

# TC-K51

*AEP Model  
UK Model  
E Model  
US Model  
Canadian Model*



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**STEREO CASSETTE DECK**

## GENERAL

**Power Requirements:** US, Canadian model  
120 V ac, 60 Hz  
AEP model  
220 V ac, 50/60 Hz  
(or 220 V ac adjustable by authorized Sony personnel)  
UK model  
240 V ac, 50/60 Hz  
(or 220 V ac adjustable by authorized Sony personnel)  
E model  
110, 120, 220 or 240 V ac adjustable, 50/60 Hz


**Power Consumption:** 12 W

## SPECIFICATIONS


**Dimensions:** Approx. 430 (w) x 130 (h) x 290 (d) mm  
17 (w) x 5 1/8 (h) x 11 1/2 (d) inches  
(US, AEP, UK, E model)  
Approx. 460 (w) x 130 (h) x 290 (d) mm  
18 1/8 (w) x 5 1/8 (h) x 11 1/2 (d) inches  
(Canadian model)  
including projecting parts and controls  
**Weight:** Approx. 5.7 kg, 12 lb 9 oz  
(US, AEP, UK, E model)  
Approx. 6.5 kg, 14 lb 5 oz (Canadian model)

— Continued on page 2 —

### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS 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 TRAME ET MARQUE  SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES EXPLODÉES 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.

Tape Transport Mechanism Type	TCM-91V7	
	Specification	Test Equipment
Forward Torque	28–55g·cm (0.39–0.76oz·inch)	Sony torque meter CQ-102C
Fast Forward Torque, Rewind Torque	60–120g·cm (0.84–1.66oz·inch)	Sony torque meter CQ-201B
Back Tension Torque	2.0–4.5g·cm (0.02–0.06oz·inch)	Sony torque meter CQ-102C

**SONY**  
**SERVICE MANUAL**

## TAPE RECORDER SECTION

**Recording System:** 4-track 2-channel stereo

**Fast-forward and Rewind Time:** Approx. 90 sec. (with C-60)

**Frequency Response:** DOLBY NR OFF  
 US, Canadian model

- With Type IV cassette (Sony METALLIC)
  - 20–17,000 Hz
  - 30–15,000 Hz ( $\pm 3$  dB)
  - 30–13,000 Hz ( $\pm 3$  dB, 0 VU recording)
- With TYPE III cassette (Sony Fe-Cr)
  - 20–17,000 Hz
  - 30–15,000 Hz ( $\pm 3$  dB)
- With TYPE II cassette (Sony EHF)
  - 20–16,000 Hz
  - 30–14,000 Hz ( $\pm 3$  dB)
- With TYPE I cassette (Sony HFX)
  - 20–15,000 Hz

AEP, UK, E model

- With TYPE IV cassette (Sony METALLIC)
  - 20–17,000 Hz
  - 30–15,000 Hz ( $\pm 3$  dB)
  - 30–13,000 Hz ( $\pm 3$  dB, 0 VU recording)
  - 30–15,000 Hz (DIN)
- With TYPE III cassette (Sony Fe-Cr)
  - 20–17,000 Hz
  - 30–15,000 Hz ( $\pm 3$  dB)
  - 30–15,000 Hz (DIN)
- With TYPE II cassette (Sony CD- $\alpha$ )
  - 20–16,000 Hz
  - 30–14,000 Hz ( $\pm 3$  dB)
  - 30–14,000 Hz (DIN)
- With TYPE I cassette (Sony BHF)
  - 20–15,000 Hz
  - 30–13,000 Hz (DIN)

**Wow and Flutter:** 0.045 % WRMS (US, Canadian model)  
 0.045 % WRMS (NAB) } (AEP, UK, E model)  
 $\pm 0.14$  % (DIN)

**S/N Ratio:** DOLBY NR OFF  
 US, Canadian model

- With TYPE III cassette (Sony Fe-Cr)
  - 59 dB at peak level
- With TYPE II cassette (Sony EHF)
  - 57 dB at peak level

AEP, UK, E model

- With TYPE III cassette (Sony Fe-Cr)
  - 59 dB at peak level (NAB)
  - 57 dB (DIN, 1975, rev.)
- With TYPE II cassette (Sony CD- $\alpha$ )
  - 57 dB at peak level (NAB)

DOLBY NR ON  
 Improved by 5 dB at 1 kHz, 10 dB above 5 kHz

**Total Harmonic Distortion:** 1.0 % (with Sony Fe-Cr cassette)

**Record Bias Frequency:** 105 kHz

**Inputs:** Microphone inputs (phone jacks) ..... 2  
 sensitivity 0.25 mV ( $-70$  dB)  
 for a low-impedance microphone

Line inputs (phono jacks) ..... 2  
 sensitivity 77.5 mV ( $-20$  dB)  
 input impedance 50 k $\Omega$

REC/PB (connector) ... (AEP, UK, E model)  
 input impedance less than 10 k $\Omega$

**Outputs:** Variable line outputs (phono jacks) ..... 2  
 output level 0.435 V ( $-5$  dB)  
 at load impedance 50 k $\Omega$   
 with LINE OUT level control at "10"  
 suitable load impedance more than 10 k $\Omega$

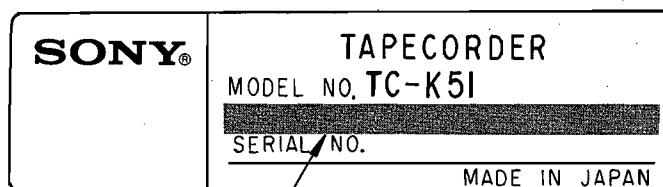
Fixed line outputs (phono jacks) ..... 2  
 output level 0.435 V ( $-5$  dB)  
 at load impedance 50 k $\Omega$   
 Suitable load impedance  
 more than 10 k $\Omega$

Headphone output ..... 1  
 output level  $-52$  to  $-22$  dB  
 (1.9 – 62 mV) at load impedance 8  $\Omega$

REC/PB (connector) ... (AEP, UK, E model)  
 output impedance less than 10 k $\Omega$

$0 \text{ dB} = 0.775 \text{ V}$

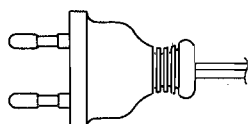
**MODEL IDENTIFICATION**  
**— Specification Label —**



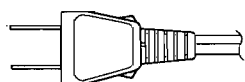
<i>US, Canadian model</i> : AC 120V	60Hz	12W
<i>AEP model</i> : AC 220V	~50/60Hz	12W
<i>UK model</i> : AC 240V	~50/60Hz	12W
<i>E model</i> : AC 110, 120, 220, 240V	~50/60Hz	12W

**— Power Cord —**

E model: euro-plug 1-551-530-00



E model: parallel-blade plug 1-551-473-31



## SECTION 1 OUTLINE

### 1-1. CIRCUIT DESCRIPTION

#### Muting Circuit Operation when Power Switch is turned on/off

Figure 1 shows the circuit to mute LINE OUT until power ( $\pm 10V$ ) gets sufficiently stabilized after the power switch is turned on. Muting is also performed when the power switch is turned off.

#### 1. LINE OUT Muting Circuit (See Fig. 1)

- 1) Operation just after the power switch is turned on: Q308 remains off until C309 and C310 are charged; soon after the power switch is turned on. Since Q308 is off, Q104 and Q204 turn on to mute LINE OUT.
- 2) Resetting muting: Q308 turns on when the voltages across C309 and C310 being charged reach a sufficient level. As a result, Q104 and Q204 turn off to release muting.
- 3) Operation after the power switch is turned off: When the power switch is turned off, C403 is quickly discharged via R403, and D305 conducts. As a result, C309 and C310 are also quickly discharged via R403. Q308 then turns off to turn on Q104 and Q204. The LINE OUT is muted.

#### 2. Charging/Discharging Circuit

##### 1) D305

D305 acts as a part in quickly discharging C309 and C310 via R403 when the power switch is turned off, thereby muting LINE OUT.

It also serves to prepare the charging needed when the power switch is turned on.

##### 2) D405, D406, and C403

D405 and D406 take part in cutting off D305 when the power switch is turned on so that D305 can be active only during discharging.

To cut off D305 quickly when the power switch is turned on, D405 is supplied with the power coming immediately from the rectifier next to the power transformer because this power rises more quickly than the stabilized power (10V).

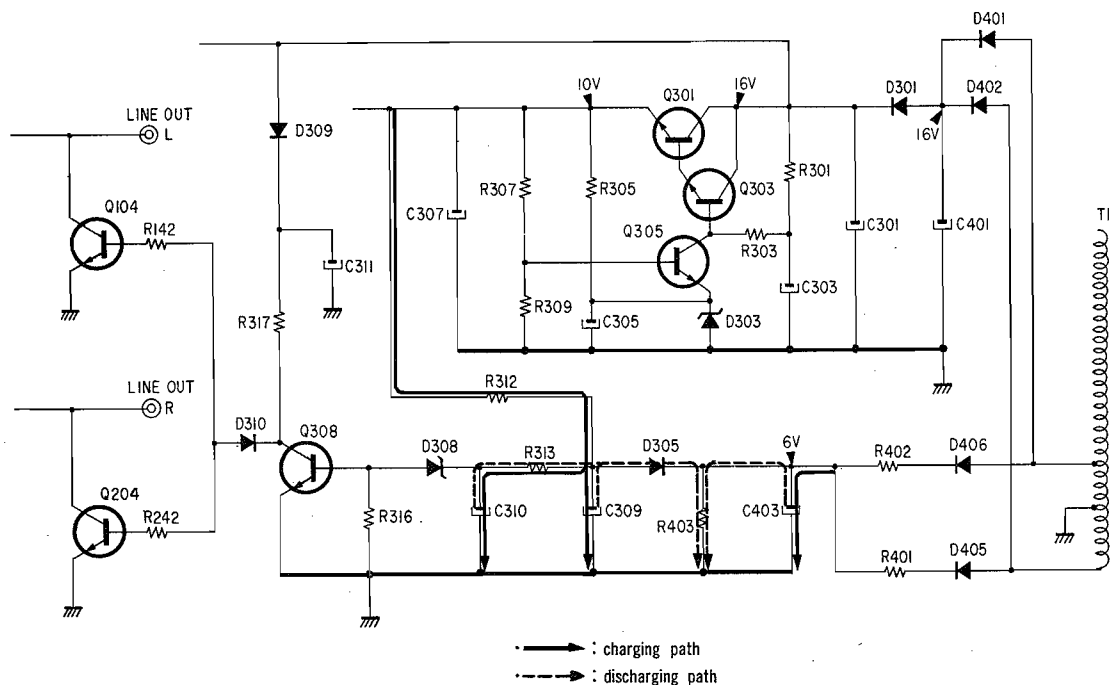


Fig. 1



### Bias Oscillator Drive Circuit

Figure 2 shows the bias-oscillator drive circuit. The bias voltage develops when the B+ power (10V) is supplied to the emitter of Q309 and Q309 is turned on.

The operation is as follows.

When the REC button is pressed, S1002 turns on, and S1-3 switches to recording (10V is supplied to the emitter of Q309). Q307 then turns off, and Q310 turns on. As a result, the bias oscillator is supplied with power and generates the bias voltage.

### Muting LINE OUT when Buttons are pressed (See Fig. 3)

1) Muting at the moment a button is pressed:

When a button is pressed, S1001 turns on, and Q308 turns off. As a result, Q104 and Q204 turn on to mute the LINE OUT (flow denoted by ③).

2) Muting at the time of STOP, REW, and FF:

S1002 is off, and Q307 turns on. The flow is then divided into two paths:

Flow ①: Q310 turns off, Q309 turns off, and no bias voltage develops.

Flow ②: Q308 turns off, and Q104 and Q204 turn on to mute the LINE OUT.

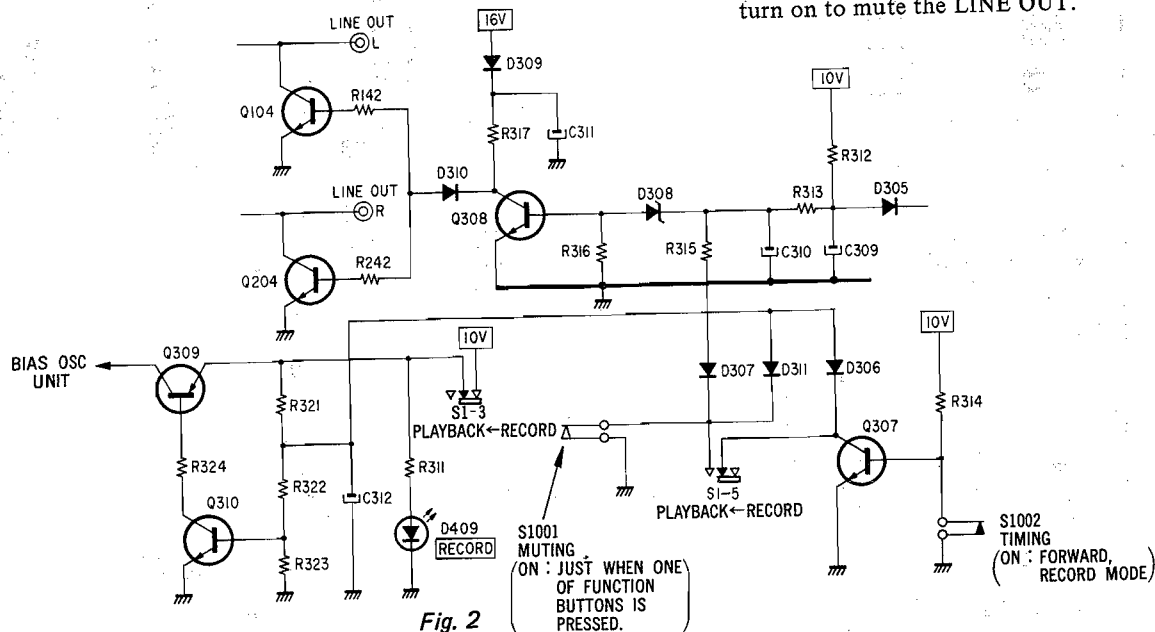


Fig. 2

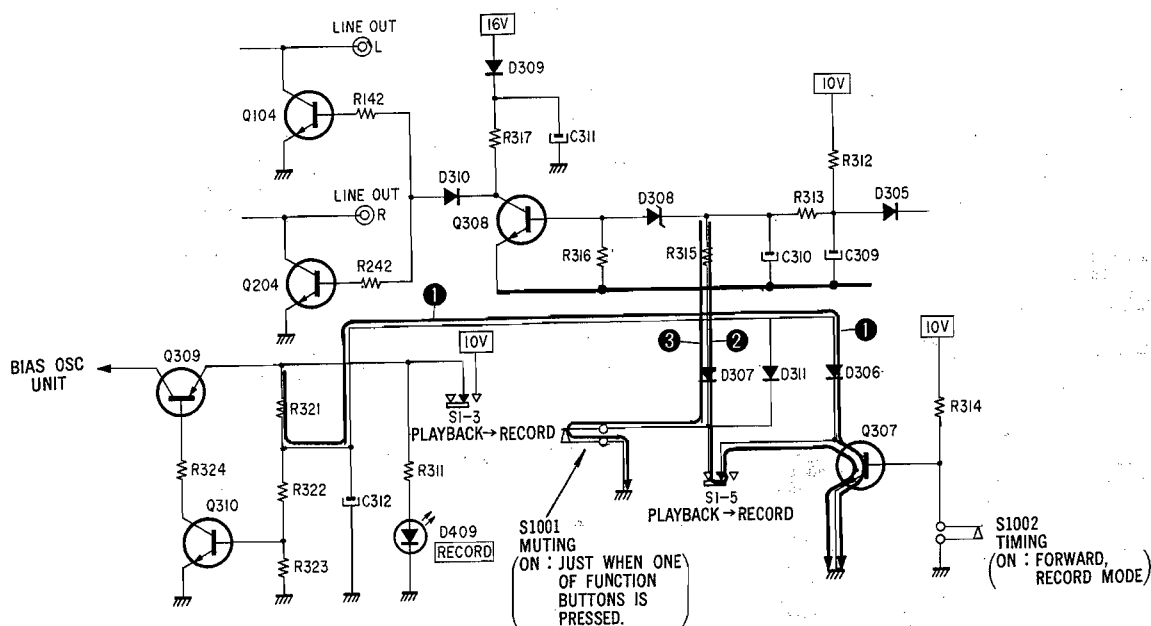
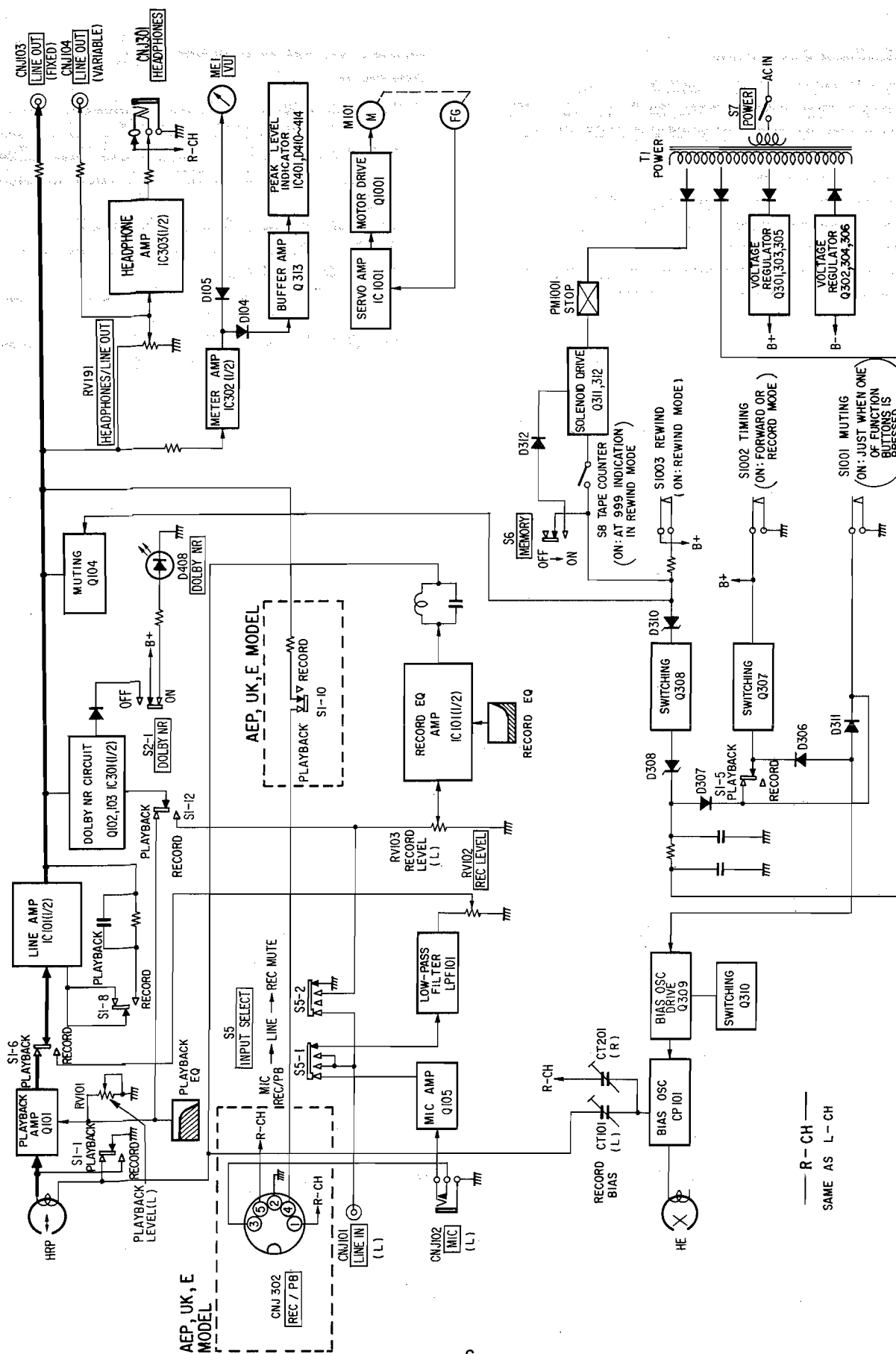


