Date: 1987 - 11

FURUNO

PRESET INSTRUCTIONS for MARINE VHF RADIOTELEPHONE

MODEL FM-2510

FURUNO ELECTRIC CO., LTD.
NISHINOMIYA, JAPAN

(kago)
PRINTED IN JAPAN

FM-2510 PRESET INSTRUCTIONS

[PRECAUTION]

This instruction is prepared to be used by authorized Furuno agents and dealers to preset the FM-2510 to comply fully with the local regulations and other minor ristrictions. Please carefully read the instructions and follow the recommended procedures for preset operations.

Furuno will assure no responsibility for inconvenience or disturbance to communications due to inadequate or unlawful presetting of the equipment.

Please note again that the preset must be carried out by the authorized agent or dealer, not by the operator or owner of the equipment.

STANDARD SETTINGS

Depending on the market, the set is delivered from the factory in one of the following preset conditions.

PRESET / SUB-TYPE	USA・WX (S10−1)	PRIVATE (S10−2)	SCAN (S10−3)	AUTO 1W (S10−4)	DUP/SMP (S10−5)	N P (S10−6)	CH70 (−)	MAJOR MARKET
FM-2510-A	Yes (ON)	No (OFF)	Yes (ON)	Yes (ON)	− (OFF)	− (OFF)	INHIBIT	USA, CANADA
FM-2510-B	No (OFF)	No (OFF)	Yes (ON)	Yes (ON)	− (OFF)	− (OFF)	INHIBIT	General
FM-2510-C	No (OFF)	No (OFF)	No (OFF)	Yes (ON)	− (OFF)	− (OFF)	INHIBIT	FRANCE, HOLLAND

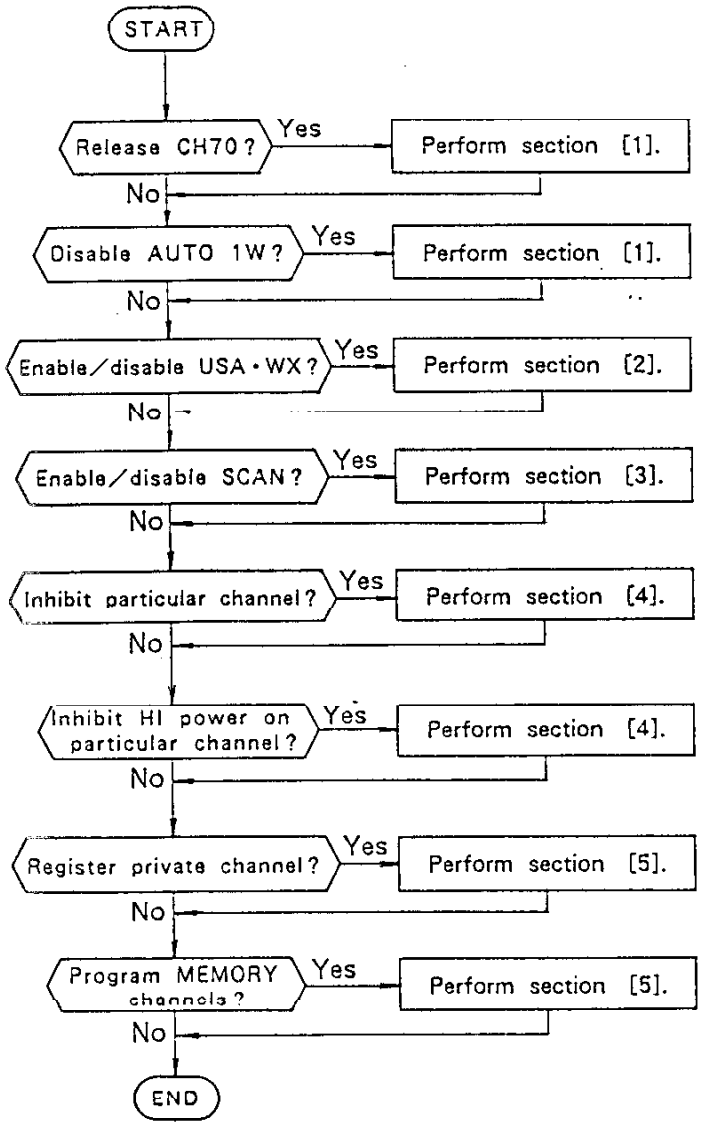
If the preset does not meet the local regulations, change the specifications referring to the descriptions on the following pages.

The change of specification may be necessary in the following cases.

