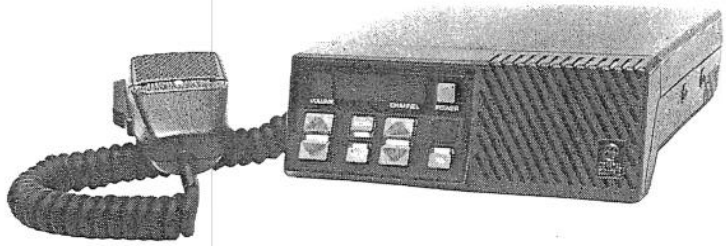
ERICSSON

LBI-31927D

Mobile Communications



MVS™

Operator's Manual

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OPERATING PROCEDURES

Two-way FM radio systems must be operated in accordance with the rules and regulations of the Federal Communications Commission (FCC). As an operator of two-way radio equipment, you must be thoroughly familiar with the rules that apply to your particular type of radio operation. Following these rules will help to eliminate confusion, assure the most efficient use of existing radio channels, and result in a smoothly functioning radio network.

When using your two-way radio remember these rules:

1. It's a violation of FCC rules to interrupt any distress or emergency message. And, as your radio operates in much the same way as a telephone "party line", always listen to make sure that the line is clear—that no one else is on the air—before sending messages. If someone is sending an emergency message—such as reporting a fire, or asking for help in a accident—**KEEP OFF THE AIR!** Emergency calls have priority over all messages.

2. Use of profane or obscene language is prohibited by Federal law.

3. It is against the law to send false call letters, or a false distress or emergency message.

4. The FCC requires that you keep conversations brief and confine them to business. To save time, use coded messages whenever possible.

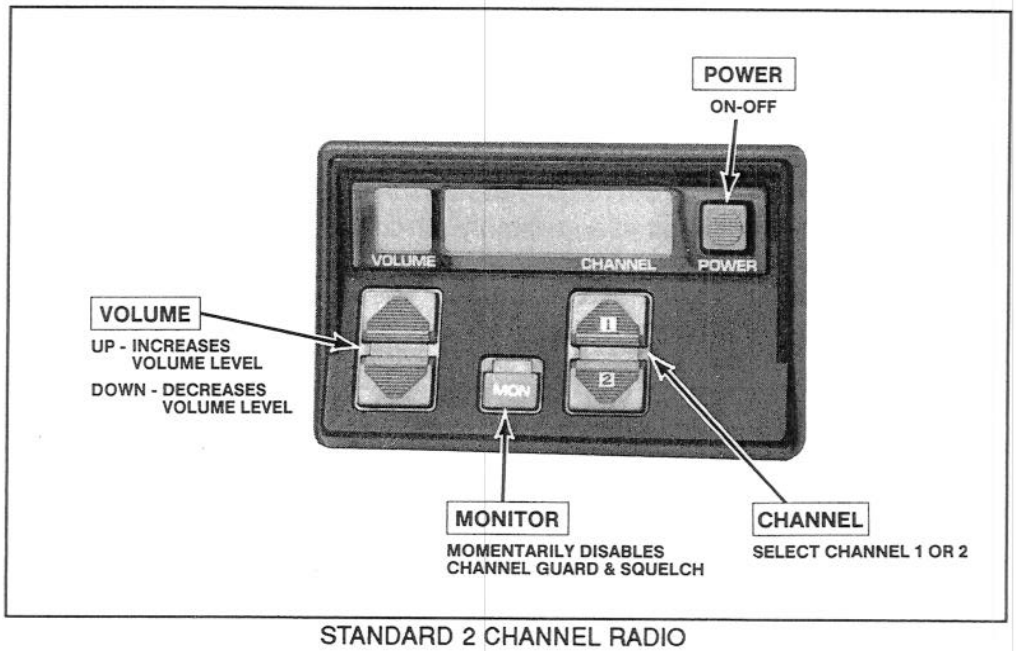
5. Using your radio to send personal messages (except in an emergency) is a violation of FCC rules. You may send only those messages that are essential for the operation of your business.

6. It is against the Federal law to repeat or otherwise make known anything you overhear on your radio. Conversations between others sharing your channel must be regarded as confidential.

7. The FCC also requires that you identify yourself at certain specific times by means of your call letters. Refer to the rules that apply to your particular type of operation for the proper procedure.

