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# MODEL TRA-722

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A single knob for both recording and playback!

Large speaker and high output offer excellent Hi-Fi reproduction!

Built into a handy case for easy carrying!

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## ACCESSORIES

Highly sensitive dynamic microphone.  
Earphone for monitoring recording and replay.  
Extension cord for recording from radio or replaying over radio speaker.  
HITACHI 5-inch recording tape.

## SPECIFICATIONS

Tube Components	12AX7, 6BM8 and 1S 315×2 (Diode) 1N 34A×4 (Diode)
Tape Speed	7½ ins./sec. (19 cm/sec.) 3¾ ins./sec. (9.5 cm/sec.)
Recording Time	120 minutes on two tracks at 7½ ins./sec. 60 minutes on two tracks at 3¾ ins./sec.
Track	Double track
Recording System	A.C. bias system
Erasing System	A.C. electromagnetic system
Maximum Size of Tape Reel	7 inches
Speaker	7×4 inch oval type P.M. Speaker
Output Power	3 watts max.
Frequency Characteristics	50~12,000 cycles (7½ ins./sec.) 50~7,000 cycles (3¾ ins./sec.) 60 watts 100, 110, 117, 210, 230, volts
Power Source	A.C. 50/60 cycles
Dimensions	Width 13⅝" (35 cm)×Height 6⅞" (17 cm)×Depth 11" (28 cm)
Weight	20 lbs. (9 kg)

## FEATURES

■ There is only one knob to turn – for recording, playback, quick wind, rewind, stopping and instant stopping.

■ Noiseless Hi-Fi sound is guaranteed by the large 7×4 inch speaker and the “silicon rectifying system” which completely removes power source hum.

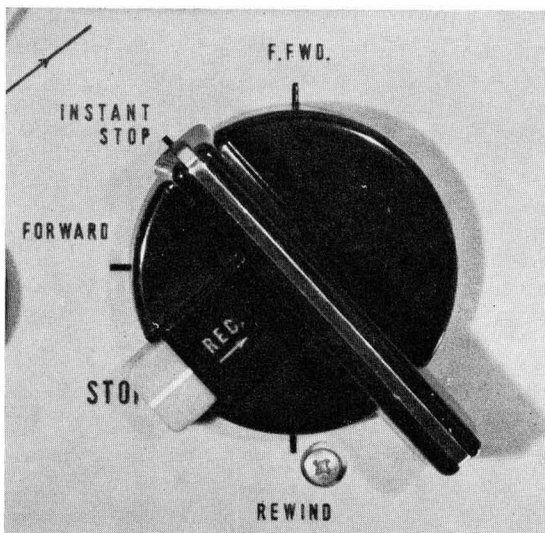
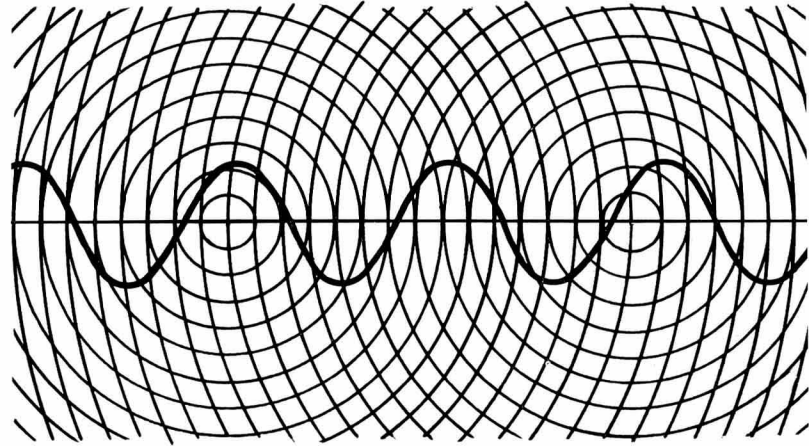
■ Light-gray and light-brown combination gives an attractive appearance to the case, which is made in a suitcase style for convenient carrying.

