CODE ARD-771203

Technical Information

TAPE RECORDER VOL. 10. No. 1

SUBJECT: SPECIAL SERVICE PARTS LIST

We appreciate your continued cooperation in servicing National Panasonic tape recorders and Technics tape decks.

We have compiled a comprehensive catalogue of special service parts (test tapes, service tools, connection cords, microphones.) supplied by our Audio Tape Recorder Department through the service route. Here we are happy to introduce it to you.

For test tape and service tools, our conventional special service parts have been changed to a part number system beginning with QZZ. This makes them easier to supply particularly when controlled by computer. Moreover, new items have been added to our line of special service parts, with some old model parts discontinued. When ordering, please use the new part numbers as listed here and place an order through the same service route for spare parts.

This parts list will become effective on December 21, 1977. Regarding test tapes, we will revise their prices effective on the aforementioned date. We hope this information will be useful to you in future transactions.

National Technics
National Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

I. TEST TAPES

We previously issued our test tape list. Nevertheless, the development of the ELCASET deck has resulted in a completely new category of tape decks. Also added to the open reel tape deck category is the high quality Model RS-1500US series with isolated loop system, three motors, etc. Practical, efficient test tapes are absolutely necessary to satisfy such high-grade decks. Another necessity is that there should be as few kinds of test tapes as possible in order to simplify market services. Considering these points, we have changed and unified our test tapes into those listed on the following pages. So we request that you place an order for test tapes by the listed part numbers.
The following describes the major changes from our conventional test tapes, and we also listed discontinued test tapes as follows.

* Major Changes from Conventional Test Tapes

1. The frequency response and other characteristic of the new open reel test tapes has been considerably improved for use with the RS-1500US. As a result, their prices are slightly higher than those of conventional test tapes. To minimize the kinds of test tapes, we have standardized our high performance test tapes and discontinued conventional ones.
2. Our cassette type playback frequency response test tape has also been changed into the QZZCFM test tape, which can measure up to 12.5KHz as against the CFH test tape up to 10KHz. This was attempted to measure higher frequency characteristic of the recently marketed high quality RS-9900US cassette deck. Furthermore, the QZZCFM is made available in combined use with the CAA, with the head azimuth adjustment signal provided.
3. The Elcaset type test tape in a completely new category has been added to the line of our conventional kinds.
4. Prefixing the QZZ to our conventional part numbers, we have unified the part number system.

* Test Tape Instruction Notes

Please note the following when using test tapes:

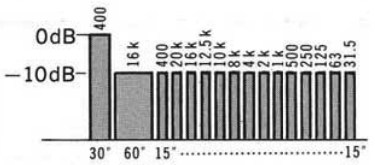
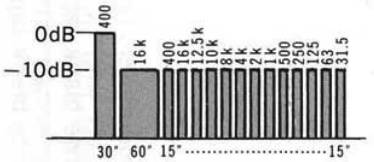
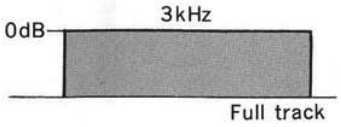
1. Test tapes can only be used with the label side facing outward and in one direction only.
2. Be sure to wind test tapes in the playback mode; avoid fast-forward and rewind, because they shorten tape life.
3. Keep the test tape in its case away from dust, high temperature, high humidity and strong magnetism.
4. The useful life of test tapes can be considered to be about one year.

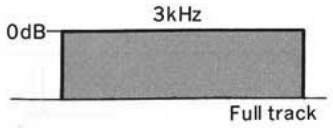
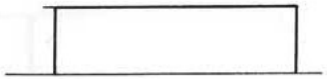
TEST TAPE COMPARISON LIST

		New test tape	Description	Former test tape (To be discontinued)
Open reel type	1	QZZOF380EX	38.1cm/s Playback frequency response, Head azimuth, Playback standard level	OF380, OFK
	2	QZZOF190EX	19.05cm/s Playback frequency response, Head azimuth, Playback standard level	OF190, OFI, OAA
	3	QZZOW380EX	38.1cm/s Wow and flutter, Tape speed	OW380, OWA
	4	QZZOW190EX	19.05cm/s Wow and flutter, Tape speed	OW190, OWB
	5	QZZORA218EX	Reference blank tape	ORA218, ORB
	—	—	—	OFJ,OWC,OF095,OW095
Cassette type	6	QZZCFM	Playback frequency response, Playback standard level, Head azimuth adjustment	CAA, CFK, CFH
	7	QZZCSX	Playback frequency response, Head azimuth, Playback standard level, Tape speed, Wow and flutter	
	8	QZZCWAT	Wow and flutter, Tape speed	CWAT
	9	QZZCRA	Reference blank tape (Normal position)	CRA
	10	QZZCRX	Reference blank tape (CrO_2 position)	CRF
	11	QZZCRD	Tape-path viewer with mirror	RT8133
	12	QZZSRKCT	Takeup torque measurement	SRKCT, RP8063N
Endless type	13	QZZVTT801	Head height and azimuth adjustment	VTT801
	14	QZZVTT804	Crosstalk tape	VTT804
	15	QZZVTT820	Crosstalk tape	VTT820
	16	QZZ8FC	Playback frequency response, Playback standard level	8FC
	17	QZZ8WA	Wow and flutter, Tape speed	8WA
	18	QZZ8RA	Reference blank tape	
Elcaset type	19	QZZLFB	Playback frequency response, Head azimuth, Playback standard level	LFB
	20	QZZLWB	Wow and flutter, Tape speed	LWB
	21	QZZLRA1	Reference blank tape (TYPE I)	LRA1
	22	QZZLRA2	Reference blank tape (TYPE II)	LRA2
	23	QZZLRA3	Reference blank tape (TYPE III)	LRA3
	24	QZZLDB	Tape-path viewer with mirror	LDA
Micro cassette type	25	QZZMWC	Wow and flutter, Tape speed, Head azimuth adjustment	MWA

