GE Mobile Communications

MPS (SYNTHESIZED) RADIO

CHANNEL GUARD/DIGITAL CHANNEL GUARD
HARDWARE KIT 19A148540G1
TYPE 99 HARDWARE KIT 19A148540G2
TYPE 99/CHANNEL GUARD
HARDWARE KIT 19A148540G3

Maintenance Manual

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DESCRIPTION

Hardware Kit 19A148540G1, G2 & G3

Hardware Kit 19A148540G1, G2 & G3 is used when installing Channel Guard and Type 99 tone options in a MPS Personal Synthesized radio. This hardware kit consists of toggle switch S708 (G1) or S709 (G2 & G3) which mount in the right side option panel on the top plate of the radio and connects to the system board through flex circuit A702.

This publication provides installation instructions, schematic diagram and parts list for installing hardware kit 19A148540G1, G2 & G3 in a MPS Personal Synthesized radio (refer to the Table of Contents).

Channel Guard/Digital Channel Guard

In the MPS Personal Synthesized radio, Channel Guard and Digital Channel Guard are software options. Tone or code data is stored in the EEPROM in the controller module. The microcomputer, also in the controller module, is programmed to perform the encoding and decoding functions. The monitor function is controlled by a manually operated toggle switch marked CG/OFF. When the switch is in the CG position, the receive circuit must receive and the microcomputer decode the correct Channel Guard tone before audio can be heard from the speaker. With the switch in the OFF position, the decode function is disabled and all calls are heard.

The transmit circuit encodes and transmits the Channel Guard tone or code with the tone deviation between 0.5 and 1.0 KHz. The frequency or code of the tone is specified by the customer. Channel Guard and Digital Channel Guard can be mixed in any pattern except simultaneously. When the CG/OFF switch is in the OFF position, the transmit encode function is still active.

Type 99

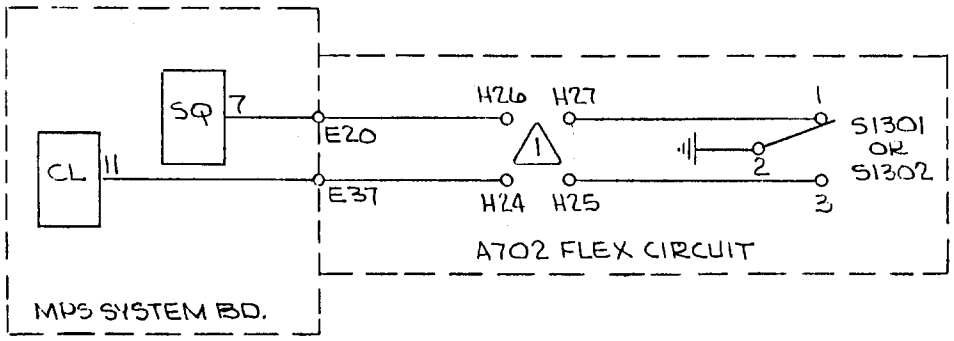
Type 99, in the MPS Synthesized radio is, like Channel Guard, a software option. Tone signalling data is stored in the EEPROM and decoding is performed in the microcomputer and the TONE hybrid (refer to the applicable maintenance manual). The monitor function is controlled by a manually operated toggle switch marked R/T99/M. This switch is a three position switch with the R position a momentary closure. When this switch is momentarily pushed to the R position, the Type 99 option is set to decode the Type 99 tones and open the receiver audio circuit. Placing the switch in the M position opens the receive audio circuit to monitor all calls on the selected channel. Once a call has been received, Type 99 tones decoded, the Type 99 option must be reset to decode the next call.

Channel Guard/Type 99

With this option, the Channel Guard and Type 99 functions operate the same as previously described; except for the switch function. The controlling switch is marked R/CG,T99/M. When the switch is in the CG,T99 position, it takes both Channel Guard and Type 99 tones to open the receive audio circuit.

CIRCUIT ANALYSIS

Channel Guard and Type 99 toggle switches S3101 and S3102 connect through flex circuit A702 to the system board and Pin 11 of controller module CL. Pin 11 of the controller module is the CG/T99 MON control lead. When this lead is grounded through S3101 or S3102, the option is defeated and the radio channel is monitored. For this to occur, a jumper must be present between holes H24 and H25 on flex circuit A702. For a Type 99 reset function, position R on Channel Guard/Type 99 switch S3102, an additional jumper between holes H24 and H27 on flex circuit A702, must also be present.