■ Tape speed can be changed to 7½ ins./sec. or 3¾ ins./sec. by simply turning a knob.

■ The large, easy-to-read level meter facilitates proper recording.

■ The tone control gives the right tonal quality to suit the listener's taste.

■ Recording can be monitored by a crystal earphone, which comes among the accessories.



One hand control knob

## CONTROLS

To operate this tape recorder, insert the power source cord plug into the power socket located on the recorder's left side, insert the other end of cord into an AC 100V outlet, turn the volume control clockwise to turn the power source on, thread the tape and follow the procedure below:

## RECORDING

### When recording using the microphone

■ Insert the microphone plug into the microphone jack located on the left side of the recorder.

■ Turn the tape speed selector knob to proper tape speed.

■ Using right thumb, press the recording button in the direction indicated by the arrow and turn the function selector knob, past "FORWARD", to "INSTANT STOP".

■ Using the microphone, adjust the volume control knob so that the level indicator will deflect to the border line between the red and black areas when the volume is at maximum.

■ When the sound level is adjusted, if the function selector knob is turned back to "FORWARD", the tape begins to run and recording starts.

### When recording directly from radio or record player using an extension cord

■ Insert the extension cord plug into the "Radio" jack located on the left side of the recorder.

■ When recording from a radio, connect the extension cord to the radio's recording terminals or the two terminals of the speaker voice coil using alligator clips of the extension cord. If noise occurs, change the alligator clips.

■ When recording from a record player, connect the red clip of the extension cord to the red output lead and the black clip to the black output lead of the record player.

■ Before recording from a radio without a power transformer, be sure that you do not receive a shock when touching the the radio chassis. If a shock is felt, re-insert the power source plug.

## REWINDING

When the function selector is turned to "REWIND", the tape rewinds rapidly.

## PLAYING BACK

■ If the function selector is turned from "STOP" to "FORWARD", the tape begins to run and recording is reproduced.

■ Turn the tape speed selector to either 3.75"/s or 7.5"/s as required.

■ When the use of an external speaker is desired, insert the extension cord plug into the EX. SP jack located at the left side of the recorder and connect the alligator clips on the other end of the cord to the speaker voice coil.

■ To amplify the reproduced output of the tape recorder using a separate amplifier, insert the extension cord plug into EX. SP jack, connect the alligator clips on the other end across the 8  $\Omega$  resistor (3W) and then connect the input of the amplifier across to this resistor.

## FAST FORWARD

Turn the function selector counterclockwise, past INSTANT STOP to F. FWD; the tape will wind rapidly on the take up reel.

## INSTANT STOP

■ When it is necessary to stop the tape during recording or reproducing, turn the function selector from FORWARD to INSTANT STOP. The tape stops instantly.

■ To continue recording or playing, turn the operating knob from INSTANT STOP to FORWARD.

