | 8-719-301-38 | DIODE SEL2210S-C (L 0) |
| D306 | 8-719-301-38 | DIODE SEL2210S-C (L+3) |
| D307 | 8-719-301-38 | DIODE SEL2210S-C (L+6) |
| D401 | 8-719-301-44 | DIODE SEL2410E-D (R-∞) |
| D402 | 8-719-301-44 | DIODE SEL2410E-D (R-10) |
| D403 | 8-719-301-44 | DIODE SEL2410E-D (R-6) |
| D404 | 8-719-301-44 | DIODE SEL2410E-D (R-3) |
| D405 | 8-719-301-38 | DIODE SEL2210S-C (R-0) |
| D406 | 8-719-301-38 | DIODE SEL2210S-C (R+3) |
| D407 | 8-719-301-38 | DIODE SEL2210S-C (R+6) |
| D501 | 8-719-107-94 | DIODE 1SS202-1 |
| D502 | 8-719-200-77 | DIODE 10E2N |
| D503 | 8-719-001-33 | DIODE UZL-11L1 |
| D701 | 8-719-200-77 | DIODE 10E2N |
| D702 | 8-719-200-77 | DIODE 10E2N |
| D703 | 8-719-200-77 | DIODE 10E2N |
| D704 | 8-719-200-77 | DIODE 10E2N |
| D705 | 8-719-200-77 | DIODE 10E2N |
| D706 | 8-719-200-77 | DIODE 10E2N |
| D707 | 8-719-107-94 | DIODE 1SS202-1 |
| D708 | 8-719-000-78 | DIODE UZL-7L2 |
| D709 | 8-719-933-33 | DIODE HZS6A1L |
| D710 | 8-719-933-33 | DIODE HZS6A1L |
| D801 | 8-719-107-94 | DIODE 1SS202-1 |
| D802 | 8-719-107-94 | DIODE 1SS202-1 |
| D901 | 8-719-301-38 | DIODE SEL2210S-C (REC) |
| D902 | 8-719-301-52 | DIODE SEL2810A-C (PAUSE) |
| D903 | 8-719-301-44 | DIODE SEL2410E-D (PLAY) |
| D904 | 8-719-301-52 | (520,520S)...DIODE SEL2810A-C (B FWD) |
| D905 | 8-719-301-52 | (520,520S)...DIODE SEL2810A-C (B REV) |
| D906 | 8-719-301-38 | DIODE SEL2210S-C (HIGH) |
| D907 | 8-719-301-38 | DIODE SEL2210S-C (NORM) |
| D908 | 8-719-301-44 | DIODE SEL2410E-D (PLAY) |
| D909 | 8-719-301-52 | (520,520S)...DIODE SEL2810A-C (A FWD) |
| D910 | 8-719-301-52 | (520,520S)...DIODE SEL2810A-C (A REV) |
| F701 | △ 1-532-259-00 | (E,AEP,WG,UK)...FUSE, TIME-LAG 1.6A |
| F701 | △ 1-532-742-11 | (US,Canadian)...FUSE, GLASS TUBE 1.6A |
| F702 | △ 1-532-259-00 | (E,AEP,WG,UK)...FUSE, TIME-LAG 1.6A |
| F702 | △ 1-532-742-11 | (US,Canadian)...FUSE, GLASS TUBE 1.6A |
| HP901 | 1-543-536-11 | (320,320S DECK A)...HEAD, MAGNETIC (PLAYBACK) |
| HE901 | 1-543-535-11 | (320,320S DECK B)...HEAD, MAGNETIC (ERASE) |
| HP902 | A-2003-418-A | (520,520S DECK A)...BASE ASSY, HEAD |
| HRP901 | 1-543-537-11 | (320,320S DECK B)...HEAD, MAGNETIC (REC/PB) |
| HRP902 | A-2003-477-A | (520,520S DECK B)...BASE ASSY, HEAD (REC/PB/ERASE) |
| HE902 | | |
| IC31A | 8-759-111-44 | IC UPC4570C-1 |
| IC31B | 8-759-111-44 | IC UPC4570C-1 |
| IC81A | 8-719-939-23 | PHOTO SENSOR GP2S09-C |
| IC81B | 8-719-939-23 | PHOTO SENSOR GP2S09-C |
| IC501 | 8-752-036-34 | IC CXA1330S |

Note:
The components identified by mark **△** or dotted line with mark **△** are critical for safety. Replace only with part number specified.

