INSTRUCTION TO SERVICE

ITS: 6019	
SECTION:	294 Power Cables
WRITTEN BY:	K. Baziuk
SUBJECT:	Inspect and Repair HV Wiring Connections.

ITS6019

PROCEDURE: Inspect and Repair.

DANGER

DO NOT perform maintenance unless you have been properly trained on high voltage safety and are familiar with the safety requirements and procedures detailed in the BAE VPMS System Manual. Adhere to the procedures described in the vendor manual.

DANGER

Use work platforms or scaffolding whenever working on roof-mounted components. Ensure maintenance personnel use an approved safety harness.

1. Turn the main battery disconnect switch to the “OFF” position.
2. Locate the High Voltage Junction Box on the roof of the bus. Refer to Figure 1. .

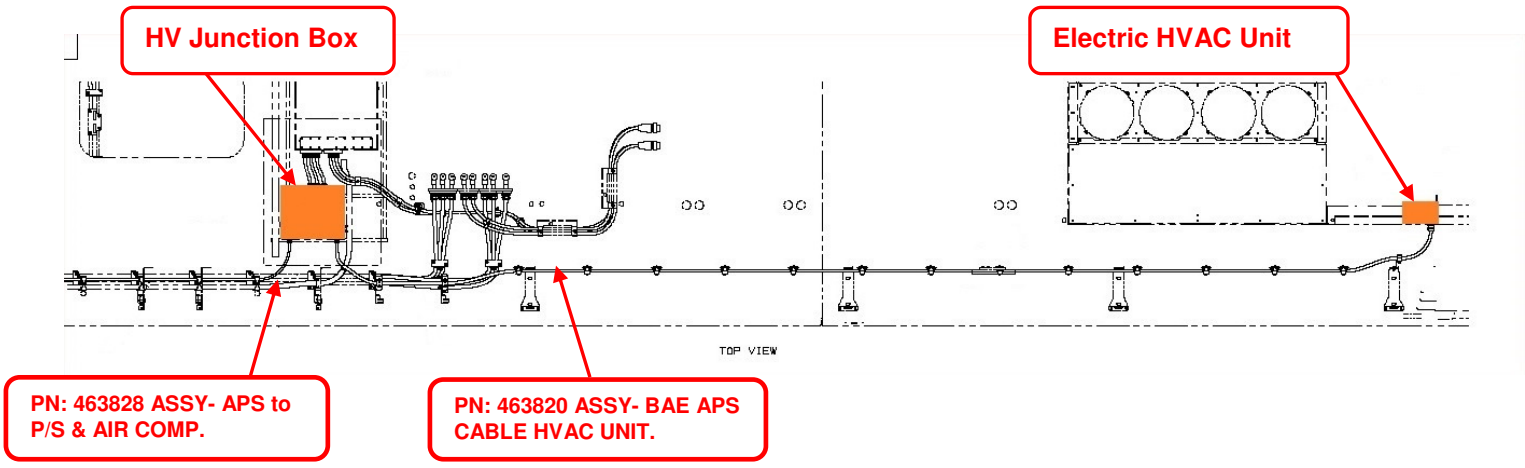

Figure 1: Location of HV Junction Box and Electric HVAC Unit.

3. Open HV Junction box and proceed to inspect connections for either no ferrules, loose wire strands, insufficient wire contact or tightness of strain relief at both 70A circuit breaker load side and 50A contactor. Refer to Figure 2 and 3 for details.
4. Repair connection to each phase wire as necessary depending on what defect is found.
5. If no ferrule is found; use a suitable crimper, attach a ferrule to each phase end. Ensure the wire end is cut to the required **0.50 inch**. If the cable is not at the correct length within the HV junction box, proceed to rework the cable end by cutting back the insulation on the 3 phase cable approximately 0.5 to 0.75 inch. Reposition the cable in the sealed cable gland. Refer to Figure 6. The internal length of cable as per NF print, PN:

463820 ASSY- BAE APS CABLE HVAC UNIT is 5.25 inches. The length of cable PN: 463828 ASSY- APS TO P/S & AIR COMP is 4.73 inches. Refer to Figures 4 and 5.

6. Ensure each phase only connects to equivalent phase and color. Ensure adequate slack in all phase cables is observed at all connection points. Refer to Figure 8.