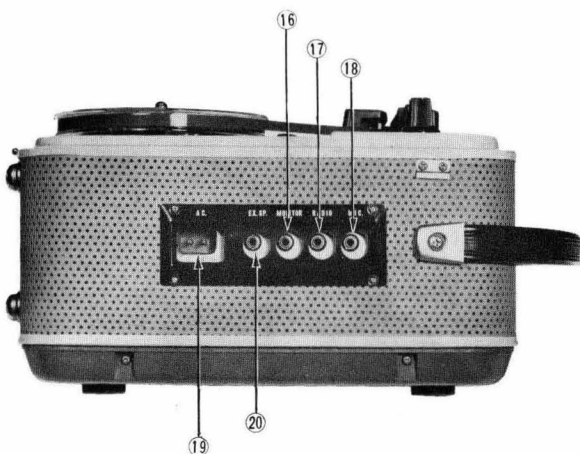
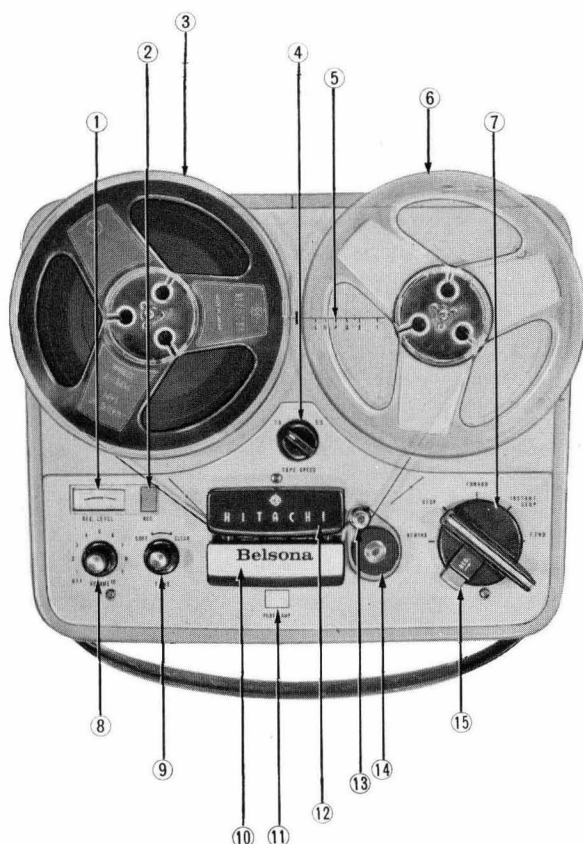
### Notes:

(1) Determine which speed to use in recording from the following:

Tape speed	7.5"/s	3.75"/s
Characteristics	Good sound quality but short recording time	Sound quality is not as good as 7.5"/s speed but recording time is longer
Application examples	Music	Lectures, etc.
Possible recording time	W/7" tape—1 hour both ways W/5" tape—33 min. both ways (tape thickness—50 $\mu$ )	W/7" tape—2 hours both ways W/5" tape—65 min. both ways (tape thickness—50 $\mu$ )

(2) When changing tape speed, be sure to turn the function selector to STOP position first.

(3) When this tape recorder is used in an area where the power source frequency is different, the motor wiring and capstan must be changed. Replacement capstan is inside the pad cover.



## FEATURES

### ① LEVEL INDICATOR (LEVEL METER)

This meter indicates the level of the sound being recorded. Adjust so that its needle will not swing into the red area.

### ② RECORDING LAMP (REC)

This lamp goes on when recording.

### ③ REWIND REEL

### ④ TAPE SPEED SELECTOR (TAPE SPEED)

Select either  $3\frac{3}{4}$ " / sec. or  $7\frac{1}{2}$ " / sec. speed using this knob.

### ⑤ TAPE SCALE

This scale is for marking the end of a recording on the tape.

### ⑥ TAKE-UP REEL

### ⑦ FUNCTION LEVER

REWIND....For rewinding tape, turn function lever to "REWIND."

STOP....To stop the tape, turn the function lever to "STOP."

FORWARD....When the knob is turned to "FORWARD," the tape moves forward.

INSTANT STOP....When it is necessary to stop the tape during a recording or playing operation, turn the knob to "INSTANT STOP."

F. FWD....When the knob indicator is brought to this marking, the tape is fed forward rapidly.

### ⑧ VOLUME CONTROL (VOLUME)

Turn clockwise to turn on and increase volume; turn counter clockwise to decrease volume and turn off.

### ⑨ TONE CONTROL (TONE (SOFT CLEAR))

When this knob is turned to "Soft," the bass sounds increase; when turned to "Clear," the high tones increase.

### ⑩ PAD COVER (BELSONA)

### ⑪ PILOT LAMP (PILOT LAMP)

When the power source is on, this lamp goes on.

### ⑫ HEAD COVER

### ⑬ CAPSTAN

### ⑭ PRESSURE ROLLER

### ⑮ RECORDING BUTTON (REC)

When recording, press this button and turn the function lever knob.

### ⑯ MONITOR JACK (MONITOR)

Plug an earphone into this jack when monitoring recording or reproducing.

### ⑰ RADIO/PHONO JACK (RADIO)

Insert the extension cord plug into this jack when recording from radio or record player.

