

EV-I Access Card

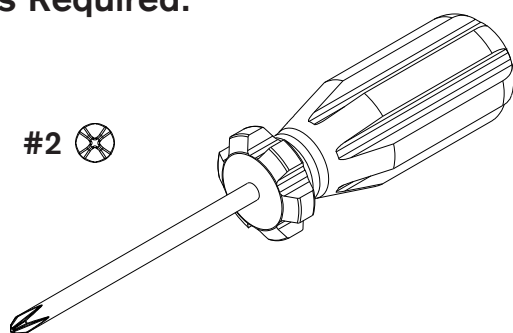
Access Card for Plug-In Loudspeaker Diagnostics

User Instructions

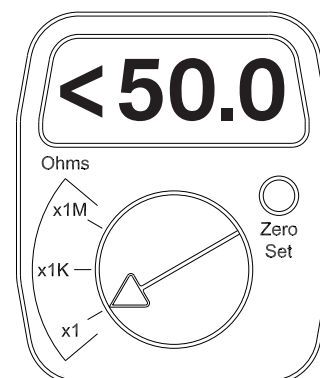


The Access Card is a unique feature of the EV-Innovation series loudspeaker families. This simple plug-in device allows diagnostic access to the transducers and protection circuitry inside the enclosure **WITHOUT** requiring any disassembly or disconnections beyond simple removal and replacement of the plug-in switch card. DCR values described in these instructions are typical for EV-I series two-way systems (eg: EVF-1122S/64). For complete model-specific DCR values, consult the chart on page 4.

Tools Required:



1. #2 Phillips Screwdriver



2. Ohm Meter capable of accurate measurements below 50 ohms

Instructions:

1. If applicable, remove screws holding the security cover, gland nut cover, or NL4 cover in place. **Note position of the switch card. The card must be replaced in exactly the same position as it was originally or system performance will be adversely affected!**
2. Carefully remove the switch card and set it aside. Plug the Access Card onto the header in place of the switch card. Note that the Access Card, unlike the switch card, will only fit in one position centered on the input cup (See Figure 1).
3. Turn on the Ohm Meter and set it to the low ohms (x1) scale. Short the two probes together and calibrate the meter to "Zero" (See Figure 2). If your meter does not have this calibration feature, note the ohms reading. This is the residual internal resistance of the meter, probes and test leads. You will need to DEDUCT this number from the results you measure at the Access Card.

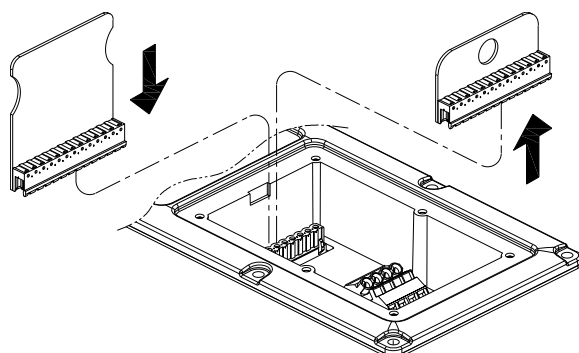


Figure 1:

Switch Card Removal / Access Card Install

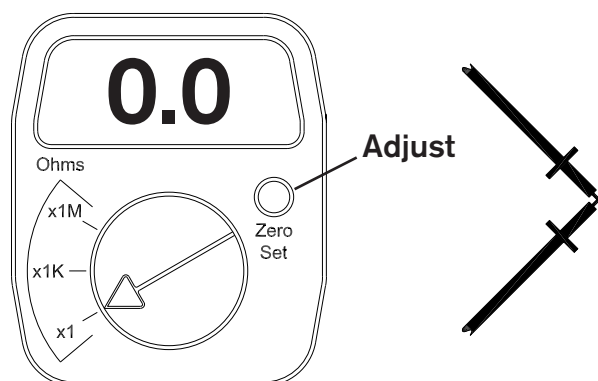


Figure 2:

Ohm Meter Calibration



IMPORTANT! You are testing for DC resistance (DCR). **DO NOT CONFUSE DCR WITH IMPEDANCE!** Simple DCR measurements will identify most common failures. Experienced technicians may perform more sophisticated tests by connecting specialized test gear in place of the ohm meter.



IMPORTANT! Never connect an amplifier to a PTP test point!