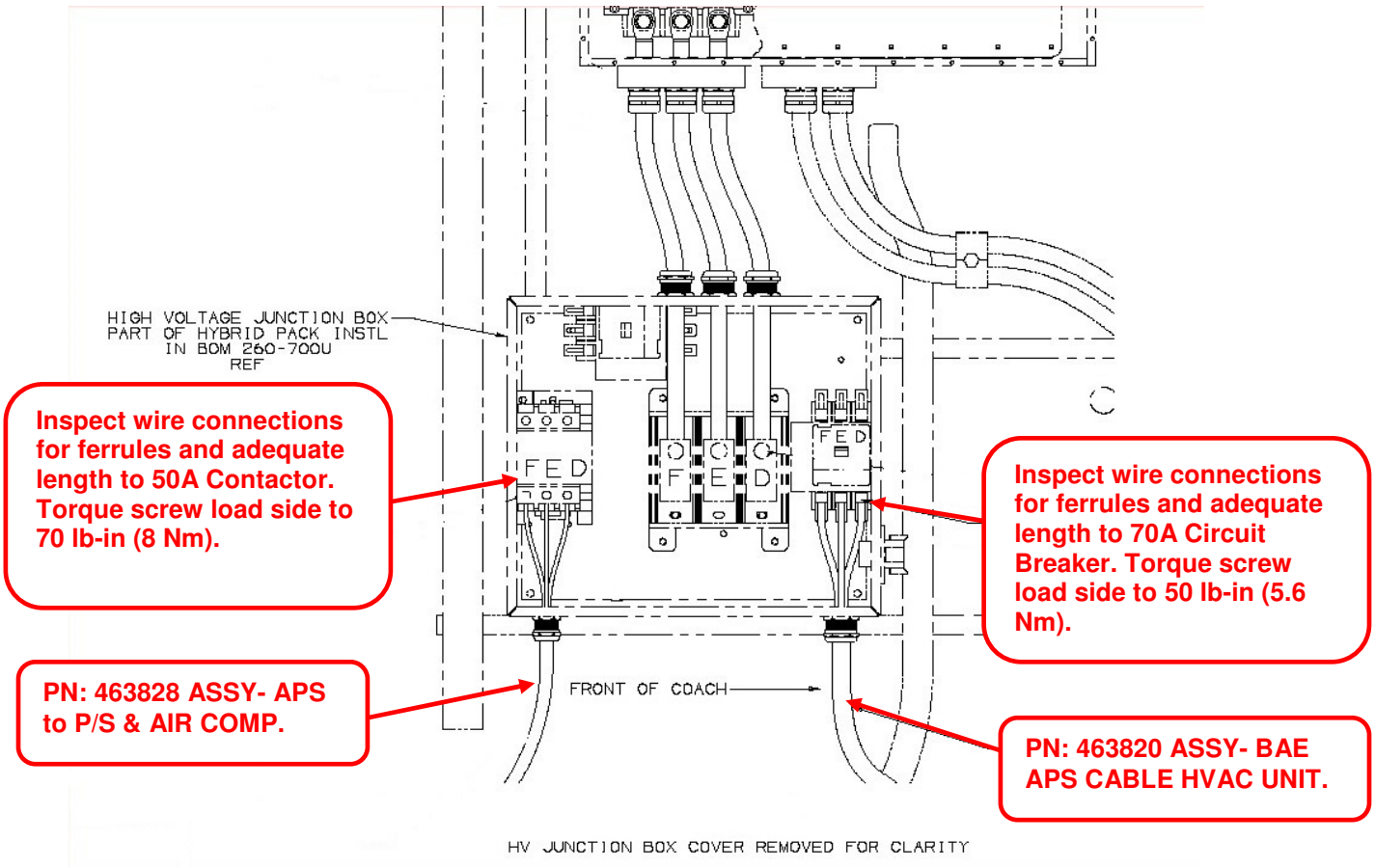

Figure 2: Wiring within HV Junction Box.