8. No changes or adjustments shall be made to the equipment except by an authorized or certified electronic technician.

TWO CHANNEL OPERATION



STANDARD 2 CHANNEL RADIO

CONTROLS AND INDICATORS

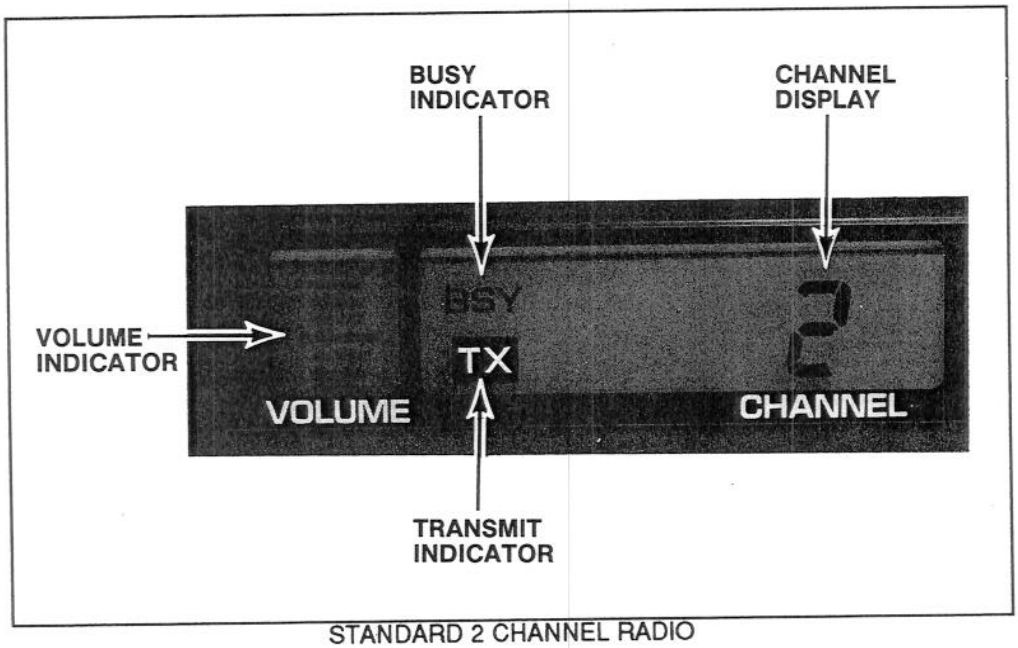
CONTROLS

POWER — A push-push type switch to turn the radio on or off. Press once to turn the radio on; press again to turn the radio off. Power ON is indicated by all indicators on the LCD being activated momentarily and then a channel number being displayed.

VOLUME — Momentary type switches to adjust the volume. Press and hold the (up arrow) to increase the volume. Press and hold the (down arrow) to decrease the volume. While on an inactive channel, beeps are heard while adjusting the volume. No beeps are heard while listening to an active channel.

MONITOR (MON) — A momentary type switch to allow monitoring of the displayed channel before transmitting a message. It disables Channel Guard and squelch and will allow noise to be heard if the channel is not busy. This may be convenient when setting the volume to the desired level.

CHANNEL — Two push type switches. Press Channel 1 to select channel 1; press Channel 2 to select channel 2. The channel number will be shown on the display.



STANDARD 2 CHANNEL RADIO

INDICATORS

CHANNEL DISPLAY	Displays the current operating channel.
BUSY (BSY)	Illuminates if the channel displayed is in use.
TRANSMIT TX	Illuminates whenever the Push-To-Talk (PTT) button is pressed. Goes out when it is released.
VOLUME INDICATOR	Functions as a bar graph to indicate relative volume level. As the volume is increased, more segments are illuminated.

USING THE 2 CHANNEL RADIO

TO RECEIVE A MESSAGE

1. Turn the radio on (LCD indicators show).
2. Select the desired channel by pressing either the 1 or 2 switch.
3. Press and hold the MON switch and then adjust VOLUME controls for the desired listening level. Release the MON switch.
4. The radio is now ready to receive a message.

TO TRANSMIT A MESSAGE

1. Confirm that the radio is turned on. If not, press the power switch.
2. Select the desired channel by pressing either the 1 or 2 switch.
3. Press and hold the MON switch and then adjust the VOLUME controls for the desired listening level. Release the MON switch.
4. Decide what you want to say. If you intend a lengthy message (or several messages), the vehicle engine should be running to maintain the battery charge.
5. Observe the BSY indicator and press the MON switch to assure that the channel is not in use.
6. Remove the microphone from the hanger, press the PTT switch and identify yourself. The TX indicator will be shown each time the PTT switch is pressed.
7. Release the PTT switch and wait for an answer to your call. Then, complete your message.
8. When the PTT switch is pressed continuously for a pre-programmed time (default of 30 seconds), the carrier control timer (if enabled) will sound a pulsed alert tone and unkey the transmitter. Release and press the PTT switch again to reset the timer and resume conversation.

NOTE

Always speak in a normal tone of voice. Hold the microphone cupped in your hand and touching your cheek lightly. Speak across the face of your microphone, not directly into it. Shouting will degrade your transmission, so do not speak any louder than normal.