NOTE: We are prepared to make delivery as early as possible.
However, in order to avoid deterioration due to long term of storage, additional days (up to a maximum of one month) may sometimes be required for delivery.

OPEN REEL TYPE TEST TAPE

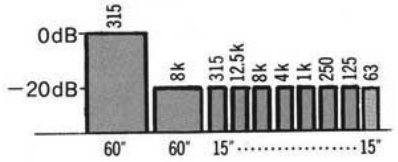
	PART NO.	PURPOSES	FREQUENCY LEVEL	CONSTRUCTIONS	REC TIME	APPEARANCE
1	**QZZOF 380EX**	Tape speed: 38.1 cm/s * Playback standard level * Head azimuth adjustment * Playback freq. response	400 Hz 0dB 16 KHz −10dB 20 KHz — 31.5 Hz −10dB Time constant 50μS — 3180μS		10 min	
2	**QZZOF 190EX**	Tape speed: 19.05 cm/sec * Playback standard level * Head azimuth adjustment * Playback freq. response	400 Hz 0dB 16 KHz −10dB 16 KHz — 31.5 Hz −10dB Time constant 50μS — 3180μS		10 min	
3	**QZZOW 380EX**	Tape speed: 38.1 cm/sec * Wow & flutter * Tape speed	3 KHz 0dB		8 min	

4	**QZZOW 190EX**	Tape speed: 19.05 cm/sec * Wow & flutter * Tape speed	3 KHz 0dB		8 min	
5	**QZZORA 218EX**	Reference blank tape	—		45 min at 19 cm/s	

CASSETTE TYPE TEST TAPE

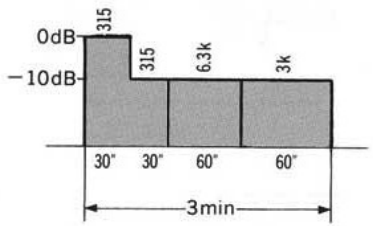
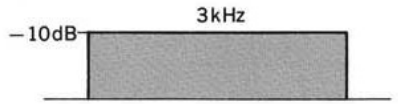
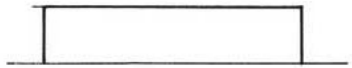
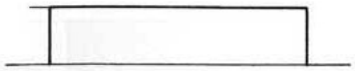
Note:
Frequency response test tapes QZZCFM & QZZCSX are recorded with a time constant of 120μS-3180μS.
If they are played back on a tape recorder with a time constant of 120μS-1590μS (former type tape recorder), please correct the following values when reading the playback level.

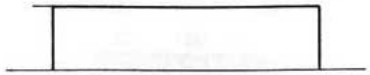
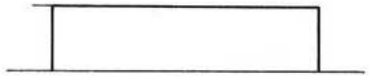
10 kHz—1 kHz	– 0.3 dB
250 Hz	+ 0.1 dB
125 Hz	+ 1.2 dB
63 Hz	+ 3.1 dB
31.5 Hz	+ 4.7 dB

	PART NO.	PURPOSES	FREQUENCY LEVEL	CONSTRUCTIONS	REC TIME	APPEARANCE
6	**QZZCFM**	* Playback standard level * Head azimuth adjustment * Playback freq. response	315 Hz 0dB 8 KHz – 20dB 12.5 KHz — 63 Hz – 20dB Time constant 120μS — 3180μS		4 min	