OPTION	FROM	TO	SWITCH
CG	H25	H24	S1301
T99	H25	H24	S1302
	H27	H24	
CG+T99	H25	H24	S1302
	H27	H24	
CG/T99/OR	H25	H26	S1302
	H27	H24	

NOTES:

1. DM WIRE IS USED TO JUMPER THE SWITCH FOR THE DIFFERENT TONE OPTIONS. SEE CHART ABOVE.

(19B234630, Rev. 1)

SCHEMATIC DIAGRAM

CHANNEL GUARD/TYPE 99 OPTIONS
19A148540G1, 2 & 3

Issue 1

PARTS LIST

HARDWARE KIT
19A148540G1 CG/DCG
19A148540G2 T99
19A148540G3 T99/CG

ISSUE 1

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S1301	19C850845P26	Toggle, switch, SPDT; sim to C & K 7101SDCG.
S1302	19C850845P25	Toggle, switch, SPDT; sim to C & K 7107SDCG.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19A127319P6	Nut: No. thd. size 1/4-40.
	19A700134P8	Wire, solid. (1 Foot).
	19B232508P1	Seal.
	19B232996G2	Decorative Module.
	19B232996G3	Decorative Module.
	19B232996G24	Decorative Module.
	19A148475P1	Nameplate.

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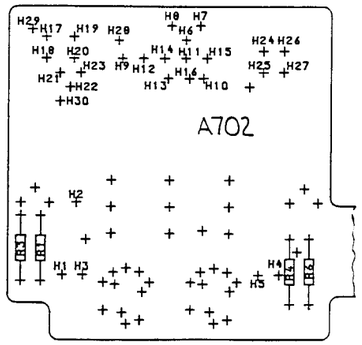

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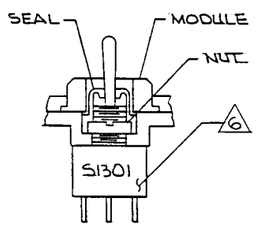

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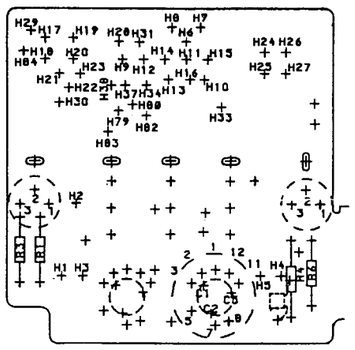

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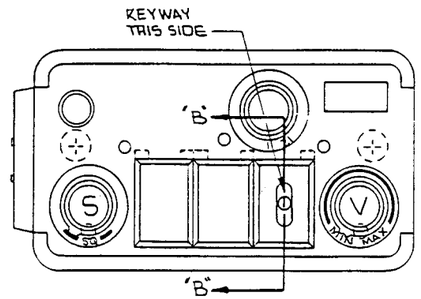
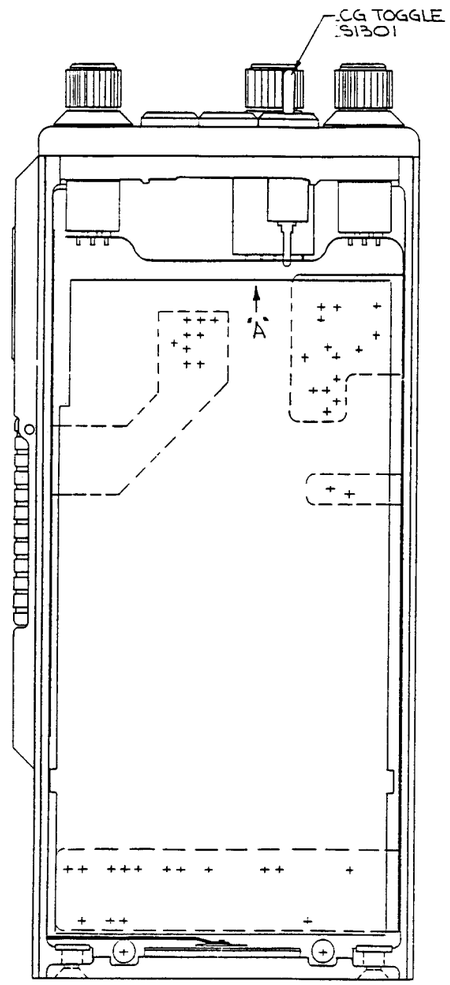