Fig. 3

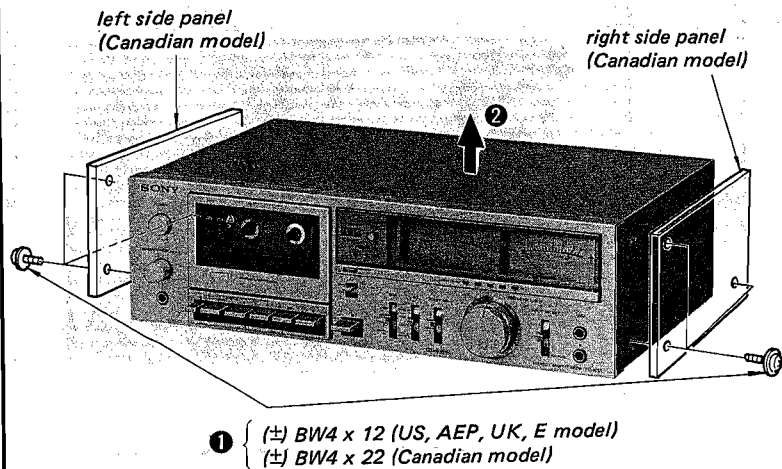


## SECTION 2 DISASSEMBLY

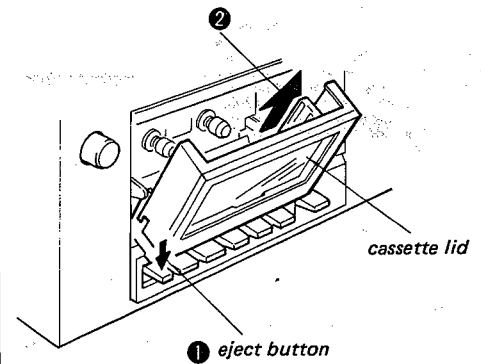
**TC-K51**

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

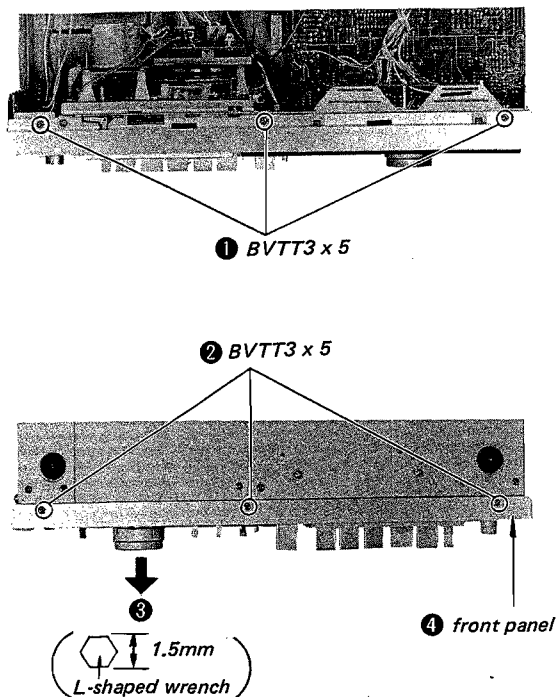
### TOP COVER REMOVAL



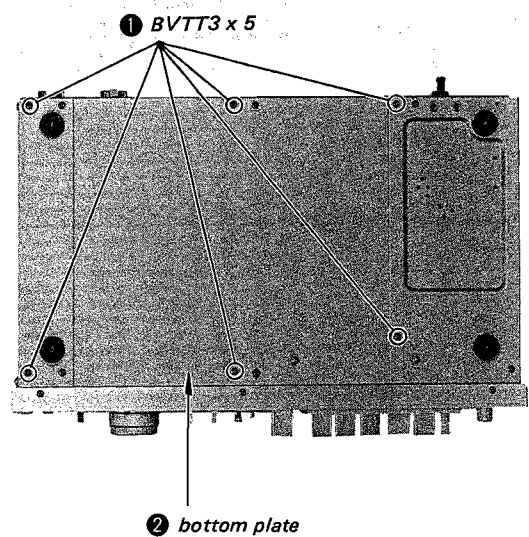
### CASSETTE LID REMOVAL



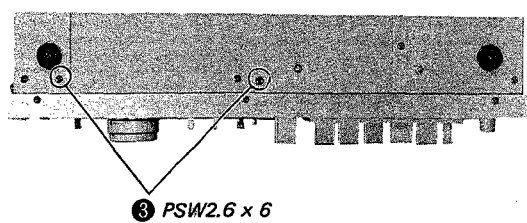
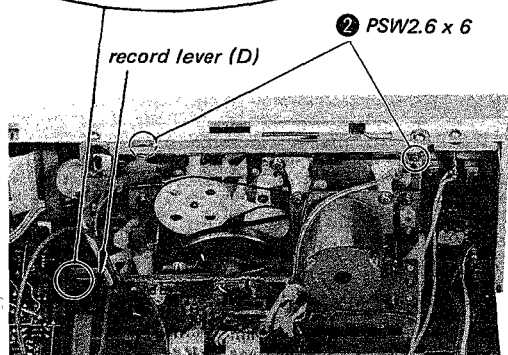
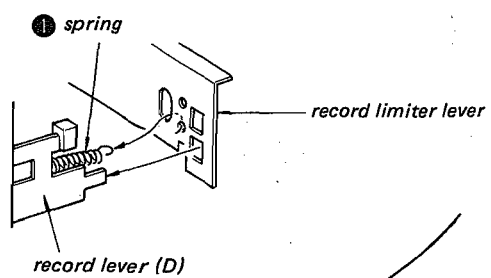
### FRONT PANEL REMOVAL



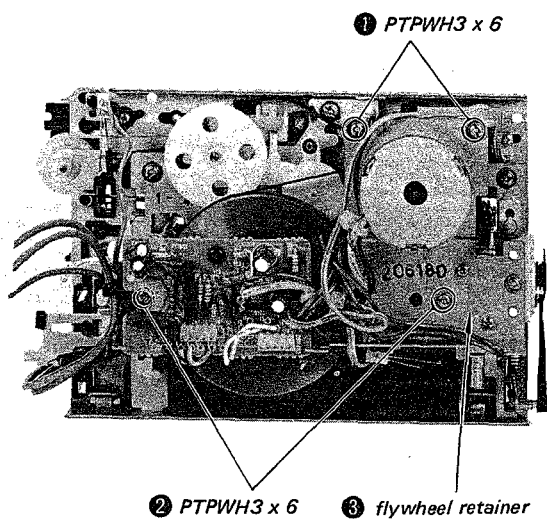
### BOTTOM PLATE REMOVAL



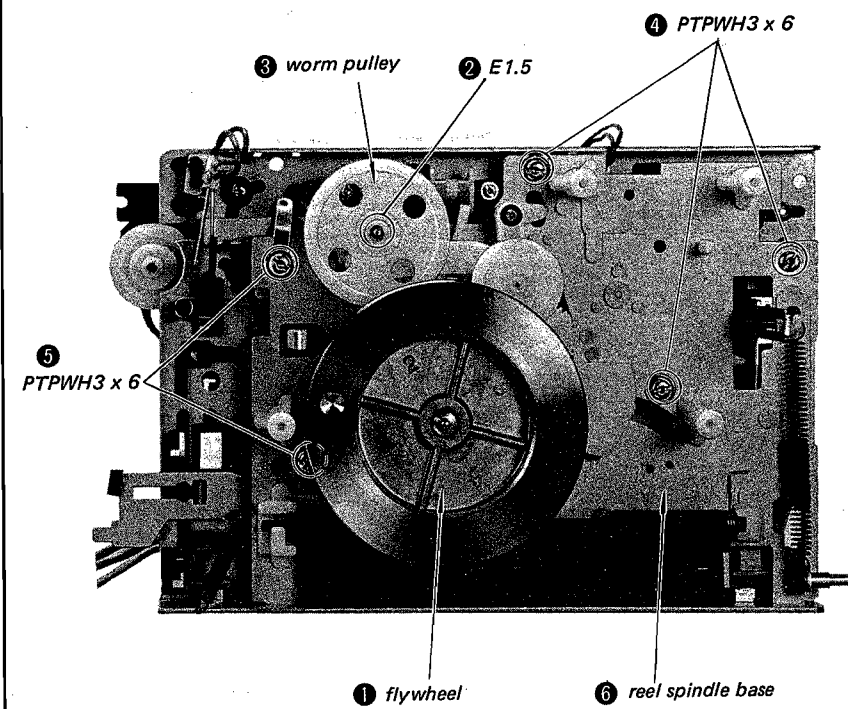
## MECHANICAL BLOCK REMOVAL



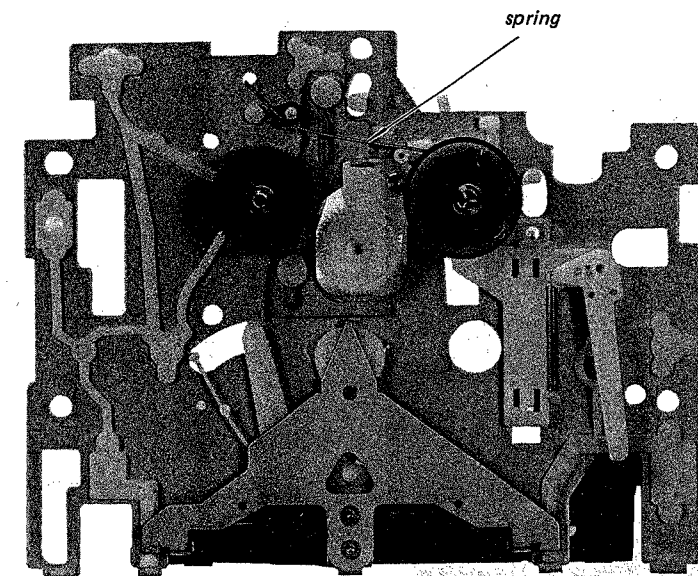
## FLYWHEEL RETAINER REMOVAL



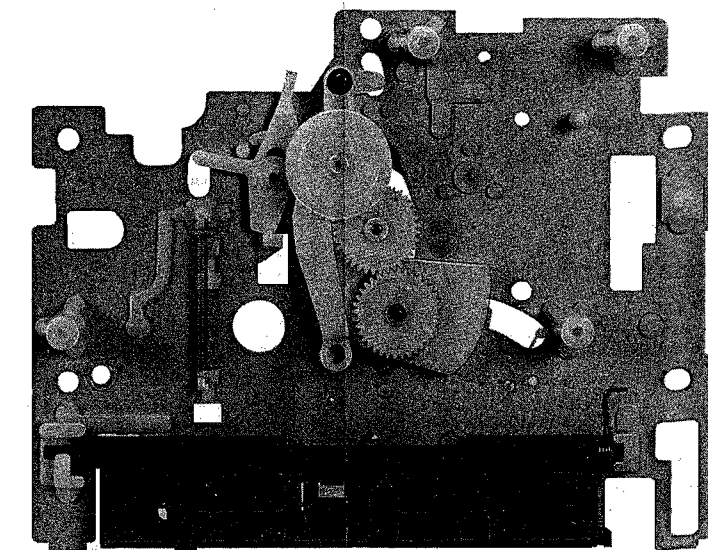
# REEL SPINDLE BASE REMOVAL



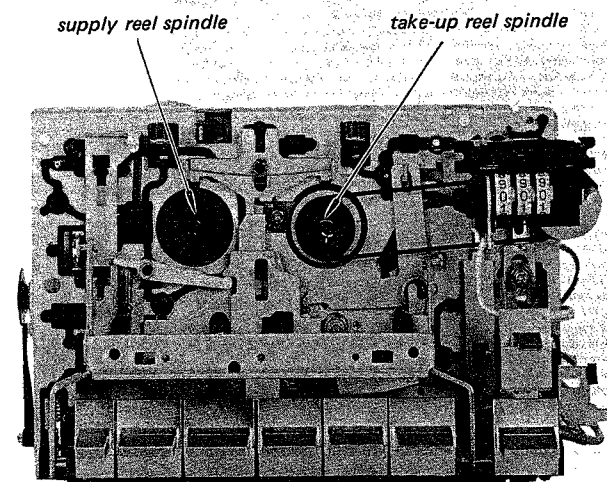
Reel spindle base front view



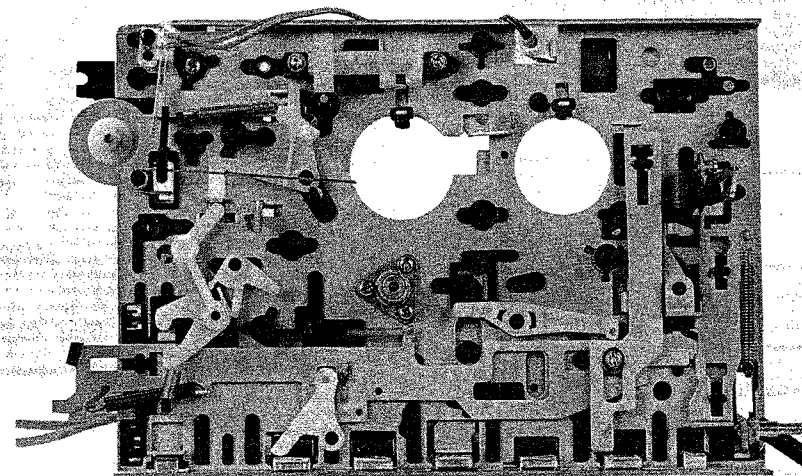
Reel spindle base view



Reel spindle base is not removed.  
(front view)



Reel spindle base is removed.  
(rear view)



## SECTION 3 ADJUSTMENTS

TC-K51 TC-K51

### 3-1. MECHANICAL ADJUSTMENTS

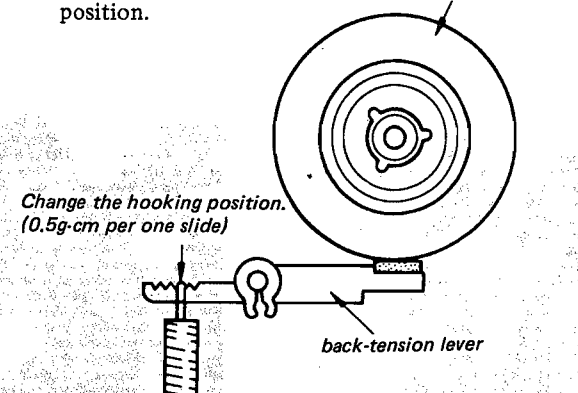
#### PRECAUTION

- Clean the following parts with a denatured-alcohol-moistened swab:  
 record/playback head    pinch roller  
 erase head    rubber belts  
 capstan    idlers
- 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 with the rated power supply voltage unless otherwise noted.

#### Back Tension Torque Adjustment — playback mode —

Torque meter	Meter reading
CQ-102C	2.0 – 4.5g-cm (0.02 – 0.06 oz-inch)

If necessary, change the spring position.

