



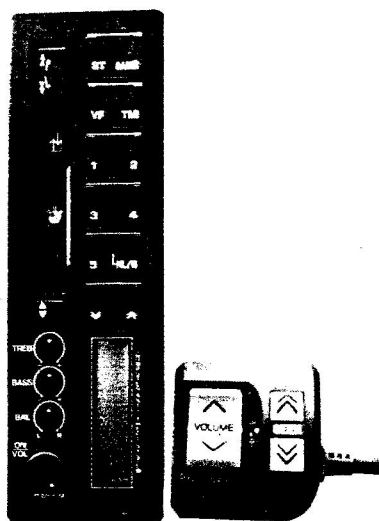
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Service Manual



FM•MPX/LW/MW RADIO CASSETTE COMBINATION WITH REMOTE CONTROL UNIT

Model **PU-9203A**

● RCB-021-100

■ SPECIFICATIONS:

Radio section

Circuit system: Superheterodyne
 Tuning system: Electronic tuning
 Receiving frequency: LW 153kHz to 281kHz
 MW 531kHz to 1,602kHz
 UKW(FM)
 87.5MHz to 108MHz
 Intermediate frequency:
 LW, MW 459kHz
 UKW(FM) 10.7MHz

Tape section

Reproduction system: Auto reversing
 4 track, 2 channel stereo
 cassette tape playback
 (Monaural also capable)
 Tape speed: 4.76cm/sec. (1 7/8 ips)

Composite

Load impedance: 4Ω×2
 Power output: 30W×2
 Power supply voltage: DC 14.4V(10.8V to 15.6V)
 Negative ground
 Power consumption: Less than 6A
 (at max. output)
 Dimensions: Width 182mm
 Height 50mm
 Depth 171mm
 Weight: 1.65kg

■ FEATURES:

- MW/LW/FM-MPX electronic tuning radio with auto reverse stereo cassette player (FF, REW lock).
- Provided radio traffic information (VF) system.
- Dual direction azimuth.
- NL (Noise Limiter).
- SAM-R2 mechanism.
- TAKE AWAY.

■ COMPONENTS:

● PU-9203A-A			
Main unit			1
Remote control unit	RCB-021-100		1
Rubber gasket	345-4525-00		1
Removal tool	341-1346-00		1
Mounting bracket (Upper)	300-7413-00		1
Mounting bracket (Lower)	300-7414-00		1
Mounting bracket (Remote control)	300-7415-00		1
Lead clasper	335-0833-04		6
Lead holder	345-4524-00		1
Sems screw	732-4006-11		2
Sems screw	732-4010-19		2

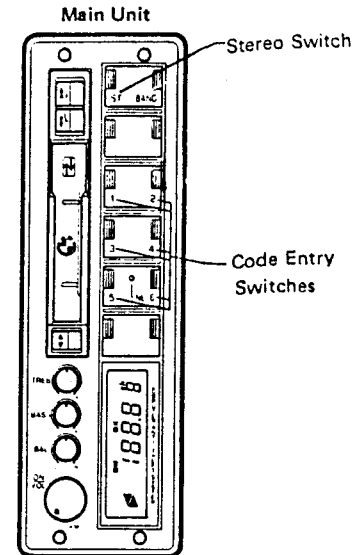
■CATS:

The radio will be rendered inoperative if it is removed or if the radio power is disconnected during servicing or for any other reason. The only way to make your radio work again is by entering a special four digit electronic lock-out code which only you know.

Entering your anti-theft code is easy. After reinstalling the radio, simply:

1. Turn on the ignition.
2. Turn on the radio.
3. Depress the appropriately numbered preset buttons according to your code.

After the last code number is entered the radio will operate. If you make a mistake while entering the code, press and hold the stereo (ST) switch until the code numbers disappear from the display. Then enter the correct code.

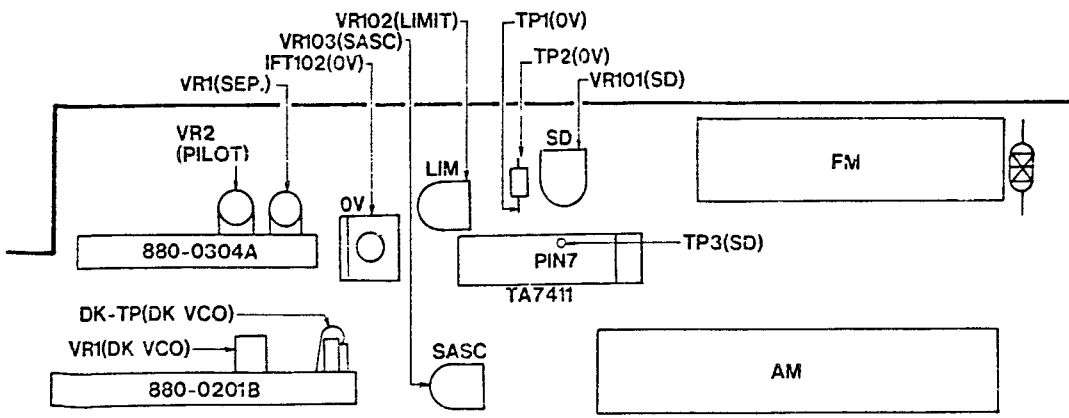


■ADJUSTMENT:

Adjustment item	Adjustment point	Procedure
OV fine adjustment	IFT102	<ol style="list-style-type: none"> 1. Tune 98.1MHz and input a 25dB non-modulated SSG signal. 2. Connect a digital volt meter between TP1 and TP2. 3. Adjust IFT102 so that the voltage is $0V \pm 20mV$.
SASC	VR103	<ol style="list-style-type: none"> 1. Tune at 98.1MHz, input an 65dB, 7kHz modulation frequency, 30% modulation degree SSG signal, and then turn on ST. SW. 2. Adjust the output level of the volume controller to 0dBm (0.775V). 3. Set the SSG output to 40dB and adjust VR103 so that the output level is -3dB.
Limiter (MUTE)	VR102	<ol style="list-style-type: none"> 1. Tune at 98.1MHz, input 65dB SSG signal. 2. Adjust VR to make the set output 0dB (0.775V). 3. Reduce the output of SG 12dB. 4. Adjust VR102 until output level decrease to 3dB
Stop seek sensitivity (SD)	VR101	<ol style="list-style-type: none"> 1. Tune at 98.1MHz, input a 25dB non-modulated SSG signal. 2. Adjust VR101 so that the voltage of TP3 is 5V.
MPX Pilot canceller	VR2 (880-0304A)	<ol style="list-style-type: none"> 1. Tune at 98.1MHz, input a 65dB, modulation (PL 10%). 2. Adjust VR2 so that output of the set is minimum.
Separation	VR1 (880-0304A)	<ol style="list-style-type: none"> 1. Tune at 98.1MHz, connect the output of a stereo modulator to the external modulation terminal, and input a 65dB SSG signal. 2. Set the stereo modulator to the L or R ch and adjust VR1 so that the maximum separation is obtained.
DK VCO	VR1 (880-0201B)	<ol style="list-style-type: none"> 1. Tune at 98.1MHz, input a 65dB 10% modulated SSG signal, and turn on VF. SW. 2. Connect the frequency counter to DK TP and adjust VR1 so that the counter indicates 125Hz. In the case.
DK level	VR608	<ol style="list-style-type: none"> 1. Tune at 98.1MHz 100% (Main + PL + DK + SK + BK) modulated SSG signal, and turn on VF. SW. 2. At the time of minimum sound volume, adjust VR608 to make the speaker output 0.775V.

- SPECIFICATION -LIMIT- Quieting sensitivity: MW Less than 33dB (at 20dB S/N)
LW Less than 40dB (at 20dB S/N)
UKW Less than 12dB (at 30dB S/N)
- Stereo separation: UKW More than 20dB

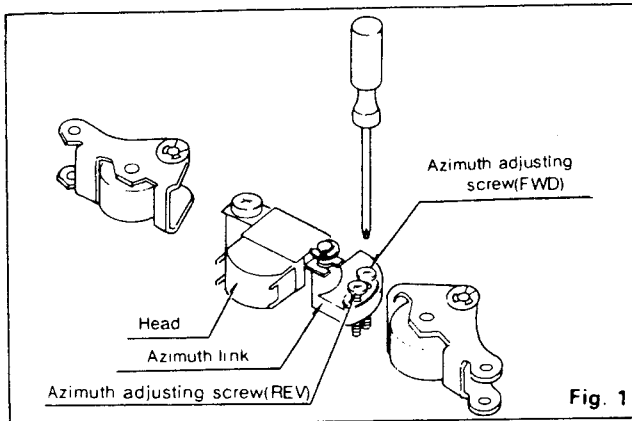
● ADJUSTMENT POINT



< TAPE MECHANISM >

1. Head-azimuth Adjustment

Make playback for the azimuth-tape (8kHz, -10VU), and turn each azimuth-adjusting screw to make each FWD & REV maximum. After adjustment, make adhesion with bond.



- SPECIFICATION - LIMIT -
Wow & flutter: Less than 0.25% (W.R.M.S)

■ EXPLANATION OF IC's:

Refer to description in IC service manual vol. 1.

LA3365	051-0501-00	PLL FM Multiplex Stereo Demodulator (DK Type)	P.15
LA2110	051-0407-00	FM Noise Canceller	P.17
TC4016BP	051-0158-00	Quad Bilateral Switch	P.39

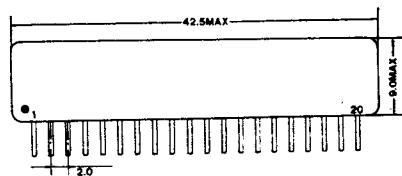
Refer to description in IC service manual vol. 2.

LA2220	051-0739-00	ARI System SK TYPE	P.11
LA3430	051-0733-01	FM MPX	P.9
HA12438FP	051-0730-00	FM FRONTEND	P.7
NJM2058D	051-0287-51	Quad OP Amp	P.41
M51522AL	051-0301-02	Dual Pre Amplifier	P.18
MB3756	051-0526-00	Constant-voltage Source	P.51
TD62551S	051-0568-01	Common Emitter Transistor Array	P.46
TA7250BP	051-0748-00	23W BTL Power Amp	P.33
TA7411AP-456	051-0798-21	FM IF System	P.8
TA7251BP	051-0815-00	23W BTL Power Amp	P.33

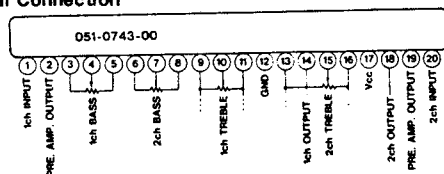
- BASS-TRE-MIX 051-0743-00
- 051-0743-70

051-0743-70 is the same electrical specification as 051-0743-00. But the first is only smaller size than the second.

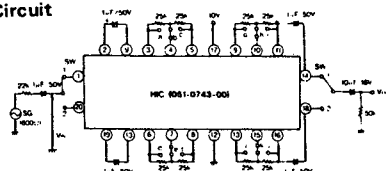
Outworn



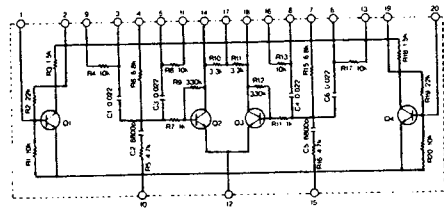
Terminal Connection



Test Circuit



Equivalent Circuit



Absolute Maximum Ratings

Item	Symbol	Rating	Unit
Power voltage	V _{cc}	18	V
Operating temperature	T _{opr}	-30 ~ +75	°C
Storage temperature	T _{stg}	-40 ~ +85	°C
Power dissipation	P _d	400	mW

Electrical Characteristics (T_a = -20 ~ +70°C, V_{cc} = 10V ± 5%)

Item	Symbol	Condition	SW	Min.	Typ.	Max.	Unit
Voltage gain	GV ₀	f=1kHz V _o =100mVrms	*	-3.0	-2.0	-1.0	dB
-do-	GV ₁	f=100Hz V _o =100mVrms	1b 2d	8.0	-	13.0	dB
-do-	GV ₂	f=100Hz V _o =100mVrms	1c 2f	-8.0	-	-13.0	dB
-do-	GV ₃	f=10kHz V _o =100mVrms	1g 2j	7.5	-	12.0	dB
-do-	GV ₄	f=10kHz V _o =100mVrms	1i 2l	-7.5	-	-12.0	dB
Signal to noise ratio	SN	f=1kHz V _o =1Vrms	*	65	-	-	dB
Cross talk	CT	f=1kHz V _o =1Vrms	*	60	-	-	dB
Total harmonic distortion	T.H.D	f=1kHz V _o =1Vrms	*	-	-	0.2	%

Note) SW condition marked * is both 1bh and 2ek.