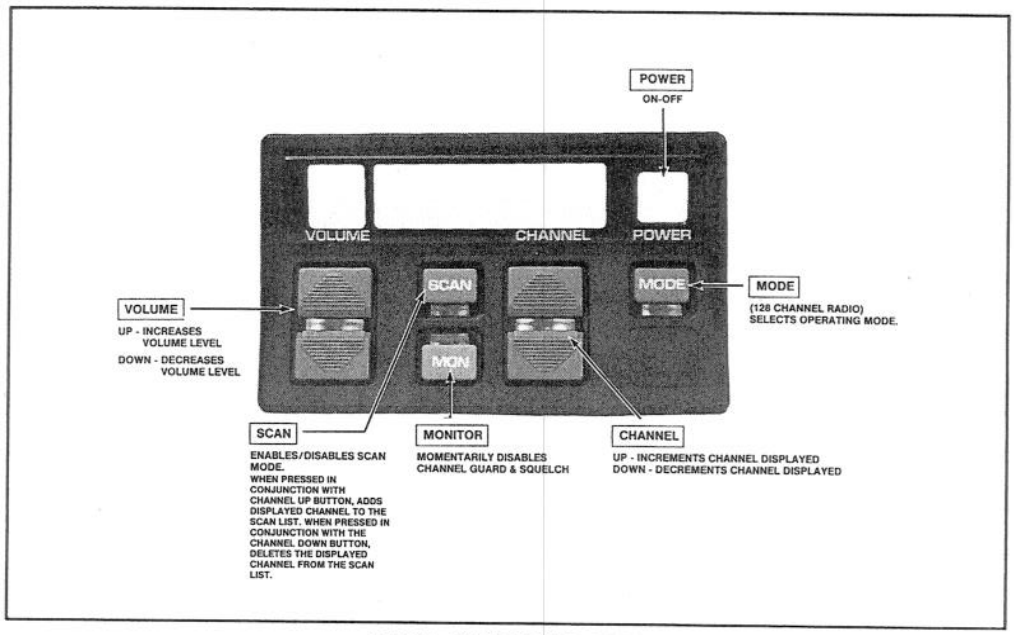
16/128 CHANNEL OPERATION

CONTROLS AND INDICATORS

CONTROLS

POWER — A push-push type switch to turn the radio on or off. Press once to turn the radio on; press again to turn the radio off. Power ON is indicated by all indicators on the LCD being activated momentarily and then a channel number being displayed.

VOLUME — Momentary type switches to adjust the volume. Press and hold the (up arrow) to increase the volume. Press and hold the (down arrow) to decrease the volume. While on an inactive channel, beeps are heard while adjusting the volume. No beeps are heard while listening to an active channel.



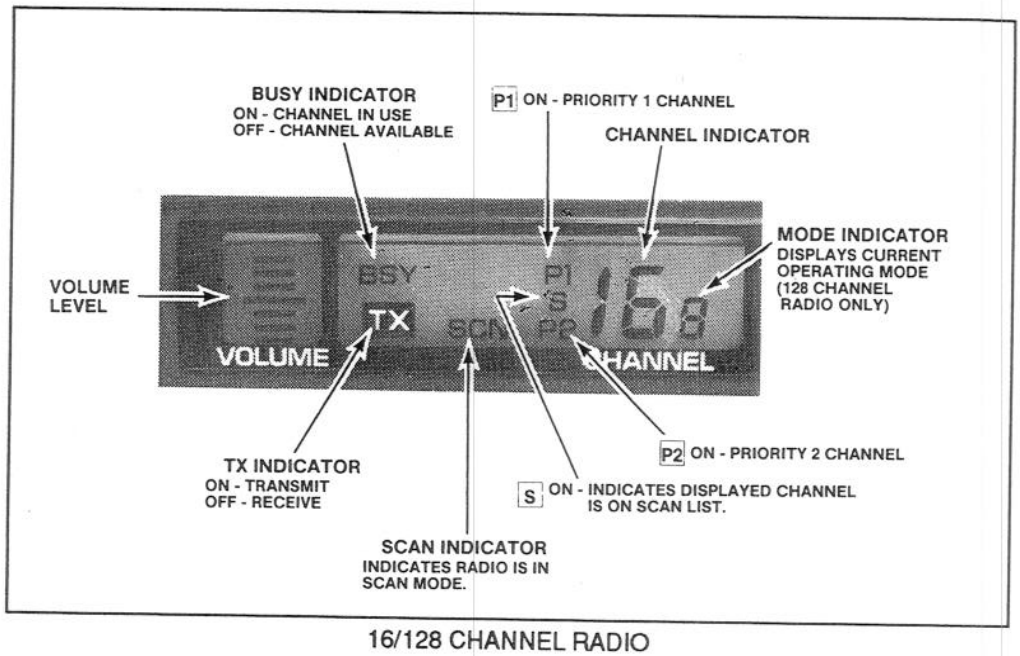
16/128 CHANNEL RADIO

MONITOR (MON) — A momentary type switch to allow monitoring of the displayed channel before transmitting a message. It disables Channel Guard and squelch and will allow noise to be heard if the channel is not busy. This may be convenient when setting the volume to the desired level.

CHANNEL — Two push type switches. Press CHANNEL (up arrow) to increase the channel number; press CHANNEL (down arrow) to decrease the channel number. The channel number will be shown on the display. Unprogrammed channels will be skipped.

SCAN — A momentary type switch to turn the scan function on or off. When used in conjunction with the CHANNEL switch it enables the ADD/DELETE Function to allow the scan list to be modified. When turned on, the display will show "SCN" in the lower center portion of the display.

