

Service Bulletin

- Title:** Conversion of the 429EC-200-3, -5, or -6 **Dual** Evaporator System equipped with **Allied** motors to the 429EC-202-3, or -4 **Single** Evaporator System equipped with **Allied** motors
- Date:** 10 May 2013
- Applicability:** Bell Helicopter Model 429 Helicopters equipped with 429EC-200-3, -5, or -6 Air Comm Corporation Air Conditioning Systems
- Reference:**
1. FAA / STC # SR00693DE, Bell Helicopter 429 Series Air Conditioning System
 2. Single Forward Evaporator Installation Drawing #: 429EC-602
 3. Dual Forward Evaporator Installation Drawing #: 429EC-600
 4. Single Aft Evaporator Installation Drawing #:429EC-624
 5. Dual Aft Evaporator Installation Drawing #:429EC-622
 6. Single Evaporator Plumbing Installation Drawing #: 429EC-522
 7. Dual Evaporator Plumbing Installation Drawing#:429EC-500
 8. Single Evaporator Electrical Installation Drawing #: 429EC-812
 9. Dual Evaporator Electrical Installation Drawing #: 429EC-810
 10. Single Evaporator Air Distribution Installation Drawing #: 429EC-682
 11. Dual Evaporator Air Distribution Installation Drawing #: 429EC-680

Compliance: At the discretion of the operator.

I. Discussion:
This Bulletin authorizes the change of the top drawing from 429EC-200-3, -5, or -6 Dual Evaporator System equipped with Allied motors to the 429EC-202-3, or -4 Single Evaporator System equipped with Allied motors.

II. Approval:

The technical aspects of this service bulletin are based on FAA approved data.

Revision	Issue Date	Inserted By	Approved	Description of Changes
N/C	5/10/13	RL	<i>MLK</i>	Initial Release

III. Bill of Materials:

Parts to be removed:

Qty.	Part Number	Nomenclature
1	S-6029EC-1	Left Forward Evaporator Assembly
1	429EC-6010-10	Duct Assy – Fwd Evap, LH Elbow
1	429EC-6010-7	Duct Assy – Fwd Evap, LH Flexible
1	429EC-5040-1	Hose Assembly
1	429EC-5040-2	Hose Assembly
1	ES40634-8	Tee
1	ES40634-6	Tee
1	429EC-5030-H5	Hose Assembly
1	429EC-5030-H6	Hose Assembly
1	429EC-5020-T7	Tube Assembly
1	429EC-5020-T5	Tube Assembly
1	429EC-6302-1	Left Aft Evaporator Assembly
1	S-5080EC-10	Left Evaporator Y-Fitting
1	429EC-5020-T9	Tube Assembly
1	429EC-5020-T12	Tube Assembly
1	ES40632-6D	Left Evaporator Union
1	429EC-6820-2	Left upper Outlet Duct Assembly
1	429EC-6820-1	Left Lower Outlet Duct Assembly
1	429EC-6811-1	Left Side, One Way Duct
1	429EC-6810-2	Return Duct, Left Lower Adapter
1	429EC-6810-1	Return Duct, Left Upper Adapter
1	NAS520-34-10	Left Coupling
1	MS26574-15	Left Aft Evaporator Circuit Breaker, 15A

Parts to be installed:

Qty.	Part Number	Nomenclature
1	429EC-6012-2	Y-Splitter Duct
1	429EC-6012-3	Crossover Duct
2	MS21919WCH8	Clamp, Loop Type, Cushioned, Support
3	MS21919WCH56	Clamp, Loop Type, Cushioned, Support
1	MS21919WCH12	Clamp, Loop Type, Cushioned, Support
6	CP-25-50-B	Ty-wrap
6	NAS1149C0332R	Washer
3	MS21042L3	Nut, Self Locking
3	NAS1802-3-8	Screw, Hex Head
1	429EC-5040-5	Hose Assembly
1	429EC-5040-6	Hose Assembly
1	429EC-6219-1	Left Air Box Cover
1	429EC-6219-101	Left Plenum Cover
1	429EC-6219-102	Left Return Air Inlet Cover
1	429EC-5020-T34	Tube Assembly
1	ES40630-8L	Bulkhead Fitting
1	427EC-5060-T37	Plug
1	MS26574-20	Circuit Breaker, 20 amp
2	M81824/1-3	Splice
2	130-045-4-0-4 (Alt:ES48060-1)	4" Insulation Sleeve
2	AN3-5A	Bolt
4	NAS1149F0332P	Washer
2	MS21042L3	Nut
1	MS21919WDG4	Clamp
1	MS27039-1-07	Screw
2	NAS1149D0316J	Washer
1	S-6031EC-14	Support Bracket, Fwd Evap (Allied)
1	S-5002EC-24	Firesleeve
1	429EC-6214-3	Stowage Bracket