When GV₁-GV₄, all SW which are not described place at center and test both condition SW1 and SW2.

both condition SW1 and SW2.

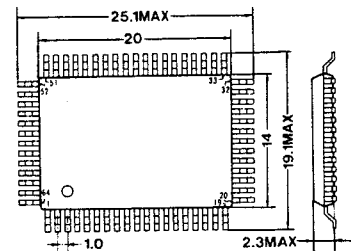
But, ratings of GV₁-GV₄ are with center position of SW.

When non-signal, input is shorted and when test noise, don't pass through filter.

■ μPD1714G-542-12 051-0794-10 PLL Frequency Synthesizer & Tuner Controller

(IC 051-0794-00 is unuseable instead of 051-0794-10)

I Outward Form



II Outline

This IC, which can receive FM, MW and LW, is a complete 1-chip controller incorporating a prescaler, PLL frequency synthesizer and LCD driver.

- (1) Single power source, 5V ± 10%.
- (2) Prescaler incorporate (150MHz).
- (3) PLL frequency synthesizer incorporated.
- (4) LCD driver incorporated (1/2 duty, 1/2 bias, driven by 5V ± 10%, frame frequency: 100Hz).
- (5) Preset memory: 24 stations (FM: 12, MW: 6, LW: 6).
- (6) Preset memory channel display by 7-segment number.
- (7) One station each of last channel memory FM, FM(SAM), MW and LW. 4 stations in total.
- (8) With signal auto memory function. Independent call available using 6 stations (auto write enable memory) of the FM preset memory.
- (9) Music selection by manual tuning (M. UP/DOWN key) and auto tuning (SEEK UP/DOWN key) (saw-tooth wave tuning, with IF counter).
- (10) With AUTO VF RETUNE function.
- (11) Auto tuning of the ARI (traffic information) station available.
- (12) STEREO and SK display available.
- (13) RADIO/TAPE dual function key (4CH/APC, 5CH/MTL, 6CH/□).
- (14) With LOUDNESS control terminal.

III Absolute Maximum Ratings

Item	Symbol	Rating	Unit
Supply voltage	V _{DD}	-0.3 ~ +6.0	V
Input voltage	V _I	-0.3 ~ +V _{DD}	V
Output voltage	V _O	-0.3 ~ +V _{DD}	V
Output sink current	I _O	10	mA

IV Receive Bands

Band	Frequency Range	Channel Space		Comparative Frequency	Intermediate Frequency
		Manual	Auto		
UKW	87.50 - 108.00MHz	25kHz	50kHz	12.5kHz	10.7MHz
MW	531 - 1602kHz	9kHz	9kHz	9kHz	459MHz
LW	153 - 281kHz	1kHz	1kHz	1kHz	459MHz

V Music Select Function

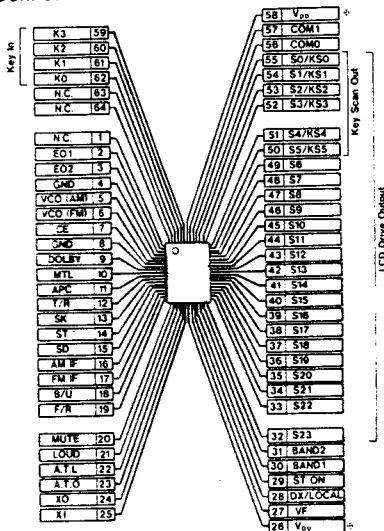
1 Auto tuning

Auto tuning is done by the SEEK UP/DOWN key. If this key is pressed, a search will be performed first in the LOCAL mode. If the same key is pressed again when reaching a tuning start frequency or halfway, the search will be performed in the DX mode. Once received, that station will be held. When ARI and VF are both ON, if both SD and SK signals are input at the High level in the traffic information station search mode, that station will be received and held.

2 Manual tuning

Manual tuning is done by the M. UP/DOWN key. Every time this key is pressed, a frequency will be increased or decreased step by step. If it is kept pressed for 500ms or more, fast forwarding will be performed at a speed of 50~80ms per step until the key is released.

VI Terminal Connection



VII Terminal Description

Pin No.	Symbol	I/O	Function
1	N.C.	-	Not in use.
2	EO1	O	PLL error output terminals. When divided VCO output is higher than a reference frequency, "H" is output from these terminals, and when it is lower, "L" is output. When they coincide with each other, floating occurs. Use either EO1 or EO2 because same wave form is output from them.
3	EO2	O	
4	GND	-	Ground.
5	VCO(AM)	I	Inputs VCO output of 0.6 to 15MHz (0.3 Vp-p MIN.)
6	VCO(FM)	I	Inputs VCO output of 15 to 150MHz (0.5 Vp-p MIN.)
7	CE	I	Select signal input terminal of a device. Set to "H" when you make the device function normally, and set to "L" when you do not use it.
8	GND	-	Ground.
9	DOLBY	O	DOLBY ON/OFF selector output terminal. "H" when DOLBY is turned on, and "L" when turned off. Corresponding to the DOLBY ON/OFF key, DOLBY is turned off("L") when V _{DD} is turned on. (See Momentary Sw. No. ③)
10	MTL	O	METAL ON/OFF selector output terminal. "H" when METAL is turned on, and "L" when turned off. Corresponding to the METAL ON/OFF key, METAL is turned off("L") when V _{DD} is turned on. (See Momentary Sw. No. ③)
11	APC	O	APC ON/OFF selector output terminal. "H" when APC is turned on, and "L" when turned off. Corresponding to the APC ON/OFF key, APC is turned off("L") when V _{DD} is turned on. (See Momentary Sw. No. ④)
12	T/R	I	Cassette pack-in detect input terminal. Pulls up through a transistor switch. Judges "L" as cassette pack-in.
13	SK	I	SK station detect input terminal. Judges "L" as the SK station. Displays by LCD when receiving FM.
14	ST	I	ST station detect input terminal. Pulls up by being connected to the ST IND terminal of MPX IC. Judges "L" as the ST station. Displays by LCD only when executing in the ST ON mode, with FM selected. (See Momentary Sw. No. ②)
15	SD	I	Station select input terminal when auto tuning is performed. Stops when SD=IF count=1. In the VF mode, it stops when SD=IF count = SK = 1.
16	AM IF	I	AM IF signal input terminal.
17	FM IF	I	FM IF signal input terminal.
18	B/U		
19	F/R	I	Tape run direction detect input terminal. Valid when the pin 12(T/R) is "L". "L" in the FOW mode, and "H" in the REV mode.

Pin No.	Symbol	I/O	Function																
20	MUTE	O	Output terminal to eliminate a shock noise when the PLL unit is unlocked. Active "L".																
21	LOUD	O	LOUDNESS ON/OFF selector output terminal. "H" in the LOUDNESS ON mode, and "L" in the LOUDNESS OFF mode. Corresponding to the LOUDNESS ON/OFF key, LOUDNESS is turned off("L") when V _{DD} is turned on. (See Momentary Sw. No. 7)																
22	A.T.L.																		
23	A.T.O.																		
24	XO	I	This is a connection terminal for a crystal oscillator. Connect a 4.5 MHz crystal to it. Adjust the oscillation frequency while observing the XO terminal.																
25	XI																		
26	V _{DD}	-	This is the power supply terminal of the device. When the device operates, a voltage of 5V ± 10% will be supplied.																
27	VF	O	VF ON/OFF selector output terminal. "L" in the VF ON mode, and "H" in the VF OFF mode. Corresponding to the VF ON/OFF key, VF is turned off("H") when V _{DD} is turned on. Valid only in case of FM. (See Momentary Sw. No. ⑥)																
28	DX/LOCAL	O	Auto DX/LOCAL terminal in auto tuning such as SEEK, AUTO STORE, and so on. Valid in all bands of FM, MW and LW. "H" in the LOCAL mode, and "L" in the DX (normal reception) mode.																
29	ST ON	O	Stereo/monaural selector output terminal. "H" in the STEREO ON mode, and "L" in the STEREO OFF mode (forced monaural). Corresponding to the STEREO ON/OFF key, the STEREO ON("H") mode is set when V _{DD} is turned on. Valid only when FM is received.																
30	BAND1	O	Band select signal output terminal. Output is made as follows:																
31	BAND2	O																	
<table border="1"> <thead> <tr> <th>Band</th> <th>Terminal</th> <th>BAND1</th> <th>BAND2</th> </tr> </thead> <tbody> <tr> <td>FM</td> <td></td> <td>H</td> <td>H</td> </tr> <tr> <td>MW</td> <td></td> <td>L</td> <td>H</td> </tr> <tr> <td>LW</td> <td></td> <td>L</td> <td>L</td> </tr> </tbody> </table>				Band	Terminal	BAND1	BAND2	FM		H	H	MW		L	H	LW		L	L
Band	Terminal	BAND1	BAND2																
FM		H	H																
MW		L	H																
LW		L	L																
32	S23	O	Segment signal output terminal to the LCD panel.																
49	S6	O	Terminal which outputs segment signal to the LCD panel and key matrix signal. (See Key Matrix)																
50	S5/KS5	O																	
55	S0/KS0	O																	
56	COM0	O	Common signal output terminal to the LCD panel.																
57	COM1	O																	
58	V _{DD}	-	See Pin No. 26.																
59	K3	I	Key matrix signal input terminal. (See Key Matrix)																
62	K0	I																	
63	N.C.	-	Not in use.																
64	N.C.	-																	

VIII Key Matrix

OUT	IN	K3 59Pin	K2 60Pin	K1 61Pin	K0 62Pin
KS0 55Pin			① M3	② M2	③ M1
KS1 54Pin	⑦ LD	⑧ M6/□	⑤ M5/MTL	④ M4/APC	
KS2 53Pin	⑥ VF/M.DN *1	⑨ TM/M.UP *2	⑩ DOWN	⑪ UP	
KS3 52Pin	⑫ SAM	⑬ PSS	⑭ BND	⑯ ST	
KS5 50Pin	⑰ B.S	⑱ ARI			

□ : Momentary Sw.

▭ : Diode Sw.

*1 with ARI → VF
without ARI → M.DN

*2 with ARI → TM
without ARI → M.UP

(1) Diode Sw.

No.	Sw. name	Function
⑱	ARI	This switch sets whether the ARI mode is enabled/disabled. Open : ARI mode disabled Short-circuit by diode : ARI mode enabled
⑰	B.S	This switch selects a reception band. (See Momentary Sw. No. ⑬) Open : UKW → MW → LW → UKW Short-circuit by diode : UKW → MW → UKW → MW

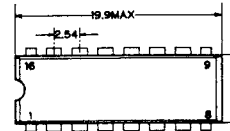
(2) Momentary Sw.