- The set is installed in UK, but the boat is to cruise in US teritorial zone, or vise versa. That is, USA/WX channels inherent to US waters must be enabled or disabled. (See section [2].)
- Though private channels are inhibited on the standard set, some private channels are assigned by the authority for particular users. (See section [5].)
- Though transmission power on INTL CH15/17 and USA CH13/17/67 is switched to "LOW" automatically, some of these channels must be operated in "HI" power. (See section [1].)

- CH70 is inhibited (locked out) in the standard set, but it is permitted to use this channel under local regulations. (See section [1].)
- The auto-scan function must be disabled (or enabled) to meet the local regulations. (See section [5].)
- Some duplex channels must be changed to simplex for ship-to-ship communications. (See section [5].)
- In addition to INTL CH15/17 and USA CH13/17/67, some other channels must also be switched to low power mode automatically. That is, the "HI" power transmission on particular channels must be disabled. (See section [4].)
- Particular channels must be disabled (TX and RX) so that the operator can not access them from the front panel. (See section [4].)

General preset sequence is summarized in the flow chart below.



CAUTION

Pressing the RESET button cancells all the presets, and brings the equipment to the default state.
(Refer to Appendix–A.)

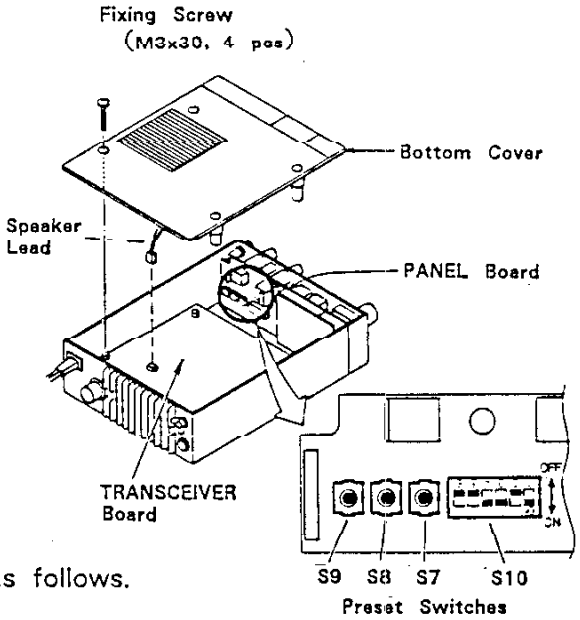
If it is necessary to enable (or disable) "AUTO 1W" mode, perform this setting prior to all the others, since it requires RESET button operation.

PRESET SWITCHES

A six segment DIP switch array and three pushbutton switchs are provided on the PANEL board for presetting the FM-2510 to desired specifications.

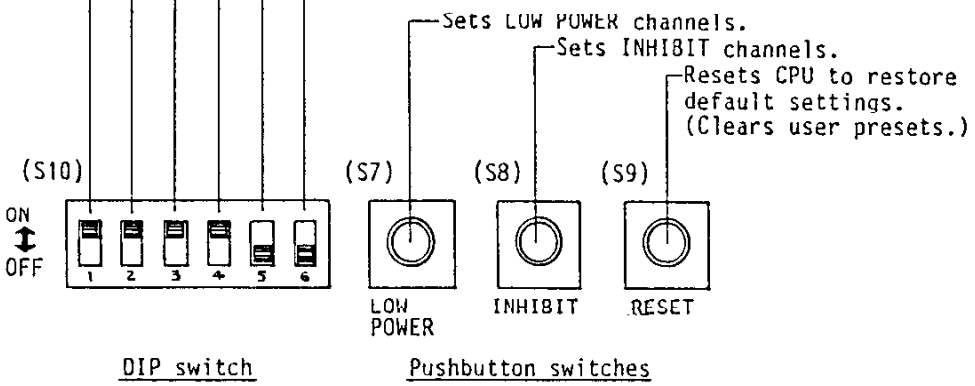
Remove the bottom cover by unscrewing the four screws. (Lift up the cover gently because the speaker lead is connected to the TRANSCEIVER board in the main chassis.)

Find the preset switches on the PANEL board. (behind the front panel)



The function of each switch is assigned as follows.

No.	Name	ON	OFF
1	USA/WX	Enables USA/WX channels. (INTL, USA & WX)	Disables USA/WX channels. (INTL only)
2	PRIVATE	Enables private channels.	Disables private channels.
3	SCAN	Enables SCAN function.	Disables SCAN function.
4	AUTO 1W	Enables AUTO 1W function on INTL CH15/17 & USA CH13/17/67.	Disable AUTO 1W function. (TX power 25W/1W selectable by the front panel key.)
5	DUP/SIMP	Specifies simplex mode when programming.	Specifies duplex mode when programming.
		(May be set to ON or OFF for normal operation)	
6	N P	Enables presetting of LOW POWER and INHIBIT channels.	Disables presetting of LOW POWER and INHIBIT channels.
		(Set to OFF for normal operation.)	