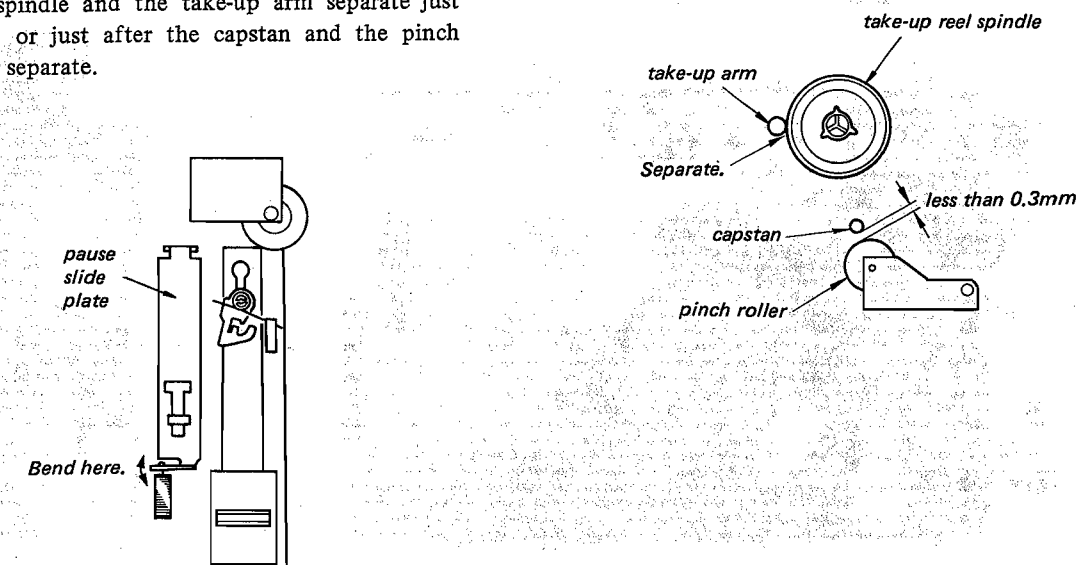


#### Pause Timing Adjustment

— playback mode —

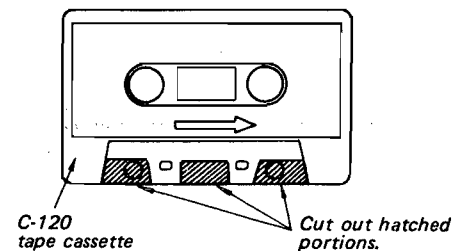
- Press the pause button slowly.
- Bend the pause slide plate so that the take-up reel spindle and the take-up arm separate just when or just after the capstan and the pinch roller separate.

Note: When the take-up reel spindle is away from the take-up arm, the clearance should be less than 0.3mm.

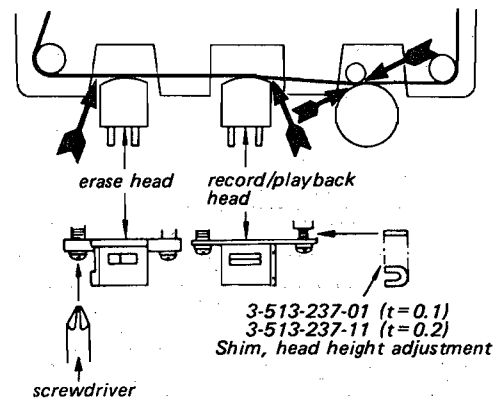


#### Head Height Adjustment

- Prepare an adjustment cassette as shown below.



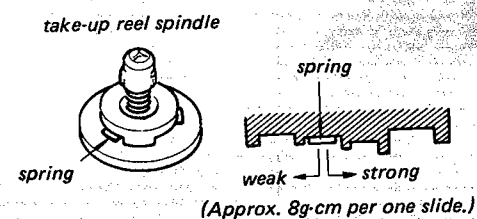
- In playback mode and viewing from the front, adjust the head heights to eliminate tape curl and tape twist at portions shown by arrows.



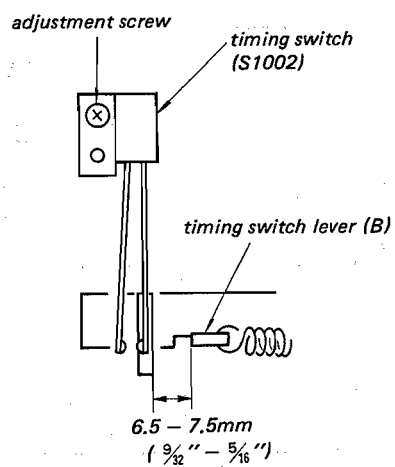
#### Forward Torque Adjustment — playback mode —

Torque meter	Meter reading
CQ-102C	28 – 55g-cm (0.39 – 0.76 oz-inch)

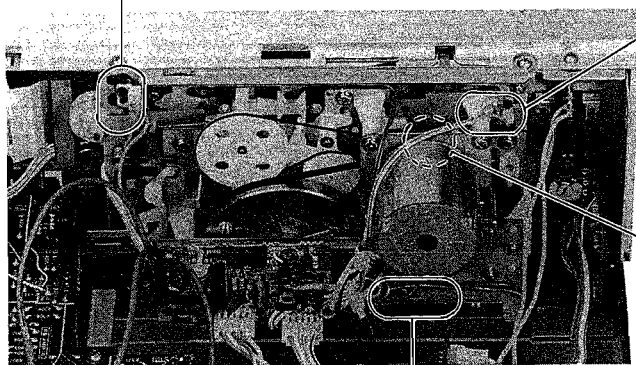
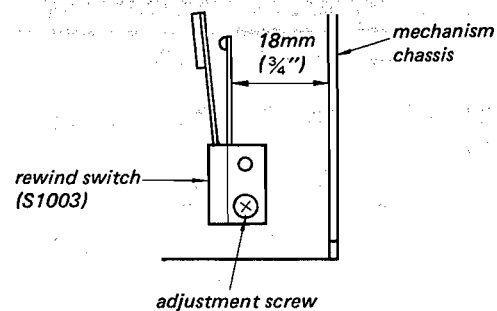
If necessary, change the spring position.



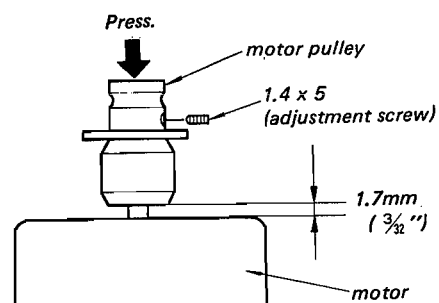
**Timing Switch (S1002) Position Adjustment**  
— stop mode —



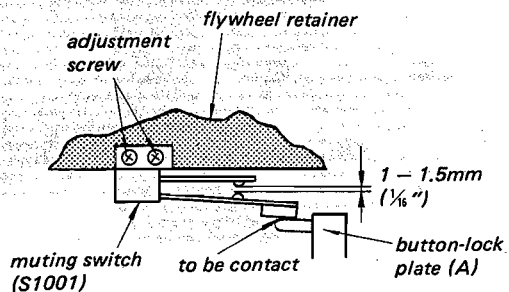
**Rewind Switch (S1003) Position Adjustment**  
— stop mode —



**Pulley Height Adjustment**  
— stop mode —



**Muting Switch (S1001) Position Adjustment**  
— stop mode —





### 3.2. ELECTRICAL ADJUSTMENTS

**Note:** The adjustment should be performed in the order given in this service manual. The adjustments should be performed for both L-CH and R-CH.

- Set the BIAS and EQ switches according to the tape as follows.

Tape	BIAS switch	EQ switch
CS-10	MED (I/III)	TYPE I
CS-25	HIGH (II)	TYPE II
CS-30	MED (I/III)	TYPE III
CS-40	METAL	TYPE IV

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

DOLBY NR switch: OFF  
 EQ switch: TYPE I  
 BIAS switch: MED (I/III)  
 INPUT SELECT switch: LINE  
 MEMORY switch: OFF

- 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.

#### Standard Input Level

	MIC	LINE IN
source impedance	300 $\Omega$	10k $\Omega$
input level	0.77mV (-60dB)	0.25V (-10dB)

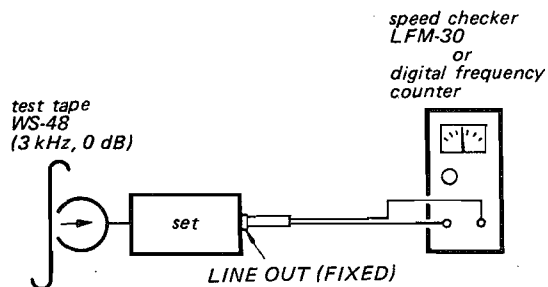
#### Standard Output Level

	LINE OUT (FIXED)
load impedance	47k $\Omega$
output level	0.44V (-5dB)

### Tape Speed Adjustment

#### Procedure:

Mode: playback



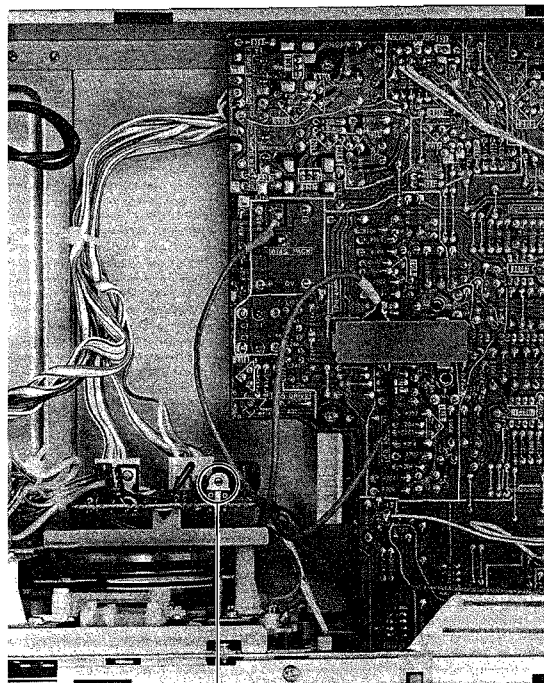
#### Specification:

Speed checker	Digital frequency counter
-0.33 to +0.33%	2990 - 3010Hz

Frequency difference between the beginning and the end of the tape should be within 0.33% (10Hz).

#### Adjustment Location:

- servo amp board -



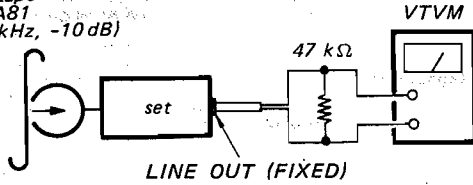
RV1001

## Record/playback Head Azimuth Adjustment

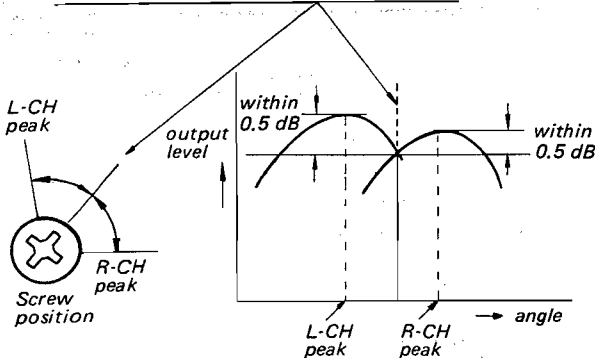
### Procedure:

1. Mode: playback

test tape  
P-4-A81  
(6.3 kHz, -10 dB)



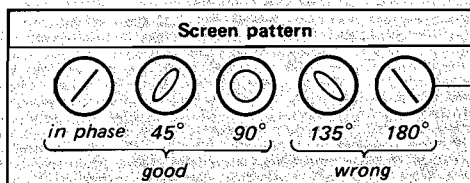
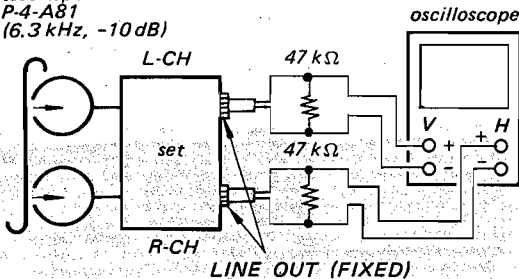
2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 0.5 dB.



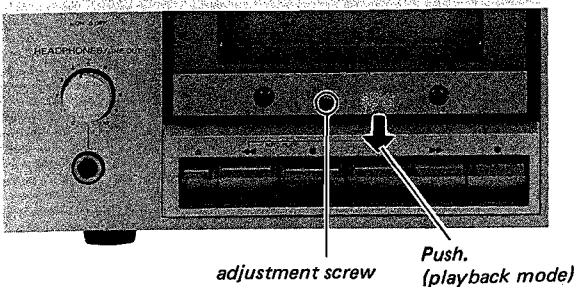
3. Phase Check

Mode: playback

test tape  
P-4-A81  
(6.3 kHz, -10 dB)



### Adjustment Location:

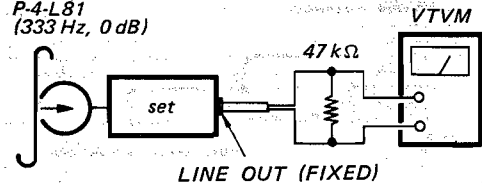


## Playback Level Adjustment

### Procedure:

Mode: playback

test tape  
P-4-L81  
(333 Hz, 0 dB)



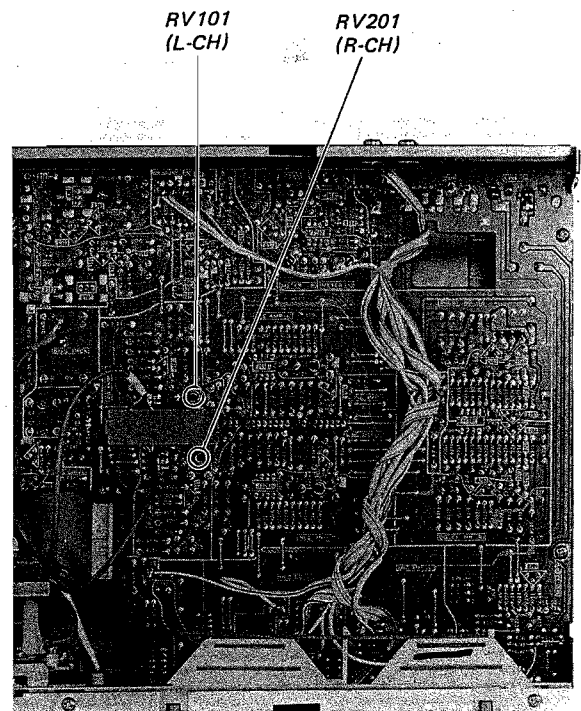
### Specification:

LINE OUT level: 0.52 – 0.59V  
(–3.5 to –2.5dB)

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

### Adjustment Location:

– audio amp board –

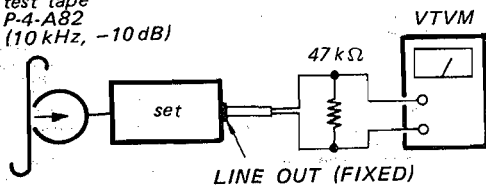


## Playback Equalizer Adjustment

### Procedure:

Mode: playback

test tape  
P-4-A82  
(10 kHz, -10 dB)



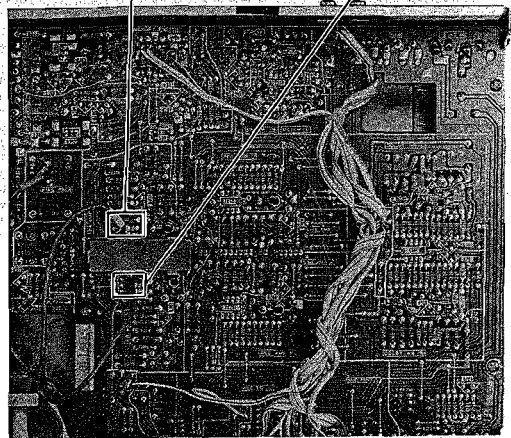
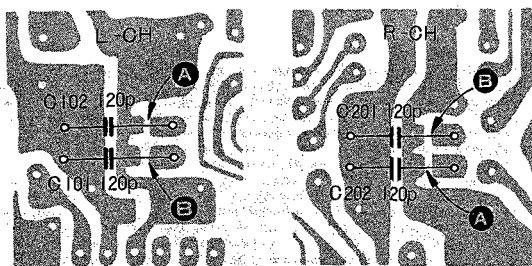
### Specification:

EQ switch	LINE OUT (FIXED) level
TYPE I	0.14 – 0.22V (-15 to -11dB)
TYPE II	0.074 – 0.13V (-20.5 to -15.5dB)

### Adjustment Location:

– audio amp board –

Bridge patterns	High frequency level
(open)	down
Ⓐ or Ⓑ	↑
Ⓐ and Ⓑ	up



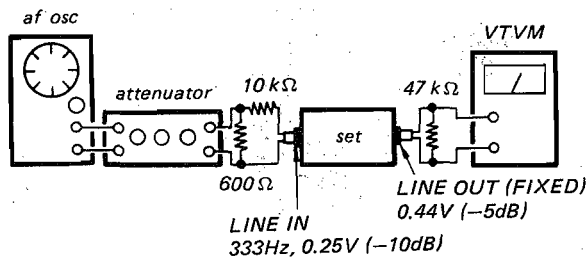
## LED Peak Program Meter Calibration

### Setting:

REC LEVEL control: standard record  
(See page 14.)

### Procedure:

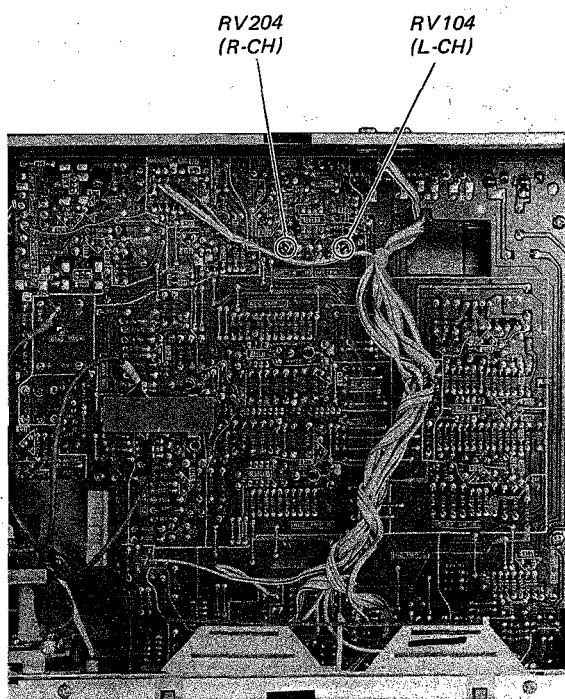
1. Mode: record



Adjust RV104 (L-CH) and RV204 (R-CH) to obtain 0 VU reading on the level meter.