No.	Sw. name	Function
①	M1	Preset memory write/call key. FM, MW and LW can be independently memorized for one key. There are 24 stations in total; 6 channels for FM, 6 for FM SAM, 6 for MW and 6 for LW. Valid only in the RADIO mode. ①) When calling For example, if the M1 key is pressed and it is released within 2 seconds with the FM band selected, a frequency memorized there will be called upon its release. When the key is pressed during auto tuning, the frequency is called upon pressing, because a write action is disabled. ②) When writing For example, if the M3 key is kept pressed for 2 seconds or more with the MW band selected, a frequency being displayed will be written to M3. The SEEK mode and TAPE mode disable a write action.
②	M2	
③	M3	
④	M4	
⑤	M5	
⑥	M6	

No.	Sw. name	Function
4	APC	APC ON/OFF selector switch. (See Terminal Description Pin No. 11)
5	MTL	METAL ON/OFF selector switch. (See Terminal Description Pin No. 10)
6		DOLBY ON/OFF selector switch. (See Terminal Description Pin No. 9)
7	LD	LOUDNESS ON/OFF selector key. If this key is pressed during auto tuning, LOUDNESS ON/OFF can be shifted from ON to OFF and vice versa without stopping tuning. (See Terminal Description Pin No. 21)
8	VF	(1) If ARI ON is specified in initial setting, this key will become valid only when receiving FM. With the key turned on, a display is made by the LCD only in case of the FM mode. VF is held ON also when the FM mode is set again by changing reception bands after turning VF on in the FM mode. With VF turned on, auto tuning stops when $SD=IF$ count= $SK=1$. It does not stop by pressing this key during auto tuning. (See Terminal Description Pin No. 27) (2) VF auto retuning is performed (SEEK UP) under the following condition: In the VF ON mode, $SK \cdot SD$ is sampled every 2 seconds (checks 200 times every 10ms, and judges as the Low level when $SK \cdot SD=0$ in 101 check times or more). If the Low level continues 12 times (24 seconds), auto tuning will start. When $SK \cdot SD$ sampling is at the High level, a Low level count so far is cleared and a new Low level count starts from the next one. (3) a) In the FM mode, if $SK \cdot SD=0$ when shifting VF from OFF to ON, retuning will be done without counting. Counting will start without retuning, if $SK \cdot SD=1$. b) In the FM mode, if you return to FM-VF ON mode by calling a preset channel or M.UP/DOWN or by changing bands, PLL lock will be detected. After 500ms, if $SK \cdot SD=0$, VF retuning will be performed without counting, and if $SK \cdot SD=1$, counting will start without retuning.
9	TM	Tuning mode selector key. By changing over this key, the UP/DOWN key is changed over to the SEEK UP/DOWN key and M.UP/M DOWN key.
10	M. DN	Channel UP/DOWN key. Every time this key is pressed, a frequency is increased (M.UP) or decreased (M.DOWN) by 1 step. If this key is kept pressed for 0.5 second or more, fast forwarding will be performed at the following intervals until the key is released. FM mode : About 52ms MW mode : About 82ms LW mode : About 82ms If the M.UP key is pressed at an upper limit frequency, the frequency will jump to a lower limit one, and if the M.DOWN key is pressed at the lower limit frequency, the frequency will jump to the upper limit one.
11	M. UP	
12	DOWN	Every time 1-channel space is increased or decreased (FM : 50kHz, MW : 9kHz, LW : 1kHz), SD and IF counts are detected. When returning to FM by changing bands during SEEK UP/DOWN operation, if CE is set to the Low level once, and then, back to the High level, a search will not stop even if the TAPE mode is put into effect during SEEK UP/DOWN operation. When both ARI and VF are "ON", the traffic information station (VF) is searched. If either of them is "OFF", a normal broadcast station will be searched. If this key is pressed, a search will be performed in the upward (SEEK UP) and downward (SEEK DOWN) directions from the frequency being received in the LOCAL mode. As a result, if no station is found before reaching the frequency where you started a search initially, the station will be searched in the DX mode the next time on, skipping the initial frequency. Once again, when you come to the initial frequency, SD will be detected as to the initial frequency as well this time. If the same key is pressed again during a search in the LOCAL mode, a search will be performed in the DX mode from the frequency next to the initial one. Since the frequency may greatly change in this case, intervals of 250 to 375ms have been provided before detecting SD after outputting an N value (frequency division ratio), same as in changing over from the upper limit frequency to the lower limit frequency and vice versa. When a search is being performed in the DX mode, "DX" is displayed on the LCD panel. On the other hand, in the traffic information station search mode, if any high-level input is made, the SD and SK signals will stop at that frequency. In normal search mode, only the SD signal stops at the High level. When stopped during a search in the DX mode, the "DX" display disappears, and the receive mode is forcibly turned to the DX mode, including when a stoppage occurred during a search in the LOCAL mode.
13	UP	
14	ST	STEREO/MONAUURAL selector key for the FM band. Even if this key is pressed during auto tuning, STEREO/MONAUURAL can be changed over without stopping tuning. (See Terminal Description Pin No. 14)
15	BND	Reception band selector key. Every time this key is pressed, the reception band changes as follows: (See Diode Sw. No. (7)) (1) When B.S of the Diode switch is open: UKW → MW → LW → UKW (2) When B.S of the Diode switch is short-circuited: UKW → MW → UKW → MW
16	PSS	If this key is pressed, scanning of preset channels will start sequentially from the channel 1. If $SD=1$ ($SD=SK=1$ in the VF mode), subsequent channels will be sequentially received after stopping at that channel for about 5 seconds. If the key is pressed again, scanning will stop at that channel. In the SAM mode, a secondary memory is scanned. If this key is pressed during a preset call, scanning will start from the next channel.
17	SAM	Normally, the FM station memory has 1 to 6 channels. However, if the SAM mode is set by pressing this key, those channels can be automatically written and called. (only when receiving FM) (1) Calling procedure If the SAM key is pressed and released within 2 seconds, the secondary memory (to be referred to as S.M hereinafter) can be called and the SAM display will light up. At this time, the channel 1 can be called by pressing M1, M2 by pressing M2, thus up to the channel 6 by pressing respective keys. If the SAM key is pressed again and released within 2 seconds, S.M call will be cancelled and you will return to a frequency selected immediately before pressing this key. The last channel in the S.M mode is also held. (2) Writing procedure Regardless of whether it is the SAM mode or not, if the SAM key is kept pressed for 2 seconds or more, the SAM display will flicker and seek-up operation will start (first time in the LOCAL mode, and the second time on in the DX mode). If there is any station existing, the channels will be automatically memorized sequentially from the channel 1 up to the channel 6. After memorizing up to the channel 6, operation stops with the channel 1 called. If the SAM key is pressed again during the seek-up operation, the channel 1 will be called stopping the operation. In DX seek operation, a frequency same as one memorized in the LOCAL mode is skipped.

TC9153AP 051-0914-00 Dual Electronic Volume

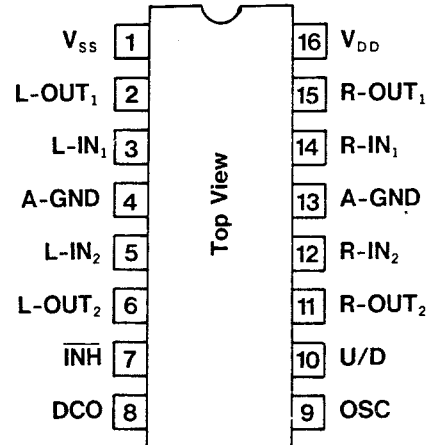
Outward Form



Features

- Control is possible for the attenuation up to 0dB to -66dB by 2dB/step.
- 2-channel built-in.
- Possible of use by both 1 and 2 power sources by (+), (-).

Terminal Connection



Pin No.	Symbol	Function	Note
1	V _{SS}	Ground	Lch, Rch
2	L-OUT ₁	10dB step attenuator output terminal. The signal added to IN can be attenuated up to 0 to -60dB at 7 stages with 10dB-step.	
3	L-IN ₁	10dB step attenuator input terminal.	IN ₁
4	A-GND		
5	L-IN ₂	2dB step attenuator input terminal.	IN ₂
6	L-OUT ₂		
7	INH	When this terminal is "L", all inputs are interrupted and inner status will be maintained. During the normal operation, it is switched to "H".	
8	DCO	DC-current output for display of attenuation amount. Attenuation amount divides the interval of 0 to ∞ into 13 steps, and one step about 100μA current is output.	By providing a resistor in between this terminal and pair V _{SS} , attenuation amount can be converted to DC-voltage.
9	OSC	C.R. connection terminal for oscillator. It is an oscillator for up-down control for attenuation amount, and by the constant at this time, up-down speed is decided.	V _{DD} V _{SS}
10	U/D	Attenuation-up/down control input terminal. When this terminal is at its "H" level, sound-volume is elevated in synchronism with the rising of oscillator. Reversely, "down" is made at time of "L" level.	Pull-up resistor is incorporated.
16	V _{DD}	Power supply terminal.	

■ PARTS LIST:

◎ Electrical section

◎ MAIN P.W.B

REF. NO.	PART NO.	DESCRIPTION	Q'TY
101,102,104 105,201 D301~304 306,401,402 409,416 501~515	001-0330-00	Diode (1SS119)	29
D519	001-0334-00	Diode (DSA17B)	1
D518,551	001-0360-00	Diode (S5566B)	2
D403	001-0361-00	Diode (1SS198)	1
D305	001-0377-41	Diode (MA4075M)	1
D103	001-0423-13	Diode (MA4033)	1
D517,550	001-0423-20	Diode (MA4062)	2
D516	001-0423-23	Diode (MA4082)	1
D415	001-0423-24	Diode (MA4091)	1
IFT101	005-0836-00	IF-transformer (MA)	1
IFT102	005-0976-00	IF-transformer (IFT)	1
L 502	009-0642-00	Choke	1
L 201	010-2006-00	Coil (76 μ H)	1
L 101	010-2046-03	Coil (0.39 μ)	1
L 501	010-2046-11	Coil	1
L 102	010-2046-12	Coil (2.2 μ)	1
L 503	010-2046-33	Coil	1
VR608	012-3808-04	Variable resistor (3.3k Ω VR)	1
VR101,102	012-3808-06	Variable resistor (10k Ω VR)	2
VR103	012-3808-11	Variable resistor (220k Ω VR)	1
CCT201	050-0086-01	Component circuit (33k Ω x8)	1
IC302	051-0158-00	IC (TC4016BP)	1
IC305	051-0287-51	IC (NJM2058D)	1
IC301	051-0301-02	IC (M51522AL)	1
IC501	051-0526-00	IC (MB3756)	1
IC201,202	051-0568-01	IC (TD62551S)	2
IC601	051-0743-70	IC (BASS/TRE MIX)	1
IC603	051-0748-00	IC (TA7250BP)	1
IC401	051-0794-10	IC (μ PD1714G-542-12)	1
IC101	051-0798-21	IC (TA7411AP)	1
IC602	051-0815-00	IC (TA7251BP)	1
IC304	051-0914-00	IC (TC9153)	1
SUP101	060-0122-00	Surge protector	1
X401	061-1053-61	Crystal (4.5MHz)	1
BAT101	088-0017-01	Battery	1
Q204,503,504 510	100-1175-60	Transistor (2SA1175)	4
Q507	101-0911-00	Transistor (2SB911)	1
Q508	102-1846-00	Transistor (2SC1846)	1
201 301~303 Q305,307,308 403,404,405 406,505,506 514,515	102-2458-00	Transistor (2SC2458)	15
Q101,102,401 402	102-2458-51	Transistor (2SC2458GR)	4
Q501,511,550 601~605	102-3400-00	Transistor (2SC3400)	8
Q304,509	103-1225-00	Transistor (2SD1225M)	2
Q502	100-1346-00	Transistor (2SA1346)	1

