

Service Kit

Title: Bell 429 Air Conditioner Compressor Clutch Re-wire

Date: April 16, 2019

Applicability: Bell Helicopter Model 429 Equipped with the Air Comm Corporation 429EC-200 and -202 Air Conditioning Systems

Reference: FAA / STC # SR00693DE, Bell Helicopter 429 Air Conditioning System

Discussion:

This letter explains how to modify the wiring of the compressor clutch on the air conditioning system. The wiring change enhances the grounding to the airframe to increase reliability and system performance. This wiring change also adds a diode for improved noise suppression.

Approval:

The information provided within this document is based on FAA approved data.

Weight & Balance:

The weight change due to the installation of these parts would be negligible and so no adjustment to the weight and balance of the aircraft is necessary.

Bill of Materials:

(wire available upon request)

| Item | Part Number | Description | Quantity |
|------|----------------|---------------------------------|----------|
| 1 | ES55053-1 | Terminal, 90 deg. | 2 |
| 2 | M39029/56-348 | Contact, Socket, 22 ga. | 3 |
| 3 | M39029/56-351 | Contact, Socket, 20 ga. | 1 |
| 4 | M39029/58-360 | Contact, Pin, 22 ga. | 3 |
| 5 | M39029/58-363 | Contact, Pin, 20 ga. | 1 |
| 6 | MS25036-102 | Terminal, Ring, 22ga., #6 stud | 1 |
| 7 | MS25036-103 | Terminal, Ring, 22ga., #10 stud | 2 |
| 8 | M81714/65-16-2 | Splice, sealed, 2 wire | 2 |
| 9 | 1N5408 | Diode | 1 |

| Revision | Issue Date | Inserted By | Approved by | Description of Changes |
|----------|------------|-------------|-------------|--|
| NC | 7/13/15 | JMB | KP | Initial Release |
| A | 10/9/15 | JMB | KP | Deleted table 4. Moved wire in table 4 to -12 harness. Changed wire lengths table 2. Added instructions and annotations for installation of new wires. |
| B | 12/2/15 | JMB | KDP | Changed splice from single wire to 2 wire. Corrected splice p/n from M81714/65-16 to M81714/65-16-2 |
| C | 4/16/19 | RTD | MFK | Added 1N5408 diode. ECO 19-174. |

1.0 Work Instructions

CAUTION

Disconnect the aircraft battery and external power prior to starting work.

1.1 Modify the existing harnesses by adding the wires shown in the tables below. It is acceptable to route the wires alongside the existing harness. The wire lengths shown in the table below are provided to ensure adequate lengths but are not necessarily the installed length.

Table 1. add to 429EC-8006-10 Wire Harness

| Wire number | From | Pos | Contact | To | Pos | Contact | Gage | Wire Length |
|-------------|------------|-----|---------------|-----------------|-----|-------------|------|-------------|
| ACCB50B22 | (3940A4P1) | P | M39029/56-351 | C/B "Comp" Load | - | MS25036-102 | 22 | 15" |

Table 2. add to 429EC-8006-12 Wire Harness

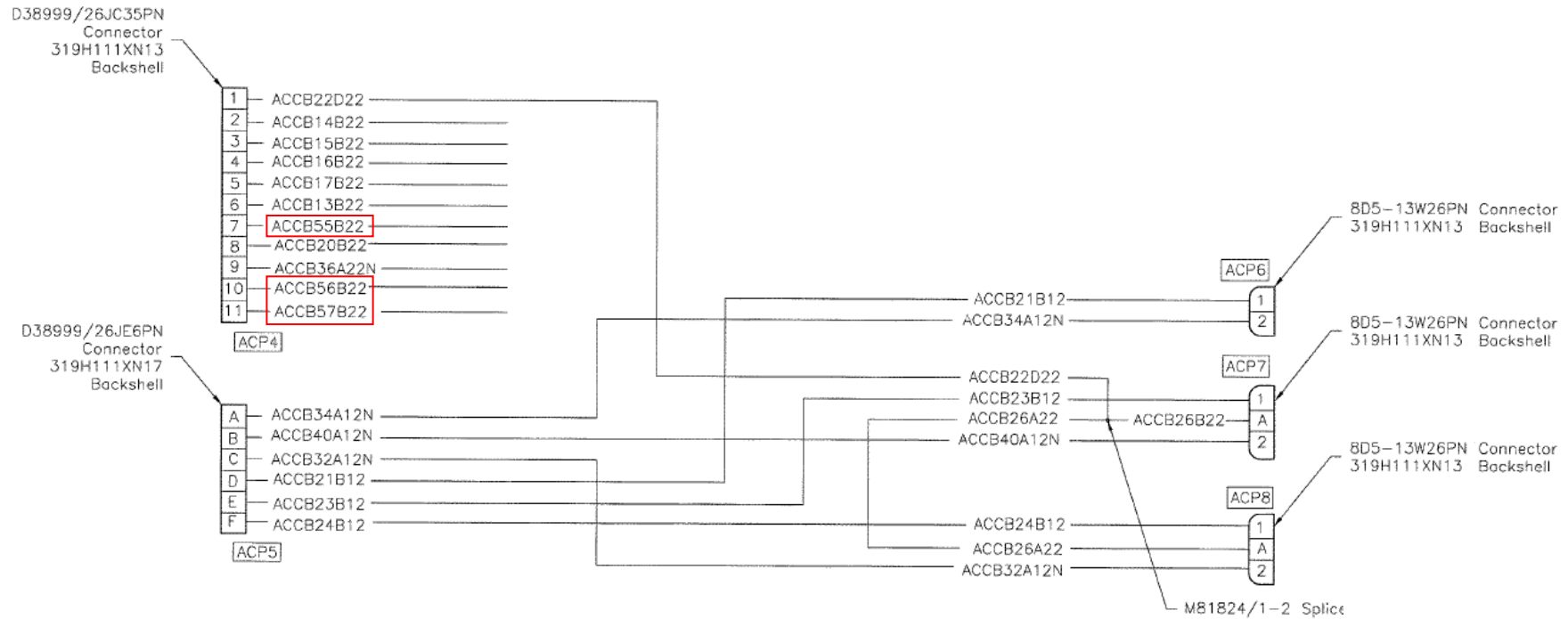
| Wire number | From | Pos | Contact | To | Pos | Contact | Gage | Wire Length |
|--------------|-------------------|-----|----------------|-------------------|-----|----------------|------|-------------|
| ACCB55B22 | Doghouse (ACP4) | 7 | M39029/58-360 | Pressure Switch | - | ES55053-1 | 22 | 60" |
| ACCB56B22 | Doghouse (ACP4) | 10 | M39029/58-360 | Clutch Splice (-) | - | M81714/65-16-2 | 22 | 84" |
| ACCB57B22 | Doghouse (ACP4) | 11 | M39029/58-360 | Clutch Splice (-) | - | M81714/65-16-2 | 22 | 84" |
| ACCB54B22 | Pressure Switch | - | ES55053-1 | Clutch Splice (+) | - | M81714/65-16-2 | 22 | 102" |
| 1N5408 Diode | Clutch Splice (+) | - | M81714/65-16-2 | Clutch Splice (-) | - | M81714/65-16-2 | - | - |

Table 3. add to 429EC-8006-14 Wire Harness

| Wire number | From | Pos | Contact | To | Pos | Contact | Gage | Wire Length |
|-------------|-----------------|-----|---------------|---------------------------|-----|---------------|------|-------------|
| ACCB51B22 | Doghouse (ACJ4) | 7 | M39029/56-348 | (3940A4J1) | P | M39029/58-363 | 22 | 180" |
| ACCB52B22N | Doghouse (ACJ4) | 10 | M39029/56-348 | Ground Stud in Cabin GND3 | - | MS25036-103 | 22 | 180" |
| ACCB53B22N | Doghouse (ACJ4) | 11 | M39029/56-348 | Ground Stud in Cabin GND3 | - | MS25036-103 | 22 | 180" |

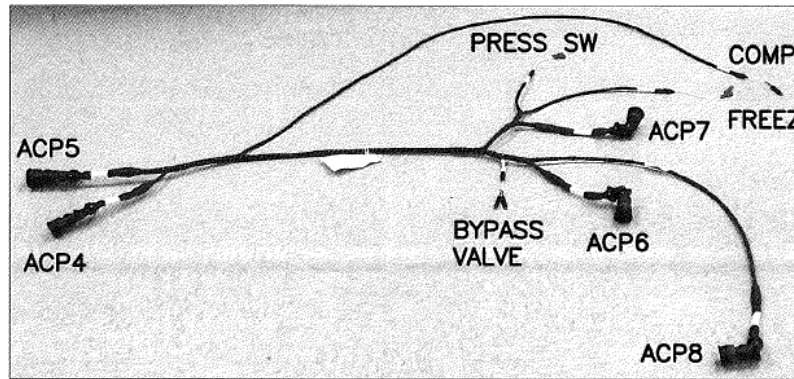
1.2 Modify the -10 harness using the wire in table 1 above.

1.3 Modify the -12 harness assembly per table 2 above and the highlighted connections below. The new wires will need to route through the wire braiding between the connector and the strain relief clamps and then tied alongside the existing harness.

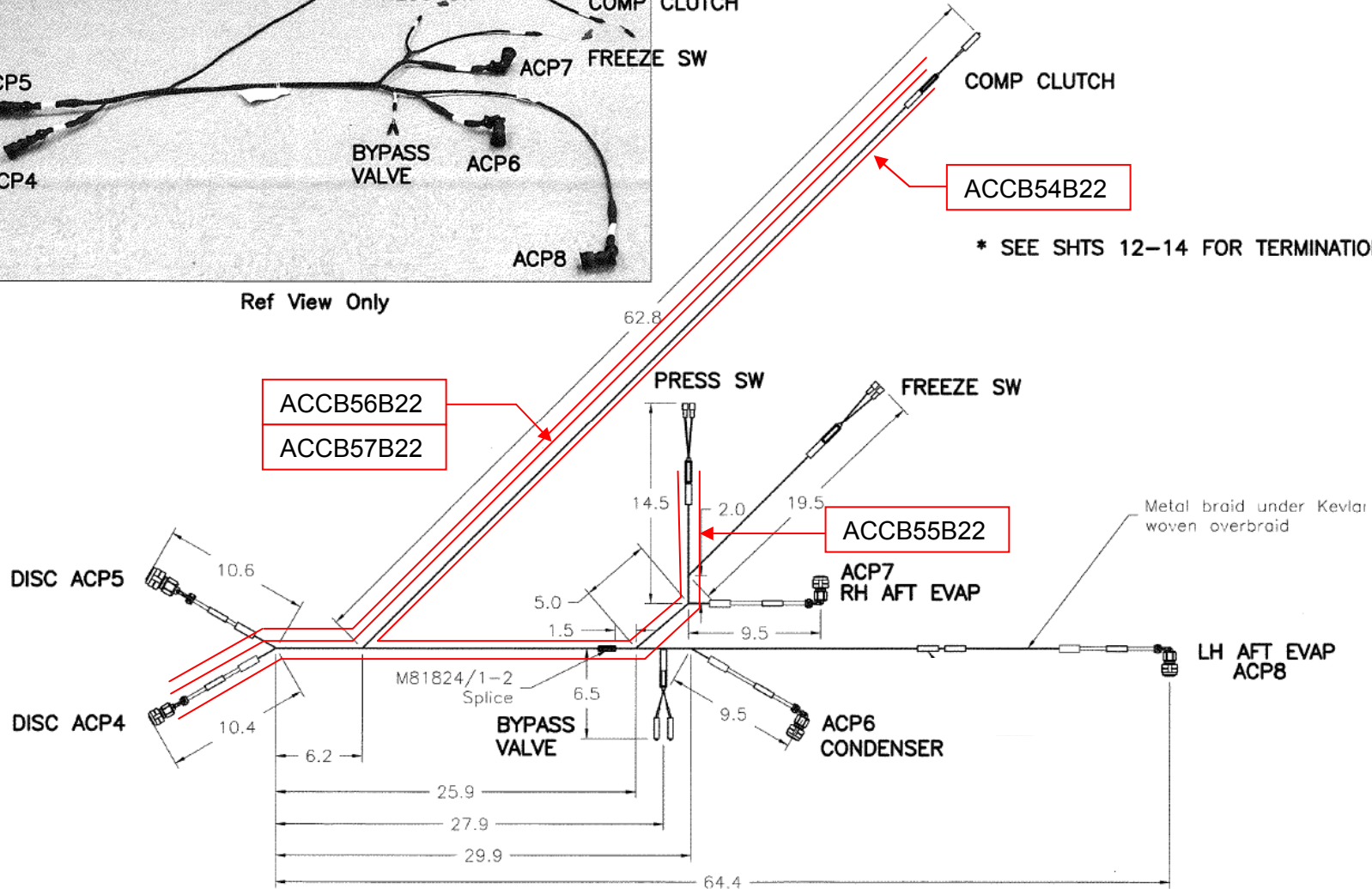


-12 Assy. Harness (ACP4 & ACP5)

NOTE: The schematic above depicts only the connector portion of the -12 harness. The newly added wire ACCB54B22 routed from the clutch splice to the pressure switch terminals is not shown above.

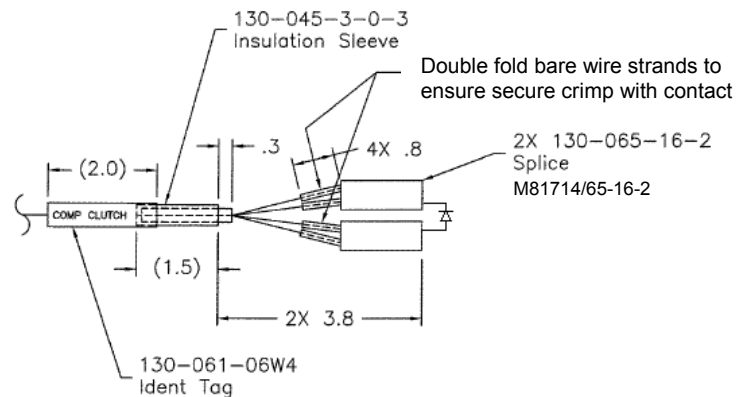


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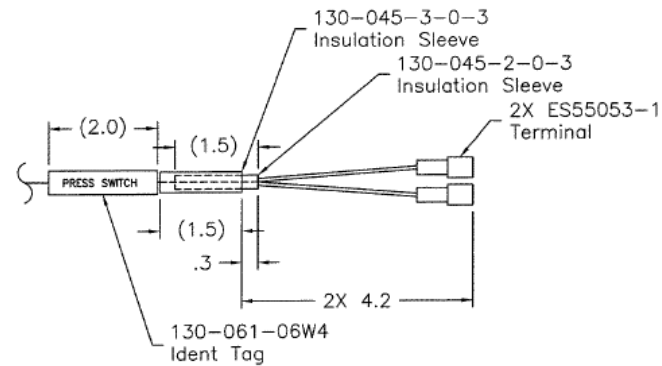


* SEE SHTS 12-14 FOR TERMINATION DETAILS

-12 Assy. Harness

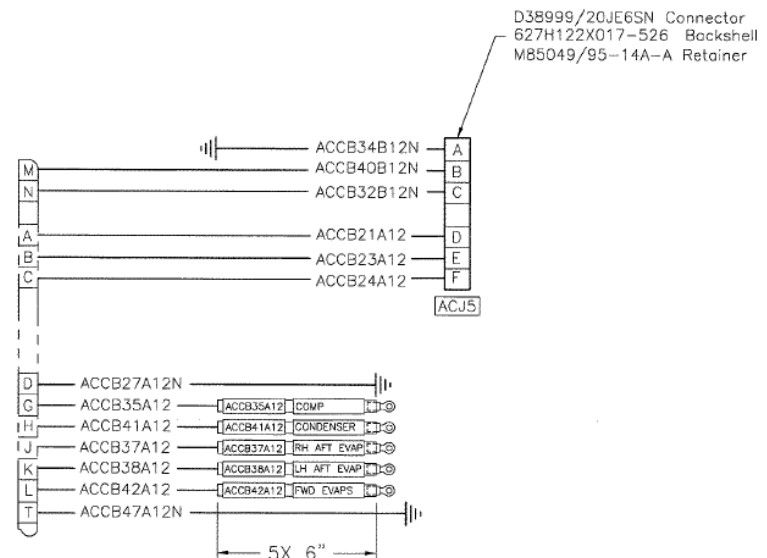
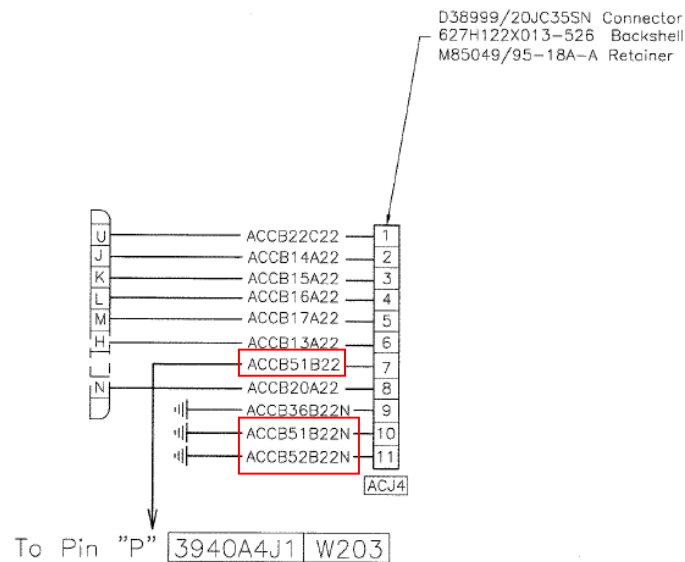


-12 COMP CLUTCH DETAIL



-12 PRESSURE SWITCH DETAIL

- 1.4 For -12 harness install 1N5408 diode into splices as shown above in "COMP CLUTCH DETAIL" and orient per schematic on last page of this document.
- 1.5 Modify the -14 harness assembly per table 3 above and the highlighted connections below. Leave one end un-terminated until the wires are routed in the aircraft and the final length is determined.



-14 Assy, Wire Harness, Relay Panel

1.6 Install the wire & harness assemblies per the schematic below. Affected wires are highlighted.