### Adjustment Location:

– audio amp board –



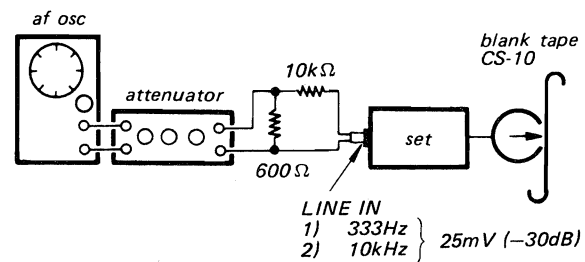
### Record Bias Adjustment

#### Setting:

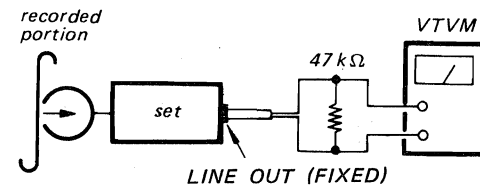
REC LEVEL control: standard record  
(See page 14.)

#### Procedure:

1. Mode: record



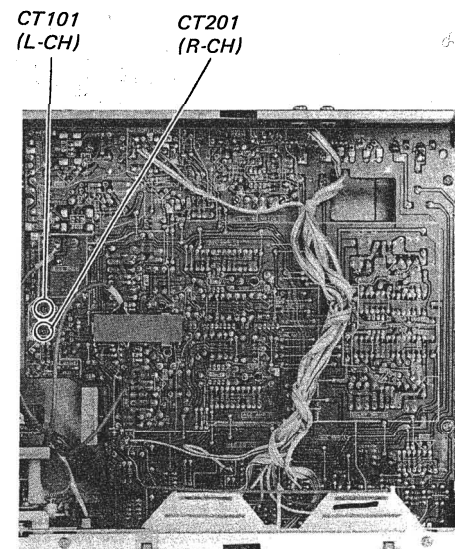
2. Mode: playback



Adjust CT101 (L-CH) and CT201 (R-CH) to make 333Hz and 10kHz signal output levels equal.

#### Adjustment Location:

— audio amp board —



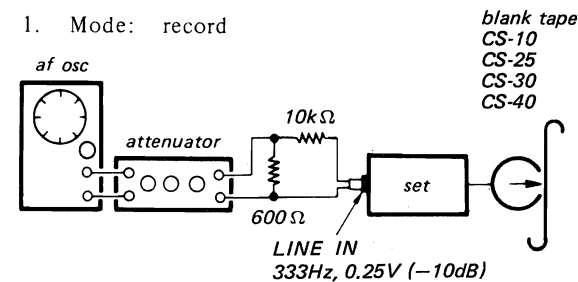
### Record Level Adjustment

#### Setting:

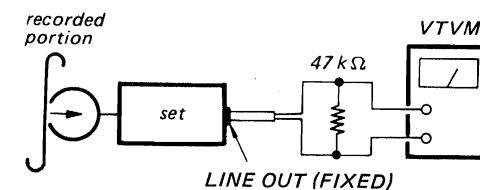
REC LEVEL control: standard record  
(See page 14.)

#### Procedure:

1. Mode: record



2. Mode: playback

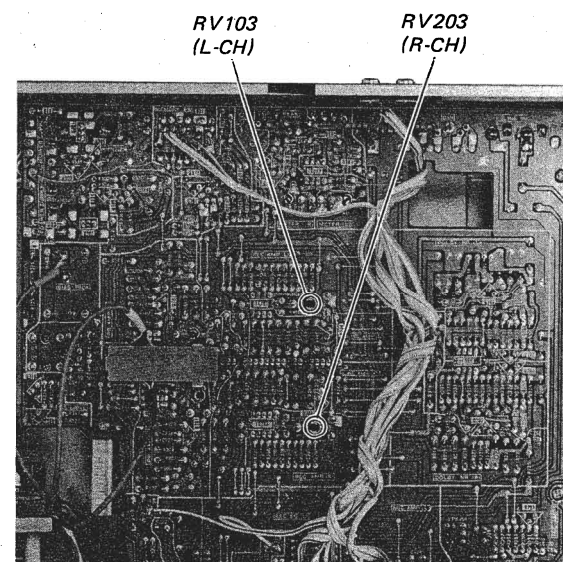


#### Specification:

tape	LINE OUT (FIXED) level
CS-10	0.41 - 0.46V (-5.5 to -4.5dB)
CS-25 CS-30 CS-40	0.37 - 0.52V (-6.5 to -3.5dB)

#### Adjustment Location:

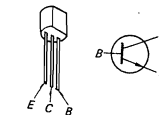
— audio amp board —



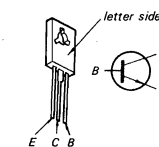
### Replacement Semiconductors

For replacement, use semiconductors except in ( ).

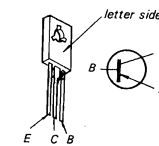
Q101, 201 } : 2SC1345  
Q102, 202 }  
Q105, 205 }  
Q103, 203 } : 2SC1364  
Q307, 308 }  
Q310, 311 }  
Q313 }  
Q104, 204 : 2SC2001  
Q312 : 2SC1475 (2SD789)



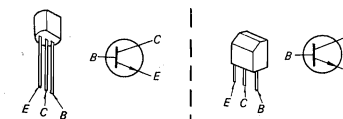
Q301, 1001: 2SD414



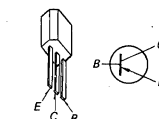
Q302: 2SB548



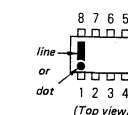
Q303, 305: 2SC1364 (2SC458)



Q304, 306 : 2SA1027R (2SA844)  
Q309 : 2SA1027R (2SA1026)



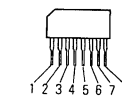
IC101, 201 : NJM4560D  
IC401 : TL489CP



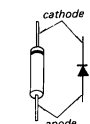
IC301 :  $\mu$ PC4556C  
IC302, 303 :  $\mu$ PC4557C



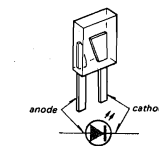
IC1001: CX069



D101, 201 }  
D103, 203 } : 1S1555 (1T40)  
D305-307 }  
D311, 312 }  
D405, 406 }  
D102, 202 } : 1T22AM (1T22A)  
D104, 204 }  
D105, 205 : 1S1555  
D301, 302 }  
D309 } : 10E2  
D401-404 }  
D407, 1001 }  
D303, 304 } : HZ6B2L (HZ6B1L)  
D310 }  
D308 : RD3.0E



D408 : SEL1720Y  
D409 } : SEL1120R  
D411-414 }  
D410 : SEL1320G



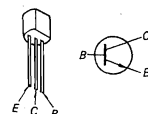
# SECTION 4 DIAGRAMS

## 4-1. MOUNTING DIAGRAM (AEP, UK, E model) — Power Supply Section —

### Replacement Semiconductors

For replacement, use semiconductors except in ( ).

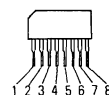
Q101, 201  
Q102, 202 } : 2SC1345  
Q105, 205  
Q103, 203  
Q307, 308  
Q310, 311 } : 2SC1364  
Q313  
Q104, 204 : 2SC2001  
Q312 : 2SC1475 (2SD789)



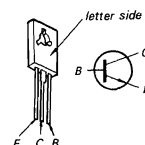
IC301 :  $\mu$ PC4556C  
IC302, 303 :  $\mu$ PC4557C



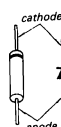
IC1001: CX069



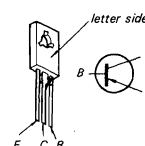
Q301, 1001: 2SD414



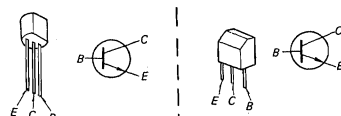
D101, 201  
D103, 203  
D305-307 } : 1S1555 (1T40)  
D311, 312  
D405, 406  
D102, 202 } : 1T22AM (1T22A)  
D104, 204  
D105, 205 : 1S1555  
D301, 302  
D309 } : 10E2  
D401-404  
D407, 1001  
D303, 304 } : HZ6B2L (HZ6B1L)  
D310  
D308 : RD3.0E



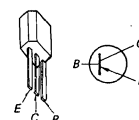
Q302: 2SB548



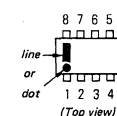
Q303, 305: 2SC1364 (2SC458)



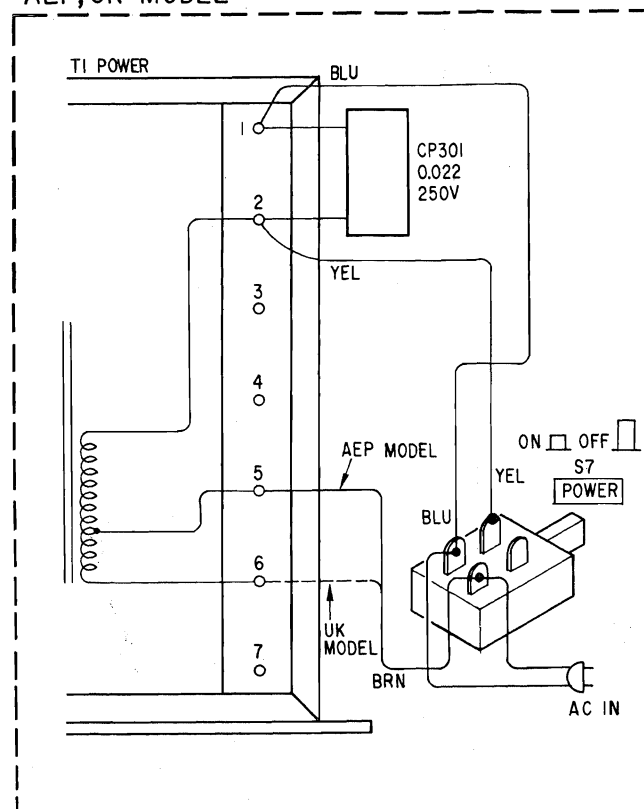
Q304, 306 : 2SA1027R (2SA844)  
Q309 : 2SA1027R (2SA1026)



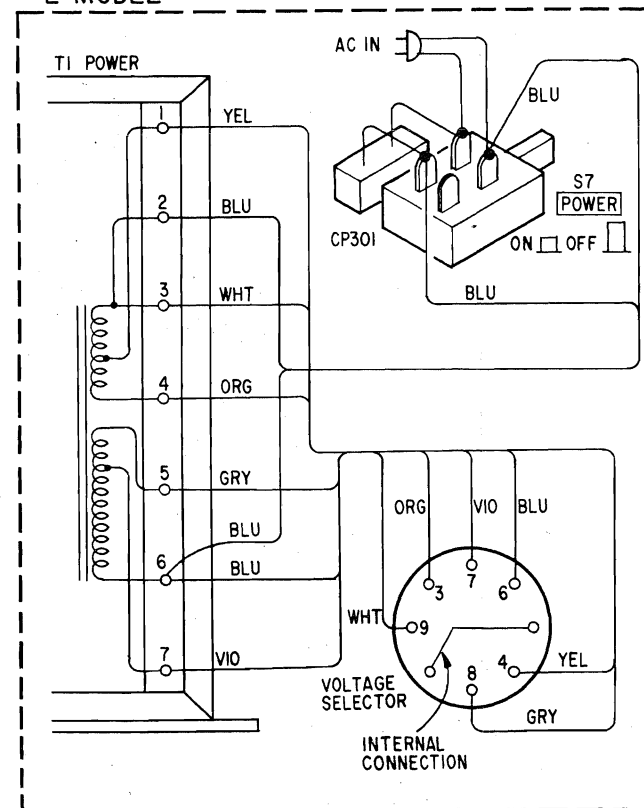
IC101, 201 : NJM4560D  
IC401 : TL489CP



### AEP, UK MODEL








### E MODEL



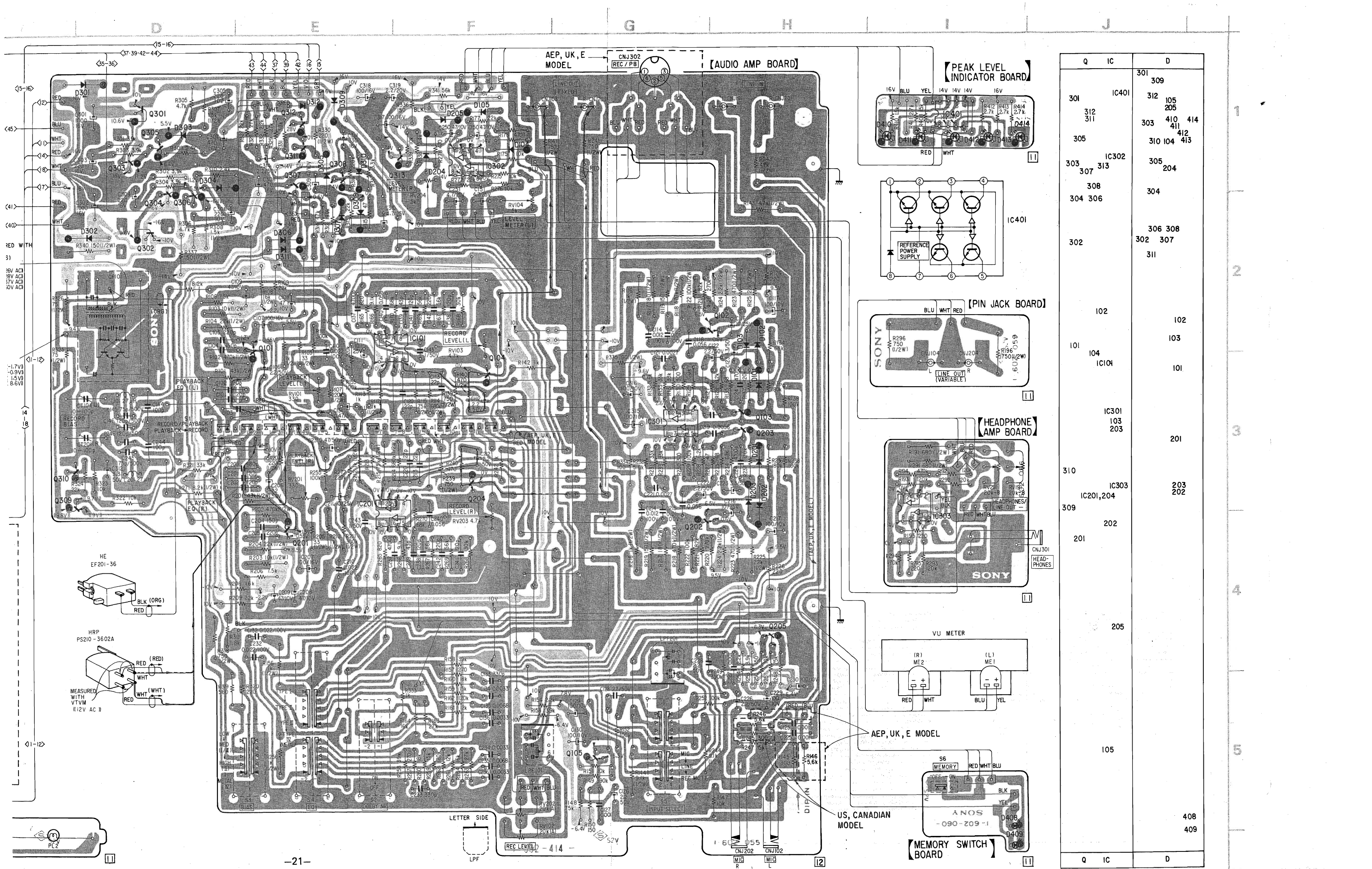


— *Conductor Side* —  
See page 18 for the  
semiconductor  
illustration.



-  : indicates side identified with part number.
-  : B + pattern
-  : B - pattern
-  : L-CH signal path
-  : R-CH signal path