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| Ref.No. | Part No. | Description |
|---------|--------------|------------------------------------|
| IC502 | 8-752-033-61 | (320,320S)...IC CXA1198AP |
| IC502 | 8-752-039-24 | (520,520S)...IC CXA1398P |
| IC503 | 8-759-208-06 | (320,320S)...IC TC4051BPHB |
| IC504 | 8-759-040-53 | IC MC14053BCP |
| IC505 | 8-759-945-58 | IC RC4558P |
| IC506 | 8-759-945-58 | IC RC4558P |
| IC507 | 8-759-634-51 | IC M5218AP |
| IC701 | 8-759-945-58 | IC RC4558P |
| IC801 | 8-759-634-59 | IC M50964-224SP |
| IC802 | 8-759-207-05 | IC TA7272P |
| IC901 | 8-741-100-48 | IC SBX1610-59 |
| J501 | 1-565-258-11 | JACK, PIN 4P (LINE IN/OUT) |
| J502 | 1-507-796-71 | JACK (PHONES) |
| L11 | 1-410-780-11 | INDUCTOR 27MMH |
| L21 | 1-410-780-11 | INDUCTOR 27MMH |
| LPF101 | 1-236-087-11 | FILTER, LOW PASS |
| LPF201 | 1-236-087-11 | FILTER, LOW PASS |
| M901 | X-3359-417-1 | MOTOR ASSY |
| M902 | A-2003-474-A | MOTOR (REEL MOTOR) ASSY |
| Q51 | 8-729-142-46 | TRANSISTOR 2SC2001-LK |
| Q52 | 8-729-142-46 | TRANSISTOR 2SC2001-LK |
| Q53 | 8-729-111-29 | TRANSISTOR 2SD1616A-K |
| Q71A | 8-729-820-16 | TRANSISTOR 2SA1317-S |
| Q71B | 8-729-820-16 | TRANSISTOR 2SA1317-S |
| Q101 | 8-729-620-05 | TRANSISTOR 2SC2603-EF |
| Q102 | 8-729-900-74 | TRANSISTOR DTC143TS |
| Q103 | 8-729-620-05 | (320,320S)...TRANSISTOR 2SC2603-EF |
| Q201 | 8-729-620-05 | TRANSISTOR 2SC2603-EF |
| Q202 | 8-729-900-74 | TRANSISTOR DTC143TS |
| Q203 | 8-729-620-05 | (320,320S)...TRANSISTOR 2SC2603-EF |
| Q501 | 8-729-900-61 | TRANSISTOR DTA114ES |
| Q502 | 8-729-900-61 | TRANSISTOR DTA114ES |
| Q503 | 8-729-900-61 | (320,320S)...TRANSISTOR DTA114ES |
| Q505 | 8-729-821-04 | TRANSISTOR 2SA1317-STU |
| Q506 | 8-729-900-61 | TRANSISTOR DTA114ES |
| Q507 | 8-729-900-61 | TRANSISTOR DTA114ES |
| Q508 | 8-729-821-04 | TRANSISTOR 2SA1317-STU |
| Q509 | 8-729-900-61 | TRANSISTOR DTA114ES |
| Q510 | 8-729-821-04 | TRANSISTOR 2SA1317-STU |
| Q511 | 8-729-821-04 | TRANSISTOR 2SA1317-STU |
| Q701 | 8-729-620-05 | TRANSISTOR 2SC2603-EF |
| Q702 | 8-729-920-98 | TRANSISTOR 2SD1761-EF |
| Q703 | 8-729-900-89 | TRANSISTOR DTC144ES |
| Q704 | 8-729-900-85 | TRANSISTOR DTC144WS |
| Q705 | 8-729-920-97 | TRANSISTOR 2SB1187-EF |
| Q706 | 8-729-920-98 | TRANSISTOR 2SD1761-EF |
| Q801 | 8-729-900-80 | TRANSISTOR DTC114ES |
| Q802 | 8-729-821-04 | TRANSISTOR 2SA1317-STU |
| Q803 | 8-729-900-61 | TRANSISTOR DTA114ES |
| Q804 | 8-729-821-04 | TRANSISTOR 2SA1317-STU |
| Q805 | 8-729-620-05 | TRANSISTOR 2SC2603-EF |
| Q806 | 8-729-620-05 | TRANSISTOR 2SC2603-EF |
| Q807 | 8-729-620-05 | TRANSISTOR 2SC2603-EF |
| Q808 | 8-729-620-05 | TRANSISTOR 2SC2603-EF |
| Q809 | 8-729-620-05 | TRANSISTOR 2SC2603-EF |
| Q810 | 8-729-620-05 | TRANSISTOR 2SC2603-EF |
| Q811 | 8-729-620-05 | TRANSISTOR 2SC2603-EF |