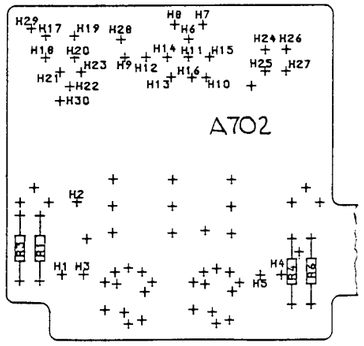
FRONT COVER REMOVED

(19D437698, Sh. 1, Rev. 4)

(1) THESE INSTRUCTIONS COVER THE INSTALLATION OF HARDWARE KIT PL19A148540G1 &G5 FOR APPLICATION OF CHANNEL GUARD SWITCH IN MPS.

1. REMOVE TOP PLATE (IN THIS ORDER REMOVE KNOBS, TOP COVER, FRONT AND BACK COVERS, LED AND NUT AND SCREW HOLDING THE LED BOARD AND NUTS HOLDING VOL AND SQ POTS, FREQ. BCD SWITCH AND ANY TOGGLES), IF PRESENT.
2. ON A702/A704 FLEX CIRCUIT ADD JUMPER (DM) FROM H25 TO H24.
3. ASSEMBLE CG TOGGLE SWITCH IN THE RIGHT POSITION OF A702 /A704(FLEX CIRCUIT) WITH THE KEY WAY ON THE SWITCH AWAY FROM THE FLAP OR JUMPER HOLES ON FLEX CIRCUIT AS SHOWN.
4. SOLDER ALL ELECTRICAL CONNECTIONS AND TRIM LEADS FLUSH TO .020.
5. PUNCH OUT HOLE IN TOP PLATE (RIGHT POSITION) AS SHOWN.
- ● (6) IF ALL OTHER OPTIONS THAT REQUIRE REMOVAL OF THE TOP PLATE HAVE BEEN INSTALLED,THEN FORM A WEATHERPROOF SEAL AT KEYWAY OF SWITCH S1301 USING A BEAD OF RTV PER CSD. PROCESS P15F-EA106P2 IN THE KEYWAY AND AGAINST THE INSIDE FACE OF THE PLASTIC TOP PLATE,THEN MOUNT SWITCH IN RIGHT POSTION AND TORQUE NUT TO 3IN.LB MAXIMUM. ASSEMBLE SEAL OVER S1301 AND REPLACE BLANK MODULE WITH GG MODULE.
7. REASSEMBLE THE ITEMS REMOVED IN STEP 1.

● DISCARD HARDWARE SUPPLIED WITH SWITCH AND USE NUT SUPPLIED IN KIT.



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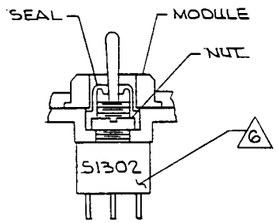

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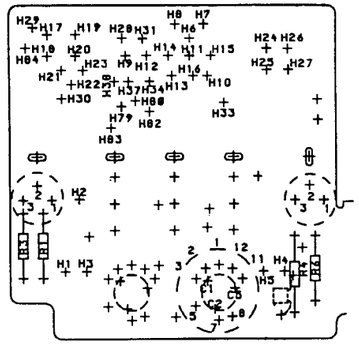

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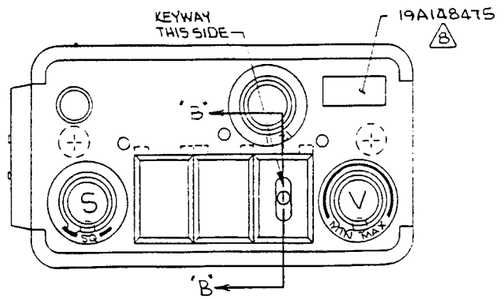

