

MODEL TRQ-399

ALL-TRANSISTOR PORTABLE TAPE RECORDER

TWICE AS MUCH recording time on one tape!
Lifelike tone quality at a slow speed of $1\frac{7}{8}$ inch/sec!



ACCESSORIES

Highly sensitive dynamic microphone 1
Earphone for playback or monitoring recording 1
Extension cords for recording from radio or for replaying over radio speaker 2
Hitachi recording tape permitting over 1 hour of recording 1
Splicing tape for connecting tapes 1
Reel 1
Polishing cloth for wiping off head 1
High quality leather case with shoulder strap for convenience in carrying 1

SPECIFICATIONS

Tape	3 inch recording tape (85 mm diameter)
Tape Speeds	$3\frac{3}{4}$ inch/sec (9.5 cm/sec) $1\frac{7}{8}$ inch/sec (4.75 cm/sec)
Motor	6V, 0.6W, with electric governor
Recording Time	34 min. both ways at $3\frac{3}{4}$ speed 68 min. both ways at $1\frac{7}{8}$ speed
Output	500 mW
Speaker	4 inch \times 2 $\frac{1}{4}$ inch (10 \times 7 cm) P.M. speaker
Amplifier	6-transistor amplifier, 1 transistor high frequency generator
Recording System	AC bias system
Erasing System	DC electromagnetic system
Track	Double track
Rewinding Time	Less than 4 min.
Fast Forward Winding Time	Less than 4 min.
Frequency Characteristics	150~7,000 cycles ($3\frac{3}{4}$ speed) 150~4,000 cycles ($1\frac{7}{8}$ speed)
Power Source	6 V (Four "C" cells)
Dimensions	Width 8 $\frac{3}{8}$ " (224 mm), Height 3 $\frac{3}{8}$ " (85 mm), Depth 6 $\frac{1}{8}$ " (155 mm)
Weight	4.4 lbs. (2 kg) including batteries

FEATURES

■ Full tone, abundant volume assured by extra-large output.

The sound output is an unprecedented 500 mW (milliwatts). This enables you to enjoy the same full tone and abundant volume as in a large-sized tape recorder. This is possible because TRQ-399 is the only small-sized portable tape recorder using "Hitachi Ring Base Transistors," with their remarkably large output. Since the set is completely transistorized, recording and playback can begin immediately as soon as the switch has been turned on.

■ Large-sized speaker directs sound output out front towards listener.

A large-sized $4 \times 2\frac{3}{4}$ inch speaker is used. The speaker directs the sound out front directly towards the listener.

■ Recording and playback can be done with the cover closed.

Since all of the dials are located on the right side of the set, the cover can be kept closed while recording, playback, erasing, or rewinding are done. You can record or listen easily with the recorder inside its leather case strapped onto your shoulder!

■ Has convenient "fast forward" device.

The handy "fast forward" and "rewind" device, which is generally provided only in large-sized sets, enables you to speed up the motion of the tape moving either backwards or forwards to find the place you want quickly. TRQ-399 is the only small-sized portable tape recorder featuring this device.

■ Two-way operation on batteries or ordinary electric current.

■ Operates on only four ordinary flashlight cell batteries (6 volts). Since these batteries serve both the amplifier and the motor, there is no need to bother about supplying two different sets of batteries.

■ If a "Hitachi AC Adapter," sold separately, is attached, the tape recorder can be operated on ordinary current from any electric light plug.

■ Recording can be done at two different speeds.

The tape speed can be set at either $3\frac{3}{4}$ inch/sec or $1\frac{7}{8}$ inch/sec, according to the purpose of the recording. The faster $3\frac{3}{4}$ speed, which gives more faithful reproduction, can be used in cases when the tone quality is the most important factor, such as when making recordings of music. When recording speeches,

conferences, etc., in which recording time is more important than tone quality, the slower $1\frac{7}{8}$ speed, which gives you twice as much recording time, can be used.

■ Level Meter makes possible perfect recording by anyone.

A mere glance at the Level Meter will tell whether the recording is being made properly or not. Even a child can make faultless tape recordings. The Level Meter also tells how much life there is left in the batteries.

ADDITIONAL FEATURES

■ Compact size and light weight make it a pleasure to carry this portable tape recorder around with you. It comes in a high-quality leather case—just the thing for carrying from place to place.

■ There is a Dynamic Microphone which is both compact in size and also extremely sensitive. The microphone has a remote switch by which the microphone can be switched on and off by remote control.

■ Since a printed circuit is used for all inside wiring, there is no danger of circuit failure even under the rigid conditions of use to which portable recorders are subjected.

■ While recording, you can use the attached earphone for monitoring. The same earphone can also be used for quiet listening to the playback without disturbing others.