| Ref.No. | Part No. | Description |
|---------|----------------|------------------------------------|
| Q812 | 8-729-620-05 | TRANSISTOR 2SC2603-EF |
| Q813 | 8-729-620-05 | TRANSISTOR 2SC2603-EF |
| Q814 | 8-729-620-05 | TRANSISTOR 2SC2603-EF |
| Q815 | 8-729-821-04 | TRANSISTOR 2SA1317-STU |
| Q816 | 8-729-900-61 | TRANSISTOR DTA114ES |
| Q817 | 8-729-801-84 | TRANSISTOR 2SB1013-4 |
| Q818 | 8-729-900-89 | TRANSISTOR DTC144ES |
| Q819 | 8-729-801-84 | TRANSISTOR 2SB1013-4 |
| Q820 | 8-729-900-61 | TRANSISTOR DTA114ES |
| R11A | 1-247-881-00 | CARBON 120K 5% 1/4W |
| R11B | 1-247-881-00 | CARBON 120K 5% 1/4W |
| R12A | 1-249-405-11 | CARBON 100 5% 1/4W |
| R12B | 1-249-405-11 | CARBON 100 5% 1/4W |
| R13A | 1-247-882-11 | CARBON 130K 5% 1/4W |
| R13B | 1-247-882-11 | CARBON 130K 5% 1/4W |
| R14A | 1-249-426-11 | CARBON 5.6K 5% 1/4W |
| R14B | 1-249-426-11 | CARBON 5.6K 5% 1/4W |
| R15 | 1-249-430-11 | CARBON 12K 5% 1/4W |
| R21A | 1-247-881-00 | CARBON 120K 5% 1/4W |
| R21B | 1-247-881-00 | CARBON 120K 5% 1/4W |
| R22A | 1-249-405-11 | CARBON 100 5% 1/4W |
| R22B | 1-249-405-11 | CARBON 100 5% 1/4W |
| R23A | 1-247-882-11 | CARBON 130K 5% 1/4W |
| R23B | 1-247-882-11 | CARBON 130K 5% 1/4W |
| R24A | 1-249-426-11 | CARBON 5.6K 5% 1/4W |
| R24B | 1-249-426-11 | CARBON 5.6K 5% 1/4W |
| R25 | 1-249-430-11 | CARBON 12K 5% 1/4W |
| R31A | 1-249-409-11 | CARBON 220 5% 1/4W |
| R31B | 1-249-409-11 | CARBON 220 5% 1/4W |
| R32A | 1-249-409-11 | CARBON 220 5% 1/4W |
| R32B | 1-249-409-11 | CARBON 220 5% 1/4W |
| R51 | 1-249-435-11 | CARBON 33K 5% 1/4W |
| R52 | 1-249-435-11 | CARBON 33K 5% 1/4W |
| R53 | 1-249-429-11 | CARBON 10K 5% 1/4W |
| R54 | △.1-212-849-00 | (520,520S)...FUSIBLE 4.7 5% 1/4W F |
| R54 | △.1-212-851-00 | (320,320S)...FUSIBLE 5.6 5% 1/4W F |
| R71A | 1-249-433-11 | CARBON 22K 5% 1/4W |
| R71B | 1-249-433-11 | CARBON 22K 5% 1/4W |
| R72A | 1-249-433-11 | CARBON 22K 5% 1/4W |
| R72B | 1-249-433-11 | CARBON 22K 5% 1/4W |
| R73A | 1-249-437-11 | CARBON 47K 5% 1/4W |
| R73B | 1-249-437-11 | CARBON 47K 5% 1/4W |
| R74A | 1-249-437-11 | CARBON 47K 5% 1/4W |
| R74B | 1-249-437-11 | CARBON 47K 5% 1/4W |
| R81 | 1-249-414-11 | CARBON 560 5% 1/4W |
| R82 | 1-247-818-11 | (520,520S)...CARBON 300 5% 1/4W |
| R83 | 1-247-834-11 | CARBON 1.3K 5% 1/4W |
| R84A | 1-249-417-11 | CARBON 1K 5% 1/4W |
| R84B | 1-249-417-11 | CARBON 1K 5% 1/4W |
| R85A | 1-249-408-11 | CARBON 180 5% 1/4W |
| R85B | 1-249-408-11 | CARBON 180 5% 1/4W |