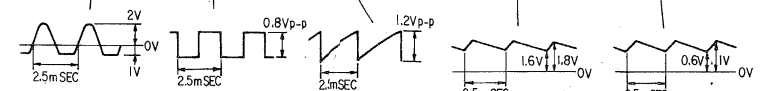


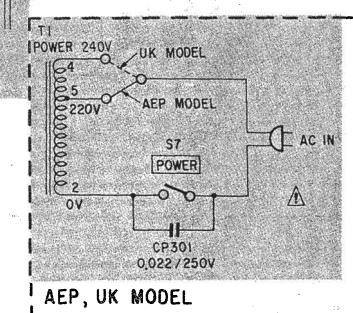
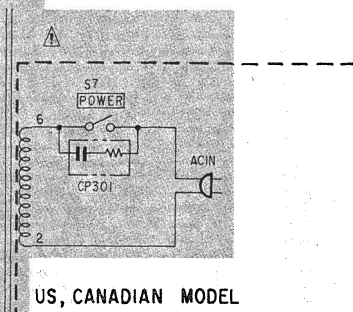
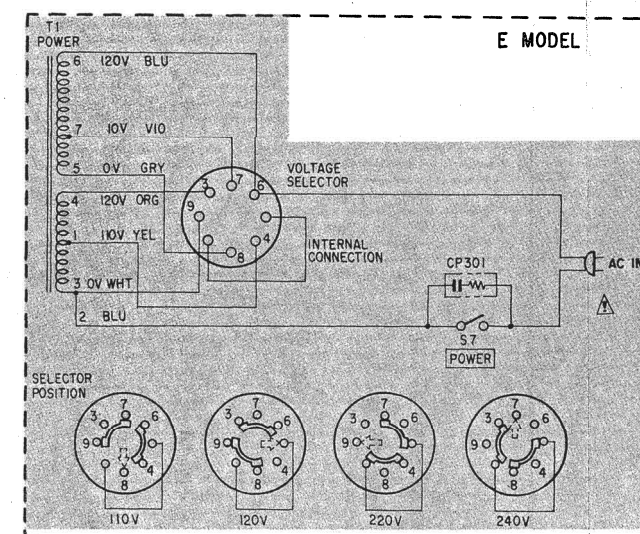
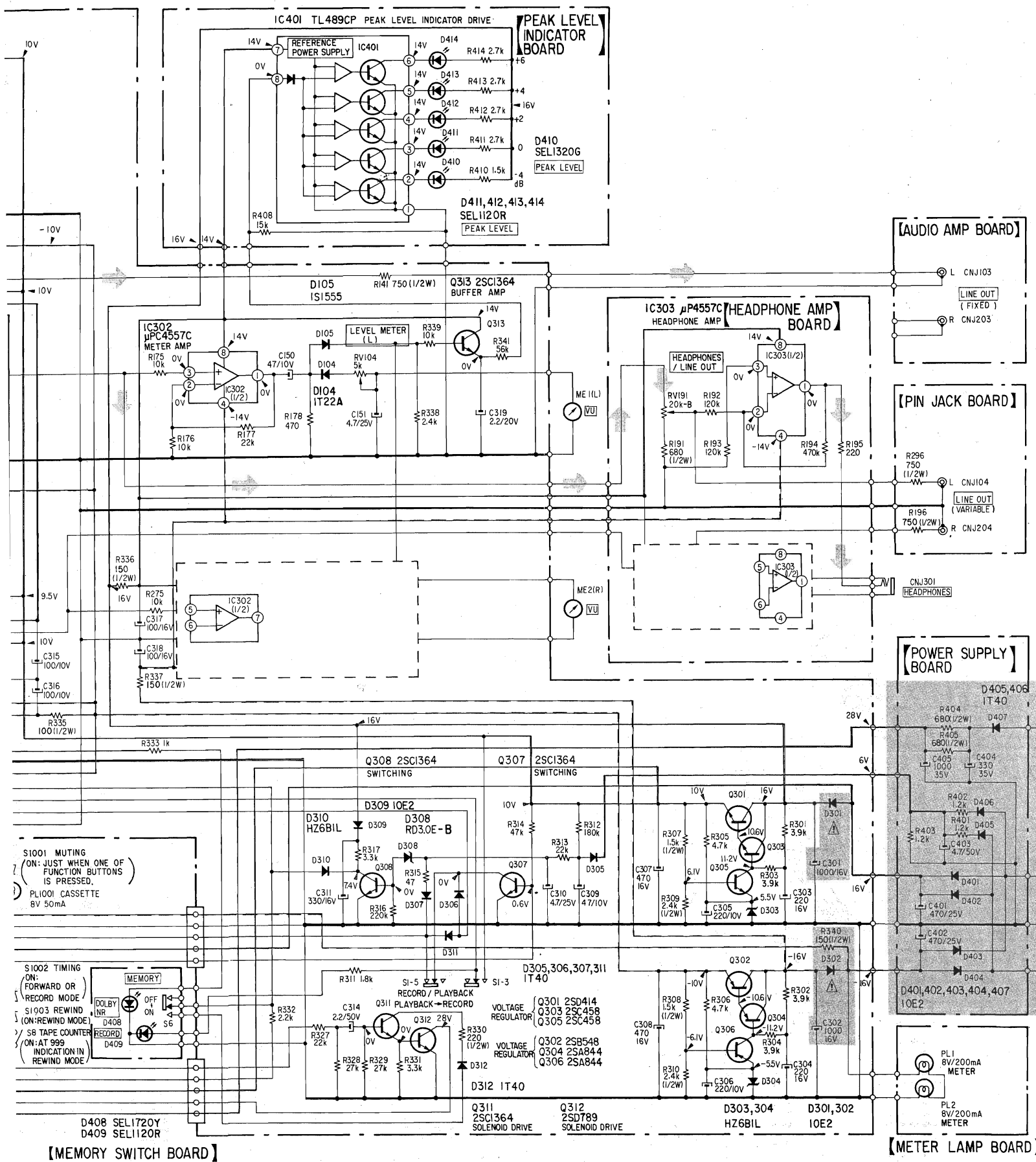


Q	IC	D
301	IC401	301
302	IC302	302
303	IC303	303
304	IC201, 204	304
305	IC202	305
306	IC203	306
307	IC204	307
308	IC205	308
309	IC206	309
310	IC207	310
311	IC208	311
312	IC209	312
313	IC210	313
314	IC211	314
315	IC212	315
316	IC213	316
317	IC214	317
318	IC215	318
319	IC216	319
320	IC217	320
321	IC218	321
322	IC219	322
323	IC220	323
324	IC221	324
325	IC222	325
326	IC223	326
327	IC224	327
328	IC225	328
329	IC226	329
330	IC227	330
331	IC228	331
332	IC229	332
333	IC230	333
334	IC231	334
335	IC232	335
336	IC233	336
337	IC234	337
338	IC235	338
339	IC236	339
340	IC237	340
341	IC238	341
342	IC239	342
343	IC240	343
344	IC241	344
345	IC242	345
346	IC243	346
347	IC244	347
348	IC245	348
349	IC246	349
350	IC247	350
351	IC248	351
352	IC249	352
353	IC250	353
354	IC251	354
355	IC252	355
356	IC253	356
357	IC254	357
358	IC255	358
359	IC256	359
360	IC257	360
361	IC258	361
362	IC259	362
363	IC260	363
364	IC261	364
365	IC262	365
366	IC263	366
367	IC264	367
368	IC265	368
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370	IC267	370
371	IC268	371
372	IC269	372
373	IC270	373
374	IC271	374
375	IC272	375
376	IC273	376
377	IC274	377
378	IC275	378
379	IC276	379
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391	IC288	391
392	IC289	392
393	IC290	393
394	IC291	394
395	IC292	395
396	IC293	396
397	IC294	397
398	IC295	398
399	IC296	399
400	IC297	400
401	IC298	401
402	IC299	402
403	IC300	403
404	IC301	404
405	IC302	405
406	IC303	406
407	IC304	407
408	IC305	408
409	IC306	409
410	IC307	410
411	IC308	411
412	IC309	412
413	IC310	413
414	IC311	414
415	IC312	415
416	IC313	416
417	IC314	417
418	IC315	418
419	IC316	419
420	IC317	420
421	IC318	421
422	IC319	422
423	IC320	423
424	IC321	424
425	IC322	425
426	IC323	426
427	IC324	427
428	IC325	428
429	IC326	429
430	IC327	430
431	IC328	431
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433	IC330	433
434	IC331	434
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436	IC333	436
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438	IC335	438
439	IC336	439
440	IC337	440
441	IC338	441
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443	IC340	443
444	IC341	444
445	IC342	445
446	IC343	446
447	IC344	447
448	IC345	448
449	IC346	449
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453	IC350	453
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456	IC353	456
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460	IC357	460
461	IC358	461
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463	IC360	463
464	IC361	464
465	IC362	465
466	IC363	466
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469	IC366	469
470	IC367	470
471	IC368	471
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473	IC370	473
474	IC371	474
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476	IC373	476
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482	IC379	482
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484	IC381	484
485	IC382	485
486	IC383	486
487	IC384	487
488	IC385	488
489	IC386	489
490	IC387	490
491	IC388	491
492	IC389	492
493	IC390	493
494	IC391	494
495	IC392	495
496	IC393	496
497	IC394	497
498	IC395	498
499	IC396	499
500	IC397	500



## AUDIO AMP BOARD





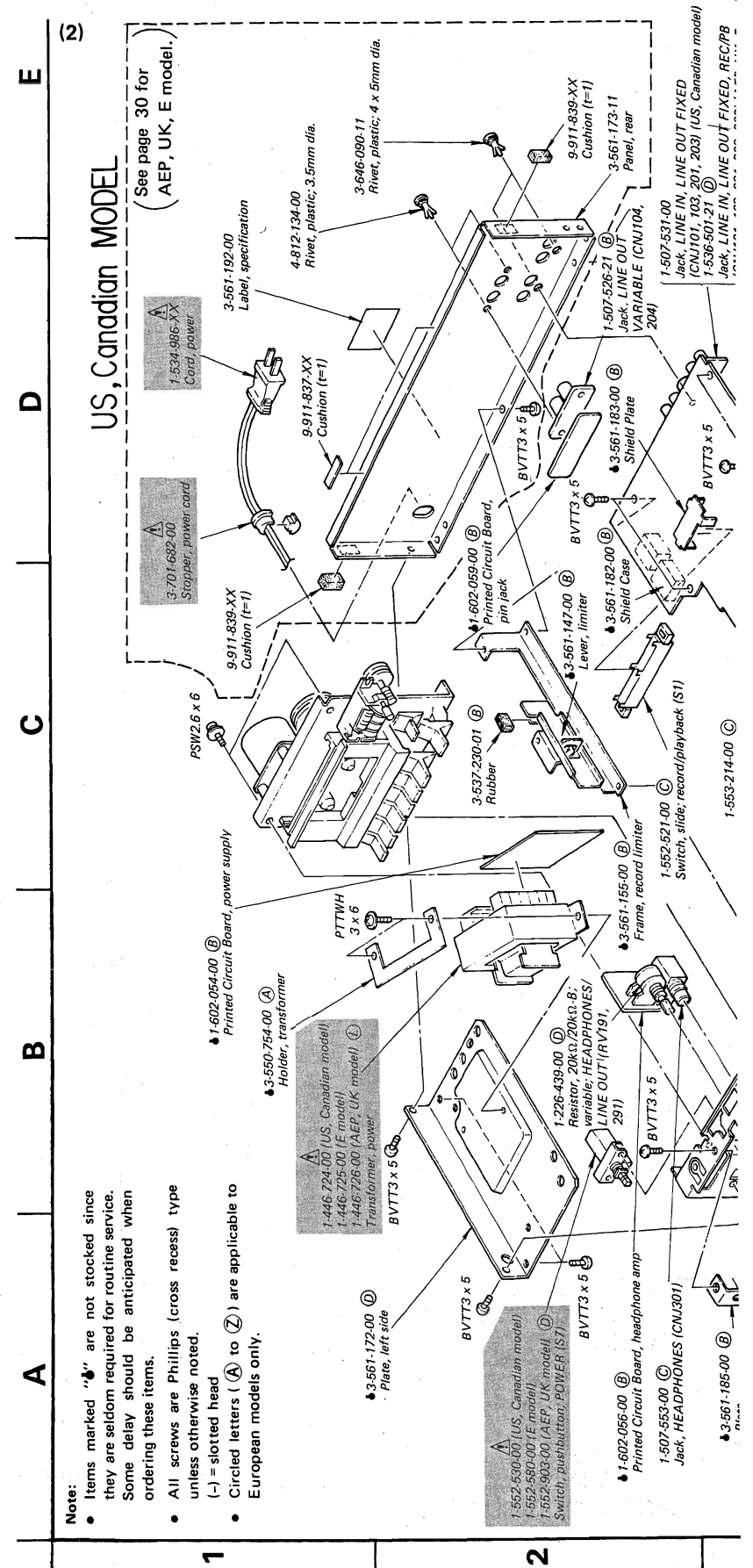
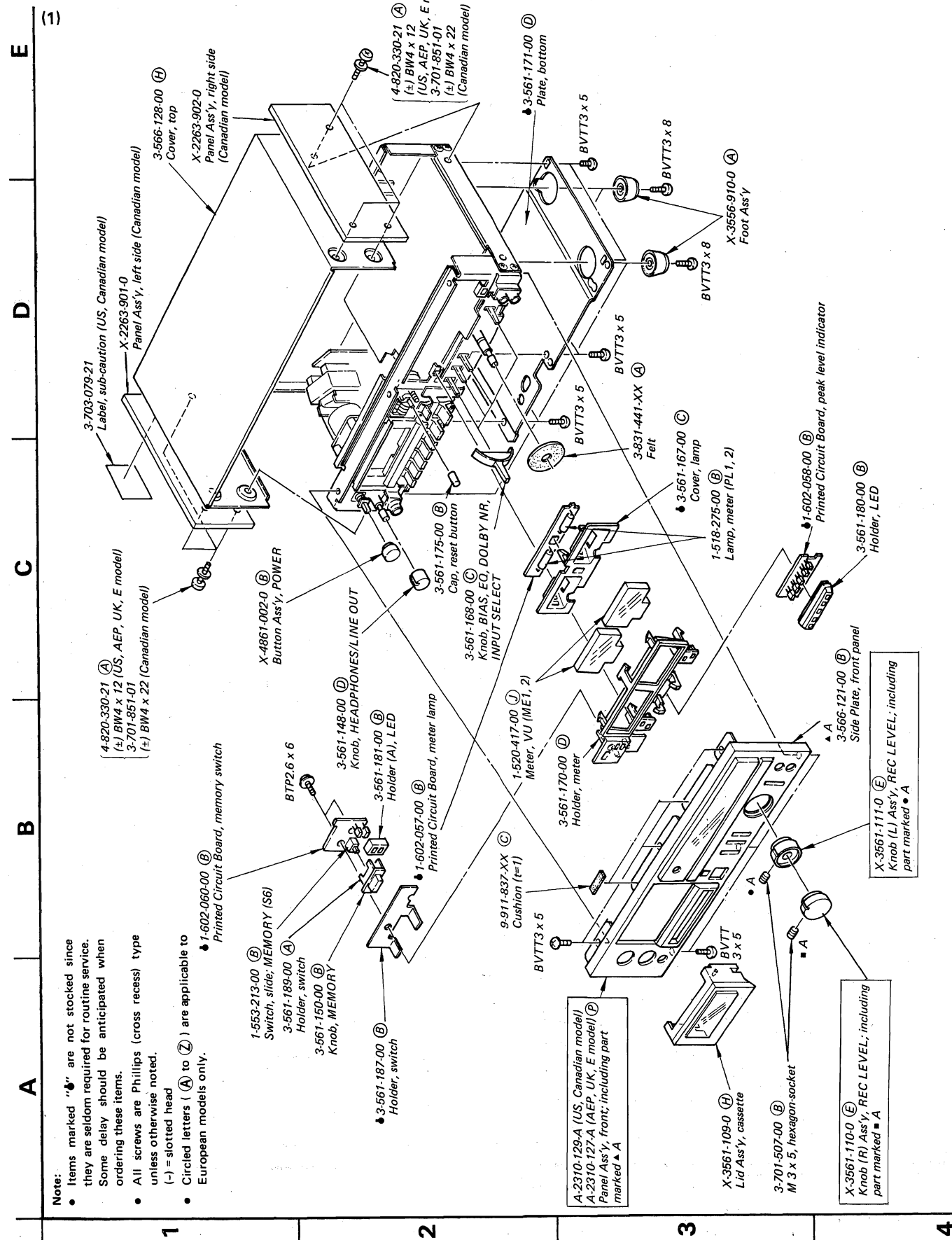
- Note:**
- Components for right channel have same values as for left channel. Reference numbers are corded from 200.
  - All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$  :  $\mu\text{F}$  50WV or less are not indicated except for electrolytics and tantalums.
  - All resistors are in ohms,  $\frac{1}{4}\text{W}$  unless otherwise noted.  $\text{k}\Omega$  :  $1000\Omega$ ,  $\text{M}\Omega$  :  $1000\text{k}\Omega$
  - $\text{---}\text{---}\text{---}$  : fusible resistor.
  - $\text{---}\text{---}\text{---}$  : panel designation.
  - $\text{---}\text{---}\text{---}$  : adjustment for repair.
  - $\text{---}\text{---}\text{---}$  : B+ bus.
  - $\text{---}\text{---}\text{---}$  : B- bus.
  - Voltages are dc with respect to ground unless otherwise noted.
  - Readings are taken under no-signal conditions with a VOM ( $20\text{k}\Omega/\text{V}$ ).
  - (( )): record
  - Voltage variations may be noted due to normal production tolerances.
  - $\text{---}\text{---}\text{---}$  : signal path
  - Switch