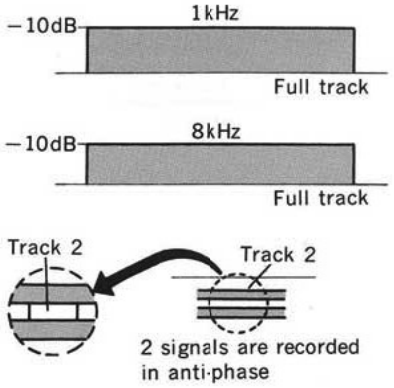
CASSETTE TYPE TEST TAPE

5

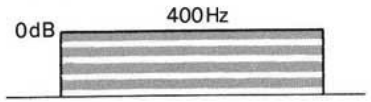
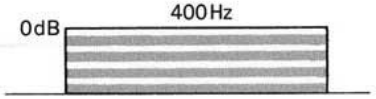
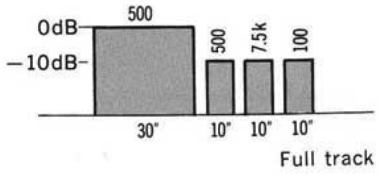
	PART NO.	PURPOSES	FREQUENCY LEVEL	CONSTRUCTIONS	REC TIME	APPEARANCE
7	**QZZCSX**	* Playback standard level * Playback freq. response * Head azimuth adjustment * Wow & Flutter * Tape speed	315Hz 0dB 315Hz & 6.3KHz −10dB 6.3KHz −10dB 3KHz −10dB Time constant 120μS — 3180μS		3min	
8	**QZZCWAT**	* Wow & flutter * Tape speed	3KHz −10dB		45min	
9	**QZZCRA**	* Reference blank tape (Normal position)	—		15min	
10	**QZZCRX**	* Reference blank tape (CrO_2 position)	—		15min	

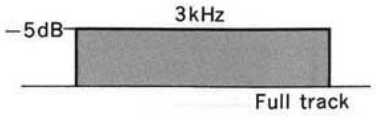
11	**QZZCRD**	* Tape-path viewer with mirror	—		7 min	
12	**QZZS RKCT**	* Takeup torque measurement	—		—	

ENDLESS TYPE TEST TAPE

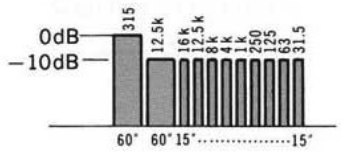
	PART NO.	PURPOSES	FREQUENCY LEVEL	CONSTRUCTIONS	REC TIME	APPEARANCE
13	**QZZVTT 801**	* Head height adjustment * Head azimuth adjustment	1 KHz — 10 dB (Track 2) 8 KHz — 10 dB (Track 6)		10 min	

☑ ENDLESS TYPE TEST TAPE

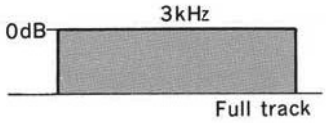
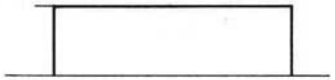
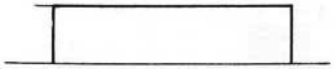
	PART NO.	PURPOSES	FREQUENCY LEVEL	CONSTRUCTIONS	REC TIME	APPEARANCE
14	**QZZVTT 804**	* Crosstalk tape	400 Hz 0 dB Recorded on tracks 1,3,5 & 7		10 min	
15	**QZZVTT 820**	* Crosstalk tape	400 Hz 0 dB Recorded on tracks 2, 4, 6, & 8		10 min	
16	**QZZ8FC**	* Playback standard level * Playback freq. response	500 Hz 0 dB 7.5 KHz — 100 Hz 10 dB		5 min	

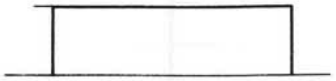
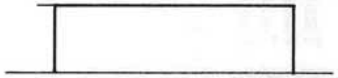
17	**QZZ8WA**	* Wow & flutter * Tape speed	3KHz −5dB		10min	
18	**QZZ8RA**	* Recordint test tape (Reference brank tape)	—		10sec	

ELCASET TYPE TEST TAPE

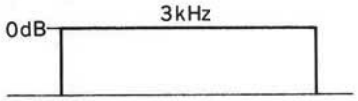
	PART NO.	PURPOSES	FREQUENCY LEVEL	CONSTRUCTIONS	REC TIME	APPEARANCE
19	**QZZLFB**	* Playback standard level * Head azimuth adjustment * Playback freq. response	315Hz 0dB 12.5KHz −10dB 31.5Hz — 16KHz −10dB Time constant 70μS — 3180μS		Aprox. 9min	

ELCASET TYPE TEST TAPE

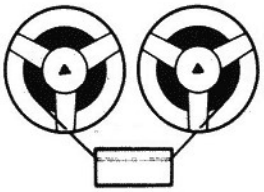
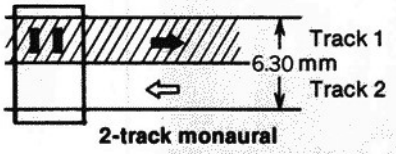
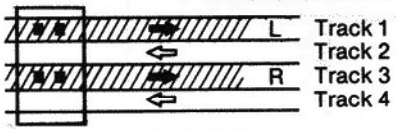
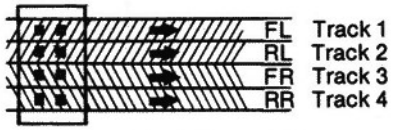
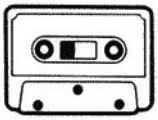
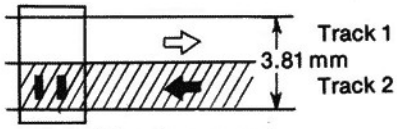
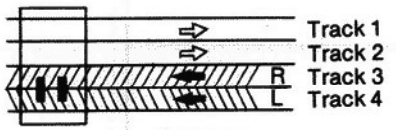
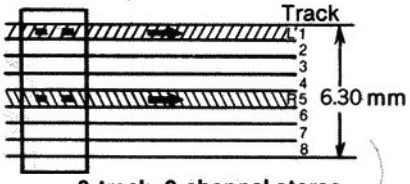
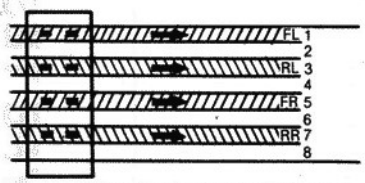
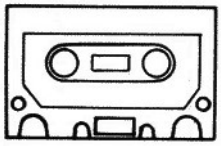
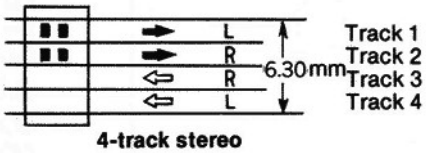
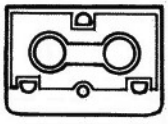
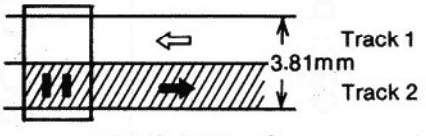
	PART NO.	PURPOSES	FREQUENCY LEVEL	CONSTRUCTIONS	REC TIME	APPEARANCE
20	**QZZLWB**	* Wow & flutter * Tape speed	3KHz 0dB		15min	
21	**QZZLRA1**	Reference blank tape (TYPE I tape)	—		15min	
22	**QZZLRA2**	Reference blank tape (TYPE II tape)	—		15min	

