RELM COMMUNICATIONS, INC.
2 YEAR LIMITED WARRANTY

RELM Communications, Inc. and its subsidiaries (hereinafter collectively referred to as "RELM") warrant to the original purchaser that should RELM's products, within the periods specified below, prove to be defective by reason of improper workmanship and/or material, RELM will, at its option, repair or replace any defective product, or refund the purchase price of the product, for a period of two (2) years from the date of purchase as shown on the original purchaser's sales receipt; provided, however, that rechargeable batteries, tone reeds, and coiled cords will be warranted for one year from the date of purchase. For the full 2 years of the warranty period labor to perform warranty service will be provided without charge. Thereafter, the purchaser must pay for labor at the prevailing rates of the Authorized Warranty Repair Center or RELM. Parts necessary to provide warranty service will be provided at no charge for the entire warranty period. Any product that is repaired or replaced under this warranty will be warranted to be free of defects in material and workmanship for the remainder of the original warranty period.

1. To obtain warranty service, bring the following to the retailer from whom you purchased the product:
   - the defective product
   - proof of purchase (your sales receipt or other documents showing the date of purchase)

   Costs of transportation, removal, reinstallation or similar costs must be paid by the purchaser.

2. This warranty does not cover defects caused by:
   - Physical abuse or misuse of the product
   - Neglect or accident
   - Improper use or installation of the product
   - Repair or alteration by unauthorized personnel

3. ANY EXPRESS WARRANTY NOT PROVIDED HEREIN, AND ANY REMEDY FOR BREACH OF CONTRACT WHICH, BUT FOR THIS PROVISION, MIGHT ARISE BY IMPLICATION OR OPERATION OF LAW, IS HEREBY EXCLUDED AND DISCLAIMED.

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5. UNDER NO CIRCUMSTANCES SHALL RELM BE LIABLE TO PURCHASER OR ANY OTHER PERSON FOR ANY OTHER BREACH OF WARRANTY, BREACH OF CONTRACT, OR OTHERWISE, OR FOR ANY INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR EXEMPLARY DAMAGES.

6. Equipment and accessory items not manufactured by RELM are excluded from this warranty.

7. This warranty applies only to RELM products sold by dealers within the United States and used exclusively in the United States.

8. RELM reserves the right to modify or change the equipment in whole or in part at any time prior to delivery in order to include refinements deemed appropriate by RELM, but without incurring any liability to : (i) modify or change any equipment previously delivered, or (ii) supply new equipment in accordance with earlier specifications.

9. This written warranty constitutes the final, complete and exclusive statement of warranty terms and no person is authorized to make any other warranties or representations on behalf of RELM.

MINI-COM® PLUS MOBILE TRANSCEIVERS

SM SERIES

Instruction Manual

RELM Communications, Inc.
7707 Records St.
Indianapolis, IN 46226

AN ADAGE COMPANY

7001-1981-100 5-93

Printed in U.S.A.

RELM: The Choice of Professionals

Welcome to the RELM Communications family of professional two-way radios and systems, and thank you for purchasing one of our fine products. We are confident that you will be pleased with this product and that it will provide you many years of dependable, trouble-free communications.

About Our Company

Formerly known as Regency Electronics, Inc., RELM Communications, Inc., is a U.S. manufacturer of two-way FM radio products. We are backed by more than 40 years of experience in the electronic communications industry and have earned a worldwide reputation for providing dependable, hard working products at a fair price.

You may remember us as Symmetrics, or Wilson, or as Regency Land Mobile. Your first experience with us may have been with crystal based mobile and portable radios. We were pioneers in the development of synthesized radios, incorporating built-in tone signalling options such as CTCSS, DCS and Two-Tone Sequential and a host of user friendly operational features, like scanning and keyboard control. Our innovation in commercial radio continues today with the introduction of an *INSTANT PRIORITY*™ button, a reversible display and area grouping of channels.

We are truly a commercial communications company with a dedicated commitment to two-way radio design, manufacturing, sales and service. We have selected a new name — a name which bolsters our position as a communications company and symbolizes our steadfast commitment to the land mobile industry.

RELM
COMMUNICATIONS

QUALITY PRODUCTS • SERVICE • DELIVERY

Our nationwide network of authorized dealers assures that you will receive prompt, high quality service for all your RELM products. For more information about our products or how we can meet your special applications, please call us at 1-800-821-2900.