REF. NO.	PART NO.	DESCRIPTION	Q'TY
Q202,203,306 606	103-1450-50	Transistor (2SD1450S)	4
Q512,513	108-0161-50	FET (2SK161)	2
R514	114-2201-11	Film resistor (1W22 Ω) OM	1
C504	042-0356-00	Electrolytic capacitor (10V1000 μ F)	1
C107,318	042-0358-00	Electrolytic capacitor (10V1000 μ F)	2
C108	043-0165-20	Ceramic capacitor (16V0.1 μ F)	1
C116,121,301 302,510	160-1022-05	Ceramic capacitor (1000pF) HD	5
C115	160-1512-05	Ceramic capacitor (150pF) HD	1
C123	160-5612-05	Ceramic capacitor (560pF) HD	1
104,105,106 C112,113,402 410,411	171-1032-06	Ceramic capacitor (0.01 μ F SR) SC	8
C616,618	171-1522-06	Ceramic capacitor (1500pF) SC	2
C101,102,408	171-2232-06	Ceramic capacitor (0.022 μ F SR) SC	3
C118,120,311 312	171-3332-06	Ceramic capacitor (0.033 μ F SR) SC	4
C201	171-6832-06	Ceramic capacitor (0.068 μ F) SC	1
C202,350,351 352,508	172-1042-20	Polyester capacitor (63V0.1 μ F) SS	5
C617,619	172-8232-20	Polyester capacitor (0.082 μ F) SS	2
C622,624 631,633	173-1542-10	Polyester capacitor (0.15 μ F) S	4
C306,308	173-6821-10	Polyester capacitor (6800pF) S	2
C107	174-1000-13	Ceramic capacitor (10pF CH) TC	1
C405,406	174-2200-13	Ceramic capacitor (22pF CH) TC	2
C103	174-6090-13	Ceramic capacitor (6pF CH) TC	1
C620,626,629 635	179-1073-22	Electrolytic capacitor (10V100 μ F) S	4
313,327,502 C621,625,630 634	179-2273-23	Electrolytic capacitor (10V220 μ F) S	7
C627	179-2283-31	Electrolytic capacitor (16V2200 μ F) S	1
C403,503,505 609	179-4773-23	Electrolytic capacitor (10V470 μ F) S	4
111,114,319 320,321,322 C324,326,610 611,614,615 636	182-1053-62	Electrolytic capacitor (50V1 μ F) SS	13
110,323,325 506,603,604 C605,606,607 608	182-1063-32	Electrolytic capacitor (16V10 μ F) SS	10
C328,329,612 613	182-1073-22	Electrolytic capacitor (10V100 μ F) SS	4
C109	182-2253-62	Electrolytic capacitor (50V2.2 μ F) SS	1
C601,602	182-4753-52	Electrolytic capacitor (35V4.7 μ F) SS	2
C507	182-4763-22	Electrolytic capacitor (10V47 μ F) SS	1
117,119,124 C303,304,309 310,315,316 317,330	183-1053-62	Electrolytic capacitor (50V1 μ F) USS	11
C122,314	183-1063-32	Electrolytic capacitor (16V10 μ F) USS	2
C501	183-2263-32	Electrolytic capacitor (16V22 μ F) USS	1
C509	183-2263-52	Electrolytic capacitor (35V22 μ F) USS	1
C409	183-3343-62	Electrolytic capacitor (50V0.33 μ F) USS	1
C401	183-3353-62	Electrolytic capacitor (50V3.3 μ F) USS	1
C305,307,404	183-4763-12	Electrolytic capacitor (6.3V47 μ F) USS	3
C125	183-4763-32	Electrolytic capacitor (16V47 μ F) USS	1
C628	042-0357-00	Electrolytic capacitor (16V1000 μ F)	1

FM FRONT END 880-1407A

Ref. No.	Part No.	Description	Q'ty
D1	001-0368-00	Diode (1SV121)	1
D3	001-0423-13	Diode (MA4033)	1
D2,4,5	001-0442-00	Diode (1SV147)	3
VC1	004-1567-00	Trimer (20P)	1
IFT1	005-0966-00	IF-Transformer	1
IFT2,3	005-0967-00	IF-Transformer (MS3LK)	2
L4	010-1570-01	Coil (RF)	1
L1	010-2046-03	Coil (0.039μH)	1
L2	010-2046-14	Coil (3.3μH)	1
L6	010-2104-00	Coil (OSC)	1
L3,5	010-2105-00	Coil (L4.5T)	2
IC1	051-0730-00	IC (HA12438FP)	1
R14	117-1011-10	Chip resistor (1/16W 100Ω)	1
R6,11,13	117-1021-10	Chip resistor (1kΩ)	3
R12	117-1031-10	Chip resistor (10kΩ)	1
R3,7	117-1041-10	Chip resistor (100kΩ)	2
R5	117-2211-10	Chip resistor (220Ω)	1

Ref. No.	Part No.	Description	Q'ty
R2,9,10	117-3331-10	Chip resistor (33kΩ)	3
R8	117-4701-10	Chip resistor (47Ω)	1
R4	117-6831-10	Chip resistor (68Ω)	1
Q3	124-0114-15	Transistor (3SK114)	1
Q1	125-0001-01	Transistor (UN2111)	1
Q2	125-0006-00	Transistor (UN2110)	1
C11	176-1007-00	Ceramic chip capacitor (10pF)	1
C3,6,18	176-1501-00	Ceramic chip capacitor (15pF)	3
C14,15,16	176-2201-00	Ceramic chip capacitor (22pF)	3
C4	176-5601-00	Ceramic chip capacitor (56pF)	1
C5,9,13	176-6097-00	Ceramic chip capacitor (6pF)	3
C2	176-8097-00	Ceramic chip capacitor (8pF)	1
C21	178-1022-05	eramic chip capacitor (0.001μF)	1
C1,7,8,10,17	178-1032-05	Ceramic chip capacitor (0.01μF)	5
C12,19	178-2232-05	Ceramic chip capacitor (0.022μF)	2
C20	183-1053-62	Electrolytic capacitor (50V 1μF)	1

NC/MPX BLOCK Ass'y 880-0304A

REF.NO.	PART NO.	DESCRIPTION	Q'TY
VR ₁	012-3707-05	Variable resistor (VR10kΩ)	1
VR ₂	012-3707-08	Variable resistor (VR100kΩ)	1
CCT ₁	050-0099-50	Component circuit	1
IC ₁	051-0407-00	IC (LA2110)	1
IC ₂	051-0733-01	IC (LA3430)	1
X ₁	060-0115-02	Ceramic resonator	1
Q ₁	102-2458-49	Transistor (2SC2458-YGR)	1
R _{2,12}	117-1041-10	Chip resistor (1/4W100kΩ) S	2
R _{8,9}	117-2221-10	Chip resistor (1/4W2.2kΩ) S	2
R ₁₄	117-2231-10	Chip resistor (1/4W22kΩ) S	1
R ₆	117-3331-10	Chip resistor (1/4W33kΩ) S	1
R ₁₀	117-3921-10	Chip resistor (1/4W3.9kΩ) S	1
R ₁	117-4721-10	Chip resistor (1/4W4.7kΩ) S	1
R _{4,11,13}	117-5621-10	Chip resistor (1/4W5.6kΩ) S	3

REF.NO.	PART NO.	DESCRIPTION	Q'TY
R ₅	117-6821-10	Chip resistor (1/4W6.8kΩ) S	1
R ₃	117-8211-10	Chip resistor (1/4W820Ω) S	1
C ₆	171-2223-06	Ceramic capacitor (0.0022μF) SC	1
C ₁₆	171-3333-06	Ceramic capacitor (0.033μF) SC	1
C ₇	171-4733-06	Ceramic capacitor (0.047μF) SC	1
C _{2,3}	178-1032-05	Ceramic chip capacitor (0.01μF) HD,S	2
C ₁₀	178-2232-05	Ceramic chip capacitor (0.022μF) HD,S	1
C ₉	178-4722-05	Ceramic chip capacitor (0.0047μF) HD,S	1
C _{4,15}	178-6822-05	Ceramic chip capacitor (0.0068μF) HD,S	2
C _{11,12}	182-1053-62	Electrolytic capacitor (50V1μF) SS	2
C ₁₄	182-1063-32	Electrolytic capacitor (16V10μF) SS	1
C ₁₃	182-2243-62	Electrolytic capacitor (50V0.22μF) SS	1
C ₅	182-2263-32	Electrolytic capacitor (16V22μF) SS	1
C _{1,8}	182-4753-52	Electrolytic capacitor (35V4.7μF) SS	2

SDK P.W.B 880-0201B

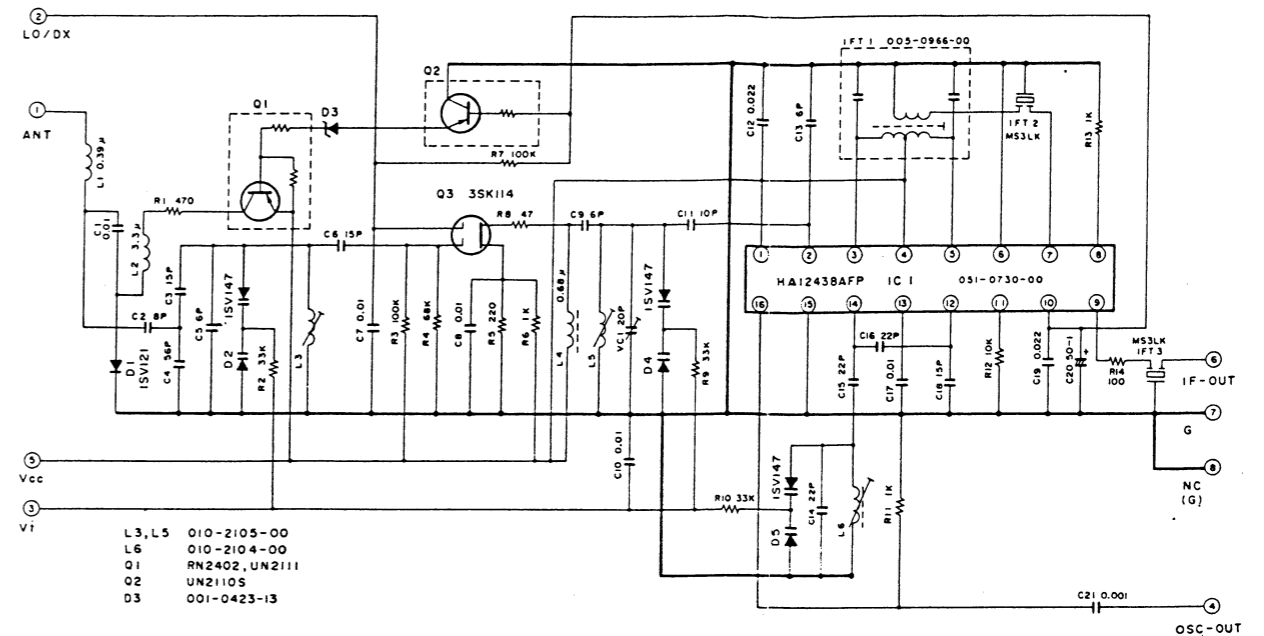
REF.NO.	PART NO.	DESCRIPTION	Q'TY
VR ₁	012-3707-05	Variable resistor (VR-10kΩ)	1
CCT ₁	050-0103-00	Component circuit (TCB06T0006)	1
IC ₂	051-0501-00	IC (LA3365)	1
IC ₁	051-0739-00	IC (LA2220)	1
X ₁	060-0115-01	Ceramic resonator (CBS456F11)	1
C ₂	171-4733-06	Ceramic capacitor (0.047μF)	1
C ₁₅	172-6831-20	Polyester capacitor (0.068μF)	1
C _{5,8}	042-0249-00	Electrolytic capacitor (16V0.22μF TAN)	2
C ₁₄	182-1053-62	Electrolytic capacitor (50V1μF)	1

REF.NO.	PART NO.	DESCRIPTION	Q'TY
C _{3,11,16}	182-1063-32	Electrolytic capacitor (16V10μF)	3
C ₉	182-1073-12	Electrolytic capacitor (6.3V100μF)	1
C ₁	182-1073-22	Electrolytic capacitor (10V100μF)	1
C ₇	182-2263-22	Electrolytic capacitor (10V22μF)	1
C ₆	182-3343-62	Electrolytic capacitor (50V0.33μF)	1
C ₁₂	183-6863-22	Electrolytic capacitor (10V68μF)	1
C ₄	182-4743-62	Electrolytic capacitor (50V0.47μF)	1
C ₁₃	182-4753-52	Electrolytic capacitor (35V4.7μF)	1
C ₁₀	182-4763-22	Electrolytic capacitor (10V4.7μF)	1