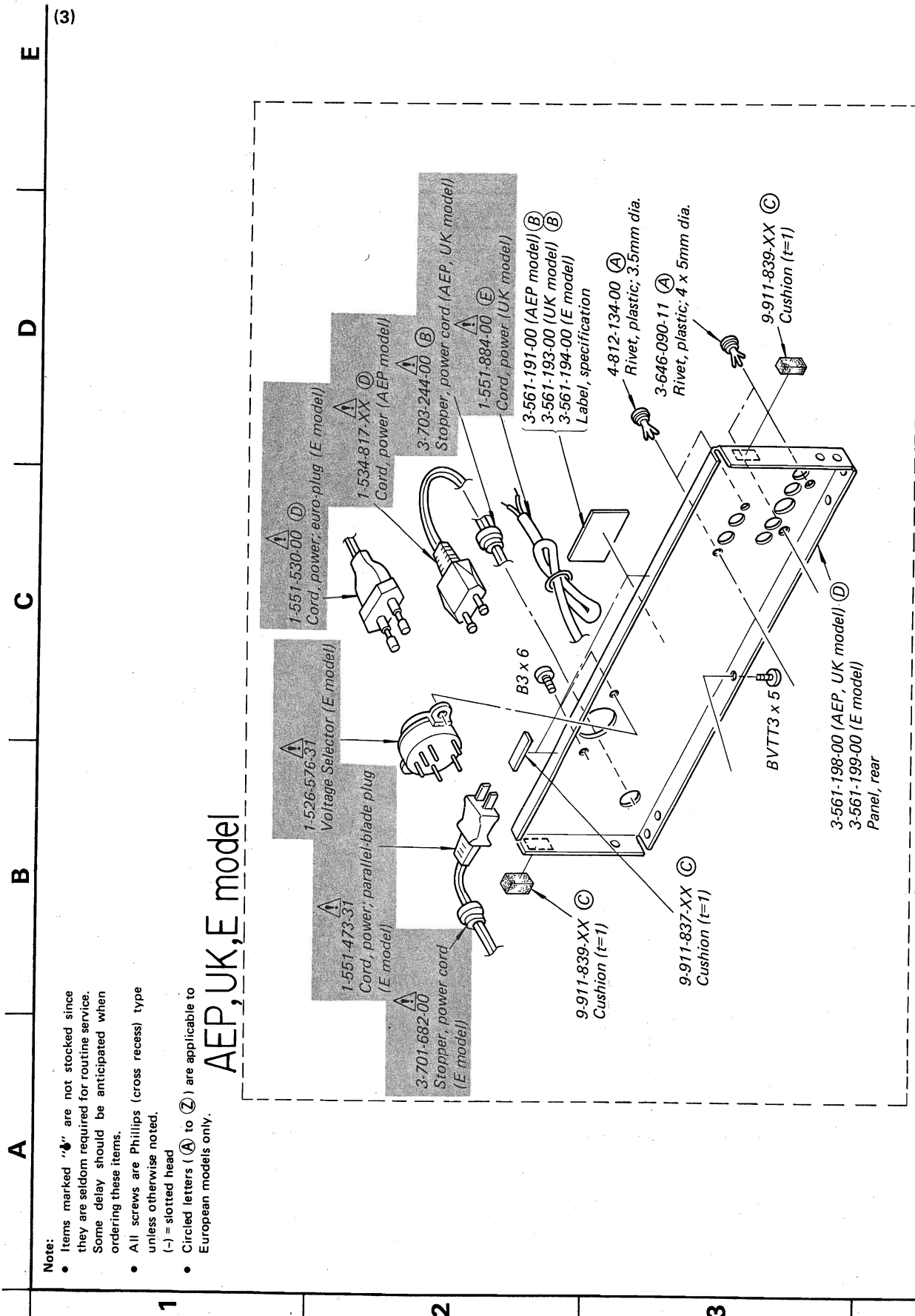
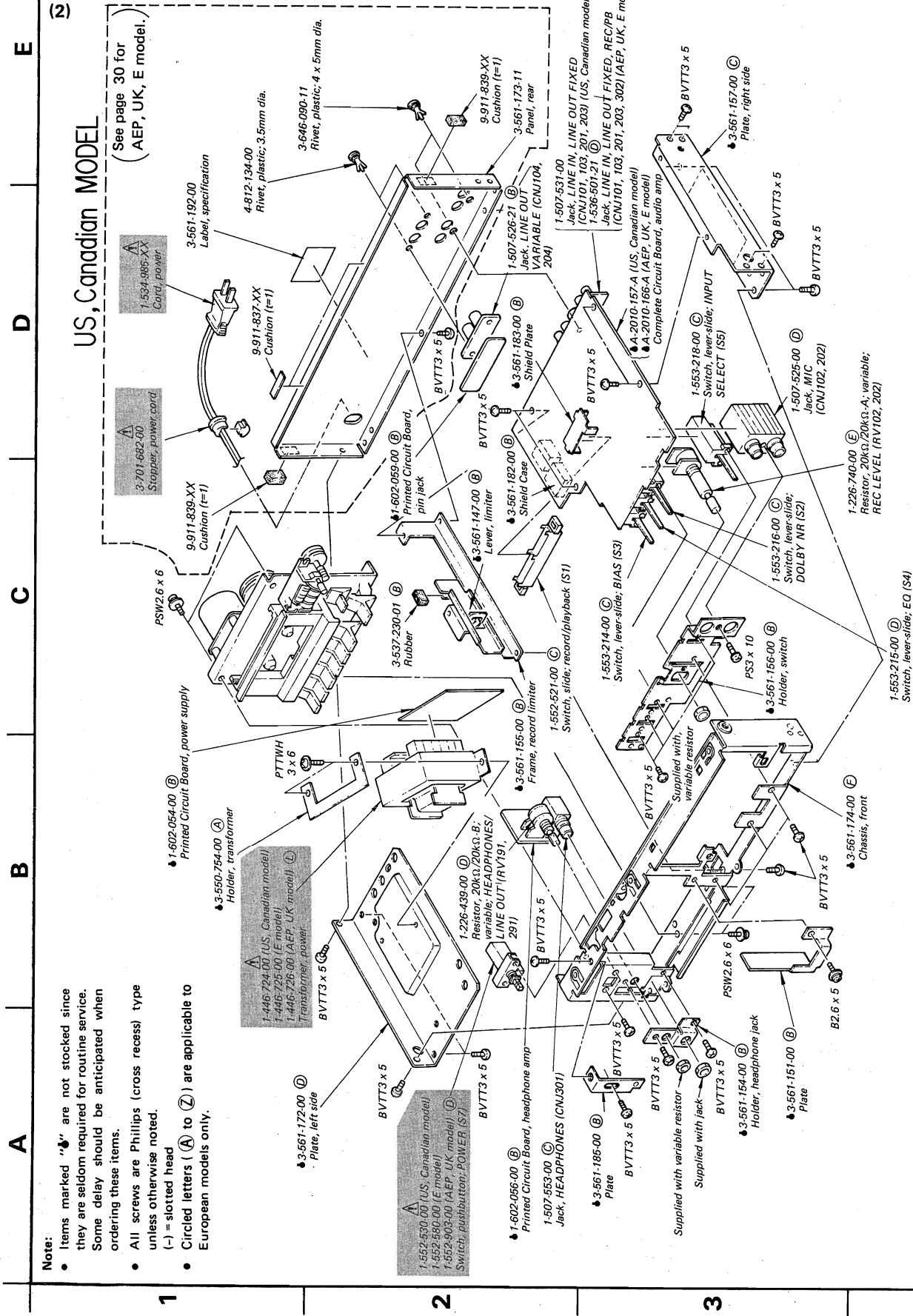
Ref. No.	Switch	Position
S1	RECORD/PLAYBACK	PLAYBACK
S2	DOLBY NR	ON
S3	BIAS	LOW
S4	EQ	TYPE 1
S5	INPUT SELECT	MIC
S6	MEMORY	OFF
S7	POWER	OFF
S8	TAPE COUNTER	OFF
S1001	MUTING	OFF
S1002	TIMING	OFF
S1003	REWIND	OFF

**Note: The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.**

**Note: Les composants identifiés par une trame et une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.**

## SECTION 5 EXPLODED VIEWS







**Note:**

**A**

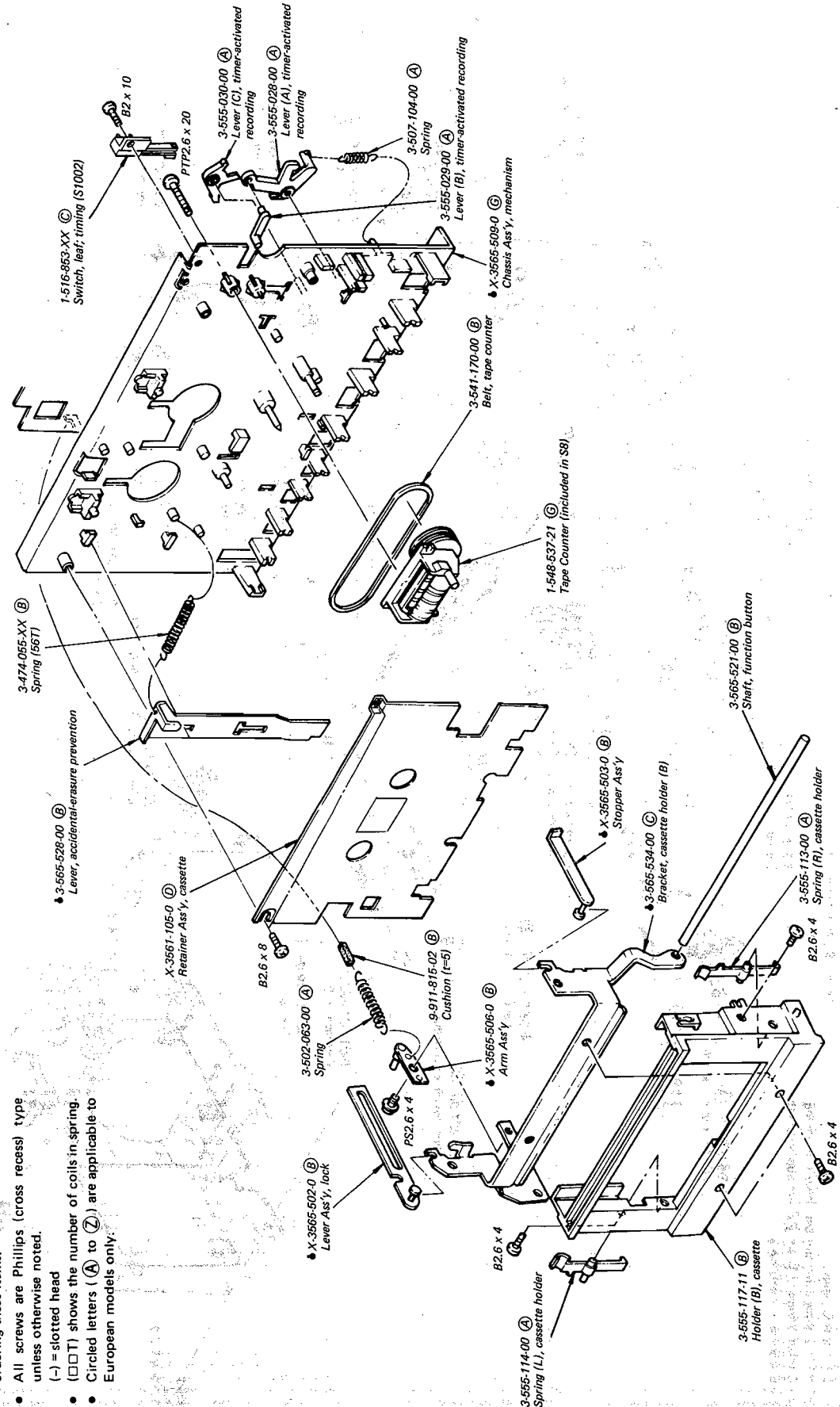


**W**

(4)

**Note:**

- Items marked “●” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.  
(-) = slotted head
- □□T shows the number of coils in spring.
- Circled letters (A to Z) are applicable to European models only.



—31—

**F**



6

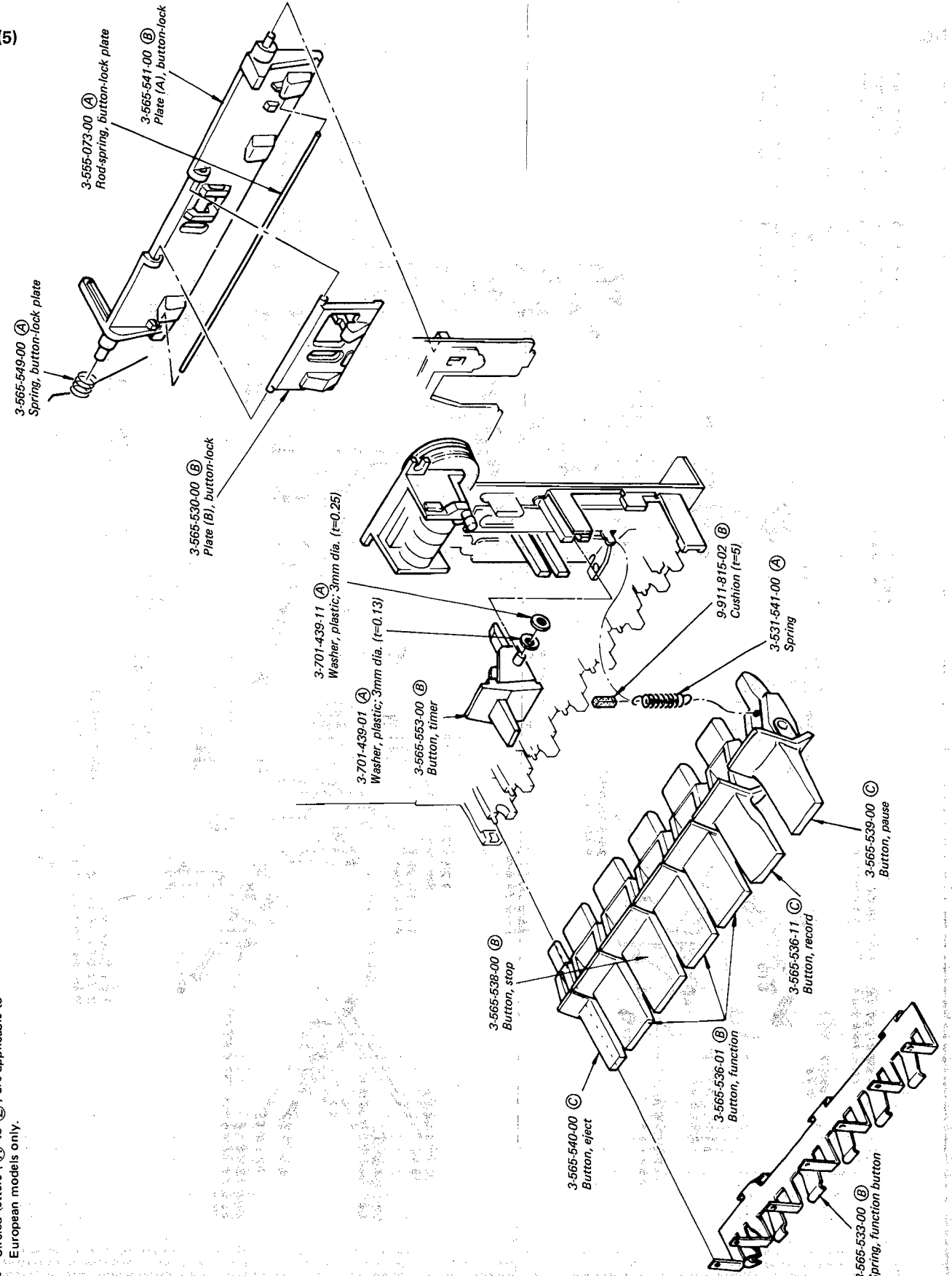
د

• **U**

1 (5

**Circ** **Euro**

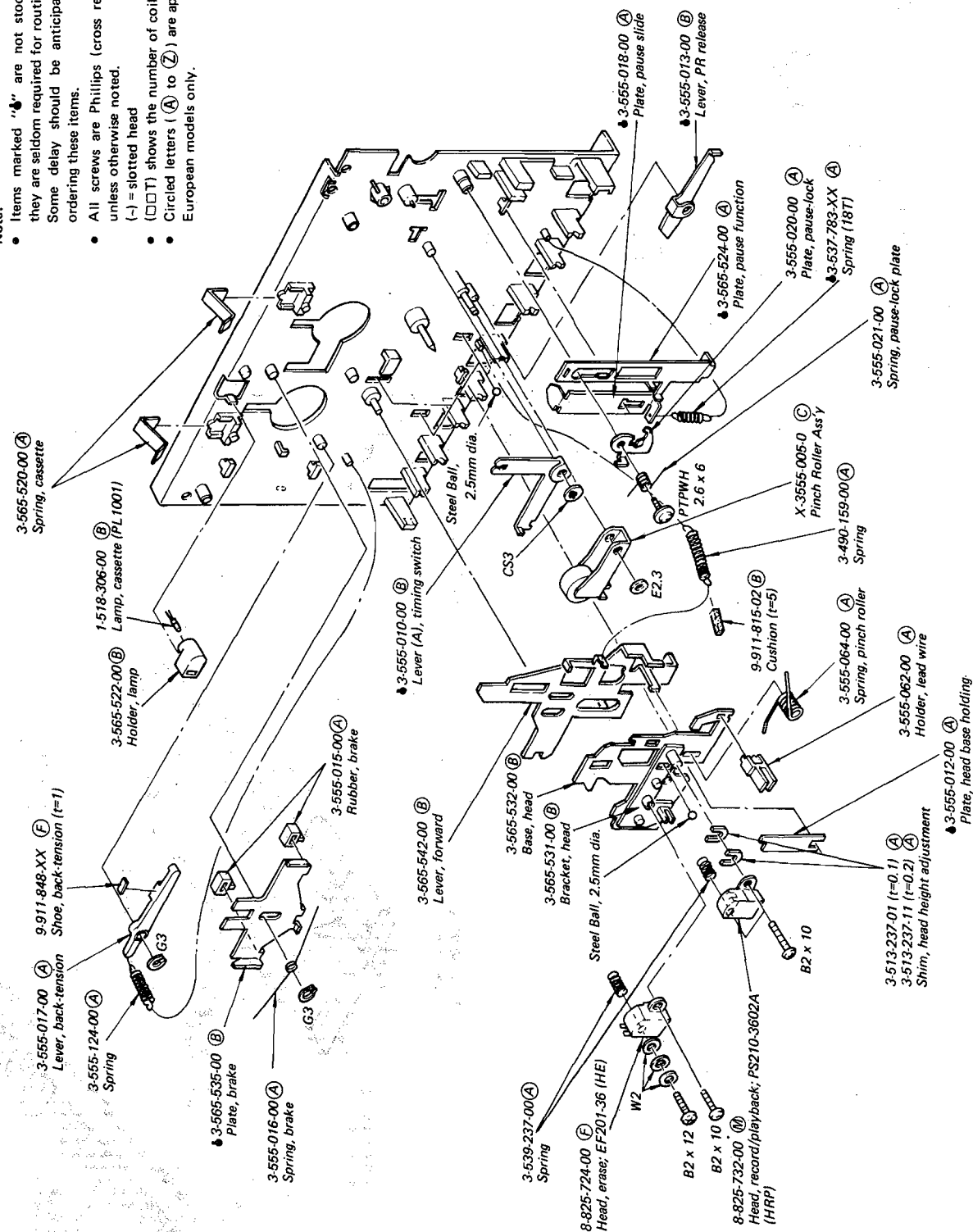
● Circled letters (A to Z) are applicable to European models only.



