

INSTRUCTIONS MRI-19-15 CONDUCTIVE PLASTIC STUDIO FADERS

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McCurdy Radio Industries

108 Carnforth Road, Toronto, Ontario, Canada M4A 2I4 Tel: (416)751-6262 Telex: 06-963533
1051 Clinton Street, Buffalo, New York 14206 Tel: (212)772-0719

Section 1 GENERAL DESCRIPTION

- 1.01 The McCurdy type 19-15C and 19-15W are studio faders having straight line control action. Electrically they are stepless, variable, unbalanced audio taper log potentiometers.
- 1.02 The 19-15C and 19-15W faders incorporate a conductive-plastic resistance network wiped by multi-finger precious metal contacts to give stepless variation of output level and extremely low contact noise. The slider uses self lubricating plastic bearings which require no lubrication or maintenance for the life of the unit.
- 1.03 Switches, where fitted, have precious metal contacts and are suitable for operation at high or low levels. The infinity cut-off switch is an integral part of the conductive plastic track.
- 1.04 All component parts of the fader are non corroding under normal conditions. The fader is designed so that it may be washed in warm water if contaminated with soft drinks, etc. (Use clean water only, detergents or soaps must not be used).
- 1.05 The 19-15C and 19-15W are identical with this exception : on the 19-15C, all electrical connections are made to a standard D-subminiature; on th 19-15W to a 15-pin cable connector.
- 1.06 The 19-15 has a dual 5,000 ohm, audio taper resistance element.

Section 2 SPECIFICATIONS

- 2.01 Network Type
Unbalanced log, audio taper.
- 2.02 Element
Conductive plastic.
- 2.03 Switching
Infinity cut-off switch on both types is integral with track. One SPST microswitch closed at infinity. A second SPST microswitch closed in overpress.
- 2.04 Input Impedance (per Channel)
5,000 ohms, $\pm 20\%$.
- 2.05 Output Impedance (per Channel)
0-5,000 ohms depending on slider position (no input or output circuit connected).
- 2.06 Number of Channels
Two.
- 2.07 Frequency Response
0-20kHz, $\pm 0.25\text{dB}$.
- 2.08 Attenuation Range
0-70dB, infinity.
- 2.09 Tolerance
0-20dB attenuation, $\pm 0.5\text{dB}$; 21-40dB attenuation, $\pm 1\text{dB}$.
- 2.10 Infinity Attenuation
At least 95dB at 20kHz.
- 2.11 Stereo Matching
0-30dB attenuation, $\pm 0.5\text{dB}$; 31-50dB attenuation, $\pm 1\text{dB}$.
- 2.12 Channel Separation
Better than 80dB at 20kHz.

Section 3 MAINTENANCE

- 3.01 The following instructions will allow the user of McCurdy type 19-15 conductive plastic faders to perform simple maintenance tasks such as cleaning and adjustment. Where possible, test methods have been devised using only equipment normally available to any studio maintenance department.
- 3.02 The following instructions also apply to Penny and Giles PGF 1500 series faders.
- 3.03 Test Equipment (or Equivalent) Required
- Electronic multimeter: Fluke 8000A.
 - Audio signal generator: AWA G231 or Hewlett Packard 204D.
 - AC microvoltmeter: Hewlett Packard 400FL.
 - Audio amplifier and loudspeaker: Mc Curdy LSA609.
- 3.04 Small Tools Required
- Instrument type screwdriver, 3mm (1/8") blade.
 - Posidriv No. 0 point screwdriver (Stanley 5330) or Philips #0.
 - Posidriv No. 1 point screwdriver (Stanley 5361) or Philips #1.
 - Adjustable wrench, 4".
 - Soldering iron.
- 3.05 Materials Required
- Instrument oil: DTD822A.
 - Silicone fluid: Dow Corning DC510/50CS.
 - Molybdenum disulphide grease.
- 3.06 Attenuator Law Test
- Connect a signal generator to the fader input terminals and a microvoltmeter (calibrated in dB) to the output terminals.
 - With the slider at zero on the scale, adjust the input level to give a meter reading of 0dBm.
 - Move the slider down the scale and note the meter reading when the slider is centered on each of the scale markings. Check that the readings obtained are within the ranges specified in Section 2.
 - If the fader has more than one channel, repeat the above procedure for the second channel. Also check that the channel matching is within the range specified in Section 2.
- 3.07 Noise Test
- Connect a signal generator set to give 1kHz at 0dBm to the input of the fader.
 - Connect the output of the fader to a power amplifier and loudspeaker.
 - Move the slider along the scale while listening to the output from the loudspeaker. There should be no detectable noise over the 1kHz signal.
 - On two channel faders, repeat the above procedure for the second channel.

