

This manual insert describes MOD 818H as it applies to the TEKTRONIX 5A48 Dual-Trace Amplifier plug-in unit. MOD 818H adds a rear connector holder to the unit providing a signal input for each channel from mating connectors in modified TEKTRONIX 5400-Series Oscilloscopes (e.g., 5440/R5440 MOD 816G). Internal switches select either front-panel input or rear input.

## REQUIREMENTS/CHARACTERISTICS

### Rear Input Facilities

**Connector Holder.** A four-position coaxial connector-holder, designed and located to mate with those provided in similarly-modified oscilloscopes, is added at the top of the rear interface connector, with positions designated C1 through C4 (numbering left to right as viewed from the front panel).

**Connections.** Miniature coaxial connectors are installed in the holder, with connections via coaxial cable as follows:

C1	Channel 1	Selector Switch
C2	Channel 2	Selector Switch

**Selector Switch.** A two-position internal selector switch is added for each channel, providing independent selection of front-panel or rear-connector signal input for each channel. The unselected input bus will be open-circuit.

**RC Characteristic.** Input shunt RC characteristic of each front-panel input (when selected) is essentially unchanged. A rear-panel input via a modified oscilloscope, when selected, appears as 1 M $\Omega$  paralleled by the shunt combination of the following:

1. Normal 5A48 input capacitance: 24 pF.
2. Added cable and connector capacitance in the plug-in unit:  
Not more than 40 pF.

3. Added cable and connector capacitance in the oscilloscope:  
Typically 30 pF.

The 1 M $\Omega$  and capacitance (1 above) are disconnected from the unselected input.

**Probe Compatibility.** The 5A48 front-panel inputs remain compatible with standard passive attenuator probes. Input capacitance of rear inputs is beyond the compensation range of conventional passive attenuator probes, and their use is not recommended (X1 probes may be used if desired).

**Crosstalk.** Crosstalk from signals present on a rear input, when the corresponding front-panel input is selected (but no signal source is attached), is attenuated by 30 dB or more for any sinewave input up to 60 MHz. Attenuation will be materially greater with a probe, cable or signal source attached to the front-panel input.

**Oscilloscope Compatibility.** With the front/rear input selectors set for front-panel signal input, the 5A48 MOD 818H is compatible with all standard TEKTRONIX 5400-Series Oscilloscopes. Rear-panel inputs will be obtained only in oscilloscopes modified to provide two or more signal inputs via a mating four-position connector holder in the plug-in compartment used; e.g., the 5440/R5440 MOD 816G (two rear lines to each compartment).

**Bandwidth, Transient Response.** Damping resistance has been added in the rear input lines to minimize overshoot and ringing due to undetermined cable lengths in the plug-in and oscilloscope. All figures in the table below are for a 50  $\Omega$  signal source terminated in 50  $\Omega$  at the input connector used.

	<u>Standard</u>		<u>5A48 MOD 818H</u>	
	<u>5A48</u>		<u>Front Panel<sup>a</sup></u>	<u>Rear Input</u>
Bandwidth	1 & 2 mV div	25 MHz	25 MHz	20 MHz
	5 mV—10 V div	60 MHz	45 MHz	35 MHz
Risetime	1 & 2 mV div	14 ns	14 ns	17 ns
	5 mV—10 V div	5.8 ns	7 ns	10 ns
Aberrations		3% p-p	4% p-p	4% p-p

<sup>a</sup> With or without probe.

**Access to Selectors.** The front-rear input selector switches are not accessible from the front panel. The plug-in unit must be withdrawn from its compartment and its left-hand snap-in shield removed to change the front/rear selection.

## PARTS LIST

### Electrical

R100	315-0121-00	RESISTOR,FXD,CMPSN,120 $\Omega$ ,5%,0.25 W
R300	315-0121-00	RESISTOR,FXD,CMPSN,120 $\Omega$ ,5%,0.25 W
S101	260-0960-00	SWITCH,SLIDE,2 A,120 V AC,0.5 A
S301	260-0960-00	SWITCH,SLIDE,2 A,120 V AC,0.5 A
<b>Change To:</b>		
C189*	281-0592-00	CAPACITOR,CERAMIC,4.7 pF, $\pm$ .5 pF,500 V
C389*	281-0593-00	CAPACITOR,CERAMIC,3.9 pF, $\pm$ .5 pF,500 V

### Wire Kit

J101	034-3202-00	1 CABLE ASSY.,COAX,11" LONG,WHITE-BROWN,w/SUBMINIATURE COAX CONNECTOR
J301	034-3202-01	1 CABLE ASSY.,COAX,13" LONG,WHITE-RED,w/SUBMINIATURE COAX CONNECTOR

### Mechanical

<b>Add:</b>		
	030-0833-03	1 CONNECTOR BODY,RCPT
	129-0236-00	3 SPACER,POST
	162-0541-00	4 INSUL SLVG,ELECT.,0.018 ID X 0.028 OD
	162-0612-00	2 INSUL SLVG,ELECT.,HEAT SHRINK
	210-0201-00	2 TERMINAL,LUG,0.12 ID, LOCKING
	210-0406-00	2 NUT,PLAIN,HEX.,4-40 X 0.188,BRASS
	129-0299-00	1 SPACER,POST,4-40 X .616 LONG
	211-0007-00	4 SCREW,MACHINE,4-40 X 0.188,PNH,STL
	213-0185-00	2 SCREW,TPG,THRD FORM.,6-20 X 0.625,PNH
	210-1171-00	2 WASHER,NYLON
<b>Change To:</b>		
	030-0859-03	1 SHIELD,ELECT.,ATTENUATOR,CHAN -2
<b>Add:</b>		
	061-1019-00	1 INSERT,MANUAL 5A48 MOD 818H

\* Effective S/N B104005. Some higher S/N Instruments shipped without this capacitor change.