### ⑱ MICROPHONE JACK (MIC)

Insert the microphone plug into this jack when using the microphone for recording.

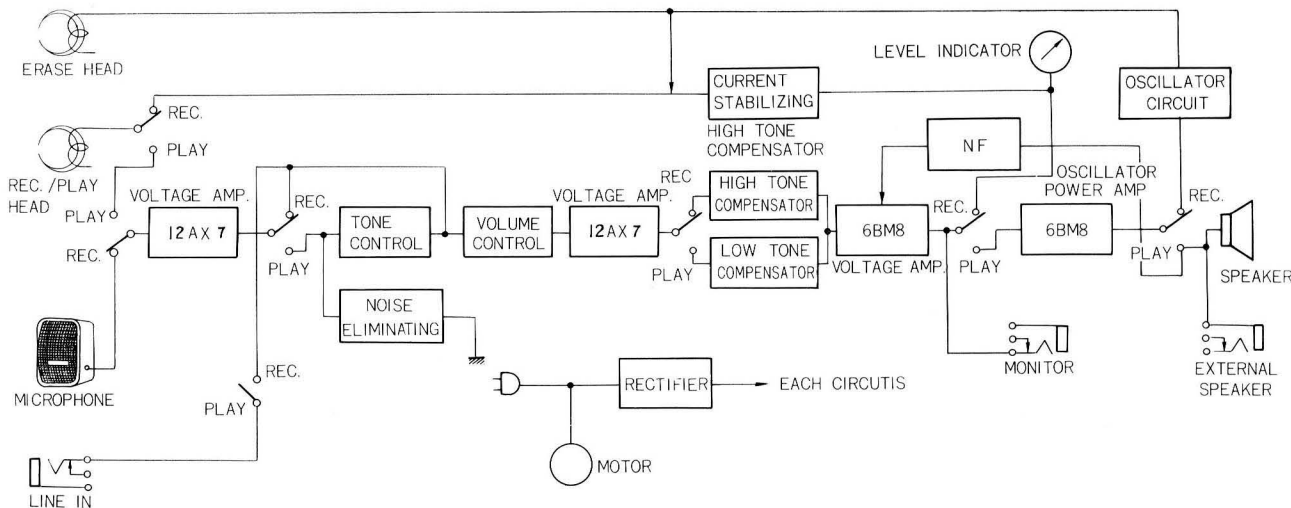
### ⑲ POWER SOCKET (AC)

Insert the AC power supply cord plug into the socket.