MODE — A momentary type switch used in the 128 channel models only. These models can contain up to 8 modes with each mode containing up to 16 channels. When the switch is pressed once, the operating mode will increment one mode. If continuous pressure is applied, the mode will increment to mode 8 then back to mode 1. Unprogrammed modes will be skipped.



16/128 CHANNEL RADIO

INDICATORS

CHANNEL DISPLAY	Displays the current operating channel. In scan operation, when a carrier is detected on a channel, that channel is displayed.
PRIORITY 1 (P1)	Illuminates when the channel displayed is a Priority 1 scan channel.
PRIORITY 2 (P2)	Illuminates when the channel displayed is a Priority 2 scan channel.
(S)	Illuminates when the channel displayed is a non-priority scan channel.
SCAN (SCN)	Illuminates when the scan funciton is activated. Blinks when the microphone is off-hook to indicate that the radio has stopped scanning.
BUSY (BSY)	Illuminates if the channel displayed is in use.
TRANSMIT TX	Illuminates whenever the Push-to-Talk (PTT) button is pressed. Goes out when it is released.

VOLUME INDICATOR	Functions as a bar graph to indicate relative volume level. As the volume is increased, more segments are illuminated.
MODE DISPLAY	Displays the current mode in a 128 channel radio.

USING THE RADIO (Without Scan)

TO RECEIVE A MESSAGE

1. Turn the radio on (LCD indicators show).
2. Select the desired channel by pressing either the UP or DOWN channel control.
3. Press and hold the MON switch and then adjust VOLUME controls for the desired listening level. Release the MON switch.
4. The radio is now ready to receive a message.

TO TRANSMIT A MESSAGE

1. Confirm that the radio is turned on. If not, Press the POWER switch.
2. Select the desired channel by pressing either the UP or DOWN channel control.
3. Press and hold the MON switch and then adjust the VOLUME controls for the desired listening level. Release MON switch.
4. Decide what you want to say. If you intend a lengthy message (or several messages), the vehicle engine should be running to maintain the battery charge.
5. Observe the BSY indicator and then press the MON switch to assure that the channel is not in use.
6. Remove microphone from the hanger, press the PTT switch and indentify yourself. The **TX** indicator will be shown each time the PTT switch is pressed.
7. Release the PTT switch and wait for an answer to your call. Then complete your message.
8. When the PTT switch is pressed continuously for a pre-programmed time (default of 30 seconds), the carrier control timer (if enabled) will sound a pulsed alert tone and unkey the transmitter. Release and press the PTT switch again to reset the timer and resume conversation.

NOTE

Always speak in a normal tone of voice. Hold the microphone cupped in your hand and touching your cheek lightly. Speak across the face of your microphone, not directly into it. Shouting will degrade your transmission, so do not speak any louder than normal.

SCAN OPERATION

The SCAN function allows monitoring of up to 16 receive channels. The scanned channels may be any frequency within the frequency band limits of the radio and may be Channel Guard protected. All scan functions are retained in memory, even if the 12 Volt battery is disconnected.

Any channel may be scanned with or without a priority level. One channel may be programmed for Priority 1 (P1) and another for Priority 2 (P2) with any or all remaining channels programmed as non-priorities.

When using the scan function with a 128 channel radio, the scan function works on a per mode basis. Only the current operating mode will be scanned. Scan must be turned off before changing modes.

RECEIVER SCAN RATE

The scan rate for the radio will vary depending upon the number of channels programmed into the scan list and whether or not Channel Guard is programmed. The scan rate will be faster when fewer channels are programmed into scan memory.

Scan operation will be determined by the following conditions:

- PRIORITY 1, PRIORITY 2 and NON-PRIORITY PROGRAMMED

  The Priority 1, Priority 2 and up to 14 remaining channels will be scanned. Once a carrier is detected (and if programmed, the correct Channel Guard is decoded), the LCD display will indicate that channel. Sampling of the Priority 1 and Priority 2 channels continues while receiving a message. Should a Priority 1 or 2 channel carrier (and correct Channel Guard) be detected while a non-priority channel is being received, the applicable indicator, P1 or P2 lights, and the channel is switched to the Priority 1 or 2 channel regardless of what is being received on the non-priority channel.

- NON-PRIORITY PROGRAMMED

  Up to 16 non-priority channels may be scanned. Once a carrier is detected (or correct Channel Guard is decoded) the digital display will indicate that channel. Scaning will stop and remain on the channel until the carrier disappears; after a few seconds scanning resumes. The channels are scanned in descending order.

TO PROGRAM SCAN CHANNELS AND SELECT PRIORITY

The selection of scan channels and priority is front panel programmable using the SCAN switch in conjunction with the CHANNEL UP and CHANNEL DOWN switches.

NON-PRIORITY (S)

1. Confirm that the radio is turned on. If not press the POWER switch.
2. If SCN indicator is lit, press and release the SCAN switch to disable scan function.
3. Select the desired channel using the CHANNEL up or CHANNEL DOWN switch.
4. Press and hold the SCAN switch, then press the CHANNEL UP switch once to add the channel to the scan list. The S indicator will be shown in the display to indicate that the channel is now in the scan program.
5. Release SCAN switch.
6. Repeat steps 2 through 5 for each channel (up to 16) to be added to the scan list.