3.08 Insertion Loss Test

- a) Connect a signal generator to the input of the fader and a microvoltmeter to the output terminals.
- b) Adjust the input level until the meter reads 0dBm with the slider at zero on the scale.
- c) Remove the meter from the fader output. Measure the output of the signal generator. The amount by which this exceeds 0dBm is the insertion loss. NOTE: DO NOT disconnect the signal generator from the fader when measuring its output level.
- d) On two channel faders, repeat the above procedure for the second channel.

3.09 Switch Test

- a) With the slider at zero on the scale, check that all switches are in their normally closed position. See the associated connector wiring drawing. Use an ohmmeter for this test. NOTE: Never use an indicator lamp or other device that will cause more than 50mA to pass through the switch contacts. To do so will damage the plating on the switch contacts and cause noise if the switches are used in low level circuits.
- b) Move the slider to infinite attenuation end of the scale. Check that the auxiliary and infinity microswitches, if supplied, have changed over to close the normally open contacts.
- c) Move the slider slowly toward zero. Check the auxiliary and infinity switches, if supplied, operate within 4mm of the infinity position.
- d) Test the overpress switch, if supplied, by checking that the switch operates when the slider is moved beyond the infinity position.

3.10 Leakage (Attenuation at Infinity) Test

- a) Connect a signal generator to the fader input terminals and a microvoltmeter to the output terminals.
- b) Set the signal generator to an output frequency of 15kHz and adjust the level to give a meter reading of 0dBm with the fader slider at zero.
- c) Move the fader slider to the infinity position and note the meter reading. This reading indicates amount of leakage. NOTE: It is essential that all leads are effectively shielded when making leakage measurements. Also, when input and output have a common point, it must be at the fader connector to avoid incorrect values due to lead resistance.

3.11 Cleaning

- a) Remove side cover and rinse the fader under a tap with warm clean water. This will remove common contaminants such as coffee, soft drinks, alcoholic drinks, dust and dirt. If necessary, a soft brush may be used to remove heavy deposits. Take care not to damage the wiper contact fingers.

3.11 Cleaning

- b) Dry the fader thoroughly by placing in a warm, dry atmosphere, or by using a hot air blower or hair dryer.
- c) Place one very small drop of light instrument oil, DTD822A or Dow Corning silicone fluid DC510/50CS on each guide rod . Work the slider to distribute it evenly. There should be only a very thin film of oil on each rod. Remove any excess with an absorbent lint free tissue.
- d) Apply a light smear of molybdenum disulphide grease to the switch operating ramps on the switch operating bracket.
- e) Replace the side cover. Check performance specifications as noted in Section 2.

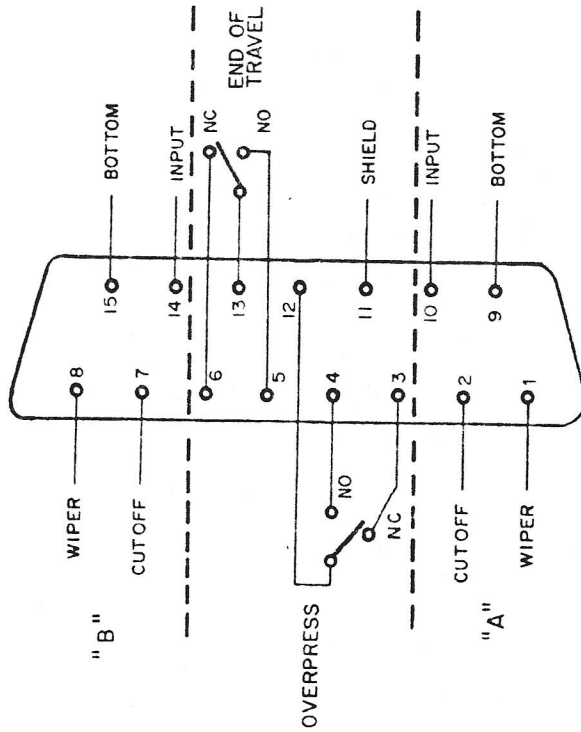
3.12 Switch Adjustment

- a) Remove side cover. Loosen the slotted head screw retaining the microswitch.
- b) Adjust the operating point as required by turning the microswitch on the other retaining screw.
- c) Tighten the slotted head screw and check that the switch clamping nut is tight.
- d) Replace side cover.