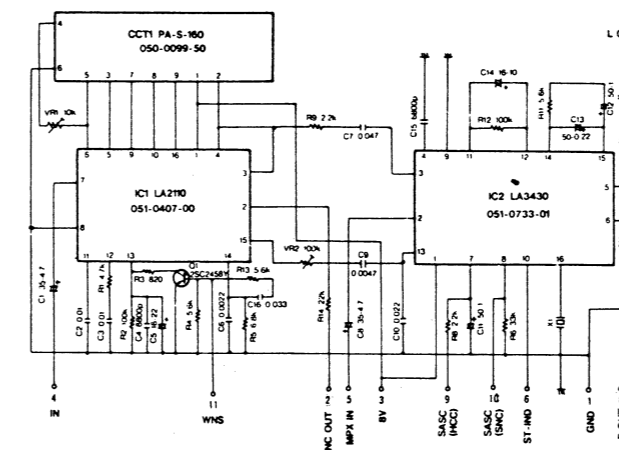
Note : OM (Oxidized Metal) SS (Super Small)
 S (Small) TC (Temperature-Compensating)
 HD (Higher Dielectric) LL (Low Leak)
 SC (Semi-Conductor) USS (Ultra Super Small)

BLOCK CIRCUIT DIAGRAM:

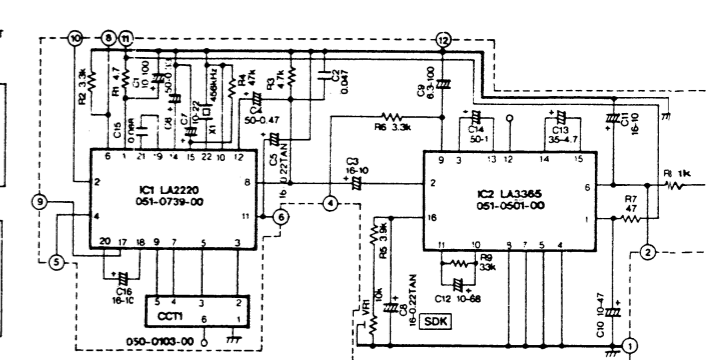
FM BLOCK Ass'y: 880-1407A



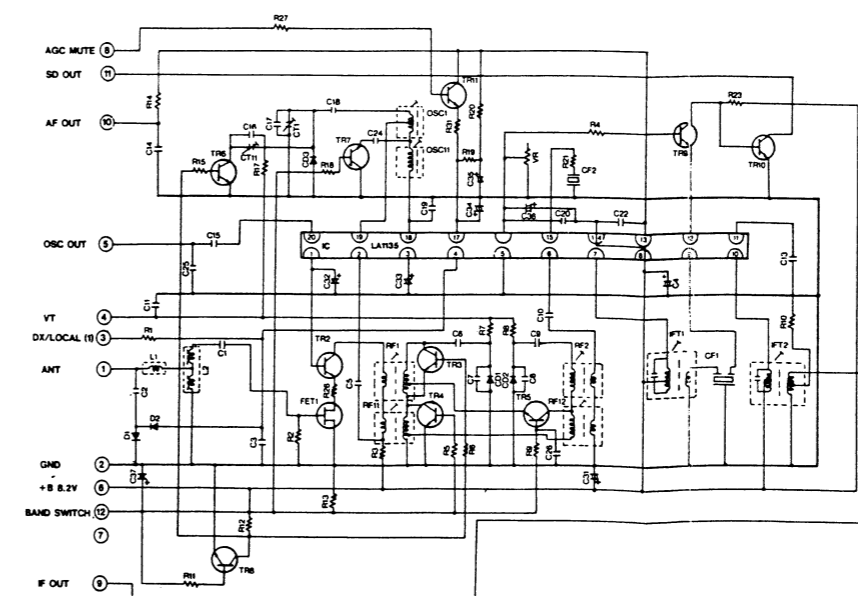
NC/MPX BLOCK Ass'y 880-0304A



SDK BLOCK Ass'y 880-0201B

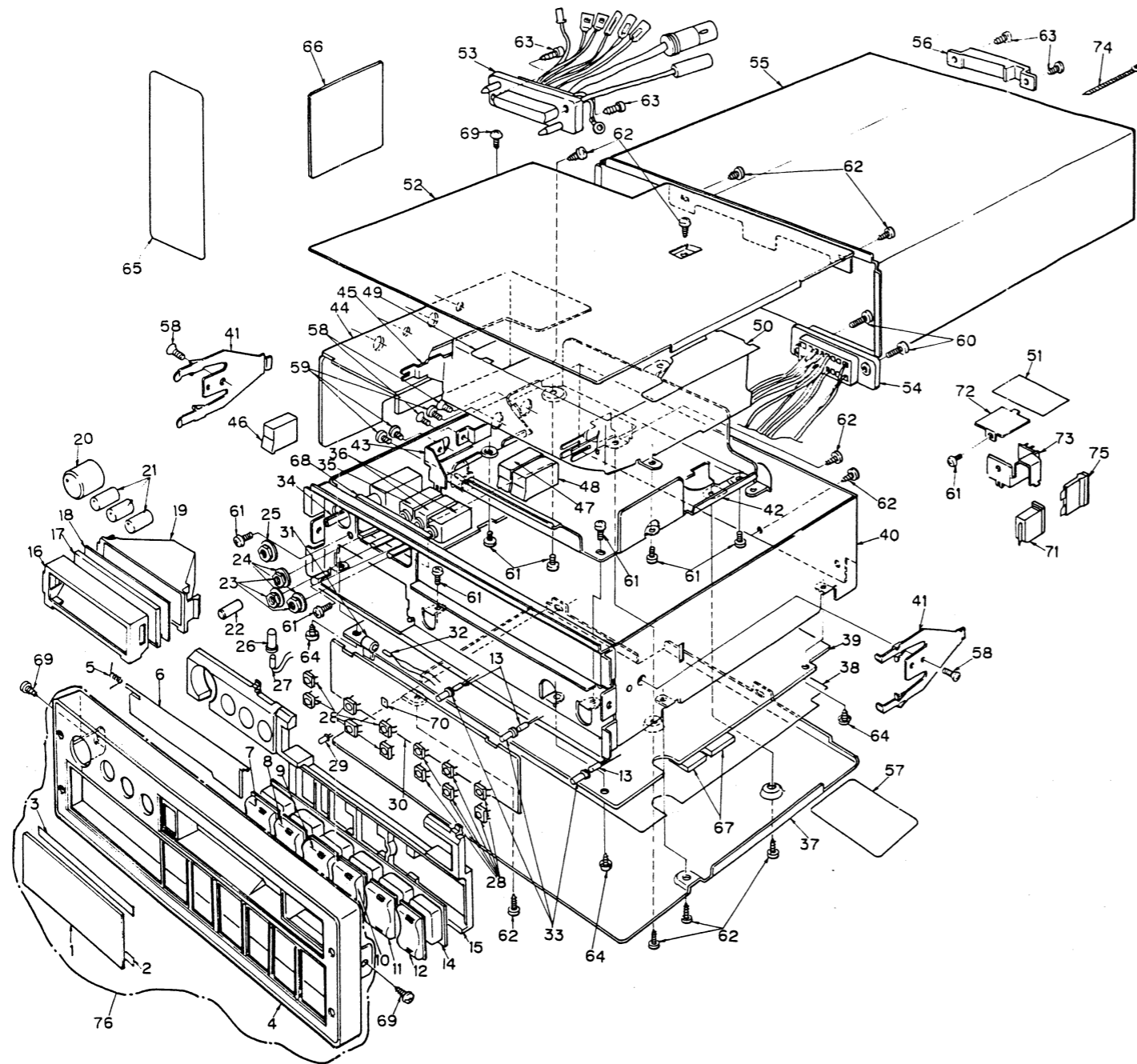


MW/LW TUNER PACK: 941-0159-02



EXPLODED VIEW · PARTS LIST:

©Main section

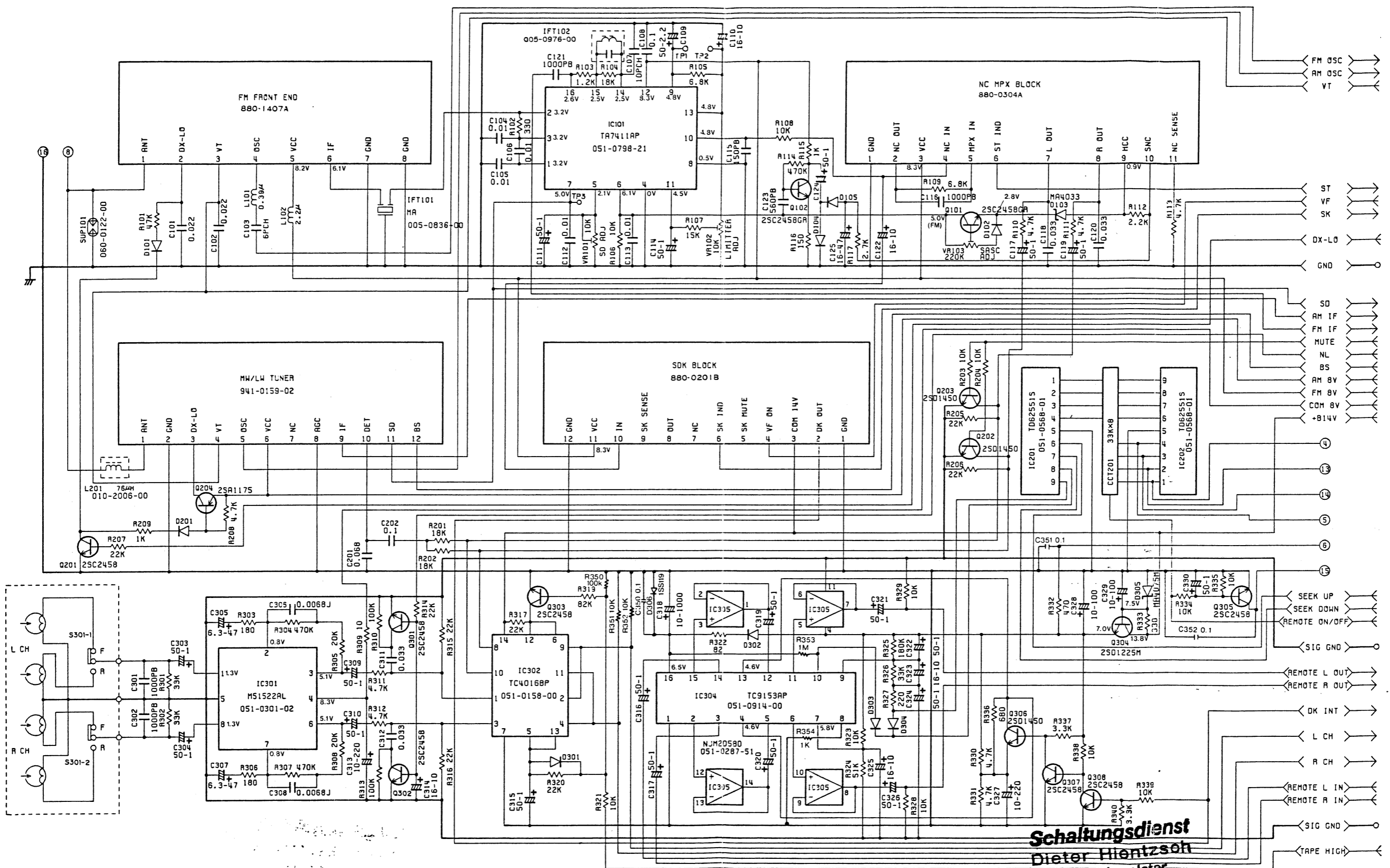


REF.NO.	PART NO.	DESCRIPTION	Q'TY
1	373-0485-02	Dial cover	1
2	347-2211-00	Adhesive tape	1
3	347-1025-00	Adhesive tape	1
4	370-4043-00	Escutcheon	1
5	750-2309-02	Spring	1
6	320-0387-48	Dust proof cover	1
7	382-1387-05	Button (V/A)	1
8	382-1387-04	Button (5/6)	1
9	382-1387-03	Button (3/4)	1
10	382-1387-02	Button (1/2)	1
11	382-1387-01	Button (VF/TM)	1
12	382-1387-00	Button (ST/BAND)	1
13	017-0338-06	Pilot lamp	3