23	**QZZLRA3**	Reference blank tape (TYPE III tape)	—		15 min	
24	**QZZLDB**	* Tape-path viewer with mirror	—		15 min	

MICRO CASSETTE TYPE TEST TAPE

	PART NO.	PURPOSES	FREQUENCY LEVEL	CONSTRUCTIONS	REC TIME	APPEARANCE
25	**QZZMWC**	* Wow & flutter * Tape speed * Heaz azimuth adjustment	3KHz 0dB		10 min	

VARIOUS TRACK SYSTEMS AND TAPE SPEED

	Track system	Tape speed
1. Open-reel type 	 **2-track monaural**  **4-track stereo**  **4-track, 4-channel stereo**	38.1 cm/s(15 in/s) 19.05 cm/s(7-1/2 in/s) 9.53 cm/s(3-3/4 in/s)
2. Cassette type 	 **2-track monaural**  **4-track stereo**	4.76 cm/s(1-7/8 in/s)
3. Endless type 	 **8-track, 2-channel stereo**  **8-track, 4-channel stereo**	9.53 cm/s(3-3/4 in/s)
4. ELCASET type 	 **4-track stereo**	9.53 cm/s(3-3/4 in/s)
5. Micro cassette type 	 **2-track monaural**	2.4 cm/s (15/16 in/s)

II. SERVICE TOOLS

The following is an introduction to the service tools supplied by our Audio Tape Recorder Department to the market to perform smooth and complete repair services of tape recorders. Added to our conventionally supplied tools, wiring materials and the tools listed below will be offered. Like the test tape, our part numbers of new service tools have been systemized to begin with the service part number, QZZ.

Service tools list

	Part No.	Description	Remarks
1	QZZ0205	RS-1500US series tool kit	New
2	QZZ0308	Shield wire-A	New
3	QZZ0309	Shield wire-B	New
4	QZZ0310	Lead wire-A	New
5	QZZ0311	Lead wire-B	New
6	RP8062	Solder sucker	
7	RP8065N	Jack driver kit	
8	RP8099	Tool kit for micro cassette	
9	T100	Tension gauge (100 g)	
10	T500	Tension gauge (500 g)	
11	S2	Spring gauge (2 kg)	
12	S4	Spring gauge (4 kg)	

* Our conventionally supplied tools given below have been ordered in small quantities, and some of them are unmatched with our present products. For this reason, we have decided to discontinue them.

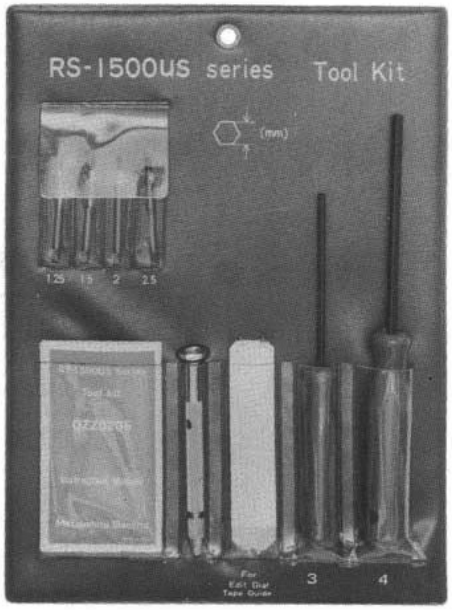
Tools to be discontinued

Part No.	Description
RP8008	Screw kit
RP8064N	Washer kit
RP8069	Tape recorder measuring appliances
RP8119N	Connection cord kit

RS-1500US Series Tool Kit Part No. QZZ0205

NOTE: The supply period of this service tool kit is only one year from **December 21, 1977 to December 20, 1978.** Please note this carefully.