[1] ENABLE/DISABLE AUTO 1W FUNCTION

(incl. RELEASE CH70)

When the FM-2510 is delivered from the factory, the "AUTO 1W" function is enabled. That is, the transmission power on INTL CH15/17 and USA CH13/17/67 is automatically reduced below 1W and operator can not select HI power for these channels. If your local regulations permit, the "AUTO 1W" function can be disabled so that the operator can switch HI power or LOW power from the front panel key.

There is another preset made at factory to inhibit (or lock out) CH70. If it is locally permitted, this channel can be released for user.

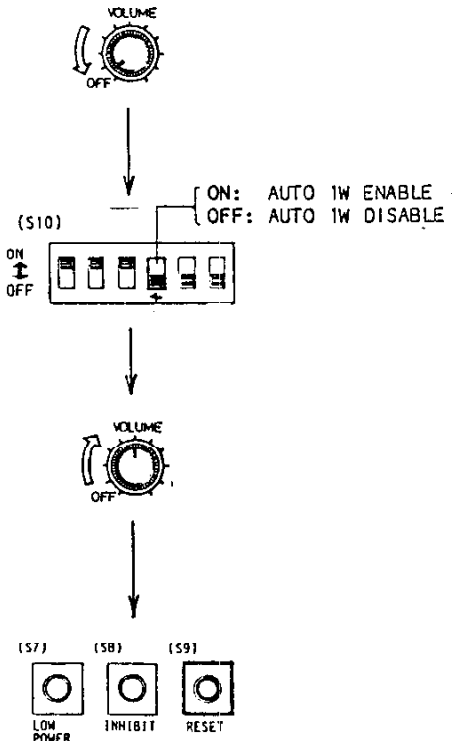
This preset requires operation of RESET button. If necessary, perform the following sequence prior to all the other preset operations. If reversed, your previous settings, e. g., memory channels, private channels, will be cleared.

<PROCEDURE>

1. Turn off the POWER (VOLUME) switch.
2. Set the DIP switch S10-4 to "OFF" (disable AUTO 1W) or "ON" (enable AUTO 1W) depending on your desired specifications.
3. Turn on the POWER (VOLUME) switch.
4. Press the RESET button (S9).

   * The CH70 is now released. If the reset is done only to disable or enable AUTO 1W function, inhibit CH70 again referring to section [4].

   * If AUTO 1W function is disabled, the TX power on INTL CH15/17 and USA CH13/17/67 is now HI/LOW switchable. If some of these must be low-powered automatically, perform section [4] to preset LOW POWER CHANNELS.



Refer to Appendix-A to know the default state after the reset. And perform the necessary presets again, even if they have been set before.

[2] ENABLE/DISABLE USA & WEATHER CHANNELS

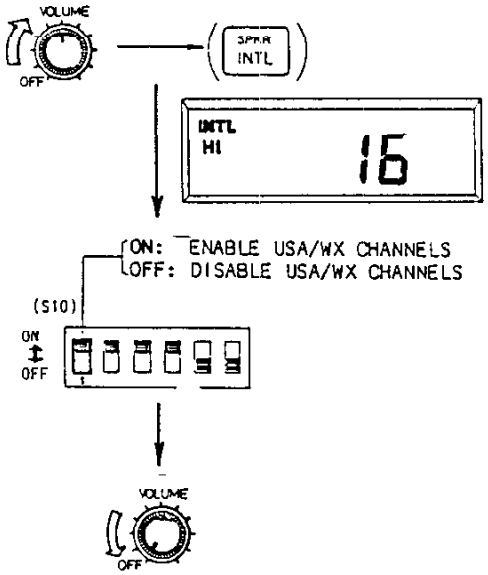
The channel usage in US waters is somewhat different from that in the other areas. That is, some channels internationally assigned for duplex operation are for simplex operation in the USA.

If the set is installed in Europe, and it has to be used in the US waters (or vise versa), enable or disable the USA channels and weather channels following the procedure below.

<PROCEDURE>

1. Turn on the POWER (VOLUME) switch.
2. Call "INTL 16" on the display if "USA 16" is presented.
3. Set the DIP switch S10-1 to "ON" (enable USA/WX) or "OFF" (disable USA / WX) depending on the desired specifications.
4. Turn off the POWER (VOLUME) switch.

Note that both USA/WX and INTL channels are available if the DIP switch is set to "ON".