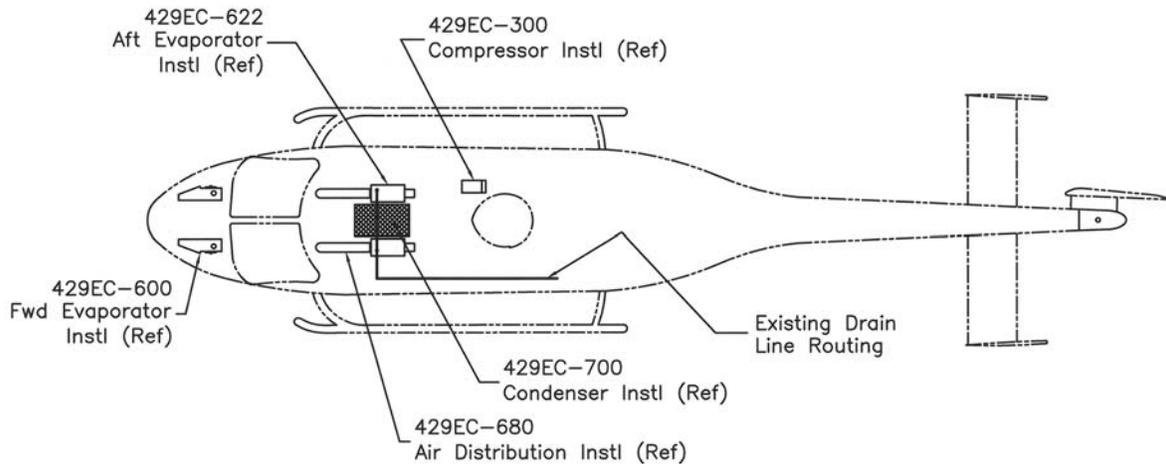


Figure 1: 429EC-200; General Arrangement – 429 Dual A/C System

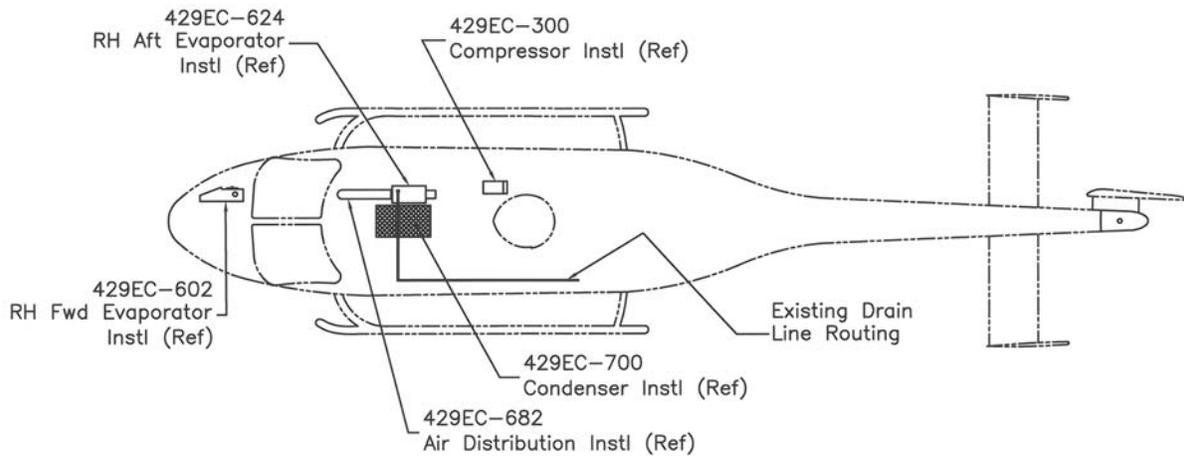


Figure 2: 429EC-202; General Arrangement – 429 Single Fwd/Aft Evap A/C System

IV. Modification of Dual Evaporator Components

CAUTION

Ensure air conditioning system refrigerant is depressurized or reclaimed by qualified personnel prior to removing system components.

WARNING

Disconnect aircraft electrical power prior to maintenance.

NOTE

Single evaporator configuration is only authorized for use with 429EC-6302-4 (Aft) and S-6029EC-2 (Fwd) series evaporators.

A. Preparation

1. Using the associated maintenance records, determine that the following system is installed on the aircraft:
 - 429EC-200-3, -5 or -6 General Arrangement Dual Fwd and Aft Evaporators (Allied)

B. Forward Evaporator Conversion - Removal

1. Remove both lower forward windows and store in a secure location.
2. Remove and retain LH forward cabin ejector 429H-6602-4 and 429H-5034-159 tube assembly.
3. Remove left forward evaporator assembly and discard. See Figure 3.

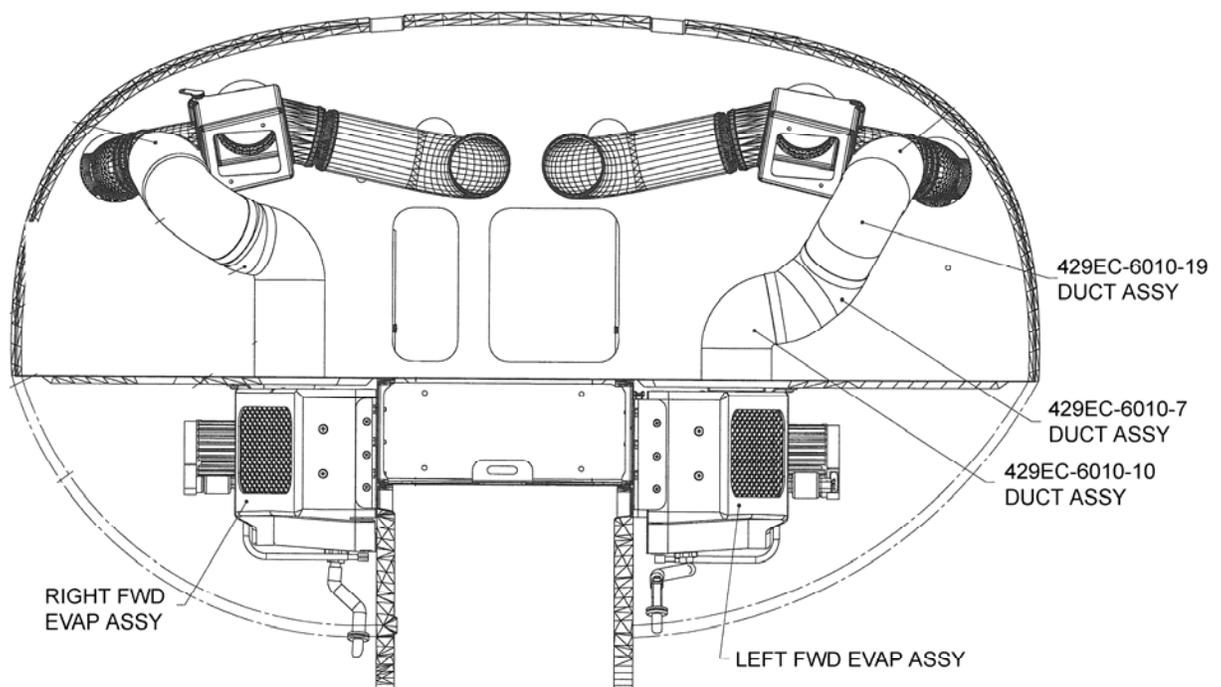


Figure 3: View Looking Aft at Fwd Evaporators and Ducting

4. Remove and discard 429EC-6010-10 and 429EC-6010-7 duct assemblies between left evaporator and 429EC-6010-19 LH elbow assembly. See Figure 3.
5. Remove and discard the following plumbing items between the forward evaporators and the bulkhead, see Figure 4:
 - 429EC-5040-1 Hose
 - 429EC-5040-2 Hose

- ES40634-8 Tee
- ES40634-6 Tee
- 429EC-5030-H5 Hose
- 429EC-5030-H6 Hose
- 429EC-5020-T7 Tube
- 429EC-5020-T5 Tube