PRIORITY 2 (P2)

1. With scan off, select the desired P2 channel. (Refer to Steps 1 through 3 of the Non-Priority procedure.)
2. Press and hold SCAN switch; then press the CHANNEL UP switch twice. The displayed channel will now become the Priority 2 channel and the P2 indicator will light to indicate that the channel is now in the scan list as priority 2.
3. Release the SCAN switch.

NOTE

A previous channel with priority will become a non-priority scan channel when a new priority channel is programmed.

PRIORITY 1 (P1)

The Priority 1 channel may be added to the scan list by one of three methods depending on how your service representative programmed the radio's personality. Normally P1 is added using the front control panel (Method 1).

- Method 1: FRONT PROGRAMMABLE

  1. With scan off, select the desired P1 channel. (Refer to Steps 1 through 3 of the Non-Priority procedure.)
  2. Press and hold the SCAN switch; then press the CHANNEL UP switch three times. The displayed channel will now become the Priority 1 channel and the P1 indicator will light to indicate that the channel is now in the scan list as priority 1.
  3. Release the SCAN switch.

- Method 2: FIXED P1 OPTION

  The P1 channel is fixed in the radio's personality by your service representative.

- Method 3: SELECTED CHANNEL OPTION

  This option is programmed into the radio's personality by your service representative. Each time the scan function is turned on by pushing the SCAN switch, the P1 channel becomes the channel in the display (the SELECTED channel).

DELETE SCAN CHANNEL (S, P1, P2)

1. Confirm that the radio is on. If not press the power switch.
2. If SCN indicator is lit, press and release SCAN switch to disable scan function.
3. Select the desired channel to be removed from the scan list using the CHANNEL UP or CHANNEL DOWN switches.
4. Press and hold SCAN switch; then press the CHANNEL DOWN switch once. This removes the selected channel from the scan list. All scan indicators (S, P1, P2 and SCN) will be off.
5. Release SCAN switch.
6. Repeat preceding Steps 2 thru 5 for each channel to be removed from the scan list.

REVIEWING THE SCAN LIST

1. Confirm that the radio is turned on. If not press the POWER switch.
2. If SCAN indicator is lit, press and release SCAN switch to disable scan function.
3. Select each channel (one at a time) using the CHANNEL UP or DOWN switch and confirm channels included on the scan list. The scan indicators (S, P1, P2) will light for each channel programmed.

USING THE RADIO WITH SCAN

THE SELECTED CHANNEL

The SELECTED channel is the channel in the display when scan is turned on by pushing the SCAN switch. When a signal is not being received, the radio reverts to this channel for transmitting. When a signal is being received, the radio can be PC programmed to either revert to the SELECTED channel or remain on the received channel.

The SELECTED channel does not necessarily have to be a channel in the scan list. The SELECTED channel will be temporarily entered into the scan list and scanned until the SELECTED channel is changed.

When scan is turned off by pushing the SCAN switch, the radio will return to the SELECTED channel.

DISPLAY

Channel indicator

While no signal is being received, the channel indicator will always show the SELECTED channel. When an active channel is received, the channel indicator will show the received channel.

SCN indicator

When the SCAN button is pushed, the radio will light the SCN indicator and begin scanning. The SCN indicator will flash when the microphone is placed off-hook to show the radio is no longer scanning (only if the radio is PC programmed not to scan off-hook).

TRANSMITTING WHILE IN SCAN:

Transmitter operation in scan is determined by the PC programming of the radio's personality. A flow chart is provided in this section to summarize the scan operation described below.

- Off-hook scan not enabled (default):

With off-hook scan not enabled (normal default condition), all scanning will stop when the microphone is placed off-hook. The SCN indicator will flash to show all scanning has stopped. If a signal is not being received when the mic is placed off-hook, the radio will transmit on the SELECTED channel. If a signal is being received when the mic is placed off-hook, the radio can be PC programmed (using the "scan transmit option") to either stay on the receive channel or revert to the SELECTED channel. When the mic is placed back on-hook, the radio will immediately start scanning, even if the received channel was still active.

- Off-hook scan enabled:

With off-hook scan enabled, moving the microphone off-hook will not affect scan operation. The radio will continue scanning. If a signal is not being received, the radio will transmit on the SELECTED channel. If a signal is being received, the radio can be PC programmed (using the "scan transmit channel" option) to either stay on the receive channel or revert to the SELECTED channel when the mic PTT is keyed.

MONITOR SWITCH OPERATION IN SCAN

The MON switch does not operate while scanning inactive channels. When a channel becomes active, the MON switch operates only during the scan hang time after the channel activity disappears.