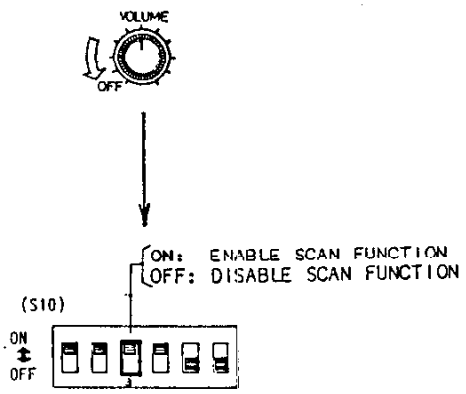


[3] ENABLE/DISABLE SCAN FUNCTION

In some countries, such as France and Netherlands, the automatic scan reception on multiple channels is prohibited. To disable (or enable) the scan function to meet such requirements, follow the procedure below.

<PROCEDURE>

1. Turn off the POWER (VOLUME) switch.
2. Set the DIP switch S10-3 to "OFF" (disable scan) or "ON" (enable scan) depending on your desired specifications.



[4] SETTING INHIBIT CHANNEL & LOW POWER CHANNELS

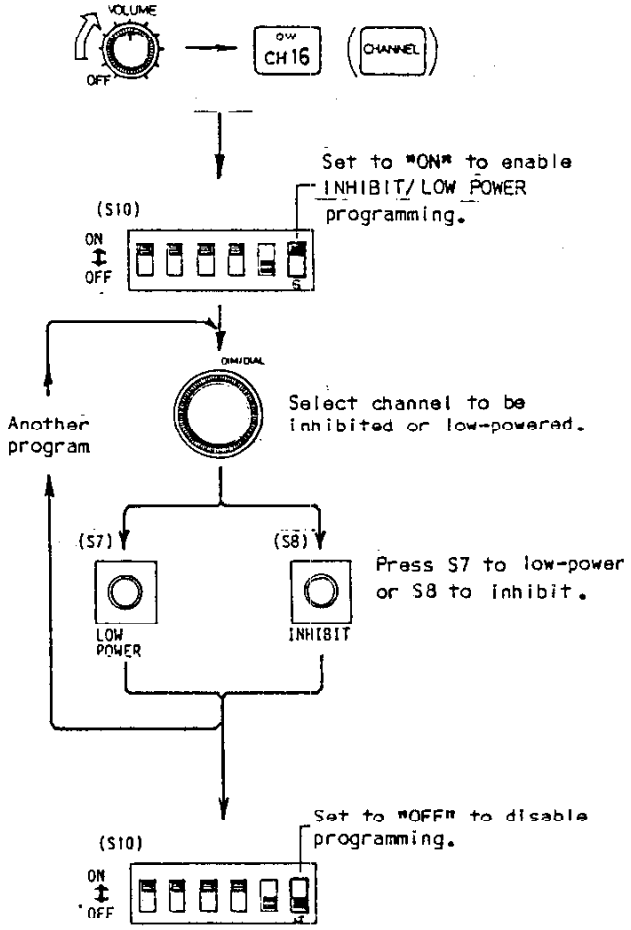
In some countries, a particular channel, such as CH70, is prohibited to use (TX and RX) or only permitted for 1W transmission. To comply with such restrictions, perform the following preset operations.

Note 1 : The INHIBIT and LOW POWER presets are one-way programming. Once you have set , there is no way to recover the original state of the channel except resetting the equipment.

Note 2 : The following channels can not be inhibited.
INTL 16, USA 16, WX 1, Priv 100

<PROCEDURE>

1. Turn on the POWER (VOLUME) switch, and press the CH16 (DW) or CHANNEL key.
2. Set the DIP switch S10-6 to "ON" position to enable INHIBIT/LOW POWER channel programming.
3. Rotate the CHANNEL SELECTOR dial to call up the channel to be inhibited or low powered.
4. Press the INHIBIT switch (S8) to lockout the channel, or press the LOW POWER switch (S7) to set the channel for low power transmission only.
5. If it is necessary to inhibit or low-power another channel, repeat the above steps 3 and 4.
6. When all the INHIBIT and LOW POWER channels are preset, set the DIP switch S10-6 back to "OFF" position to disable the programming.



[5] PROGRAMMING MEMORY CHANNELS

(incl. PRIVATE CHANNEL PROGRAMMING and DUPLEX-TO-SIMPLEX ALTERATION)

The FM-2510 contains the MEMORY CHANNEL space, where user can store the most used ten channels picked up among INTL, USA, WX and Private (*) channels.

* Though the source data for 112 private channels are embeded in the FM-2510, only the ones programmed as the member of MEMORY CHANNELS can be accessed by the operator.

As the private channels are disabled at delivery, the programming must be done by agents or dealers according to the channel assignment by local authority.

