

**Single Channel Exciter Switcher
w / Innovator LX Series Transmitter**

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This section contains the drawings of the boards and subassemblies that make up the Exciter Switcher. A drawing list of the Boards and Subassemblies as they appear in the section is located at the front of the section.

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The Section contains information on the normal operation and maintenance of the Exciter Switcher. It also contains information on the plugs, jacks, sockets and pins that make up the cable assemblies in the Exciter Switcher.

The Single Channel Auto Switcher consists of (A1) a Single Channel Exciter Switcher Tray (1305715) with a separate (A2) coaxial transfer relay, mounted on a bracket that faces toward the rear of the cabinet, behind the Switcher Tray. The Exciter Switcher Tray is designed to monitor the selected On Air Exciter and automatically switch to the back up Exciter if the On Air Exciter should malfunction. The coaxial relay has the RF outputs from both Exciters connected to its inputs and, depending on if the energizing voltage is applied or not, the selected Exciter RF Output is connected to the external amplifiers and the RF output from the other exciter is connected to a load.

Functionally the Single Channel Exciter Switcher Tray contains an Exciter Switcher Control Board (1305704), which provides the monitoring of the operation of both Exciters and the control of the automatic switching of the Exciters in case of malfunction in the On Air Exciter. ICs on the board monitor the operating parameters of the Exciters and determine if the Exciters are functioning properly. The front panel of the Exciter Switcher has an LCD display, which provides set up screens for the operation of the switching process.

The coaxial relay has four “N” connectors that provide input and output connections to the relay. The RF Output from Exciter “A” connects to J21. The RF Output from Exciter “B” connects to J23. The Selected Exciter RF Output to the external amplifiers connects to J24. The Exciter “A/B” Load connects to J22, to which the RF output of the Off Air Exciter is connected. A wire harness connects to the relay from J14 on the Exciter Switcher Control Board. These connections provide the control voltages to the relay from the control board and status indication connections back to the control board.

This Instruction Manual contains the Schematics, Interconnects, Assembly Drawings and Replacement Parts Lists needed for the troubleshooting of the Exciter Switcher. The Manual also contains information on the operation and maintenance of the Exciter Switcher.

NOTE: If the Single Channel Exciter Switcher is already installed as part of a Transmitter System then this section may be skipped.

Remove the (A29) Exciter Switcher with the Exciter Switcher Board (A1), the Relay Panel (A2), all cables and the wire harness from the shipping box. Remove the packing material from around the Switcher and any accessories and inspect them for damage. Notify Axcera and the shipper if damage is found.

The Exciter Switcher is designed to fit into a standard 19" rack normally between the two Exciters to be controlled. Mount the Assembly to the rack using the hardware found in the Installation Material Kit.

Refer to the Single Channel Exciter Switcher Interconnect (1305739) and the system Interconnect (1305741 for 5 kW) while installing the wire harness and cabling to the proper Jacks and connectors. The following RF connections are made using RG-55 cables. Locate the cables labeled for the each of the following connections and physically make those connections. Labeling for the transmitter system is as follows: (A27) Exciter A, (A28) Exciter B, (A29) Exciter Switcher, (A30) Load, (A15) 2 Way Splitter then to (A5) on of the 4 Way Splitters, two are used in a 5kW system.

Function	(A2) Transfer Relay	From \ To
(A27) Exciter A RF Input	A29-J21	Exciter A RF Output A27-J25
(A30) Exciter A/B Load Output	A29-J22	To Exciter A/B Load A30-J1
(A28) Exciter B RF Input	A29-J23	Exciter B RF Output A28-J25
Selected Exciter RF Output	A29-J24	To RF Splitter (A15) in 5kW

Refer to the Single Channel Exciter Switcher Interconnect (1305739) and the system Interconnect (1305746 for 500/1 kW) while installing the wire harness and cabling to the proper Jacks and connectors. The following RF connections are made using RG-55 cables. Locate the cables labeled for the each of the following connections and physically make those connections. Labeling for the transmitter system is as follows: (A2) Exciter A, (A12) Exciter B, (A14) Exciter Switcher and (A15) Load.

