



MOTOROLA INC.

MANUAL REVISION

for
Manual No. 68P81067C40-A
Instruction Manual MT1000®

This revision outlines changes that have occurred since the printing of the manual or previous revisions. Use this information to supplement your manual. Installation of these changes in earlier equipment is not necessary except as recommended in Motorola Service and Repair Notes(SRN's).

REVISION DETAILS

<u>NO.</u>	<u>CHANGE AFFECTS</u>	<u>ITEM NUMBER</u>	<u>SUFFIX</u>
1	Signalling Option		

CHANGES:

No.

- 91 On the rear of your manual in the attachment section, look for manual 68P81108C84, and place the following information in section III. **General Circuit Description** after **b. Emergency.**

Man Down Emergency

The man down circuit operation is similar to the emergency call circuit operation, in that both circuits generate an interrupt to initiate the emergency sequence. In the man down circuit , a miniature mercury switch (S604) is hard mounted in the front cover to provide the automatic "tilt trigger" mechanism to cause the interrupt.

When the radio is held or worn in the vertical position, the mercury switch (S604) is closed; hence, S604 is normally closed. With S604 closed, module U701 pin 2 is held low, U701 pin 6 is held high, and transistor Q702 is turned off. The interrupt request port (U601 pin 32) is held high via B+ through resistor R642. Transistor Q701 is turned off and its related delay circuitry is non-funtional at this time. This mode is recognized as a non-emergency condition, and the processor (U601) remains in stand-by.

When the radio is tilted more than 60 degrees from its vertical position, switch S604 opens, and capacitor C701 charges through the resistor network of R702, R709. Resistor R701 sets the delay time. Refer to the man down Emergency Delay Time Tuning Procedure paragraph for further details. When the charging of C701 reaches a high level (felt at U701 pin 2), op amp U701 pin 1 sends a low to U701 pin 6, and the resulting high from U701 pin 7 turns on transistor Q702. Via the collector of Q702, a low is sent to pin 32 of the microcomputer (U601). The high from U701 pin 7 is also sent to turn on transistor Q701. When Q701 turns on, resistors R701 and 702 are shorted out by the transistor, which allows capacitor C701 to discharge through the transistor and the resistor network of R709, R703 and R704. This discharge places a low level back on pin 2 of U701, which ultimately turns off transistor Q702. This charge and discharge action of C701 (turning Q702 on and off), produces a low going square wave that keeps pulsing U601 pin 32 until the radio is righted. This mode is recognized as the emergency man down condition.

Once the radio is righted, S604 closes, transistors Q701 and Q702 turn off, the microprocessor completes its emergency sequence, and the radio returns to the non-emergency condition.

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Man Down Emergency Delay Time Tuning Procedure

The radio is shipped from the factory with approximately ten seconds of delay time. If a different delay time is desired, adjusting resistor R701 will vary the delay time from approximately five seconds to approximately thirty seconds. The following chart lists the resistance value of R701 and its associated delay time.