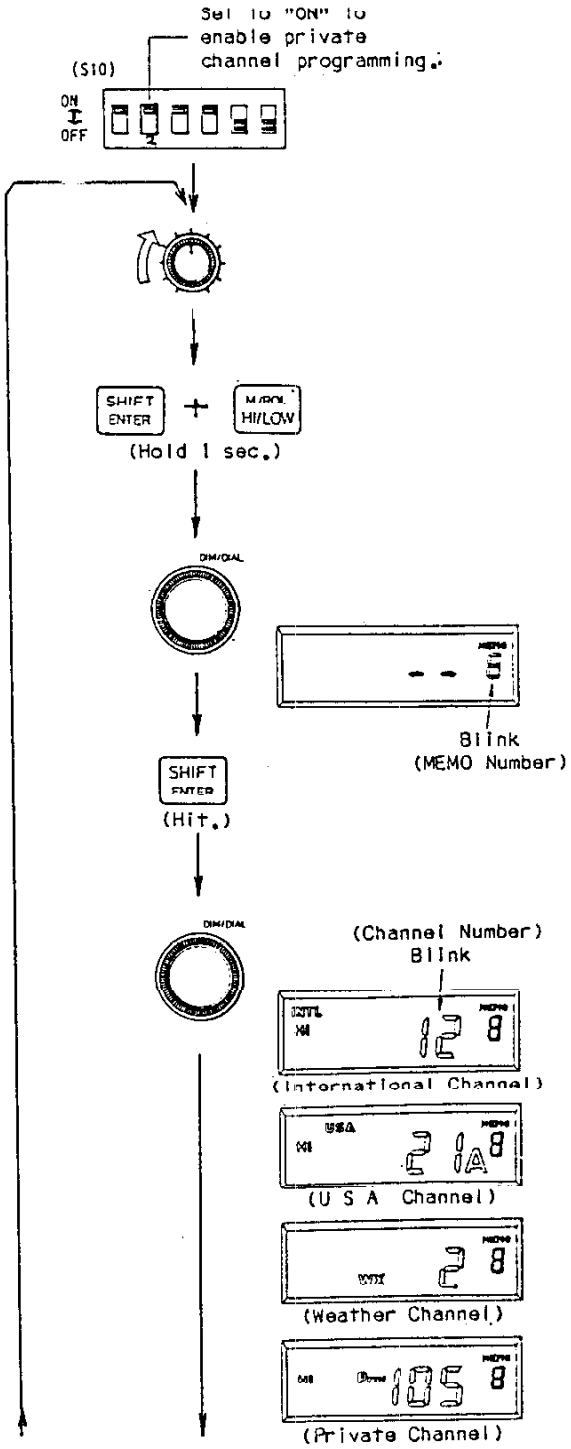
In addition, there is the function to alter any duplex channel in the MEMORY CHANNEL space into simplex one. This is provided to change ship-to-coast channel into ship-to-ship mode, if permitted by authority.

<PROCEDURE>

1. If it is necessary to program private channels, set the DIP switch S10−2 to "ON" position. Otherwise, set it to "OFF."
2. Turn on the POWER (VOLUME) switch.
3. While holding down the [SHIFT] key, press and hold the [M.RCL] key for more than one second until MEMO number starts blinking.
4. Rotate the CHANNEL SELECTOR dial for the desired memory number (0 to 9).
5. Press the [SHIFT] key to enter the memory number. Channel number should start blinking.
6. Rotate the CHANNEL SELECTOR dial to see the desired channel number on the display.

As rotating the dial, all possible channels are recalled one by one. Note that the callable channel groups are determined by the DIP switchs S10−1 and 2. (See the table below and Appendix−B.)

S10−1	S10−2	Callable Channel Group
ON	ON	INTL, USA, WX, Private
ON	OFF	INTL, USA, WX
OFF	ON	INTL, Private
OFF	OFF	INTL



7. If it is necessary to change the channel from duplex to simplex mode, set the DIP switch S10−5 to "ON" (SIMP). Otherwise set it to "OFF."