—32—

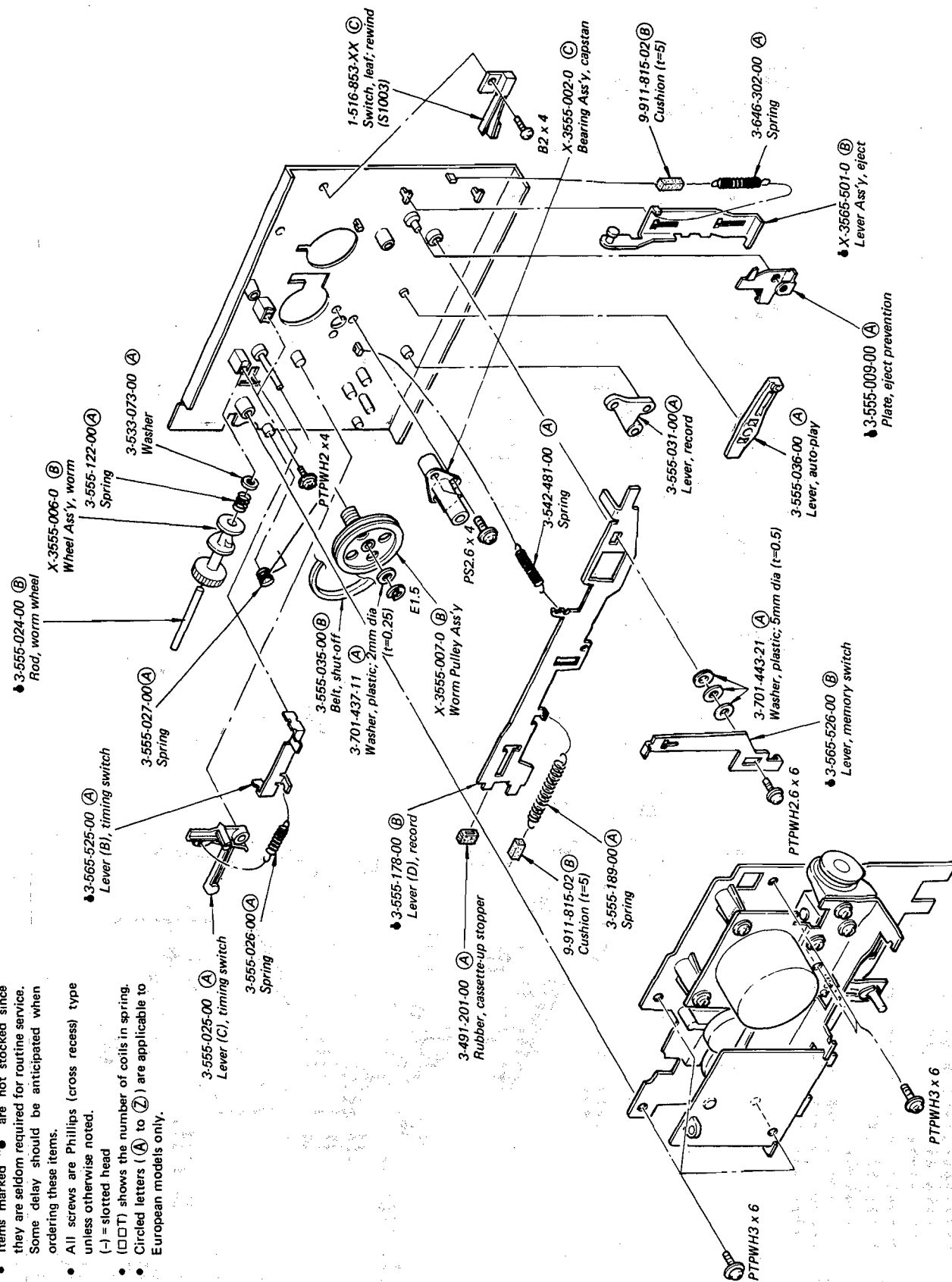
(6)

- Note:
- Items marked "A" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
  - All screws are Phillips (cross recess) type unless otherwise noted.
  - (-) = slotted head
  - (□□T) shows the number of coils in spring.
  - Circled letters (A) to (Z) are applicable to European models only.



(7)

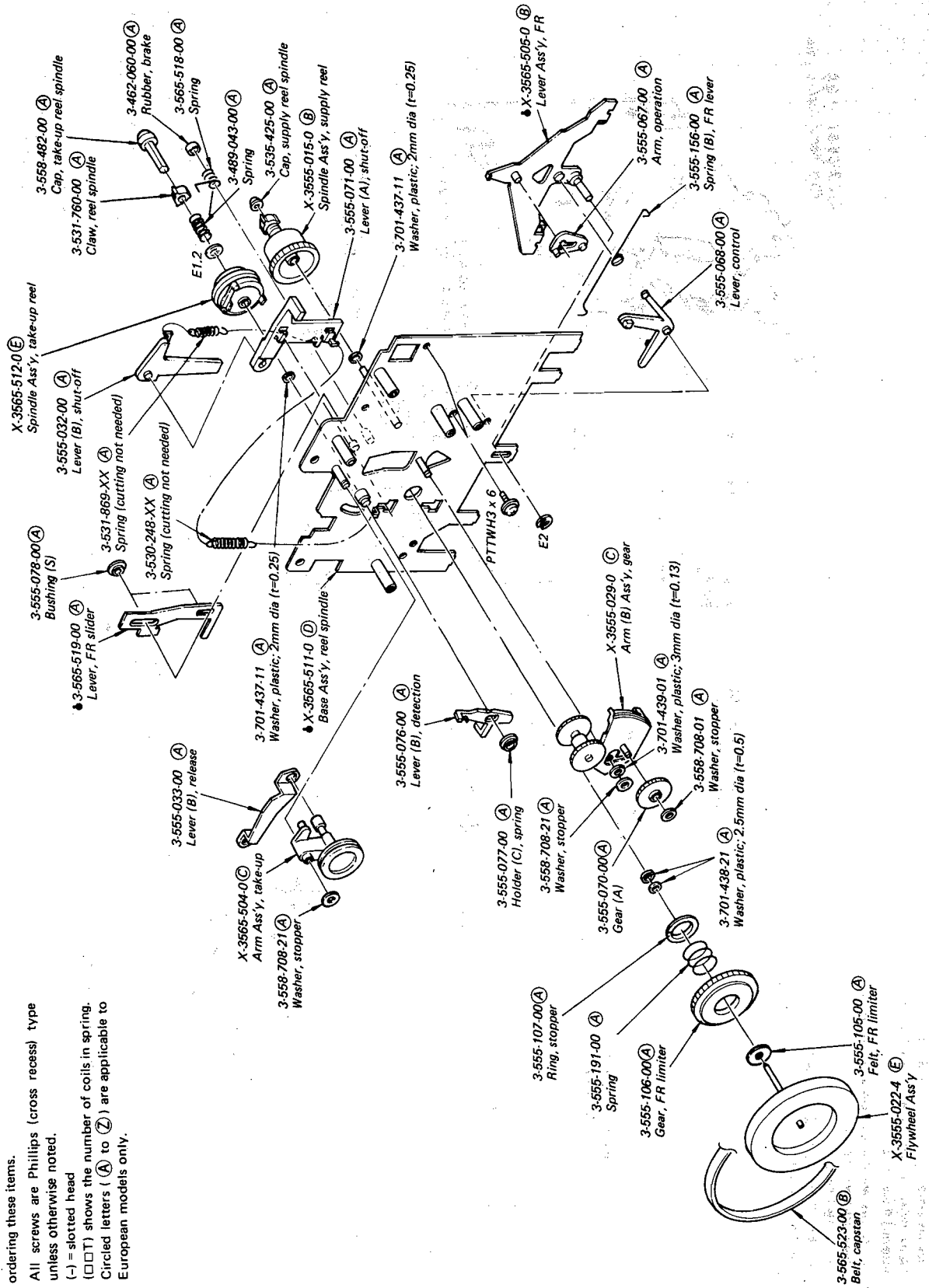
- Note:
- Items marked "A" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
  - All screws are Phillips (cross recess) type unless otherwise noted.
  - (-) = slotted head
  - (□□T) shows the number of coils in spring.
  - Circled letters (A) to (Z) are applicable to European models only.



(8)

Note:

- Items marked "A" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.
- (□□T) shows the number of coils in spring.
- Circled letters (A) to (Z) are applicable to European models only.





(9)

E

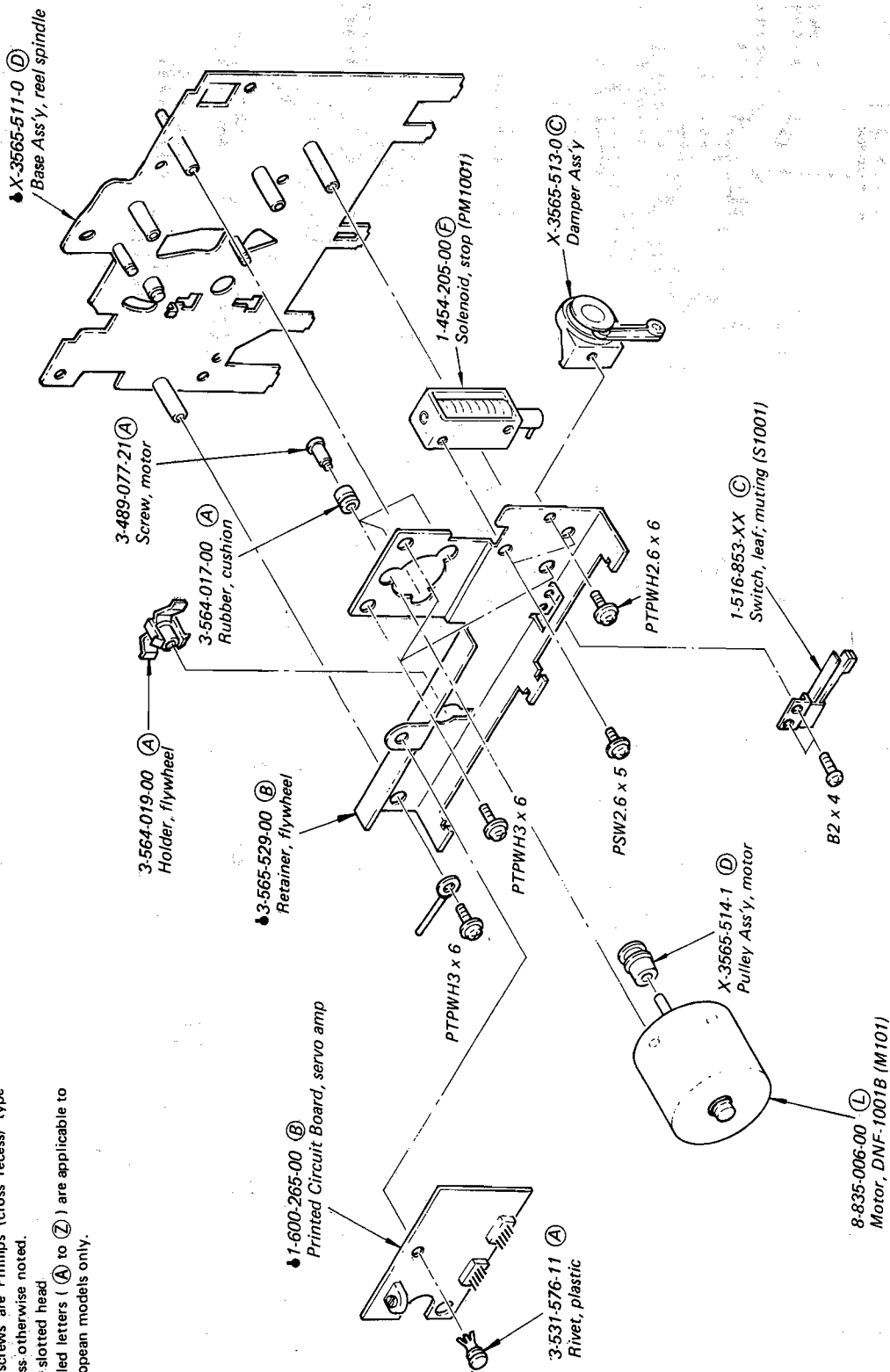
D

C

B

A

- Note:**
- Items marked "A" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
  - All screws are Phillips (cross recess) type unless otherwise noted.
  - Circled letters (A) to (Z) are applicable to European models only.



## SECTION 6 ELECTRICAL PARTS LIST

⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

Note: Circled letters (A to Z) are applicable to European models only.

Ref. No.    Part No.    Description

### SEMICONDUCTORS

#### Transistors

Q101, 201	8-729-334-58	(B)	2SC1345
Q102, 202			
Q103, 203	8-729-663-47	(C)	2SC1364
Q104, 204	8-729-100-13	(B)	2SC2001
Q105, 205	8-729-334-58	(B)	2SC1345
Q301	8-729-141-43	(B)	2SD414
Q302	8-729-154-83	(B)	2SB548
⇒ Q303	8-729-663-47	(C)	2SC1364
⇒ Q304	8-729-612-77	(B)	2SA1027R
⇒ Q305	8-729-663-47	(C)	2SC1364
⇒ Q306	8-729-612-77	(B)	2SA1027R
Q307, 308	8-729-663-47	(C)	2SC1364
⇒ Q309	8-729-612-77	(B)	2SA1027R
Q310, 311	8-729-663-47	(C)	2SC1364
⇒ Q312	8-760-413-10	(B)	2SC1475
Q313	8-729-663-47	(C)	2SC1364
Q1001	8-729-141-43	(B)	2SD414

#### ICs

IC101, 201	8-759-745-00	(D)	NJM4560D
IC301	8-759-100-06	(D)	μPC4556C
IC302, 303	8-759-145-57	(D)	μPC4557C
IC401	8-759-904-89	(D)	TL489CP
IC1001	8-750-690-00	(F)	CX069

#### Diodes



⇒ D101, 201	8-719-815-55	(B)	1S1555
⇒ D102, 202	8-719-422-21	(B)	1T22AM
⇒ D103, 203	8-719-815-55	(B)	1S1555
⇒ D104, 204	8-719-422-21	(B)	1T22AM
D105, 205	8-719-815-55	(B)	1S1555


D301, 302  8-719-200-02 (B) 10E2

⇒ D303, 304	8-719-910-65	(B)	HZ6B2L
⇒ D305-307	8-719-815-55	(B)	1S1555
D308	8-719-130-07	(B)	RD3.0E-B
D309	8-719-200-02	(B)	10E2

⇒ D310	8-719-910-65	(B)	HZ6B2L
⇒ D311, 312	8-719-815-55	(B)	1S1555

D401-404  8-719-200-02 (B) 10E2

⇒ D405, 406	 8-719-815-55	(B)	1S1555
D407	 8-719-200-02	(B)	10E2

Note: The components identified by shading and mark  are critical for safety. Replace only with part number specified.

Ref. No.    Part No.    Description






D408	8-719-317-20	(B)	SEL1720Y
D409	8-719-311-20	(B)	SEL1120R
D410	8-719-313-20	(B)	SEL1320G
D411-414	8-719-311-20	(B)	SEL1120R
D1001	8-719-200-02	(B)	10E2

### CAPACITORS

All capacitors are in μF. Common capacitors are omitted. Refer to the lists on pages 40 and 41 for their part numbers.

p : μμF, elect : electrolytic

C110, 210	1-130-305-00	(B)	0.022	100V	polyethylene
C114, 214	1-130-299-00	(B)	0.012	100V	polyethylene
C128, 228	1-123-230-00	(B)	2.2	50V	elect (nonpolarized)
C132, 232	1-130-305-00	(B)	0.022	100V	polyethylene
C143, 243	1-123-228-00	(B)	1	50V	elect (nonpolarized)

C301, 302	 1-121-245-00	(B)	1000	16V	elect
C401, 402	 1-121-733-00	(B)	470	25V	elect
C403	 1-123-355-00	(B)	4.7	50V	elect
C404	 1-123-347-00	(B)	330	35V	elect
C405	 1-123-349-00	(C)	1000	35V	elect

C1001	1-130-134-00	(B)	0.082	100V	plastic
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CT101, 201	1-141-225-00	(C)	Trimmer, 10 – 100p; record bias		
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### RESISTORS

All resistors are in ohms. Common ¼W carbon resistors are omitted. Refer to the list on the last page for their part numbers.

R101, 201	1-244-912-00	(A)	43k	½W	carbon
R102, 202	1-244-937-00	(A)	470k	½W	carbon
R103, 203	1-244-897-00	(A)	10k	½W	carbon
R104, 204	1-244-905-00	(A)	22k	½W	carbon
R105, 205	1-244-837-00	(A)	33	½W	carbon

R107, 207	1-244-929-00	(A)	220k	½W	carbon
R108, 208	1-244-902-00	(A)	16k	½W	carbon
R109, 209	1-244-905-00	(A)	22k	½W	carbon
R110, 210	1-244-873-00	(A)	1k	½W	carbon
R111, 211	1-244-932-00	(A)	300k	½W	carbon

R112, 212	1-244-873-00	(A)	1k	½W	carbon
R114, 214	1-244-941-00	(A)	680k	½W	carbon
R115, 215	1-244-918-00	(A)	75k	½W	carbon
R116, 216	1-244-873-00	(A)	1k	½W	carbon
R117, 217	1-244-855-00	(A)	180	½W	carbon

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

**Note:** Circled letters (A to Z) are applicable to European models only.

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
R118, 218	1-244-937-00	(A) 470k ½W carbon
R119, 219	1-244-853-00	(A) 150 ½W carbon
R123, 223	1-244-865-00	(A) 470 ½W carbon
R124, 224	1-244-881-00	(A) 2.2k ½W carbon
R125, 225	1-244-905-00	(A) 22k ½W carbon
R126, 226	1-244-857-00	(A) 220 ½W carbon
R139, 239	1-244-870-00	(A) 750 ½W carbon (AEP, UK, E model)
R140, 240	1-244-865-00	(A) 470 ½W carbon
R141, 241	1-244-870-00	(A) 750 ½W carbon
R143, 243	1-244-913-00	(A) 47k ½W carbon
R144, 244	1-244-896-00	(A) 9.1k ½W carbon
R156, 256	1-244-873-00	(A) 1k ½W carbon
R171, 271	1-244-895-00	(A) 8.2k ½W carbon
R196, 296	1-244-870-00	(A) 750 ½W carbon
R307, 308	1-244-877-00	(A) 1.5k ½W carbon
R309, 310	1-244-882-00	(A) 2.4k ½W carbon
R318	1-244-870-00	(A) 750 ½W carbon
R325, 326	1-244-846-00	(A) 75 ½W carbon
R330	1-244-857-00	(A) 220 ½W carbon
R334, 335	1-244-849-00	(A) 100 ½W carbon
R336, 337	1-244-853-00	(A) 150 ½W carbon
R340	1-244-853-00	(A) 150 ½W carbon
R401-403	1-246-475-00	(A) 1.2k ½W carbon
R404, 405	1-244-869-00	(A) 680 ½W carbon
R1001	1-214-765-00	(A) 33k ½W metal oxide (1%)
R1008	1-217-523-00	(B) 10 ½W fuse
RV101, 201	1-224-640-XX	(B) 330-B, adjustable; playback level
RV102, 202	1-226-740-00	(E) 20k/20k-A, variable; REC LEVEL
RV103, 203	1-224-644-XX	(B) 4.7k-B, adjustable; record level
RV104, 204	1-226-235-00	(A) 5k-B, adjustable; level meter
RV191, 291	1-226-439-00	(D) 20k/20k-B, variable; HEADPHONES/ LINE OUT
RV1001	1-226-431-00	(B) 10k-B, adjustable; tape speed

#### MISCELLANEOUS

CNJ101,201 1-507-531-00 Jack, LINE IN, LINE OUT FIXED  
(US, Canadian model)

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
CNJ101,201		
CNJ103,203	1-536-501-21	(D) Jack, LINE IN, LINE OUT FIXED, REC/PB (AEP, UK, E model)
CNJ302		
CNJ102,202	1-507-525-00	(D) Jack, MIC
CNJ104,204	1-507-526-21	(B) Jack, LINE OUT VARIABLE
CNJ301	1-507-553-00	(C) Jack, HEADPHONES
CP101	1-464-110-00	(G) Unit, bias osc
CP301	1-231-341-00	Encapsulated Component (Canadian, E model)
	1-231-326-11	Encapsulated Component (US model)
	1-130-456-00	(C) Capacitor, 0.022µF 250V film (AEP, UK model)
HE	8-825-724-00	(F) Head, erase; EF201-36
HRP	8-825-732-00	(M) Head, record/playback; PS210-3602A
L101, 201	1-408-262-00	(B) Coil, 27µH; microinductor
LPF101,201	1-231-372-00	(C) Filter, low-pass
M101	8-835-006-00	(L) Motor, DNF-1001B
ME1, 2	1-520-417-00	(J) Meter, VU
PL1, 2	1-518-275-00	(B) Lamp, 8V 200mA; meter
PL1001	1-518-306-00	(B) Lamp, 8V 50mA; cassette
PM1001	1-454-205-00	(F) Solenoid, stop
S1	1-552-521-00	(D) Switch, slide; record/playback
S2	1-552-216-00	(C) Switch, lever-slide; DOLBY NR
S3	1-553-214-00	(C) Switch, lever-slide; BIAS
S4	1-553-215-00	(D) Switch, lever-slide; EQ
S5	1-553-218-00	(C) Switch, lever-slide; INPUT SELECT
S6	1-553-213-00	(B) Switch, slide; MEMORY
S7	1-552-530-00	Switch, pushbutton; POWER (US, Canadian model)
	1-552-580-00	Switch, pushbutton; POWER (E model)
	1-552-903-00	(D) Switch, pushbutton; POWER (AEP, UK model)
S8		included in tape counter
S1001-1003	1-516-853-XX	(C) Switch, leaf; muting, timing, rewind
T1	1-446-724-00	Transformer, power (US, Canadian model)
	1-446-725-00	Transformer, power (E model)
	1-446-726-00	(L) Transformer, power (AEP, UK model)

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

**Note:** The components identified by shading and mark A are critical for safety. Replace only with part number specified.