■ With the attached extension cord, HiFi recordings can be made directly from the radio or record player, or the tape can be played back through an outside speaker.

CONTROLS

■ RECORDING

In Recording Microphone Voice :

- (1) Insert the microphone plug into microphone jacks (REM. CON. and MIC.) with the green dot on microphone plug upward. (Then, turn the remote on-off switch on microphone to "ON".)
- (2) Keep pushing in the red recording button and then move the function selector lever from "STOP" to "PLAY."
- (3) Set the suitable recording volume by turning the volume control until the pointer of level indicator points up to nearly the middle of left back zone.
- (4) For monitoring the recording condition, connect an earphone to the output jack.
- (5) Attach the capstan collar to the capstan shaft with its top screw, and tape speed is $3\frac{3}{4}$ "/sec. Remove the capstan collar, and tape speed is $1\frac{7}{8}$ "/sec. (To prevent missing capstan collar, fix it at the capstan collar holder when not in use.)

In Recording From Radio, Record Player, Television :

- (1) Be sure that microphone is removed from microphone jacks. Insert the extension cord plug into the radio-phono jack (RADIO).
- (2) Insert another extension cord plug into earphone jack of TV, radio or record player (or tape recorder jack), and connect alligator clips to those of the same color. (Then, if hum is heard from earphone, reverse clips connection.)
- (3) Keep pushing in the red recording button and move the lever from "STOP" to "PLAY." If the level indicator points farther to the right than the center of black zone, change radio-phono jack connection for microphone jack connection.

■ REWINDING

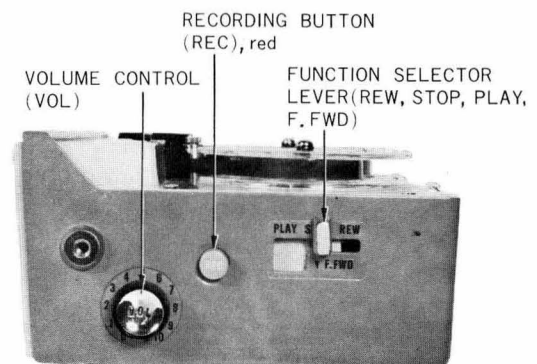
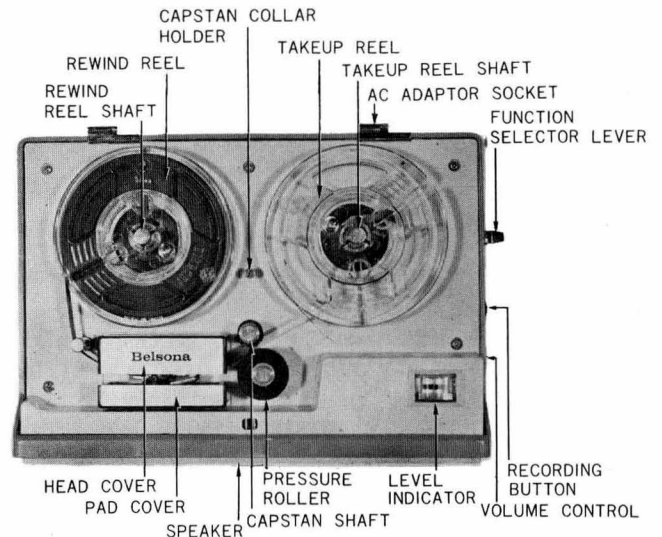
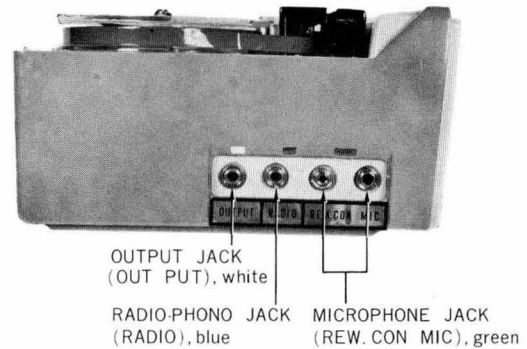
Move the function selector lever to "REW."