REF.NO.	PART NO.	DESCRIPTION	Q'TY
14	345-4512-00	Rubber contact	1
15	335-2224-02	Illumi. plate	1
16	335-2225-00	LCD cover	1
17	379-0125-02	Indicator	1
18	371-3361-00	Trim plate	1
19	335-2570-00	LCD holder	1
20	380-4608-02	Knob	1
21	380-4830-00	Knob	3
22	345-4513-00	Lamp rubber	1
23	722-0332-00	Nut	3
24	745-0560-00	Washer	3
25	722-0368-00	Nut	1
26	345-3667-06	P.L. cap	1

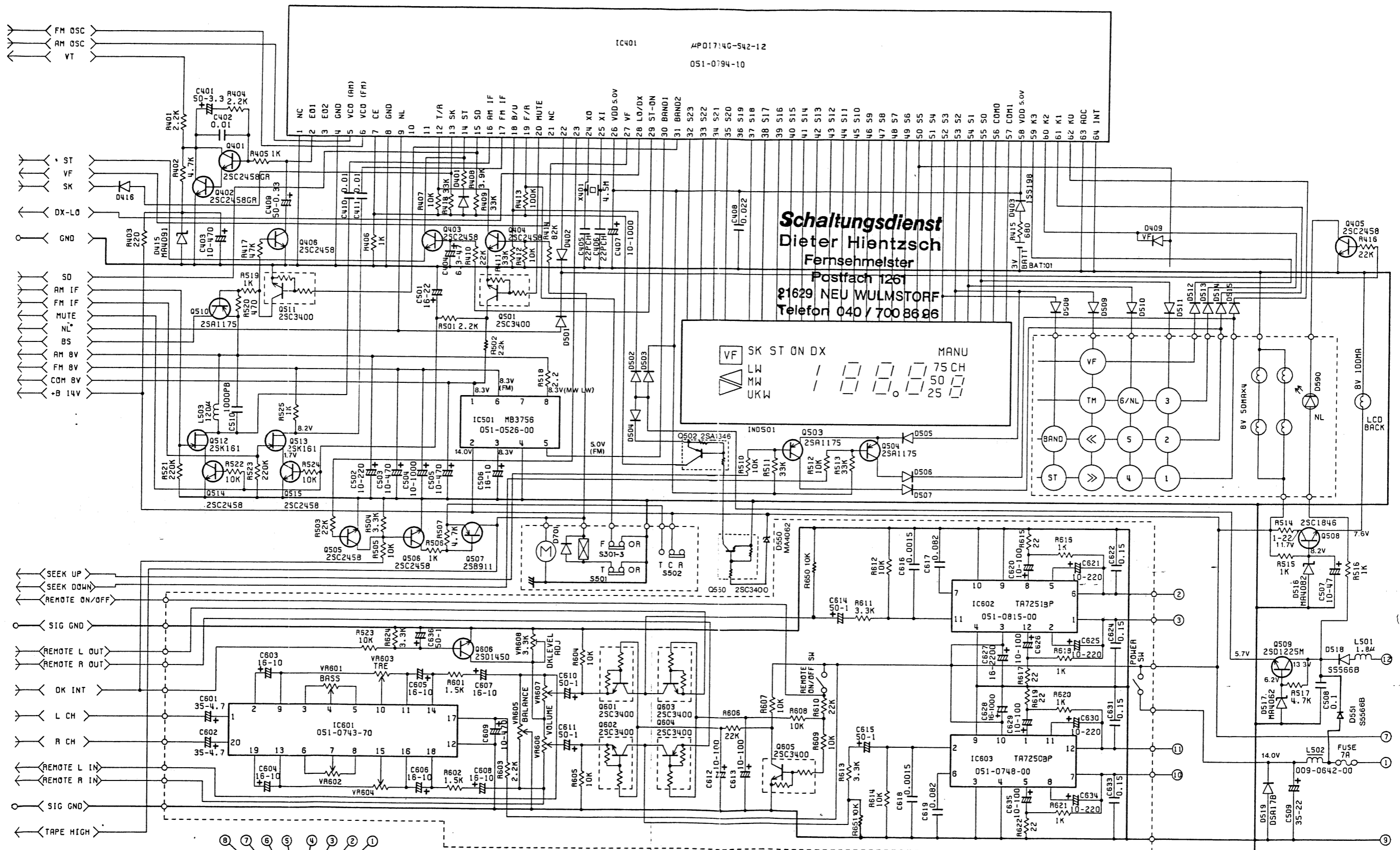
REF.NO.	PART NO.	DESCRIPTION	Q'TY
27	017-0346-04	Pilot lamp	1
28	013-3694-00	Tact switch	12
29	001-0369-00	LED lamp	1
30	099-8026-00	SW-P.W.B	1
31	345-3316-02	P.L. cap	1
32	017-0338-14	Pilot lamp	1
33	345-2830-79	P.L. cap	3
34	012-4602-00	Variable resistor	1
35	012-4603-00	Variable resistor	1
36	012-4604-00	Variable resistor	2
37	304-0392-01	Lower cover	1
38	347-2328-01	Insulator	1
39	099-8025-00	MAIN-P.W.B	1
40	312-0279-03	Chassis	1
41	750-2512-01	Spring	2
42	330-8557-00	Mecha. holder	1
43	330-8430-00	IC holder	1
44	313-1292-01	Heat sink	1
45	930-0556-15	Tape mechanism	1
46	382-1082-02	Button (PRO)	1
47	382-1292-00	Button (REW)	1
48	382-1291-00	Button (FF)	1
49	347-2146-00	Insulator	1
50	347-2329-01	Insulator	1
51	347-0290-00	Insulator	1
52	303-0340-01	Upper cover	1
53	852-9804-00	Extension lead	1
54	852-9803-00	Extension lead	1
55	300-7346-01	Mounting bracket	1
56	335-2164-00	Lead holder	1
57	286-6841-00	Set plate	1
58	714-3006-41	Machine screw (M3x6)	4
59	714-3006-81	Machine screw (M3x6)	3
60	714-4012-81	Machine screw (M4x12)	2
61	714-3004-81	Machine screw (M3x4)	9
62	731-3005-80	Tap tight (M3x5)	10
63	731-3010-80	Tap tight (M3x10)	4
64	716-0743-00	D-sems screw	3
65	285-1097-04	Guide label	1
66	347-2333-00	Insulator	1
67	345-4162-00	Spacer	2
68	330-8429-00	VR holder	1
69	714-3005-81	Machine screw (M3x5)	3
70	353-0268-00	Shade	1
71	077-0084-00	Fuse receptacle	1
72	330-8656-00	Shield plate	1
73	330-8558-00	Holder	1
74	335-0833-01	Lead holder	1
75	060-0057-05	Auto fuse (7.5A)	1
76	940-0804A	Escutcheon ass'y	1

CIRCUIT DIAGRAM:

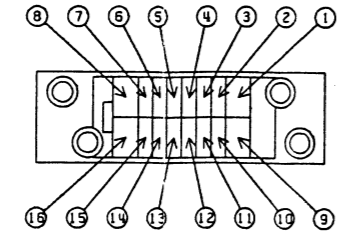
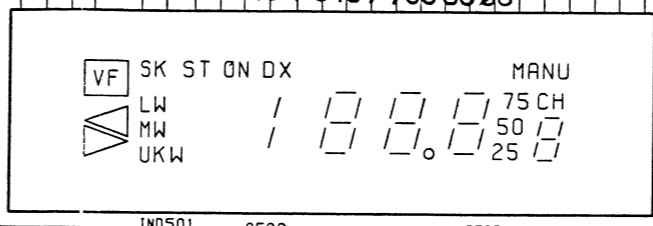


Schaltungsdienst
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 21629 NEU WULMSTORF
 Telefon 040 / 700 86 96

CIRCUIT DIAGRAM:

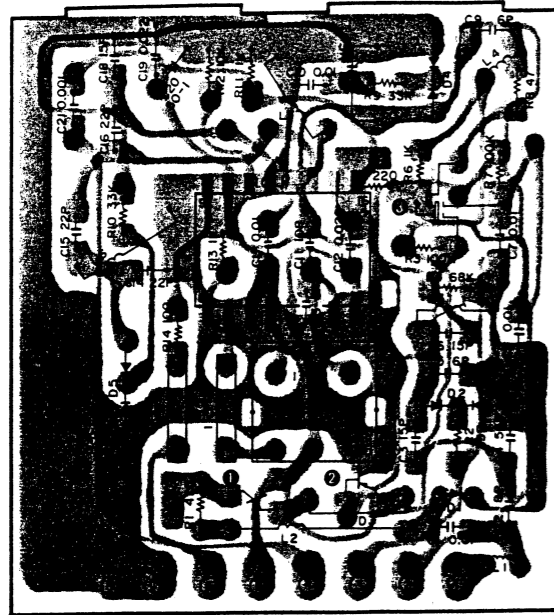


**Schaltungsdienst
Dieter Hientzsch
Fernsehmelster
Postfach 1261
21629 NEU WULMSTOFF
Telefon 040 / 700 86 86**

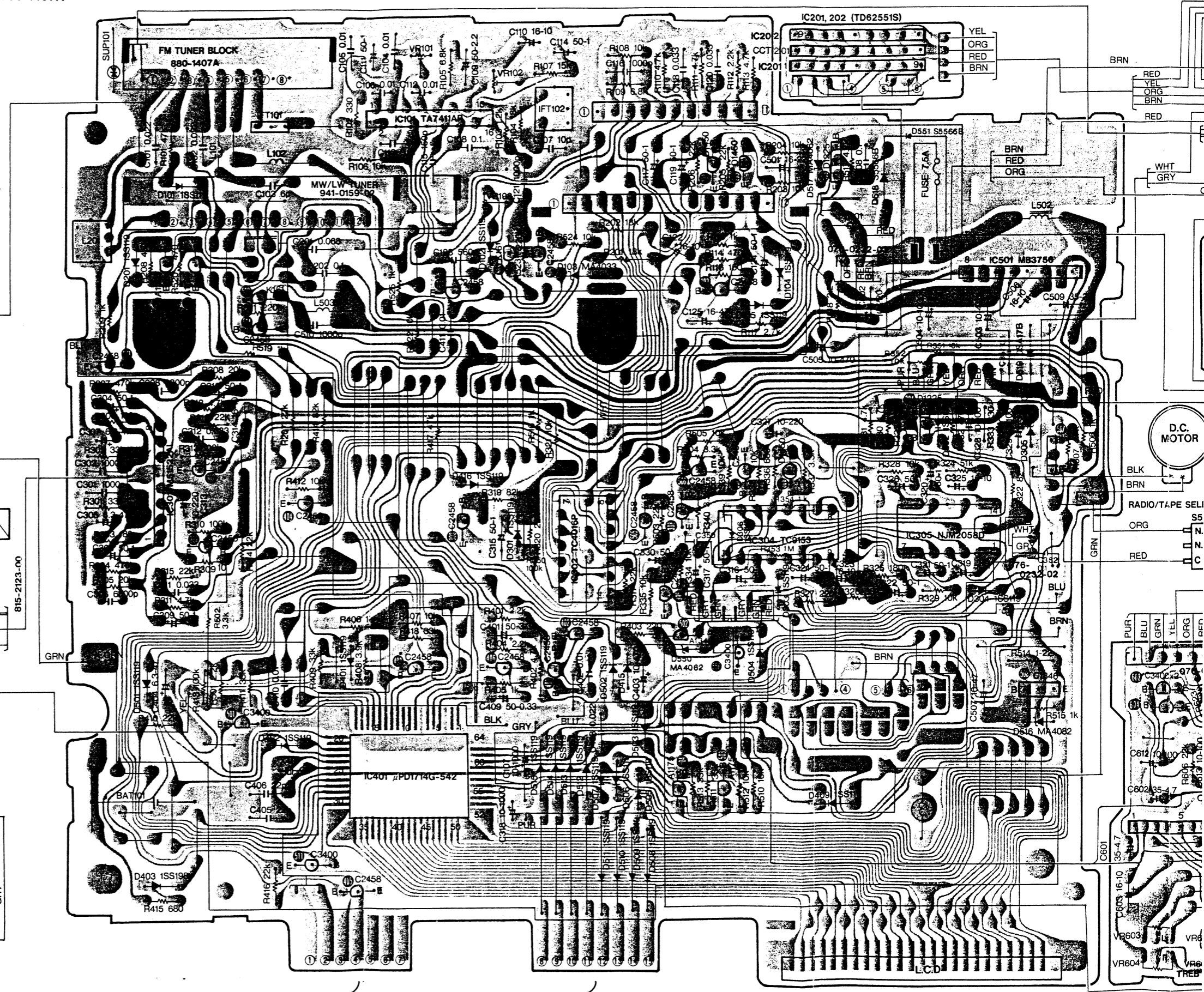
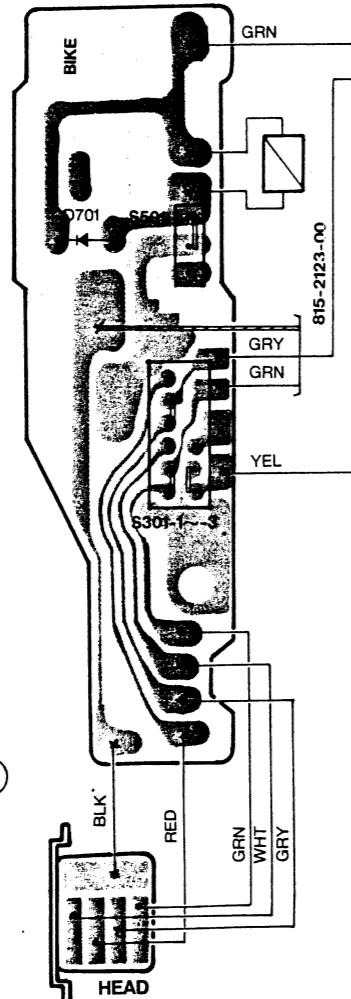
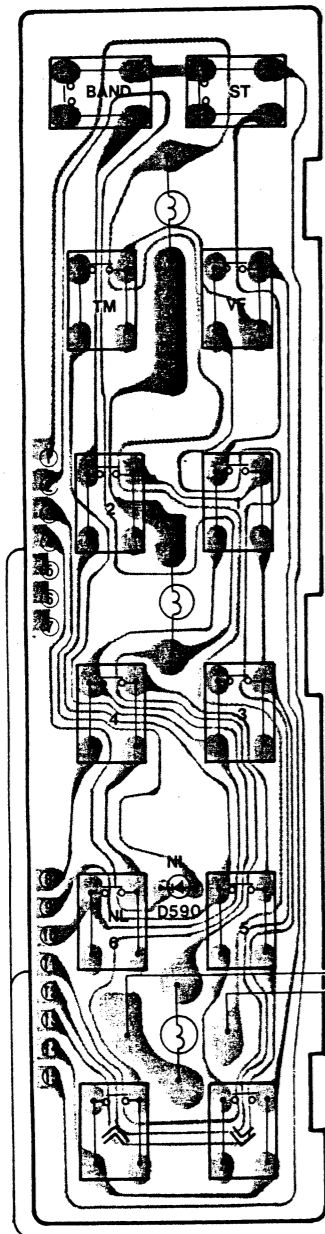


1	ACC +14V	9	GROUND
2	L CH SPØ	10	R CH SPØ
3	L CH SPØ	11	R CH SPØ
4	VOL UP	12	BACK UP +14V
5	SEEK UP	13	VOL DOWN
6	LEDØ	14	SEEK DOWN
7	POWER ANT	15	LEDØ
8	ANTØ	16	ANTØ GROUND

■ PRINTED WIRING BOARD:

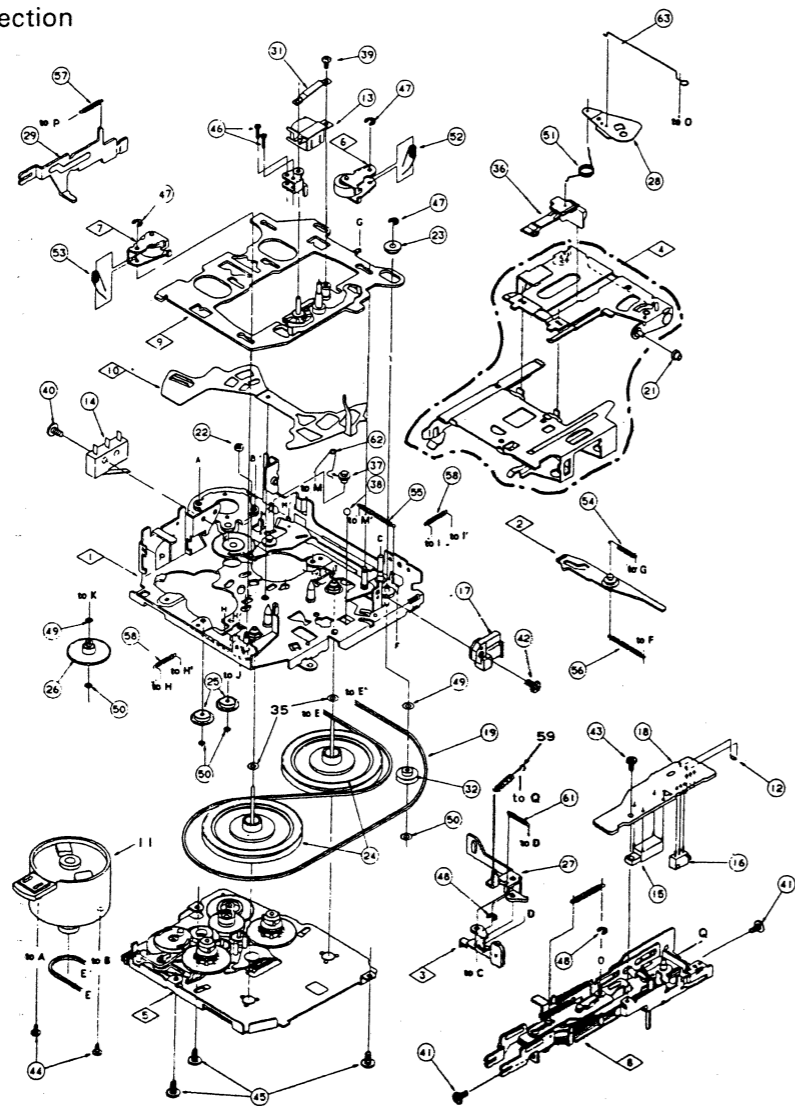


FM TUNER BLOCK
880-1407A



EXPLODED VIEW • PARTS LIST:

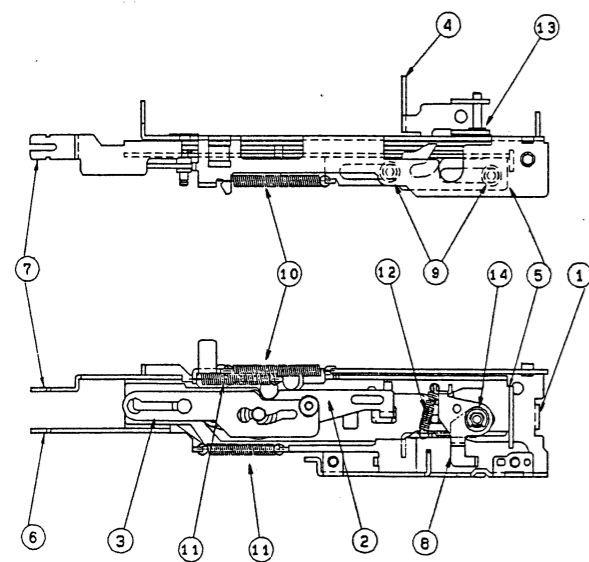
©Tape mechanism section



©Tape mechanism section

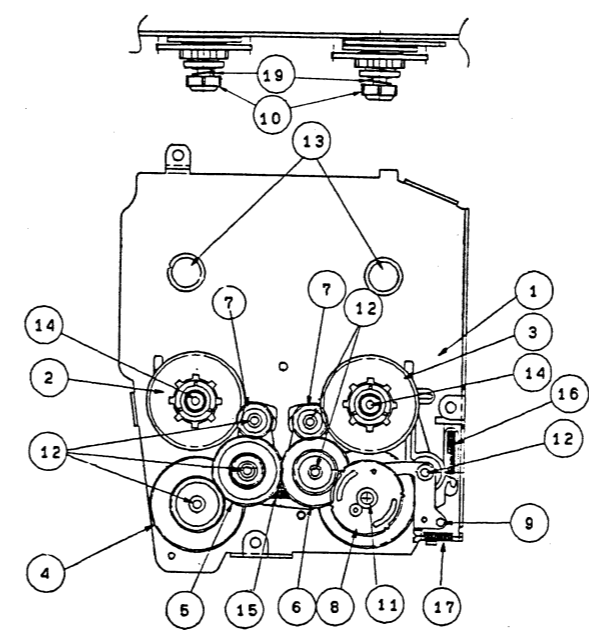
Ref. No.	Part No. (Order No.)	Description	Q'ty	Ref. No.	Part No. (Order No.)	Description	Q'ty
1	960-3834-02	Deck-P ass'y R	1	32	604-0035-00	Tension pulley	1
2	960-3837-04	Shift-P ass'y	1	35	746-0617-00	Washer	2
3	960-3839-03	Plunger-L ass'y	1	36	631-0552-02	Pack stopper	1
4	960-3950-00	Pack guide ass'y	1	37	632-1886-02	Lock pin	1
5	960-3850-07	Bottom sub-A-C	1	38	632-1888-00	Ball	1
6	960-3852-02	Roller ass'y F	1	39	714-2003-81	Machine screw (M2x3)	1
7	960-3853-02	Roller ass'y R	1	40	714-2308-81	Machine screw (M2.3x8)	1
8	960-3924-05	Frame sub-A-RS	1	41	714-2604-81	Machine screw (M2.6x4)	2
9	960-3947-01	Head-P-ass'y RD	1	42	714-2606-11	Machine screw (M2.6x6)	1
10	960-3881-03	CH plate ass'y	1	43	716-0485-00	Machine screw	1
11	SMA-112-101	Motor ass'y	1	44	716-0715-15	Screw	2
12	001-0330-00	Diode	1	45	716-0717-10	Screw	3
13	011-0296-10	Head	1	46	716-0718-20	Screw	2
14	013-2690-02	Switch	1	47	743-1500-20	E-ring	3
15	013-3807-00	Switch	1	48	743-2000-20	E-ring	2
16	013-3808-00	Switch	1	49	746-0624-00	Washer	2
17	015-0232-01	Plunger	1	50	746-0761-00	Washer	4
18	099-8019-00	PWB	1	51	750-2361-01	Spring	1
19	602-0103-10	Belt	1	52	750-2535-03	Roller spring F	1
21	610-0226-00	Roller	1	53	750-2536-03	Roller spring R	1
22	610-0293-01	Power roller	1	54	750-2537-02	Over-P-spring	1
23	610-0294-01	Head-P-G-roller	1	55	750-2538-01	Power-P-spring	1
24	611-0077-01	Flywheel	2	56	750-2539-01	Shift-P-spring	1
25	613-0095-01	FF idler gear	2	57	750-2541-01	Program spring	1
26	613-0101-00	Gear A	1	58	750-2545-00	FF gear spring	2
27	630-1930-01	OFF arm	1	59	750-2650-00	Off arm spring B	1
28	630-1932-02	Swing arm	1	60	750-2554-02	Click-P-spring	1
29	630-1934-02	Program lever	1	61	750-2555-02	OFF arm spring	1
30	630-1956-02	Adjust link	1	62	750-2568-00	Lock spring	1
31	630-1962-01	Head spring	1	63	750-2569-02	Eject rod RS	1

