

SECTION III. OPERATION

12.3.1 INTRODUCTION

The GTA radio normally operates in automatic mode, which requires no operator intervention. A message is continuously transmitted over the air waves via the GTA radio antenna. Maintenance control of the system is performed from the operator interface device (OID) where the user can monitor self-test results, adjust broadcast power level and frequency, initiate diagnostic tests, review and update the maintenance log, and configure the GTA radio. In addition to the OID displays, the GTA radio contains controls and indicators that can be used during system maintenance.

12.3.2 CONTROLS AND INDICATORS

12.3.2.1 **General.** The GTA radio contains only a few controls and indicators, which may require setting or monitoring by the technician. There is a liquid crystal display (LCD) on the front panel of the radio that provides an alphanumeric display showing operating modes, frequency, messages, and measurements. These controls and indicators are illustrated on figure 12.3.1 and described in table 12.3.1. Figure 12.3.2 illustrates rear panel connectors.

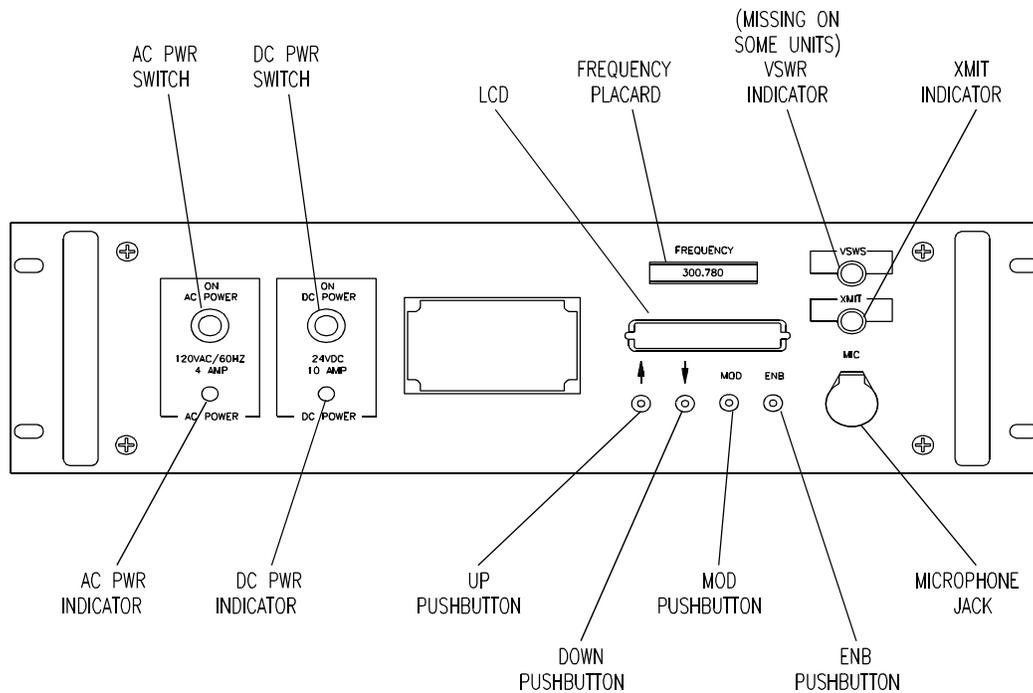
12.3.2.2 **Using the Front Panel Controls and Indicators.** The following paragraphs describe the procedures used to enable and disable the display so that configuration changes can be made to the GTA radio.

When the GTA radio is powered up, the display is enabled and the frequency select mode is displayed as shown in table 12.3.2. The pushbuttons are also enabled, and the operator can make configuration and mode changes using the MOD and up and down arrow pushbuttons. Table 12.3.2 describes all possible modes for the GTA radio.

If the pushbuttons and display are disabled (i.e., display is blank), the display can be enabled by pressing the enable (ENB) pushbutton. The enable display mode is displayed as shown in table 12.3.2. This display shows the current operating frequency and prompts the operator to press the ENB pushbutton two more times. If the ENB pushbutton is not pressed a second time within 10 seconds or if any other pushbutton is pressed, the display and pushbuttons return to the disabled mode.

The ENB pushbutton is pressed twice in quick succession. The display and pushbuttons are then enabled and frequency select mode is displayed as shown in table 12.3.2. If the presses occur more than 1/2 second apart or if any other pushbutton is pressed, the display and pushbuttons return to the disabled mode.

After it is enabled, the display can be disabled by pressing the ENB pushbutton three times; if no pushbutton presses occur for 2 minutes, timeout occurs and the display and pushbuttons are automatically disabled.