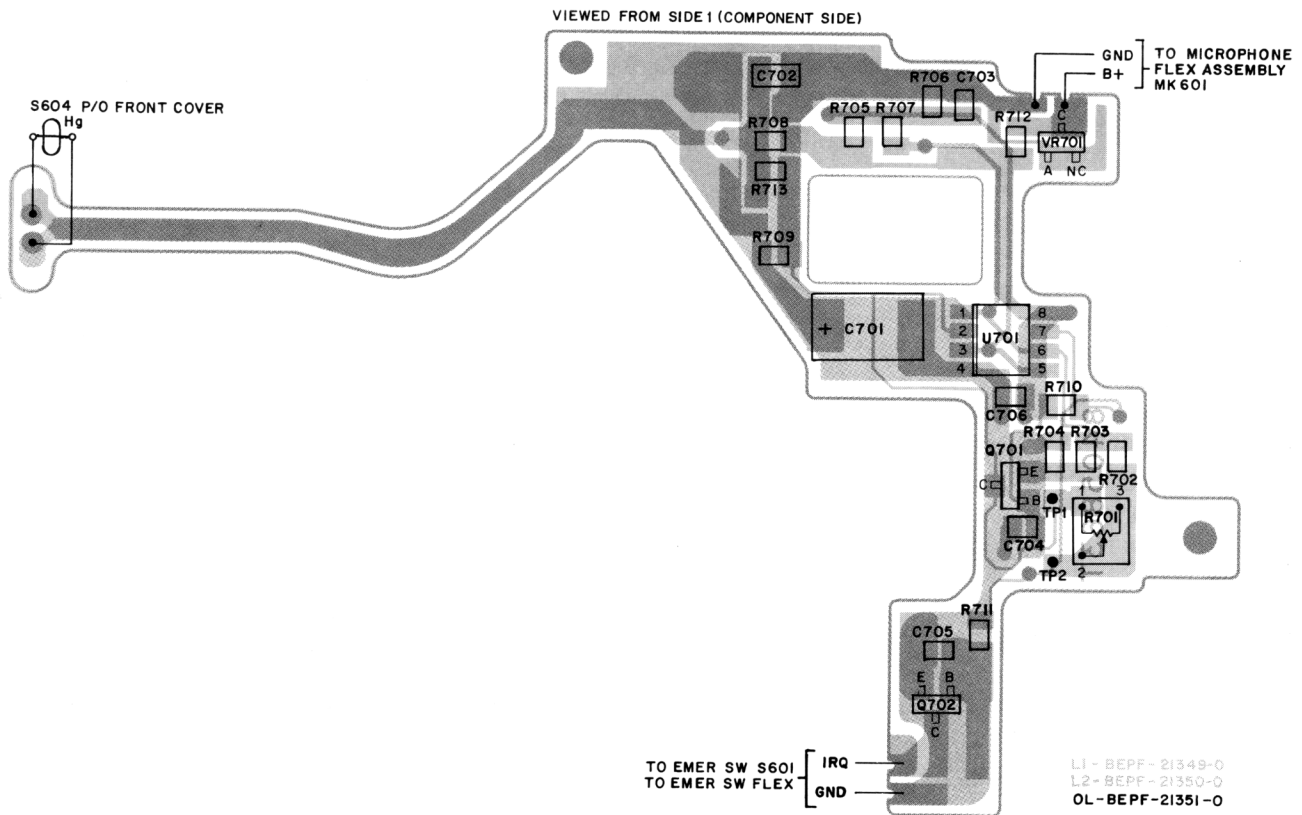
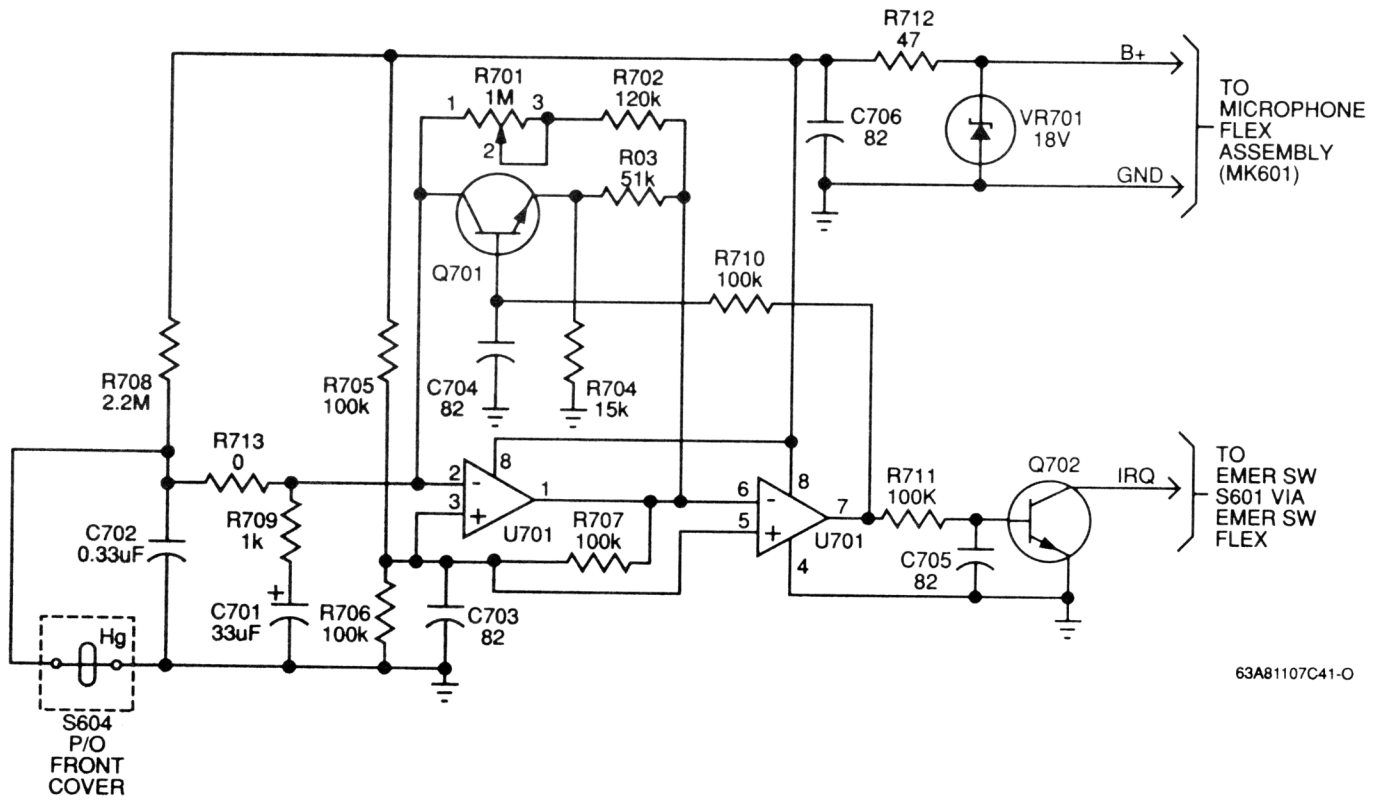
Turn the radio off. Measure the resistance of R701 by placing ohm meter leads across the resistor (TP1 to TP2). The meter reading will take several seconds to stabilize due to the charging of capacitor C701. Adjust R701 to the resistance corresponding to the delay time desired as listed in the chart. After adjusting R701, verify the delay by tilting the radio more than 60 degrees and timing the delay.