AN ADAGE COMPANY

MADE USA

PACKING LIST

1—SM Series Transceiver Unit
1—MA383 DC Power Cord with In-line Fuse
1—MHM7 Handheld Microphone with Coiled Cable
1—MMB7 Mounting Bracket with Hardware
1—RS303 External Speaker with Cable and Mounting Hardware
1—Instruction Manual (P/N 7001-1981-100)

IMPORTANT
Please read all instructions thoroughly before operating the Unit.

INDEX

DESCRIPTION

The MINI-COM® PLUS models SMU2516 and SMV4016 are 16-channel, state-of-the-art Transceivers which are used in the Land Mobile UHF and VHF frequency bands. SMU2599 and SMV4099 are the 99-channel models.

The SMU models operate in the UHF band with a 25-Watt RF output. The SMV models operate in the VHF band with a 40-Watt RF output.

The Units feature the following:

- Scan (User selectable Scan List)
- Priority Channel (User Selectable)
- Built-in DCS* Decoder/Encoder
- Built-in CTCSS Tone Decoder/Encoder
- External Decoder or Encoder Option
- Message Received Annunciator
- Busy Channel Lockout (per channel)
- Talk-Around Option

The Transceivers can store up to 16 or 99 channels of programmed information without the need for a Battery back-up.

The Radios have been programmed by the Dealer. A list of channel information and radio configuration should be available from the Dealer.

NOTE: In this manual, the words Transceiver, Radio and Unit are used interchangeably.

INSTALLATION

NOTE: It is recommended that the Transceiver and the antenna installation be performed by a technician qualified in 2-way radio installation.

Location Consideration

Choose a location for the Transceiver in the vehicle which permits several inches of clearance all around. This is necessary for heat dissipation. Make sure that the area is easily accessible and not cramped.

Bracket Mounting

Secure the mounting bracket to the vehicle, using the supplied screws; either the 8–32 x 11/32 with hexnut or the No. 8 x 5/8 self-tapping.

*DCS stands for Digital Coded Squelch

Cable Connections

1. Install the microphone cable in the connector located at the left side of the Unit's *front* panel. See Figure 2 on page 4. There will be a *click* when the cable's modular plug is fully seated.
2. Install the speaker cable's plug in the 3.5mm phone jack located on the Unit's *rear* panel. See Figure 1, below.
3. Install the antenna and DC Power connectors on the cable mounted jacks.

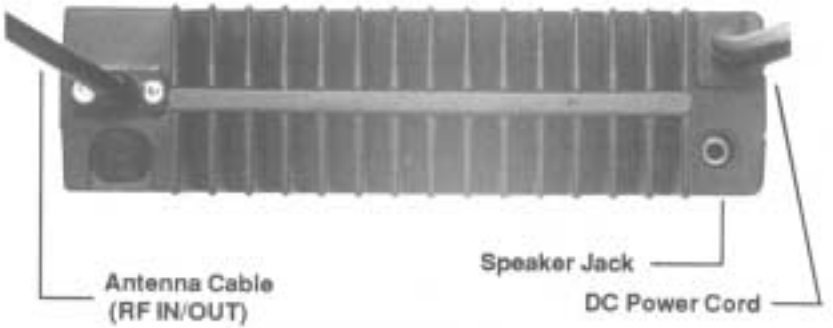

Figure 1. Rear View.

Transceiver Mounting

Attach the Transceiver to the bracket; using its 6 black attaching screws and 4 black fiber washers.

Microphone Hang-up Clip Mounting

Choose a suitable location. Mount the clip using the supplied No. 6 x 5/8 inch screws.

NOTE: The clip does NOT need to be grounded. The Unit will still operate properly if the hang-up clip is not grounded. The microphone's hang-up button utilizes a built-in switch function that eliminates the need for a "grounded" clip.

External Speaker Mounting

Secure the speaker to the vehicle, using the supplied screws.

Power Cord Connections

CAUTION: The Transceiver is equipped with *reverse* polarity protection. Reversing the power leads will blow the in-line fuse.

Using the DC Power cord supplied:

1. Connect the **red** wire (with the in-line fuse) to the *positive* (+) Battery terminal.
2. Connect the **black** wire to the *negative* (–) Battery terminal.

NOTE: In case the fuse blows, check that the leads are connected to the *correct* Battery terminals and then replace the fuse.