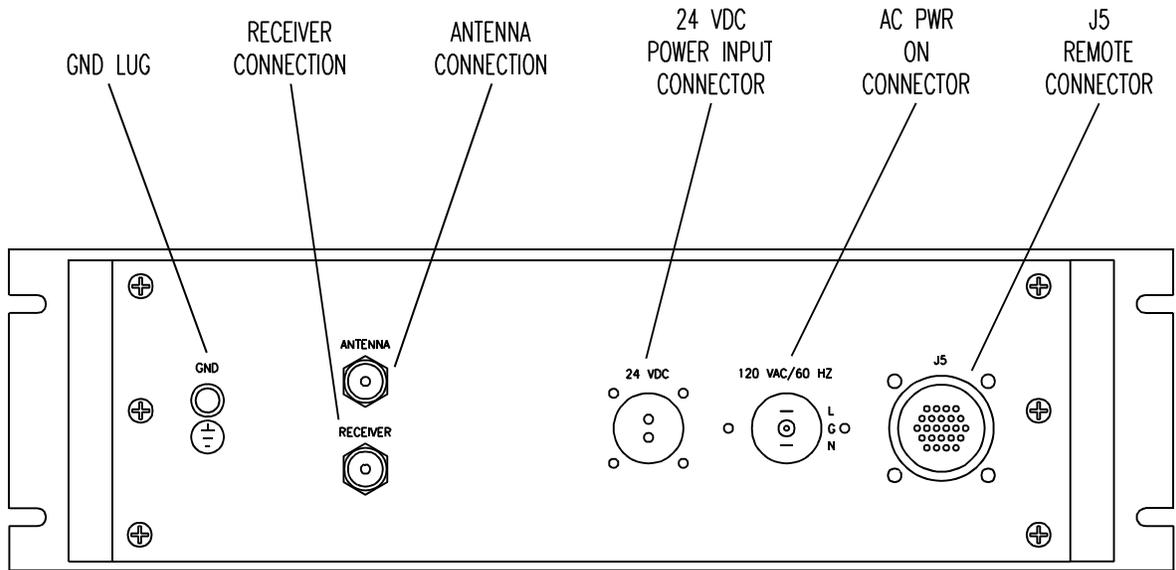


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Figure 12.3.1. GTA Radio Front Panel Controls and Indicators

Table 12.3.1. GTA Radio Front Panel Controls and Indicators

Control/Indicator	Type	Description
XMIT	Green light emitting diode (LED) indicator	Illuminates when the transmitter is keyed.
MIC	Audio connector	Not used by ASOS.
ENB	Pushbutton	Enables the operator interface pushbutton switches and display if the display is blank and the switches are disabled. Disables the interface switches and display if they are active.
MOD	Pushbutton	Selects between the display/control modes.
Down arrow	Pushbutton	Used in conjunction with the MOD switch to make changes to the operating parameters of the GTA radio. Decrements the parameter by one unit.
Up arrow	Pushbutton	Used in conjunction with the MOD switch to make changes to the operating parameters of the GTA radio. Increments the parameter by one unit.
DC PWR	Green LED indicator	Not used by ASOS.
AC PWR	Green LED indicator	Illuminates when ac power is applied to the GTA radio.
AC/PWR ON (120 VAC/60 HZ)	Power switch/circuit breaker	Applies ac power to the GTA radio and provides overcurrent protection for the ac line.
DC/PWR ON (24 VDC)	Power switch/circuit breaker	Not used by ASOS.
LCD	2 x 16 alphanumeric display	Shows operating modes, frequency, messages, and measurements
VSWR	Red LED indicator	Illuminates when voltage standing wave ratio (VSWR) exceeds 2.8:1. (This indicator is not installed on all units.)



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Figure 12.3.2. GTA Radio Rear Panel Connectors

Table 12.3.2. Display/Control Modes (Panels)

Mode	LCD Display	Function
Disabled		Disables any mode or configuration from the pushbuttons. The ENB pushbutton is the only active pushbutton when display is disabled.
Enable display	Freq 119.600 MHz Press ENB twice	Displayed after ENB pushbutton is pressed once. Two additional presses enable pushbuttons and display for configuration changes.
Frequency select	Frequency -- MHz 119.600	Displays current operating frequency and allows operator to change operating frequency using pushbuttons.
Monitor Functions		
Signal strength meter	OOOG Signal Meter	The bar graph displays relative transmit signal strength. The maximum number of bars is 16.
+5V test	Freq 119.600 MHz +5V Level 4.78	Displays internal measured operating voltage for +5V supply line.
+12V test	Freq 119.600 MHz +12V Level +11.6	Displays internal measured operating voltage for +12V supply line.