WARNING! Compression drivers are easily destroyed by improper testing. Never connect a battery or other power source directly to a compression driver! Any testing beyond the DCR measurements outlined here is conducted at your own risk. Drivers destroyed by improper testing are not covered under warranty!

For EVF and EVH 2-way systems:

Use only the test points on the GREEN side of the Access Card

1. Test the woofer: Place one test lead securely on each of the RED test points on the Access Card. A properly functioning woofer will read approximately 5.0 ohms DCR, ± 0.5 ohm (See Figure 3). A significantly higher reading indicates an open voice coil, meaning the woofer must be replaced. A significantly lower reading indicates a voice coil that is shorting, meaning the woofer must be replaced.
2. Test the compression driver: Place one test lead securely on each of the YELLOW test points on the Access Card. A properly functioning compression driver will read approximately 4.3 ohms DCR, ± 0.5 ohm (See Figure 4). A significantly higher reading indicates an open voice coil, meaning the compression driver must be replaced. A significantly lower reading indicates a voice coil that is shorting, meaning the compression driver must be replaced.
3. Test the PTP (Power Tracking Protection) network: Place one test lead securely on each of the GREEN test points on the Access Card. A properly functioning PTP will read no more than 2 ohms (See Figure 5). If the reading is higher, replace the SK-3 lamps on the cross-over PCB.
4. Unplug the Access Card and re-install the switch card in exactly the same position it was in originally. If applicable, Re-attach the security cover, gland nut cover, or NL4 cover.

Note: EVF low-frequency systems have no PTP or compression drivers, and use different woofers. See the chart on page 4 for correct DCR values.

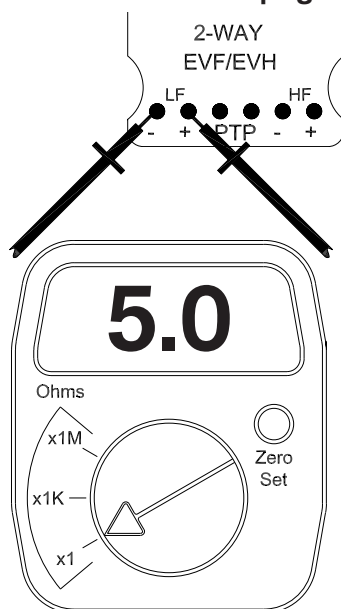


Figure 3:
EVF/EVH Woofer Test

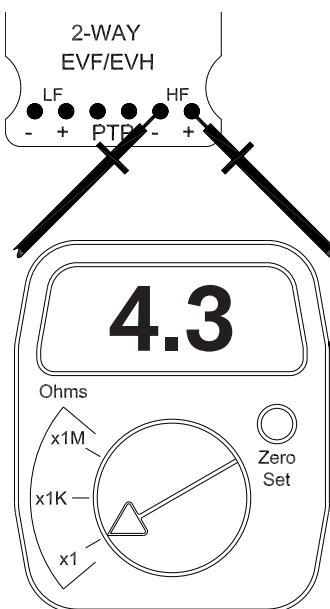


Figure 4:
EVF/EVH Compression
Driver Test

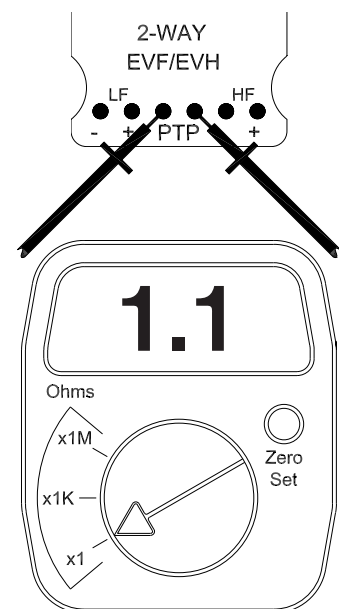


Figure 5:
EVF/EVH Protection
Network Test

For EVA passive full-range systems:

Use only the test points on the BLACK side of the Access Card

Note the position of the HF shading switch card. The card must be replaced in exactly the same position as it was originally or system performance will be adversely affected!

EVA components are wired in pairs. Therefore, both woofers will be tested together at the same time, as will the upper HF compression driver pair and the lower HF compression driver pair. Each HF compression driver pair has its own PTP network and these are also tested separately. EVA DCR values are referenced to the black (common) test point (See Figure 6). To directly access transducer pairs for more sophisticated testing, substitute the (-) input connection on the input terminal block for the black (common) test point on the access card (See Figure 9). Note: DCR values listed are not valid for this connection.