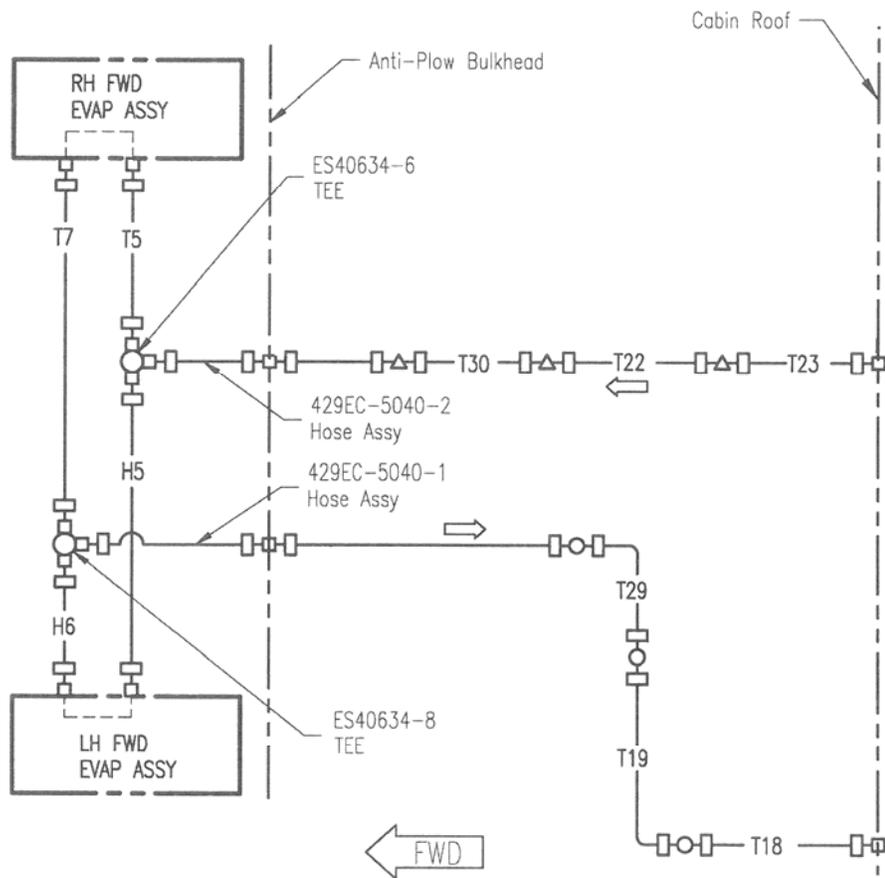


Figure 4: Dual Fwd Evaporator Plumbing Schematic

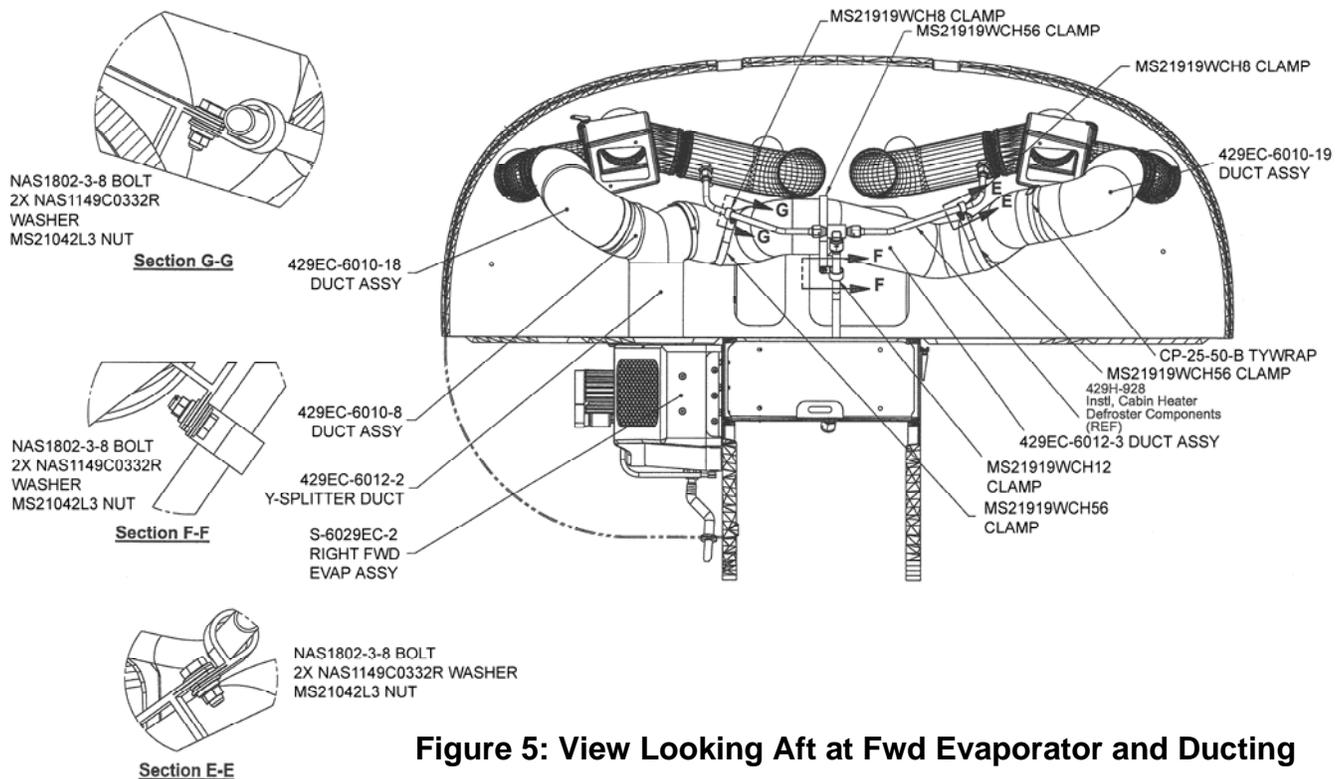


Figure 5: View Looking Aft at Fwd Evaporator and Ducting

C. Forward Evaporator Conversion - Installation

1. Install 429EC-6012-2 Y-Splitter Duct to the S-6029EC-2 Evaporator and the existing 429EC-6010-8 RH Flexible Duct, see Figure 5.
2. Install 429EC-6012-3 Flexible Crossover Duct to the 429EC-6012-2 Y-Splitter Duct and the existing 429EC-6010-19 Elbow Assy, see Figure 5.
3. Secure 429EC-6012-3 Flexible Crossover Ducts with associated clamps and hardware as shown in Figure 5.
4. Install 429EC-5040-5 and 429EC-5040-6 Hose assemblies between the S-6029EC-2 Right Forward Evaporator and the bulkhead fittings, see Figure 6.
5. If Air Comm Defroster 429H-928 is installed, it is acceptable to cut S-5002EC-24 Firesleeve to fit and wrap over the ES41158-6-6-8 Tee and 429H-5032-159 Heater Tube (running vertically below the tee) to protect the 429EC-6012-3 Crossover Duct Assembly. Secure Firesleeve in place using Tywraps. See Figure 7.