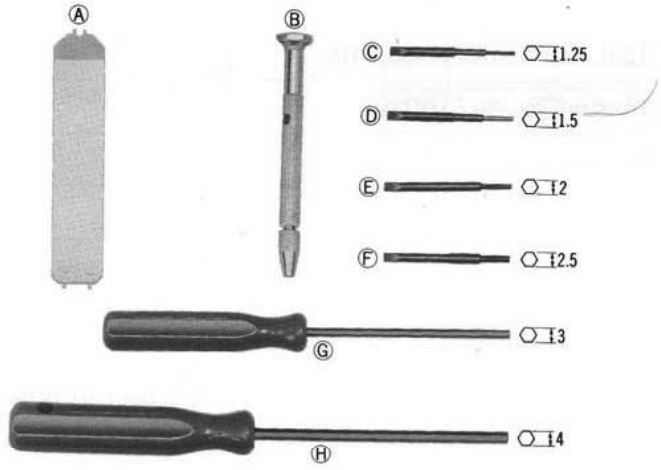
As you know, our open tape deck RS-1500US series is a special, isolated loop mechanism is used. Therefore, special tools are necessary for servicing this series tape decks. The following tools are contained in this tool kit and instructions are as follows.



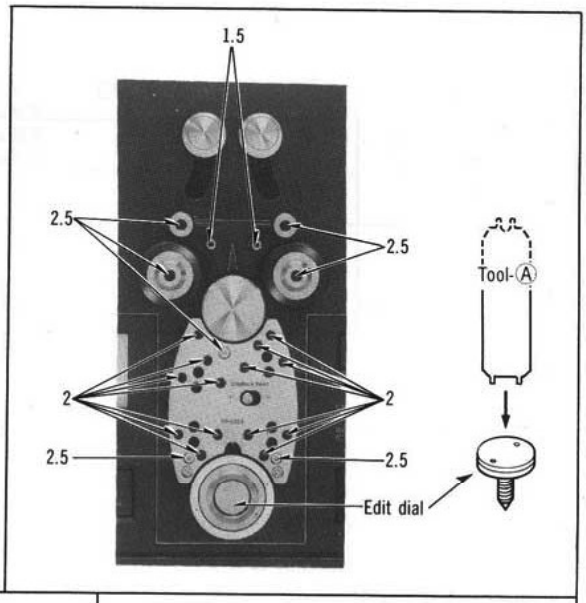
Instructions:

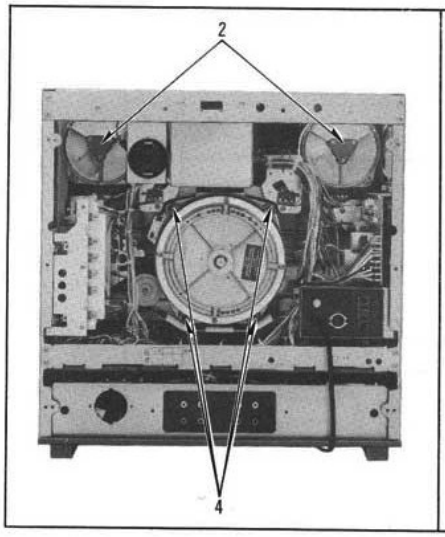
* The sizes of the hexagonal screws used in the RS-1500US series are shown in the figure below. Use the appropriate hexagonal wrenches (Ⓓ~Ⓗ) according to the screw size (Screw sizes are shown in mm.). Note that hexagonal wrenches (Ⓒ~Ⓕ) for screw sizes 1.5~2.5 mm should be inserted in the wrench holder Ⓑ for use.
* Tool Ⓐ is a special tool which can be used both for removal of the edit dial and for adjustment of the height of the tape guides.
* The hexagonal screw driver can be used not only for the RS-1500US series but also for cassette decks.

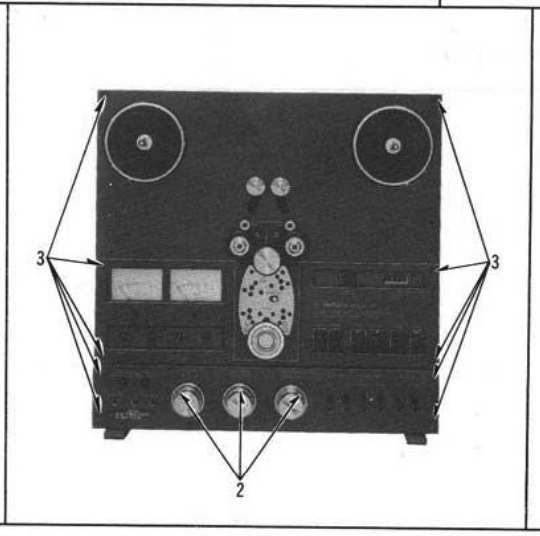
Contained tools:

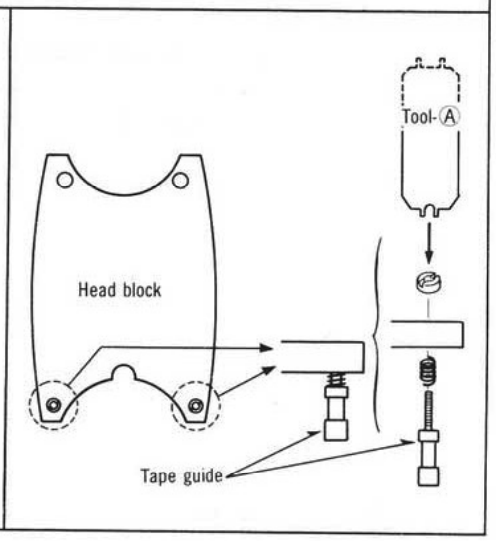


Hexagonal screw driver (mm)



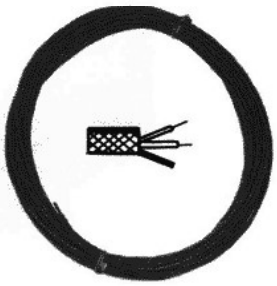
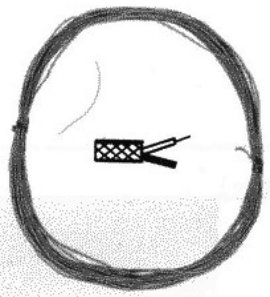
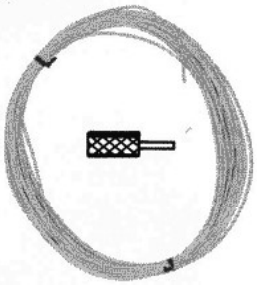
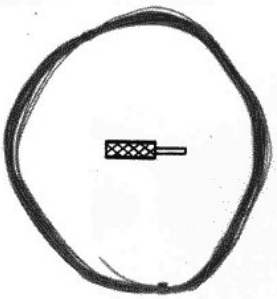






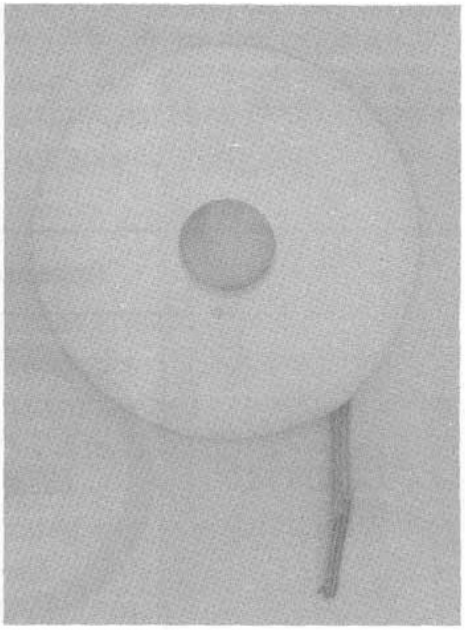
Shield Wire and Lead Wire

When servicing, shield and lead wires are often cut too short to be serviceable. For use as replacements in such a case, the following four kinds of wires have been prepared for you.

	Part No.	Appearance	Description	Use
①	QZZ0308		Shield wire Ⓐ Length: 10m Diameter: 2.2ϕ Color: Black or grey For general type tape recorders.	Head lead wire. Volume lead wire. Connection between terminals.
②	QZZ0309		Shield wire Ⓑ Length: 10m Diameter: 1.0ϕ Color: Black or grey For micro cassette or small tape recorders.	
③	QZZ0310		Lead wire Ⓐ Length: 10m Diameter: 1.0ϕ Color: Black or white For general type tape recorders.	Connection between terminals. Connection between printed circuit board and parts. Used as jumper wire.
④	QZZ0311		Lead wire Ⓑ Length: 10m Diameter: 0.8ϕ Color: Blue or red For micro cassette or small tape recorders.	

Solder Sucker — Part No. RP8062

This solder sucker is very convenient for removal of solder adhering to a printed circuit board. ICs, transistors, switches, etc. are usually difficult to remove because their terminals have been soldered to the printed circuit board. The solder sucker removes the solder of each terminal so that the part can be removed easily.

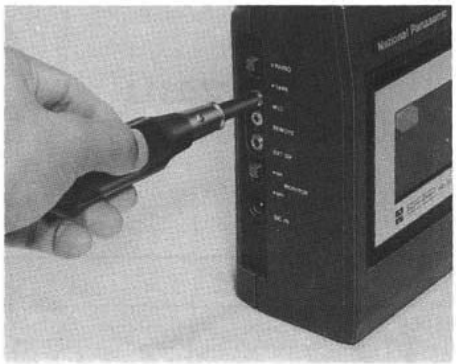


Jack Driver Kit — Part No. RP8065N

This jack driver kit is a special tool kit necessary for the service work of tape recorders, for removing nuts used for headphone jacks, microphone jacks and remote jacks.

Headphone jack

Remote jack



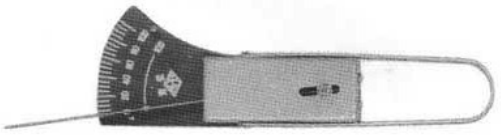
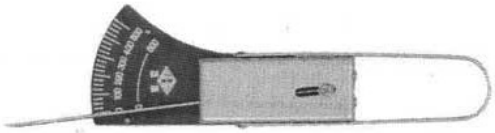
MIC jack

Tool Kit for Micro Cassette Part No. RP8099

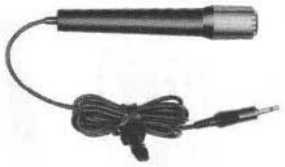
As you know, our micro cassette tape recorder is a special, very small type. Therefore, special tools are necessary for servicing this model.
The minimum necessary tools have been selected and made up into a tool kit (contained in a vinyl bag). The following tools are contained in this tool kit (RP8099).

