

ORDER No.AD0202033A3

# Service Manual

Portable MD Recorder



# MDLP

**SJ-MR220GK**

**MD unit: RAE1640Z-M Mechanism Series**

**Colours**

**(S).....Silver Type**

**(A).....Blue Type**

**Please use this manual together with the service manual for Model No. SJ-MR220, Order No. AD0109126C8.**



## SPECIFICATIONS

### Specifications

#### ● Audio

System:	MiniDisc digital audio system
Laser:	Semiconductor laser (=780 nm)
Sampling frequency:	44.1 kHz
Coding:	Adaptive Transform Acoustic Coding (ATRAC / ATRAC3)
No. of channels:	2 (left and right, stereo) 1 (monaural)
Frequency response:	20 Hz-20 kHz (+0 dB, -8dB)
Wow and flutter:	Below measurable limit

#### ● General

##### Input terminal

###### OPT/LINE IN jack

Impedance:	22k $\Omega$
Input level:	SENS H: 178mV SENS L: 500mV

###### MIC jack

Impedance:	600 $\Omega$
Input level:	SENS H: 0.4mV SENS L: 2.5mV

##### Output terminal

Output Jack:	Phones, 22 $\Omega$
Power output:	3.5 mW+3.5 mW

##### Power supply

Rechargeable battery:	DC 1.2V (included rechargeable battery)
Battery:	DC 1.5V (One LR6, AA, UM-3 battery)
AC adaptor:	DC 1.8V (included AC adaptor)

##### Dimensions (WxHxD)

Cabinet dimensions:	78.2x71.6x16.0 mm
incl.projecting parts:	80.4x74.1x18.3 mm

Weight:	115 g (with battery) 88 g (without battery)
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#### ● Play time

(When used in hold mode, at 25°C, on a flat, stable surface)

Battery type:	Play time	Record time
Rechargeable		
Normal:	About 25 hours	About 12.5 hours
LP2:	About 33 hours	About 17 hours

LP4:	About 38 hours	About 21 hours
Panasonic alkaline		
Normal:	About 42 hours	About 19 hours
LP2:	About 54 hours	About 26 hours
LP4:	About 62 hours	About 34 hours
Both together		
Normal	About 69 hours	About 34 hours
LP2:	About 87 hours	About 45 hours
LP4:	About 100 hours	About 55 hours

**Notes:**

- The play time may be less depending on the operating conditions.
- Specifications are subject to change without notice. Weight and dimensions are approximate.

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**⚠ WARNING**

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

**Panasonic**

## 1. Simplified Guide

This manual mentions the revisions of original Service Manual SJ-MR220(GH).

### - Replacement Parts List

The other items are referred to original Service Manual.

## 2. Replacement Parts List

**Notes:**

**\*Important safety notice:**

Components identified by  mark have special characteristics important for safety.

Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.

When replacing any of components, be sure to use only manufactures specified parts shown in the parts list.

\*Capacity values are in microfarads (  $\mu$  F) unless specified otherwise, P=Pico-farads (pF), F= Farads (F).


\*Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM), 1M=1,000k (OHM).

## 2.1. Cabinet, Accessories, Packaging and Electrical Parts (except capacitors)

(Refer to “17. Replacement Parts List” of original Service Manual.) / Note:

\*Mentioned in this parts list is only those different from Model No. SJ-MR220(GH).

All other electric parts are the same as for SJ-MR220(GH).