OPERATING CONTROLS AND INDICATORS

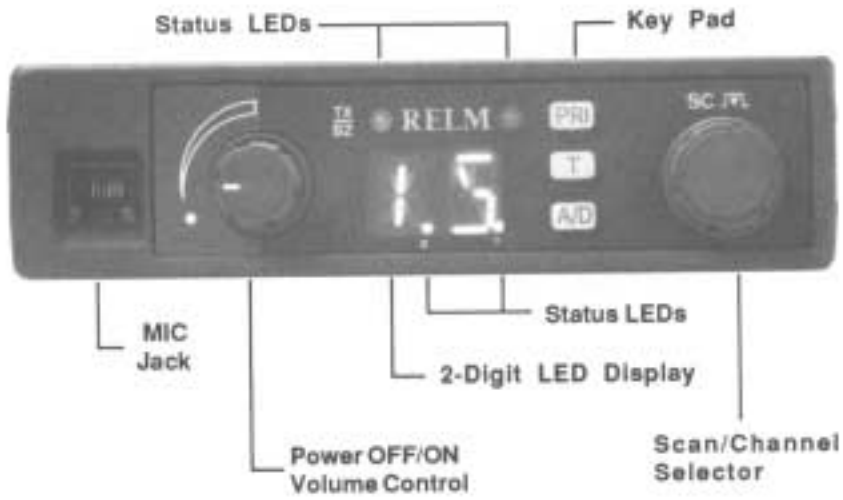

Figure 2. Front View.

OFF/VOLUME ( )

Power On-Off/Volume Control. Use this knob to turn the power ON or OFF (white dot) and to vary or set the volume (audio output) level.

NOTE:

1. If the Radio is turned OFF and back ON, it will return to the OPERATING Mode it was in prior to turning the Unit OFF. A Dealer-programmable option enables the Unit to always power-up on Channel 1 if in MANUAL Mode.
2. If the Radio is turned ON while the microphone's **PTT** switch is held in, a series of *beeps* will be heard.

SCAN/CHANNEL SELECTOR (SC)

Use this push/rotary switch to manually select any one of the channels or to put the Unit in the SCAN Mode.

KEY PAD

The three-button key pad provides the User an easy means to: activate/deactivate (**PRI**) the Priority feature, select (**PRI**) the Priority Channel, enable/disable (**T**) the TONE Mode, enable/disable (**T**) Talk-Around (Option), add/delete (**A/D**) channels to the Scan List.

STATUS INDICATORS

There are four LED indicators. Their meanings are as follows:

LED	MEANING WHEN LIGHTED
PRI (Yellow)	Priority Feature is activated. (LED is adjacent to **PRI** button.)
TX/BZ (Red)	Transmitter activated. The microphone must be off-hook and the **PTT** switch is pressed.
TX/BZ (Green)	Channel is *Busy* (in use).
D (Yellow)	Displayed channel is deleted from Scan List if this LED is lighted.
T (Yellow)	Unit is in TONE Mode or Talk-Around (optional) if this LED is lighted.
Blinking Display	Message received. Stops *blinking* when the microphone is off-hook or when the channel is changed. Functions only if a channel with the proper tone is received.

OPERATION

RECEIVER OPERATION

The Receiver operates in one of *two* modes: MANUAL or SCAN. While the Unit is in the SCAN Mode, SC is displayed.

VOLUME SET

To set the Volume Control for the desired audio output level when there is NO signal on the channel, press IN on the **VOLUME** knob. While the knob is held in, "noise" can be heard in the speaker. Continue to hold the knob in and rotate it until the desired audio level is reached. At this point, release the knob and the Unit will return to its squelched (factory set) or no noise condition.

> **NOTE**: In order to simplify the controls or operation of the Unit, a Squelch Control (which is not often adjusted by the User) is not provided on the *front* panel. The function is still built into the Radio, but its setting is optimized by the factory for all normal receiving conditions.

MANUAL MODE

In this mode, the Unit monitors activity on the displayed channel. To put the Receiver in this mode, rotate the **SC** knob to select any *valid* programmed channel. All channels programmed into the Unit by the Dealer are valid.

Selecting Channels

Rotate the **SC (SCAN/CHANNEL) SELECTOR** switch until the desired channel is in the display. The switch can be rotated in either direction. Each time the switch is turned to Channel 1, or past it, a *beep* will be heard. This feature can be disabled by the Dealer (see page 13).