<960-3924-05 Frame sub-A-RS>



REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
1	960-3841-02	Frame ass'y RMS	1
2	960-3845-02	Click P-ass'y	1
3	960-3887-00	Select P-ass'y S	1
4	610-0296-01	Eject-P-roller	2
5	630-1931-01	Lock arm	1
6	630-1938-03	Eject plate RS	1
7	630-1943-05	FF lever	1
8	630-1948-05	REW lever	1
9	630-1951-02	SW plate	1
10	743-1500-20	E-ring	1
11	743-2000-20	E-ring	1
12	750-2549-01	Eject spring R	1
13	750-2550-02	FF spring	2
14	750-2556-01	SW plate spring	1

<960-3850-07 Bottom sub ass'y>

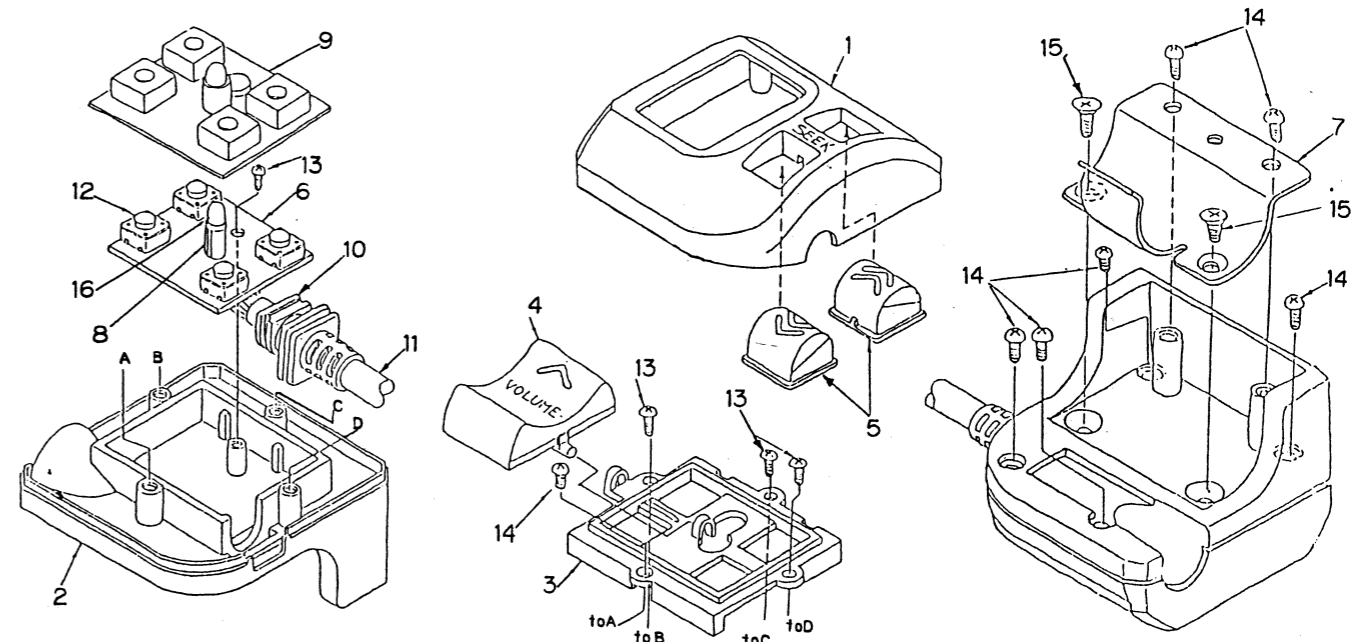


Ref. No.	Part No. (Order No.)	Description	Q'ty
1	960-3846-03	Bottom ass'y	1
2	960-3854-02	Reel ass'y F	1
3	960-3855-04	Reel ass'y R	1
4	613-0088-01	Gear B	1
5	613-0089-01	Gear F	1
6	613-0090-01	Gear R	1
7	613-0091-00	Play idler gear	2
8	613-0093-01	Change gear	1
9	631-0546-01	Lock link	1
10	631-0554-00	Slide bush	2
11	716-0716-00	Screw	1
12	746-0761-00	Washer	6
13	746-0767-00	Washer	2
14	746-0768-00	Washer	2
15	750-2542-00	Idler-P-spring	1
16	750-2543-01	Sensing spring	1
17	750-2544-01	Lock-L-spring	1
19	750-2564-01	Slide spring	2

©Tape mechanism section

Ref. No.	Part No. (Order No.)	Description	Q'ty	Ref. No.	Part No. (Order No.)	Description	Q'ty
1	960-3834-02	Deck-P ass'y R	1	32	604-0035-00	Tension pulley	1
2	960-3837-04	Shift-P ass'y	1	35	746-0617-00	Washer	2
3	960-3839-03	Plunger-L ass'y	1	36	631-0552-02	Pack stopper	1
4	960-3950-00	Pack guide ass'y	1	37	632-1886-02	Lock pin	1
5	960-3850-07	Bottom sub-A-C	1	38	632-1888-00	Ball	1
6	960-3852-02	Roller ass'y F	1	39	714-2003-81	Machine screw (M2 x 3)	1
7	960-3853-02	Roller ass'y R	1	40	714-2308-81	Machine screw (M2.3 x 8)	1
8	960-3924-05	Frame sub-A-RS	1	41	714-2604-81	Machine screw (M2.6 x 4)	2
9	960-3947-01	Head-P-ass'y RD	1	42	714-2606-11	Machine screw (M2.6 x 6)	1
10	960-3881-03	CH plate ass'y	1	43	716-0485-00	Machine screw	1
11	SMA-112-101	Motor ass'y	1	44	716-0715-15	Screw	2
12	001-0330-00	Diode	1	45	716-0717-10	Screw	3
13	011-0296-10	Head	1	46	716-0718-20	Screw	2
14	013-2690-02	Switch	1	47	743-1500-20	E-ring	3
15	013-3807-00	Switch	1	48	743-2000-20	E-ring	2
16	013-3808-00	Switch	1	49	746-0624-00	Washer	2
17	015-0232-01	Plunger	1	50	746-0761-00	Washer	4
18	099-8019-00	PWB	1	51	750-2361-01	Spring	1
19	602-0103-10	Belt	1	52	750-2535-03	Roller spring F	1
21	610-0226-00	Roller	1	53	750-2536-03	Roller spring R	1
22	610-0293-01	Power roller	1	54	750-2537-02	Over-P-spring	1
23	610-0294-01	Head-P-G-roller	1	55	750-2538-01	Power-P-spring	1
24	611-0077-01	Flywheel	2	56	750-2539-01	Shift-P-spring	1
25	613-0095-01	FF idler gear	2	57	750-2541-01	Program spring	1
26	613-0101-00	Gear A	1	58	750-2545-00	FF gear spring	2
27	630-1930-01	OFF arm	1	59	750-2650-00	Off arm spring B	1
28	630-1932-02	Swing arm	1	60	750-2554-02	Click-P-spring	1
29	630-1934-02	Program lever	1	61	750-2555-02	OFF arm spring	1
30	630-1956-02	Adjust link	1	62	750-2568-00	Lock spring	1
31	630-1962-01	Head spring	1	63	750-2569-02	Eject rod RS	1

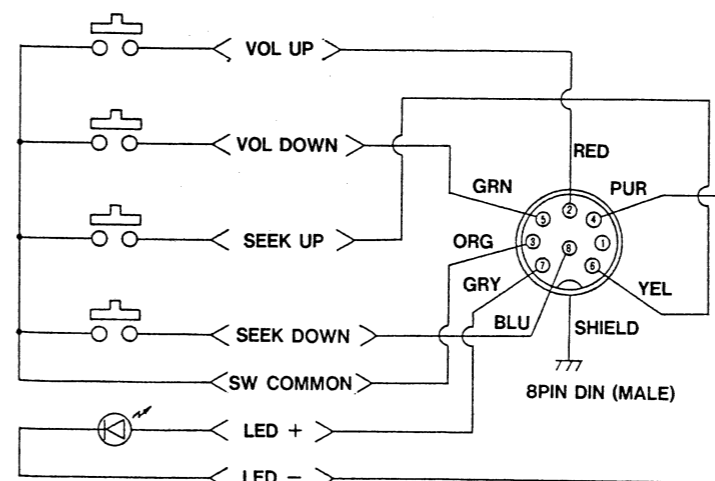
■RCB-021-100
■EXPLODED VIEW:



■PARTS LIST:

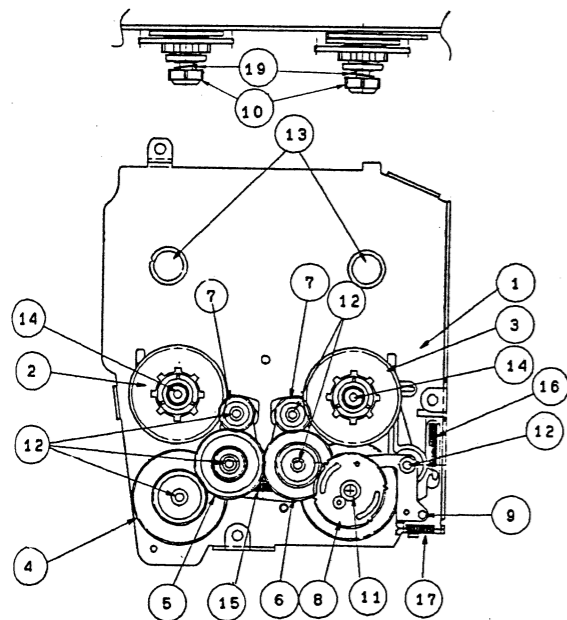
REF.NO.	PART NO.	DESCRIPTION	Q'TY	REF.NO.	PART NO.	DESCRIPTION	Q'TY
1	653-0064-01	Case A	1	9	653-0064-09	Bush A	1
2	653-0064-02	Case B	1	10	653-0064-10	Bush B	1
3	653-0064-03	Cover	1	11	653-0064-11	8P DIN plug cord	1
4	653-0064-04	Knob	1	12	653-0064-12	Switch	4
5	653-0064-05	Key top	2	13	653-0064-13	Tapping screw (M2.3x8)	4
6	653-0064-06	P.W. board	1	14	702-3008-19	Tapping screw (M3x8)	7
7	653-0064-07	Bracket	1	15	702-3008-49	Tapping screw (M3x8)	2
8	653-0064-08	LED holder	1	16	001-0381-00	LED (RED) TLR123	1

■CIRCUIT DIAGRAM:



<960-3850-07 Bottom sub ass'y>

Q'TY
1
1
1
2
1
1
1
1
1
1
2
1



Ref. No.	Part No. (Order No.)	Description	Q'ty
1	960-3846-03	Bottom ass'y	1
2	960-3854-02	Reel ass'y F	1
3	960-3855-04	Reel ass'y R	1
4	613-0088-01	Gear B	1
5	613-0089-01	Gear F	1
6	613-0090-01	Gear R	1
7	613-0091-00	Play idler gear	2
8	613-0093-01	Change gear	1
9	631-0546-01	Lock link	1
10	631-0554-00	Slide bush	2
11	716-0716-00	Screw	1
12	746-0761-00	Washer	6
13	746-0767-00	Washer	2
14	746-0768-00	Washer	2
15	750-2542-00	Idler-P-spring	1
16	750-2543-01	Sensing spring	1
17	750-2544-01	Lock-L-spring	1
19	750-2564-01	Slide spring	2