Note:
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Note:
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TC-W320/W320S/WR520/WR520S

| Ref.No. | Part No. | Description | | | |
|---------|--------------|---------------------|------|----|------|
| R101 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R102 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R103 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R104 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R105 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R106 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R107 | 1-247-887-00 | CARBON | 220K | 5% | 1/4W |
| R108 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W |
| R109 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W |
| R110 | 1-249-428-11 | CARBON | 8.2K | 5% | 1/4W |
| R111 | 1-247-864-11 | CARBON | 24K | 5% | 1/4W |
| R112 | 1-249-414-11 | CARBON | 560 | 5% | 1/4W |
| R113 | 1-249-417-11 | (320,320S)...CARBON | 1K | 5% | 1/4W |
| R114 | 1-249-429-11 | (320,320S)...CARBON | 10K | 5% | 1/4W |
| R115 | 1-249-421-11 | (320,320S)...CARBON | 2.2K | 5% | 1/4W |
| R115 | 1-249-426-11 | (520,520S)...CARBON | 5.6K | 5% | 1/4W |
| R116 | 1-249-428-11 | (320,320S)...CARBON | 8.2K | 5% | 1/4W |
| R117 | 1-249-431-11 | (320,320S)...CARBON | 15K | 5% | 1/4W |
| R117 | 1-249-429-11 | (520,520S)...CARBON | 10K | 5% | 1/4W |
| R118 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R119 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W |
| R120 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R121 | 1-249-408-11 | CARBON | 180 | 5% | 1/4W |
| R122 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R123 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R124 | 1-249-428-11 | CARBON | 8.2K | 5% | 1/4W |
| R125 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W |
| R126 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W |
| R127 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R201 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R202 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R203 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R204 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R205 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R206 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R207 | 1-247-887-00 | CARBON | 220K | 5% | 1/4W |
| R208 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W |
| R209 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W |
| R210 | 1-249-428-11 | CARBON | 8.2K | 5% | 1/4W |
| R211 | 1-247-864-11 | CARBON | 24K | 5% | 1/4W |
| R212 | 1-249-414-11 | CARBON | 560 | 5% | 1/4W |
| R213 | 1-249-417-11 | (320,320S)...CARBON | 1K | 5% | 1/4W |
| R214 | 1-249-429-11 | (320,320S)...CARBON | 10K | 5% | 1/4W |
| R215 | 1-249-421-11 | (320,320S)...CARBON | 2.2K | 5% | 1/4W |
| R215 | 1-249-426-11 | (520,520S)...CARBON | 5.6K | 5% | 1/4W |
| R216 | 1-249-428-11 | (320,320S)...CARBON | 8.2K | 5% | 1/4W |
| R217 | 1-249-431-11 | (320,320S)...CARBON | 15K | 5% | 1/4W |
| R217 | 1-249-429-11 | (520,520S)...CARBON | 10K | 5% | 1/4W |
| R218 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R219 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W |
| R220 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R221 | 1-249-408-11 | CARBON | 180 | 5% | 1/4W |
| R222 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R223 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |

| Ref.No. | Part No. | Description | | | |
|---------|--------------|---------------------|------|----|------|
| R224 | 1-249-428-11 | CARBON | 8.2K | 5% | 1/4W |
| R225 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W |
| R226 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W |
| R227 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R501 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R502 | 1-249-434-11 | CARBON | 27K | 5% | 1/4W |
| R503 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R504 | 1-247-864-11 | CARBON | 24K | 5% | 1/4W |
| R506 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R507 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R508 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R509 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W |
| R510 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W |
| R511 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R512 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W |
| R513 | 1-247-870-11 | CARBON | 43K | 5% | 1/4W |
| R514 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R515 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R516 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R517 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R518 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R519 | 1-249-427-11 | (320,320S)...CARBON | 6.8K | 5% | 1/4W |
| R519 | 1-249-418-11 | (520,520S)...CARBON | 1.2K | 5% | 1/4W |
| R520 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R521 | 1-249-431-11 | (320,320S)...CARBON | 15K | 5% | 1/4W |
| R521 | 1-249-428-11 | (520,520S)...CARBON | 9.1K | 5% | 1/4W |
| R522 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R523 | 1-247-858-11 | CARBON | 13K | 5% | 1/4W |
| R524 | 1-249-429-11 | (520,520S)...CARBON | 10K | 5% | 1/4W |
| R525 | 1-249-442-11 | CARBON | 510 | 5% | 1/4W |
| R526 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W |
| R527 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R528 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W |
| R601 | 1-249-438-11 | (320,320S)...CARBON | 56K | 5% | 1/4W |
| R602 | 1-249-440-11 | (320,320S)...CARBON | 82K | 5% | 1/4W |
| R603 | 1-247-882-11 | (320,320S)...CARBON | 130K | 5% | 1/4W |
| R604 | 1-249-439-11 | (320,320S)...CARBON | 68K | 5% | 1/4W |
| R605 | 1-249-435-11 | (320,320S)...CARBON | 33K | 5% | 1/4W |
| R606 | 1-247-872-11 | (320,320S)...CARBON | 51K | 5% | 1/4W |
| R611 | 1-247-883-00 | (320,320S)...CARBON | 150K | 5% | 1/4W |
| R612 | 1-247-878-00 | (320,320S)...CARBON | 91K | 5% | 1/4W |
| R613 | 1-247-881-00 | (320,320S)...CARBON | 120K | 5% | 1/4W |
| R614 | 1-247-876-11 | (320,320S)...CARBON | 75K | 5% | 1/4W |
| R615 | 1-249-437-11 | (320,320S)...CARBON | 47K | 5% | 1/4W |
| R616 | 1-249-439-11 | (320,320S)...CARBON | 68K | 5% | 1/4W |
| R621 | 1-247-887-00 | (320,320S)...CARBON | 220K | 5% | 1/4W |
| R622 | 1-247-881-00 | (320,320S)...CARBON | 120K | 5% | 1/4W |
| R623 | 1-249-440-11 | (320,320S)...CARBON | 82K | 5% | 1/4W |
| R624 | 1-249-436-11 | (320,320S)...CARBON | 39K | 5% | 1/4W |
| R625 | 1-247-872-11 | (320,320S)...CARBON | 51K | 5% | 1/4W |
| R626 | 1-249-439-11 | (320,320S)...CARBON | 68K | 5% | 1/4W |
| R641 | 1-249-441-11 | (320,320S)...CARBON | 100K | 5% | 1/4W |
| R642 | 1-249-437-11 | (320,320S)...CARBON | 47K | 5% | 1/4W |
| R643 | 1-249-439-11 | (320,320S)...CARBON | 68K | 5% | 1/4W |
| R644 | 1-247-870-11 | (320,320S)...CARBON | 43K | 5% | 1/4W |