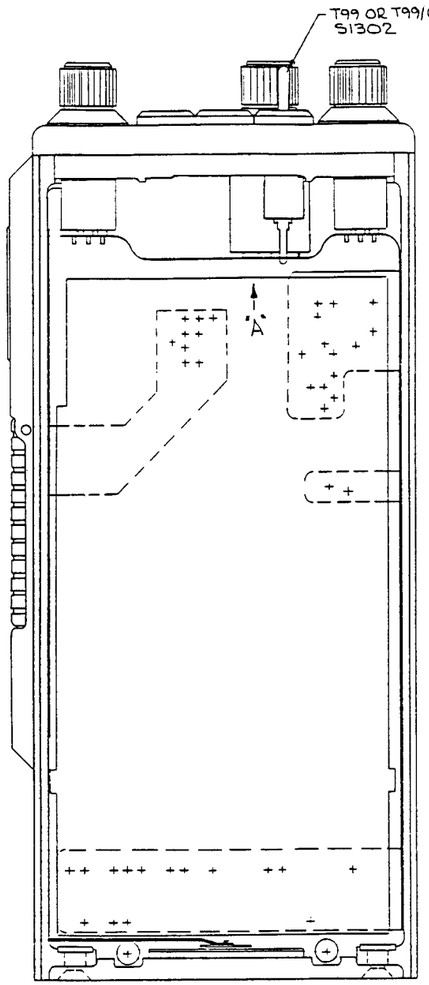

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(2) THESE INSTRUCTIONS COVER THE INSTALLATION OF HARDWARE KIT PL19A148540G2 & 3 FOR APPLICATION OF T99 OR T99 AND CG SWITCH IN MPS.

1. REMOVE TOP PLATE (IN THIS ORDER REMOVE KNOBS, TOP COVER, FRONT AND BACK COVERS, LED AND NUT AND SCREW HOLDING THE LED BOARD AND NUTS HOLDING VOL AND SQ POTS, FREQ. BCD SWITCH AND ANY TOGGLES), IF PRESENT.
2. ON A702/A704 FLEX CIRCUIT ADD JUMPER (DM) FROM H27 TO H24 AND H25 TO H24.
3. ASSEMBLE TOGGLE SWITCH IN THE RIGHT POSITION OF A702 /A704(FLEX CIRCUIT) WITH THE KEY WAY ON THE SWITCH AWAY FROM THE FLAP OR JUMPER HOLES ON FLEX CIRCUIT AS SHOWN.
4. SOLDER ALL ELECTRICAL CONNECTIONS AND TRIM LEADS FLUSH TO .020.
5. PUNCH OUT HOLE IN TOP PLATE (RIGHT POSITION) AS SHOWN.

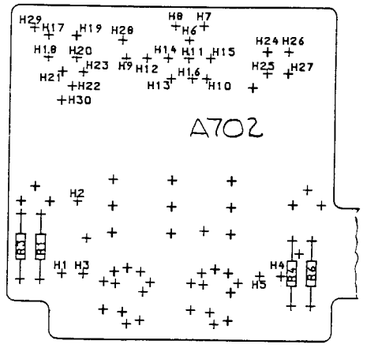
● △6 IF ALL OTHER OPTIONS THAT REQUIRE REMOVAL OF THE TOP PLATE HAVE BEEN INSTALLED,THEN FORM A WEATHERPROOF SEAL AT KEYWAY OF SWITCH S1302 USING A BEAD OF RTV PER CSD. PROCESS P15F-EA106P2 IN THE KEYWAY AND AGAINST THE INSIDE FACE OF THE PLASTIC TOP PLATE,THEN MOUNT SWITCH IN RIGHT POSTION AND TORQUE NUT TO 3IN.LB MAXIMUM. ASSEMBLE SEAL OVER S1302 AND REPLACE BLANK MODULE WITH T99 OR T99/CG MODULE.

7. REASSEMBLE THE ITEMS REMOVED IN STEP 1.

△8 INSTALL T99 CODE NUMBER USING ITEM 13 (19A148475P1) ON TOP COVER IN POSITION SHOWN (NUMBER SAME AS THE A/B CODE).

● DISCARD HARDWARE SUPPLIED WITH SWITCH AND USE NUT SUPPLIED IN KIT.

INSTALLATION INSTRUCTIONS
19D437698P2



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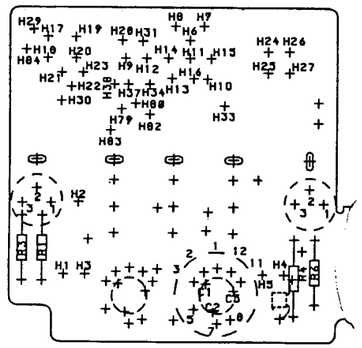

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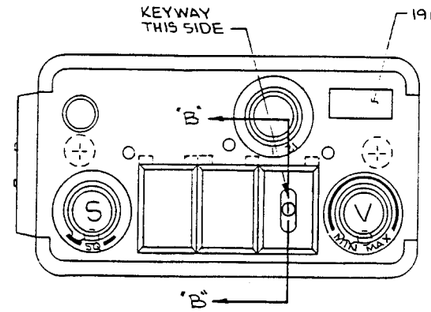