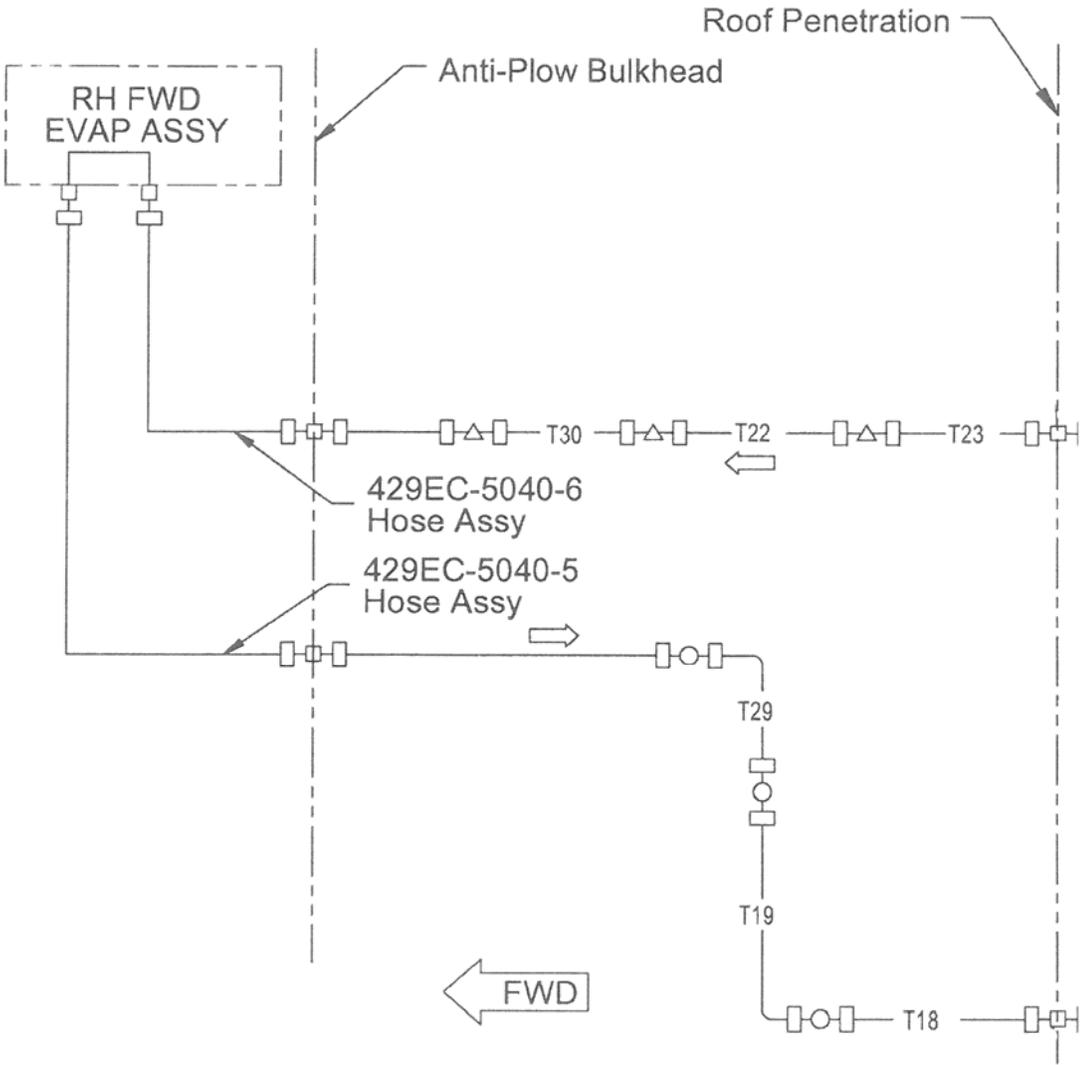


Figure 6: Single Forward Evaporator Plumbing Schematic

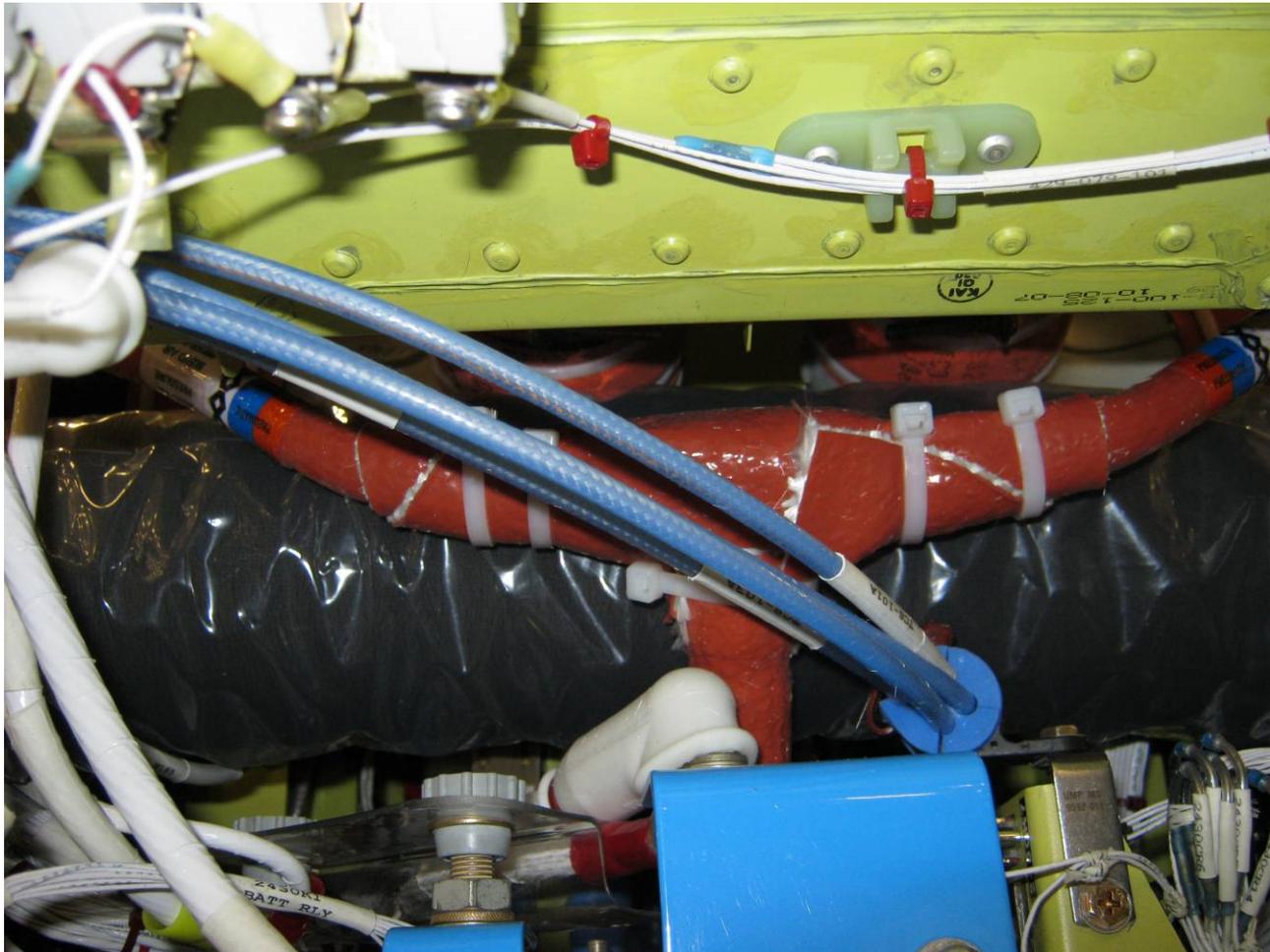


Figure 7: Firesleeve over defroster Tee fitting and heater tube.

D. Aft Evaporator Conversion – Removal

1. Remove forward transmission deck cowling and store in a secure location.
2. Remove left aft evaporator assembly and discard. Remove water drain line from left evaporator, see Figure 8.
3. Remove and discard left aft evaporator mounting brackets. Re-install screws into condenser housing, see Figure 8.
4. Install EZ-490-12 Caplug on drain fitting on transmission deck. Secure with CT7B cable tie, see Figure 9.

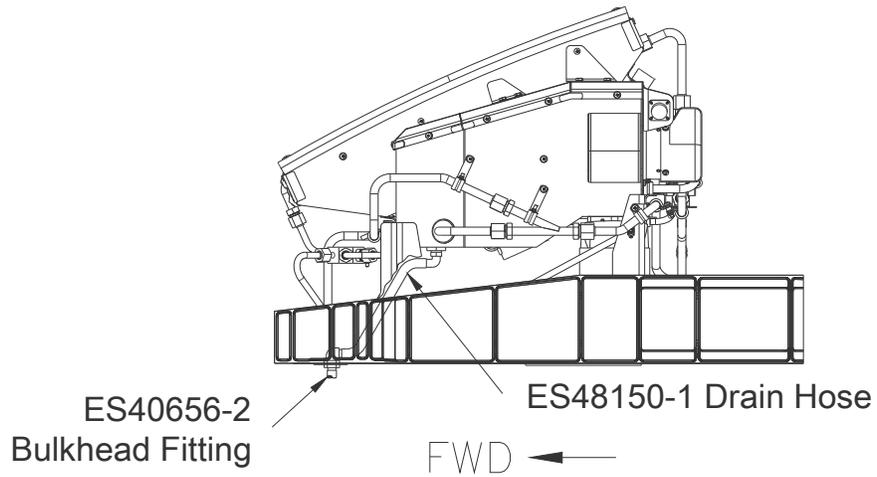