| Ref.No. | Part No. | Description | | | | |
|---------|--------------|---------------------|------|----|------|--|
| R645 | 1-247-868-11 | (320,320S)...CARBON | 36K | 5% | 1/4W | |
| R646 | 1-249-433-11 | (320,320S)...CARBON | 22K | 5% | 1/4W | |
| R661 | 1-247-881-00 | (320,320S)...CARBON | 120K | 5% | 1/4W | |
| R662 | 1-249-437-11 | (320,320S)...CARBON | 47K | 5% | 1/4W | |
| R663 | 1-249-438-11 | (320,320S)...CARBON | 56K | 5% | 1/4W | |
| R664 | 1-249-439-11 | (320,320S)...CARBON | 68K | 5% | 1/4W | |
| R665 | 1-247-872-11 | (320,320S)...CARBON | 51K | 5% | 1/4W | |
| R666 | 1-247-868-11 | (320,320S)...CARBON | 36K | 5% | 1/4W | |
| R681 | 1-247-880-11 | (320,320S)...CARBON | 110K | 5% | 1/4W | |
| R682 | 1-247-876-11 | (320,320S)...CARBON | 75K | 5% | 1/4W | |
| R683 | 1-249-436-11 | (320,320S)...CARBON | 39K | 5% | 1/4W | |
| R684 | 1-249-434-11 | (320,320S)...CARBON | 27K | 5% | 1/4W | |
| R685 | 1-249-438-11 | (320,320S)...CARBON | 56K | 5% | 1/4W | |
| R686 | 1-247-870-11 | (320,320S)...CARBON | 43K | 5% | 1/4W | |
| R701 | 1-247-752-11 | CARBON | 1K | 5% | 1/2W | |
| R702 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R703 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R704 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R705 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R706 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R707 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | |
| R708 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R709 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R710 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | |
| R711 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R712 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R713 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | |
| R714 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | |
| R801 | 1-249-412-11 | (520,520S)...CARBON | 390 | 5% | 1/4W | |
| R802 | 1-249-412-11 | (520,520S)...CARBON | 390 | 5% | 1/4W | |
| R803 | 1-249-410-11 | CARBON | 270 | 5% | 1/4W | |
| R804 | 1-249-412-11 | CARBON | 390 | 5% | 1/4W | |
| R805 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W | |
| R806 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R807 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R808 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R809 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R810 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R811 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R812 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R813 | 1-249-422-11 | CARBON | 2.7K | 5% | 1/4W | |
| R814 | 1-249-428-11 | CARBON | 8.2K | 5% | 1/4W | |
| R815 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | |
| R816 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R817 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R818 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R819 | 1-249-434-11 | CARBON | 27K | 5% | 1/4W | |
| R820 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R821 | 1-249-434-11 | CARBON | 27K | 5% | 1/4W | |
| R822 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R823 | 1-247-895-00 | CARBON | 470K | 5% | 1/4W | |
| R824 | 1-247-895-00 | CARBON | 470K | 5% | 1/4W | |
| R825 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R826 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R827 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W | |
| R828 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W | |
| R829 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W | |

