1098

# TEAC®

## SERVICE MANUAL

# X-7R MK II / X-7 MK II

### Stereo Tape Deck

Effective: APRII., 1982 A-10121

5704012100

# 1 SPECIFICATIONS AND SERVICE DATA

## SPECIFICATIONS

**Track System** ¼-track, 2-channel stereo
**Head System**
- **X-7RMKII:** 6 heads: forward erase, forward record, reverse playback, forward playback, reverse record, reverse erase.
- **X-7MKII:** 3 heads: erase, record, playback

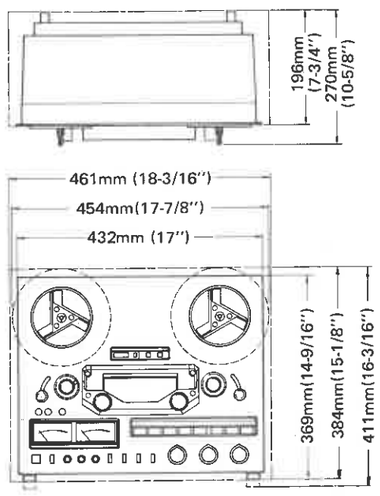
**Reel Size** 7"
**Tape Speed** 19cm/s (7-½ ips) and 9.5cm/s (3-¾ ips)
**Inputs (level and impedance)**
- **MIC:** Specified input level: –60dB (0.775mV)/10kohms
  Min. input level: –70dB (245μV)
- **LINE IN:** Specified input level: –12dB (195mV)/50kohms
  Min. input level: –22dB (61.5mV)

**Outputs (level and impedance)**
- **OUTPUT:** Specified output level: –5dB (436mV)/10kohms
  Max. output level: +1dB (0.869V)
- **PHONES:** Specified output level: –24dB (48.9mV)/8ohms

**Playback Equalization**
- **19cm/s:** 3,180μs + 50μs (NAB), 3,180μs + 35μs (EE)
- **9.5cm/s:** 3,180μs + 90μs (NAB), 3,180μs + 50μs (EE)

**Motors**
- **Capstan motor:** DC brush motor with FG servo
- **Reel motor:** 2 DC slotless motors

**Bias Frequency** 100kHz
**Operating Position** Vertical, horizontal, angled
**Power Requirements**
100/117/220/240V, AC 50/60Hz, 77W, 72W for X-7MKII (General export model)
220V AC 50Hz, 77W, 72W for X-7MKII (Europe model)
240V AC 50Hz, 77W, 72W for X-7MKII (U.K./Australia model)
117V AC 60Hz, 77W, 72W for X-7MKII (U.S.A./Canada model)
**Weight** 18kg (38-11/16 lbs.) net




Dashed line indicates General Export Models for Limited Areas.

**Fig. 1-1 Dimensions**

## SERVICE DATA

### MECHANICAL

**Tape Speed Deviation** 3,000Hz ± 30Hz
**Tape Speed Drift** 15Hz
**FWD/RED Tape Speed Differential (X-7RMKII only)** 30Hz
**Wow and Flutter**
- **Playback:** 0.05% (WRMS), 0.10% (RMS) at 19cm/s
  0.07% (WRMS), 0.12% (RMS) at 9.5cm/s
- **Record/Playback:** 0.12% (RMS) at 19cm/s
  0.15% (RMS) at 9.5cm/s

**Pinch Roller Pressure** 1.35kg ~ 1.9kg (3.0 lbs ~ 4.2 lbs)
**Reel Torque**
- **Play mode:**
  - **Take-up** 260 ± 40g-cm (3.1 ~ 4.2oz-inch)
  - **Back tension** 180 ± 40g-cm (1.9 ~ 3.1oz-inch)
- **Fast winding mode:**
  - **Take-up:** 1100g-cm (15.3oz-inch)
  - **Back tension:** 50g-cm (0.7oz-inch)

**Brake Torque**
- **Forward direction:** 800 ~ 1400g-cm (11 ~ 19oz-inch)
- **Reverse direction:** 500g-cm (6.9oz-inch) or less
- **Left/right deviation:** 200g-cm (2.8oz-inch) or less

**Fast Winding Time** 150 seconds or less for 550m (1800 feet)
**Pitch Control** Standard tape speed ±6% or more
**FWD/REV Change Time (X-7RMKII only)** 3.5 sec. ±0.5 sec.
**TIMER Activate Time** 4 sec. ±2 sec.

### ELECTRICAL

**Frequency Response**
- **Playback:** See Fig. 3-5 to 3-6
- **Overall:** See Fig. 3-7 to 3-8

**Signal to Noise Ratio**
- **Playback:** 50 dB min. (19 cm/s, LH)
  52 dB min. (19 cm/s, EE)
  49 dB min. (9.5 cm/s, LH)
  52 dB min. (9.5 cm/s, EE)
- **Overall:** 48 dB min. (19 cm/s, LH)
  50 dB min. (19 cm/s, EE)
  46 dB min. (9.5 cm/s, LH)
  50 dB min. (9.5 cm/s, EE)

**Erase Efficiency** 68dB min. at 1kHz (measured with input 10dB higher than the specified input level)
**Channel Separation** 50dB min. at 1kHz
**Adjacent Track Crosstalk** 40dB min. at 125Hz
**Total Harmonic Distortion** 0.8% or less at 1kHz

- Improvements may result in SPECIFICATIONS AND SERVICE DATA changes.
- Value of "dB" in the data refers to 0dB (0.775V), except where specified.

⚠ Parts marked with this sign are safety critical components. They must always be replaced with identical components – refer to the TEAC Parts List and ensure exact replacement.





# 2 MECHANICAL ADJUSTMENTS AND CHECKS

**NOTE:** All the explanations are for the X-7RMKII. But unless specified they can also be applied to the X-7MKII except for those in relation to the REVERSE direction.

## 2-1 CONTROL PCB ASSY CHECK

Hooking CONTROL PCB ass'y as shown facilitates this check.

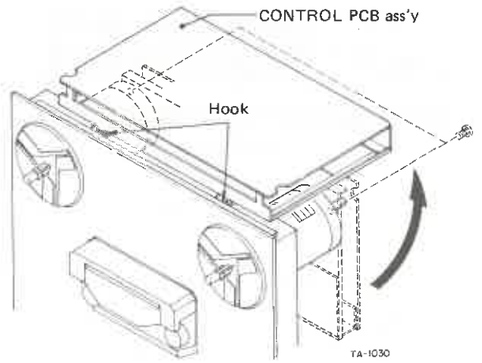



**Fig. 2-1**

## 2-2 BRAKE ADJUSTMENT

**NOTE:** The explanation and figure in this paragraph are for the left side brake, similar checks and adjustments are applicable for the right side one.

1. Adjust by moving the brake band bracket in either direction (arrow (A)) so that the reel motor chassis is in parallel with the brake arm, and so that the brake band makes proper clearance equally all around the reel table base.
2. Adjust by moving the brake solenoid in either direction (arrow (D)) so that the stroke of the solenoid plunger is about 2mm.
3. Adjust by moving the band ass'y retaining plate as shown in (B, C, E) so that, when the plunger is pushed in the direction of the solenoid housing, the reel table base is not rubbed by the brake band and is properly spaced.

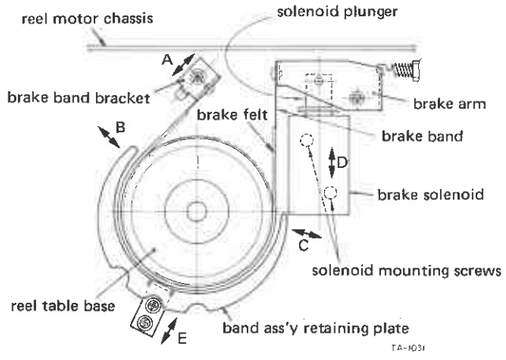
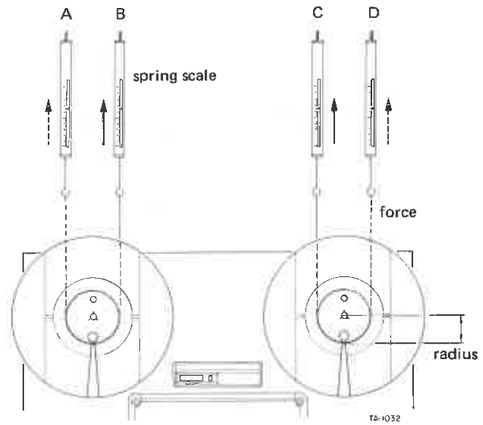



**Fig. 2-2**

## 2-3 BRAKE TORQUE MEASUREMENT

1. Place an empty 7" reel, connected to a spring scale by a string, on the reel table.
2. Pull the scale away from the reel and read the scale indication only when the reel table is steady motion.
3. Do steps 1 and 2 for each measuring condition, (A) through (D) in Fig. 2-3.
4. The values are as chart in Fig. 2-3.




| | |
|---|---|
| Forward direction (B) (C) | 800 to 1400g-cm (11 to 19oz-inch) |
| Reverse direction (A) (D) | 500g-cm (6.9oz-inch) or less |
| Left/right deviation | 200g-cm (2.8oz-inch) or less |

**NOTES:** 1. The reverse direction values are reference.
2. The specification of left/right deviation only applies for forward direction torques.

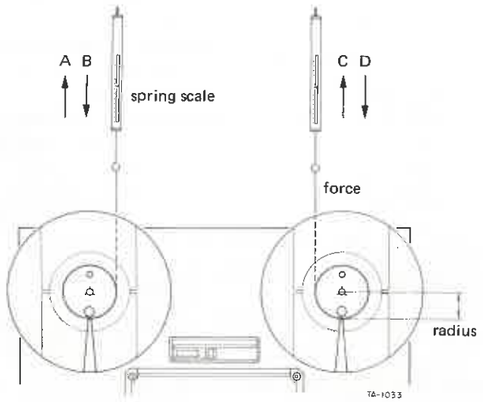
Torque calculating formulas:
(1) Torque (in g-cm or oz-inch)
= Force or Weight (in g or oz) x Radius (in cm or inch)

(2) Conversion of g-cm to oz-inch:
g-cm x 0.0139 = oz-inch

**Fig. 2-3**

## 2-4 REEL MOTOR TORQUE MEASUREMENT

1. Hold both left and right tension arms in the upper position using rubber bands.
2. See Fig. 2-4. Measure torques for each operating mode with the conditions specified in the chart.
3. Since all the torque values are reference values, it is allowable that the take-up torque during the fast forward or rewind mode is 1kg-cm or more, and that the back tension torque during these mode is good unless the left or right tension arm are shut-off.
4. There is no specially provided adjustment, so if any torque correction are needed, repair or replace defective part(s) and/or circuit(s).




Reel torque reference value

Play mode

| Mode | Torque |
|---|---|
| Take-up: (B) in REV (D) in FWD | 260 ± 40g-cm (3.1 ~ 4.2oz-inch) |
| Back tension: (A) in FWD (C) in REV | 180 ± 40g-cm (1.9 ~ 3.1oz-inch) |

Fast winding mode

| Mode | Torque |
|---|---|
| Take-up: (B) in REW, (D) in F.F. | 1100g-cm (15.3oz-inch) |
| Back tension: (A) in F.F., (C) in REW | 50g-cm (0.7oz-inch) |

**NOTE:** For torque calculation, refer Fig. 2-3.

**Fig. 2-4**

## 2-5 PINCH ROLLER PRESSURE STROKE ADJUSTMENT

1. Set the deck in the forward or reverse play mode.
2. Adjust by turning the pressure storke adj. nut (Fig. 2-5) so that the clearance between the pin and the stopper cushion is about 1.0mm.
3. Since the clearance is produced at one side (left or right), adjustment for this side only is permissible.

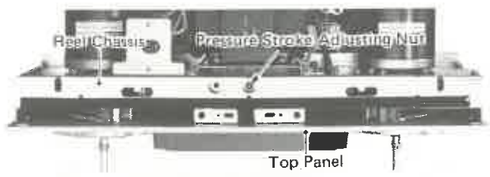
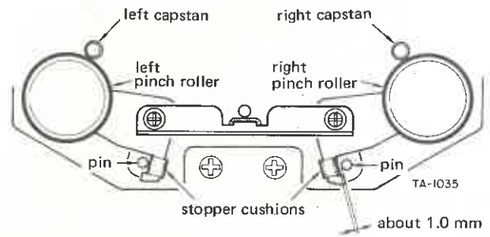



**Fig. 2-5 Pinch roller pressure stroke adjustments**




Either the left or right should have a clearance of about 1.0mm.

**Fig. 2-6**

## 2-6 PINCH ROLLER PRESSURE MEASUREMENT

**NOTES:** 1. The explanation below applies to both the left and right pinch rollers.
2. Both pinch roller pressures are automatically set with equal value.

1. Hold both the left and right tension arms in the upper positions using rubber bands, string etc.
2. Set the deck in either play mode with no tape loaded.
3. Attach the spring scale to the pinch roller as shown in the figure.
4. Draw the pinch roller away from the capstan shaft (in the direction of a line intersecting the centers of the capstan shaft and the pinch roller) until the capstan shaft and the pinch roller are separated.
5. Return the scale back until the pinch roller just begins to turn. The scale should then be reading as follow.
   Reference value: 1.35kg to 1.9kg. (3.0 lbs to 4.2 lbs)
6. If the reading is out of specification, replace defective part(s). There are no adjustable parts.





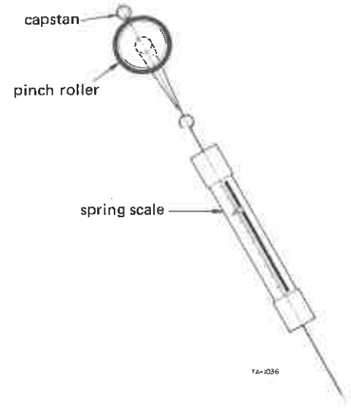



**Fig. 2-7**

## 2-7 TENSION ARM HEIGHT ADJUSTMENT

1. Thread any standard tape on the deck using a standard empty reels such as TEAC RE-702.
2. Set the deck in the forward or reverse play mode.
3. Stop left (right) guide roller's rotation by hand. Adjust by turning the left (right) tension arm adjusting nut (refer Fig. 2-8) so that the tape moves in the center of the guide roller.
4. Release the guide roller. Fine-adjust the adjusting nut again until there is no tape curling at the tape guide pin between the erase head and the left (right) guide roller.
5. After adjusting the height of both left and right tension arms, check that the tape running condition is good by repetition of fast forward and rewind modes.
6. If the tape running position is different when the guide roller stops and when it turns, the condition when the guide roller is rotating has priority.

## 2-8 TENSION ARM FORCE ADJUSTMENT

**NOTE:** The description below applies to both left and right sides.

1. Check the shut-off switch operates correctly with the deck in the horizontal and vertical positions.
2. Adjustment can be done by changing the hooking position of the tension arm spring against the spring hook.

## 2-9 DAMPER FUNCTION CHECK

**NOTE:** The explanation below applies to both left and right sides.

1. Check that the damper string begins to function after the tension arm has moved 10 to 15mm from the lowest position, while the damping function is working, there is a feeling of resistance.
2. Check that the tension arm returns freely from the above position to the lowest position.

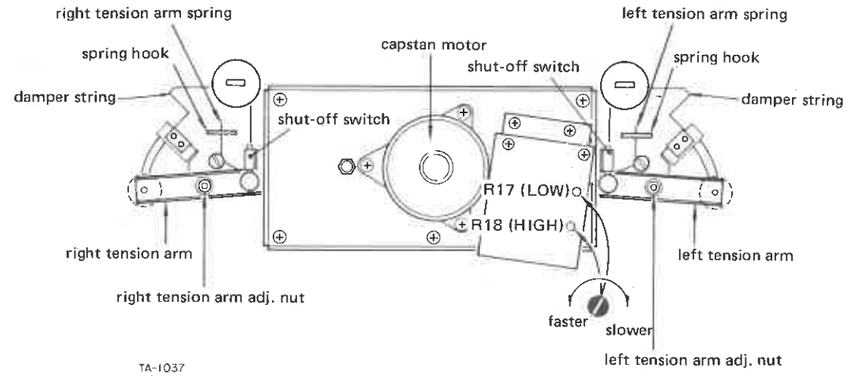



**Fig. 2-8 Tension arm height, tension arm force, damper function, and tape speed**

## 2-10 REEL TABLE HEIGHT ADJUSTMENT

1. Adjust the tension arm height beforehand. (See 2-7)
2. Check each reel table height using a TEAC RE-702 empty reel and letting the tape run in each tape operating mode.
3. If the tape rubs against the reel flanges, adjust the reel table height by means of the two reel table mounting screws.

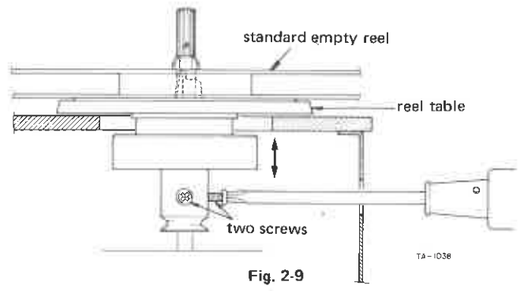
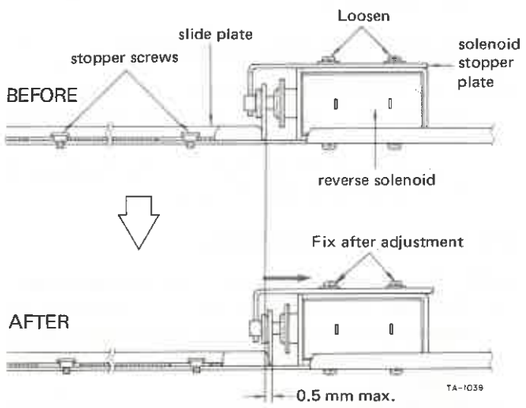



**Fig. 2-9**

## 2-11 REVERSE SOLENOID ADJUSTMENT (X-7RMKII ONLY)

1. When the reverse solenoid releases, if the slide plate hits the stopper screw/s noisily, the solenoid stopper plate may be adjusted in the direction of the solenoid housing. See illustration.

Parts below are accesible from the rear of the amplifier chassis.




Adjustment range is 0.5mm max. in solenoid-off condition.

Fig. 2-10

## 2-12 ROTATING PART THRUST CLEARANCE CHECKS

Reference values

| | |
|---|---|
| Capstan shaft: | 0.1mm to 0.25mm (magnefloat type) |
| Guide roller: | 0.05mm to 0.3mm |
| Tension arm guide roller: | 0.05mm to 0.3mm |
| Reel motor: | 0 (spring type) |
| Tension arm: | 0 (spring type) |

**NOTE:** Since the capstan shaft is a magnefloat type, check that it is forced towards the rear of the deck while rotating.

## 2-13 CAPSTAN MOTOR REPLACEMENT

1. When the capstan motor is replaced, install it with its lead wires and washers as shown.
2. Check that, when the deck is operated by repeating the forward and reverse play modes, the capstan drive belt changes position on the flywheels smoothy.

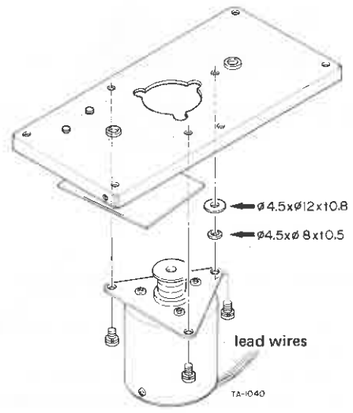



Fig. 2-11

## 2-14 TAPE SPEED ADJUSTMENT

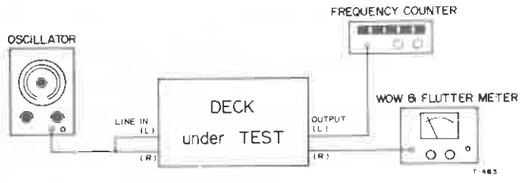



Fig. 2-12

**NOTES:** 1. Conduct all the following in both forwar and reverse play modes.
2. When ordering test tapes, allow for the longer delivery time that is required for them.

1. Connect a frequency counter to either OUTPUT terminal.
2. Load a TEAC YTT-2003 test tape. Set the SPEED switch—HIGH, and PITCH CONT knob-OFF.
3. Play the tape. Adjust R18 (see Fig. 2-8) for a reading of 3,000 Hz ±5Hz.
4. Check the following at the beginning and the end of the tape.
   Specifications:
   Tape Speed deviation . . . . . 3,000Hz ±30Hz
   Tape speed drift . . . . . 15Hz
   FWD/REV tape speed differential . . 30Hz (X-7RMKII only)





5. Change the test tape to a TEAC YTT-2002, and SPEED switch setting to LOW.
6. Repeat steps 3 through 4. Adjust R17 if necessary.
7. Pull the PITCH CONT knob out. Set SPEED switch HIGH. Play a YTT-2003 tape.
8. Check if the speed variation of at least 3,000Hz ±180Hz is obtained when the PITCH CONT knob is rotated fully in both directions.
9. Change the test tape to YTT-2002, SPEED switch setting to LOW. Repeat step 8.

## 2-15 WOW AND FLUTTER CHECKS

**NOTES:** 1. All the following apply to both forward and reverse play modes.
2. The following measurements should be made at the beginning and the end of the tape.
3. When ordering test tapes, allow for the longer delivery time that is required for them.

**Playback**

1. Connect the test equipment to the deck as shown in Fig. 2-12.
2. Load and play a TEAC YTT-2003 test tape for HIGH speed (19cm/s or 7-½ ips), or a TEAC YTT-2002 test tape for LOW speed (9.5cm/s or 3-¾ ips).
3. Read the indication on the wow and flutter meter.
   Specifications:
   HIGH speed: 0.05% WRMS
   0.10% RMS
   LOW speed: 0.07% WRMS
   0.12% RMS

**Overall**

4. Load a TEAC YTT-8013 test tape (blank). Apply and record a 3,000Hz signal.
5. During simultaneous tape monitoring (playing) the recorded signal, read the wow and flutter meter display.
   Specifications:
   HIGH speed: 0.12% RMS
   LOW speed: 0.15% RMS

## 2-16 VOLTAGE CONVERSION (FOR GENERAL EXPORT MODELS)

Always disconnect the power line cord before making these adjustments.

**Frequency Conversion**

Since the X series uses DC motors, frequency conversion is not necessary.

**Voltage Conversion**

1. First remove the two feet by removing the screws in each one.
2. Unscrew the left and right sides of the cabinet.
3. Locate the voltage selector to the right of the power transformer as seen from the rear of the deck.
4. Turn the slotted center post of the selector with a screw-driver until the desired voltage numerals appear in the cut-out section of the selector.
5. Replace the cabinet and feed.

Fig. 2-13

## 2-17 LUBRICATION

Oiling is needed after every 1,000 hours of operation or once a year if the deck is infrequently used. For this purpose, TEAC spindle oil (from TEAC TZ-255 oil kit), Mobil D.T.E. Oil Light, etc are recommended. Lubrication is normally not necessary except at the points shown.

1. Place the deck in the horizontal position.
2. Apply a few drops of oil to the respective spindles shown, excluding capstans, then spread the oil evenly on the spindle surfaces using a cotton cloth, etc.
3. For capstans, apply a few drops to the indicated position.
4. After oiling all the points, leave the deck for 1 to 2 hours until the oil is thoroughly absorbed.

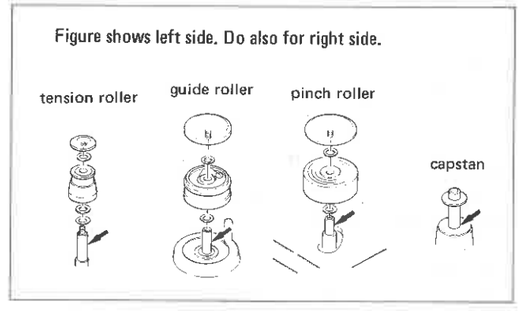



Fig. 2-14

## 2-18 HEAD AND TAPE PATH ALIGNMENTS

**NOTES:** 1. Head and tape path alignment are the same for the X-7RMKII and X-7MKII. The procedure for the X-7RMKII is given below.
2. For detailed alignment principles, refer to the book "Audio Fundamental -TAPE DECK-, 8. Mechanical Adjustments" published by the TEAC CORPORATION.