1. Test the woofers: Place one test lead securely on the RED test point and the other on the BLACK (common) test point on the Access Card. A properly functioning woofer pair will read approximately 43.2 ohms DCR, ± 1 ohm (See Figure 6). A significantly higher reading indicates one of the woofers has an open voice coil, meaning the woofer needs to be replaced. A significantly lower reading indicates one or both of the woofers has a voice coil that is shorting, meaning the woofer(s) must be replaced.
2. Test the compression driver pairs: Test the upper compression driver pair by placing one test lead securely on the UPPER YELLOW test point and the other on the BLACK (common) test point on the Access Card. A properly functioning compression driver pair will read approximately 41.6 ohms DCR, ± 1 ohm (See Figure 7a). A significantly higher reading indicates one of the compression drivers has an open voice coil, meaning the compression driver(s) must be replaced. A significantly lower reading indicates one or both of the compression driver voice coils are shorting, meaning the compression driver(s) must be replaced. Test the lower compression driver pair by repeating the above test with the meter connected to the LOWER YELLOW test point (See Figure 7b).

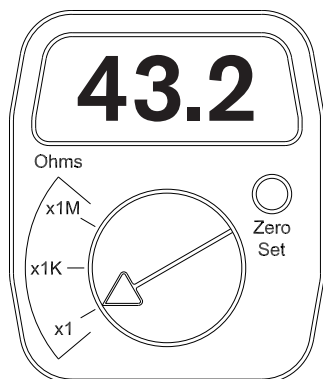
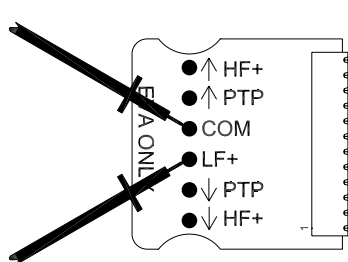


Figure 6:
EVA Woofer Pair Test

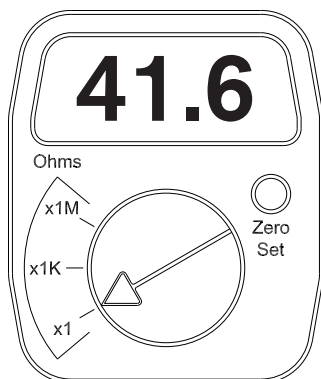
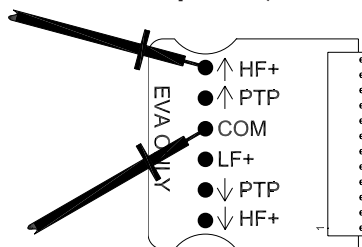


Figure 7a:
EVA Upper Compression
Driver Pair Test

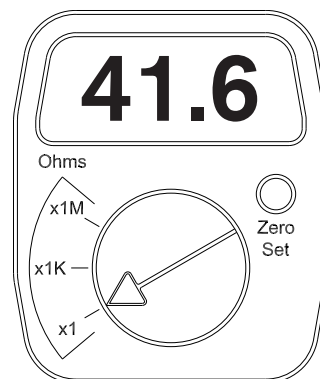
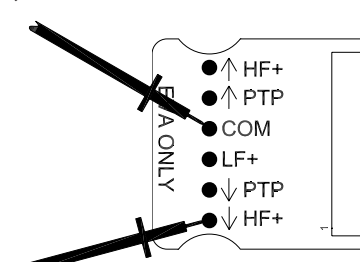


Figure 7b:
EVA Lower Compression
Driver Pair Test

- Test the PTP (Power Tracking Protection) networks: Test the PTP network for the UPPER compression driver pair by placing one test lead securely on the UPPER GREEN test point and the other on the BLACK (common) test point on the Access Card. A properly functioning PTP will read no more than 46 ohms (See Figure 8a). If the reading is higher, replace the SK-3 lamps on the crossover PCB. To test the PTP network for the LOWER compression driver pair, repeat the above test using the LOWER GREEN test point (See Figure 8b).
- Unplug the Access Card and re-install the HF shading switch card in exactly the same position it was in originally. If applicable, re-attach the security cover, gland nut cover, or NL4 cover.