	Part Name	Description
①	Music tape	For practical tests of playback (side 1) and recording (side 2).
②	Test tape Part No. QZZMWC	For measurement of wow and flutter and tape speed, and for adjustment of head azimuth.
③	Plug adaptor Part No. QJP0994	For connection of a microphone, etc., which have an M2 plug; also used as an erase plug. (For model RQ-160S)
④	Bit for jack nuts	For removing M2 jacks. Used with a large screw driver. (For model RQ-160S)
⑤	Small minus screw driver	For very small minus screws.
⑥	Screw driver	By changing side of bit, it can be used for both the philips-head and minus screws.
⑦	Tweezers	For picking up small screws.

Tension Gauge and Spring Gauge

Part No.	Part Name	Description
T100	Tension gauge	* Max. 100 g. * For measurement of takeup tension, back tension, pad pressure, etc. 
T500	Tension gauge	* Max. 500 g. * For measurement of cassette type pressure roller pressure. 
S2	Spring gauge	* Max. 2 kg. * For measurement of open reel type and ELCASET type pressure roller pressure. 
S4	Spring gauge	* Max. 4 kg. * For measurement of 3-motor deck pressure roller pressure. 

III. MICROPHONES FOR PORTABLE TAPE RECORDERS

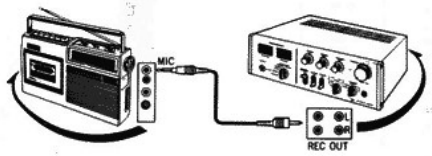
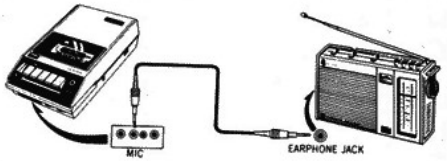
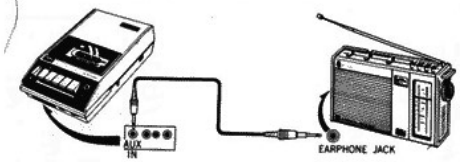
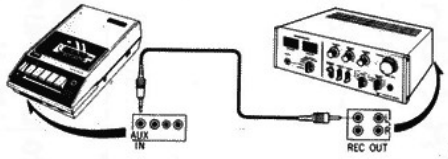
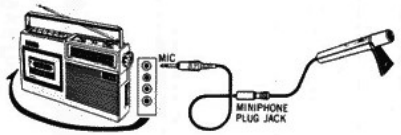
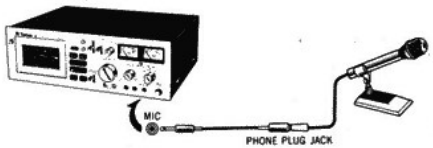
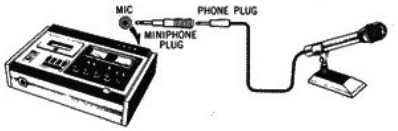
	Part No.	Appearance	Impedance	Sensitivity	Microphone Type	Plug Type
①	**WM2201N**		300Ω	−76dB	Bar dynamic	 Miniphone
②	**WM2213N**		300Ω	−76dB	Bar dynamic	 Miniphone with remote
③	**WN123N**		Microphone stand for WM2201, WM2213.			