CHANNEL CHANGES IN SCAN

Pushing the channel switches (UP or DOWN) while scan is turned on will change the SELECTED channel assignment. If a signal is being received and the channel switches are pushed, the radio will revert to the new SELECTED channel assignment. After 2 seconds, if no activity appears on the new SELECTED channel, scanning will resume. If the SELECTED channel is changed to a channel not in the scan list, the new channel will be temporarily added to the scan list until the SELECTED channel is changed again.

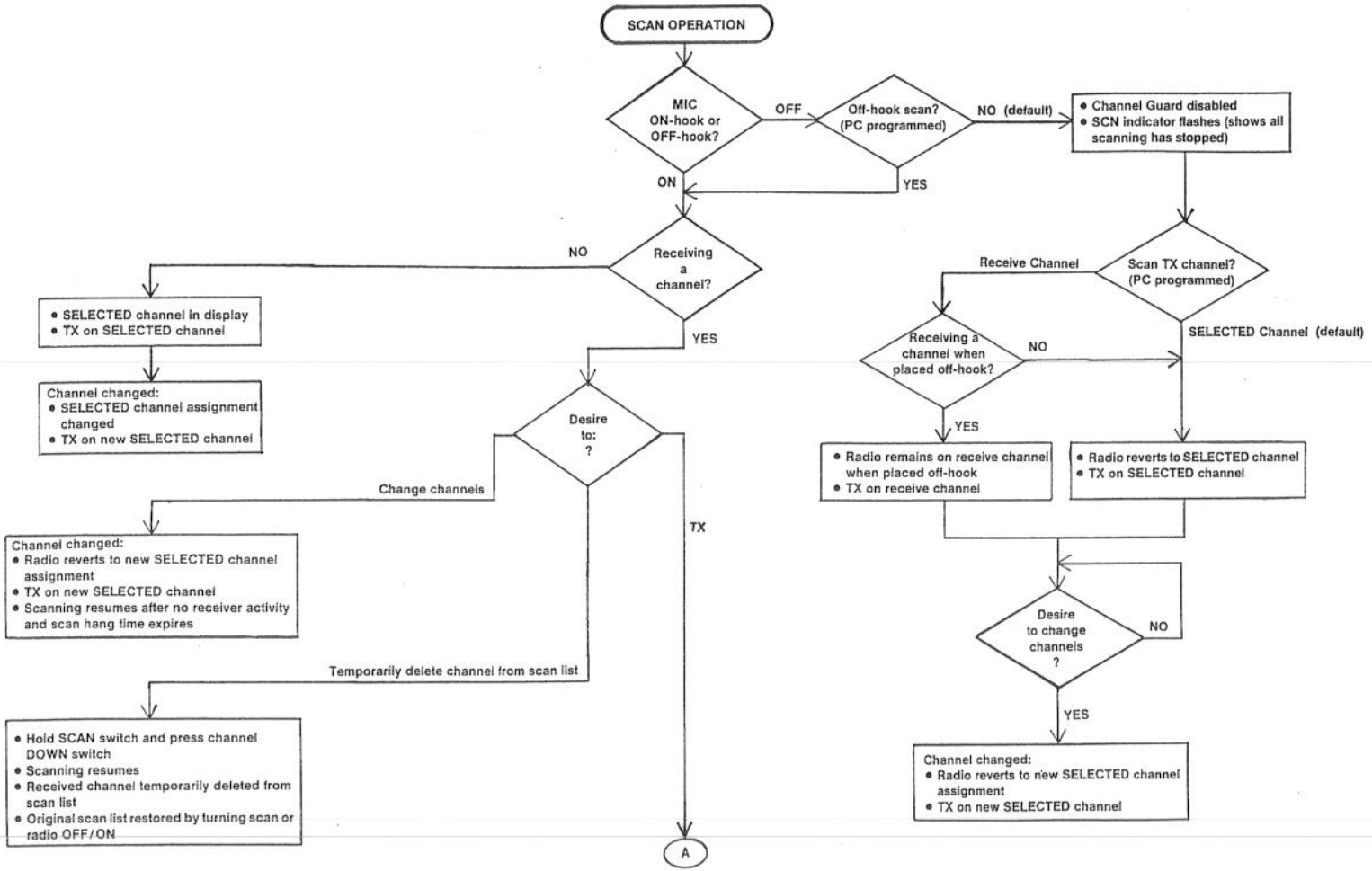
- Temporary channel deletions

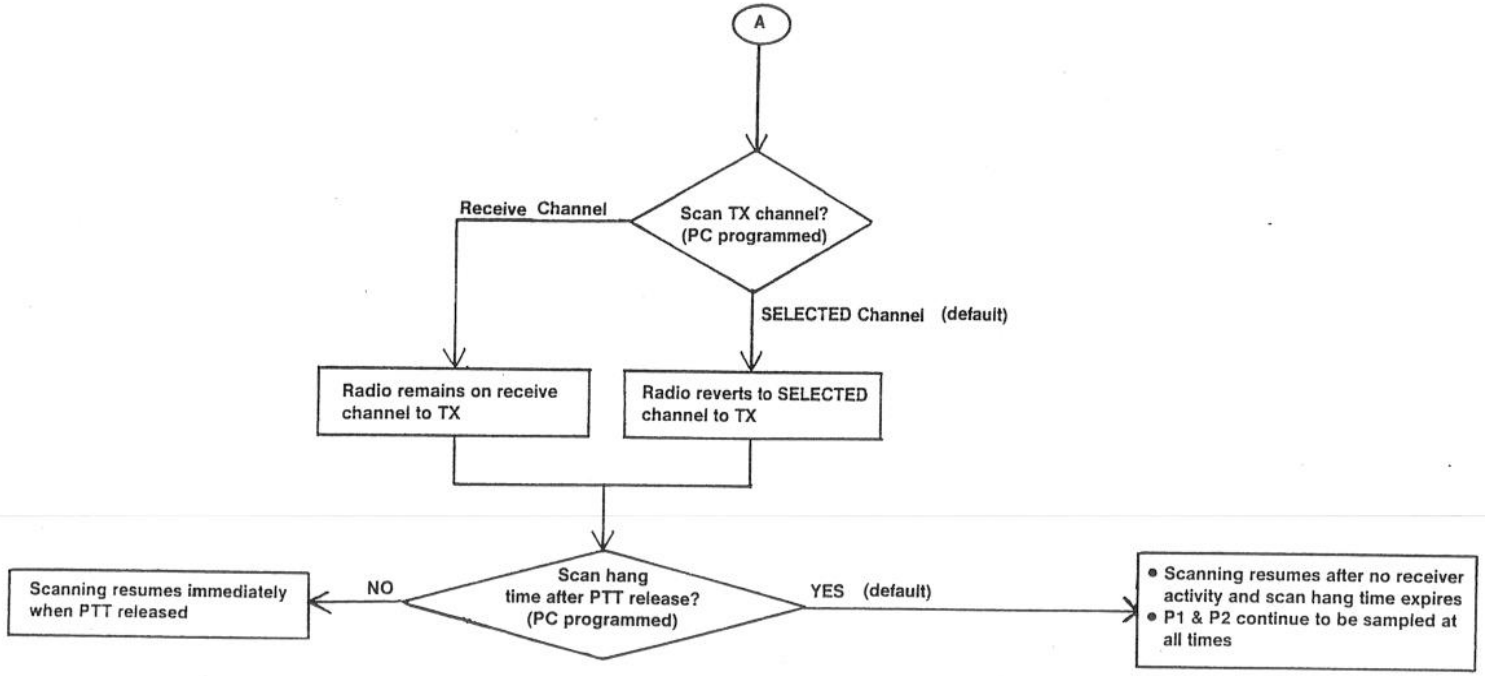
The SCAN function must be turned off to make any permanent changes (additions, deletions, re-priorizations) to the scan list. While in scan, temporary channel deletions may be made to the scan list. The original scan list will be back in effect by either turning scan off (by pushing the SCAN switch) or by turning the radio power off and back on.