SCAN MODE

In this mode, the Unit monitors activity *only* on those channels which are included in the Scan List, and the Priority Channel when the Priority function is activated. (See SCAN LIST, page 7).

To place the Unit in the SCAN Mode, make sure that the microphone is on-hook and then press **SC**. The display will show SC and the Unit will *scan*, at approximately 12 channels per second, the User-selected channel list. When activity is found on a channel, the active channel's number will be displayed.

After activity has ceased on a channel, the Unit will stay on that channel for *approximately* 2 seconds (this is often referred to as *Scan Delay* and is Dealer-programmable) and then resume *scanning*.

> **NOTE**: If the microphone is lifted off-hook before *scanning* resumes, the Radio will stay on that channel until the microphone is returned to on-hook.

Off-Hook Scan

An option (Dealer-programmable) is available that permits *scanning* to continue even if the microphone is lifted off-hook. Thus, the microphone can be kept handy, such as laying next to the User, but the Unit will still function properly in the SCAN Mode. Since the Unit can not be put in the MONITOR Mode by lifting the microphone off-hook, press the **TONE** button if the **T** status LED is on to check if the channel is busy. This complies with the FCC Rules about monitoring the channel for activity before transmitting. The Radio will not transmit in the TONE Mode if a signal with the *wrong* tone is present.

Scan List

The Unit will scan *only* those channels that are in the Scan List and the Priority Channel if Priority is activated. The User can select (add or delete) which channels are to be scanned.

To review the channels in the Scan List, first rotate the **SC** knob to put the Unit in the MANUAL Mode. Second, slowly rotate the **SC** knob and observe the **D** status LED. For every channel that is NOT in the Scan List, this LED will be lighted.

To change a channel's Scan List status, press the **A/D** button. This will add (**D** LED goes off) or delete (**D** LED comes on) the displayed channel to/from the Scan List. The **A/D** button is usable while the Unit is in the MANUAL Mode or when an active channel has been found in the SCAN Mode.

If the display channel is deleted while in the SCAN Mode, scanning will resume immediately UNLESS the channel is also the Priority Channel and the Priority Feature is activated.

> **NOTE**: If you delete ALL of the channels and press **SC**, nC will be displayed briefly and the last channel deleted will be shown again. There must be at least one channel in the Scan List in order to put the Unit in the SCAN Mode.

PRIORITY FEATURE

To activate (or deactivate) the Priority Feature, press and release **PRI**. When the Priority function is activated, the PRIORITY Status LED will light.

To review or see which channel is the current Priority Channel, put the Unit in the MANUAL Mode (by rotating the **SC** knob) and activate the Priority Feature (PRIORITY LED on). If the channel being displayed is NOT the Priority Channel, the Priority Channel's number will be displayed very briefly (*flashes*) every two seconds.

Hint No. 1: To make it easier to "read" the Priority Channel's number, rotate **SC** until Channel 1 is displayed.

Hint No. 2: or, very slowly rotate the **SC** knob until the display stops *flashing* (priority sampling). This is the Priority Channel.

Priority Channel Selection

To change the Priority Channel:

1. Put the Unit in the MANUAL Mode (rotate **SC** knob).
2. Rotate the **SC** knob until the desired channel's number is displayed.
3. Press and Hold the **PRI** button for *approximately* 1 second. When a *beep* is heard, release the **PRI** button and the channel being displayed is now the Priority Channel.

Priority Operation in MANUAL Mode

When a channel (other than the Priority Channel) is *manually* selected, the Unit will sample the Priority Channel *approximately* every 2 seconds. If any activity is found on the Priority Channel, the Radio will stay on the Priority Channel and monitor the transmission. If the microphone is taken off-hook during the reception, the Unit will stay on the Priority Channel until the microphone is returned to on-hook and the Priority Channel activity is completed.

Priority Operation in SCAN Mode

When the Radio has stopped on an active non-priority channel, it will *periodically* look at the Priority Channel. If the Priority Channel has activity, the Radio will then stay on the Priority Channel. If the Priority Channel is NOT active, the Radio will return to the (non-priority) channel that was interrupted. When activity on the non-priority channel is completed, the Unit will resume *scanning*.