Note: Circled letters (A to Z) are applicable to European models only.

## Part No. Description

⚠ 1-526-576-31	Voltage Selector (E model)
⚠ 1-534-817-XX	ⓓ Cord, power (AEP model)
⚠ 1-534-986-XX	Cord, power (US, Canadian model)
⚠ 1-551-473-31	Cord, power; parallel-blade plug (E model)
⚠ 1-551-530-00	Cord, power; euro-plug (E model)

⚠ 1-551-884-00	ⓔ Cord, power (UK model)
♣ 1-560-063-00	ⓑ Connector Pin
♣ 1-560-064-00	ⓑ Connector Pin

## COMPLETE CIRCUIT BOARDS

- ♣ A-2010-157-A Audio Amp (US, Canadian model)
- ♣ A-2010-166-A Audio Amp (AEP, UK, E model)

## PRINTED CIRCUIT BOARDS

- ♣ 1-600-265-00 ⓑ Servo Amp
- ♣ 1-602-054-00 ⓑ Power Supply
- ♣ 1-602-055-00 ⓓ Audio Amp
- ♣ 1-602-056-00 ⓑ Headphone Amp
- ♣ 1-602-057-00 ⓑ Meter Lamp
- ♣ 1-602-058-00 ⓑ Peak Level Indicator
- ♣ 1-602-059-00 ⓑ Pin Jack
- ♣ 1-602-060-00 ⓑ Memory Switch

- Items marked "♣" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

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

## ACCESSORIES AND PACKING MATERIALS

### Part No. Description

- X-3701-105-0 ⓐ Tip Ass'y, head cleaning
- 1-551-734-11 ⓓ Cord, connection; RK-74A
- 3-429-126-00 Bag, plastic (Canadian model)
- 3-561-142-00 Cushion, upper-front (Canadian model)
- 3-561-143-00 Cushion, upper-rear (Canadian model)
- 3-561-144-00 Cushion, bottom-right (Canadian model)
- 3-561-145-00 Cushion, bottom-left (Canadian model)
- 3-561-195-00 ⓔ Carton (US, AEP, UK, E model)
- 3-561-196-00 Carton (Canadian model)
- 3-566-148-00 ⓑ Cushion, upper-front (US, AEP, UK, E model)
- 3-566-149-00 ⓑ Cushion, upper-rear (US, AEP, UK, E model)
- 3-566-150-00 ⓑ Cushion, bottom-right (US, AEP, UK, E model)
- 3-566-151-00 ⓑ Cushion, bottom-left (US, AEP, UK, E model)
- 3-701-630-00 ⓐ Bag, plastic
- 3-783-194-11 ⓓ Manual, instruction (AEP, UK, E model)
- 3-783-194-21 Manual, instruction (US model)
- 3-783-194-21 Manual, instruction (Canadian model)
- 3-794-813-31 ⓑ Caution Card, cassette
- 3-783-828-11 ⓑ Caution Card, cassette
- 3-794-233-21 Separate Sheet, consumer products (US model)
- 4-818-924-00 ⓑ Bag, plastic (US, AEP, UK, E model)

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

## ELECTROLYTIC CAPACITORS

Note: Circled letter (A to Z) are applicable to European models only.

CAP. (μF)	RATING → : Use the high voltage rated one.					
	6.3 VOLT.	10 VOLT.	16 VOLT.	25 VOLT.	35 VOLT.	50 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.47	→	→	→	→	→	1-121-726-00 (A)
1.0	→	→	→	→	→	1-121-391-00 (A)
2.2	→	→	→	→	→	1-121-450-00 (A)
3.3	→	→	→	1-121-392-00 (A)	→	1-121-393-00 (A)
4.7	→	→	→	1-121-395-00 (A)	→	1-121-396-00 (A)
10	→	→	1-121-651-00 (A)	1-121-398-00 (A)	→	1-121-738-00 (A)
22	→	→	1-121-479-00 (A)	1-121-480-00 (A)	1-121-662-00 (A)	1-121-152-00 (A)
33	→	→	1-121-403-00 (A)	1-121-404-00 (A)	1-121-652-00 (B)	1-121-405-00 (A)
47	→	1-121-352-00 (A)	1-121-409-00 (A)	1-121-410-00 (A)	1-121-653-00 (B)	1-121-411-00 (A)
100	→	1-121-414-00 (A)	1-121-415-00 (A)	1-121-416-00 (A)	1-121-357-00 (B)	1-121-417-00 (B)
220	1-121-419-00 (B)	1-121-420-00 (B)	1-121-421-00 (A)	1-121-422-00 (B)	1-121-261-00 (C)	1-121-423-00 (B)
330	1-121-751-00 (B)	1-121-805-00 (B)	1-121-521-00 (C)	1-121-654-00 (B)	1-121-655-00 (D)	1-121-656-00 (C)
470	1-121-424-00 (B)	1-121-425-00 (C)	1-121-426-00 (C)	1-121-733-00 (B)	1-121-361-00 (E)	1-121-810-00 (D)
1000	→	1-121-736-00 (C)	1-121-245-00 (D)	1-121-657-00 (D)	1-121-388-00 (E)	1-123-061-00 (F)
2200	1-121-658-00 (B)	1-121-659-00 (C)	1-121-660-00 (D)	1-123-067-00 (F)	1-121-984-00 (F)	→
3300	1-121-661-00 (D)	1-123-075-00 (E)	1-123-071-00 (F)	→	→	→

CAP. (μF)	100 VOLT.	160 VOLT.	250 VOLT.	350 VOLT.
	PART No.	PART No.	PART No.	PART No.
0.47	→	→	→	→
1.0	1-123-249-00 (A)	1-123-252-00 (A)	1-123-003-00 (B)	1-121-168-00 (B)
2.2	1-123-250-00 (A)	1-123-026-00 (B)	→	1-123-028-00 (B)
3.3	1-121-995-00 (A)	→	1-123-004-00 (B)	1-123-006-00 (C)
4.7	1-123-255-00 (A)	1-121-246-00 (B)	1-121-759-00 (B)	1-123-007-00 (D)
10	1-121-126-00 (B)	1-121-999-00 (B)	1-123-254-00 (C)	1-123-008-00 (D)
22	1-121-996-00 (C)	1-123-253-00 (C)	1-123-005-00 (D)	1-123-022-00 (D)
33	1-121-997-00 (C)	1-121-757-00 (C)	→	→
47	1-123-251-00 (C)	1-121-919-00 (C)	→	→
100	1-123-084-00 (E)	→	→	→

## CERAMIC CAPACITORS (A)

RATING							
CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (μF)	50 VOLT.
	PART No.		PART No.		PART No.		PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001	1-102-074-00
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012	1-102-118-00
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015	1-102-119-00
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018	1-102-120-00
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022	1-102-121-00
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027	1-102-122-00
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033	1-102-123-00
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039	1-102-124-00
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047	1-102-125-00
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056	1-102-126-00
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068	1-102-127-00
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082	1-102-128-00
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01	1-102-129-00
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022	1-101-005-00
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047	1-101-006-00
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00		
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00		
16	1-102-952-00	110	1-102-815-00				
18	1-102-953-00	120	1-102-816-00				
20	1-102-958-00	130	1-101-081-00				

0.001μF = 1,000pF

## CERAMIC (SEMICONDUCTOR) CAPACITORS (A)

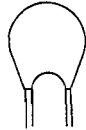
RATING → : Use the high voltage rated one.					
CAP. (μF)	25 VOLT.	50 VOLT.	CAP. (μF)	25 VOLT.	50 VOLT.
	PART No.	PART No.		PART No.	PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00
0.0015	→	1-161-041-00	0.027	1-161-018-00	1-161-056-00
0.0018	→	1-161-042-00	0.033	1-161-019-00	1-161-057-00
0.0022	→	1-161-043-00	0.039	1-161-010-00	1-161-058-00
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00
0.0033	→	1-161-045-00	0.056	→	1-161-060-00
0.0039	→	1-161-046-00	0.068	→	1-161-061-00
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00
0.0068	→	1-161-049-00			
0.0082	1-161-012-00	1-161-050-00			
0.01	1-161-013-00	1-161-051-00			
0.012	→	1-161-052-00			
0.015	1-161-015-00	1-161-053-00			

## MYLAR CAPACITORS (A)

Note: Circled letters (A to Z) are applicable to European models only.

RATING											
CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.
	PART No.	PART No.	PART No.		PART No.	PART No.	PART No.		PART No.	PART No.	PART No.
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108-377-00	1-108-421-00	0.1	1-108-251-00	1-108-389-00	1-108-433-00
0.0012	1-108-351-00	1-108-366-00	1-108-410-00	0.012	1-108-357-00	1-108-378-00	1-108-422-00	0.12	1-108-363-00	1-108-390-00	1-108-434-00
0.0015	1-108-228-00	1-108-367-00	1-108-411-00	0.015	1-108-240-00	1-108-379-00	1-108-423-00	0.15	1-108-252-00	1-108-391-00	1-108-435-00
0.0018	1-108-352-00	1-108-368-00	1-108-412-00	0.018	1-108-358-00	1-108-380-00	1-108-424-00	0.18	1-108-364-00	1-108-392-00	1-108-436-00
0.0022	1-108-230-00	1-108-369-00	1-108-413-00	0.022	1-108-242-00	1-108-381-00	1-108-425-00	0.22	1-108-254-00	1-108-393-00	1-108-437-00
0.0027	1-108-353-00	1-108-370-00	1-108-414-00	0.027	1-108-359-00	1-108-382-00	1-108-426-00	0.27	1-108-854-00	—	—
0.0033	1-108-232-00	1-108-371-00	1-108-415-00	0.033	1-108-244-00	1-108-383-00	1-108-427-00	0.33	1-108-855-00	—	—
0.0039	1-108-354-00	1-108-372-00	1-108-416-00	0.039	1-108-360-00	1-108-384-00	1-108-428-00	0.39	1-108-856-00	—	—
0.0047	1-108-234-00	1-108-373-00	1-108-417-00	0.047	1-108-246-00	1-108-385-00	1-108-429-00	0.47	1-108-857-00	—	—
0.0056	1-108-355-00	1-108-374-00	1-108-418-00	0.056	1-108-361-00	1-108-386-00	1-108-430-00				
0.0068	1-108-237-00	1-108-375-00	1-108-419-00	0.068	1-108-249-00	1-108-387-00	1-108-431-00				
0.0082	1-108-356-00	1-108-376-00	1-108-420-00	0.082	1-108-362-00	1-108-388-00	1-108-432-00				

## TANTALUM CAPACITORS



RATING							
→ : Use the high voltage rated one.							
CAP. (μF)	3.15 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	25 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.01					→	→	1-131-396-00 (B)
0.015					→	→	1-131-397-00 (B)
0.022					→	→	1-131-398-00 (B)
0.033					→	→	1-131-399-00 (B)
0.047					→	→	1-131-400-00 (B)
0.068					→	→	1-131-401-00 (B)
0.1					→	→	1-131-402-00 (B)
0.15					→	→	1-131-403-00 (B)
0.22					→	→	1-131-404-00 (B)
0.33					→	1-131-409-00 (B)	1-131-405-00 (B)
0.47	—	—	—	—	1-131-412-00 (B)	→	1-131-406-00 (B)
0.68	—	—	—	1-131-415-00 (B)	→	1-131-410-00 (B)	1-131-407-00 (B)
1.0	—	—	1-131-418-00 (B)	1-131-413-00 (B)	→	→	1-131-408-00 (B)
1.5	—	1-131-421-00 (B)	—	1-131-416-00 (B)	→	1-131-411-00 (B)	1-131-348-00 (B)
2.2	1-131-424-00 (B)	—	1-131-419-00 (B)	—	1-131-414-00 (B)	1-131-355-00 (B)	1-131-349-00 (B)
3.3	—	1-131-422-00 (B)	—	1-131-417-00 (B)	1-131-362-00 (B)	1-131-356-00 (B)	1-131-350-00 (B)
4.7	1-131-425-00 (B)	—	1-131-420-00 (B)	1-131-369-00 (B)	1-131-363-00 (B)	1-131-357-00 (B)	1-131-351-00 (C)
6.8	—	1-131-423-00 (B)	1-131-376-00 (B)	1-131-370-00 (B)	1-131-364-00 (B)	1-131-358-00 (C)	1-131-352-00 (C)
10	1-131-426-00 (B)	1-131-383-00 (B)	1-131-377-00 (B)	1-131-371-00 (B)	1-131-365-00 (C)	1-131-359-00 (C)	1-131-353-00 (D)
15	1-131-390-00 (B)	1-131-384-00 (B)	1-131-378-00 (B)	1-131-372-00 (B)	1-131-366-00 (C)	1-131-360-00 (D)	—
22	1-131-391-00 (B)	1-131-385-00 (B)	1-131-379-00 (C)	1-131-373-00 (C)	1-131-367-00 (D)		
33	1-131-392-00 (B)	1-131-386-00 (C)	1-131-380-00 (C)	1-131-374-00 (D)			
47	1-131-393-00 (C)	1-131-387-00 (C)	1-131-381-00 (D)	—			
68	1-131-394-00 (B)	1-131-388-00 (C)	—	—			
100	1-131-395-00 (D)	—	—	—			

## TANTALUM CAPACITORS



RATING						
CAP. (μF)	3 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.033						1-131-273-00 (E)
0.047						1-131-274-00 (E)
0.068						1-131-275-00 (E)
0.1						1-131-276-00 (D)
0.15						1-131-277-00 (D)
0.22			—	—	1-131-262-00 (D)	1-131-278-00 (D)
0.33			—	—	1-131-263-00 (D)	1-131-279-00 (D)
0.47			1-131-169-00 (D)	—	1-131-264-00 (D)	1-131-280-00 (D)
0.68			—	1-131-258-00 (D)	1-131-265-00 (D)	1-131-281-00 (D)
1.0			1-131-254-00 (D)	—	1-131-266-00 (D)	1-131-282-00 (D)
1.5		1-131-250-00 (D)	—	—	1-131-267-00 (D)	1-131-283-00 (E)
2.2		—	—	1-131-259-00 (D)	1-131-268-00 (D)	1-131-284-00 (E)
3.3		—	1-131-255-00 (D)	—	1-131-269-00 (D)	—
4.7		1-131-251-00 (E)	1-131-171-00 (D)	—	1-131-270-00 (D)	—
6.8		—	—	1-131-260-00 (D)	1-131-271-00 (E)	—
10	—	—	1-131-256-00 (D)	—	1-131-272-00 (E)	—
15	—	1-131-252-00 (D)	—	1-131-261-00 (E)		
22	—	—	1-131-257-00 (E)	—		
33	1-131-176-00 (D)	1-131-253-00 (E)	1-131-173-00 (C)	—		
47	1-131-288-00 (F)	1-131-174-00 (D)	—	—		
100	1-131-177-00 (D)	—	—	—		

## 1/4 WATT CARBON RESISTORS (A)

Note: Circled letter (A) is applicable to European models only.

Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-476-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-477-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-478-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-479-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-480-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-481-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-482-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-483-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-484-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-485-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-486-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-487-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

## HARDWARE NOMENCLATURE

Screw:

L: Length in mm
   
 D: Diameter in mm
   
 Type of head

Indicated slotted-head only.

Unless otherwise indicated, it means cross-recessed head (Phillips type).

Nut, Washer, Retaining ring:

N 3
   
 Diameter of usable screw or shaft
   
 Reference designation

Reference Designation	Shape	Description	Remarks
<b>SCREWS</b>			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		brazer-head screw	

Reference Designation	Shape	Description	Remarks
<b>SELF-TAPPING SCREWS</b>			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self-tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
<b>SET SCREWS</b>			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
<b>NUT</b>			
N		nut	
<b>WASHERS</b>			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
<b>RETAINING RINGS</b>			
E		retaining ring	
G		grip-type retaining ring	

Sony Corporation

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