■ PLAYING BACK

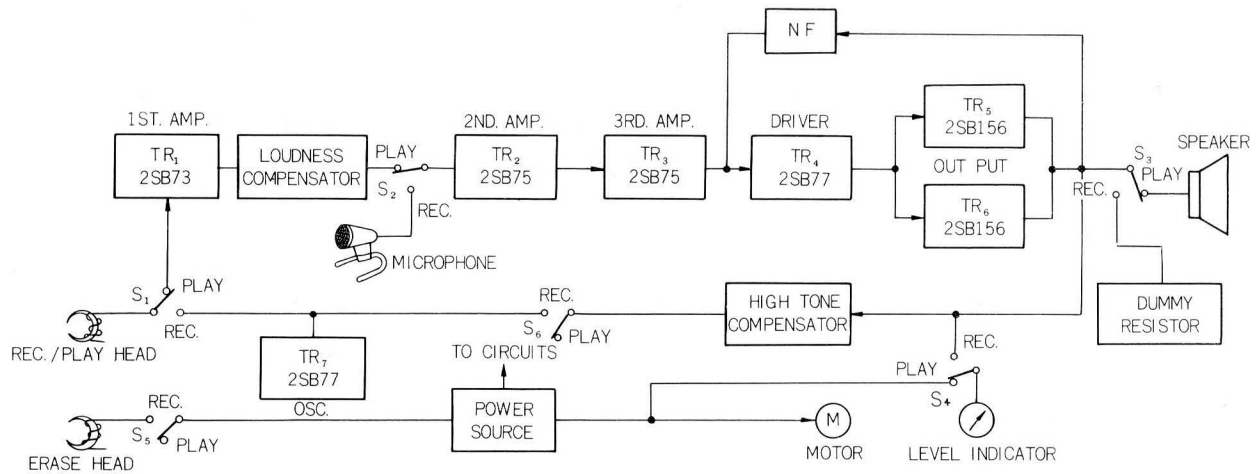
- (1) Thread tape and move the function selector lever to "PLAY."
- (2) Attach or remove the capstan collar in the capstan shaft to select tape speed.
- (3) For earphone connection, insert earphone plug into the output jack.
- (4) For playing back by external speaker, radio or record player, insert the extension cord plug into the output jack and connect its alligator clips to the voice-coil terminals or the pickup terminals (⊕ to red clip, ⊖ to black clip.)

■ FAST FORWARDING

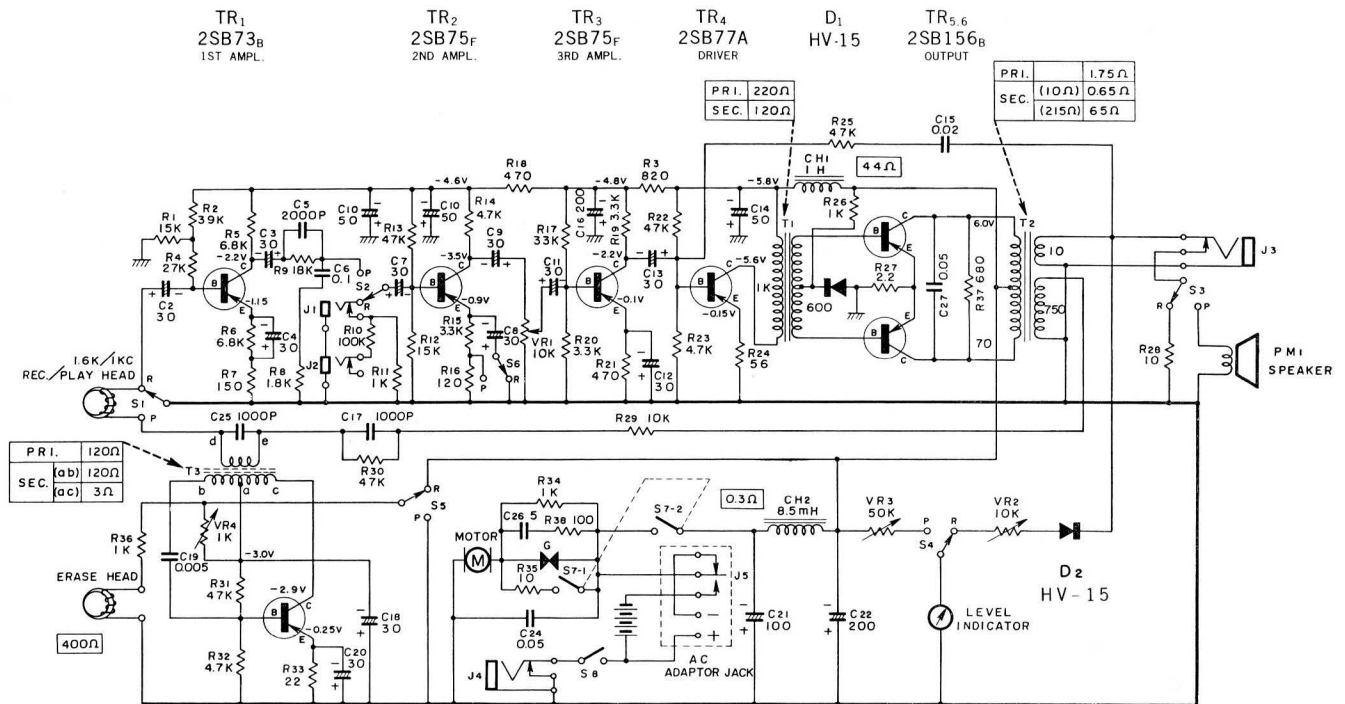
To advance the tape at a fast speed, move down the function selector lever to "F. FWD."