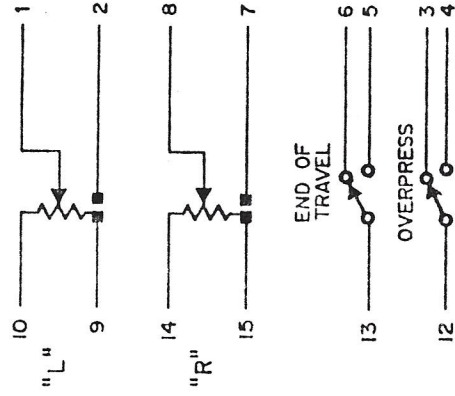
3.13 Track Position Adjustment

- a) Remove side cover and loosen the track attaching nuts.
- b) Move the track so that when the slider is at zero on the scale, the wipers are at the edge of the silver conductor beneath the track. NOTE: This is about 0.120" (3mm) from the end of the black resistance track.
- c) Move the slider along the track and check that the wiper fingers remain on the black resistance track at all times.
- d) Tighten the track attaching nuts and replace the side cover.
- e) Test attenuation law, noise and insertion loss.

DO NOT SCALE



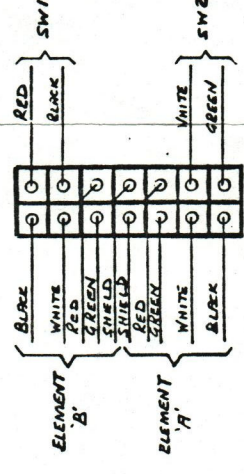
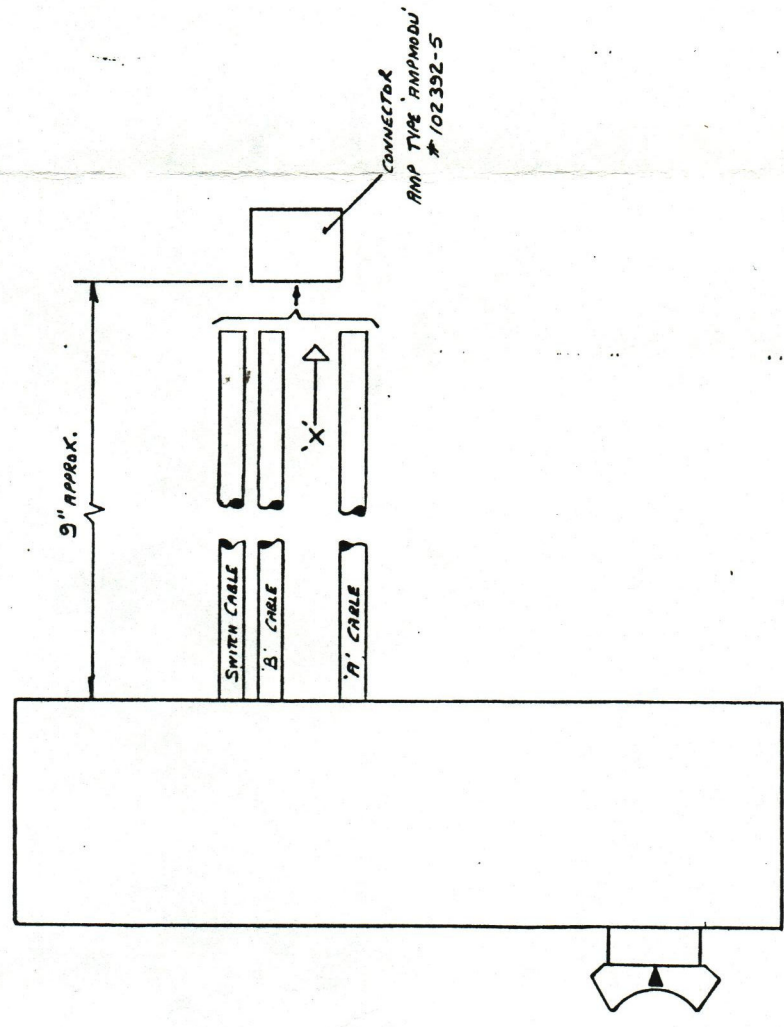
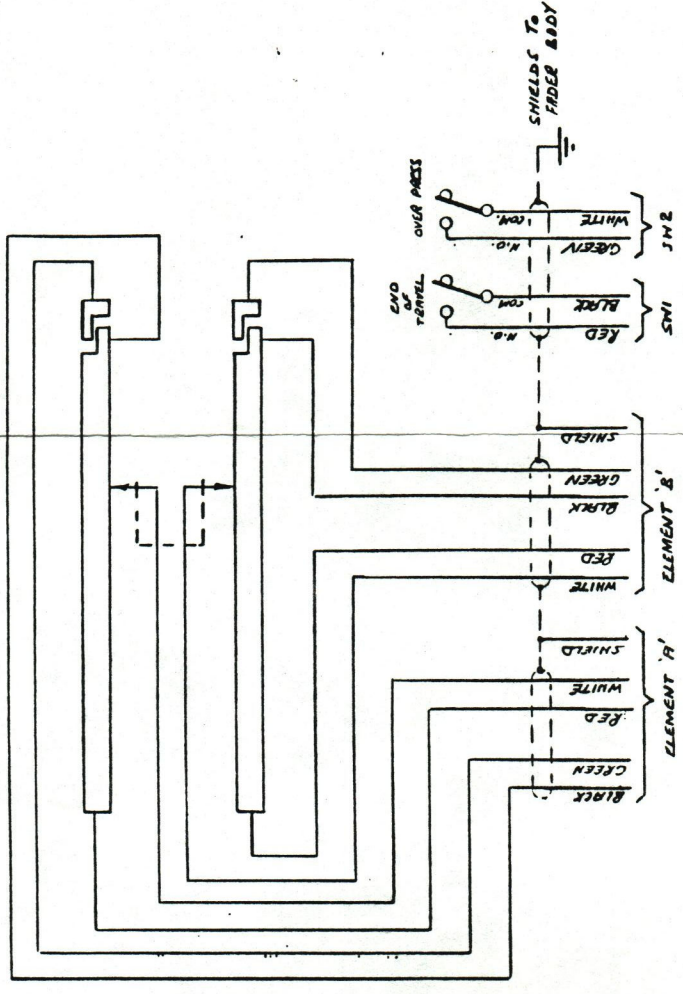
CONNECTOR WIRING