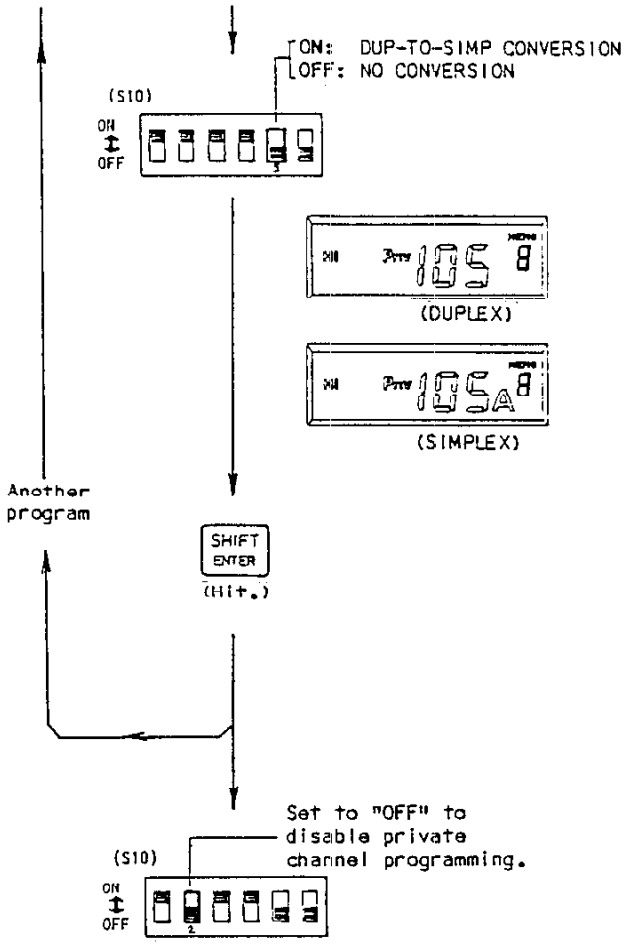
If simplex mode is selected, a suffix "A" will be presented aside the channel number.

For the channels originally assigned for simplex operation, e.g., CH6/12, it is no use changing to simplex even though the suffix "A" is presented. There is no function to change these original simplex channels into duplex ones.

8. When the desired channel is recalled on the display, press the [SHIFT] key to enter the channel into the memory. The channel number should stop blinking.

To program another MEMORY CHANNEL, repeat the above steps 3 through 8 again.

9. When all the MEMORY CHANNELS are programmed, set S10−2 back to "OFF" again so that the operator can not program unauthorized private channels.



APPENDIX – A MEMORY BACKUP ITEM AND THE DEFAULT SETTINGS

The FM-2510 contains a keep-alive Lithium battery to preserve contents of MEMORY CHANNELS, inhibited channels, low power channels, last accessed channels, etc. The memory contents will be cleared when the battery has discharged or when the RESET switch is pressed. The system will, then, restore the default settings at the next power-on. See the table below.

BACK-UP ITEM		DEFAULT SETTING (after RESET)
LAST USED CHANNEL NUMBER	INTL	Channel "01"
	USA	Channel "01"
	WX	Channel "1"
	MEMO	MEMO number "0"
	(Priv)	Cancelled (all null channels)
MEMORY CHANNELS		Cancelled (all null channels)
INHIBITED CHANNELS		Cancelled (Becomes operative.)
LOW-POWERED CHANNELS		Cancelled (Becomes HI/LOW switchable.)
LCD BACK-LIGHT BRILLIANCE		Highest brilliance

APPENDIX – B CHANNEL/FREQUENCY LIST

INTERNATIONAL CHANNELS

CH No.	Frequency (MHz)		Condition Code			
	Transmit	Receive	HI/LOW	DUP/SIMP	TX Y/N	RX Y/N
01	156.050	160.650	H	D	Y	Y
02	156.100	160.700	H	D	Y	Y
03	156.150	160.750	H	D	Y	Y
04	156.200	160.800	H	D	Y	Y
05	156.250	160.850	H	D	Y	Y
06	156.300	156.300	H	S	Y	Y
07	156.350	160.950	H	D	Y	Y
08	156.400	156.400	H	S	Y	Y
09	156.450	156.450	H	S	Y	Y
10	156.500	156.500	H	S	Y	Y
11	156.550	156.550	H	S	Y	Y
12	156.600	156.600	H	S	Y	Y
13	156.650	156.650	H	S	Y	Y
14	156.700	156.700	H	S	Y	Y
15	156.750	156.750	L	S	Y	Y
16	156.800	156.800	H	S	Y	Y
17	156.850	156.850	L	S	Y	Y
18	156.900	161.500	H	D	Y	Y
19	156.950	161.550	H	D	Y	Y
20	157.000	161.600	H	D	Y	Y
21	157.050	161.650	H	D	Y	Y
22	157.100	161.700	H	D	Y	Y
23	157.150	161.750	H	D	Y	Y
24	157.200	161.800	H	D	Y	Y
25	157.250	161.850	H	D	Y	Y
26	157.300	161.900	H	D	Y	Y
27	157.350	161.950	H	D	Y	Y
28	157.400	162.000	H	D	Y	Y