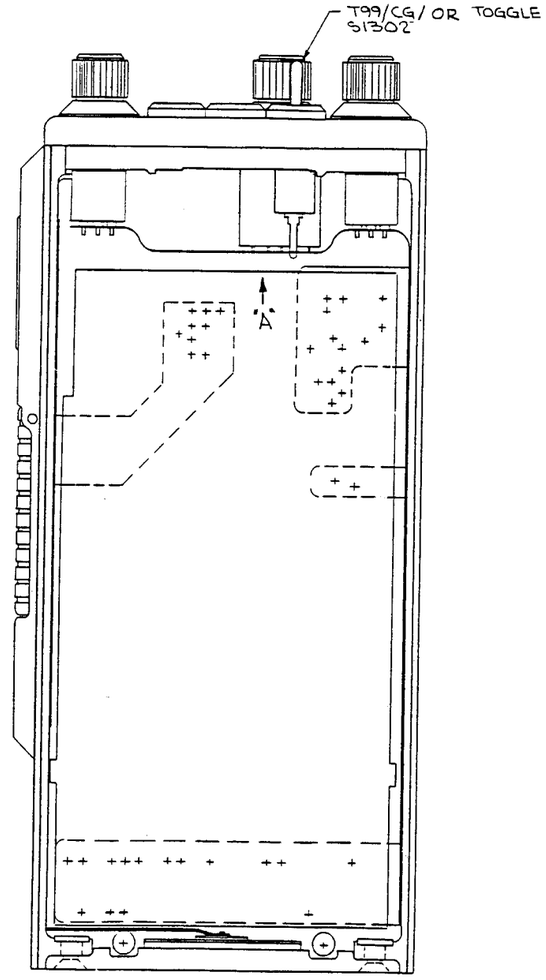

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(19D437698, Sh. 3, Rev. 3)

(3) THESE INSTRUCTIONS COVER THE INSTALLATION OF HARDWARE KIT PL19A148540G4 FOR APPLICATION OF T99/CG AND OR GATE SWITCH IN MPS.

1. REMOVE TOP PLATE (IN THIS ORDER REMOVE KNOBS. TOP COVER, FRONT AND BACK COVERS. LED AND NUT AND SCREW HOLDING THE LED BOARD AND NUTS HOLDING VOL AND SQ POTS. FREQ. BCD SWITCH AND ANY TOGGLES), IF PRESENT.
2. ON A702/A704 FLEX CIRCUIT ADD JUMPER (DM) FROM H27 TO H24 AND H25 TO H26.
3. ASSEMBLE TOGGLE SWITCH IN THE RIGHT POSITION OF A702 /A704(FLEX CIRCUIT) WITH THE KEY WAY ON THE SWITCH AWAY FROM THE FLAP OR JUMPER HOLES ON FLEX CIRCUIT AS SHOWN.
4. SOLDER ALL ELECTRICAL CONNECTIONS AND TRIM LEADS FLUSH TO .020.
5. PUNCH OUT HOLE IN TOP PLATE (RIGHT POSITION) AS SHOWN.

6. IF ALL OTHER OPTIONS THAT REQUIRE REMOVAL OF THE TOP PLATE HAVE BEEN INSTALLED,THEN FORM A WEATHERPROOF SEAL AT KEYWAY OF SWITCH S1302 USING A BEAD OF RTV PER CSD. PROCESS P15F-EA106P2 IN THE KEYWAY AND AGAINST THE INSIDE FACE OF THE PLASTIC TOP PLATE.THEN MOUNT SWITCH IN RIGHT POSTION AND TORQUE NUT TO 3IN.LB MAXIMUM. ASSEMBLE SEAL OVER S1302 AND REPLACE BLANK MODULE WITH T99/OR/ CG MODULE.
7. REASSEMBLE THE ITEMS REMOVED IN STEP 1.
8. INSTALL T99 CODE NUMBER USING ITEM 13 (19A148475P1) ON TOP COVER IN POSITION SHOWN (NUMBER SAME AS THE A/B CODE).

● DISCARD HARDWARE SUPPLIED WITH SWITCH AND USE NUT SUPPLIED IN KIT.

END OF DOCUMENT