SCHEMATIC DIAGRAM

<p style="text-align: center;">McCURDY RADIO INDUSTRIES</p> <p style="text-align: center;">MRI-19-15C</p> <p style="text-align: center;">ATTENUATOR SCHEMATIC & WIRING</p>		<p>APPROVED-</p>	<p>SCALE-</p>
		<p>DATE-</p> <p style="text-align: center;">8 SEPT 82</p>	<p>ALL DIMENSIONS IN INCHES DO NOT SCALE</p>
<p>DRAWN-</p> <p style="text-align: center;">PB</p>	<p>CHECKED-</p>	<p>DESIGN-</p> <p style="text-align: center;">DB</p>	<p>UNIT-</p> <p style="text-align: center;">B - MRI-19-15</p>
<p>TOLERANCES UNLESS OTHERWISE SPECIFIED</p> <p>DECIMAL = .005 FRACTIONAL = UNLESS OTHERWISE SPECIFIED ANGULAR = 1/2°</p>	<p>MATERIAL-</p>	<p>FINISH-</p>	<p>www.SteamPoweredRadio.Com</p>

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MCCURDY RADIO INDUSTRIES		MRI-19-15W	
ATTENUATOR WIRING		DATE: 8 SEPT 82	
DRAWN: PB		DESIGN: DB	
CHECKED:		DATE: 8 SEPT 82	
TOLERANCES UNLESS OTHERWISE SPECIFIED		ALL DIMENSIONS IN INCHES DO NOT SCALE	
DECIMAL ± .008		ANGULAR ± 1/4°	
FRACTIONAL ± 1/64		SCALE:	
MATERIAL:		APPROVED:	
FINISH:		SCALE:	
UNIT:		DRAWING NO. C - MRI-19-15	

Section 4 PARTS LIST

4.01 List of Replaceable Parts.

<u>SUPPLIER AND PART NUMBER</u>	<u>DESCRIPTION</u>
B-MRI-19-15C	Stereo Fader Assembly, 5K ohm
Amp DA15P	Connector, 15-pin for MRI-19-15C
B-MRI-19-15W	Stereo Fader Assembly, 5K ohm
Berg 65043-030	Cable Connector, 15-pin for MRI-19-15W
A-MRI-9-17	Escutcheon
A-MRI-7-65	Front Panel
P&G, 16mm	Knob