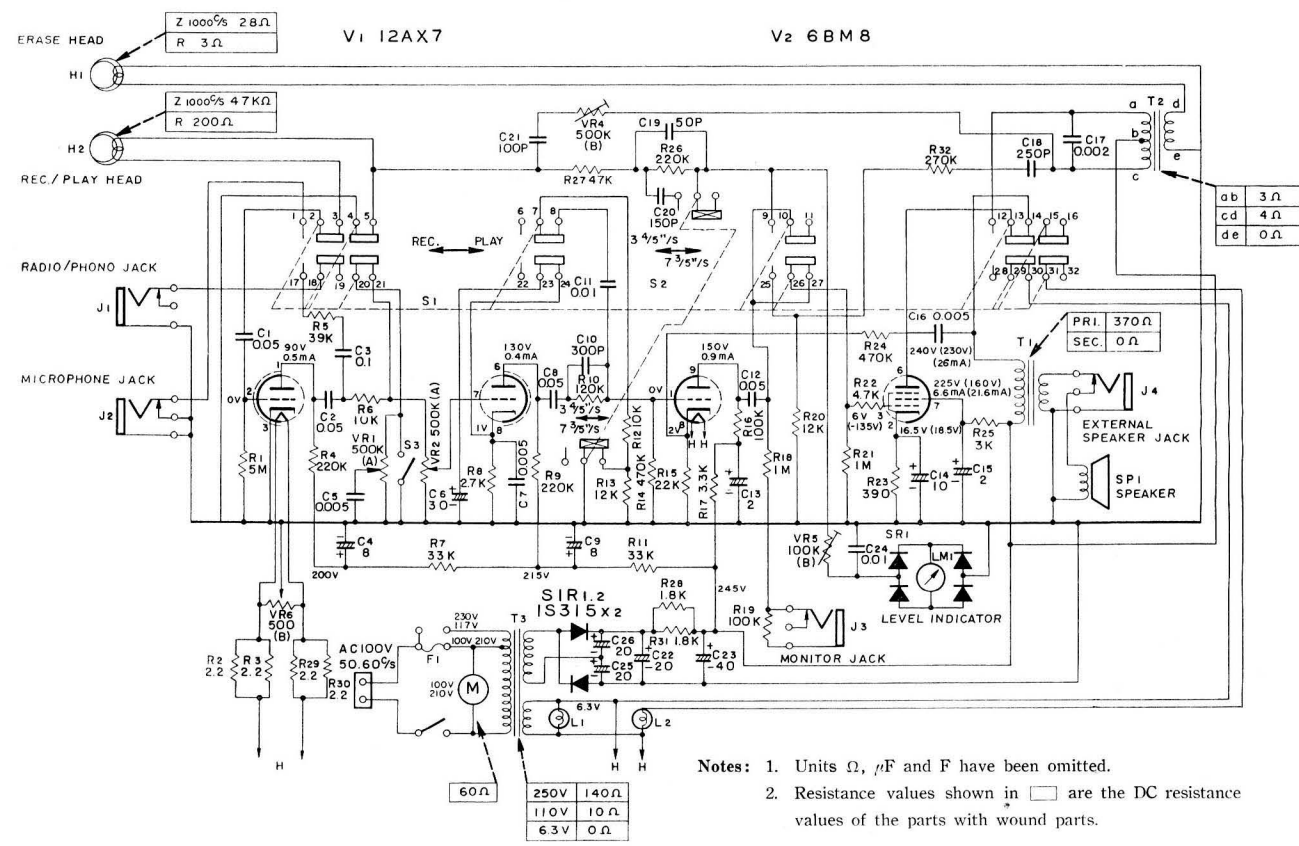
### ⑳ EXTERNAL SPEAKER (EX SP)

When the use of an external speaker is desired, connect the speaker to this jack.