| Ref.No. | Part No. | Description | | | | |
|---------|--------------|-------------------------------|------|----|------|--|
| R830 | 1-249-407-11 | CARBON | 150 | 5% | 1/4W | |
| R831 | 1-249-407-11 | CARBON | 150 | 5% | 1/4W | |
| R832 | 1-249-407-11 | CARBON | 150 | 5% | 1/4W | |
| R833 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R834 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W | |
| R835 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W | |
| R836 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R837 | 1-249-410-11 | CARBON | 270 | 5% | 1/4W | |
| R838 | 1-249-412-11 | (520,520S)...CARBON | 390 | 5% | 1/4W | |
| R839 | 1-249-412-11 | (520,520S)...CARBON | 390 | 5% | 1/4W | |
| R840 | 1-249-441-11 | (520,520S)...CARBON | 100K | 5% | 1/4W | |
| R841 | 1-249-415-11 | CARBON | 680 | 5% | 1/4W | |
| R842 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R843 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R844 | 1-247-866-11 | CARBON | 30K | 5% | 1/4W | |
| R845 | 1-249-434-11 | CARBON | 27K | 5% | 1/4W | |
| R846 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R847 | 1-247-862-11 | CARBON | 20K | 5% | 1/4W | |
| R848 | 1-247-872-11 | CARBON | 51K | 5% | 1/4W | |
| R850 | 1-247-872-11 | CARBON | 51K | 5% | 1/4W | |
| R851 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R853 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R854 | 1-247-866-11 | CARBON | 30K | 5% | 1/4W | |
| R855 | 1-249-434-11 | CARBON | 27K | 5% | 1/4W | |
| R856 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | |
| R857 | 1-247-862-11 | CARBON | 20K | 5% | 1/4W | |
| R858 | 1-247-872-11 | CARBON | 51K | 5% | 1/4W | |
| R860 | 1-247-872-11 | CARBON | 51K | 5% | 1/4W | |
| R861 | 1-249-405-11 | CARBON | 100 | 5% | 1/4W | |
| R862 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R881 | 1-249-415-11 | CARBON | 680 | 5% | 1/4W | |
| R882 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R901 | 1-249-407-11 | CARBON | 150 | 5% | 1/4W | |
| R902 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W | |
| R903 | 1-249-411-11 | CARBON | 330 | 5% | 1/4W | |
| R904 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W | |
| R905 | 1-249-415-11 | CARBON | 680 | 5% | 1/4W | |
| R906 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R907 | 1-249-420-11 | CARBON | 1.8K | 5% | 1/4W | |
| R908 | 1-249-407-11 | CARBON | 150 | 5% | 1/4W | |
| R909 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W | |
| R910 | 1-249-411-11 | CARBON | 330 | 5% | 1/4W | |
| R911 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W | |
| R912 | 1-249-415-11 | CARBON | 680 | 5% | 1/4W | |
| R913 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | |
| R914 | 1-249-426-11 | (520,520S)...CARBON | 5.6K | 5% | 1/4W | |
| R915 | 1-249-430-11 | (520,520S)...CARBON | 12K | 5% | 1/4W | |
| R916 | 1-249-411-11 | CARBON | 330 | 5% | 1/4W | |
| R917 | 1-249-411-11 | CARBON | 330 | 5% | 1/4W | |
| RV12 | 1-230-498-11 | (320,320S)...RES, ADJ, CARBON | 47K | | | |
| RV12 | 1-230-500-11 | (520,520S)...RES, ADJ, CARBON | 220K | | | |
| RV11A | 1-238-597-11 | RES, ADJ, CARBON | 1K | | | |
| RV11B | 1-238-597-11 | RES, ADJ, CARBON | 1K | | | |
| RV21A | 1-238-597-11 | RES, ADJ, CARBON | 1K | | | |
| RV21B | 1-238-597-11 | RES, ADJ, CARBON | 1K | | | |