7. Open Electric HVAC Unit and proceed to inspect connections for either no ferrules, loose wire strands, insufficient wire contact or tightness of strain relief at the terminal. Refer to Figure 3 and 7 for details.
8. Repair connection to each phase wire as necessary depending on what defect is found.
9. If no ferrule is found; use a suitable crimper, attach a ferrule to each phase end. Ensure the wire end is cut to the required **0.50 inch**. If the cable is not at the correct length within the HV junction box, proceed to rework the cable end by cutting back the insulation on the 3 phase cable approximately 0.5 to 0.75 inch. Reposition the cable in the sealed cable gland. Refer to Figure 6.
10. The internal length of cable as per NF print, PN: 463820 ASSY- BAE APS CABLE HVAC UNIT is 6.00 inches. Refer to Figures 4.

11. Ensure each phase only connects to equivalent phase and color. Ensure adequate slack in all phase cables is observed at all connection points. Refer to Figure 7.

    ☞ **NOTE: Ensure that the finished length of cable has a smooth radius into the enclosures.**

12. Check and verify if dust/water ejector valve is mounted to HV junction box. If not, order PN: 426384 and mount to HV junction box. Check to see if hole is plugged. If not, order PN: 50W06000, Qty 2, PN: 20B06016 Qty1 and PN: 90N06000 Qty1 and mount to HV junction box in place of hole. Refer to Figure 9.
13. Remove all tools and debris.
14. Turn the main battery disconnect switch to the “ON” position.
15. Return coach to revenue condition.

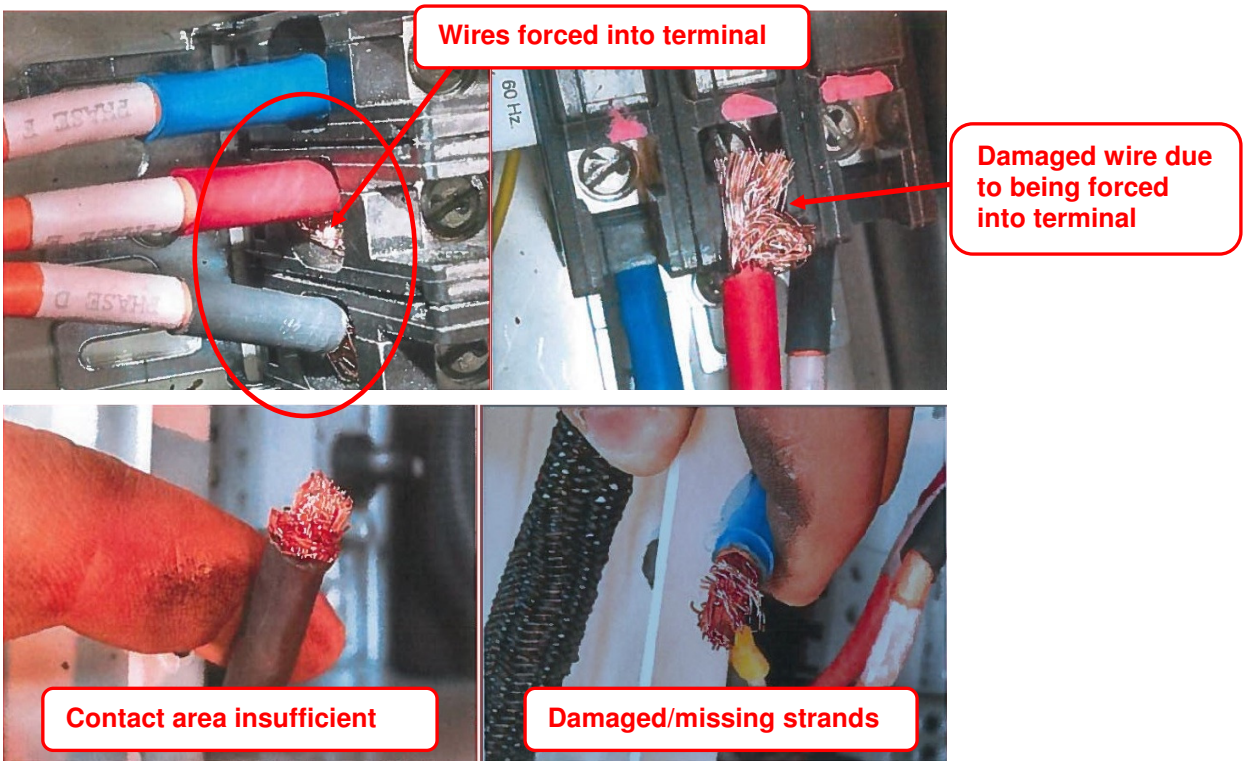

Figure 3. Inspect each phase wire end for fraying, loose strands, no ferrule forced/poor connections.

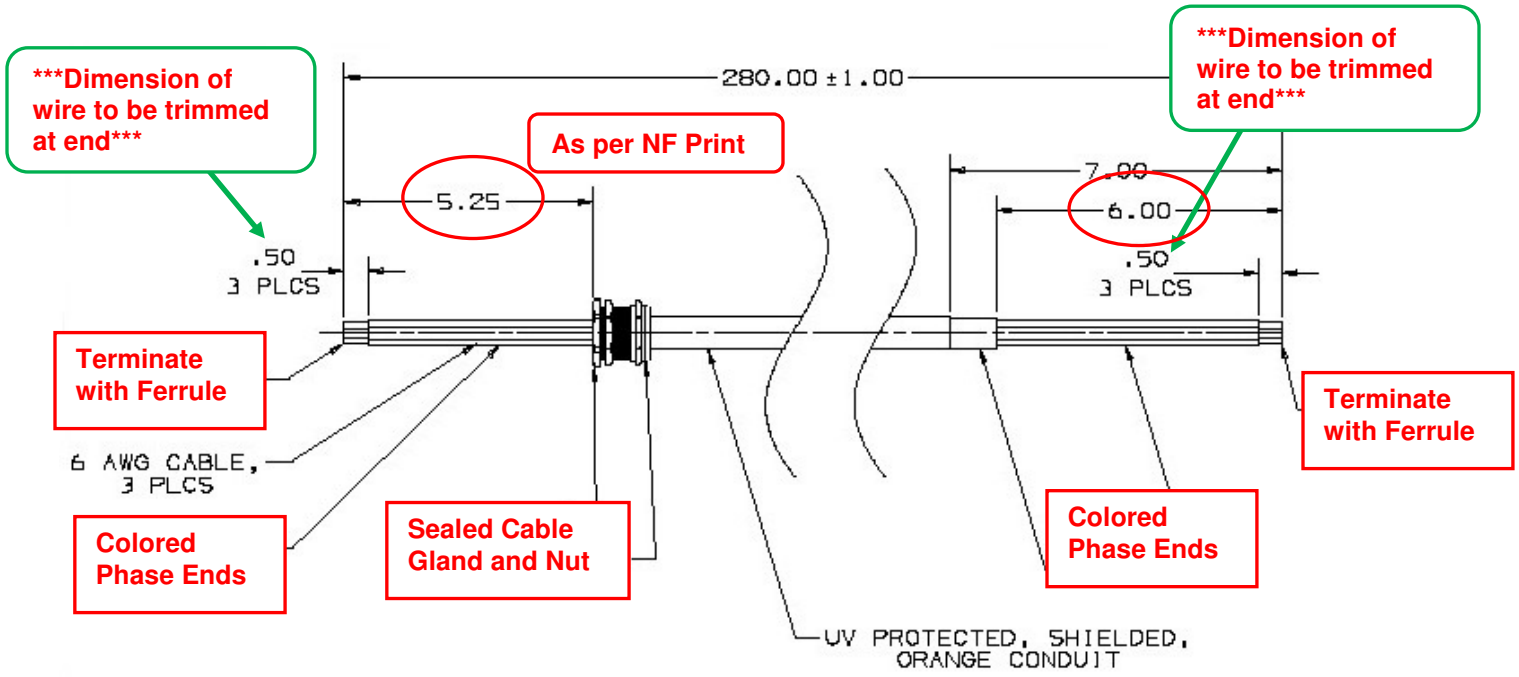

Figure 4: Wire preparation for ferrules, PN: 463820 HVAC Cable Assembly.

Dimension of wire to be trimmed at end

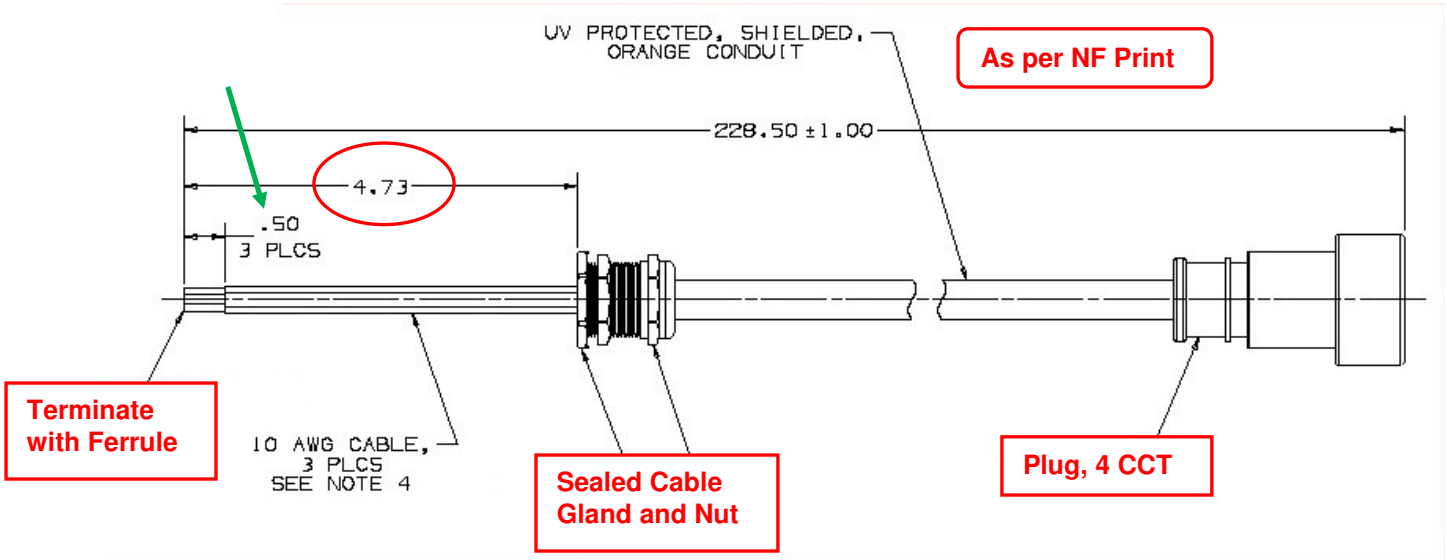

Figure 5: Wire preparation for ferrules, PN: 463828 P/S Air Compressor Cable Assembly.

Repositioning the cable in the sealed cable gland assembly.

Measure exposed wire end after Repair for installation

Completed Repair after rework.

Figure 6. Cable Rework at the HV Junction Box Side.

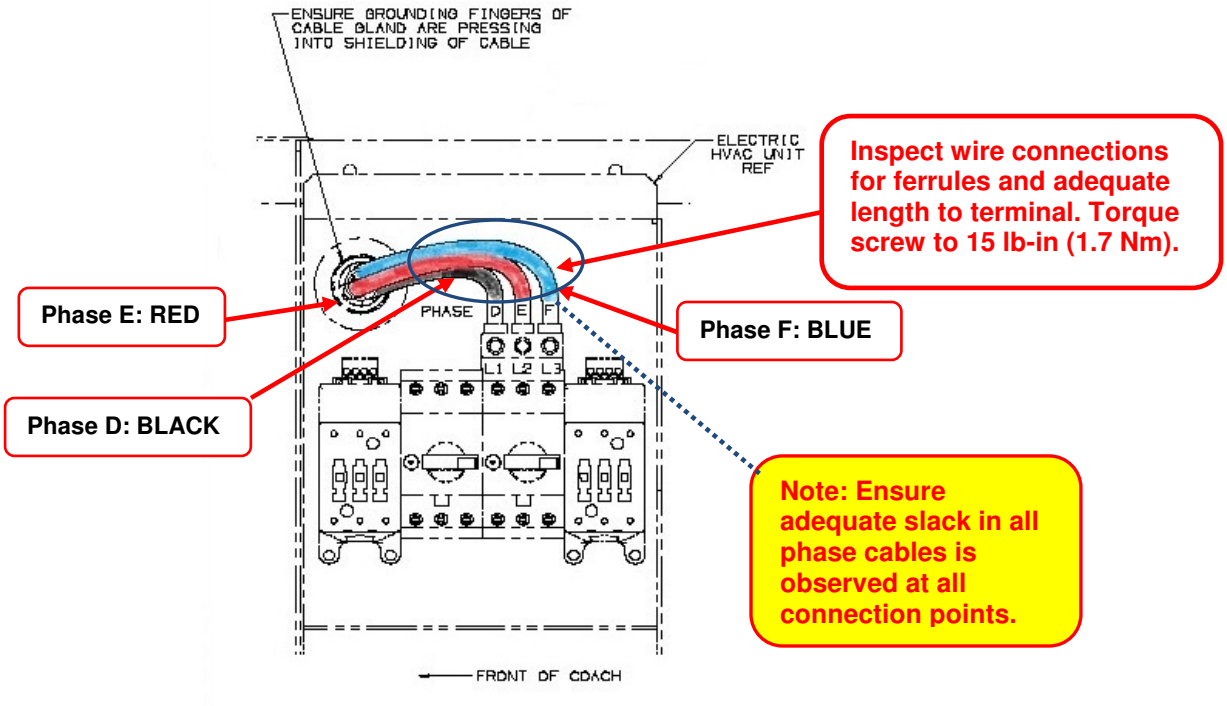

Figure 7. Wiring within Electric HVAC Unit.

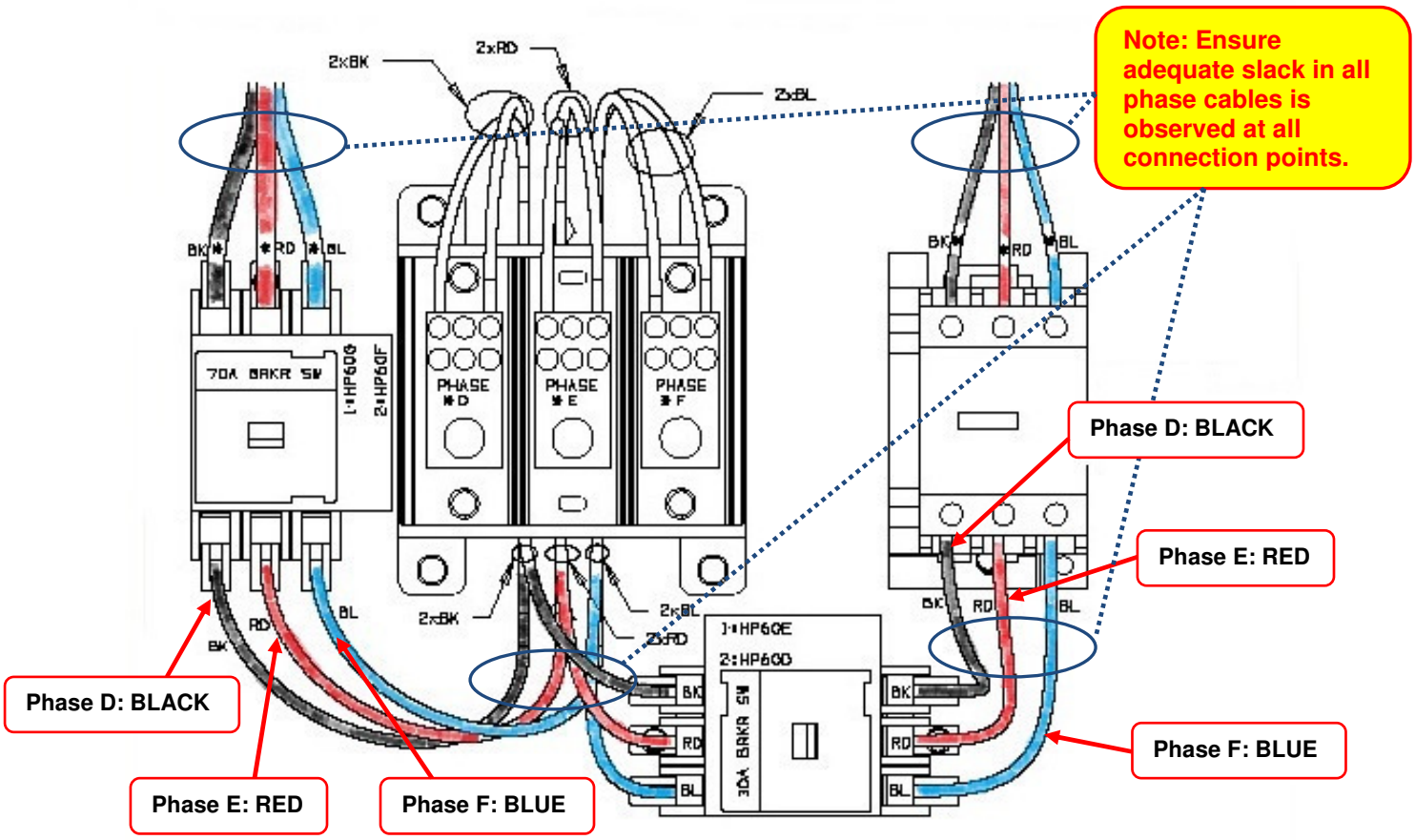

Figure 8: Phase Connections within HV Junction Box.

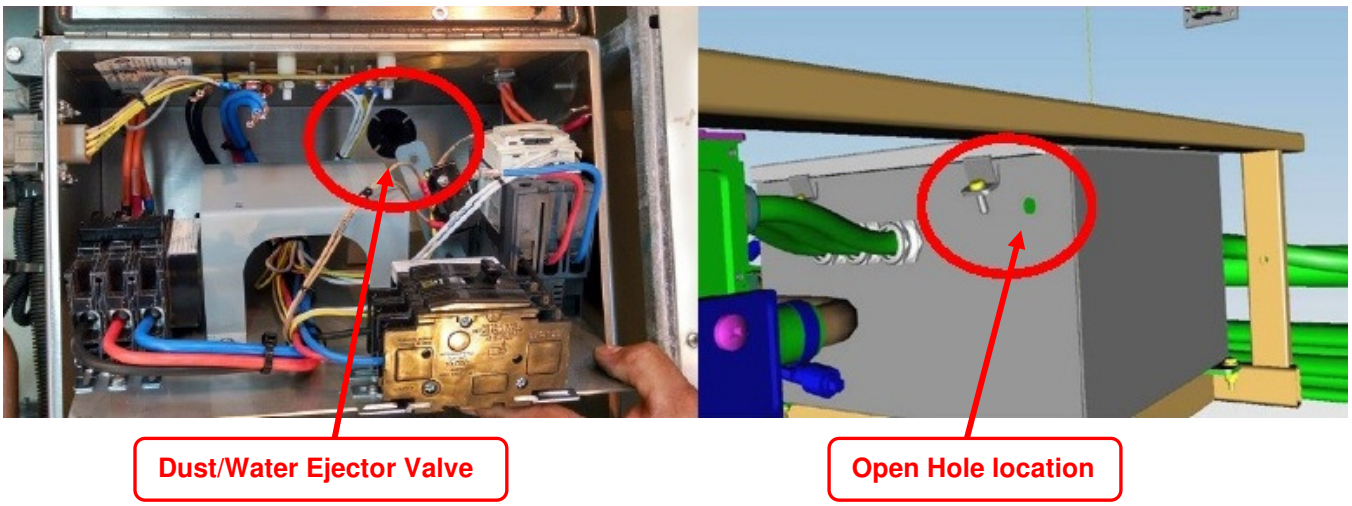

Figure 9: Dust/Water Ejector and Open Hole within HV Junction Box.

LABOUR ESTIMATE

	Operation	Men	Hours	Labour Time M X HR
1	Inspect and Repair HV Wiring Connections.	1	0.5	0.5

PARTS REQUIRED

Item	Part Number	Description	Qty. per Coach	Units	Notes
1	426384	EJECTOR-DUST, WATER	1		IF REQUIRED
2	50W06000	WASHER FLAT SS 3/8 NOM	2		IF REQUIRED
3	20B06016	BOLT SS 3/8 X 1 LG	1		IF REQUIRED
4	90N06000	NUT-HEX MACH SST 3/8 UNC	1		IF REQUIRED