BLOCK DIAGRAM



CIRCUIT DIAGRAM TRA-722



Part Name	Stock No.	No./100	unit	Part Name	Stock No.	No./100	unit
Power transformer for 100/120V	411618	1		Power source socket	542132	1	
Power transformer for 210/230V	411419	1		Record/play head	513092	1	
Vacuum tube 12AX7	572724	1		Erase head	513069	1	
Vacuum tube 6BM8	572447	1		Muting switch assembly	539063	1	
9 pin wafer socket for miniature	541010	1		Variable resistor	153536	1	
9 pin socket for miniature tube (with clamp)	541144	1		Variable resistor	153032	1	
Oscillator coil	313516	1		Fuse holder assembly	439380	1	
2 pole terminal plate	544402	1		Fuse	591005	1	
4 pole terminal plate	544384	1		EVA-4 induction motor assembly for 100/120V	514107	1	
3 pole terminal plate	544248	1		210/230V	514103	1	
6 pole terminal plate	544404	1		Speaker	526087	1	
Rubber cushion	596044	1		Connector	638062	1	
Slids switch	532114	1		Board switch	539070	1	
Semi variable resistor	159023	1		Case cover assembly	611190	1	
Semi variable resistor	159011	1		Catch clip	623951	1	
Semi variable capacitor	283088	1		Hinge clip	623948	1	
Output transformer	453066	1		Hinge holder metal	623950	1	
Capacitor socket	541089	1		Catch holder metal	623952	1	
Carbon film resistor $\frac{1}{2}$ W 5M $\Omega$ K	123560	1		Pad cover cover cushion	958004	1	
$\frac{1}{2}$ W 1M $\Omega$ K	123533	1		Head cover assembly	958011	1	
$\frac{1}{2}$ W 470k $\Omega$ K	123563	1		Cover cuhion	958002	1	
$\frac{1}{2}$ W 470k $\Omega$ J	123190	1		Pushing screw	638422	1	
$\frac{1}{2}$ W 220k $\Omega$ K	123564	1		Function selector knob assembly	646539	1	
$\frac{1}{2}$ W 220k $\Omega$ J	123187	1		Felt for volume control knob	639717	1	
$\frac{1}{2}$ W 120k $\Omega$ J	123180	1		Alttenction cord assembly	758156	1	
$\frac{1}{2}$ W 100k $\Omega$ K	123521	1		Rubber leg	596033	1	
$\frac{1}{2}$ W 10k $\Omega$ J	123121	1		Case bottom cover assembly	611191	1	
$\frac{1}{2}$ W 47k $\Omega$ J	123149	1		Cabinet	621173	1	
$\frac{1}{2}$ W 39k $\Omega$ K	123469	1		Jack frame	623962	1	
$\frac{1}{2}$ W 33k $\Omega$ K	123470	1		Level meter cushion	637088	1	
$\frac{1}{2}$ W 10k $\Omega$ K	123441	1		Lamp cover	635588	1	
$\frac{1}{2}$ W 12k $\Omega$ J	123124	1		Head adjusting spiring	635608	1	
$\frac{1}{2}$ W 4.7k $\Omega$ K	123380	1		Pressure roller	635617	1	
$\frac{1}{2}$ W 3.3k $\Omega$ K	123381	1		Dressing washer for pressure roller	635634	1	
$\frac{1}{2}$ W 2.7k $\Omega$ K	123382	1		Tape guide	663103	1	
$\frac{1}{2}$ W 2.2k $\Omega$ J	123110	1		Ball	635615	1	
$\frac{1}{2}$ W 680k $\Omega$ K	123586	1		Speed selection knob	638061	1	
$\frac{1}{2}$ W 330k $\Omega$ K	123530	1		"E" ring	638399	1	
2 W 390 $\Omega$ K	126291	1		Rewind idler balt	638054	1	
2 W 1.8k $\Omega$ K	126376	1		Rewind idler pulley	638053	1	
$\frac{1}{2}$ W 2.2 $\Omega$ K	122206	1		Crip ring	630330	1	
2 W 3k $\Omega$ K	126365	1		Idler wheel	639830	1	
Oil paper capacitor 0.1 $\mu$ F M 400WV	216001	1		Capstan screw	635611	1	
0.05 $\mu$ F M 400WV	215503	1		Capstan for 50c/s	635595	1	
0.01 $\mu$ F X 400WV	215551	1		Capstan for 60c/s	635585	1	
0.005 $\mu$ F K 400WV	214553	1		Take up pulley assembly	638025	1	
22000PF J TV. 2000V DC.	291174	1		Take up pulley hymeron	638552	1	
Ceramic capacitor 50PF K 500WV	232804	1		Take up pulley C	638030	1	
150PF X 500WV	233813	1		Fiber washer	637120	1	
500PF X 500WV	233409	1		Fiber washer	638551	1	
250PF X 500WV	233404	1		Fiber washer	637121	1	
300PF J 50WV	233035	1		Brake rubber	948033	1	
Electrolytic capacitor 10 $\mu$ F 25WV	258005	1		Cam spacer	630135	1	
8+8+2+2 $\mu$ F 350WV	258553	1					
20+20+20+20 $\mu$ F 350WV	258509	1					
20 $\mu$ F 350WV	258019	1					
30 $\mu$ F 6WV	258033	1					
Capacitor hold band	599047	1					
Brush for band cleaning	958166	1					
Extension cord	593114	1					
Crystal earphone	592038	1					
Power source cord assembly	593276	1					
Splicing tape		1					
Level meter	514203	1					
Pilot lamp	594004	1					
Lamp socket	541042	1					
Jack washer	633594	1					
Jack cellar	635593	1					
Jack (with red point mark)	543082	1					
Jack (with white point mark)	543083						