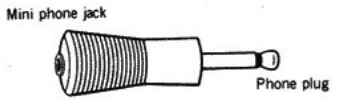
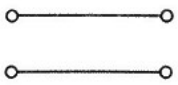
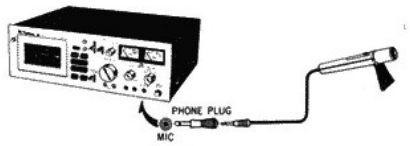
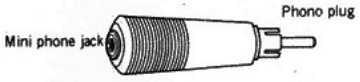
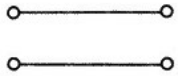
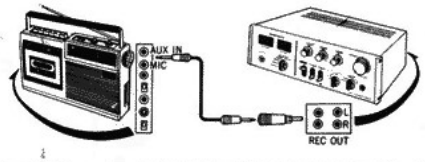
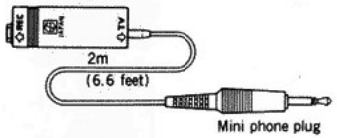
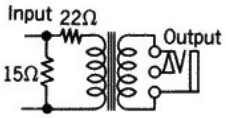
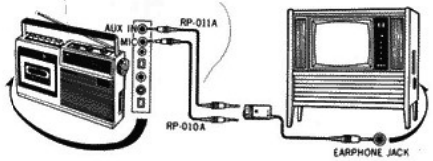
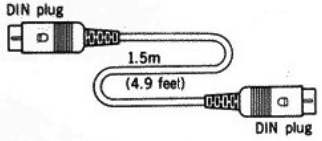
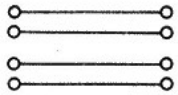
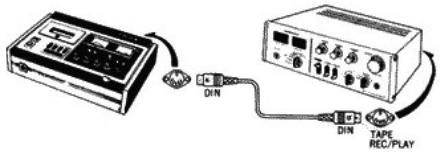
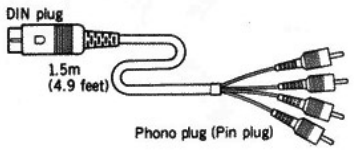
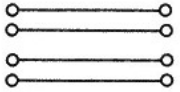
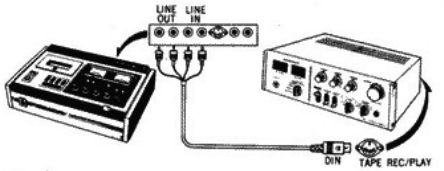
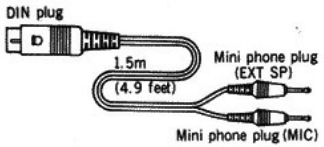
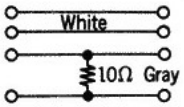
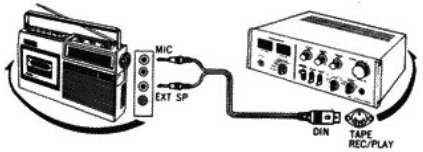
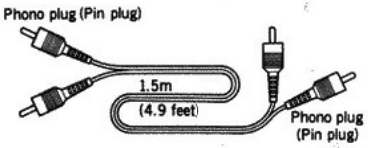
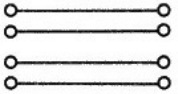
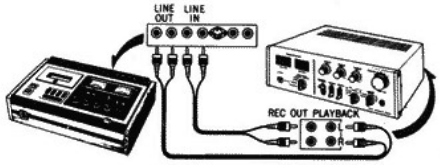
We have supplied a variety of microphones and microphone stands. However these are standardized and unified into the above types. Accordingly, the microphones and microphone stands listed hereunder will be discontinued.

Microphones and Microphone Stands to be discontinued

	Discontinued Parts
Microphone	WM2051, WM2052, WM2057, WM2095, WM2200, WM2098, WM2202, WM2203, WM2241
Microphone stand	WN115, WN120, WN125, WN133

IV. TAPE RECORDER CONNECTION CORDS

Part No.	Part Name	Description	Connection	Method of Connection	Example of Use
RP024A	Connection cord "MA"	Mini phone plug 1.5m (4.9 feet) Phono plug (Pin plug)	33KΩ Mini phone plug 33Ω Phono plug ATTENUATION: 60 dB	Tape recorder (MIC) ↔ Tuner deck amplifier (REC OUT)	
RP010A	Radio cord "M"	Mini phone plug 1.5m Overall length (4.9 feet) Mini phone plug	18KΩ 10Ω 10Ω ATTENUATION: 65 dB	Tape recorder (MIC) ↔ Radio (EARPHONE OUT) or (EXT SP OUT)	
RP011A	Radio cord "R"	Mini phone plug 1.5m (4.9 feet) Mini phone plug	10Ω	Tape recorder (AUX IN) ↔ Radio (EARPHONE OUT) or (EXT SP OUT)	
RP021A	Connection cord "B"	Mini phone plug 1.5m (4.9 feet) Phono plug (Pin plug)		Tape recorder (AUX IN) ↔ Amplifier (REC OUT)	
RP040A	MIC extension cord "A"	Mini phone plug 5m (16.4 feet) Mini phone jack		* Extension cord for low impedance microphone.	
RP041A	MIC extension cord "B"	Phone plug 5m (16.4 feet) Phone jack		* Extension cord for low impedance microphone.	
RP060A	Plug adaptor "A"	Phone jack Mini phone plug		* Adapts phone plug to miniphone plug microphone	

RP061A	Plug adaptor "B"			* Adapts miniphone plug to phone plug	
RP062A	Plug adaptor "C"			* Adapts miniphone plug to phone plug	
RP013A	TV recording cord			Tape recorder (MIC AUX IN) ↔ TV (OUTPUT)	
RP050A	Record/playback DIN cord			Tape recorder (DIN) ↔ Stereo amplifier (DIN)	
RP051A	DIN pin cord			Tape deck (LINE IN) or (LINE OUT) ↔ Stereo amplifier (DIN)	
RP052A	Radio cord "E"			Tape recorder (MIC EXT SP) ↔ Amplifier (DIN)	
RP023A	Stereo connection cord			Tape deck (LINE OUT) or (LINE IN) ↔ Stereo amplifier (REC OUT) (PLAYBACK)	

NOTE: 1. The series of cords shown here are intended to provide a wider range of easier and more useful recording and playback possibilities with tape recorders. These cords can be used with any type of tape recorder, even those of other manufacturers, if only the impedance, the plug and jack, etc. are applicable.
2. Some of these cords are included as regular accessories of various tape recorders, while others will be furnished upon receipt of an order.
3. All cords will be packed individually. No single cords will be supplied unpacked.

Printed in Japan.