BLOCK DIAGRAM



CIRCUIT DIAGRAM TRQ-399



S₁~S₆ POS. R-RECORD
P-PLAYBACK

S₁~S₆: REC./PLAY CHANGE-OVER SWITCH

S₇: GOVERNOR SWITCH

S₈: MICROSWITCH

J₁: MICROPHONE JACK

J₂: RADIO-PHONO JACK

J₃: OUTPUT JACK

J₄: REM. CON. JACK

J₅: AC ADAPTOR SOCKET

VOLTAGES MEASURED ON DC WITH NO SIGNAL.

RESISTANCE VALUES IN □ ARE COILS' DC RESISTANCES.

Parts Name	Stock No.	No./100	unit	Parts Name	Stock No.	No./100	unit
Electrolytic capacitor (tubular type) 30 μ F 6WV	258023	1		Moderating plate spring	637438	1	
Electrolytic capacitor 30 μ F 6WV	258518	1		Function selector lever assembly	639620	1	
100 μ F 6WV	259019	1		Rewind pulley stand assembly	630509	1	
200 μ F 6WV	259020	1		Reel stopper	638235	2	
Mylar capacitor 0.022 μ F 50WV M	275113	1		Micro switch assembly	636536	1	
0.0022 μ F 50WV K	274013	1		Function selector lever arm assembly	940214	1	
0.001 μ F 50WV K	274011	1		Recording button plate assembly	637210	1	
Ceramic-discal capacitor 0.005 μ F 50WV M	244004	1		Motor holding pin	639615	2	
paper capacitor 0.1 μ F 400WV K	216071	1		Motor sleeve	639831	2	
Mica Capacitor 0.001 μ F J	291106	1		Motor housing arm	940413	1	
Carbon film resistor SRD 1/16 PL 33k Ω K	117407	1		Ceramic-discal capacitor 0.05 μ F P	245015	1	
15k Ω K	117403	1		Electrolytic capacitor 5 μ F 10WV (tubular type)	257021	1	
39k Ω K	117408	1		Cabinet	612063	1	
6.8k Ω K	117361	1		Lid case stopping spring assembly	908171	1	
150k Ω K	117303	1		Jack label	625635	1	
47k Ω K	117409	1		Case holding metal	625627	1	
10k Ω K	117401	1		Case holding metal nut	625628	1	
180 Ω K	117304	1					
1.8k Ω K	117354	1					
18k Ω K	117404	1					
27k Ω K	117406	1					
Composition resistor RC $\frac{1}{2}$ BE 680 Ω K	133291	1					
100k Ω K	133521	1					
3.3k Ω K	133367	1					
1k Ω K	133361	1					
4.7k Ω K	133369	1					
470 Ω K	133289	1					
2.2 Ω K	133201	1					
10 Ω K	133209	1					
22 Ω K	133214	1					
Variable carbon resistor 10k Ω A type	152005	1					
Semi-variable resistor 1k Ω B type	159017	1					
10k Ω B type	159019	1					
50k Ω B type	159022	1					
Transformer-Input	430008	1					
Transformer-Output	451045	1					
Coil-choke	421006	1					
Coil-Oscillator	313031	1					
Switch-Function selector	532115	1					
Micro motor	514025	1					
Jack (A)	543112	1					
Jack (B)	543113	1					
Jack	543084	1					
Case Lid assembly	611038	1					
Dressing plate assembly	637632	1					
Case button plate assembly	625607	1					
Speaker baffle board assembly	625633	1					
2.6 \times 6m/m Bind screw	746306	4					
2.6 \times 10 Bind screw	746310	4					
2.6 \times 22 Bind screw	625797	4					
Head cover assembly	611040	1					
Pad cover assembly	611039	1					
Recording button	636529	1					
Volume knob	636530	1					
Function selector lever	636570	1					
Battery case assembly	626194	2					
Motor collar assembly	636443	1					
Pressure roller	639127	1					
Capstan screw	637688	4					
Rubber belt	637043	1					
Thrust washer	638354	4					
Thrust washer	638355	4					
Take up pulley stand assembly	638562	1					
Capstan screw	638364	1					
Capstan	637479	1					
Flywheel rubber assembly	948157	1					
Pressure roller spring	948109	1					
Pad spring	948096	1					
Pad arm assembly	639170	1					
Plus contact plate assembly	636599	1					