CH No.	Frequency (MHz)		Condition Code			
	Transmit	Receive	HI/LOW	DUP/SIMP	TX Y/N	RX Y/N
60	156.025	160.625	H	D	Y	Y
61	156.075	160.075	H	D	Y	Y
62	156.125	160.125	H	D	Y	Y
63	156.175	160.175	H	D	Y	Y
64	156.225	160.225	H	D	Y	Y
65	156.275	160.275	H	D	Y	Y
66	156.325	160.325	H	D	Y	Y
67	156.375	156.375	H	S	Y	Y
68	156.425	156.425	H	S	Y	Y
69	156.475	156.475	H	S	Y	Y
70	156.525	156.525	H	S	Y	Y
71	156.575	156.575	H	S	Y	Y
72	156.625	156.625	H	S	Y	Y
73	156.675	156.675	H	S	Y	Y
74	156.725	156.725	H	S	Y	Y
77	156.875	156.875	H	S	Y	Y
78	156.925	161.525	H	D	Y	Y
79	156.975	161.575	H	D	Y	Y
80	157.025	161.625	H	D	Y	Y
81	157.075	161.675	H	D	Y	Y
82	157.125	161.725	H	D	Y	Y
83	157.175	161.775	H	D	Y	Y
84	157.225	161.825	H	D	Y	Y
85	157.275	161.875	H	D	Y	Y
86	157.325	161.925	H	D	Y	Y
87	157.375	161.975	H	D	Y	Y
88	157.425	162.025	H	D	Y	Y

PRIVATE CHANNELS (1/2)

CH No.	Frequency (MHz)		Condition Code			
	Transmit	Receive	HI/LOW	DUP/SIMP	TX Y/N	RX Y/N
29	157.450	162.050	H	D	Y	Y
30	157.500	162.100	H	D	Y	Y
31	157.550	162.150	H	D	Y	Y
32	157.600	162.200	H	D	Y	Y
33	157.650	162.250	H	D	Y	Y
34	157.700	162.300	H	D	Y	Y
35	157.750	162.350	H	D	Y	Y
36	157.800	162.400	H	D	Y	Y
37	157.850	162.450	H	D	Y	Y
38	157.900	162.500	H	D	Y	Y
39	157.950	162.550	H	D	Y	Y
40	158.000	162.600	H	D	Y	Y
41	158.050	162.650	H	D	Y	Y
42	158.100	162.700	H	D	Y	Y
43	158.150	162.750	H	D	Y	Y
44	158.200	162.800	H	D	Y	Y
45	158.250	162.850	H	D	Y	Y
46	158.300	162.900	H	D	Y	Y
47	158.350	162.950	H	D	Y	Y
48	158.400	163.000	H	D	Y	Y
49	158.450	163.050	H	D	Y	Y
50	158.500	163.100	H	D	Y	Y
51	158.550	163.150	H	D	Y	Y
52	158.600	163.200	H	D	Y	Y
53	158.650	163.250	H	D	Y	Y
54	158.700	163.300	H	D	Y	Y
55	158.750	163.350	H	D	Y	Y
56	158.800	163.400	H	D	Y	Y

CH No.	Frequency (MHz)		Condition Code			
	Transmit	Receive	HI/LOW	DUP/SIMP	TX Y/N	RX Y/N
89	157.475	162.075	H	D	Y	Y
90	157.525	162.125	H	D	Y	Y
91	157.575	162.175	H	D	Y	Y
92	157.625	162.225	H	D	Y	Y
93	157.675	162.275	H	D	Y	Y
94	157.725	162.325	H	D	Y	Y
95	157.775	162.375	H	D	Y	Y
96	157.825	162.425	H	D	Y	Y
97	157.875	162.475	H	D	Y	Y
98	157.925	162.525	H	D	Y	Y
99	157.975	162.575	H	D	Y	Y
100	158.025	162.625	H	D	Y	Y
101	158.075	162.675	H	D	Y	Y
102	158.125	162.725	H	D	Y	Y
103	158.175	162.775	H	D	Y	Y
104	158.225	162.825	H	D	Y	Y
105	158.275	162.875	H	D	Y	Y
106	158.325	162.925	H	D	Y	Y
107	158.375	162.975	H	D	Y	Y
108	158.425	163.025	H	D	Y	Y
109	158.475	163.075	H	D	Y	Y
110	158.525	163.125	H	D	Y	Y
111	158.575	163.175	H	D	Y	Y
112	158.625	163.225	H	D	Y	Y
113	158.675	163.275	H	D	Y	Y
114	158.725	163.325	H	D	Y	Y
115	158.775	163.375	H	D	Y	Y
116	158.825	163.425	H	D	Y	Y

PRIVATE CHANNELS (2/2)