Figure 8: View of Left Aft Evaporator Assy Looking Inboard from LH Side

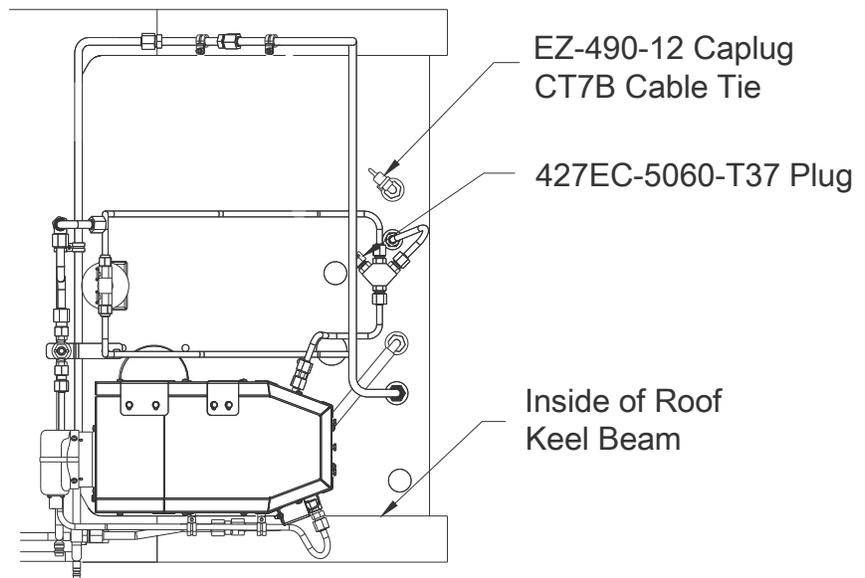


Figure 9: Top View of FWD Flight Control Deck (Condenser Not Shown)

Aft Evaporator Conversion – Removal (continued)

5. Remove and discard the following components, see Figures 8, 9 & 10.

- S-5080EC-10 Left Evaporator Y-Fitting
- 429EC-5020-T9 Tube Assembly
- 429EC-5020-T12 Tube Assembly
- ES40632-6D Left Evaporator Union
- 429EC-6820-2 Left Upper Outlet Duct Assembly
- 429EC-6820-1 Left Lower Outlet Duct Assembly
- 429EC-6811-1 Left Side One Way Duct
- 429EC-6810-2 Return Duct, Left Lower Adapter
- 429EC-6810-1 Return Duct, Left Upper Adapter
- NAS520-34-10 Left Coupling