R701 Resistance	Delay Time
1k	5 sec. \pm 2 sec.
75k	10 sec. \pm 2 sec.
250k	15 sec. \pm 2 sec.
410k	20 sec. \pm 2 sec.
1M	30 sec. \pm 2 sec.

0105955Q93 Man Down Flex Assembly TPLF-3980-O Electrical Parts List

REFERENCE MOTOROLA		
CAPACITOR, Fixed: pF \pm 10%; 25V unless stated		
C701	2311049A22	33 μ F; 16V
C702	2160521H43	0.33 μ F
C703 thru C706	2113740A53	82pF; \pm 30%
Q701, Q702	4805128M12	TRANSISTOR, NPN: See Note
RESISTOR, Fixed: Ω \pm 5%; 1/8W unless stated Pot., 1M; 3V		
R701	1860502A25	120k
R702	0660076B03	51k
R703	0660076A90	15k
R704	0660076A77	100k
R705 thru R707	0660076B01	2.2M
R708	0660079V57	1k
R709	0660076A49	100k
R710, R711	0660076B01	47k
R712	0660076A17	0 (Jumper)
R713	0605021K01	
U701	5105469E46	CIRCUIT MODULE: See Note Dual Op. Amp
VR701	4880140L23	DIODE, Zener; 18V: See Note

NOTE: For optimum performance, order replacement diodes, transistors, and circuit modules by Motorola part number only.



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