When the radio stops scanning on an active channel, the channel may be temporarily deleted by holding the SCAN switch and then pressing the CHANNEL DOWN switch. The radio will immediately resume scanning while skipping over the temporarily deleted channel.

Temporary deletions cannot be made until the radio stops on an active channel. P1 and P2 channels cannot be temporarily deleted.

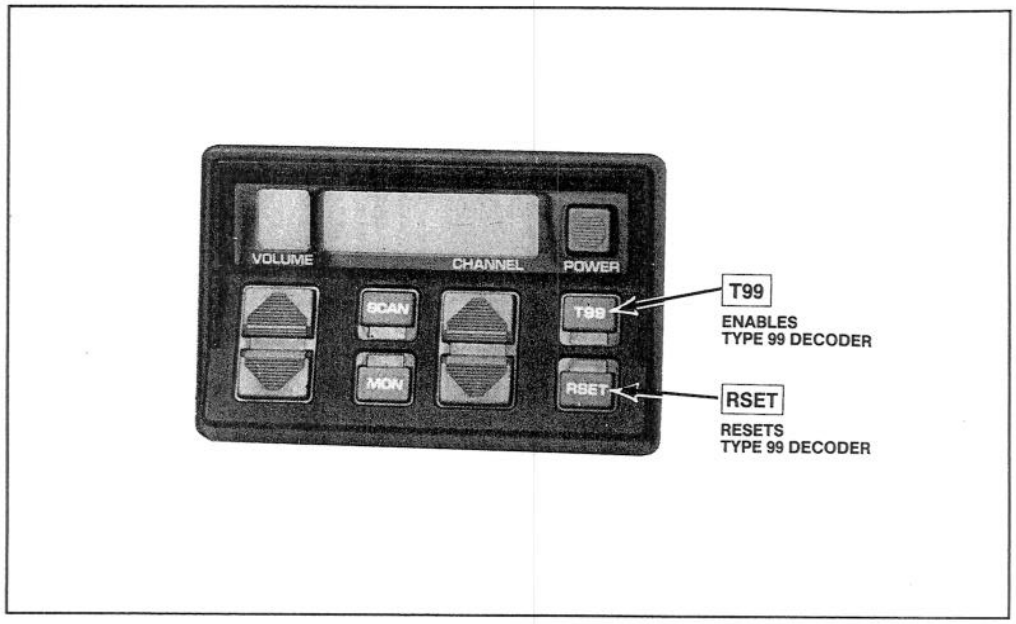
SCAN OPERATION FLOW DIAGRAM




A
Scan TX channel?
(PC programmed)
Receive Channel
SELECTED Channel (default)
Radio remains on receive channel to TX
Radio reverts to SELECTED channel to TX
Scan hang time after PTT release?
(PC programmed)
NO
Scanning resumes immediately when PTT released
YES (default)
• Scanning resumes after no receiver activity and scan hang time expires
• P1 & P2 continue to be sampled at all times