CH No.	Frequency (MHz)		Condition Code			
	Transmit	Receive	HI/LOW	DUP/SIMP	TX Y/N	RX Y/N
120	155.500	160.100	H	D	Y	Y
121	155.525	160.125	H	D	Y	Y
122	155.550	160.150	H	D	Y	Y
123	155.575	160.175	H	D	Y	Y
124	155.600	160.200	H	D	Y	Y
125	155.625	160.225	H	D	Y	Y
126	155.650	160.250	H	D	Y	Y
127	155.675	160.275	H	D	Y	Y
128	155.700	160.300	H	D	Y	Y
129	155.725	160.325	H	D	Y	Y
130	155.750	160.350	H	D	Y	Y
131	155.775	160.375	H	D	Y	Y
132	155.800	160.400	H	D	Y	Y
133	155.825	160.425	H	D	Y	Y
134	155.850	160.450	H	D	Y	Y
135	155.875	160.475	H	D	Y	Y
136	155.900	160.500	H	D	Y	Y
137	155.925	160.525	H	D	Y	Y
138	155.950	160.550	H	D	Y	Y
139	155.975	160.575	H	D	Y	Y
140	156.000	160.600	H	D	Y	Y
141		160.625	L	S	N	Y
142		160.650	L	S	N	Y
143		160.675	L	S	N	Y
144		160.700	L	S	N	Y
145		160.725	L	S	N	Y
146		160.750	L	S	N	Y
147		160.775	L	S	N	Y

CH No.	Frequency (MHz)		Condition Code			
	Transmit	Receive	HI/LOW	DUP/SIMP	TX Y/N	RX Y/N
148		160.800	L	S	N	Y
148		160.825	L	S	N	Y
150		160.850	L	S	N	Y
151		160.875	L	S	N	Y
152		160.900	L	S	N	Y
153		160.925	L	S	N	Y
154		160.950	L	S	N	Y
155		160.975	L	S	N	Y
156		161.000	L	S	N	Y
157		161.025	L	S	N	Y
158		161.050	L	S	N	Y
159		161.075	L	S	N	Y
160		161.100	L	S	N	Y
161		161.125	L	S	N	Y
162		161.150	L	S	N	Y
163		161.175	L	S	N	Y
164		161.200	L	S	N	Y
165		161.225	L	S	N	Y
166		161.250	L	S	N	Y
167		161.275	L	S	N	Y
168		161.300	L	S	N	Y
169		161.325	L	S	N	Y
170		161.350	L	S	N	Y
171		161.375	L	S	N	Y
172		161.400	L	S	N	Y
173		161.425	L	S	N	Y
174		161.450	L	S	N	Y
175		161.475	L	S	N	Y

WEATHER CHANNELS

CH No.	Frequency (MHz)		Condition Code			
	Transmit	Receive	HI/LOW	DUP/SIMP	TX Y/N	RX Y/N
0		163.275	L	S	N	Y
1		162.550	L	S	N	Y
2		162.400	L	S	N	Y
3		162.475	L	S	N	Y
4		162.425	L	S	N	Y
5		162.450	L	S	N	Y
6		162.500	L	S	N	Y
7		162.525	L	S	N	Y
8		161.650	L	S	N	Y
9		161.775	L	S	N	Y

NULL CHANNEL

CH No.	Frequency (MHz)		Condition Code			
	Transmit	Receive	HI/LOW	DUP/SIMP	TX Y/N	RX Y/N
--			L	S	N	N

APPENDIX – C CONCEPTUAL DIAGRAM

The diagram merely shows the conceptual model to understand the function of each preset switch. It does not mean that the switches are electrically connected as in the diagram.

The FM-2510 contains the table for frequency and the condition code for each channel in its ROM area.

When the RESET switch S9 is pressed, the contents of condition code tables in ROM are copied into RAM as the default data. And these RAM data determine actual operating conditions of the equipment.

If S10–4 is "OFF" at the moment of reset, the condition codes for all channels are modified to allow HI TX POWER.

The presets for LOW POWER, INHIBIT and SIMPLEX mode (*) are achieved by modifying the condition codes in the RAM.

(*) Duplex-to-simplex conversion is available only on the condition codes for MEMORY CHANNELS.

S10–6 is used to enable or disable programming of LOW POWER and INHIBIT channels. When this switch is "ON" (enable programming), S7 pushbutton switch functions to specify the LOW POWER channel, and S8 functions to INHIBIT the channel.

S10–5 is used to change duplex channel into simplex one. It is operative only when programming the MEMORY CHANNELS.

S10–1 is used to enable or disable access to the USA and WX channels.

S10–3 is used to enable or disable SCAN function.