| Ref.No. | Part No. | Description |
|---------|--------------|---|
| RV22 | 1-230-500-11 | (520,520S)...RES, ADJ, CARBON 220K |
| RV22 | 1-230-498-11 | (320,320S)...RES, ADJ, CARBON 47K |
| RV71A | 1-238-600-11 | RES, ADJ, CARBON 10K |
| RV71B | 1-238-600-11 | RES, ADJ, CARBON 10K |
| RV72A | 1-238-600-11 | RES, ADJ, CARBON 10K |
| RV72B | 1-238-600-11 | RES, ADJ, CARBON 10K |
| RV101 | 1-238-016-11 | RES, ADJ, CARBON 10K |
| RV201 | 1-238-016-11 | RES, ADJ, CARBON 10K |
| RV501 | 1-241-058-11 | RES, VAR, CARBON 50K/50K (REC LEVEL) |
| RV502 | 1-241-057-11 | RES, VAR, CARBON 50K/50K (BALANCE) |
| RY31 | 1-515-726-11 | RELAY |
| S81A | 1-571-958-11 | SWITCH, PUSH (1 KEY)(STOP) |
| S81 | 1-571-958-11 | SWITCH, PUSH (1 KEY)(STOP) |
| S82A | 1-571-281-21 | SWITCH, LEAF (70EQ) |
| S82 | 1-571-281-21 | SWITCH, LEAF (70EQ) |
| S83 | 1-571-281-21 | SWITCH, LEAF (METEL) |
| S84 | 1-571-281-21 | SWITCH, LEAF (REC A) |
| S85 | 1-571-281-21 | (520,520S)...SWITCH, LEAF (REC B) |
| S86A | 1-571-281-21 | SWITCH, LEAF (HALF) |
| S86B | 1-571-281-21 | SWITCH, LEAF (HALF) |
| S701 | 1-571-305-11 | SWITCH, PUSH (1 KEY)(POWER) |
| S901 | 1-572-358-11 | SWITCH, SLIDE (DOLBY NR) |
| S902 | 1-572-358-11 | (520,520S)...SWITCH, SLIDE (DIR-MODE) |
| S903 | 1-554-596-21 | SWITCH, KEY BOARD (A STOP) |
| S904 | 1-554-596-21 | SWITCH, KEY BOARD (A FWD) |
| S905 | 1-554-596-21 | (520,520S)...SWITCH, KEY BOARD (A REV) |
| S906 | 1-554-596-21 | SWITCH, KEY BOARD (B REW) |
| S907 | 1-554-596-21 | SWITCH, KEY BOARD (B FF) |
| S908 | 1-554-596-21 | SWITCH, KEY BOARD (B REC) |
| S909 | 1-554-596-21 | SWITCH, KEY BOARD (DUBBING HIGH) |
| S910 | 1-554-596-21 | SWITCH, KEY BOARD (DUBBING NORM) |
| S911 | 1-554-596-21 | SWITCH, KEY BOARD (B STOP) |
| S912 | 1-554-596-21 | SWITCH, KEY BOARD (B PAUSE) |
| S913 | 1-554-596-21 | SWITCH, KEY BOARD (B FWD) |
| S914 | 1-554-596-21 | (520,520S)...SWITCH, KEY BOARD (B REV) |
| S915 | 1-554-596-21 | SWITCH, KEY BOARD (B REC MUTE) |
| S916 | 1-554-596-21 | SWITCH, KEY BOARD (A REW) |
| S917 | 1-554-596-21 | SWITCH, KEY BOARD (A FF) |
| T51 | 1-433-337-11 | (520,520S)...TRANSFORMER, BIAS OSCILLATION |
| T51 | 1-433-338-12 | (320,320S)...TRANSFORMER, BIAS OSCILLATION |

| Ref.No. | Part No. | Description |
|---------|----------------|---|
| T701 | △.1-449-661-21 | (AEP,WG,UK)...TRANSFORMER, POWER |
| T701 | △.1-449-666-21 | (E).....TRANSFORMER, POWER |
| T701 | △.1-449-420-21 | (US,Canadian)...TRANSFORMER, POWER |
| VS901 | △.1-570-307-11 | (E)...SWITCH, VOLTAGE CHANGE (VOLTAGE) |
| X801 | 1-577-358-21 | VIBRATOR, CERAMIC (4MHZ) |


ACCESSORY & PACKING MATERIAL

| | |
|---------------|--|
| 1-559-533-11 | CORD, CONNECTION |
| *3-350-829-31 | (520)...INDIVIDUAL CARTON |
| *3-350-829-41 | (320)...INDIVIDUAL CARTON |
| *3-350-829-51 | (520S)...INDIVIDUAL CARTON |
| *3-350-829-61 | (320S)...INDIVIDUAL CARTON |
| *3-354-917-01 | CUSHION |
| 3-703-450-01 | (US)...INSTRUCTION |
| 3-751-499-11 | (Canadian,E,AEP,UK)...MANUAL, INSTRUCTION (English,French,Spanish,Portuguese) |
| 3-751-499-21 | (US)...MANUAL, INSTRUCTION (English) |
| 3-751-499-41 | (AEP)...MANUAL, INSTRUCTION (German,Dutch,Swedish,Italian) |
| 3-751-499-51 | (WG)...MANUAL, INSTRUCTION (German) |

Note:

The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

Note:

Les composants identifiés par une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.