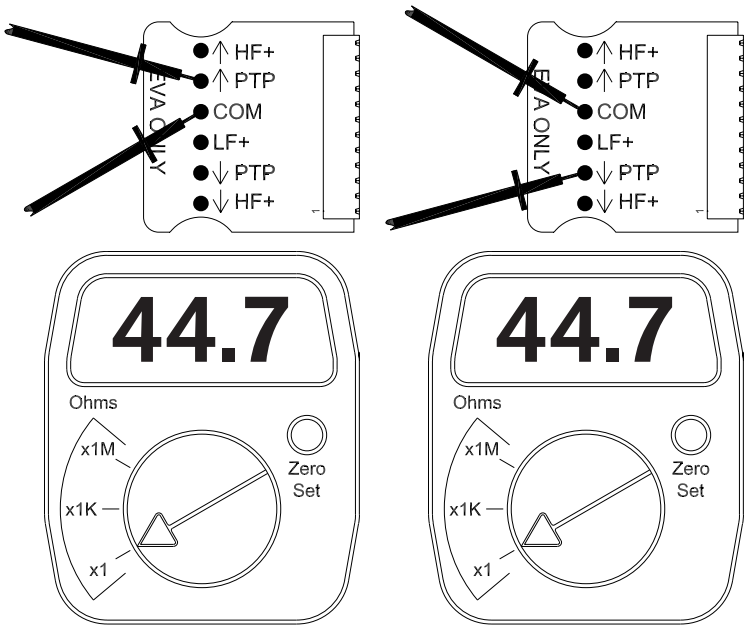


Figure 8a:
EVA Upper Protection
Network Test

Figure 8b:
EVA Lower Protection
Network Test

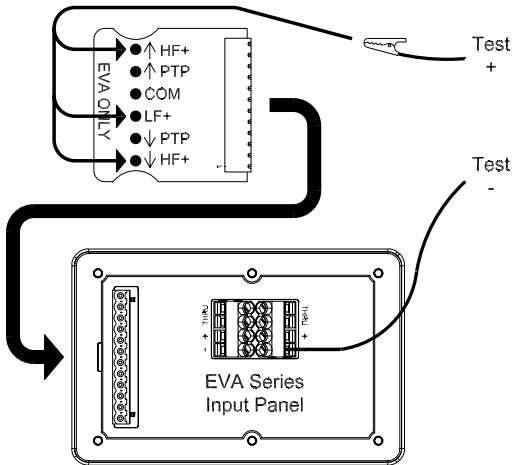


Figure 9:
EVA Direct Access for
Transducer Pairs

Series	Model	Woofers	DCR Value	Compression Drivers	DCR Value	PTP Network	DCR Value
EVA	EVA-2082S (All Coverage Patterns)	(2) 8" [203mm]	43.2 ± 1.0Ω	(4) 1.25" [32mm]	41.6 ± 1.0Ω	Yes	<46.0Ω
EVF	EVF-1122S (All Coverage Patterns)	(1) 12" [305mm]	5.0 ± 0.5Ω	(1) 2" [51mm]	4.3 ± 0.5Ω	Yes	<2.0Ω
	EVF-1122D (All Coverage Patterns)	(1) 12" [305mm]	5.0 ± 0.5Ω	(1) 3" [76mm]	4.3 ± 0.5Ω	Yes	<2.0Ω
	EVF-1152S (All Coverage Patterns)	(1) 15" [381mm]	5.0 ± 0.5Ω	(1) 2" [51mm]	4.3 ± 0.5Ω	Yes	<2.0Ω
	EVF-1152D (All Coverage Patterns)	(1) 15" [381mm]	5.0 ± 0.5Ω	(1) 3" [76mm]	4.3 ± 0.5Ω	Yes	<2.0Ω
	EVF-1121S	(1) 12" [305mm]	3.8 ± 0.5Ω	None	N/A	No	N/A
	EVF-1151S	(1) 15" [381mm]	5.4 ± 0.5Ω	None	N/A	No	N/A
EVH	EVH-1152S (All Coverage Patterns)	(1) 15" [381mm]	5.0 ± 0.5Ω	(1) 2" [51mm]	4.3 ± 0.5Ω	Yes	<2.0Ω
	EVH-1152D (All Coverage Patterns)	(1) 15" [381mm]	5.0 ± 0.5Ω	(1) 3" [76mm]	4.3 ± 0.5Ω	Yes	<2.0Ω