OPTIONS

TYPE 99 OPTION

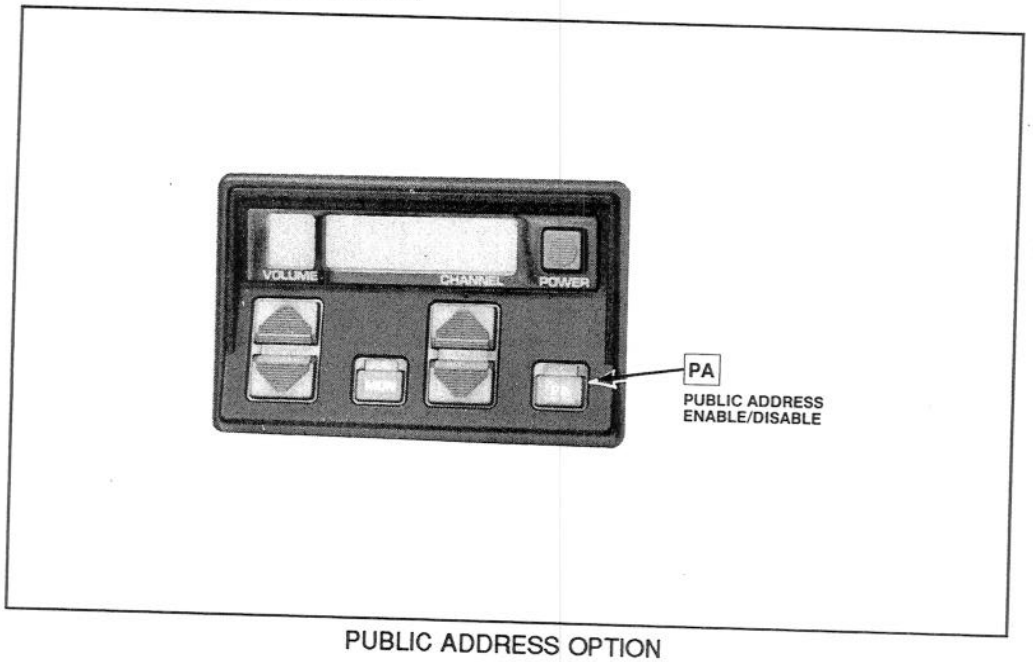


If the Type 99 Option is present, individual selective calling is possible. Press the T99 button to enable the decoder option (Scan must be off). The LCD will show "OPT" in the upper center portion of the display. When a call is received, an alert tone will be heard and the OPT indicator will flash continuously. After receiving the call, press the RSET button to reset the decoder for the next call. The OPT indicator will stop flashing.

To disable the decoder, press the T99 button while the OPT indicator is on continuously. The OPT indicator will go out. If a call was received and the OPT is flashing, the RSET button must first be pushed before the T99 button will turn off the decoder.

If the Horn Alert option is present with the Type 99 option, the radio can beep the vehicle horn when a Type 99 call is received. This options permits alerting persons out of the vehicle when a call is received. The Horn ON/OFF switch which is mounted on or near the radio, is used to turn off the horn beep relay.

PUBLIC ADDRESS OPTION



PUBLIC ADDRESS OPTION

If the Public Address Option is present, the radio may be used as a public address amplifier. Press the PA button to enable the option. (Scan must be off). The LCD will show "OPT" in the upper center portion of the display. When the mic is keyed, the radio no longer transmits, but allows the mic audio to feed the speaker. Adjust the VOLUME for desired level. Press the PA button a second time to disable the option. The OPT indicator will go out. Changing channels or turning scan on will also turn the option off.

The public address microphone audio normally feeds an external speaker. An ON/OFF switch, which is mounted on or near the radio, allows selecting either the internal or external speaker for the receiver audio. The ON/OFF switch turns the receiver audio on or off to the external speaker. This switch still functions for the receiver audio with the PA option disabled.

CHANNEL ASSIGNMENT CHART

CHANNEL	FUNCTION	SCAN PRIORITY			REMARKS
		P1	P2	S	
EXAMPLE					
3	Delivery Van #3			X	JESS

CHANNEL ASSIGNMENT CHART

CHANNEL	FUNCTION	SCAN PRIORITY			REMARKS
		P1	P2	S	

EXAMPLE

3	Delivery Van #3			X	JESS