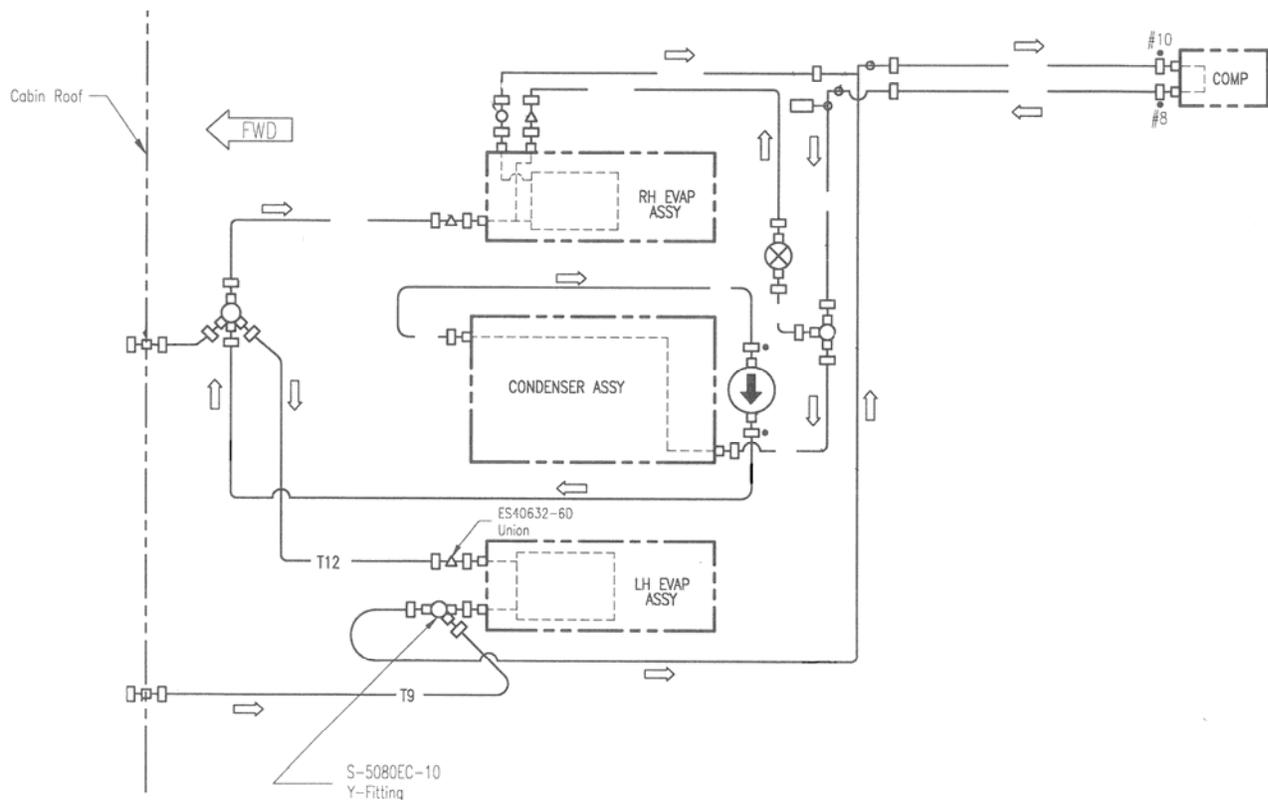


Figure 10: Dual Aft Evaporator Plumbing Schematic

Aft Evaporator Conversion – Removal (continued)