Depending upon the option selected (Dealer-programmable), if the Radio is *scanning* and the microphone is taken off-hook, the Unit will *either* go to the Priority Channel and stay there until the microphone is returned on-hook or the Unit will continue *scanning* (see OFF-HOOK SCAN on page 7).

TONE OPERATION

The built-in decoder is enabled when the **T** button is pressed and the **T** status LED is lighted. Each channel can be programmed by the Dealer for TONE (CTCSS or DCS) operation. This is also true if an external decoder has been installed by the Dealer.

If the **T** LED is lighted and the microphone is on-hook, the Receiver's audio for a channel programmed for TONE operation will be heard *only* when a signal with the correct tone is received. If the microphone is off-hook, *any* signal on that channel can be heard. See *Busy Channel Lockout*, below, for an exception.

> **NOTE**: Pressing IN on the Volume Control knob will also allow any signal on the channel to be heard UNLESS *Busy Channel Lockout* is enabled (see below).

Message Annunciator

A *blinking* display is the Message Annunciator, which indicates a signal with the proper tone has been received. This annunciator stays ON (still *blinking*) *even after* the signal is gone. This feature is operational *only* on a tone channel. The Message Annunciator goes OFF (stops *blinking*) when the microphone is lifted off-hook or the channel is changed.

Busy Channel Lockout

Busy Channel Lockout (BCL) is a special TONE operation feature, when enabled by the Dealer, that prohibits monitoring (listening to) a channel that is receiving a signal with an improper tone or DCS code. It does NOT matter if the **VOLUME** knob is pressed IN or if the microphone is off-hook, normal audio will NOT be heard (only "noise" will be heard) unless the signal has the proper tone or DCS code.

TRANSMITTER OPERATION

WARNING: An FCC license is required on all transmit channels. Do NOT transmit on unlicensed channels.

NOTES:
1. When the microphone is on-hook, pressing the **PTT** switch will NOT activate the Transmitter.
2. The Channel Selector becomes disabled while the Unit is transmitting.
3. While the Unit is transmitting, the **TX/BZ** LED will be lighted **red**.

PROCEDURE

1. Select the desired channel. If the **TX/BZ** LED is lighted **green**, the channel is *busy* (receiving a signal). The channel, if programmed for TONE or DCS and TONE Mode is enabled, can be monitored (listened to) by lifting the microphone off-hook or momentarily pressing IN on the **VOLUME** knob.

   However, if *Busy Channel Lockout* (see page 9) is enabled, the channel can NOT be monitored or used for transmission if the channel is receiving a signal with an incorrect tone or DCS code.

2. Lift the microphone off-hook.

3. Press and hold in the **Push-to-talk** (**PTT**) switch on the side of the microphone and then speak clearly into the microphone in a normal conversational voice. Try to keep the conversation as brief as possible. To listen, release the **PTT** switch.

   If *Busy Channel Lockout* is enabled and the channel is receiving an incorrect tone or DCS code, a series of *beeps* will be heard if the **PTT** switch is pressed, and the Unit will NOT transmit.

   Also, if the channel is *Receive Only*, a series of *beeps* will be heard if the **PTT** switch is pressed, and the Unit will NOT transmit.

4. Place the microphone back on-hook to resume normal operation.

TALK-AROUND

A Talk-Around function, an option programmed by the Dealer, provides for the User the capability to transmit on the channel's receive frequency. The receive channel's tone is also transmitted. Thus, two mobile units could talk directly to one another, rather than through a repeater.

When the Talk-Around option is selected, the **T** button enables/disables this function. The **T** status LED will be ON when the function is enabled.

REMINDER: Talk-Around MUST be disabled (**T** status LED off) for normal usage with a repeater channel.

TIME OUT TIMER

A transmit Time Out Timer is built into the Unit. It can be programmed by the Dealer to *automatically* shut down the transmitter after 30 seconds (or up to 4 minutes) of operation even if the **PTT** switch is held in continuously. The Dealer can also *disable* the Timer. In which case, the length of any transmission is determined by how long the **PTT** switch is pressed.

If the Timer is enabled, a series of *beeps* will be heard when the **PTT** switch is held in after the timer has timed out. In addition, the **TX/BZ** indicator will NOT be lighted. To resume transmitting, release the **PTT** switch momentarily and press again.