Head adjustment screws

| Erase | Record and playback |
|---|---|
| Fixed screws (not adjustable) | ⊕ Azimuth<br>⊖ Height and tilt<br>⊙ Tangency |

### 2-18-1 HEAD ARRANGEMENT (for X-7RMKII)

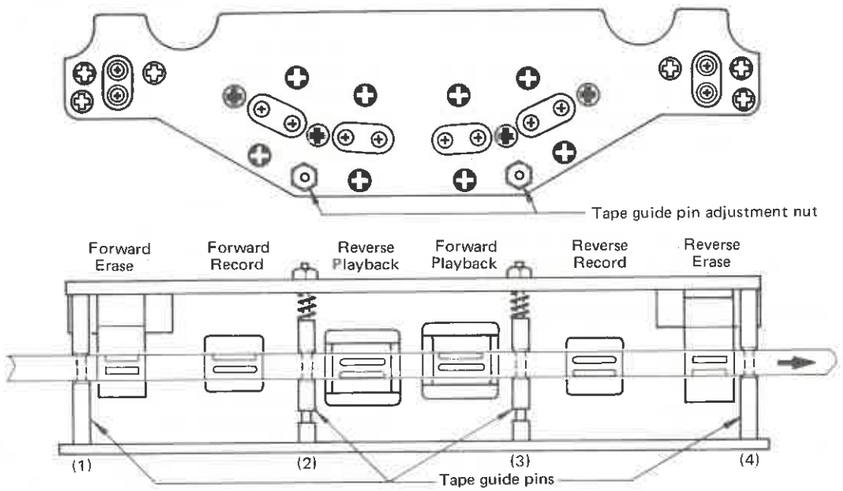



Fig. 2-15 Head arrangement

### 2-18-2 HEAD REGULATION ELEMENTS

Adjust each head to satisfy each of the following:

**TILT**
The head surface should be parallel to the tape guide pin surface.

**AZIMUTH**
The gap of the head core should be perpendicular to the tape travel.

**HEIGHT**
The upper (lower) core of the head should be level with the upper (lower) edge of the tape.

**TANGENCY**
The dotted line should be perpendicular to the surface of the tape.

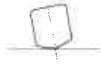


Fig. 2-16 Head regulation elements

### 2-18-3 ALIGNMENT PROCEDURE (for X-7RMKII)

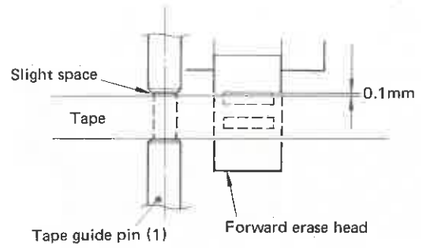
1. Visually adjust the tilt of each record and playback head so that the head surface is parallel to the nearest tape guide pin.
2. Make coarse azimuth adjustments for the record and playback heads by viewing each head from in front (without tape).
3. Running a TEAC YTT-8013 test tape (thickness = 35 μm) in the forward direction, fine-adjust the height of the left tention roller so that the lower edge of the tape is just touching the lower edge of the tape guide pin (1), See Fig. 2-17, then adjust the height of the tape guide pin (2) so that the upper edge of the tape is in contact with the upper edge of the tape guide. Confirm that the adjustments do not cause the tape to curl.
4. Confirm that the forward erase head core protrudes 0.1 mm above the moving tape. If not, replace the head with another one and recheck.
5. Do exactly the same adjustment (steps 3 and 4) for the reverse direction. Substitute the reverse mode for forward play mode.





FOR

Fig. shows the forward erase head.

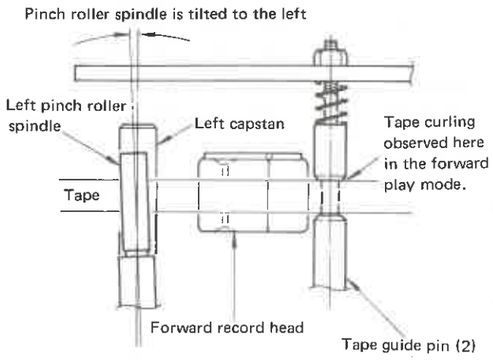



**NOTE:** In the case of the reverse erase head, the tape should be in contact with the lower surface of the tape guide pin (4).

Fig. 2-17 Erase head height

6. Check for any tape curling at either tape guide pin in the closed loop portion of the tape (i.e., between the capstans).
7. If there is any tape curling at tape guide pin (2) during forward play, do the following: Unthread the tape from the front of the head assembly. Remove both pinch rollers. Set the deck in the play mode. Then visually align the pinch roller spindle with the capstan as described below.

Fig. shows left side.




If the pinch roller spindle is tilted to the left (right) with respect to the capstan shaft, tape curling may occur at the upper (lower) edge of the tape guide pin (2).

Fig. 2-18 Example of improperly aligned pinch roller and capstan

8. Loosen the two screws holding the reinforcement plate, then adjust using the correction jig (TEAC P/N 5736000100) as shown in Fig. 2-19.
Note:
(1) Use the jig as near as possible to the pinch roller spindle.
(2) Do not touch the surface of spindle.
(3) Use no other tool for this adjustment!

**Correction jig (TEAC P/N 5736000100)**

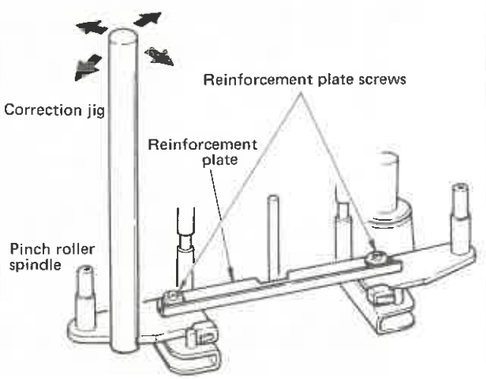
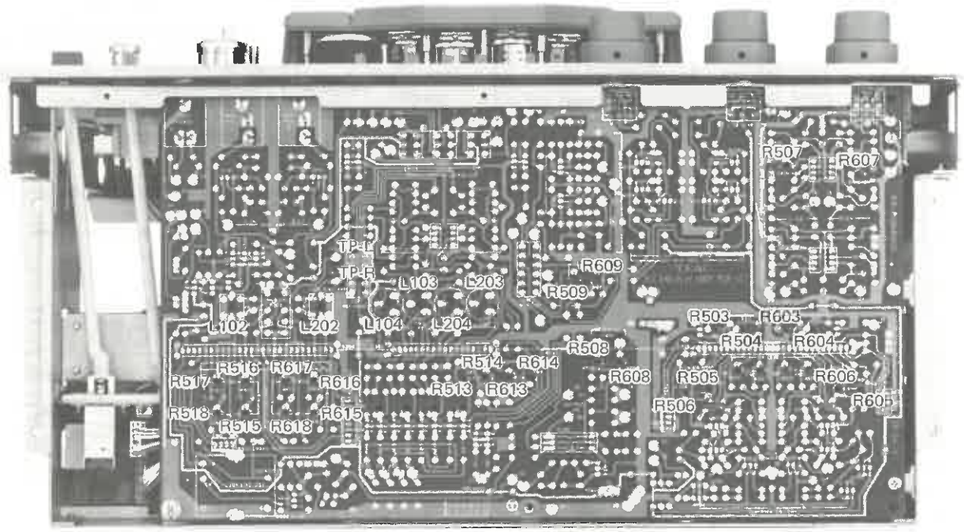



Fig. 2-19 Pinch roller/capstan alignment

9. If the tape curls at tape guide pin (3) in reverse play, correct in the same way (steps 7 and 8).
10. After it is entirely corrected that there is no tape curling condition in the head assembly, fine-adjust each record and playback height so that the brass-colored spacer of forward (reverse) direction purpose head will show above (below) the moving tape. (About as thick as a thin pencil line). Adjustment should be done by equally turning three screws required correction not to disturb tilt and azimuth regulation conducted before.
11. Finally, if necessary, make rough tangency adjustment of respective head with tape running.

# 3 ELECTRICAL ADJUSTMENTS AND CHECKS

## ADJUSTMENT AND TEST POINT LOCATIONS




| | | | |
|---|---|---|---|
| R501/R601 | Playback level (FWD) | R514/R614 | Record level (FWD) |
| R502/R602 | Playback level (REV) | R513/R613 | Record level (REV) |
| R503/R603 | Playback EQ (HIGH FWD) | R516/R616 | Record Bias EE (FWD) |
| R504/R604 | Playback EQ (HIGH REV) | R515/R615 | Record Bias EE (REV) |
| R505/R605 | Playback EQ (LOW FWD) | R517/R617 | Record Bias LHII (FWD) |
| R506/R606 | Playback EQ (LOW REV) | R518/R618 | Record Bias LHII (REV) |
| R507/R607 | Output level | L102/L202 | Bias trap (record) |
| R508/R608 | VU meter (playback) | L103/L203 | Record EQ (FWD) |
| R509/R609 | VU meter (monitor) | L104/L204 | Record EQ (REV) |





**NOTES**

1. The following data in both the charts and the illustrations are for the X-7RMKII. All the procedures, however, are applicable to the X-7MKII except for those relating to the REVERSE direction.
2. Before performing adjustments and checks, clean and demagnetize the entire tape path.
3. Check that the deck is properly set for the voltage in your locality.
4. In general, adjustments and checks are done in the order of L-ch then R-ch. Double REF. Nos. indicate L-ch/R-ch. (Example: R509/R609)
5. The value of "dB" refers to 0 dB (0.775 V). If an AC voltmeter calibrated to 0 dB (1 V) is to be used, appropriate compensation should be made.
6. The AC voltmeter used in the procedures must have an input impedance of 1 M-ohms or more.
7. When ordering test tapes, allow for the longer delivery time that is required for them.

## 3-1 MONITOR PERFORMANCE

| ITEM | | CONNECTION | MODE/ INSTRUCTION | SIGNAL SOURCE | ADJUST (or CHECK) | OUTPUT | REMARKS |
|---|---|---|---|---|---|---|---|
| 1. MONITOR output level | 1-1 | Fig. 3-1 | MONITOR sw.—SOURCE<br>OUTPUT cont.—CAL<br>LINE cont.—MAX<br>MIC cont.—MIN | 400 Hz/—22 dB (61.5 mV) | R507 (for L-ch) | —5 dB (436 mV) at L-ch | LINE min. input level (L) |
| | 1-2 | " | " | 400 Hz/—12 dB (195 mV) | LINE cont. (L/R) | " | LINE spec. input level (L) |
| | 1-3 | " | LINE spec. input level condition | " | R607 (for R-ch) | —5 dB at R-ch | LINE spec. input level (R) |
| 2. VU meter | 2-1 | Fig. 3-1 | LINE spec. input level condition | 400 Hz/—12 dB (195 mV) | R509/R609 | 0 VU on VU meter | |
| 3. MIC input level | 3-1 | Fig. 3-1, but LINE IN → MIC | LINE cont.—MIN<br>MIC cont.—MAX | 400 Hz/ —70 dB ±2 dB (195 μV ~ 308 μV) | Check | —5 dB (436 mV) | MIC min. input level |
| | 3-2 | " | " | 400 Hz/—60 dB (0.775 mV) | MIC cont. (L/R) | " | MIC spec. input level |
| | 3-3 | Fig. 3-1 | LINE cont.—spec. position (Item 1-2)<br>MIC cont.—MIN | — | — | — | **IMPORTANT: Do not disturb these cont's during later checks.** |

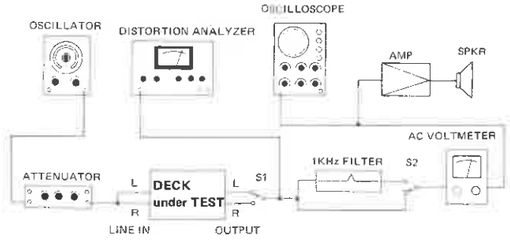



**Fig. 3-1 Basic connection**

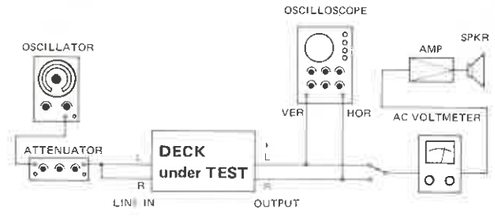



**Fig. 3-2 Connection**

**TEAC test tape:** **For playback alignment**
**YTT-1002: 9.5 cm/s or 3-¾ ips, LHII**
**YTT-1003: 19 cm/s or 7-½ ips, LHII**
**YTT-1052: For 9.5 cm/s or 3-¾ ips, EE**
**YTT-1053: For 19 cm/s or 7-½ ips, EE**
**For recording alignment (blank)**
**YTT-8013: For LHII**
**YTT-8053: For EE**

## 3-2 PLAYBACK PERFORMANCE

| ITEM | | CONNECTION | MODE/ INSTRUCTION | SIGNAL SOURCE | ADJUST (or CHECK) | OUTPUT | REMARKS |
|---|---|---|---|---|---|---|---|
| 4. Playback head azimuth | 4-1 | Fig. 3-2 | Do for both FWD & REV heads<br>MONITOR sw.—TAPE<br>SPEED sw.—HIGH<br>TAPE SELEC.—LHII | YTT-1003 (16 kHz/—10 dB) | Azimuth adj. screw/s of head (Fig. 2-15) | Phase: within 45° on oscilloscope (Fig. 3-3) | |
| 5. Playback level | 5-1 | Fig. 3-1 | FWD & REV<br>OUTPUT cont.—CAL<br>SPEED sw.—HIGH | YTT-1003 (400 Hz/0 dB) | R501/R601 (FWD)<br>R502/R602 (REV) | —5 dB (436 mV) | Spec. PB condition |
| | 5-2 | " | OUTPUT cont.—MAX | " | Check | +1 dB ±2 dB (690 mV ~ 1.09 V) | Max. output level |
| | 5-3 | " | OUTPUT cont.—CAL | " | — | —5 dB (436 mV) | Spec. PB condition<br>**IMPORTANT: Do not disturb OUTPUT cont. during later checks.** |
| 6. VU meter | 6-1 | Fig. 3-1 | FWD<br>Spec. PB condition | YTT-1003 (400 Hz/0 dB) | R508/R608 | 0 VU on VU meter | |
| 7. Frequency response | 7-1 | Fig. 3-1 | FWD & REV TAPE SELEC.—LHII SPEED-HIGH | YTT-1003 | R503/R603 (FWD)<br>R504/R604 (REV) | Fig. 3-5 | |
| | 7-2 | " | " SPEED-LOW | YTT-1002 | R505/R605 (FWD)<br>R506/R606 (REV) | Fig. 3-6 | |
| | 7-3 | " | FWD & REV TAPE SELEC.—EE SPEED-HIGH | YTT-1053 | Check | Fig. 3-5 | |
| | 7-4 | " | " SPEED-LOW | YTT-1052 | Check | Fig. 3-6 | |
| 8. Phase shift | 8-1 | Fig. 3-2 | FWD & REV SPEED-HIGH | YTT-1003 | Check | Phase: within 45° on oscilloscope (50 Hz ~ 18 kHz) (Fig. 3-3) | |
| | 8-2 | " | " SPEED-LOW | YTT-1002 | " " | " (50 Hz ~ 10 kHz) | |
| 9. Headphone output level | 9-1 | Fig. 3-4 | Spec. PB condition | YTT-1003 (400 Hz/0 dB) | Check | —24 dB ±2 dB (38.8 mV ~ 61.5 mV) (at PHONES jack) | When OUTPUT terminal is at —5 dB |
| 10. Signal to noise ratio | 10-1 | Fig. 3-1 | FWD & REV LH and EE Spec. PB condition<br>Use fully erased tape (Use bulk tape eraser) | YTT-8013 and YTT-8053 | Check | LHI, -II<br>HIGH: 50 dB<br>LOW: 49 dB<br>EE<br>HIGH: 52 dB<br>LOW: 52 dB | -Ratio of spec. —5 dB and noise<br>-Change-over the polarity of the AC Line plug. The worse reading should be within spec. |





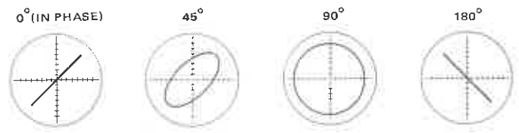



Fig. 3-3 Confirming phase relationship

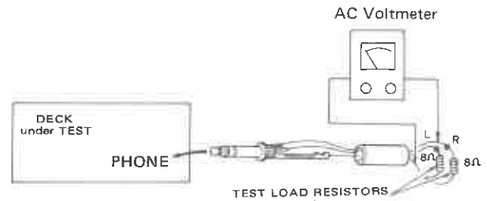



Fig. 3-4 Connection

## 3-3 RECORDING PERFORMANCE

**TEAC test tape:** **YTT-8013: For recording alignment (blank) for LHII**
**YTT-8053: For recording alignment (blank) for EE**

| ITEM | | CONNECTION | MODE/ INSTRUCTION | SIGNAL SOURCE | ADJUST (or CHECK) | OUTPUT | REMARKS |
|---|---|---|---|---|---|---|---|
| 11. Bias trap | 11-1 | AC voltmeter between BIAS TRAP TP & GND | Rec-pause mode | — | L102/L202 | Min. reading | Bias freq.: 100 kHz ±5 kHz |
| | 11-2 | Fig. 3-1 | Rec-pause mode<br>MONITOR sw.—TAPE<br>OUTPUT cont.—CAL | — | Check | Min. reading —45 dB or more (4.36 mV or less) | |
| | 11-3 | " | " | — | Check | VU: no deflection | |
| 12. Record head azimuth | 12-1 | Fig. 3-2 | Do for both FWD & REV heads<br>MONITOR sw.—TAPE | 10 kHz/—32 dB (19.5 mV) | Azimuth adj. screw/s of head (Fig. 2-15) | Phase: within 45° on oscilloscope (Fig. 3-3) | |
| 13. Record bias | 13-1 | Fig. 3-1 | FWD & REV SPEED sw.—LOW<br>MONITOR sw.—TAPE<br>Test tape—YTT-8053<br>TAPE SELECTOR—EE | 7 kHz/—22 dB (61.5 mV) | R516/R616 (FWD)<br>R515/R615 (REV) | Over-bias value 3 dB ±1 dB (from peak) | Simultaneous monitoring<br>First set adjustor fully CCW (↺), then adjust. |
| | 13-2 | " | Test tape—YTT-8013<br>TAPE SELECTOR—LHII | " | R517/R617 (FWD)<br>R518/R618 (REV) | Over-bias value 4 dB ±1 dB | |
| 14. Record level | 14-1 | Fig. 3-1 | Same as 13-2<br>SPEED sw.—HIGH | 400 Hz/—12 dB (195 mV) | R514/R614 (FWD)<br>R513/R613 (REV) | —5 dB (436 mV) | Spec. REC condition |
| 15. Distortion | 15-1 | Fig. 3-1 | Same as 13-1 and 13-2, but SPEED sw.—HIGH | 1 kHz/—12 dB (195 mV) | Check | 0.8% or less (W/LHII, EE) | |
| 16. Signal to noise ratio | 16-1 | Fig. 3-1 | FWD & REV<br>MONITOR sw.—TAPE<br>HIGH & LOW<br>LHII: YTT-8013<br>EE: YTT-8053 | 1 kHz/—12 dB (195 mV)<br>then No signal recording | Check | LHII<br>HIGH: 48 dB<br>LOW: 46 dB<br>EE<br>HIGH: 50 dB<br>LOW: 50 dB | Ratio of spec. —5 dB to noise. |
| 17. Erase efficiency | 17-1 | Fig. 3-1<br>switch on 1 kHz filter | FWD & REV<br>TAPE SELEC.—EE<br>MONITOR sw.—TAPE<br>SPEED sw.—HIGH<br>YTT-8053 (EE) | 1 kHz/—2 dB (615 mV) (+10 dB)<br>then erasing | Check | OUTPUT:<br>—65 dB or more (436 μV or less)<br>(70 dB min. ratio) | -Reference output level: +5 dB<br>-The worst value should be within spec. |
| 18. REC MUTE function | 18-1 | Fig. 3-1<br>switch on 1 kHz filter | FWD & REV<br>Spec. REC condition<br>rec-mute mode | 1 kHz/—2 dB (615 mV) (+10 dB)<br>then record muting | Check | OUTPUT:<br>—60 dB or more (0.775 mV or less)<br>(65 dB min. ratio) | -Reference output level: +5 dB<br>-The worst value should be within spec. |

| ITEM | | CONNECTION | MODE/ INSTRUCTION | SIGNAL SOURCE | ADJUST (or CHECK) | OUTPUT | REMARKS |
|---|---|---|---|---|---|---|---|
| 19. Frequency response | 19-1 | Fig. 3-1 | FWD & REV MONITOR sw. —TAPE TAPE SELEC. —EE Test tape —YTT-8053 SPEED— LOW | Required signal —32 dB (19.5 mV) | L103/L203 (FWD) L104/L204 (REV) | Fig. 3-8 | Also it is possible to fine-adjust by the record bias adjustors (See item 13.) if this respective specified record bias setting ranges are kept. |
| | 19-2 | " | " SPEED— HIGH | " | Check | Fig. 3-7 | |
| | 19-3 | " | TAPE SELEC. —LHII Test tape —YTT-8013 SPEED— LOW | " | " | Fig. 3-8 | |
| | 19-4 | " | " SPEED— HIGH | " | " | Fig. 3-7 | |
| 20. Phase shift | 20-1 | Fig. 3-2 | FWD & REV Spec. REC condition SPEED sw.— HIGH | 40 Hz ~ 10 kHz/ —32 dB (19.5 mV) | Check | Phase: within 45° on oscilloscope (40 Hz ~ 10 kHz) (Fig. 3-3) | |
| 21. LHI position check | 21-1 | Fig. 3-1 | FWD & REV Spec. REC condition Test tape— YTT-8013 SPEED sw.— HIGH | 20 kHz/—32 dB (19.5 mV) | Check | When TAPE SELECTOR sw is changed LHII → LHI, output level should raise +3 dB ±1 dB | |
| 22. Adjacent track crosstalk | 22-1 | Fig. 3-1 | FWD record. Spec. REC condition SPEED sw.— HIGH TAPE SELECTOR sw.—LHII | 125 Hz/—12 dB (195 mV) | — | — | For FWD record. |
| | 22-2 | " | REV playback the portion recorded above | — | Check | At both L- and R-ch 125 Hz: —45 dB or more (4.36 mV or less) (40 dB min. ratio) | |
| | 22-3 | " | Interchange R & L reels then do FWD playback | — | " | " | |
| | 22-4 | Repeat 22-1 through 22-3, but interchange FWD and REV | | | | | For REV record. |
| 23. Channel separation | 23-1 | Fig. 3-1 switch on 1 kHz filter | Same as 22-1 | L: 1 kHz/—12 dB (195 mV) R: No signal record. | Check | R, —55 dB or more (1.38 mV or less) (50 dB min. ratio) | For WED record. |
| | 23-2 | " | " | L: No signal record. R: 1 kHz/—12 dB | " | L, " | |
| | 23-3 | Repeat 23-1 and 23-2 with REV recording. | | | | | For REV record. |