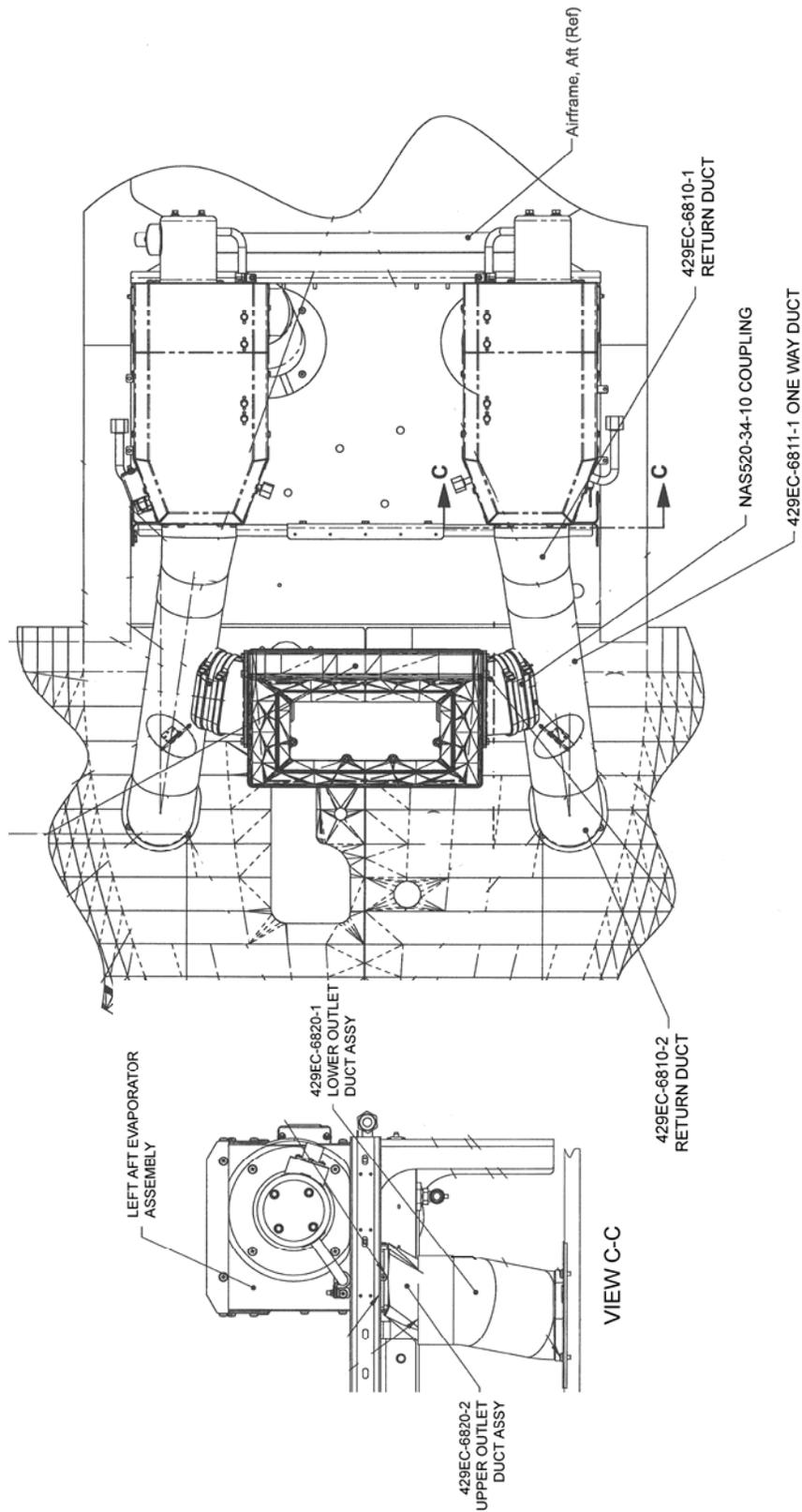


Figure 11: Dual Aft Evaporator Air Distribution

E. Aft Evaporator Conversion – Installation

1. Install 429EC-6219-1 Left Air Box Cover using existing hardware, see Figure 12.

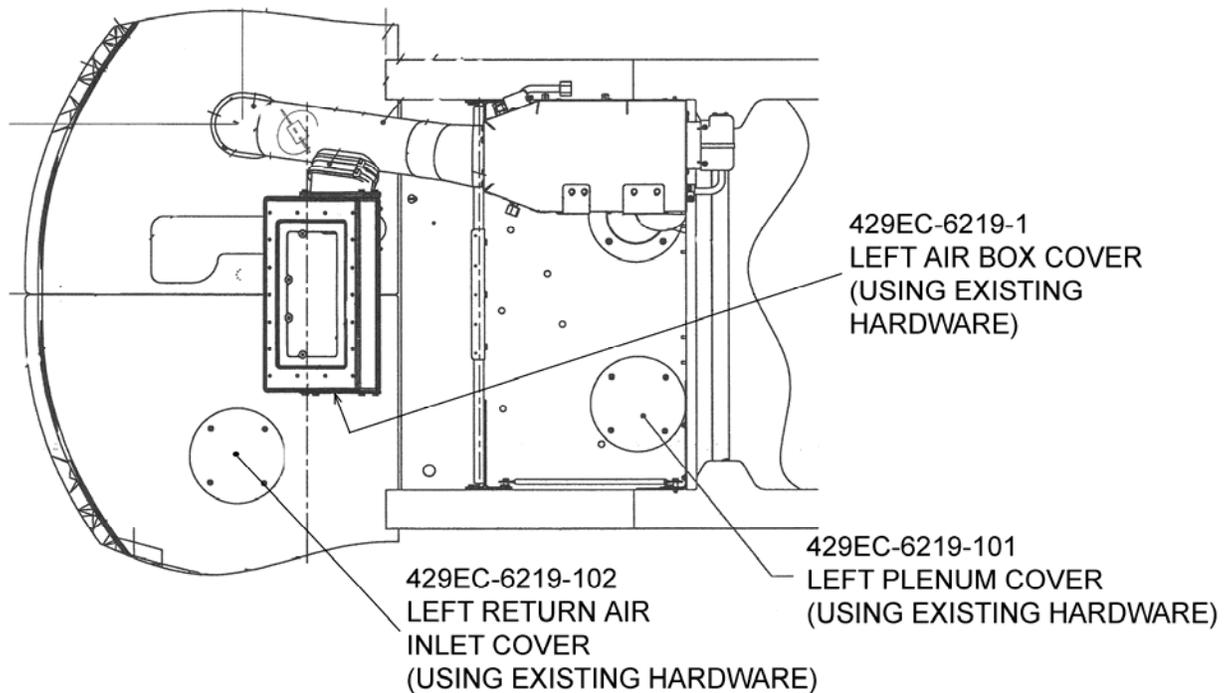


Figure 12: Single Aft Evaporator Air Distribution

2. Install 429EC-6219-101 Left Plenum Cover using existing hardware, see Figure 12.
3. Install 429EC-6219-102 Left Return Air Inlet Cover using existing hardware, see Figure 12.
4. Install S-8004EC-3 placard over existing part number on evaporator assembly. Secure with RTV if desired.
5. Install 429EC-5020-T34 Tube Assembly to existing ES40630-8L Bulkhead Fitting, see Figure 13.
6. Install ES40630-8L Bulkhead Fitting between 429EC-5020-T34 and existing 429EC-5020-T31 Tube Assembly.
7. Install 427EC-5060-T37 Plug on existing EC135-5010-10 Y-Fitting.

Aft Evaporator Conversion – Installation (continued)