REPEATER OPERATION

If the Unit is to be used in conjunction with various repeaters, the duration of time that a carrier *only* (no modulation) is transmitted after the release of the **PTT** switch can be Dealer programmed for optimum operation. This built-in TX Carrier Delay will eliminate the need for possible modification to the Unit, such as the installation of a *reverse-burst* type accessory. Carrier Delay is only enabled when the channel is programmed for tone encoding.

If a repeater uses a sub-audible tone (such as CTCSS) for control purposes, it is recommended that a quick or fast operation of the **PTT** switch be avoided. For some repeaters' proper tone operation, up to 250 milliseconds (1/4 second) may be required after the **PTT** switch is pressed before speaking. This will help ensure that the first word or two will NOT be lost or distorted.

SUMMARY OF DEALER'S PROGRAMMING OPTIONS

1. Number of Channels – depending upon the model, the Unit can be programmed for 1 to 16 or 1 to 99 channels. Any channel not programmed is *deleted* and cannot be accessed by the User.

2. Receive Only Channel – the transmit frequency can be *deleted* from any channel, thus making that channel only capable of receiving. This would be very useful for such purposes as monitoring a channel (a National Weather Service channel for example) that would not require or permit transmitting.

3. CTCSS Tones – any one of 50 CTCSS Tones can be programmed for any channel. The tone used for a channel's decode (receive) frequency can *either* be the same, or different, from that channel's encode (transmit) frequency.

4. DCS Codes – any one of 104 DCS (Digital Coded Squelch) Codes can be programmed for any channel. The DCS Code used for a channel's decode (receive) function can *either* be the same, or different, than that channel's encode (transmit) function.

5. External Decoder/Encoder – any channel can be programmed for External Decoder or Encoder (installed by the Dealer) operation.

6. External Decoder Delay – any one of 35 different delays (from 0 to 3.40 seconds) can be programmed. This delay is used when the Dealer installs an External Decoder that may require a specified minimum delay for proper tone decoding.

7. Busy Channel Lockout – *any* channel can be programmed to prevent listening or transmitting on that channel if it is receiving a signal that has a Tone or DCS Code that does NOT match its own Tone or Code. Thus, it is a *busy* channel and should not be used at this time.

8. Time Out Timer – the Unit's Time Out Timer can *either* be disabled completely or set to allow a transmission of 1/2 to 4 minutes (at 15 second increments) duration. The Timer is normally used to prevent excessively long transmissions that might be deliberate or caused by an inadvertent or accidental pressing of the **PTT** switch.

9. Scan Delay – the Unit can be programmed to delay (for 1/2, 1, 2 or 4 seconds) the restart of the scanning action after the signal has gone away. This delay gives the User some time to respond to the signal before scanning resumes.

10. Priority Delay – the Unit can be programmed to delay (for 1, 2, 3 or 4 seconds) before returning to the non-priority channel after the Priority Channel's signal has gone away. This delay gives the User some time to respond to the Priority signal before the Unit leaves the channel.

11. TX Carrier Delay – the Unit can be programmed to continue to transmit a carrier only (no modulation) for either 100, 300, 400 or 500 milliseconds after the **PTT** switch is released. This Delay is enabled only for channels that are programmed to transmit (encode) a sub-audible or CTCSS tone. Channels programmed for DCS operation automatically send a 200mS turn-off code at the end of a transmission.

12. Key Pad Beep – the Unit can be programmed to either *beep* or *not beep* whenever the **SC** knob or a button on the key pad, such as **PRI** or **A/D**, is pressed. Error *beeps* are not affected by this option.

13. Channel One Beep – the Unit can be programmed to either *beep* or not *beep* whenever the Channel Selector switch is turned to Channel 1. Error *beeps* are not affected by this option.

14. Off Hook to Priority – the Unit can be programmed to always go to the Priority Channel whenever the microphone is lifted off hook and Priority is enabled. See Option No. 15 for an overriding selection.

15. Off Hook Scan – the Unit can be programmed to continue scanning if the microphone is lifted off hook. This selection overrides the Off Hook to Priority Option (14).

16. Power-Up on Channel 1 – the Unit can be programmed to always be on Channel 1 whenever it is turned ON. If it was in the SCAN Mode when turned OFF, it will be in the MANUAL Mode on Channel 1 when powered up again.

17. Message Indicator – the Unit can be programmed to display an indication that a signal with a proper tone has been received. The indication will be the display slowly *blinking*. This feature is useful if it is desired to know if the channel of interest was active while the operator was not present.