## 3-4 FREQUENCY RESPONSE

### 3-4-1 PLAYBACK

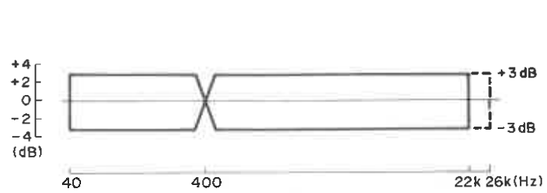



**Fig. 3-5 Playback frequency response (19 cm/s)**

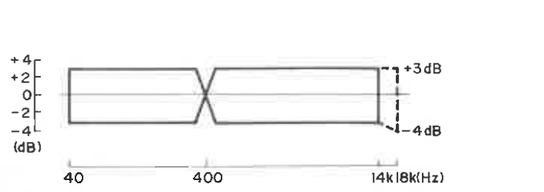



**Fig. 3-6 Playback frequency response (9.5 cm/s)**

### 3-4-2 OVERALL

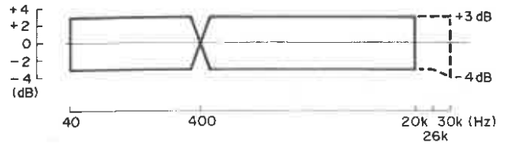



**Fig. 3-7 Overall frequency response (19 cm/s)**

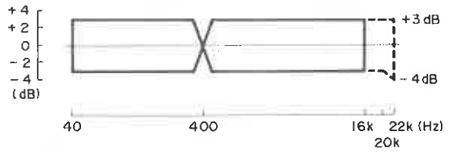
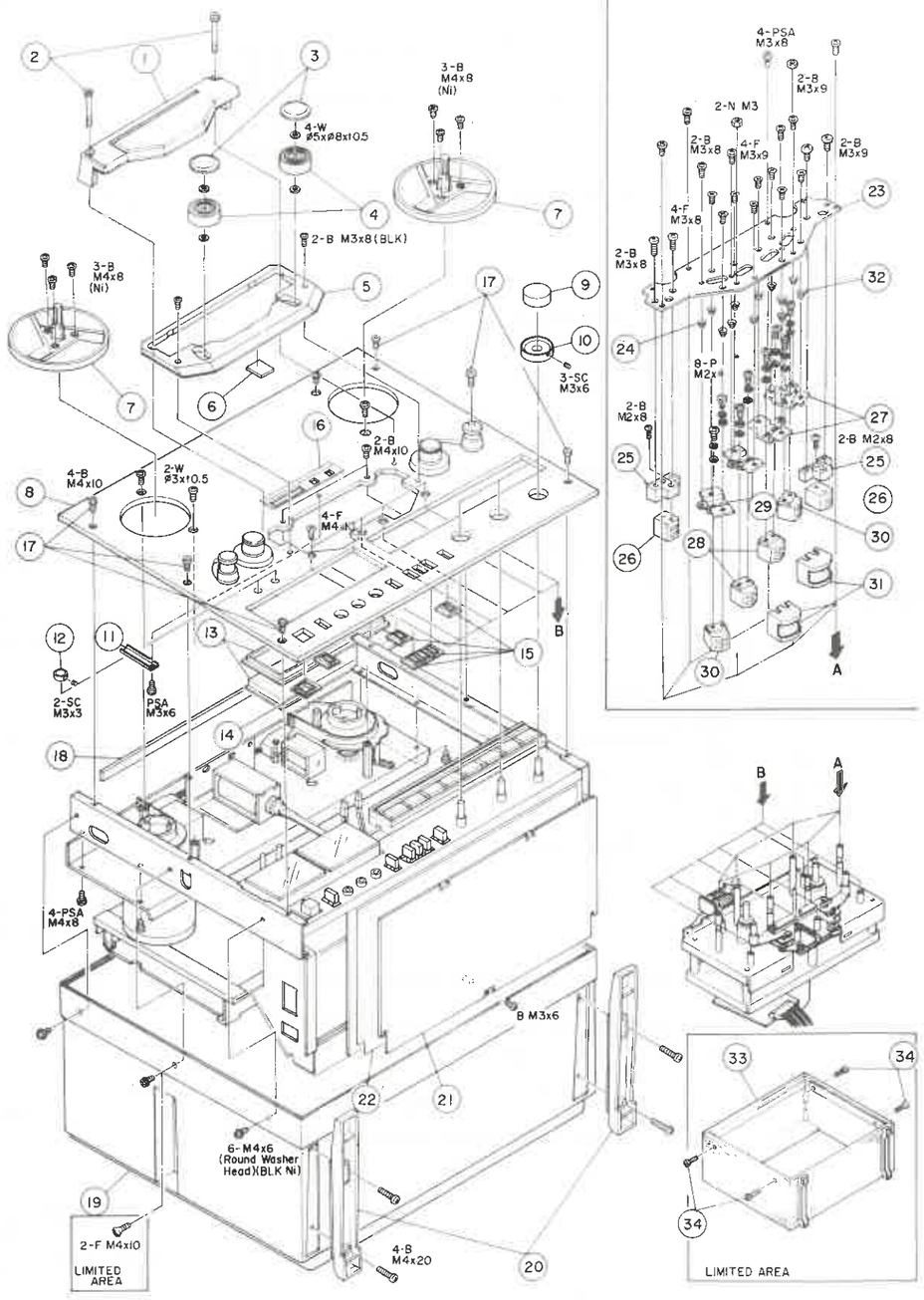



**Fig. 3-8 Overall frequency response (9.5 cm/s)**

# 4 EXPLODED VIEWS AND PARTS LIST

## EXPLODED VIEW-1 (X-7RMKII)








Parts marked with *require longer delivery time.

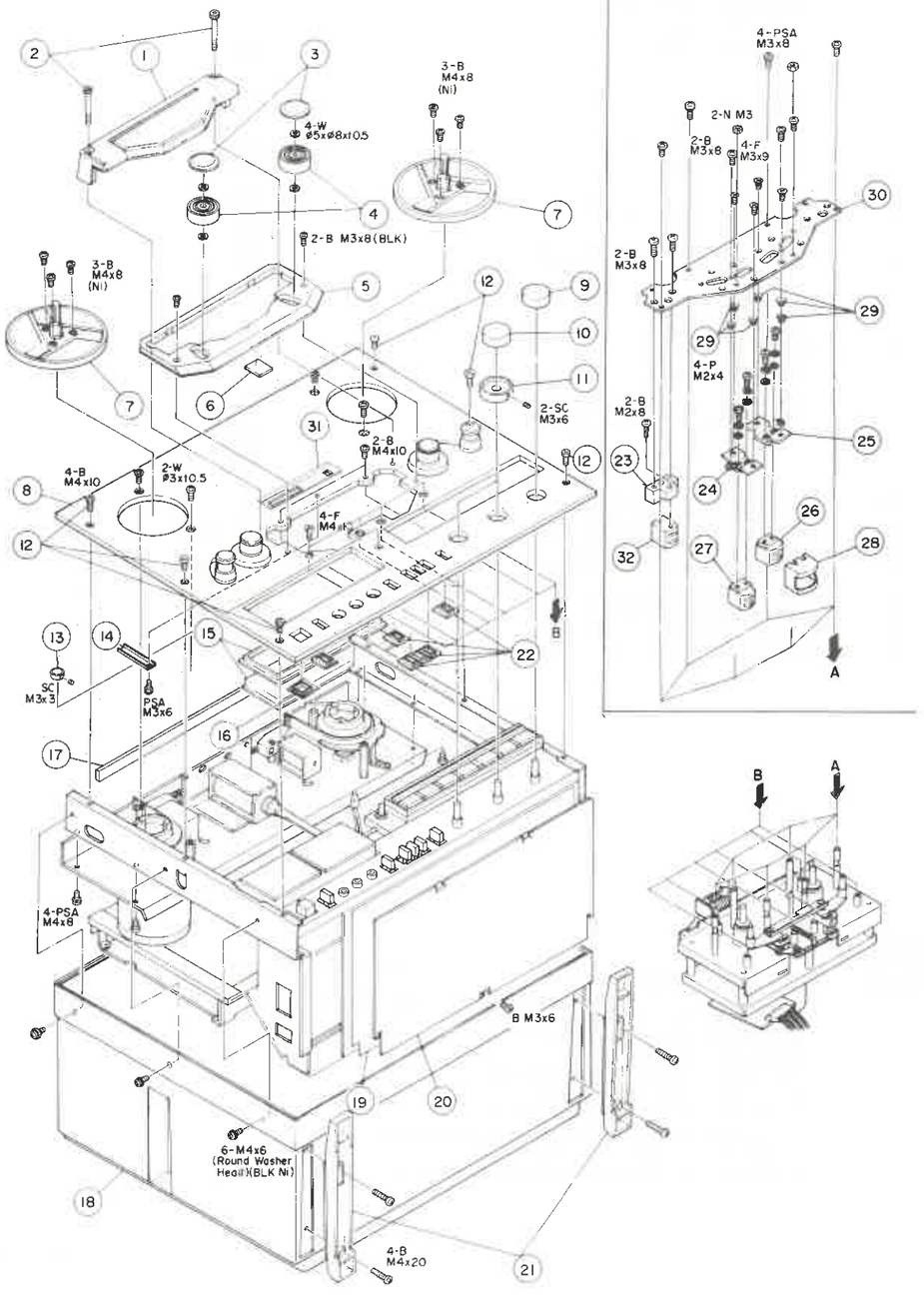
| REF. NO. | PARTS NO. | DESCRIPTION | REMARKS |
|---|---|---|---|
| 1 - 1 | 5800268160 | Head Housing | |
| 1 - 2 | 5581065000 | Screw, Cap; A | |
| 1 - 3 | 5545014000 | Cap, Pinch Roller | X-10R |
| 1 - 4 | 5534691101 | Pinch Roller | X-10R |
| 1 - 5 | 5532061000 | Cover, Head Base Plate | X-10R |
| 1 - 6 | *5800002700 | Cushion, Head Base Plate | X-10R |
| 1 - 7 | 5504744000 | Reel Table Assy | X-10R |
| 1 - 8 | *5800268200 | Top Panel | |
| 1 - 9 | 5534704000 | Knob, VR; B | X-10R |
| 1 - 10 | 5533188000 | Knob, VR; A | X-10R |
| 1 - 11 | *5555698000 | Plate, Escutchion Pressure | X-10R |
| 1 - 12 | 5534722000 | Knob, VR; D | X-7R |
| 1 - 13 | *5504748000 | Cover Assy, VU Meter | X-10R |
| 1 - 14 | *5534707000 | Escutsheon, Power Switch | X-10R |
| 1 - 15 | *5534706001 | Escutcheon, Bottom | X-10R |
| 1 - 16 | *5533186100 | Escutcheon, Counter; R | X-10R |
| 1 - 17 | 5581067000 | Screw, Cap; B | |
| 1 - 18 | *5555887001 | Cushion; Case (All except L) | X-10R |
| 1 - 19 | *5800055001 | Case; S | X-7R |
| 1 - 20 | 5533190000 | Foot | X-10R |
| 1 - 21 | *5553306000 | Plate, Ampl. Shield | X-7 |
| 1 - 22 | *5553308000 | Paper, Ampl. Insulating | X-10R |
| 1 - 23 | *5553289100 | Plate, Head Base | X-10R |
| 1 - 24 | *5520182000 | Spring; D | A-5300 |
| 1 - 25 | *5800285300 | Spacer, Erase Head | X-1000R |
| 1 - 26 | 5378300800 | Head, Erase | |
| 1 - 27 | *5555673000 | Bracket, Head; R | X-10R |
| 1 - 28 | 5378300700 | Head, Playback; 4T2ch | X-20R "EE" |
| 1 - 29 | *5555672000 | Bracket, Head; L | X-10R |
| 1 - 30 | 5378300600 | Head, Record; 4T2ch | X-20R "EE" |
| 1 - 31 | *5554949000 | Head Shield, A | A-6600 |
| 1 - 32 | *5022050000 | Spring, B | |
| 1 - 33 | *5502278000 | Case Assy, Wooden (L) | X-7R |
| 1 - 34 | *5504499000 | Screw Assy, Case (L) | A-480 |

## INCLUDED ACCESSORIES

| REF. NO. | PARTS NO. | DESCRIPTION | REMARKS |
|---|---|---|---|
| | 5350008500 | Cord, Input-Output Connection | |
| | 5085008300 | Empty Reel, 7inch | |
| | 5062962000 | Splicing Tape | |
| | 5101337100 | Open Reel Supplement [U] | |
| | 5101708000 | Open Reel Supplement [All except U] | |
| | 5101671000 | X - 7RMkII Owners Manual [U] | |
| | 5101672000 | X - 7RMkII Owners Manual [All except U] | |
| | 5101668000 | X - 7MkII Owners Manual [U] | |
| | 5101669000 | X - 7MkII Owners Manual [All except U] | |

[U]: U.S.A. [C]: CANADA [GE]: GENERAL EXPORT
[A]: AUSTRALIA [E]: EUROPE [UK]: U.K.
[L]: LIMITED AREA

## EXPLODED VIEW-2 (X-7MKII)



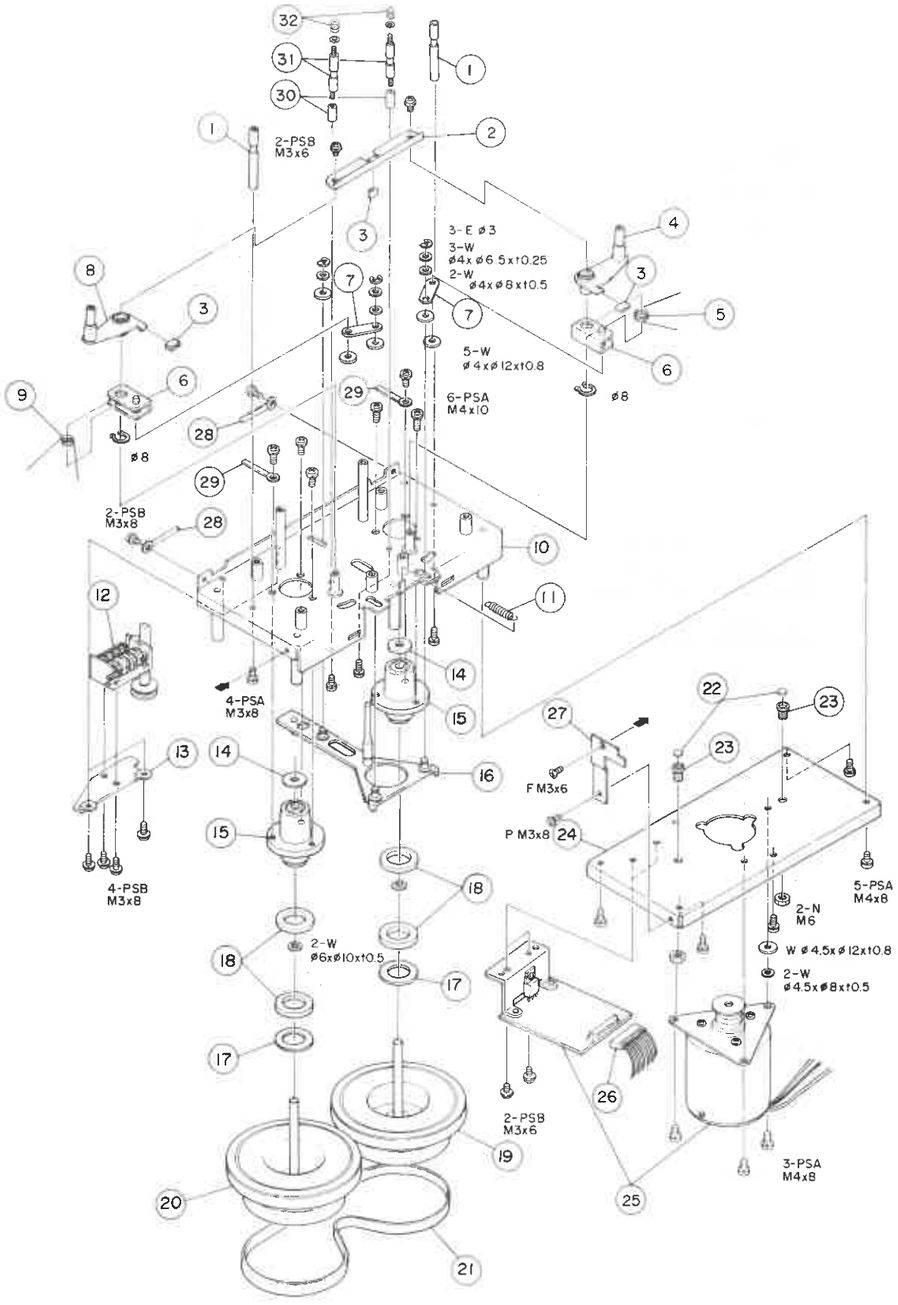





Parts marked with *require longer delivery time.

| REF. NO. | PARTS NO. | DESCRIPTION | REMARKS |
|---|---|---|---|
| 2 - 1 | 5800285200 | Head Housing | |
| 2 - 2 | 5581065000 | Screw, Cap; A | |
| 2 - 3 | 5545014000 | Cap, Pinch Roller | X-10R |
| 2 - 4 | 5534691100 | Pinch Roller | X-10R |
| 2 - 5 | 5532061000 | Cover, Head Base Plate | X-10R |
| 2 - 6 | *5800002700 | Cushion, Head Base Plate | X-10R |
| 2 - 7 | 5504744000 | Reel Table Assy | X-10R |
| 2 - 8 | *5800285100 | Panel Assy, Top | |
| 2 - 9 | 5533230000 | Knob, VR; E | X-7R |
| 2 - 10 | 5534704000 | Knob, VR; B | X-10R |
| 2 - 11 | 5533188000 | Knob, VR; A | X-10R |
| 2 - 12 | 5581067000 | Screw, Cap; B | |
| 2 - 13 | 5534705000 | Knob, VR; C | X-10R |
| 2 - 14 | *5555698000 | Plate, Escutcheon Pressure | X-10R |
| 2 - 15 | *5504748000 | Cover Assy, VU Meter | X-10R |
| 2 - 16 | *5534707000 | Escutcheon, Power Switch | X-10R |
| 2 - 17 | *5555887001 | Cushion, Case | X-10R |
| 2 - 18 | *5800055001 | Case Assy; S | X-7R |
| 2 - 19 | *5553308001 | Paper, Ampl. Insulating | X-10R |
| 2 - 20 | *5553306000 | Plate, Ampl. Shield | X-7 |
| 2 - 21 | 5533190000 | Foot | X-10R |
| 2 - 22 | *5534706001 | Escutcheon, Botton | X-10R |
| 2 - 23 | *5800285300 | Spacer, Erase Head | X-1000R |
| 2 - 24 | *5555672000 | Bracket, Head Base; L | X-10R |
| 2 - 25 | *5555673000 | Bracket, Head Base; R | X-10R |
| 2 - 26 | 5569203100 | Head, Playback; 4T2ch | |
| 2 - 27 | 5569202000 | Head, Record; 4T2ch | X-1000R |
| 2 - 28 | *5554949000 | Head Shield, B | A-6600 |
| 2 - 29 | *5520182000 | Spring; D | A-5300 |
| 2 - 30 | *5553289100 | Plate, Head Base | X-10R |
| 2 - 31 | *5534721001 | Escutcheon, Counter | X-10 |
| 2 - 32 | 5378300800 | Head, Erase | X-1000R |

## EXPLODED VIEW-3





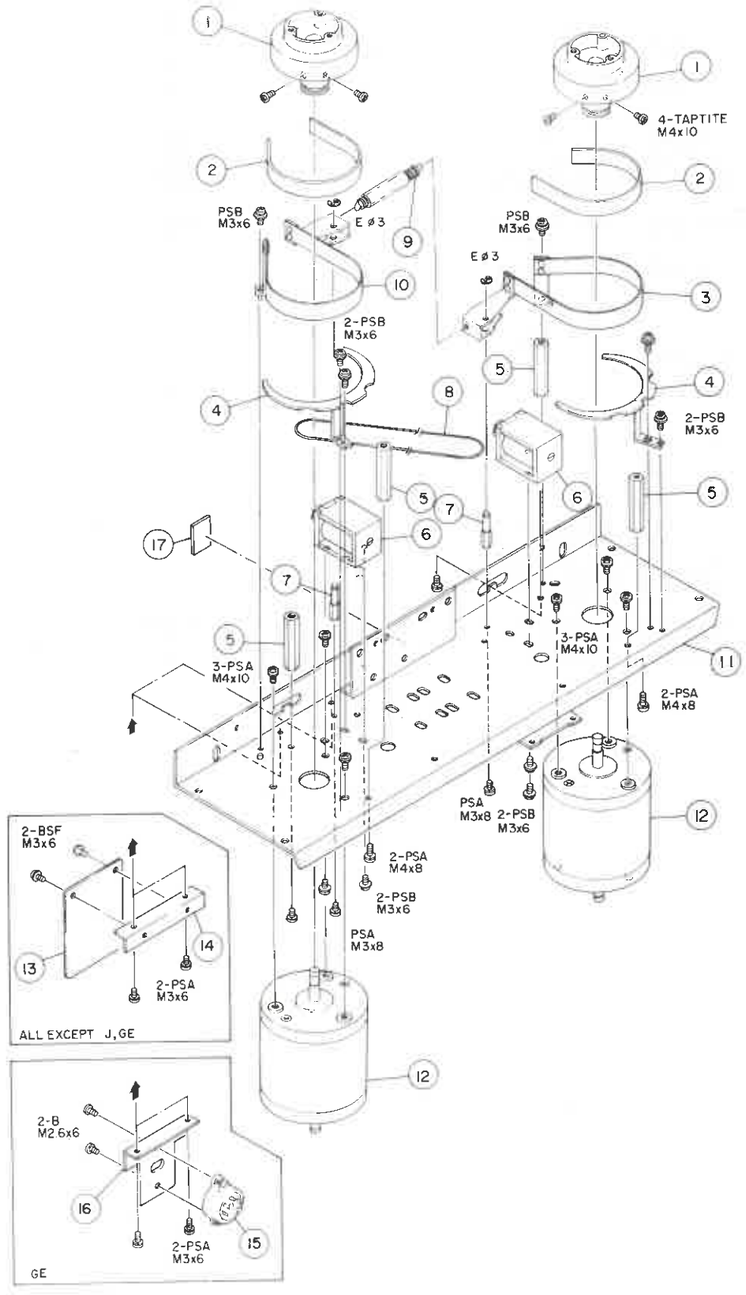



Parts marked with *require longer delivery time.

| REF. NO. | PARTS NO. | DESCRIPTION | REMARKS |
|---|---|---|---|
| 3 - 1 | *5545023000 | Pin, Tape Guide | X-10R |
| 3 - 2 | *5555666000 | Plate, Reinforement | X-10R |
| 3 - 3 | *5534694000 | Cushion, Stopper | X-10R |
| 3 - 4 | *5504729000 | Arm Assy, Pinch Roller; R | X-10R |
| 3 - 5 | *5524216000 | Spring, Pinch Roller; R | X-10R |
| 3 - 6 | *5504731000 | Arm Assy, Press | X-10R |
| 3 - 7 | *5555667000 | Plate, Joint | X-10R |
| 3 - 8 | *5504730000 | Arm Assy, Pinch Roller; L | X-10R |
| 3 - 9 | *5524217000 | Spring, Pinch Roller; L | X-10R |
| 3 - 10 | *5503196000 | Base Assy, Capstan | X-10R |
| 3 - 11 | *5524219000 | Spring, Slide Plate | X-10R |
| 3 - 12 | 5504724000 | Counter Assy; A [X-7RMkII] | X-10R |
| | 5504725000 | Counter Assy; B [X-7MkII] | X-10 |
| 3 - 13 | *5555665000 | Bracket, Counter | X-10R |
| 3 - 14 | *5534695000 | Washer, Oil Retaining | X-10R |
| 3 - 15 | 5504726100 | Housing Assy, Capstan Flywheel | X-10R |
| 3 - 16 | *5504733001 | Plate Assy, Slide | X-10R |
| 3 - 17 | *5555704000 | Tape, Adhesive | X-10R |
| 3 - 18 | *5534715000 | Ring, Magnet; Thrust | X-10R |
| 3 - 19 | 5504727000 | Flywheel Assy, Capstan; R | X-10R |
| 3 - 20 | 5504728000 | Flywheel Assy, Capstan; L | X-10R |
| 3 - 21 | 5534692000 | Belt, Capstan Drive; 4T | X-10R |
| 3 - 22 | *5555703000 | Bearing | X-10R |
| 3 - 23 | *5544003000 | Screw, Bearing | A-7300 |
| 3 - 24 | *5553290001 | Bracket, Motor Mounting | X-10R |
| 3 - 25 | 7105018000 | DC Motor Assy, Capstan | X-7R |
| 3 - 26 | *5122172000 | Connector Socket, 10P | |
| 3 - 27 | *5555914100 | Plate, Capstan Chassis | X-10R |
| 3 - 28 | *5786713000 | Clamper, Cord; ϕ3 | |
| 3 - 29 | *5786714000 | Clamper, Cord; ϕ4 | |
| 3 - 30 | *5800285500 | Support, Guide | X-1000R |
| 3 - 31 | *5800285400 | Tape Guide | X-1000R |
| 3 - 32 | *5800285600 | Guide Spring | X-1000R |

[U] : U.S.A. [C] : CANADA [GE] : GENERAL EXPORT
[A] : AUSTRALIA [E] : EUROPE [UK] : U.K.
[L] : LIMITED AREA

## EXPLODED VIEW-4





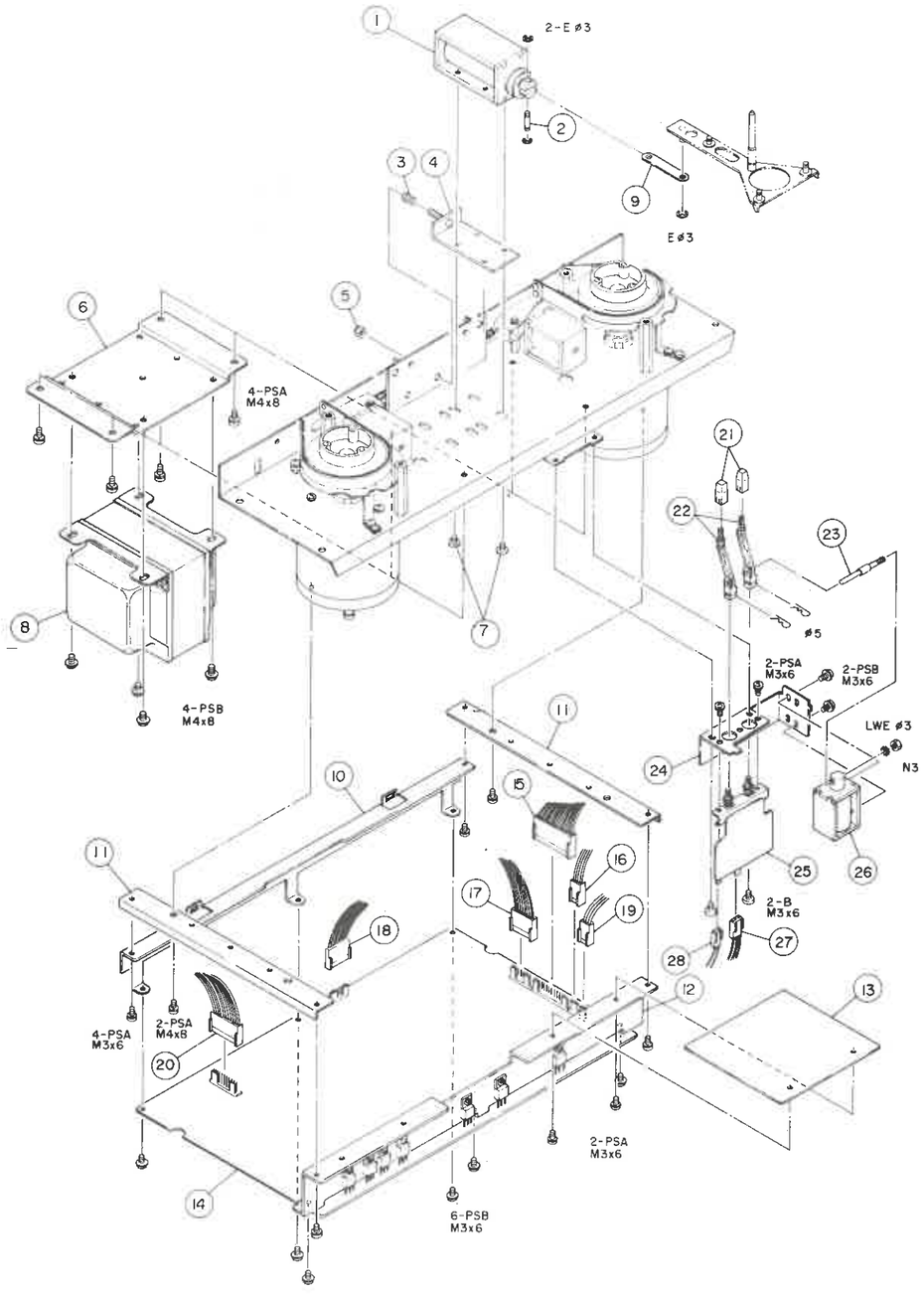



Parts marked with *require longer delivery time.

| REF. NO. | PARTS NO. | DESCRIPTION | REMARKS |
|---|---|---|---|
| 4 - 1 | *5533189000 | Base Assy, Reel Table | X-10R |
| 4 - 2 | 5555274000 | Shoe, Brake | A-3300SX |
| 4 - 3 | 5504736000 | Band Assy, Brake; R | X-10R |
| 4 - 4 | *5555685000 | Plate, Band Assy Retaining | X-10R |
| 4 - 5 | *5544916000 | Stay, Top Panel | A-6100Mk-II |
| 4 - 6 | 5163044000 | Solenoid, Brake | |
| 4 - 7 | *5545033000 | Shaft, Brake Band | X-10R |
| 4 - 8 | *5027759000 | Belt, Counter | A-7030 |
| 4 - 9 | *5524296000 | Spring, Brake; 1 | X-7R |
| 4 - 10 | 5504735000 | Band Assy, Brake; L | X-10R |
| 4 - 11 | *5503194002 | Chassis, Reel Motor | X-10R |
| 4 - 12 | 7105019001 | DC Motor, Reel | X-7 |
| 4 - 13 | *5168997000 | PCB Ass'y, FUSE [U, C: X-7RMkII, U: X-7MkII] | |
| | *5158105000 | PCB Assy, FUSE [E, UK, A: X-7RMkII] | |
| 4 - 14 | *5555789000 | Bracket, FUSE PCB Assy [U, C, E, UK, A] | X-10 |
| 4 - 15 | 5131007000 | Voltage Selector [GE, L: X-7RMkII] | |
| 4 - 16 | *5555790000 | Bracket, Voltage Selector [GE, L] | X-10 |
| 4 - 17 | *5555570000 | Cushion | X-10R |

[U] : U.S.A. [C] : CANADA [GE] : GENERAL EXPORT
[A] : AUSTRALIA [E] : EUROPE [UK] : U.K.
[L] : LIMITED AREA

## EXPLODED VIEW-5 (X-7RMKII)





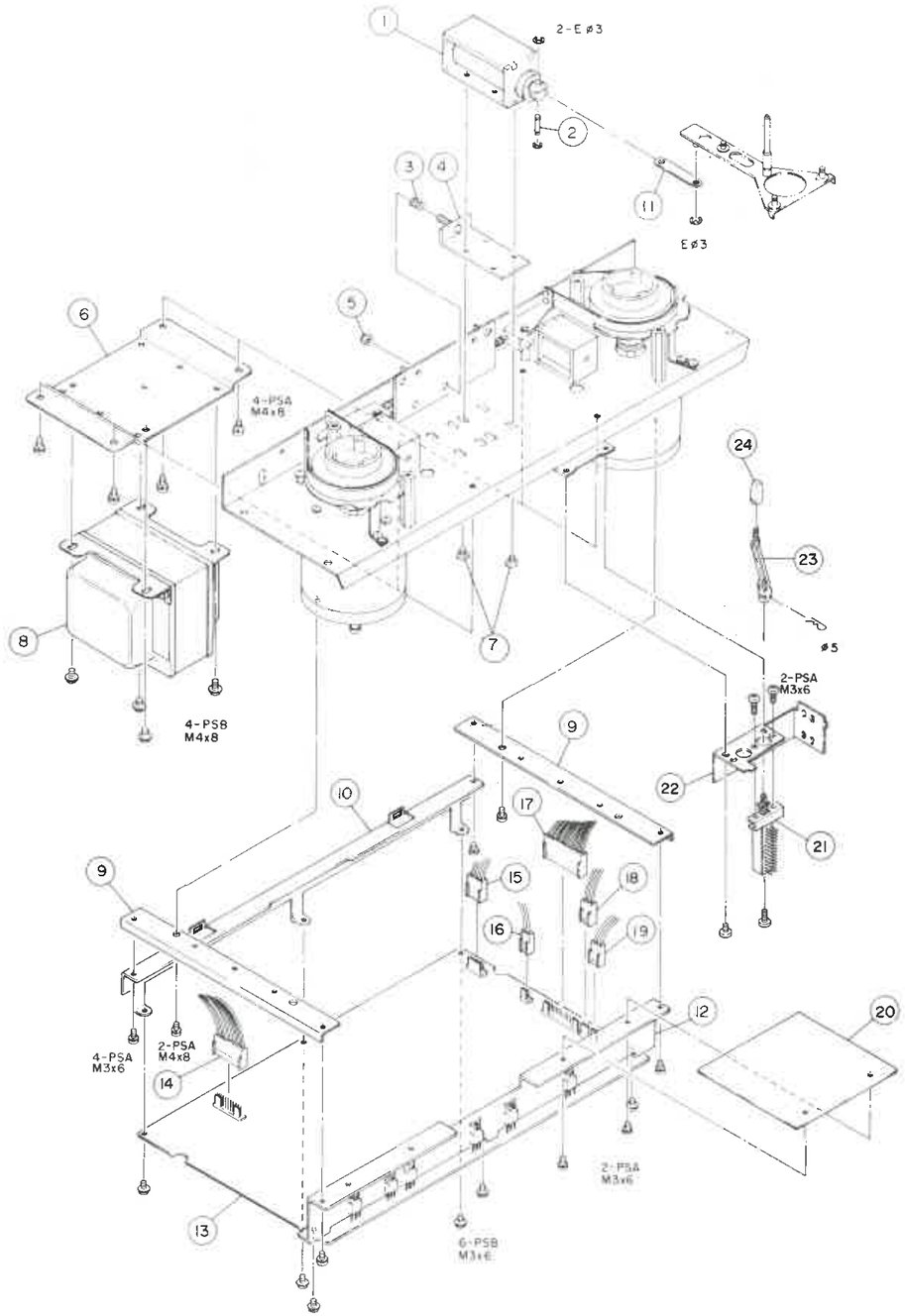



Parts marked with *require longer delivery time.

| REF. NO. | PARTS NO. | DESCRIPTION | REMARKS |
|---|---|---|---|
| 5 - 1 | 5163041001 | Solenoid, Pinch Roller | |
| 5 - 2 | *5545022000 | Pin, Solenoid | X-10R |
| 5 - 3 | *5524218000 | Spring, Pinch Roller Pressure | X-10R |
| 5 - 4 | *5504732000 | Plate Assy, Solenoid | X-10R |
| 5 - 5 | *5581066000 | Nut, Nylon; M4 | X-10R |
| 5 - 6 | *5555681100 | Bracket, Power Transformer | X-10R |
| 5 - 7 | *5800022600 | Screw, Shoulder; G | X-10R |
| 5 - 8 | ⚠ 5152192000 | Transformer, Power [U, C] | X-10R |
| | ⚠ 5152239000 | Transformer, Power [E, UK, A] | X-10R |
| | ⚠ 5320006600 | Transformer, Power [GE, L] | X-10R |
| 5 - 9 | *5555676000 | Plate, B | X-10R |
| 5 - 10 | *5552390000 | Frame, PCB | X-10R |
| 5 - 11 | *5553296001 | Frame, Joint | X-10R |
| 5 - 12 | *5552391000 | Frame, H.S | X-10R |
| 5 - 13 | *5555888000 | Heat Sink, C | X-10R |
| 5 - 14 | *5200004603 | PCB Assy, CONTROL [U, C] | X-7R |
| | *5200004613 | PCB Assy, CONTROL [E, UK, A] | X-7R |
| | *5200004623 | PCB Assy, CONTROL [GE, L] | X-7R |
| 5 - 15 | *5122177000 | Connector Socket, 15P | |
| 5 - 16 | *5122165000 | Connector Socket, 3P | |
| 5 - 17 | *5122170000 | Connector Socket, 8P | |
| 5 - 18 | *5122169000 | Connector Socket, 7P | |
| 5 - 19 | *5122222000 | Connector Socket, 3P (BLK) | |
| 5 - 20 | *5127173000 | Connector Socket, 11P | |
| 5 - 21 | 5534714000 | Button, B | X-10R |
| 5 - 22 | *5534685000 | Rod, Switch | X-10R |
| 5 - 23 | *5545024001 | Shaft, Timer Solenoid | X-10R |
| 5 - 24 | *5555671100 | Bracket, Timer Switch | X-10R |
| 5 - 25 | *5168926100 | PCB Assy, Timer | |
| 5 - 26 | 5163045000 | Solenoid, Timer | |
| 5 - 27 | *5122281000 | Connector Socket, 3P (RED) | |
| 5 - 28 | *5122164000 | Connector Socket, 2P | |

[U]: U.S.A. [C]: CANADA [GE]: GENERAL EXPORT
[A]: AUSTRALIA [E]: EUROPE [UK]: U.K.
[L]: LIMITED AREA

## EXPLODED VIEW-6 (X-7MKII)



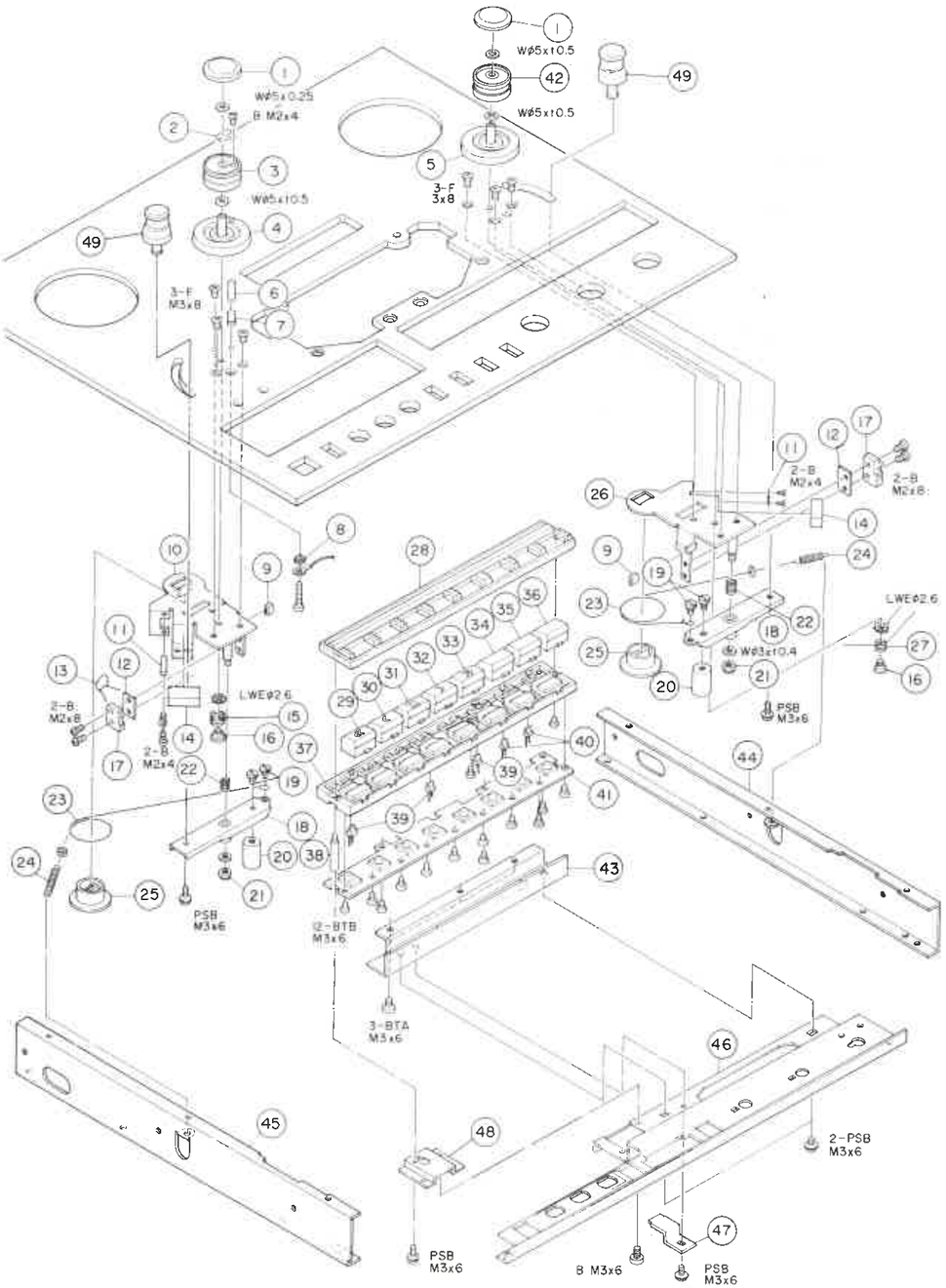





Parts marked with *require longer delivery time.

| REF. NO. | PARTS NO. | DESCRIPTION | REMARKS |
|---|---|---|---|
| 6 - 1 | 5163041001 | Solenoid, Pinch Roller | |
| 6 - 2 | *5545022000 | Pin, Solenoid | X-10R |
| 6 - 3 | *5524218000 | Spring, Pinch Roller Pressure | X-10R |
| 6 - 4 | *5504732000 | Plate Assy, Solenoid | X-10R |
| 6 - 5 | *5581066000 | Nut, Nylon; M4 | |
| 6 - 6 | *5555681100 | Bracket, Power Transformer | X-10R |
| 6 - 7 | *5800022600 | Screw, Shoulder; G | X-10R |
| 6 - 8 | ⚠ 5152225000 | Power Transformer | X-10R |
| 6 - 9 | *5553296001 | Frame, Joint | X-10R |
| 6 - 10 | *5552390000 | Frame, PCB | X-10R |
| 6 - 11 | *5555676000 | Plate, B | X-10R |
| 6 - 12 | *5552390000 | Frame, H.S | X-10R |
| 6 - 13 | *5200004803 | PCB Assy, CONTROL | X-7 |
| 6 - 14 | *5127171000 | Connector Socket, 9P | |
| 6 - 15 | *5122167000 | Connector Socket, 5P | |
| 6 - 16 | *5122221000 | Connector Socket, 2P (BLK) | |
| 6 - 17 | *5122174000 | Connector Socket, 12P | |
| 6 - 18 | *5122222000 | Connector Socket, 3P (BLK) | |
| 6 - 19 | *5122165000 | Connector Socket, 3P | |
| 6 - 20 | *5555888000 | Heat Sink | X-10R |
| 6 - 21 | 5134115000 | Switch, Push; DPDT | |
| 6 - 22 | *5555671100 | Bracket, Timer Switch | X-10R |
| 6 - 23 | *5534685000 | Rod, Switch | X-10R |
| 6 - 24 | 5534714000 | Button; B | X-10R |

## EXPLODED VIEW-7 (X-7RMKII)





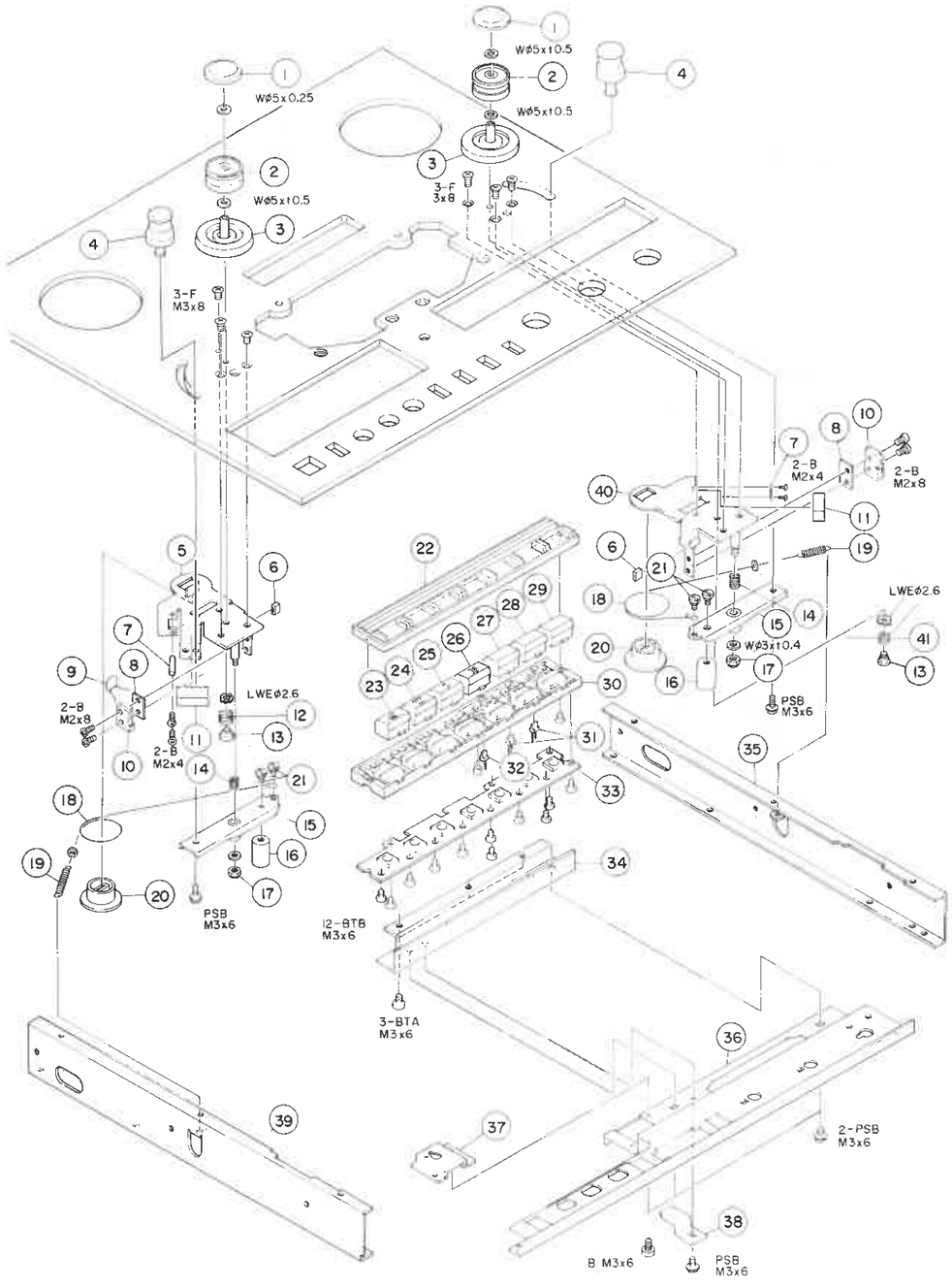



**Parts marked with *require longer delivery time.**

| REF. NO. | PARTS NO. | DESCRIPTION | REMARKS |
|---|---|---|---|
| 7 - 1 | 5545037000 | Cap, Roller | X-10R |
| 7 - 2 | *5524225000 | Spring, GND | X-10R |
| 7 - 3 | 5504740002 | Roller Assy, A | X-10R |
| 7 - 4 | *5504739000 | Base Assy, Roller; A | X-10R |
| 7 - 5 | *5504742000 | Base Assy, Roller; B | X-10R |
| 7 - 6 | 5545042000 | Post, Sensing | X-10R |
| 7 - 7 | *5534716000 | Post, Insulating | X-10R |
| 7 - 8 | *5534368100 | Washer, Insulating | A-6600 |
| 7 - 9 | 5027699000 | Coller, Rubber | |
| 7 - 10 | *5504719102 | Base Assy, Shut Off; L | X-10R |
| 7 - 11 | *5524215000 | Wire, String Stopper | X-10R |
| 7 - 12 | *5550025100 | Plate, Insulating | A-450 |
| 7 - 13 | *5054230000 | Capacitor, Ceramic 0.047μF 50V ±20% | |
| 7 - 14 | *5534686001 | Cushion | X-10R |
| 7 - 15 | *5524229001 | Spring, Tension Arm; L | X-10R |
| 7 - 16 | *5581064000 | Screw, Shoulder; E | |
| 7 - 17 | 5301455500 | Switch, Micro | |
| 7 - 18 | 5800305800 | Arm Assy, Tension | X-20R "EE" |
| 7 - 19 | *5800002600 | Screw, Shoulder; F | X-10R |
| 7 - 20 | *5545010000 | Weight, Counter | X-10R |
| 7 - 21 | *5581045000 | Nut, Nylon; M3 | |
| 7 - 22 | *5524069000 | Spring, Roller Arm | AL-700 |
| 7 - 23 | *5504721000 | String Assy, Damper | X-10R |
| 7 - 24 | *5524183000 | Spring, Motor Switch Lever | A-601R |
| 7 - 25 | *5534684001 | Drum, Damper | X-10R |
| 7 - 26 | *5504720101 | Base Assy, Shut Off; R | X-10R |
| 7 - 27 | *5524230001 | Spring, Tension Arm; R | X-10R |
| 7 - 28 | *5533192000 | Escutcheon, Button; Operation | X-10R |
| 7 - 29 | 5533196000 | Button, D | X-10R |
| 7 - 30 | 5533194000 | Button; B | X-10R |
| 7 - 31 | 5533197000 | Button, E | X-10R |
| 7 - 32 | 5533193000 | Button, A | X-10R |
| 7 - 33 | 5533195000 | Button, C | X-10R |
| 7 - 34 | 5533198000 | Button, F | X-10R |
| 7 - 35 | 5533219000 | Button, K | X-10R |
| 7 - 36 | 5533199000 | Button, G | X-10R |
| 7 - 37 | *5503204001 | Base Assy, Button | X-10R |
| 7 - 38 | *5545166001 | Stay, Button Escutcheon | X-7R |
| 7 - 39 | *5143139000 | LED, SLB-26GG (GRN) | |
| 7 - 40 | *5143140000 | LED, SLB-26UR (RED) | |
| 7 - 41 | *5168929000 | PCB Assy, OPERATION | |
| 7 - 42 | *5504743002 | Roller Assy, B | X-10R |
| 7 - 43 | *5600003600 | Bracket Assy, OPERATION PCB | |
| 7 - 44 | *5552404001 | Angle, Side; R | X-7R |
| 7 - 45 | *5552405001 | Angle, Side; L | X-7R |
| 7 - 46 | *5552403102 | Chassis, Ampl.; B | X-7 |
| 7 - 47 | *5555720000 | Bracket, Stopper | X-7R |
| 7 - 48 | *5555719100 | Bracket, Variable Resistor | X-7 |
| 7 - 49 | *5800349000 | Roller Assy, Tension; (A) | X-20R "EE" |

[U] : U.S.A.
[A] : AUSTRALIA
[L] : LIMITED AREA
[C] : CANADA
[E] : EUROPE
[GE] : GENERAL EXPORT
[UK] : U.K.

## EXPLODED VIEW-8 (X-7RMKII)



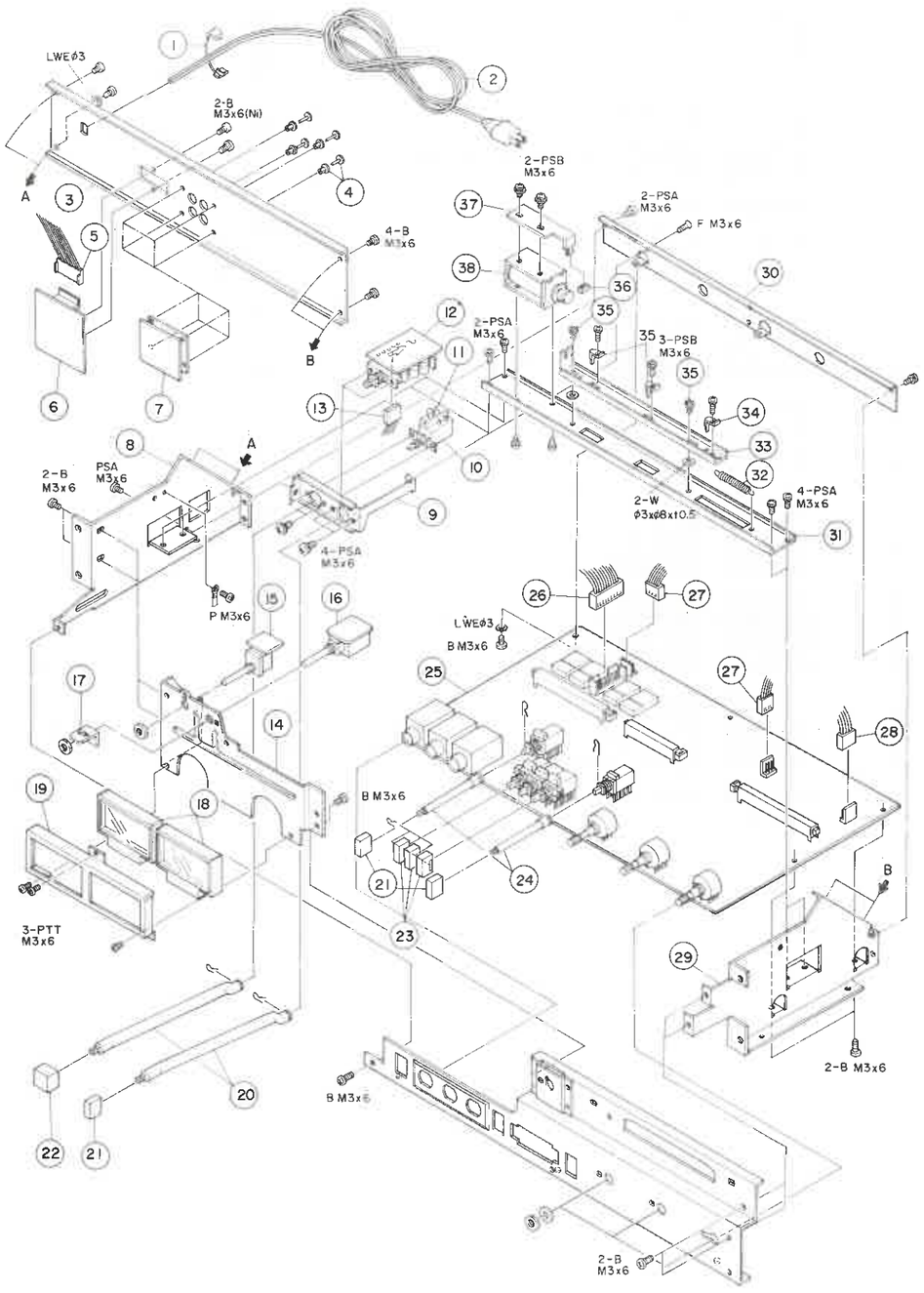





Parts marked with *require longer delivery time.

| REF. NO. | PARTS NO. | DESCRIPTION | REMARKS |
|---|---|---|---|
| 8 - 1 | 5545037000 | Cap, Roller | X-10R |
| 8 - 2 | 5504743002 | Roller Assy, B | X-10R |
| 8 - 3 | *5504742000 | Base Assy, Roller; B | X-10R |
| 8 - 4 | *5800306100 | Roller Assy, Tension | X-20R "EE" |
| 8 - 5 | *5504719102 | Base Assy, Shut Off; L | X-10R |
| 8 - 6 | *5027699000 | Coller, Rubber | X-10R |
| 8 - 7 | *5524215000 | Wire, String Stopper | X-10R |
| 8 - 8 | *5550025100 | Plate, Insulating | A-450 |
| 8 - 9 | *5054230000 | Capacitor, Ceramic 0.047μF 50V ±10% | |
| 8 - 10 | *5301455500 | Switch, Micro | |
| 8 - 11 | *5534686001 | Cushion | X-10R |
| 8 - 12 | *5524229001 | Spring, Tension Arm; L | X-10R |
| 8 - 13 | *5581064000 | Screw, Shoulder; E | |
| 8 - 14 | *5524069000 | Spring, Roller Arm | AL-700 |
| 8 - 15 | 5800305800 | Arm Assy, Tension | X-20R "EE" |
| 8 - 16 | *5545010000 | Weight, Counter | X-10R |
| 8 - 17 | *5581045000 | Nut, Nylon; M3 | |
| 8 - 18 | *5504721000 | String Assy, Damper | |
| 8 - 19 | *5524183000 | Spring, Motor Switch Lever | A-601R |
| 8 - 20 | *5534684001 | Drum, Damper | X-10R |
| 8 - 21 | *5800002600 | Screw, Shoulder; F | |
| 8 - 22 | *5533191000 | Escutcheon, Button; Operation | X-10 |
| 8 - 23 | 5533196000 | Button, D | X-10R |
| 8 - 24 | 5533197000 | Button, E | X-10R |
| 8 - 25 | 5533193000 | Button, A | X-10R |
| 8 - 26 | 5533195000 | Button, C | X-10R |
| 8 - 27 | 5533198000 | Button, F | X-10R |
| 8 - 28 | 5533219000 | Button, H | X-10R |
| 8 - 29 | 5533199000 | Button, G | X-10R |
| 8 - 30 | *5503205000 | Base Assy, Button | X-10 |
| 8 - 31 | *5143140000 | LED (RED) | |
| 8 - 32 | *5143139000 | LED (GREEN) | |
| 8 - 33 | *5168930000 | PCB Assy, OPERATION SW | |
| 8 - 34 | *5553321000 | Angle, Button Base; B | X-10R |
| 8 - 35 | *5552404001 | Angle, Side; R | X-7R |
| 8 - 36 | *5552403102 | Chassis, Ampl.; B | X-7 |
| 8 - 37 | *5555719100 | Bracket, PC-VR | X-7 |
| 8 - 38 | *5555720000 | Bracket, Stopper | X-7 |
| 8 - 39 | *5552405001 | Angle, Side; L | X-7R |
| 8 - 40 | *5504720101 | Base Assy, Shut Off; R | X-10R |
| 8 - 41 | *5524230001 | Spring, Tension Arm; R | X-10R |

## EXPLODED VIEW-9 (X-7RMKII)





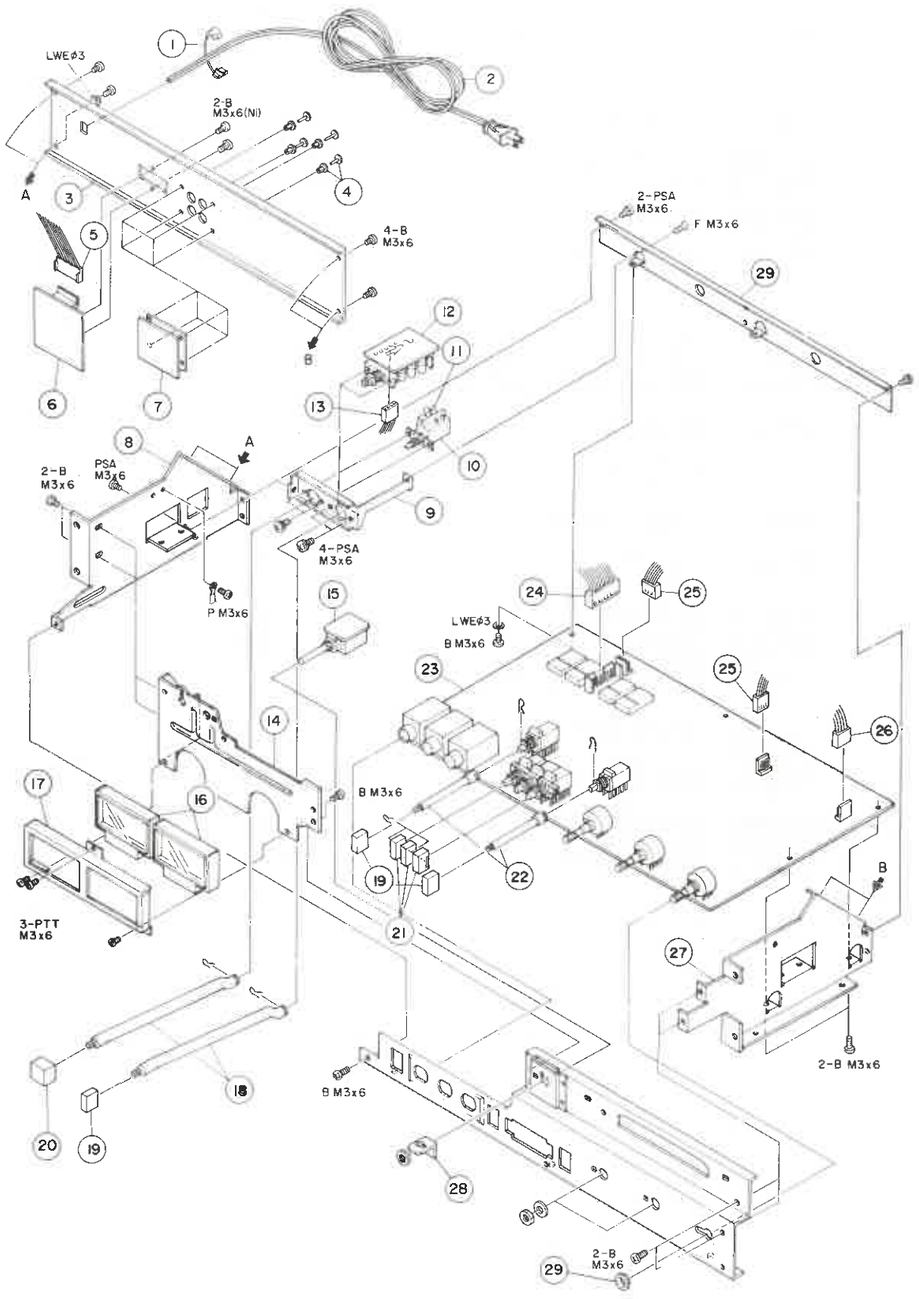



Parts marked with *require longer delivery time.

| REF. NO. | PARTS NO. | DESCRIPTION | REMARKS |
|---|---|---|---|
| 9 - 1 | *5534660000 | Strain Relief, AC Power Cord [All except UK] | |
| | *5534661000 | Strain Relief, AC Power Cord [UK] | |
| 9 - 2 | ⚠ *5128027000 | Cord, AC Power [GE, L] | |
| | ⚠ *5128075000 | Cord, AC Power [U, C] | |
| | ⚠ *5350008200 | Cord, AC Power [E, A] | |
| | ⚠ *5350008300 | Cord, AC Power [UL] | |
| 9 - 3 | *5552402000 | Panel, Ampl.; Rear | X-7 |
| 9 - 4 | *5534118000 | Push Rivet | |
| 9 - 5 | *5122177000 | Connector Socket, 15P | |
| 9 - 6 | *5168931100 | PCB Assy, CONNECTOR; A | |
| 9 - 7 | *5200036000 | PCB Assy, IN/OUTPUT | X-20R |
| 9 - 8 | *5553304000 | Frame, Ampl.; L | X-7 |
| 9 - 9 | *5555718000 | Bracket, Push Switch | X-7R |
| 9 - 10 | ⚠ 5134036000 | Push Switch, POWER [GE, L] | |
| | ⚠ 5134018000 | Push Switch, POWER [U, C] | |
| | ⚠ 5134011000 | Push Switch, POWER [E, UK, A] | |
| 9 - 11 | ⚠ 5052910000 | Spark Killer, 0.033μF + 120V/125V [U] | |
| | ⚠ 5052907000 | Spark Killer, 0.01μF + 300V/300V [GE, L] | |
| | ⚠ 5052911000 | Spark Killer, 0.033μF + 120V/250V [C] | |
| | ⚠ 5267702500 | Spark Killer, 0.0047μF 250V [E, UK, A] | |
| 9 - 12 | *5158001000 | PCB Assy, SPEED | X-7 |
| 9 - 13 | *5127168000 | Connector Socket, 6P | |
| 9 - 14 | *5553307100 | Bracket, Meter; B | X-7 |
| 9 - 15 | *5168928000 | PCB Assy, Switch | |
| 9 - 16 | *5168938000 | PCB Assy, PITCH CONT | |
| 9 - 17 | *5800003000 | Bracket, Variable Resistor | |
| 9 - 18 | 5296001500 | VU Meter | X-10R |
| 9 - 19 | *5553293000 | Plate, Meter | X-10R |
| 9 - 20 | *5534723000 | Rod; A | X-7 |
| 9 - 21 | 5534701000 | Button | X-10R |
| 9 - 22 | 5534702000 | Button, Switch | X-10R |
| 9 - 23 | 5800000100 | Button, Loose; B | X-10R |
| 9 - 24 | *5534712000 | Rod; B | X-10R |
| 9 - 25 | *5200064000 | PCB Assy, REC/PLAY AMPL. | |
| 9 - 26 | *5122170000 | Connector Socket, 8P | |
| 9 - 27 | *5122160000 | Connector Socket, 4P | |
| 9 - 28 | *5122282000 | Connector Socket, 4P (RED) | |
| 9 - 29 | *5553305000 | Frame, Ampl.; R | |
| 9 - 30 | *5553297100 | Frame, Connector | X-10R |
| 9 - 31 | *5553298000 | Bracket, Solenoid | |
| 9 - 32 | *5524222000 | Spring, Return | X-10R |
| 9 - 33 | *5555694000 | Plate, Slide | X-10R |
| 9 - 34 | *5524224000 | Spring, Plate; Change | X-10R |
| 9 - 35 | *5581056000 | Screw, Shoulder; A | A-304 |
| 9 - 36 | *5534116000 | Cushion | A-400 |
| 9 - 37 | *5555701000 | Plate, Solenoid Stopper | X-10R |
| 9 - 38 | 5163043000 | Solenoid, Reverse | |

[U] : U.S.A. [C] : CANADA [GE] : GENERAL EXPORT
[A] : AUSTRALIA [E] : EUROPE [UK] : U.K.
[L] : LIMITED AREA

## EXPLODED VIEW-10 (X-7MKII)







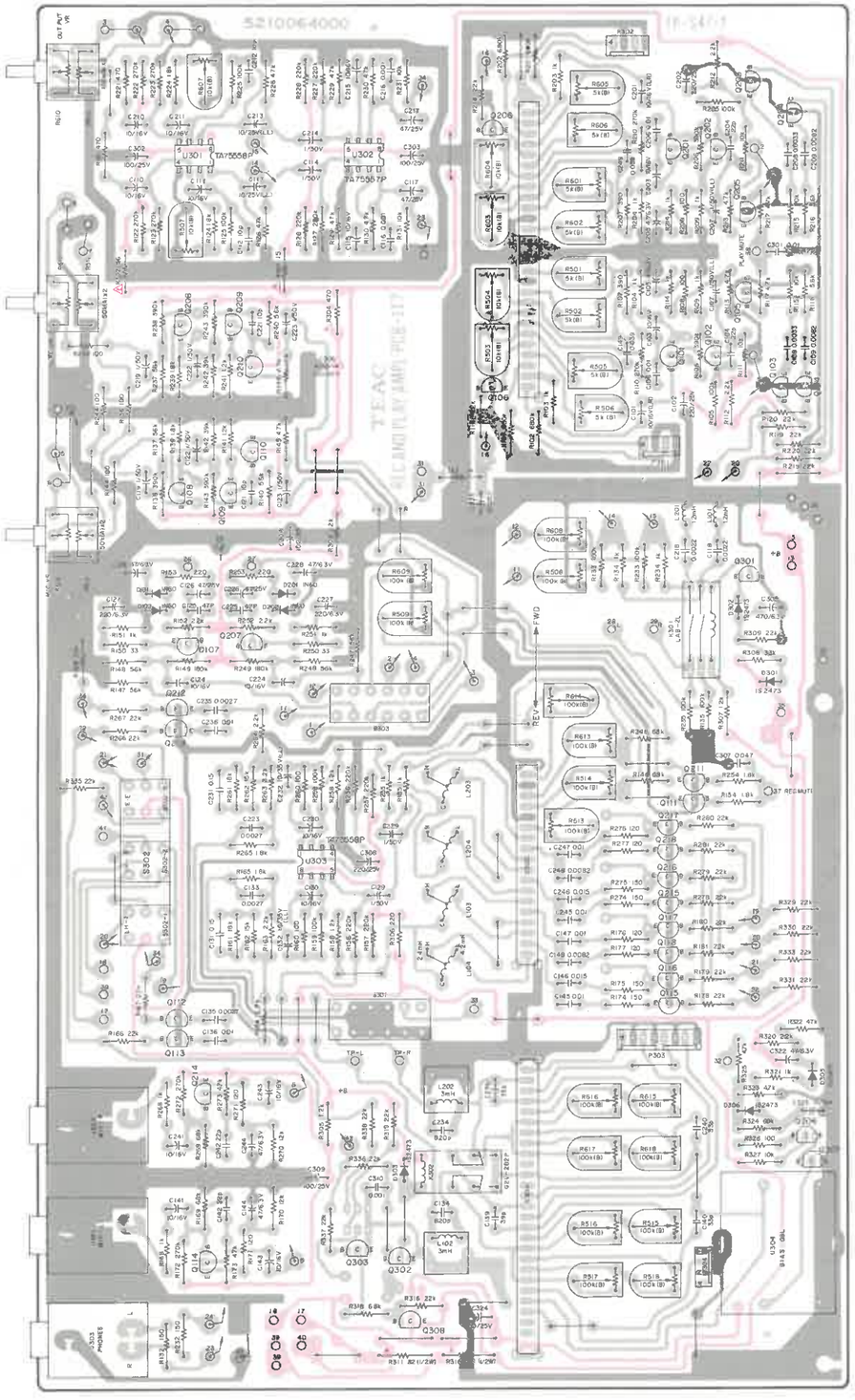

Parts marked with *require longer delivery time.

| REF. NO. | PARTS NO. | DESCRIPTION | REMARKS |
|---|---|---|---|
| 10 - 1 | *5534660000 | Strain Relief, AC Power Cord | |
| 10 - 2 | ⚠*5128075000 | Cord, AC Power | |
| 10 - 3 | *5552402000 | Panel, Ampl.; Rear | |
| 10 - 4 | *5534118000 | Push Rivet | |
| 10 - 5 | *5122174000 | Connector Socket; 12P | |
| 10 - 6 | *5158002000 | PCB Assy, CONNECTOR; B | |
| 10 - 7 | *5200036000 | PCB Assy, IN/OUT | X-20R |
| 10 - 8 | *5553304000 | Frame, Ampl.; L | X-7 |
| 10 - 9 | *5555718000 | Bracket, Push Switch | X-7R |
| 10 - 10 | ⚠ 5134018000 | Push Switch, POWER | |
| 10 - 11 | ⚠ 5052110000 | Spark Killer 0.033μF + 120V/125V | |
| 10 - 12 | *5158001000 | PCB Assy, SPEED SW | X-7 |
| 10 - 13 | *5122168000 | Connector Socket, 6P | |
| 10 - 14 | *5553307100 | Bracket, Meter; B | X-7 |
| 10 - 15 | *5168938000 | PCB Assy, PITCH CONT | |
| 10 - 16 | *5296001500 | Meter, VU | X-10R |
| 10 - 17 | *5553293000 | Plate, Meter | X-10R |
| 10 - 18 | *5534723000 | Rod; A | X-7 |
| 10 - 19 | 5534701000 | Button | |
| 10 - 20 | 5534702000 | Button, Switch | X-10R |
| 10 - 21 | 5800000101 | Button, Loose; B | X-10R |
| 10 - 22 | *5534712000 | Rod; B | X-10R |
| 10 - 23 | *5200073000 | PCB Assy, REC/PLAY AMPL. | |
| 10 - 24 | *5122166000 | Connector Socket, 4P | |
| 10 - 25 | *5122164000 | Connector Socket, 2P | |
| 10 - 26 | *5122280000 | Connector Socket, 2P (RED) | |
| 10 - 27 | *5553305000 | Frame, Ampl.; R | X-7 |
| 10 - 28 | *5800003000 | Bracket, Variable Resistor | X-7R |
| 10 - 29 | *5545049000 | Bracket, Collar; VR | X-7 |

# 5 PC BOARD AND PARTS LIST

PC Boards shown viewed from foil side.

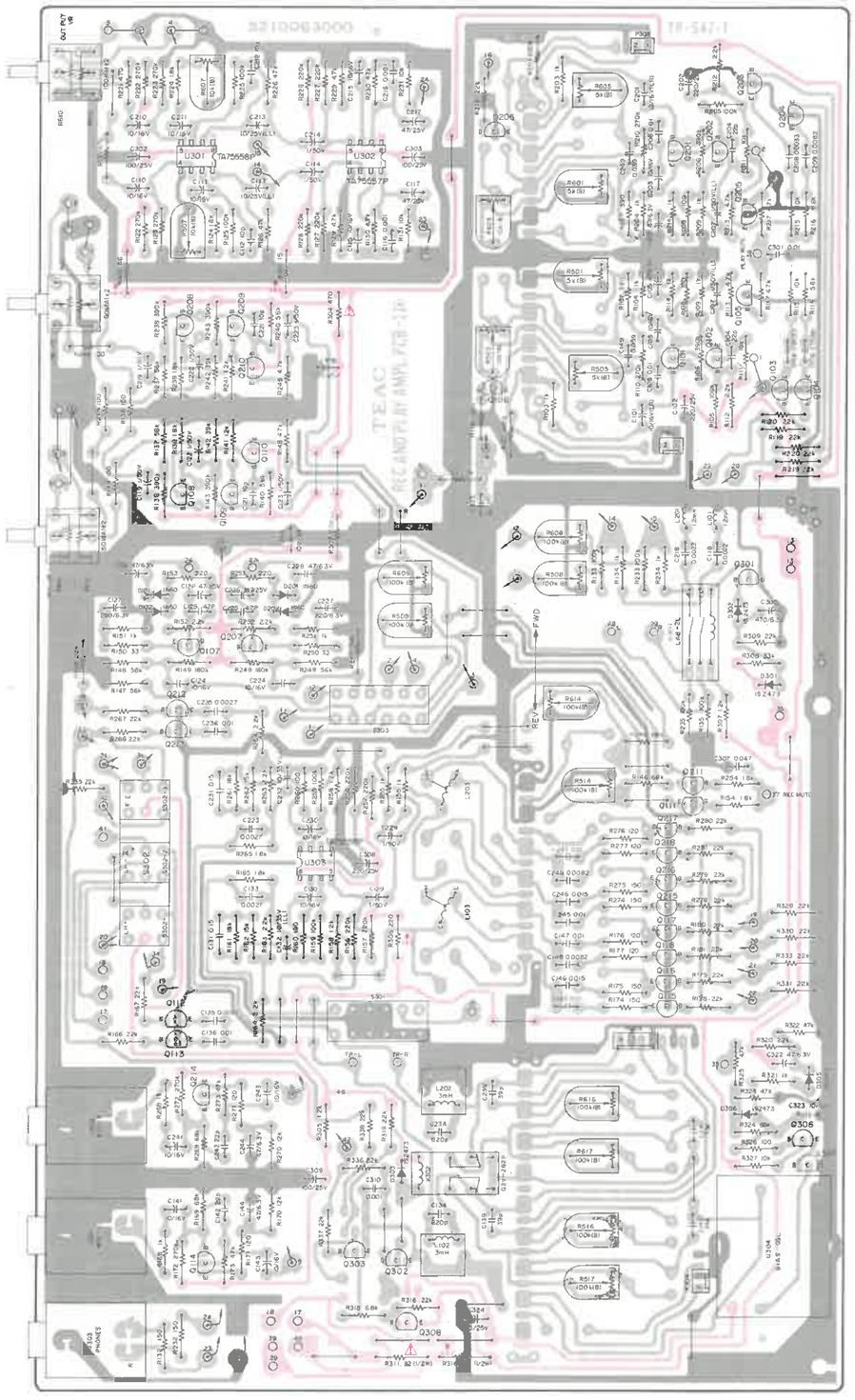
## REC AND PLAY AMPL. PCB ASSY (X-7RMkII)



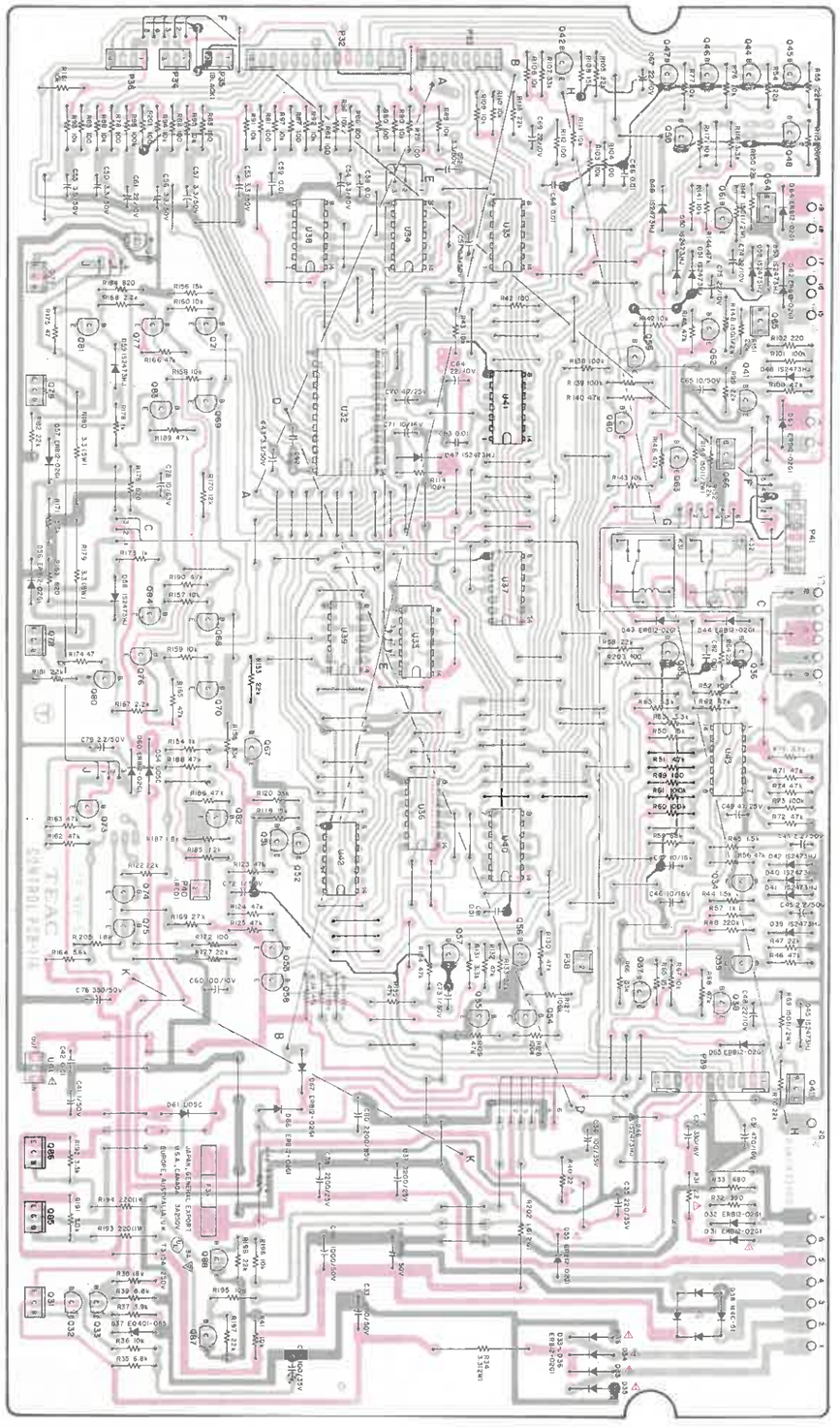




## REC AND PLAY AMPL. PCB ASSY (X-7MkII)



## CONTROL PCB ASSY (X-7RMkII)





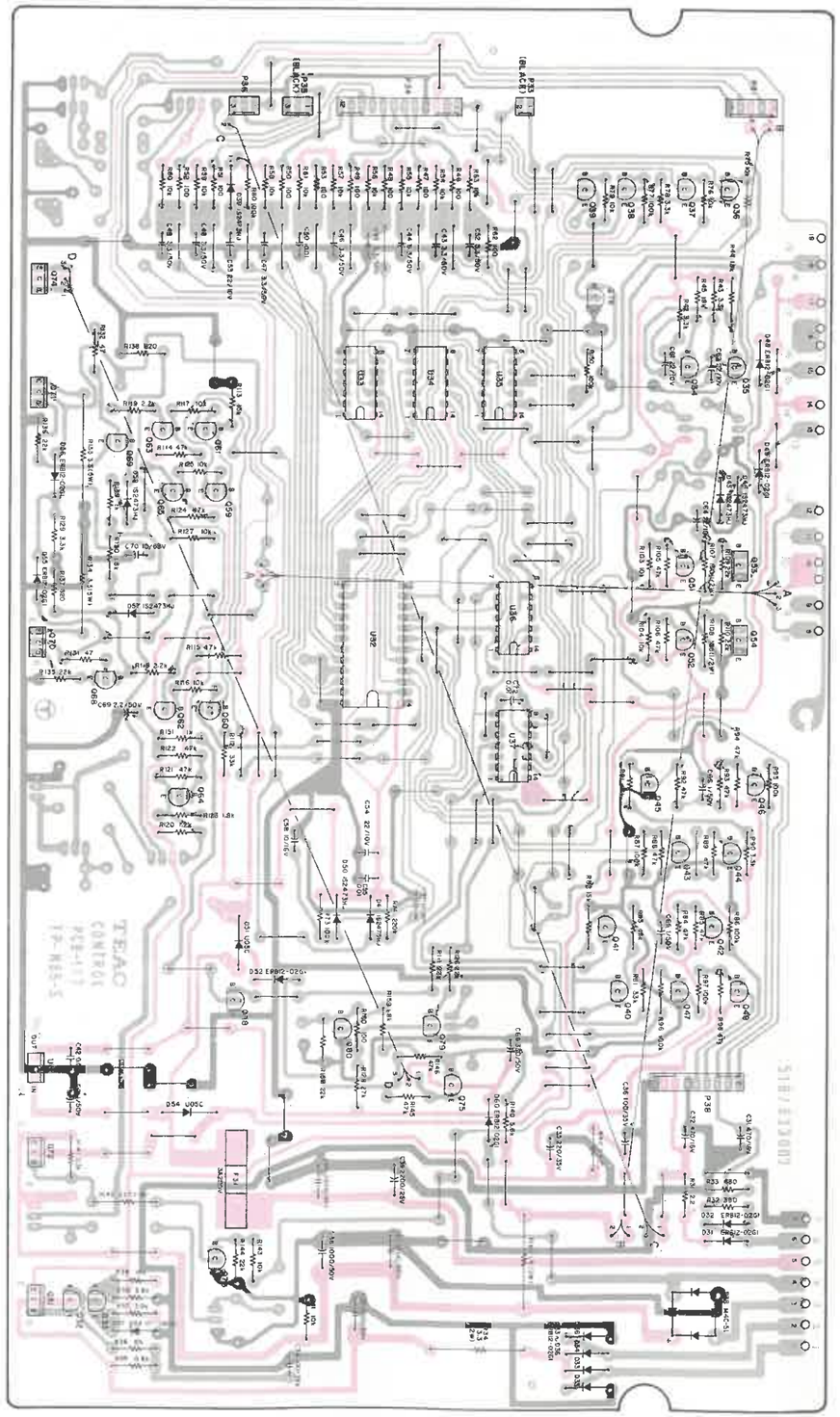


## REC AND PLAY AMPL. PCB ASSY (X-7RMkII)

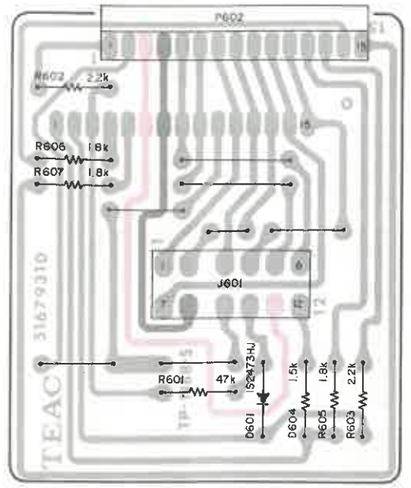
| REF. NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| | 5200064000 | PCB Assy |
| | 5210064000 | PCB |
| | **IC's** | |
| U301 | 5220410900 | TA-75558P |
| U302 | 5220412200 | TA-75557P |
| U303 | 5220410900 | TA-75558P |
| | **TRANSISTORS** | |
| Q101, Q201 | 5042461000 | 2SC-1327T |
| Q102, Q202 | 5145036000 | 2SC-945LK |
| Q103, Q203 | 5145036000 | 2SC-945LK |
| Q104, Q204 | 5145036000 | 2SC-945LK |
| Q105, Q205 | 5145036000 | 2SC-945LK |
| Q106, Q206 | 5145036000 | 2SC-945LK |
| Q107, Q207 | 5145036000 | 2SC-945LK |
| Q108, Q208 | 5145092000 | 2SC-1740LNS |
| Q109, Q209 | 5145092000 | 2SC-1740LNS |
| Q110, Q210 | 5145036000 | 2SC-945LK |
| Q111, Q211 | 5145036000 | 2SC-945LK |
| Q112, Q212 | 5145036000 | 2SC-945LK |
| Q113, Q213 | 5145036000 | 2SC-945LK |
| Q114, Q214 | 5042461000 | 2SC-1327T |
| Q115, Q215 | 5145036000 | 2SC-945LK |
| Q116, Q276 | 5145036000 | 2SC-945LK |
| Q117, Q217 | 5145036000 | 2SC-945LK |
| Q118, Q218 | 5145036000 | 2SC-945LK |
| Q301~Q308 | 5145036000 | 2SC-945LK |
| Q306 | 5145036000 | 2SC-945LK |
| Q307 | 5145036000 | 2SD-655E |
| Q308 | 5145036000 | 2SA-1015GR |
| | **DIODES** | |
| D101, D201 | 5042213000 | IN60 |
| D102, D202 | 5042213000 | IN60 |
| D301~D303 | 5042517000 | 1S2473VE |
| D305, D306 | 5042517000 | 1S2473VE |
| | **CARBON RESISTORS** | |
| | **All Resistors are rated ±5% tolerance and ¼W.** | |
| R101, R201 | 5183150000 | 680kΩ |
| R102, R202 | 5183150000 | 680kΩ |
| R103, R203 | 5183082000 | 1kΩ |
| R104, R204 | 5183082000 | 1kΩ |
| R105, R205 | 5183130000 | 100kΩ |
| R106, R206 | 5183144000 | 390kΩ |
| R107, R207 | 5183072000 | 390Ω |
| R108, R208 | 5183058000 | 100Ω |
| R109, R209 | 5183082000 | 1kΩ |
| R110, R210 | 5183142000 | 330kΩ |
| R111, R211 | 5183106000 | 10kΩ |
| R112, R212 | 5183090000 | 2.2kΩ |
| R113, R213 | 5183098000 | 47kΩ |
| R114, R214 | 5183082000 | 1kΩ |
| R115, R215 | 5183106000 | 10kΩ |
| R116, R216 | 5183100000 | 5.6kΩ |
| R117, R217 | 5183098000 | 4.7kΩ |
| R118, R218 | 5183114000 | 22kΩ |
| R119, R219 | 5183114000 | 22kΩ |
| R120, R220 | 5183114000 | 22kΩ |
| R121, R221 | 5183074000 | 470Ω |
| R122, R222 | 5183140000 | 270kΩ |
| R123, R223 | 5183140000 | 270kΩ |
| R124, R224 | 5183088000 | 1.8kΩ |

| REF. NO. | PARTS NO. | DESCRIPTION | |
|---|---|---|---|
| R125, R225 | 5183130000 | 100kΩ | |
| R126, R226 | 5183122000 | 47kΩ | |
| R127, R227 | 5183138000 | 220kΩ | |
| R128, R228 | 5183138000 | 220kΩ | |
| R129, R229 | 5183098000 | 4.7kΩ | |
| R130, R230 | 5183098000 | 4.7kΩ | |
| R131, R231 | 5183106000 | 10kΩ | |
| R132, R232 | 5183062000 | 150Ω | |
| R133, R233 | 5183130000 | 100kΩ | |
| R134, R234 | 5183082000 | 1kΩ | |
| R135, R235 | 5183130000 | 100kΩ | |
| R136, R236 | 5183058000 | 100Ω | |
| R137, R237 | 5183124000 | 56kΩ | |
| R138, R238 | 5183144000 | 390kΩ | |
| R139, R239 | 5183088000 | 1.8kΩ | |
| R140, R240 | 5183100000 | 5.6kΩ | |
| R141, R241 | 5183084000 | 1.2kΩ | |
| R142, R242 | 5183120000 | 39kΩ | |
| R143, R243 | 5183144000 | 390kΩ | |
| R144, R244 | 5183058000 | 100Ω | |
| R145, R245 | 5183098000 | 4.7kΩ | |
| R146, R246 | 5183130000 | 100kΩ | |
| R147, R247 | 5183124000 | 56kΩ | |
| R148, R248 | 5183124000 | 56kΩ | |
| R149, R249 | 5183136000 | 180kΩ | |
| R150, R250 | 5183046000 | 33Ω | |
| R151, R251 | 5183082000 | 1kΩ | |
| R152, R252 | 5183090000 | 2.2kΩ | |
| R153, R253 | 5183066000 | 220Ω | |
| R154, R254 | 5183088000 | 1.8kΩ | |
| R155, R255 | 5183082000 | 1kΩ | |
| R156, R256 | 5183138000 | 220kΩ | |
| R157, R257 | 5183138000 | 220kΩ | |
| R158, R258 | 5183084000 | 1.2kΩ | |
| R159, R259 | 5183130000 | 100kΩ | |
| R160, R260 | 5183058000 | 100Ω | |
| R161, R261 | 5183112000 | 18kΩ | |
| R162, R262 | 5183110000 | 15kΩ | |
| R163, R263 | 5183090000 | 2.2kΩ | |
| R164, R264 | 5183090000 | 2.2kΩ | |
| R165, R265 | 5183088000 | 1.8kΩ | |
| R166, R266 | 5183114000 | 22kΩ | |
| R167, R267 | 5183114000 | 22kΩ | |
| R168, R268 | 5183082000 | 1kΩ | |
| R169, R269 | 5183126000 | 68kΩ | |
| R170, R270 | 5183108000 | 12kΩ | |
| R171, R271 | 5183060000 | 120Ω | |
| R172, R272 | 5183140000 | 270kΩ | |
| R173, R273 | 5183122000 | 47kΩ | |
| R174, R274 | 5183062000 | 150Ω | |
| R175, R275 | 5183062000 | 150Ω | |
| R176, R276 | 5183060000 | 120Ω | |
| R177, R277 | 5183060000 | 120Ω | |
| R178, R278 | 5183114000 | 22kΩ | |
| R179, R279 | 5183114000 | 22kΩ | |
| R180, R280 | 5183114000 | 22kΩ | |
| R181, R281 | 5183114000 | 22kΩ | |
| R301 | ⚠5184229000 | 15Ω | Nonflammable |
| R302 | ⚠5184243000 | 56Ω | Nonflammable |
| R303 | 5183090000 | 2.2kΩ | |
| R304 | ⚠5184265000 | 470Ω | Nonflammable |
| R305 | 5183084000 | 1.2kΩ | |
| R306 | ⚠5184257000 | 220Ω | Nonflammable |
| R307 | 5183084000 | 1.2kΩ | |

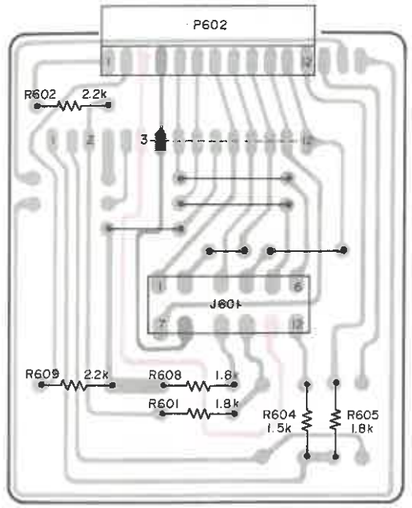
## CONTROL PCB ASSY (X-7MkII)



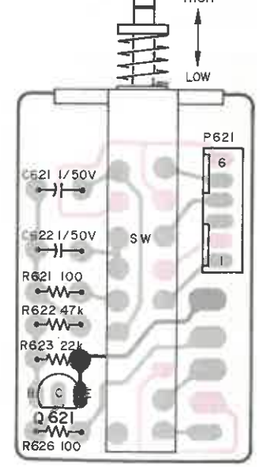
## CONNECTOR PCB ASSY (X-7RMkII)




## CONNECTOR PCB ASSY (X-7MkII)




## SPEED SW PCB ASSY (X-7RMkII/X-7MkII)




NOTES

1. PC Boards shown viewed from foil side.
2. The colors used on the PCB illustrations have the following significance:
   : +B power supply circuit
   : GND
   : Other
3. Resistor values are in ohms (k = 1,000 ohms).
4. All capacitor values are in microfarads (p = picofarads).

| REF. NO. | PARTS NO. | DESCRIPTION | | |
|---|---|---|---|---|
| R308 | 5183118000 | 33kΩ | | |
| R309 | 5183114000 | 22kΩ | | |
| R310 | ⚠5181990000 | 47Ω | Nonflammable | |
| R311 | ⚠5181996000 | 82Ω | Nonflammable | |
| R316 | 5183114000 | 22kΩ | | |
| R318 | 5183102000 | 6.8kΩ | | |
| R320 | 5183090000 | 2.2kΩ | | |
| R321 | 5183082000 | 1kΩ | | |
| R322, R323 | 5183098000 | 4.7kΩ | | |
| R324 | 5183126000 | 68kΩ | | |
| R325 | 5183098000 | 4.7kΩ | | |
| R326 | 5183058000 | 100Ω | | |
| R327 | 5183106000 | 10kΩ | | |
| R328~R331 | 5183114000 | 22kΩ | | |
| R332 | 5183082000 | 1kΩ | | |
| R333 | 5183114000 | 22kΩ | | |
| R335~R337 | 5183114000 | 22kΩ | | |
| **CAPACITORS** | | | | |
| C101, C201 | 5171565000 | Elec. | 10μF | 16V (LR) |
| C102, C202 | 5173055000 | Elec. | 220μF | 25V (SM) |
| C103, C203 | 5173010000 | Elec. | 10μF | 16V (SM) |
| C104, C204 | 5172304000 | Ceramic | 220pF | 50V ±10% |
| C105, C205 | 5173034000 | Elec. | 47μF | 6.3V (SM) |
| C106, C206 | 5054877500 | Mylar | 0.01μF | 100V ±5% |
| C107, C207 | 5260226110 | Elec. | 1μF | 50V ±10% |
| C108, C208 | 5054881500 | Mylar | 0.0033μF | 100V ±5% |
| C109, C209 | 5054894500 | Mylar | 0.0082μF | 100V ±5% |
| C110, C210 | 5173010000 | Elec. | 10μF | 16V (SM) |
| C111, C211 | 5173010000 | Elec. | 10μF | 16V (SM) |
| C112, C212 | 5172300000 | Ceramic | 10pF | 50V ±20% |
| C113, C213 | 5260222010 | Elec. | 10μF | 35V ±20% |
| C114, C214 | 5172992000 | Elec. | 1μF | 50V (SM) |
| C115, C215 | 5173010000 | Elec. | 10μF | 16V (SM) |
| C116, C216 | 5054878500 | Mylar | 0.001μF | 100V ±5% |
| C117, C217 | 5173037000 | Elec. | 47μF | 25V (SM) |
| C118, C218 | 5054876500 | Mylar | 0.0022μF | 100V ±5% |
| C119, C219 | 5172992000 | Elec. | 1μF | 50V (SM) |
| C121, C221 | 5172300000 | Elec. | 10pF | 50V ±20% |
| C122, C222 | 5172992000 | Elec. | 1μF | 50V (SM) |
| C123, C223 | 5172992000 | Elec. | 1μF | 50V (SM) |
| C124, C224 | 5173010000 | Elec. | 10μF | 16V (SM) |
| C125, C225 | 5172308000 | Ceramic | 47pF | 50V ±10% |
| C126, C226 | 5173004000 | Elec. | 4.7μF | 25V (SM) |
| C127, C227 | 5173052000 | Elec. | 220μF | 6.3V (SM) |
| C128, C228 | 5173034000 | Elec. | 47μF | 6.3V (SM) |
| C129, C229 | 5172992000 | Elec. | 1μF | 50V (SM) |
| C130, C230 | 5173010000 | Elec. | 10μF | 16V (SM) |
| C131, C231 | 5054930500 | Mylar | 0.15μF | 100V ±5% |
| C132, C232 | 5260222000 | Elec. | 10μF | 35V ±20% |
| C133, C233 | 5054889500 | Mylar | 0.0027μF | 100V ±5% |
| C134, C234 | 5172826000 | Rubber Polyst. | 820pF | 50V ±5% |
| C135, C235 | 5054889500 | Mylar | 0.0027μF | 100V ±5% |
| C136, C236 | 5054877500 | Mylar | 0.01μF | 100V ±5% |
| C139, C239 | 5172794000 | Rubber Polyst. | 39pF | 50V ±5% |
| C140, C240 | 5172794000 | Rubber Polyst. | 33pF | 50V ±5% |
| C141, C241 | 5173010000 | Elec. | 10μF | 16V (SM) |
| C142, C242 | 5172304000 | Ceramic | 22pF | 50V ±10% |
| C143, C243 | 5173010000 | Elec. | 10μF | 16V (SM) |
| C144, C244 | 5173034000 | Elec. | 47μF | 6.3V (SM) |
| C145, C245 | 5054877500 | Mylar | 0.01μF | 100V ±5% |
| C146, C246 | 5054887500 | Mylar | 0.015μF | 100V ±5% |
| C147, C247 | 5054877500 | Mylar | 0.01μF | 100V ±5% |
| C148, C248 | 5054894500 | Mylar | 0.0082μF | 100V ±5% |

| REF. NO. | PARTS NO. | DESCRIPTIONS | | |
|---|---|---|---|---|
| C149, C249 | 5054924500 | Mylar | 0.039μF | 100V ±5% |
| C301 | 5054877500 | Mylar | 0.01μF | 100V ±5% |
| C302 | 5173046000 | Elec. | 100μF | 25V (SM) |
| C303 | 5173055000 | Elec. | 220μF | 25V (SM) |
| C304 | 5173046000 | Elec. | 100μF | 25V (SM) |
| C305 | 5173070000 | Elec. | 470μF | 6.3V (SM) |
| C306 | 5173046000 | Elec. | 100μF | 25V (SM) |
| C307 | 5054738500 | Mylar | 0.047μF | 100V ±5% |
| C308 | 5173055000 | Elec. | 220μF | 25V (SM) |
| C309 | 5173046000 | Elec. | 100μF | 25V (SM) |
| C310 | 5054878500 | Mylar | 0.001μF | 100V ±5% |
| C322 | 5173034000 | Elec. | 47μF | 6.3V (SM) |
| C323 | 5173010000 | Elec. | 10μF | 16V (SM) |
| C324, C325 | 5173011000 | Elec. | 10μF | 25V (SM) |
| **VARIABLE RESISTORS** | | | | |
| R501, R601 | 5280003302 | Semi-fixed | 5kΩ(B) | |
| R502, R602 | 5280003302 | Semi-fixed | 5kΩ(B) | |
| R503, R603 | 5280003502 | Semi-fixed | 10kΩ(B) | |
| R504, R604 | 5280003502 | Semi-fixed | 10kΩ(B) | |
| R505, R605 | 5280003302 | Semi-fixed | 5kΩ(B) | |
| R506, R606 | 5280003302 | Semi-fixed | 5kΩ(B) | |
| R507, R607 | 5280003502 | Semi-fixed | 10kΩ(B) | |
| R508, R608 | 5280004202 | Semi-fixed | 100kΩ(B) | |
| R509, R609 | 5280004202 | Semi-fixed | 100kΩ(B) | |
| R513, R613 | 5280004202 | Semi-fixed | 100kΩ(B) | |
| R514, R614 | 5280004202 | Semi-fixed | 100kΩ(B) | |
| R515, R615 | 5280004202 | Semi-fixed | 100kΩ(B) | |
| R516, R616 | 5280004202 | Semi-fixed | 100kΩ(B) | |
| R517, R617 | 5280004202 | Semi-fixed | 100kΩ(B) | |
| R518, R618 | 5280004202 | Semi-fixed | 100kΩ(B) | |
| **MISCELLANEOUS** | | | | |
| U304 | 5040090000 | BIAS OSC Unit | | |
| K301 | 5061137000 | Relay; 12V LAB2L | | |
| K302 | 5290009400 | Relay; 24V G2V-282P | | |
| S301 | 5134095000 | Push; 4-2 | | |
| S303 | 5134095000 | Push; 4-2 | | |
| S304 | 5131044000 | Slide; 9-2 | | |
| S305 | 5131045000 | Slide; 6-2 | | |
| S306 | 5131044000 | Slide; 9-2 | | |
| S307 | 5300025200 | Push Switch; 2-2x3 | | |
| S309 | 5300025200 | Push Switch; 2-2x3 | | |
| P301 | 5122128000 | Connector Plug 4P | | |
| P302 | 5122301000 | Connector Plug 4P (RED) | | |
| P303 | 5122132000 | Connector Plug 8P | | |
| P304 | 5122128000 | Connector Plug 4P | | |
| L101, L201 | 5160107000 | Choke Coil; 1200μF ±5% (Lock) | | |
| L102, L202 | 5056659000 | Trap Coil; 3μH 20% | | |
| L103, L203 | 5056637000 | Record Coil; EQ 2.4-4.2mH 20% | | |
| L104, L204 | 5056637000 | Record Coil; EQ 2.4-4.2mH 20% | | |
| J301, J302 | 5124045000 | Jack, MIC | | |
| J303 | 5124046000 | Jack, PHONES | | |





## REC AND PLAY AMPL. PCB ASSY (X-7MkII)

| REF. NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| | 5200073000 | PCB Assy |
| | 5210073000 | PCB |
| | **IC's** | |
| U301 | 5220410900 | TA75558P |
| U302 | 5220412200 | TA75559P |
| U303 | 5220410900 | TA75558P |
| | **TRANSISTORS** | |
| Q101, Q201 | 5042461000 | 2SC-1327T |
| Q102, Q202 | 5145036000 | 2SC-945LK |
| Q103, Q203 | 5145036000 | 2SC-945LK |
| Q104, Q204 | 5145036000 | 2SC-945LK |
| Q105, Q205 | 5145036000 | 2SC-945LK |
| Q106, Q206 | 5145036000 | 2SC-945LK |
| Q107, Q207 | 5145036000 | 2SC-945LK |
| Q108, Q208 | 5145092000 | 2SC-1740LNS |
| Q109, Q209 | 5145092000 | 2SC-1740LNS |
| Q110, Q210 | 5145036000 | 2SC-945LK |
| Q111, Q211 | 5145036000 | 2SC-945LK |
| Q112, Q212 | 5145036000 | 2SC-945LK |
| Q113, Q213 | 5145036000 | 2SC-945LK |
| Q114, Q214 | 5042461000 | 2SC-1327T |
| Q115, Q215 | 5145036000 | 2SC-945LK |
| Q116, Q216 | 5145036000 | 2SC-945LK |
| Q117, Q217 | 5145036000 | 2SC-945LK |
| Q118, Q218 | 5145036000 | 2SC-945LK |
| Q301 | 5145036000 | 2SC-945LK |
| Q302 | 5145036000 | 2SC-945LK |
| Q303 | 5145036000 | 2SC-945LK |
| Q306 | 5145036000 | 2SC-945LK |
| Q307 | 5145185000 | 2SD-655E |
| Q308 | 5145150000 | 2SA-1015GR |
| | **DIODES** | |
| D101, D201 | 5042213000 | IN60 |
| D102, D202 | 5042213000 | IN60 |
| D301~D303 | 5042517000 | 1S2473VE |
| D305, D306 | 5042517000 | 1S2473VE |
| | **CARBON RESISTORS** | |
| | **All Resistors are rated ±5% tolerance and ¼W.** | |
| R101, R201 | 5183150000 | 680kΩ |
| R103, R203 | 5183082000 | 1kΩ |
| R104, R204 | 5183082000 | 1kΩ |
| R105, R205 | 5183130000 | 100kΩ |
| R106, R206 | 5183144000 | 390kΩ |
| R107, R207 | 5183072000 | 390Ω |
| R108, R208 | 5183058000 | 100Ω |
| R109, R209 | 5183082000 | 1kΩ |
| R110, R210 | 5183142000 | 330kΩ |
| R111, R211 | 5183106000 | 10kΩ |
| R112, R212 | 5183090000 | 2.2kΩ |
| R113, R213 | 5183098000 | 4.7kΩ |
| R114, R214 | 5183082000 | 1kΩ |
| R115, R215 | 5183106000 | 10kΩ |
| R116, R216 | 5183100000 | 5.6kΩ |
| R117, R217 | 5183098000 | 4.7kΩ |
| R118, R218 | 5183114000 | 22kΩ |
| R119, R219 | 5183114000 | 22kΩ |
| R120, R220 | 5183114000 | 22kΩ |
| R121, R221 | 5183074000 | 470Ω |

| REF. NO. | PARTS NO. | DESCRIPTION | |
|---|---|---|---|
| R122, R222 | 5183140000 | 270kΩ | |
| R123, R223 | 5183140000 | 270kΩ | |
| R124, R224 | 5183088000 | 1.8kΩ | |
| R125, R225 | 5183130000 | 100kΩ | |
| R126, R226 | 5183122000 | 47kΩ | |
| R127, R227 | 5183138000 | 220kΩ | |
| R128, R228 | 5183138000 | 220kΩ | |
| R129, R229 | 5183098000 | 4.7kΩ | |
| R130, R230 | 5183098000 | 4.7kΩ | |
| R131, R231 | 5183106000 | 10kΩ | |
| R132, R232 | 5183062000 | 150Ω | |
| R133, R233 | 5183130000 | 100kΩ | |
| R134, R234 | 5183082000 | 1kΩ | |
| R135, R235 | 5183130000 | 100kΩ | |
| R136, R236 | 5183058000 | 100Ω | |
| R137, R237 | 5183124000 | 56kΩ | |
| R138, R238 | 5183144000 | 390kΩ | |
| R139, R239 | 5183088000 | 1.8kΩ | |
| R140, R240 | 5183100000 | 5.6kΩ | |
| R141, R241 | 5183084000 | 1.2kΩ | |
| R142, R242 | 5183120000 | 39kΩ | |
| R143, R243 | 5183144000 | 390kΩ | |
| R144, R244 | 5183058000 | 100Ω | |
| R145, R245 | 5183098000 | 4.7kΩ | |
| R146, R246 | 5183130000 | 100kΩ | |
| R147, R247 | 5183124000 | 56kΩ | |
| R148, R248 | 5183124000 | 56kΩ | |
| R149, R249 | 5183136000 | 180kΩ | |
| R150, R250 | 5183046000 | 33Ω | |
| R151, R251 | 5183082000 | 1kΩ | |
| R152, R252 | 5183090000 | 2.2kΩ | |
| R153, R253 | 5183066000 | 220Ω | |
| R154, R254 | 5183088000 | 1.8kΩ | |
| R155, R255 | 5183082000 | 1kΩ | |
| R156, R256 | 5183138000 | 220kΩ | |
| R157, R257 | 5183138000 | 220kΩ | |
| R158, R258 | 5183084000 | 1.2kΩ | |
| R159, R259 | 5183130000 | 100kΩ | |
| R160, R260 | 5183058000 | 100Ω | |
| R161, R261 | 5183172000 | 18kΩ | |
| R162, R262 | 5183110000 | 15kΩ | |
| R163, R263 | 5183090000 | 2.2kΩ | |
| R164, R264 | 5183090000 | 2.2kΩ | |
| R165, R265 | 5183088000 | 1.8kΩ | |
| R166, R266 | 5183114000 | 22kΩ | |
| R167, R267 | 5183114000 | 22kΩ | |
| R168, R268 | 5183082000 | 1kΩ | |
| R169, R269 | 5183126000 | 68kΩ | |
| R170, R270 | 5183108000 | 12kΩ | |
| R171, R271 | 5183060000 | 120Ω | |
| R172, R272 | 5183140000 | 270kΩ | |
| R173, R273 | 5183122000 | 47kΩ | |
| R174, R274 | 5183062000 | 150Ω | |
| R175, R275 | 5183062000 | 150Ω | |
| R176, R276 | 5183060000 | 120Ω | |
| R177, R277 | 5183060000 | 120Ω | |
| R178, R278 | 5183114000 | 22kΩ | |
| R179, R279 | 5183114000 | 22kΩ | |
| R180, R280 | 5183114000 | 22kΩ | |
| R181, R281 | 5183114000 | 22kΩ | |
| R301 | ⚠5184229000 | 15Ω | Nonflammable |
| R302 | ⚠5184243000 | 56Ω | Nonflammable |
| R303 | 5183090000 | 2.2kΩ | |
| R304 | ⚠5184265000 | 470Ω | Nonflammable |

| REF. NO. | PARTS NO. | DESCRIPTION | | |
|---|---|---|---|---|
| R305 | 5183084000 | 1.2kΩ | | |
| R306 | ⚠5184257000 | 220Ω | Nonflammable | |
| R307 | 5183084000 | 1.2kΩ | | |
| R308 | 5183118000 | 33kΩ | | |
| R309 | 5183114000 | 22kΩ | | |
| R310 | ⚠5181990000 | 47kΩ | Nonflammable | |
| R311 | ⚠5181996000 | 82kΩ | Nonflammable | |
| R316 | 5183114000 | 22kΩ | | |
| R318 | 5183102000 | 6.8kΩ | | |
| R320 | 5183090000 | 2.2kΩ | | |
| R321 | 5183082000 | 1kΩ | | |
| R322 | 5183098000 | 4.7kΩ | | |
| R323 | 5183098000 | 4.7kΩ | | |
| R324 | 5183126000 | 68kΩ | | |
| R325 | 5183098000 | 4.7kΩ | | |
| R326 | 5183058000 | 100Ω | | |
| R327 | 5183106000 | 10kΩ | | |
| R328~R331 | 5183114000 | 22kΩ | | |
| R332 | 5183082000 | 1kΩ | | |
| R333 | 5183114000 | 22kΩ | | |
| R335~R337 | 5183114000 | 22kΩ | | |

### CAPACITORS

| | | | | | |
|---|---|---|---|---|---|
| C101, C201 | 5171565000 | Elec. | 10μF | 16V | (LR) |
| C102, C202 | 5173055000 | Elec. | 220μF | 25V | (SM) |
| C103, C203 | 5173010000 | Elec. | 10μF | 16V | (SM) |
| C104, C204 | 5172304000 | Ceramic | 22pF | 50V | ±10% |
| C105, C205 | 5173034000 | Elec. | 47μF | 63V | (SM) |
| C106, C206 | 5054877500 | Mylar | 0.01μF | 100V | ±5% |
| C107, C207 | 5260226110 | Elec. | 1μF | 50V | ±10% |
| C108, C208 | 5054881500 | Mylar | 0.0033μF | 100V | ±10% |
| C109, C209 | 5054881500 | Mylar | 0.0082μF | 100V | ±10% |
| C110, C210 | 5173010000 | Elec. | 10μF | 16V | (SM) |
| C111, C211 | 5173010000 | Elec. | 10μF | 16V | (SM) |
| C112, C212 | 5172300000 | Ceramic | 10pF | 50V | ±20% |
| C113, C213 | 5260222000 | Elec. | 10μF | 35V | ±20% |
| C114, C214 | 5172992000 | Elec. | 1μF | 50V | (SM) |
| C115, C215 | 5173010000 | Elec. | 10μF | 16V | (SM) |
| C116, C216 | 5054878500 | Mylar | 0.001μF | 100V | ±5% |
| C117, C217 | 5173037000 | Elec. | 47μF | 25V | (SM) |
| C118, C218 | 5054876500 | Mylar | 0.0022μF | 100V | ±5% |
| C119, C219 | 5172992000 | Elec. | 1μF | 50V | (SM) |
| C121, C221 | 5172300000 | Ceramic | 10pF | 50V | ±20% |
| C122, C222 | 5172992000 | Elec. | 1μF | 50V | (SM) |
| C123, C223 | 5172992000 | Elec. | 1μF | 50V | (SM) |
| C124, C224 | 5173010000 | Elec. | 10μF | 16V | (SM) |
| C125, C225 | 5172308000 | Ceramic | 47pF | 50V | ±10% |
| C126, C226 | 5173004000 | Elec. | 4.7μF | 25V | (SM) |
| C127, C227 | 5173052000 | Elec. | 220μF | 6.3V | (SM) |
| C128, C228 | 5173034000 | Elec. | 47μF | 6.3V | (SM) |
| C129, C229 | 5172992000 | Elec. | 1μF | 50V | (SM) |
| C130, C230 | 5173010000 | Elec. | 10μF | 16V | (SM) |
| C131, C231 | 5054930500 | Mylar | 0.15μF | 100V | ±5% |
| C132, C232 | 5260222010 | Elec. | 10μF | 35V | ±20% |
| C133, C233 | 5054889500 | Mylar | 0.0027μF | 100V | ±5% |
| C134, C234 | 5172826000 | Rubber Polyst. | 820pF | 50V | ±5% |
| C135, C235 | 5054889500 | Mylar | 0.0027μF | 100V | ±5% |
| C136, C236 | 5054877500 | Mylar | 0.01μF | 100V | ±5% |
| C139, C239 | 5172794000 | Rubber Polyst. | 39pF | 50V | ±5% |
| C140, C240 | 5172792000 | Rubber Polyst. | 33pF | 50V | ±5% |
| C141, C241 | 5173010000 | Elec. | 10μF | 16V | (SM) |
| C142, C242 | 5172304000 | Ceramic | 22pF | 50V | ±10% |
| C143, C243 | 5173010000 | Elec. | 10μF | 16V | (SM) |

| REF. NO. | PARTS NO. | DESCRIPTION | | | |
|---|---|---|---|---|---|
| C144, C244 | 5173034000 | Elec. | 47μF | 6.3V | (SM) |
| C145, C245 | 5054877500 | Mylar | 0.01μF | 100V | ±5% |
| C146, C246 | 5054887500 | Mylar | 0.015μF | 100V | ±5% |
| C147, C247 | 5054877500 | Mylar | 0.01μF | 100V | ±5% |
| C148, C248 | 5054894500 | Mylar | 0.0082μF | 100V | ±5% |
| C149, C249 | 5054924500 | Mylar | 0.039μF | 100V | ±5% |
| C301 | 5054877500 | Mylar | 0.01μF | 100V | ±5% |
| C302~C304 | 5173046000 | Elec. | 100μF | 25V | (SM) |
| C305 | 5173070000 | Elec. | 470μF | 6.3V | (SM) |
| C306 | 5173046000 | Elec. | 100μF | 25V | (SM) |
| C307 | 5054738500 | Mylar | 0.047μF | 100V | ±5% |
| C308 | 5173055000 | Elec. | 220μF | 25V | (SM) |
| C309 | 5173046000 | Elec. | 100μF | 25V | (SM) |
| C310 | 5054878500 | Mylar | 0.001μF | 100V | ±5% |
| C322 | 5173034000 | Elec. | 47μF | 6.3V | (SM) |
| C323 | 5173010000 | Elec. | 10μF | 16V | (SM) |
| C324, C325 | 5173011000 | Elec. | 10μF | 25V | (SM) |

### VARIABLE RESISTORS

| | | | |
|---|---|---|---|
| R501, R601 | 5280003302 | Semi-fixed | 5kΩ(B) |
| R503, R603 | 5280003502 | Semi-fixed | 10kΩ(B) |
| R505, R605 | 5280003302 | Semi-fixed | 5kΩ(B) |
| R507, R607 | 5280003502 | Semi-fixed | 10kΩ(B) |
| R508, R608 | 5280004202 | Semi-fixed | 100kΩ(B) |
| R509, R609 | 5280004202 | Semi-fixed | 100kΩ(B) |
| R514, R614 | 5280004202 | Semi-fixed | 100kΩ(B) |
| R516, R616 | 5280004202 | Semi-fixed | 100kΩ(B) |
| R517, R617 | 5280004202 | Semi-fixed | 100kΩ(B) |

### MISCELLANEOUS

| | | |
|---|---|---|
| U304 | 5040090000 | BIAS OSC Unit |
| K301 | 5061137000 | Relay; 12V LAB2L |
| K302 | 5290009400 | Relay; 24V G2V-282P |
| S301 | 5134095000 | Push Switch; 4-2 |
| S303 | 5134095000 | Push Switch; 4-2 |
| S307 | 5300025200 | Push Switch; 2-2x3 |
| P301 | 5122126000 | Connector Plug 2P |
| P302 | 5122299000 | Connector Plug 2P (RED) |
| P303 | 5122128000 | Connector Plug 4P |
| P304 | 5122126000 | Connector Plug 2P |
| J301, J302 | 5124045000 | Jack, MIC |
| J303 | 5124046000 | Jack, PHONES |
| L101, L201 | 5160107000 | Choke Coil 1200μF ±5% (Lock) |
| L102, L202 | 5056659000 | Trap Coil 3mH 20% |
| L103, L203 | 5056637000 | Record Coil; EQ 2.4-4.2mH 20% |

## CONTROL PCB ASSY (X-7RMkII)

| REF. NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| | 5200004603 | PCB Assy [U, C] |
| | 5200004613 | PCB Assy [E, UK, A] |
| | 5200004623 | PCB Assy [GE, L] |
| | 5167932102 | PCB |
| | **IC's** | |
| U31 | ⚠5147058000 | NJM-78M05A |
| U32 | 5147054000 | AN6251 |
| U33~U37 | 5147056000 | HD-7400P |
| U38~U42 | 5147057000 | HD-7402P |
| U43 | 5147039000 | NJM-2901N |

[U] : U.S.A. [C] : CANADA [GE] : GENERAL EXPORT
[A] : AUSTRALIA [E] : EUROPE [UK] : U.K.
[L] : LIMITED AREA





| REF. NO. | PARTS NO. | DESCRIPTION | |
|---|---|---|---|
| | **TRANSISTORS** | | |
| Q31 | ⚠5145087000 | 2SD-313E | |
| Q32 | 5042625000 | 2SC-1318S | |
| Q33~Q37 | 5042383000 | 2SC-536F | |
| Q38 | 5042553000 | 2SA-733P | |
| Q39 | 5042383000 | 2SC-536F | |
| Q40 | 5042564000 | 2SC-1061C | |
| Q41~Q52 | 5042383000 | 2SC-536F | |
| Q53 | 5042553000 | 2SA-733P | |
| Q54~Q57 | 5042383000 | 2SC-536F | |
| Q58 | 5042553000 | 2SA-733P | |
| Q59 | 5042383000 | 2SC-536F | |
| Q60 | 5042553000 | 2SA-733P | |
| Q62, Q63 | 5042553000 | 2SA-733P | |
| Q65, Q66 | 5042553000 | 2SA-733P | |
| Q67~Q71 | 5042383000 | 2SC-536F | |
| Q72 | 5145087000 | 2SD-313E | |
| Q73 | 5042625000 | 2SC-1318S | |
| Q74, Q75 | 5230776500 | 2SC-1685R | |
| Q76, Q77 | 5042553000 | 2SA-733P | |
| Q78, Q79 | 5145087000 | 2SD-313E | |
| Q80, Q81 | 5042625000 | 2SC-1318S | |
| Q82~Q84 | 5042553000 | 2SA-733P | |
| Q85, Q86 | 5145129000 | 2SB-507E | |
| Q87, Q88 | 5042625000 | 2SC-1318S | |
| | **DIODES** | | |
| D31~D36 | ⚠5143243000 | ERB12-02GI | |
| D37 | 5143154000 | Zener, EQA01-06S | |
| D38 | ⚠5143142000 | M4C-51 | |
| D39~D42 | 5143118000 | IS2473HJ | |
| D43, D44 | 5143243000 | ERB12-02GI | |
| D45~D47 | 5143118000 | IS2473HJ | |
| D52, D53 | IS43118000 | IS2473HJ | |
| D54 | 5143017000 | U05C | |
| D55~D57 | 5143243000 | ERB12-02GI | |
| D58, D59 | 5143118000 | IS2473HJ | |
| D60 | 5143243000 | ERB12-02GI | |
| D61 | 5143017000 | U05C | |
| D62, D63 | 5143243000 | ERB12-02GI | |
| D65~D67 | 5143243000 | ERB12-02GI | |
| D69 | 5143118000 | IS2473HJ | |

### CARBON RESISTORS
**All Resistors are rated ±5% tolerance and ¼W.**

| | | | |
|---|---|---|---|
| R31 | ⚠5184209000 | 2.2Ω | Nonflammable |
| R32 | 5183072000 | 390Ω | |
| R33 | 5183078000 | 680Ω | |
| R34 | 5184306000 | 3.3Ω | 10% Cement |
| R35 | 5183102000 | 6.8kΩ | |
| R36 | 5183106000 | 10kΩ | |
| R37 | 5183096000 | 3.9kΩ | |
| R38 | 5183112000 | 18kΩ | |
| R39 | 5183102000 | 6.8kΩ | |
| R40 | ⚠5184233000 | 22Ω | Nonflammable |
| R41 | 5183106000 | 10kΩ | |
| R42 | 5183058000 | 100Ω | |
| R43 | 5183106000 | 10kΩ | |
| R44, R45 | 5183086000 | 1.5kΩ | |
| R46 | 5183122000 | 4.7kΩ | |
| R47 | 5183114000 | 22kΩ | |
| R48 | 5183138000 | 220kΩ | |
| R49 | 5183058000 | 100Ω | |
| R50 | 5183110000 | 15kΩ | |

| REF. NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| R51 | 5183122000 | 47kΩ |
| R52 | 5183130000 | 100kΩ |
| R53 | 5183094000 | 3.3kΩ |
| R54, R55 | 5183114000 | 2.2kΩ |
| R56 | 5183122000 | 47kΩ |
| R57 | 5183082000 | 1kΩ |
| R58 | 5183114000 | 22kΩ |
| R59 | 5183126000 | 68kΩ |
| R60, R61 | 5183130000 | 100kΩ |
| R62 | 5183122000 | 47kΩ |
| R63 | 5183094000 | 3.3kΩ |
| R64 | 5183114000 | 22kΩ |
| R65 | 5183110000 | 15kΩ |
| R66 | 5183118000 | 33kΩ |
| R67 | 5183106000 | 10kΩ |
| R68 | 5183122000 | 47kΩ |
| R69 | 5180062000 | 150Ω |
| R70 | 5183114000 | 22kΩ |
| R71, R72 | 5183122000 | 47kΩ |
| R73 | 5183130000 | 100kΩ |
| R74 | 5183122000 | 47kΩ |
| R75 | 5183094000 | 3.3kΩ |
| R76, R77 | 5183106000 | 10kΩ |
| R78~R87 | 5183058000 | 100Ω |
| R88~R97 | 5183106000 | 10kΩ |
| R98 | 5183130000 | 100kΩ |
| R103 | 5183106000 | 10kΩ |
| R104 | 5183058000 | 100Ω |
| R105 | 5183114000 | 22kΩ |
| R106 | 5183106000 | 10kΩ |
| R107 | 5183118000 | 33kΩ |
| R108 | 5183110000 | 15kΩ |
| R109~R111 | 5183106000 | 10kΩ |
| R112 | 5183058000 | 100Ω |
| R113 | 5183114000 | 22kΩ |
| R114, R115 | 5183130000 | 100kΩ |
| R116 | 5183094000 | 3.3kΩ |
| R117 | 5183106000 | 10kΩ |
| R118 | 5183114000 | 22kΩ |
| R119 | 5183110000 | 15kΩ |
| R120 | 5183118000 | 33kΩ |
| R122 | 5183114000 | 22kΩ |
| R123~R125 | 5183122000 | 47kΩ |
| R126~R128 | 5183130000 | 100kΩ |
| R129, R130 | 5183122000 | 47kΩ |
| R131 | 5183094000 | 3.3kΩ |
| R132 | 5183122000 | 47kΩ |
| R133 | 5183114000 | 22kΩ |
| R134~R136 | 5183122000 | 47kΩ |
| R137~R139 | 5183130000 | 100kΩ |
| R140 | 5183122000 | 47kΩ |
| R142, R143 | 5183106000 | 10kΩ |
| R145, R146 | 5183122000 | 47kΩ |
| R148, R149 | 5183062000 | 150Ω |
| R151, R152 | 5183114000 | 22kΩ |
| R153 | 5183114000 | 22kΩ |
| R154 | 5183082000 | 1kΩ |
| R155 | 5183118000 | 33kΩ |
| R156 | 5183110000 | 15kΩ |
| R157~R160 | 5183106000 | 10kΩ |
| R162, R163 | 5183122000 | 47kΩ |
| R164 | 5183100000 | 5.6kΩ |
| R169 | 5183116000 | 27kΩ |
| R170 | 5183106000 | 10kΩ |

[U] : U.S.A. [C] : CANADA [GE] : GENERAL EXPORT
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[L] : LIMITED AREA

| REF. NO. | PARTS NO. | DESCRIPTION | | | |
|---|---|---|---|---|---|
| R172 | 5183058000 | 100Ω | | | |
| R177 | 5183114000 | 22kΩ | | | |
| R191, R192 | 5183094000 | 3.3kΩ | | | |
| R193, R194 | 5184763000 | 220Ω | 1W | Nonflammable | |
| R195, R196 | 5183106000 | 10kΩ | | | |
| R197, R198 | 5183114000 | 22kΩ | | | |
| R199 | 5184306000 | 3.3Ω | 2W | ±10% | Cement |
| R200 | 5183138000 | 220kΩ | | | |
| R202 | 5184302000 | 1.5Ω | 2W | ±10% | Cement |
| R203 | 5183058000 | 100Ω | | | |
| R205 | 5183088000 | 1.8kΩ | | | |
| | **CAPACITORS** | | | | |
| C31, C32 | 5172961000 | Elec. | 470μF | 16V | |
| C33 | 5172973000 | Elec. | 1000μF | 50V | |
| C34 | 5172936000 | Elec. | 100μF | 35V | |
| C35 | 5172945000 | Elec. | 220μF | 35V | |
| C36 | 5172936000 | Elec. | 100μF | 35V | |
| C37, C38 | 5055714800 | Elec. | 2200μF | 25V | |
| C39, C40 | 5172973000 | Elec. | 1000μF | 50V | |
| C41 | 5172882000 | Elec. | 1μF | 50V | |
| C42 | 5054204000 | Ceramic | 0.01μF | 50V | 10% |
| C43 | 5172890000 | Elec. | 3.3μF | 50V | |
| C44, C45 | 5172886000 | Elec. | 2.2μF | 50V | |
| C46, C47 | 5172900000 | Elec. | 10μF | 16V | |
| C48 | 5172907000 | Elec. | 22μF | 10V | |
| C49 | 5172894000 | Elec. | 4.7μF | 25V | |
| C50~C57 | 5172890000 | Elec. | 3.3μF | 50V | |
| C58, C59 | 5054204000 | Elec. | 0.01μF | 50V | |
| C61 | 5172907000 | Elec. | 22μF | 10V | |
| C63 | 5054204000 | Ceramic | 0.01μF | 50V | 10% |
| C64 | 5172907000 | Elec. | 22μF | 10V | |
| C66 | 5054204000 | Ceramic | 0.01μF | 50V | 10% |
| C67 | 5172907000 | Elec. | 22μF | 10V | |
| C68 | 5054204000 | Ceramic | 0.01μF | 50V | 10% |
| C69 | 5172907000 | Elec. | 22μF | 10V | |
| C70 | 5172894000 | Elec. | 47μF | 25V | |
| C71 | 5172900000 | Elec. | 10μF | 16V | |
| C72, C73 | 5172882000 | Elec. | 1μF | 50V | |
| C75 | 5172907000 | Elec. | 2.2μF | 10V | |
| C78 | 5172904000 | Elec. | 10μF | 63V | |
| C79 | 5172886000 | Elec. | 2.2μF | 50V | |
| C80 | 5055714800 | Elec. | 2200μF | 25V | |
| C81, C82 | 5054204000 | Ceramic | 0.01μF | 50V | 10% |
| | **MISCELLANEOUS** | | | | |
| K31, K31 | 5061144000 | Relay; G2U-113P 24V | | | |
| | 5033291000 | Plate, Insulating | | | |
| | 5033295000 | Tube, Insulating | | | |
| | 5122127000 | Connector Plug 3P | | | |
| | 5122131000 | Connector Plug 7P | | | |
| | 5122132000 | Connector Plug 8P | | | |
| | 5122135000 | Connector Plug 11P | | | |
| | 5122139000 | Connector Plug 15P | | | |
| | 5122184000 | Connector Plug 3P (BLK) | | | |
| | 5142087000 | Fuse Holder | | | |
| F31 | ⚠5142231000 | Mini Fuse 3A 250V [GE, L] | | | |
| | ⚠5307027100 | Mini Fuse 3A 250V [U, C] | | | |
| | ⚠5142191000 | Mini Fuse 3.15A 250V [E, UK, A] | | | |

## CONTROL PCB ASSY (X-7MkII)

| REF. NO. | PARTS NO. | DESCRIPTION | | |
|---|---|---|---|---|
| | 5200004803 | PCB Assy | | |
| | 5167933002 | PCB | | |
| | **IC's** | | | |
| U31 | ⚠5147058000 | NJM78M05A | | |
| U32 | 5147054000 | AN6251 | | |
| U33~U35 | 5147056000 | HD7400P | | |
| U36, U37 | 5147057000 | HD7402P | | |
| | **TRANSISTORS** | | | |
| Q31 | ⚠5145087000 | 2SD313(E) | | |
| Q32 | 5042625000 | 2SC1318(S) | | |
| Q33~Q41 | 5230776520 | 2SC-1685R | | |
| Q42 | 5230015220 | 2SA-1127R | | |
| Q43~Q45 | 5230776520 | 2SC-1685R | | |
| Q46 | 5230015220 | 2SA-1127R | | |
| Q47 | 5230776520 | 2SC-1685R | | |
| Q48 | 5230015220 | 2SA-1127R | | |
| Q51, Q52 | 5230015220 | 2SA-1127R | | |
| Q53, Q54 | 5042564000 | 2SC1061(C) | | |
| Q58~Q61 | 5230776520 | 2SC-1685R | | |
| Q68, Q69 | 5042625000 | 2SC1318(S) | | |
| Q70, Q71 | 5145087000 | 2SD313(E) | | |
| Q72 | 5145129000 | 2SB507(E) | | |
| Q73 | 5042625000 | 2SC1318(S) | | |
| Q74 | 5145087000 | 2SD-313E | | |
| Q75 | 5042625000 | 2SC-1318S | | |
| Q78 | 5230776520 | 2SC-1685R | | |
| Q79, Q80 | 5230776520 | 2SC-1685R | | |
| | **DIODES** | | | |
| D31~D36 | ⚠5143243000 | ERB12-02GI | | |
| D37 | 5143154000 | Zener, EQA01-06S | | |
| D38 | ⚠5143142000 | M4C-51 | | |
| D39 | 5143118000 | 1S2473HJ | | |
| D41 | 5143118000 | 1S2473HJ | | |
| D45, D46 | 5143118000 | 1S2473HJ | | |
| D48, D49 | 5143243000 | ERB12-02GI | | |
| D50 | 5143118000 | 1S2473HJ | | |
| D51 | 5143017000 | U05C | | |
| D52 | 5143243000 | ERB12-02GI | | |
| D55, D56 | 5143243000 | ERB12-02GI | | |
| D57, D58 | 5143118000 | 1S2473HJ | | |
| D60 | ⚠5143243000 | ERB12-02GI | | |
| | **RESISTORS** | | | |
| | **All Resistors are rated ±5% tolerance, ⅛W and of carbon type unless otherwise noted.** | | | |
| R31 | ⚠5184209000 | 2.2Ω | | Nonflammable |
| R32 | 5183072000 | 390Ω | | |
| R33 | 5183078000 | 680Ω | | |
| R34 | 5184306000 | 3.3Ω | 2W | Cement |
| R35 | 5183102000 | 6.8kΩ | | |
| R36 | 5183106000 | 10kΩ | | |
| R37 | 5183096000 | 3.9kΩ | | |
| R38 | 5183112000 | 18kΩ | | |
| R39 | 5183102000 | 6.8kΩ | | |
| R40 | ⚠5184233000 | 22Ω | | Nonflammable |
| R41 | 5183106000 | 10kΩ | | |
| R42, R43 | 5183094000 | 3.3kΩ | | |
| R44, R45 | 5183112000 | 18kΩ | | |
| R46~R53 | 5183058000 | 100Ω | | |
| R54~R61 | 5183054000 | 10kΩ | | |

[U]: U.S.A. [C]: CANADA [GE]: GENERAL EXPORT
[A]: AUSTRALIA [E]: EUROPE [UK]: U.K.
[L]: LIMITED AREA





| REF. NO. | PARTS NO. | DESCRIPTION | | | |
|---|---|---|---|---|---|
| R62 | 5183058000 | 100Ω | | | |
| R63 | 5183106000 | 10kΩ | | | |
| R73 | 5183130000 | 100kΩ | | | |
| R74 | 5183138000 | 220kΩ | | | |
| R75, R76 | 5183106000 | 10kΩ | | | |
| R77 | 5183130000 | 100kΩ | | | |
| R78 | 5183094000 | 3.3kΩ | | | |
| R79 | 5183106000 | 10kΩ | | | |
| R80 | 5183130000 | 100kΩ | | | |
| R81 | 5183118000 | 33kΩ | | | |
| R82 | 5183110000 | 15kΩ | | | |
| R83~R85 | 5183122000 | 47kΩ | | | |
| R86, R87 | 5183130000 | 100kΩ | | | |
| R88, R89 | 5183122000 | 47kΩ | | | |
| R90 | 5183094000 | 3.3kΩ | | | |
| R91, R94 | 5183122000 | 47kΩ | | | |
| R96, R97 | 5183130000 | 100kΩ | | | |
| R98 | 5183122000 | 47kΩ | | | |
| R103, R104 | 5183106000 | 10kΩ | | | |
| R105, R106 | 5183122000 | 47kΩ | | | |
| R107, R108 | 5180062000 | 150Ω | | | |
| R109, R111 | 5183114000 | 22kΩ | | | |
| R112 | 5183118000 | 33kΩ | | | |
| R113 | 5183110000 | 15kΩ | | | |
| R114, R115 | 5183122000 | 47kΩ | | | |
| R116, R117 | 5183106000 | 10kΩ | | | |
| R118, R119 | 5183090000 | 2.2kΩ | | | |
| R120 | 5183084000 | 1.2kΩ | | | |
| R121, R122 | 5183122000 | 47kΩ | | | |
| R123 | 5183088000 | 1.8kΩ | | | |
| R124 | 5183122000 | 47kΩ | | | |
| R125 | 5183106000 | 10kΩ | | | |
| R127 | 5183106000 | 10kΩ | | | |
| R128 | 5183116000 | 27kΩ | | | |
| R129 | 5183094000 | 3.3kΩ | | | |
| R130 | 5183088000 | 1.8kΩ | | | |
| R131, R132 | 5183050000 | 47Ω | | | |
| R133, R134 | 5184410000 | 3.3Ω | 5W | Cement | |
| R135, R136 | 5183114000 | 22kΩ | | | |
| R137, R138 | 518308000 | 820Ω | | | |
| R139 | 5183082000 | 1kΩ | | | |
| R140 | 5183100000 | 5.6kΩ | | | |
| R141 | 5183094000 | 3.3kΩ | | | |
| R142 | 5184763000 | 220Ω | 1W | Metal Film | |
| R143 | 5183106000 | 10kΩ | | | |
| R144 | 5183114000 | 22kΩ | | | |
| R145, R146 | 5183122000 | 47kΩ | | | |
| R150 | 5183130000 | 100kΩ | | | |
| R151 | 5183082000 | 1kΩ | | | |
| R158 | 5183114000 | 22kΩ | | | |
| R159 | 5183088000 | 1.8kΩ | | | |
| R160 | 5183058000 | 100Ω | | | |
| R161 | 5184302000 | 1.5Ω | 2W | 10% | Cement |
| | **CAPACITORS** | | | | |
| C31, C32 | 5172961000 | Elec. | 470μF | 16V | |
| C33 | 5172973000 | Elec. | 1000μF | 50V | |
| C34 | 5172936000 | Elec. | 100μF | 35V | |
| C35 | 5172945000 | Elec. | 220μF | 35V | |
| C36 | 5172936000 | Elec. | 100μF | 35V | |
| C37, C38 | 5172973000 | Elec. | 1000μF | 50V | |
| C39, C40 | 5055714800 | Elec. | 2200μF | 25V | |
| C41 | 5172882000 | Elec. | 1μF | 50V | |
| C42 | 5172236000 | Ceramic | 0.01μF | 50V | |

| REF. NO. | PARTS NO. | DESCRIPTION | | | |
|---|---|---|---|---|---|
| C43~C49 | 5172890000 | Elec. | 3.3μF | 50V | |
| C50 | 5172236000 | Ceramic. | 0.01μF | 50V | |
| C52 | 5172890000 | Elec. | 3.3μF | 50V | |
| C53, C54 | 5172907000 | Elec. | 22μF | 10V | |
| C55 | 5172236000 | Ceramic | 0.01μF | 50V | |
| C57 | 5172900000 | Elec. | 10μF | 16V | |
| C58 | 5172907000 | Elec. | 10μF | 16V | |
| C61, C62 | 5172907000 | Elec. | 22μF | 10V | |
| C64 | 5172907000 | Elec. | 22μF | 10V | |
| C65, C66 | 5172882000 | Elec. | 1μF | 50V | |
| C68 | 5172955000 | Elec. | 330μF | 50V | |
| C69 | 5172886000 | Elec. | 2.2μF | 50V | |
| C70 | 5172904000 | Elec. | 10μF | 63V | |
| C72 | 5172236000 | Ceramic | 0.01μF | 50V | |
| | **MISCELLANEOUS** | | | | |
| P31 | 5122129000 | Connector, Plug; 5P | | | |
| P33 | 5122183000 | Connector, Plug; 2P (Black) | | | |
| P34 | 5122136000 | Connector, Plug; 12P | | | |
| P35 | 5122184000 | Connector, Plug; 3P (Black) | | | |
| P36 | 5122127000 | Connector, Plug; 3P | | | |
| P38 | 5122133000 | Connector, Plug; 9P | | | |
| | 5147041000 | Socket, IC; 24P | | | |
| | 5033291000 | Plate, Insulating | | | |
| | 5033295000 | Tube, Insulating | | | |
| F31 | ⚠5307027100 | Fuse 3A 250V | | | |
| | 5142087000 | Fuse Holder | | | |

## SPEED SW PCB ASSY (X-7RMkII/X-7MkII)

| REF. NO. | PARTS NO. | DESCRIPTION | | | |
|---|---|---|---|---|---|
| | 5158001000 | PCB Assy | | | |
| | 5157001001 | PCB | | | |
| | **TRANSISTOR** | | | | |
| Q621 | 5042383000 | 2SC536(F) | | | |
| | **CARBON RESISTORS** | | | | |
| | **All Resistors are rated ±5% tolerance and ¼W.** | | | | |
| R621 | 5057058000 | 100Ω | | | |
| R622 | 5057122000 | 47kΩ | | | |
| R623 | 5057114000 | 22kΩ | | | |
| R626 | 5057058000 | 100Ω | | | |
| | **CAPACITORS** | | | | |
| C621, C622 | 5055454000 | Elec. | 1μF | 50V | |
| | **MISCELLANEOUS** | | | | |
| P621 | 5122130000 | Connector, Plug; 6P | | | |
| | 5134093000 | Switch, Push; 6PDT | | | |

[U]: U.S.A. [C]: CANADA [GE]: GENERAL EXPORT
[A]: AUSTRALIA [E]: EUROPE [UK]: U.K.
[L]: LIMITED AREA

### CONNECTOR PCB ASSY

| REF. NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| | 5168931100 | PCB Assy |
| | 5167931000 | PCB |
| | **DIODE** | |
| D601 | 5143118000 | 1S2473HJ |
| | **CARBON RESISTORS** | |
| | **All Resistors are rated ±5% tolerance and ¼W.** | |
| R601 | 5183122000 | 47kΩ |
| R602, R603 | 5183090000 | 2.2kΩ |
| R604 | 5183086000 | 1.5kΩ |
| R605~R607 | 5183088000 | 1.8kΩ |
| | **MISCELLANEOUS** | |
| P602 | 5122158000 | Connector Plug, 15P |
| J601 | 5122336000 | Connector Plug, 12P |
| | 5554099100 | Bracket, Connector [A-7300] |

### CONNECTOR PCB ASSY (X-7MkII)

| REF. NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| | 5158002000 | PCB Assy |
| | 5167931000 | PCB |
| | **CARBON RESISTORS** | |
| | **All Resistors are rated ±5% tolerance and ¼W.** | |
| R601 | 5183088000 | 1.8kΩ |
| R602 | 5183090000 | 2.2kΩ |
| R604 | 5183086000 | 1.5kΩ |
| R605 | 5183088000 | 1.8kΩ |
| R609 | 5183090000 | 2.2kΩ |
| | **MISCELLANEOUS** | |
| | 5122155000 | Connector Plug, 12P |

### TIMER PCB ASSY (PC Board Omitted.) [X-7RMkII/X-7MkII]

| REF. NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| | 5168926100 | PCB Assy |
| | 5167926000 | PCB |
| | **DIODE** | |
| D641 | 5143243000 | ERB12-02 |
| | **MISCELLANEOUS** | |
| P641 | 5122145000 | Connector Plug, 2P (WHT) |
| P642 | 5122454000 | Connector Plug, 3P (RED) |
| S32 | 5134090000 | Push Switch 2-4 |

### OPERATION PCB ASSY (PC Board Omitted.) [X-7RMkII]

| REF. NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| | 5168929000 | PCB Assy |
| | 5167929000 | PCB |
| D801~D803 | 5143139000 | LED SLB-260GG (GREEN) |
| D804, D805 | 5143140000 | LED SLB-26UR (RED) |
| S801~S808 | 513801100 | Switch, Tact |

### OPERATION PCB ASSY (PC Board Omitted.) [X-7RMkII]

| REF. NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| | 5168930000 | PCB Assy |
| | 5167930000 | PCB |
| S801~S807 | 5138011000 | Switch, Tact |
| D801 | 5143139000 | LED SLB-260GG (GREEN) |
| D802, D803 | 5143140000 | LED SLB-26UR (RED) |

### SWITCH PCB ASSY (PC Board Omitted.) [X-7RMkII]

| REF. NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| | 5168928000 | PCB Assy |
| | 5167928000 | PCB |
| S34 | 5133013000 | Rotary Switch |

### PITCH CONT PCB ASSY (PC Board Ommitted.) [X-7RMkII/X-7MkII]

| REF. NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| | 5168938000 | PCB Assy |
| | 5167988000 | PCB |
| | **VARIABLE RESISTORS** | |
| S36 | 5150239000 | 5kΩ(B) |

### FUSE PCB ASSY (PC Board Omitted.) [X-7RMkII/X-7MkII]

| REF. NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| | 5168997000 | FUSE PCB Assy [U, C] |
| | 5167997000 | PCB |
| F1, F2 | ⚠5307004700 | Fuse 7A 127V |
| F3 | ⚠5307004100 | Fuse 2A 250V |
| | 5041237000 | Fuse Holder |
| | 5158105000 | Fuse PCB Assy [E, UK, A] |
| | 5157105000 | PCB Assy |
| | ⚠5142193000 | Mini Fuse 5A 250V |
| | ⚠5142189000 | Mini Fuse 2A 250V |
| | 5142087000 | Fuse Holder |

### IN/OUTPUT TERMINAL PCB ASSY (PC Board Ommitted.) [X-7RMkII/X-7MkII]

| REF. NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| | 5200036000 | PCB Assy |
| | 5167987101 | PCB |
| | 5124058000 | Jack, 4P |
| | **CARBON RESISTORS** | |
| R535, R536 | 5183120000 | 39kΩ ¼W 5% |

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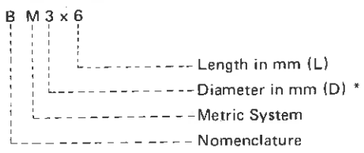
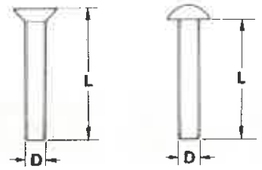
## ASSEMBLING HARDWARE CODING LIST

All screws conform to ISO standards, and have crossrecessed heads, unless otherwise noted. ISO screws have the head inscribed with a point as in the figure to the right.

*FOR EXAMPLE:*




* Inner dia. for washers and nuts

| | Code | Name | Type |
|---|---|---|---|
| MACHINE SCREW | R | Round Head Screw | |
| | P | Pan Head Screw | |
| | T | Stove Head Screw (Truss) | |
| | B | Binding Head Screw | |
| | F | Flat Countersunk Head Screw | |
| | O | Oval Countersunk Head Screw | |
| WOOD SCREW | RW | Round Head Wood Screw | |
| TAPTITE SCREW | PTT | Pan Head Taptite Screw | |
| | WTT | Washer Head Taptite Screw | |
| SEMS SCREW | BSA | Binding Head SEMS Screw(A Type) | |
| | BSB | Binding Head SEMS Screw(B Type) | |
| | BSF | Binding Head SEMS Screw(F Type) | |
| | PSA | Pan Head SEMS Screw(A Type) | |
| | PSB | Pan Head SEMS Screw(B Type) | |

| | Code | Name | Type |
|---|---|---|---|
| TAPPING SCREW | BTA | Binding Head Tapping Screw(A Type) | |
| | BTB | Binding Head Tapping Screw(B Type) | |
| | RTA | Round Head Tapping Screw(A Type) | |
| | RTB | Round Head Tapping Screw(B Type) | |
| SETSCREW | SF | Hex Socket Setscrew(Flat Point) | |
| | SC | Hex Socket Setscrew(Cup Point) | |
| | SS | Slotted Socket Setscrew(Flat Point) | |
| WASHER | E | E-Ring (Retaining Washer) | |
| | W | Flat Washer (Plain) | |
| | SW | Lock Washer (Spring) | |
| | LWI | Lock Washer (Internal Teeth) | |
| | LWE | Lock Washer (External Teeth) | |
| | TW | Trim Washer (Countersunk) | |
| NUT | N | Hex Nut | |

# X-7R MK II / X-7 MK II

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