Ref. No.	Change of Part No.		Part Name & Description	Remarks
	SJ-MR220(GH)	SJ-MR220(GK)		
<b>CABINET AND CHASSIS</b>				
8	---	RYF0596-A	DISK COVER ASS'Y	(A) Addition
9	---	RYK1125-1S	INTERMEDIATE CABI. ASS'Y	(A) Addition
11	RYK1124B-S	RYK1124D-S	CABINET ASS'Y	(S)
11	---	RYK1124D-A	CABINET ASS'Y	(A) Addition
13	---	RKK0151-A	RECHARGEABLE BATT. COVER	(A) Addition
27	---	XQN14+A12FC	SCREW	Addition
<b>ACCESSORIES</b>				
A1	RP-BP62EYD	RFKFHFAZ01EM	RECHARGEABLE BATT. ASS'Y	
A4	RFEA004H-S	N0JCAD000002	AC ADAPTOR	
<b>INTEGRATED CIRCUIT(S)</b>				
IC101	MN66621ARG	MN66621BRG	IC	
IC501	MN101C61GAB	MN101C61GAB2	IC	
IC502	C3EBCG000052	AK93C45BH-L	IC	
<b>COIL</b>				
L1	RLQP1R0KT2-Y	RLQP100MT-W	COIL	
<b>PACKAGING</b>				
P1	RPK1702	RPK1700	PACKING CASE	(S)
P1	---	RPK1701	PACKING CASE	(A) Addition
P2	RPQ0991	RPQ1277	PAD	
<b>RESISTOR(S)</b>				
R111	EXB24V470JX	D1H447020001	47	
R204	EXB24V103JX	D1H410320002	10K	
R206	EXB24V103JX	D1H410320002	10K	
R207	EXB24V392JX	D1H439220001	3.9K	
R209	EXB24V100JX	D1H410020002	10	
R210	EXB24V221JX	D1H422120001	220	
R301	EXB24V334JX	D1H433420001	330K	
R308	EXB24V474JX	D1H447420001	470K	

Ref. No.	Change of Part No.		Part Name & Description	Remarks
	SJ-MR220(GH)	SJ-MR220(GK)		
R313	EXB24V104JX	D1H410420002	100K	
R703	EXB24V104JX	D1H410420002	100K	
R706	EXB24V182JX	D1H418220001	1.8K	
R707	EXB24V223JX	D1H422320002	22K	
R708	EXB24V182JX	D1H418220001	1.8K	
R715	EXB24V104JX	D1H410420002	100K	
R911	EXB24V473JX	D1H447320001	47K	