18. Talk-Around – the Unit can be programmed to transmit on the channel's receive frequency whenever the **T** status LED is lighted. Thus, the User can select this function by pressing the **T** button. This function is useful for two (or more) mobile units to communicate with each other on a "repeater channel" without actually going through the repeater. Of course, the operating range (distance) is normally much less than when using the repeater.

NOTE:

1. Talk-Around can not be enabled on a "Receive Only" channel (see Option No. 2). This prevents an inadvertent or accidental transmission on a frequency (such as a National Weather Service channel) that does not permit normal 2-way communications.

2. When the Talk-Around option is programmed in the Unit, the **T** button can not be used to disable the built-in tone decoder in order to monitor a Tone Coded channel. Lifting the microphone off-hook will disable the decoder, unless Busy Channel Lockout (Option No. 7, page 12) is selected for the channel.

MAINTENANCE

NOTE: All adjustments affecting transmitter power output, carrier frequency or modulation MUST be performed by a qualified electronics technician.

CAUTION: Do NOT tamper with internal adjustments. Damage to the equipment and/or improper operation may result.

Service Reminder
Have the Transceiver checked periodically by a qualified electronics technician.

TROUBLESHOOTING

Perform the simple checks indicated below prior to returning the Unit for service.

Trouble	Check
No reception.	Antenna connection.
No sound.	Speaker connection. Volume Control Setting.
Can't seem to activate **PTT** switch.	Is microphone on-hook? Microphone connection.
Can't transmit on a selected channel.	Is Channel *Receive only*? Is *BCL* enabled and BZ indicator lighted (**green**)? There will be a series of *beeps* while **PTT** is depressed for either condition.

For service, in or out of Warranty, send Unit to: **Customer Service Department**
RELM Communications, Inc.
7505 Technology Drive
West Melbourne, FL 32904

For information, contact: 1-800-422-6281

NOTE: For in-Warranty service information, read the Warranty Statement on the back cover of this manual.

For future reference, please record:
Serial No. _____ Date Purchased_____
Dealer _____

SPECIFICATIONS

(Subject to change without notice)

General	
Frequency Range	150-174 MHz (SMV40) 450-482 MHz (SMU25)
Operational Bandwidth	7 MHz
Number of Channels	1 – 16; 1 – 99
Size (H x W x D)	1.50" x 5.75" x 7.00"
Metric (cm)	3.81 x 14.61 x 17.78
Weight, including Bracket	2 lbs, 7 oz. (1.1 kg)
Supply Voltage	13.6 VDC
Current Consumption	
Standby	400 mA Max.*
Receive	1.0 A Max.* @ 5W Audio
Transmit	10.0 A Max. (SMV40) 7.5 A Max. (SMU25)
Channel Increments	5 kHz/12.5 kHz (SMV40) 12.5 kHz (SMU25)
Channel Spacing	30 kHz (SMV40); 25 kHz (SMU25)
Temperature Range	–30°C to +60°C
Frequency Stability	± 5 PPM
Antenna Impedance	50 Ohms
Speaker (External) Impedance	3.2 Ohms
Receiver	
Sensitivity – 12dB SINAD (± 3.5 MHz)	0.30µV Max.
– 12dB SINAD (@ ± 5 MHz)	0.60µV Max.
Selectivity (Adjacent Channels)	75dB Min.
Intermodulation	70dB Min.
Spurious Response – (± 3.5 MHz)	75dB Min.
– (@ ± 5 MHz)	65dB Min.
Modulation Acceptance B.W.	± 7.5 kHz
Rated Audio Output	5 Watts Min.
Audio Distortion @ 5W	5% T.H.D. Max.
Transmitter	
Power Output – (± 3.5 MHz)	40W Min. (SMV); 25W Min. (SMU)
– (@ ± 5 MHz)	20W Min. (SMV); 12.5W Min. (SMU)
Spurious/Harmonic Emissions	–70dBc Min. (SMV) –65dBc Min. (SMU)
Microphone (Dynamic) Impedance	600 Ohms
Audio Distortion	5% Max.
FM Hum and Noise	40dB
FCC Emission Designator	16K0F3E, 15K0F1D
FCC Type Acceptance	Part 22, 90 (SMV); Part 90, 95 (SMU)

* with ALL status LEDs on and " *8 8* " in the display.

NOTES: