



GE Mobile Communications



ACN-211

S-550 16^{PLUS}® SCAN CONTROL UNIT

Operator's Manual

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INTRODUCTION

The S-550 16^{PLUS} SCAN Control Unit is designed to operate with a RANGR 16^{PLUS} Trunked Radio. All operating functions of the radio are set by the control unit. The Control Unit has eight indicator lights, two displays, and nine controls. The small size of the control unit allows easy placement convenient to the operator. The radio is mounted in the vehicle trunk or other appropriate location.

The RANGR 16^{PLUS} radio has been programmed with communications information specific to your communication system. This manual details the features and operating procedures for the S-550 16^{PLUS} SCAN Control Unit. A microphone and hook switch are provided with the Control Unit. An emergency floor switch, DTMF microphone, and handset are available as options.

CONTROLS, INDICATORS, AND DISPLAYS

CONTROLS

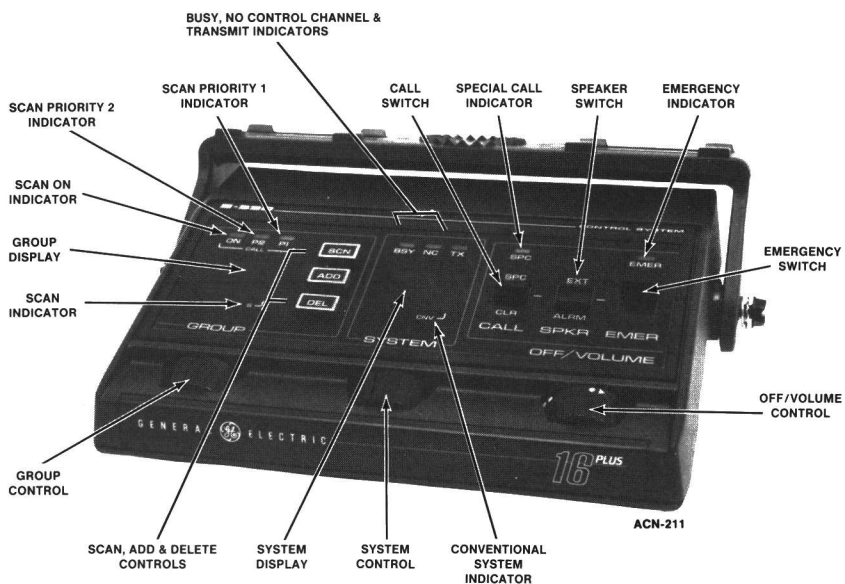
GROUP is a rotary control used to change the Group (trunked) or Channel (conventional) selection. The selected group number will appear on the GROUP display. A beep will be heard each time a new Group or Channel is selected unless the BSY indicator is on.

SYSTEM is a rotary control used to change the System selection. The selected system number will appear on the SYSTEM display. A beep will be heard each time a new System is selected.

OFF/VOLUME is a rotary control used to turn the unit off/on and adjust the speaker volume.

CALL is a three-position SPC/-/CLR (SPECIAL/-/CLEAR) spring switch. The SPC position changes operations from normal to Special Call mode, allowing calls to individual radios and telephone interconnect. The center position (-) is the normal operating position. The CLR position is used to clear calls. In Conventional mode, the CLR position monitors the Channel.

SPKR is a three-position EXT/-/ALRM (EXTERNAL/-/ALARM) switch. The EXT position sends all receive audio to an external speaker. The center position (-) is the normal operating position. The ALRM position sounds a two-second external alarm on programmed ID calls.



EMG (EMERGENCY) switch. Used to send an emergency message.

SCN (SCAN) button. Used to turn the scan function on and off.

ADD button. Adds a Group or Channel to scan and sets priorities on Conventional channels.

DEL (DELETE) button. Removes a Group or Channel from scan.

INDICATORS

ON indicator. Lights when the scan function is on.

P2 (PRIORITY 2) indicator. Lights when the selected conventional channel has been set as the second scan priority.

P1 (PRIORITY 1) indicator. Lights when the selected conventional channel has been set as the first scan priority.

Call indicator. Both the P1 and P2 indicators light when an individual call or telephone interconnect call is received.

BSY (BUSY) indicator. Lights when group is active (trunked system) or when channel is busy (conventional system).

NC (NO CONTROL CHANNEL) indicator. Lights when the control channel is not available (out of range or not operating). On supervisory units, it will flash when site equipment is in Failsoft mode.

TX (TRANSMIT) indicator. Lights when the radio is transmitting.

SPC (SPECIAL CALL) indicator. Flashes when a Special Call is received. Lights when the Special Call mode is selected.

EMER (EMERGENCY) indicator (programmable). Flashes when emergency call is received from a member of the group. Lights continuously when an emergency call is sent.

s (SCAN) indicator lights when the selected conventional channel or trunked group is on the scan list.

CNV (CONVENTIONAL) indicator lights when the selected System is a Conventional system or in conventional Failsoft mode.

DISPLAYS

GROUP display. Shows the selected Group or Channel number.

SYSTEM display. Shows the selected System number. Displays SP when special call mode is selected.

OPERATIONS

GETTING STARTED

1. Rotate the OFF/VOLUME control clockwise to turn the Control Unit on. The GROUP and SYSTEM displays should light (other indicators may also be on) when the power is turned on.
2. Adjust the volume using the OFF/VOLUME control.

Your radio is now set up for basic operation. The BSY indicator will light when a call is received. The CALL indicator will light when an individual call is received. The SPC indicator will light when a Special Call is received.

ADJUSTING SQUELCH (CONVENTIONAL)

The squelch may be adjusted *only in conventional* (non-trunked) operation:

1. Press and hold the SCN button while rotating the SYSTEM control clockwise until the BSY indicator is on continuously. Noise will be heard in the speaker if optional Channel Guard is not enabled.
2. Rotate the SYSTEM control counterclockwise until the noise just disappears. Rotate the system control counterclockwise three positions.
3. Release the SCN button.

ADJUSTING BACKLIGHT

The level of backlighting (low, medium, and high) for the display may be adjusted as follows:

1. Hold the CALL switch in the CLR position.
2. Rotate the GROUP control clockwise to increase the backlight level or counterclockwise to decrease the backlight level.
3. Release the CALL switch. The backlight level will be stored.

SELECTING GROUP/SYSTEM/CHANNEL

Use the GROUP and SYSTEM controls to select a different Group, System or Channel. The GROUP and SYSTEM controls rotate in both directions with no wrap-around. This means you will need to rotate the control in the opposite direction to return to a selection you passed, or to view additional selections.

Group Selection

To select a different Group:

1. If the SPC indicator is on, move the CALL switch to the CLR position and release the switch.
2. Rotate the GROUP control until the desired Group number appears in the GROUP display. A tone will be heard each time a Group number changes until you reach the last selection.

System Selection

To select a different System:

1. If the SPC indicator is on, move the CALL switch to the CLR position and release the switch.

NOTE

The group may change when the system selection is changed. This happens when the selected system does not contain the previously selected group. Make sure the GROUP selection is correct after selecting a SYSTEM.

2. Rotate the SYSTEM control until the desired System number appears on the SYSTEM display. A tone will be heard each time a System number changes.

Channel Selection (Conventional System)

When you select a *Conventional* (non-trunked) System, the CNV indicator will light. Use the GROUP control to select your operating channel.

To select a different Channel:

Rotate the GROUP control until the desired Channel number appears in the GROUP display. A tone will be heard each time a Channel number changes.

RECEIVING A CALL

Once you have completed the GETTING STARTED procedure your radio is set up to receive calls. The next call made by your selected Group/System or channel will be received.

SENDING A MESSAGE

On A Trunked System

To send a message on a *trunked system*, proceed as follows:

1. Select the System and Group you wish to transmit on.
2. Press PTT button and wait for the channel-available tone. The TX and BSY indicators will light. If you get the high call-queued tone, wait for the channel-available tone before making your call. A low tone indicates the call is not allowed.
3. Speak into the microphone in a normal voice.
4. Release PTT button when the transmission is completed, and listen for any reply. The TX and BSY indicators will go out.

NOTE

If PTT is released before the channel-available tone, the channel-available tone will be extended and the radio will transmit up to two seconds.

On A Conventional (Non-Trunked) System

To send a message on a *conventional* (non-trunked) system, proceed as follows:

1. Select the channel you wish to transmit on.
2. When the channel is clear (BSY indicator off), press PTT button and wait for the channel-available tone. The TX indicator will light.
3. Speak into the microphone in a normal voice.
4. Release PTT button when the transmission is completed, and listen for any reply. The TX indicator will go out.

During Conventional Failsoft

In the unlikely event of a failure of the 16^{PLUS}® System, communications will take place in the conventional failsoft mode. Your radio will be automatically directed to a communications channel set up for this purpose. During this mode of operation, the CNV indicator will be on and the NC indicator will flash. You will notice increased activity on your channel during conventional failsoft operation, so be careful not to transmit until the channel is clear.

Operation during conventional failsoft will be the same as operation on a conventional system, except that it will not be possible to select a communications channel or use emergency and special call. When trunking is restored, you will be returned to normal operation.

NOTE

Emergency and Special Call are not operational during conventional failsoft. Also, the GROUP control will not operate.

SPECIAL FEATURES

RECEIVING AN EMERGENCY CALL

From A Selected System/Group

When you receive an emergency call from a member of the selected Group and System, the EMER indicator will flash, the BSY indicator will light and a tone will be heard. Follow your standard emergency procedures. The EMER indicator will flash until the emergency is cleared.

From a Scanned Group

When you receive an emergency call from a scanned Group (scan operating), the GROUP display will flash the calling Group number, the EMER indicator will flash and a tone will sound. The EMER indicator will flash while the voice channel is active.

SENDING AN EMERGENCY CALL

To send an Emergency call to the selected System and Group, proceed as follows:

1. Press and release the remote EMERGENCY switch *or* slide the EMER switch down and release. The EMER indicator will light (unless programmed off). A message will be sent to the dispatcher with your ID to declare an emergency. You will be given the highest priority for voice communication.

2. Press the PTT button and wait for the channel-available tone. Speak into the microphone in a normal voice. All audio and displays will be restored to normal.
3. Release the PTT button when the transmission is completed, and listen for any reply. The TX indicator will go out.

CLEARING AN EMERGENCY

If your radio has been programmed as a supervisory unit you may clear emergency calls. When the emergency is no longer in effect, the emergency call may be cleared as follows:

1. Hold the CALL switch in the CLR position.
2. Press and release the EMER switch.
3. Release the CALL switch.

SPECIAL CALL

The Special Call feature allows you to make calls to an individual radio and make telephone interconnect calls.

Receiving An Individual Call

If the call you are receiving is an Individual Call, the Group display will change to either "id" (lowercase i and d) or the System/Group display will change to the caller's Unit ID. The ID is represented in the display as follows:

Group display decimal point (on) = 10,000

Group display = 1,000s and 100s.

System display = 10s and ones.

For example, a unit id of 13,248 would be represented on the display as shown below.

3 2.	4 8
GROUP	SYSTEM

The unit id is read from left to right across the display (3,248 in this example). the Group decimal point is lit, a one is place in the left-most digit position (13,248 in this example).

Receiving an Individual Call will also cause the BSY indicator to light and the SPC indicator to flash. The Call indicator (P1 and P2 indicators) will also light to indicate a call is received. After the transmission is completed, the ID will remain displayed for a preset time to allow you time to return the call. During this time, press the PTT button to return the call. If the call is not returned before the time has expired, the SPC indicator will go off and the SYSTEM/GROUP displays will return to normal.

If you are away from the vehicle when a Special Call is received by the radio, the Call indicator (P1 and P2) will be on. Return the call as follows:

1. Slide the CALL switch to the SPC position. The display will show "id" or the Unit ID.
2. Press PTT to transmit.
3. The radio will return to the Group mode when the microphone is returned to the hookswitch or when the preset timer expires.

NOTE

When the SPKR switch is in the ALRM position, the external alarm will be activated when an Individual Call is received. Return the SPKR switch to the center position or press PTT to stop the alarm. See the ALARM section for more information.

Receiving An Interconnect Call

If the call you are receiving is an interconnect call, the group display will change to either "id" or "PH" (uppercase P and H). The BSY and Call (P1 and P2) indicators will light and the SPC indicator will flash. When the call is finished, the BSY and SPC indicators will go out.

The Call indicator simply indicates a phone call was received. When the CALL switch is moved to the SPC position, the Call indicator will go out and the radio will enter Special Call Mode.

Sending A Special Call

You may make Special Calls with your Control Unit through the Special Call feature. If the Call indicator (P1 and P2) is on, slide the CALL switch to the CLR position.

1. Slide the CALL switch to the SPC position. The SPC indicator will light. The SYSTEM display will change from the current System to the letters SP. The GROUP display will change from the selected Group to the previously selected special call number.

2. Rotate the GROUP control until the desired Special Call number appears on the GROUP display. These calls are stored in memory and can be either individual calls (to another radio) or interconnect.
3. Press the PTT button, and wait for the tone before talking.
4. When completed, release the PTT button and listen for any reply.
5. When your call is finished, place the CALL switch in the CLR position *or* place the microphone on the hookswitch. The SPC indicator will go out. The previously selected Group or Channel and System will appear on the GROUP and SYSTEM displays.

Telephone Interconnect

You may make telephone calls using your Control Unit through the Special Call feature.

1. Place the CALL switch in the SPC position. The SPC indicator will light. The SYSTEM display will change from the current System to the letters SP. The GROUP display will change from the selected Group to one of the previously selected special call number.
2. Rotate the GROUP control until the special call number for the telephone interconnect appears on the GROUP display.
3. Press the PTT button and wait for a dial tone (or ringing if the number is pre-stored).
4. Enter the telephone number using the keypad on the microphone. *If the number is pre-stored, skip this step.* Release the PTT button.
5. When the call is answered, press the PTT button, and wait for the tone before speaking.

NOTE

You cannot talk and listen at the same time as with a regular telephone. Whenever you talk, you can not hear the other party at the same time (like a normal radio transmission).

6. Release the PTT button, and listen for any reply.
7. When your call is finished, place the CALL switch in the CLR position or place the microphone on the hookswitch. The previously selected Group and System will appear on the GROUP and SYSTEM displays.

SCAN

You may program your radio to scan a number of Groups or Channels for activity. The scan function will not operate when the EMER indicator is on.

Scan Operation

Adding To Scan

Set up (or add to) the Groups (or channels) to be scanned as follows:

1. Press the SCAN button if the ON indicator is on to turn scan off.
2. Select the Group or Channel to be added to Scan using the GROUP control.
3. Press the ADD button to add the Group or Channel to scan. The s indicator will appear next to the Group or Channel number on the GROUP display when it is added to scan.

Deleting From Scan

Remove Groups (or channels) to be scanned as follows:

1. Select the Group or Channel to be removed from Scan using the GROUP control.
2. Press the DEL button to remove the Group or Channel from scan. The s indicator will go out when a Group or Channel is removed from scan.

Starting Or Stopping Scan

1. Press the SCAN button to turn on scan. The ON indicator will light.
2. Press the SCAN button again to turn off scan. The ON indicator will go out.

NOTE

The control unit may be programmed to stop scan when the microphone is removed from the hookswitch. In this case, the ON indicator will remain lit.

Setting Scan Priorities (Conventional)

Two *conventional* (non-trunked) Channels may be given priority in scan operation.

1. Press the SCAN button if the ON indicator is on to turn scan off.
2. Select one of the Channels to be given priority using the GROUP control.
3. Press the ADD button until the P1 indicator comes on to set the channel at priority 1. Press the ADD button until the P2 comes to set the channel at priority 2. Continued pressing of the AD button will cause the selected channel to go from basic scan to priority 2, then priority 1.

EXTERNAL SPEAKER

Received audio may be directed to an *optional* external speaker as follows:

1. Place the SPKR switch in the EXT position to route the receive audio to an external speaker (if installed and programmed).
2. Place the SPKR switch to the center position to select the internal speaker.

EXTERNAL SPEAKER VOLUME ADJUSTMENT

If your radio is equipped with an external speaker, the speaker volume is normally set at a fixed level. When the external speaker is selected, the speaker volume is set by holding the CALL switch in the CLR position while adjusting the SYSTEM control for the desired volume level. This sets a new speaker volume level. Also, external speaker volume may be programmed to be adjusted using the OFF/VOLUME control.

ALARM

An *optional* external alarm (or other device) may be activated from the Control Unit. Activate the external alarm as follows:

1. Place the SPKR switch in the ALRM position to activate the external alarm contacts when a call to the radio is detected.
2. Place the SPKR switch in the center position to turn the alarm off.

MOBILE DATA

The Control Unit is equipped to interface with a mobile data terminal. When the radio is receiving or placing data calls, "dA" appears in the Group display. When "dA" is present, voice calls are disabled. You will miss all voice calls made to your radio when data is being exchanged. A radio unit placing an individual call to your radio will receive a system busy signal. Transmissions and reception of data is stopped by one of the following:

1. Remove microphone from the hookswitch.
2. Hold the CALL switch in the CLR position and press PTT.
3. Declare an emergency (not to be used unless actual emergency condition exists).

When in the no-data mode, an "nd" will appear in the System display. This will remain displayed until the microphone is returned to the hookswitch, a second CLR and PTT is activated, or the emergency is cleared (CLR and PTT will allow data to operate during an emergency). All other switches work as normal during the "nd" state. After a display change which clears the "nd" indicator, the "nd" indicator will be restored after three seconds. The "nd" indicator will go out when the radio is involved in a group call and when Special Call is active.

ALERT TONES

Your radio produces audio tones during normal operation.

- Short tone after PTT bar is pressed and radio is ready to transmit.
- Call-queued tone. A high pitched beep signalling the call has been queued and will be placed as soon as a channel is assigned.
- System busy. Three low pitched beeps indicating the system is busy.
- Call denied. A single low-pitched beep indicating the call is not allowed.

IN CASE OF DIFFICULTY

The following suggestions should be tried before returning your radio or Control Unit for service.

PROBLEM	SOLUTION
First part of message not sent	Channel not assigned before transmitting (trunked system). Wait for beep tone before beginning message.
Messages not received	<ol style="list-style-type: none">1. Volume level set too low. Increase setting of OFF/VOLUME control.2. Out of range of repeater or station (NC indicator on). Try higher or less obstructed location.3. NC indicator on. Try moving to a different location until indicator goes off.
Messages not transmitted.	<ol style="list-style-type: none">1. Radio not turned on. Place OFF/VOLUME in on position.2. PTT button not fully pressed. Make sure TX indicator is on before transmitting.3. Out of range of repeater or station. Try higher or less obstructed location.
Transmitted messages are garbled	<ol style="list-style-type: none">1. Too close or too far from microphone. Try different distance from microphone, and/or different speaking level.2. Out of range of repeater or station. Try higher or less obstructed location.

OPERATING TIPS

- Remember to wait for the beep before speaking when transmitting over a trunked system.

The following conditions tend to reduce the effective range of two-way radios and should be avoided whenever possible.

- Operating the radio in low areas of the terrain, or while under power lines or bridges.
 - Obstructions such as mountains or buildings between the repeater site and the individual receiving the message.
- areas where transmission or reception is poor, some improvement may be gained by moving in another direction (towards the strongest signal), or moving to a higher elevation.

NOTES

NOTES

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