## 2.2. Capacitor

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C1	F1G1H221A416	50V 220P	1	
C2	ECUVNA154KBV	10V 0.15U	1	F1H1A154A028
C3	ECUE1C153KBQ	16V 0.015U	1	F1G1C153A044
C4	F1G1E472A059	25V 4700P	1	
C5	F1H0J1050013	6.3V 1U	1	
C20,21	ECJ1VB1A224K	10V 0.22U	2	
C30	F3E0G106A001	4V 10U	1	
C31	ECJ0EB1A104K	10V 0.1U	1	
C34	F3E0G106A001	4V 10U	1	
C35	F5A421040001	4V 0.1U	1	
C50	ECJ0EB1A104K	10V 0.1U	1	
C51	ECJ0EB1H102K	50V 1000P	1	
C52	ECJ0EB1A104K	10V 0.1U	1	
C53	ECUVNJ474KBV	6.3V 0.47U	1	F1H0J474A002
C101	F3E0G106A001	4V 10U	1	
C102	ECJ0EB1A104K	10V 0.1U	1	
C103	F3E0G106A001	4V 10U	1	
C104	ECJ0EB1A104K	10V 0.1U	1	
C105	F3E0G106A001	4V 10U	1	
C106	ECJ0EB1A104K	10V 0.1U	1	
C107	RCST0EX227RE	2.5V 220U	1	F3G0E2270001
C109,10	ECUE1H100DCQ	50V 10P	2	F1G1H100A420
C111	ECUE1H470JCQ	50V 47P	1	F1G1H470A422
C112	ECJ0EB1A104K	10V 0.1U	1	
C120	ECJ0EB1A104K	10V 0.1U	1	
C121	ECUE1C223KBQ	16V 0.022U	1	F1G1C223A044
C122	ECJ1VB1A224K	10V 0.22U	1	
C123	ECUE1E681KBQ	25V 680P	1	
C130	F1G1E472A059	25V 4700P	1	
C140	ECUE1C103KBQ	16V 0.01U	1	F1G1C103A044
C201	F1J0J4750010	6.3V 4.7U	1	
C202	F1H0J1050013	6.3V 1U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C203	F1J0J4750010	6.3V 4.7U	1	
C204	F3E0G106A001	4V 10U	1	
C205	RCST0GZ226RG	4V 22U	1	F3E0G226A002
C206	F5A421040001	4V 0.1U	1	
C207	F1G1H331A416	50V 330P	1	
C208	F1J0J4750010	6.3V 4.7U	1	
C211,12	F1H0J1050013	6.3V 1U	2	
C213,14	ECJ0EB1H102K	50V 1000P	2	
C215,16	RCST0EX227RE	2.5V 220U	2	F3G0E2270001
C220	ECUE1H101KBQ	50V 100P	1	
C222	F1H0J1050013	6.3V 1U	1	
C223	ECUE1C103KBQ	16V 0.01U	1	F1G1C103A044
C301	RCST0EC397RE	2.5V 390U	1	F3H0J397A012
C302	RCST0JX107RG	6.3V 100U	1	F3G0J1070002
C303	F3Z0G107A003	4V 100U	1	
C304	ECST0JY226R	6.3V 22U	1	
C305	F1H0J1050013	6.3V 1U	1	
C306	ECJ0EB1A104K	10V 0.1U	1	
C308-10	ECJ0EB1A104K	10V 0.1U	3	
C312	ECJ0EB1A104K	10V 0.1U	1	
C313	ECUE1C103KBQ	16V 0.01U	1	F1G1C103A044
C316	F1J0J106A013	6.3V 10U	1	
C317	F1J0J4750005	6.3V 4.7U	1	
C318	ECJ0EB1A104K	10V 0.1U	1	
C401	F1J0J4750010	6.3V 4.7U	1	
C402	ECJ0EB1A104K	10V 0.1U	1	
C403	F1H0J1050013	6.3V 1U	1	
C404	F5A421040001	4V 0.1U	1	
C411	RCST0GZ226RG	4V 22U	1	F3E0G226A002
C412-14	F1G1H222A416	50V 2200P	3	
C415-17	ECUENC333KBQ	16V 0.033U	3	F1G1C333A004
C418	ECUVNJ334KBV	6.3V 0.33U	1	F1H0J334A002
C419,20	ECJ0EB1A104K	10V 0.1U	2	
C501	RCST0GZ226RG	4V 22U	1	F3E0G226A002
C502	ECJ0EB1A104K	10V 0.1U	1	
C503	ECUE1C103KBQ	16V 0.01U	1	F1G1C103A044
C505	ECJ0EB1A104K	10V 0.1U	1	
C510	ECUVNJ474KBV	6.3V 0.47U	1	F1H0J474A002
C511	ECUE1H101KBQ	50V 100P	1	
C513	ECUE1C103KBQ	16V 0.01U	1	F1G1C103A044
C516	F1H0J2250003	6.3V 2.2U	1	
C601	F1J0J4750005	6.3V 4.7U	1	
C602	ECUE1C103KBQ	16V 0.01U	1	F1G1C103A044
C603	F1J0J4750005	6.3V 4.7U	1	
C605	RCST0GZ156RG	4V 15U	1	F3E0G156A002
C606	F1H0J1050013	6.3V 1U	1	
C607,08	ECJ0EB1H102K	50V 1000P	2	
C611,12	F1H0J1050013	6.3V 1U	2	
C701	ECST0JY226R	6.3V 22U	1	
C702	ECJ0EB1A104K	10V 0.1U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C704	F3E0G106A001	4V 10U	1	
C711	ECJ0EB1A104K	10V 0.1U	1	
C713,14	F1H0J1050013	6.3V 1U	2	
C720-22	ECJ0EB1A104K	10V 0.1U	3	
C723,24	ECJ0EB1H102K	50V 1000P	2	
C725,26	F1J0J4750010	6.3V 4.7U	2	
C727,28	F3E0G106A001	4V 10U	2	
C801	ECUENC333KBQ	16V 0.033U	1	F1G1C333A004
C802	F1G1E472A059	25V 4700P	1	
C803	ECUE1C103KBQ	16V 0.01U	1	F1G1C103A044
C806	ECUE1C103KBQ	16V 0.01U	1	F1G1C103A044
C901	RCST0GZ226RG	4V 22U	1	F3E0G226A002
C902	ECJ1VB1A224K	10V 0.22U	1	
C903	ECUENA473KBQ	10V 0.047U	1	F1G1A473A014
C904	ECJ1VB1A224K	10V 0.22U	1	
C905-07	F1G1E472A059	25V 4700P	3	
C908	ECJ0EB1A104K	10V 0.1U	1	
C909	ECUE1C103KBQ	16V 0.01U	1	F1G1C103A044
C911	ECJ0EB1A104K	10V 0.1U	1	
C912	F3E0G106A001	4V 10U	1	
C913	ECJ0EB1A104K	10V 0.1U	1	
C914	ECUE1H150JCQ	50V 15P	1	
C915	ECUENA473KBQ	10V 0.047U	1	F1G1A473A014

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