Table 12.3.2. Display/Control Modes (Panels) -CONT

	Mode	LCD Display	Function
\$	-12V test	Freq 119.600 MHz -12V Level -11.6	Displays internal measured operating voltage for -12V supply line.
\$	+80V test	Freq 119.600 MHz +80V Level +79.7	Displays internal measured operating voltage for +80V supply line.
\$	Transmit timeout adjust	Freq 119.600 MHz Xmit Timeout 00	Allows operator to set duration of timeout in 10-second intervals from 0 to 300 seconds. In ASOS environment, transmission is continuous. Timeout is not used.
\$	Transmit power adjust	OOOOOG Xmit Power 105	Allows operator to adjust transmit output power level.
\$	Modulation index adjust	Freq 119.600 MHz Mod Index 90	Allows operator to adjust percent of AM modulation based on a 1- kHz, -15-dBm (600-ohm) audio modulation signal.
	Crystal warp adjust	Freq 119.600 MHz Warp Setting 16	Allows operator to adjust reference crystal oscillator warp factor to align oscillator frequency within tolerance limits.

12.3.3 TURN-ON PROCEDURES

The GTA radio is designed for continuous operation and normally remains on at all times, except for maintenance or repair activities. The GTA radio is normally powered on or powered off when the ACU is turned on or off. (Chapter 2 describes ACU power-on and power-off.) To turn on the GTA radio manually, the front panel door of the ACU is opened and the AC PWR switch is pressed; a green LED then illuminates, showing that ac power has been applied.

12.3.4 TURNOFF PROCEDURES

The GTA radio is normally turned off only for maintenance purposes. When the ACU cabinet is opened and the AC PWR switch is pressed, the green LED extinguishes, indicating that ac power is no longer being applied.

12.3.5 GTA RADIO CONFIGURING/OID CONTROL

The following paragraphs describe the manner in which the GTA radio is configured and controlled from the OID pages. The transmission frequency of the radio cannot be changed in the field unless the site is licensed for the new frequency.

12.3.5.1 **Configuring the GTA Radio - General.** The GTA radio must be configured into ASOS via the REVUE-CONFIG-COMMS page in order for the CPU in the ACU to communicate with the GTA radio. The configuration is accomplished by using the CHANGE function to assign the GTA radio to an available RS-232 SIO port. When using the CHANGE function, the maintenance technician is prompted to enter serial communications parameters (1200 baud rate, no parity, 8-bit words, 1 stop bit, and no handshaking). The connection is hard-wired (lease line if the GTA radio is not installed in the ACU). In addition to these setup parameters, the maintenance technician must also enter a frequency and power level. The valid frequency values are from 117.975 to 136.975. Valid power values are from 0 to the maximum power setting of the specific radio; however, each GTA radio has a unique maximum value (e.g., 180, 220, etc) that could be less than 255. In any case, the maximum power value for a given radio is 10 watts. Power is not set or adjusted arbitrarily, but is done using a power meter at the antenna (paragraph 12.5.2.1). The GTA radio has erasable programmable read only memory (EPROM) so that in the event that the radio loses power, it retains the configuration data. Configuring the GTA radio in ASOS affects only the RS-232 connection. If the GTA radio is disabled or deconfigured from the OID, the CPU will not communicate with it even though the GTA radio continues to broadcast. The only way to stop the GTA radio from transmitting is to turn it off at the front panel on the radio.

12.3.5.2 **Alternative Means of Adjusting Power and Frequency.** The maintenance technician may have to periodically set or adjust power or frequency (preventive maintenance, installation, and troubleshooting). The GTA radio power and frequency may be adjusted from the COMMS page as described above. Because an OID may not be in the same location as the GTA radio, ASOS allows the maintenance technician to make some adjustments from the LCD display at the radio itself (refer to paragraph 12.3.2.2). When adjustments to power and frequency are made from the GTA radio, the ACU copies and reads the current setting and stores it as the final setting. The latest setting is displayed on the COMMS page, whether or not it was changed from the OID or the GTA radio itself.

12.3.5.3 **AOMC Frequency Storage.** For each site, the ASOS Operations and Monitoring Center (AOMC) stores the GTA radio configuration data, including communications setup (e.g., baud rate, parity, etc) and the RF frequency. Whenever these parameters are changed in the field (by the OID or from the GTA radio panel), the current configuration is uploaded to the AOMC. The RF frequency may not be changed unless the site is licensed for the new frequency. It is available for later download request. The power setting is not uploaded to the AOMC, because the power setting is variable between radios and is dependent on cable length and other factors.