Function	(A2) Transfer Relay	From \ To
(A2) Exciter A RF Input	A14-J21	Exciter A RF Output A2-J25
(A15) Exciter A/B Load Output	A14-J22	To Exciter A/B Load A15-J1
(A12) Exciter B RF Input	A14-J23	Exciter B RF Output A12-J25
Selected Exciter RF Output	A14-J24	To the (A3) Power Amplifier Assembly

The Exciter Switcher is ready for AC connection. Remove the AC Line Cord from the Installation Material Kit and install onto Jack J1 on the Exciter Switcher. Connect the plug to an AC power outlet. The Exciter Switcher is ready for Initial Turn on.

NOTE: When the AC power plug to the Exciter Switcher is connected to an AC outlet, the AC voltage is always connected.

The Exciter Switcher Tray is switchable between Exciter A and Exciter B by the using the front panel buttons and viewing the proper display screen. When selecting Exciter A or Exciter B, the display for the selected exciter will highlight. The selected Exciter will then become the On Air Exciter, Primary Exciter. The Coaxial Relay for switching the RF Output from the selected Exciter to the amplifier array is located on the Relay Panel behind the Exciter Switcher. If the Exciter Switcher should malfunction, it can be removed from operation by disconnecting the AC to the tray. With the AC removed, Exciter A will remain the On Air Exciter.

The front panel buttons and the Display Screen menu are used to set the Auto/Manual Switch. Typically it is set to the Auto position for normal operation. If the selected Exciter should fail and the Backup Exciter is operational, the Auto Switcher Tray, when in Automatic, will switch to the Backup Exciter. A Fault will be indicated for Exciter 1 on the fault display screen menu, indicating that a Fault has occurred. After the Fault in the Exciter is repaired, the Switcher Tray needs to be reset using the front panel buttons and the fault Display Screen menu.

The Exciter Switcher is an interface between an On Air Exciter A and a Backup Exciter B. The Exciter Switcher automatically enables the Backup Exciter B in the event of a primary Exciter failure. The switcher monitors the parameters of each Exciter to determine the operational status of each Exciter.

The front panel switches, using the menus on the display screen, allow the selection of the On Air Exciter and the capability to Enable or Disable the automatic switching. In the Automatic Mode of operation, Exciter A is selected as the Primary Exciter.

The operating parameters from the selected Primary On Air Exciter are fed to the Exciter Switcher Control Board in the Exciter Switcher Tray. If the power sample from the selected exciter remains lower than the reference, a Fault is considered to have occurred. The Exciter Switcher Control Board connects a voltage to the (A2) Transfer Relay, located on the Auto Switcher Relay Panel, which energizes and routes the RF output of the faulted Exciter A to a termination and allows the RF output from the Backup Exciter B to be fed to the Amplifier Array.

The Automatic Switcher will continue to monitor the Backup Exciter B for Faults. After the fault is repaired in Exciter A, the Fault Reset located on the front panel menu screen, on the exciter switcher, must be reset to eliminate the fault. If the Backup Exciter B should fault, and Exciter A has not been repaired, the Backup Exciter B will remain in the Operate mode. This prevents the repeated switching of the exciter switcher between the two faulted Exciters. If both Exciters malfunction, the Auto Switcher will switch to which ever Exciter is repaired first. Either Exciter can be designated the On Air Primary Exciter in the manual mode, by using the front panel switches and the display screen. In Manual, the Fault Sensing will still operate, but the Auto Switcher will not automatically switch Exciters if the On Air Exciter should malfunction.

The output level of the both the On Air exciter and back up exciter is controlled by the Power Raise/Lower menu using the panel buttons and the proper screen on the Control/Monitoring display, located in each exciter.

When the Auto Switcher switches Exciters, both Exciters are Muted momentarily by a Mute Command to prevent damage to the Exciters.

Exciter Switcher Control Board, 220V Schematic	1305705
Exciter Switcher Control Board, 110V Schematic	1305705

The exciter switcher is designed with components that require little or no periodic maintenance except for the routine cleaning of the Panel. The amount and time interval between cleanings depends on the conditions within the Transmitter room. While the electronics have been designed to function even if covered with dust. A heavy buildup of dust, dirt or insects will hinder the effectiveness of the switching and could lead to a premature failure of the Panel.

When the front panel becomes dust covered, the top cover should be removed and any accumulated foreign material removed. A vacuum cleaner utilizing a small wand type attachment is an excellent way to suction out the dirt. Alcohol and other cleaning agents should not be used unless your certain that the solvents will not damage components or the silk-screened markings on the Panel and boards. Water based cleaners can be used, but do not saturate the components.