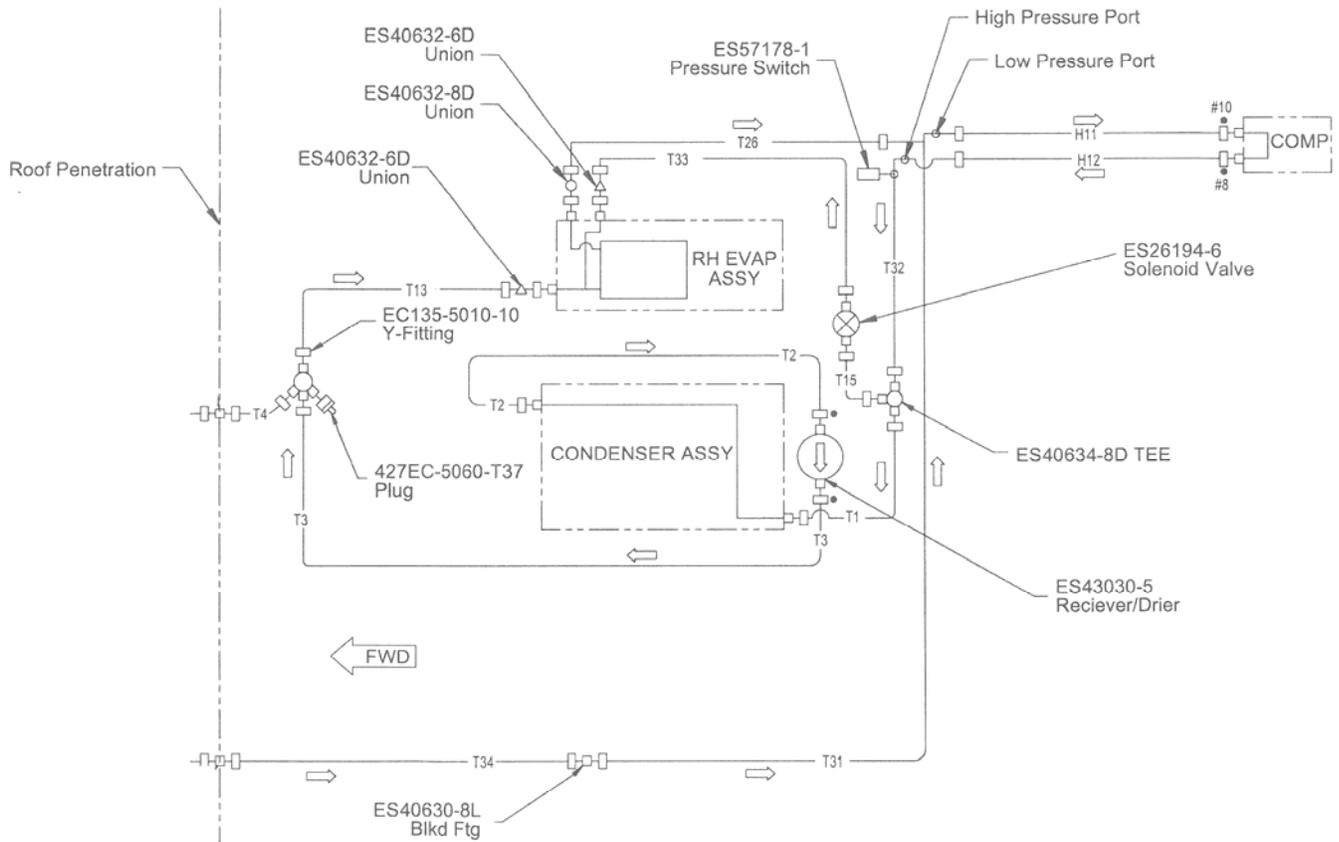


Figure 13: Single Aft Evaporator Plumbing Schematic

F. Electrical Modification

1. Disconnect and remove MS26574-15 LH AFT circuit breaker and discard.
See Figure 15.
2. Fill the hole at the LH AFT breaker position with the 89084 plug (Alt: 100-050B437).
3. Cap and stow wire ACCB38A12. See Figure 14.
4. Remove RH Aft 15 amp Circuit Breaker and replace with MS26574-20 Breaker.
5. Cap and stow wire ACCB28A12 at ACP2, Pin E. See Figure 14.
6. Attach S-8004EC-1 sticker label to circuit breaker panel as shown in Figure 15.
7. Install Left Aft Evap Stowage Bracket 429EC-6214-3. See Figure 16. Plug ACP8 into Stowage Bracket and install MS21919WDG4 Clamp with MS27039-1-07 Screw and 2X NAS1149D0316J Washers.
8. Cap and stow left forward evaporator electrical connector.
9. Verify proper rotation of all blowers. Top edge of blower wheel should rotate toward blower outlet.

Electrical Modification (continued)

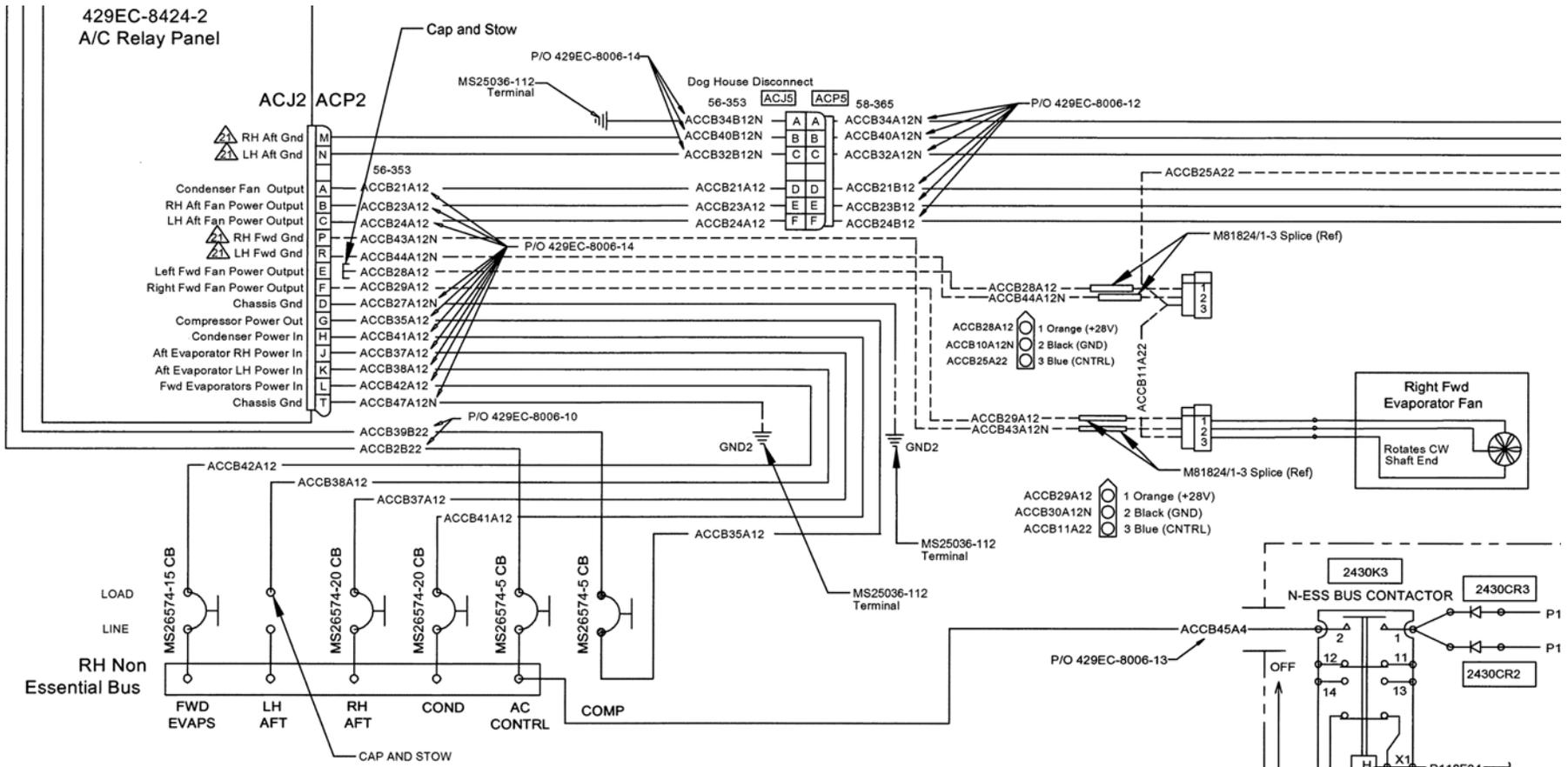


Figure 14: Converted Single Evaporator Electrical Wiring Schematic (From Drawing 429EC-812-1)

Electrical Modification (continued)

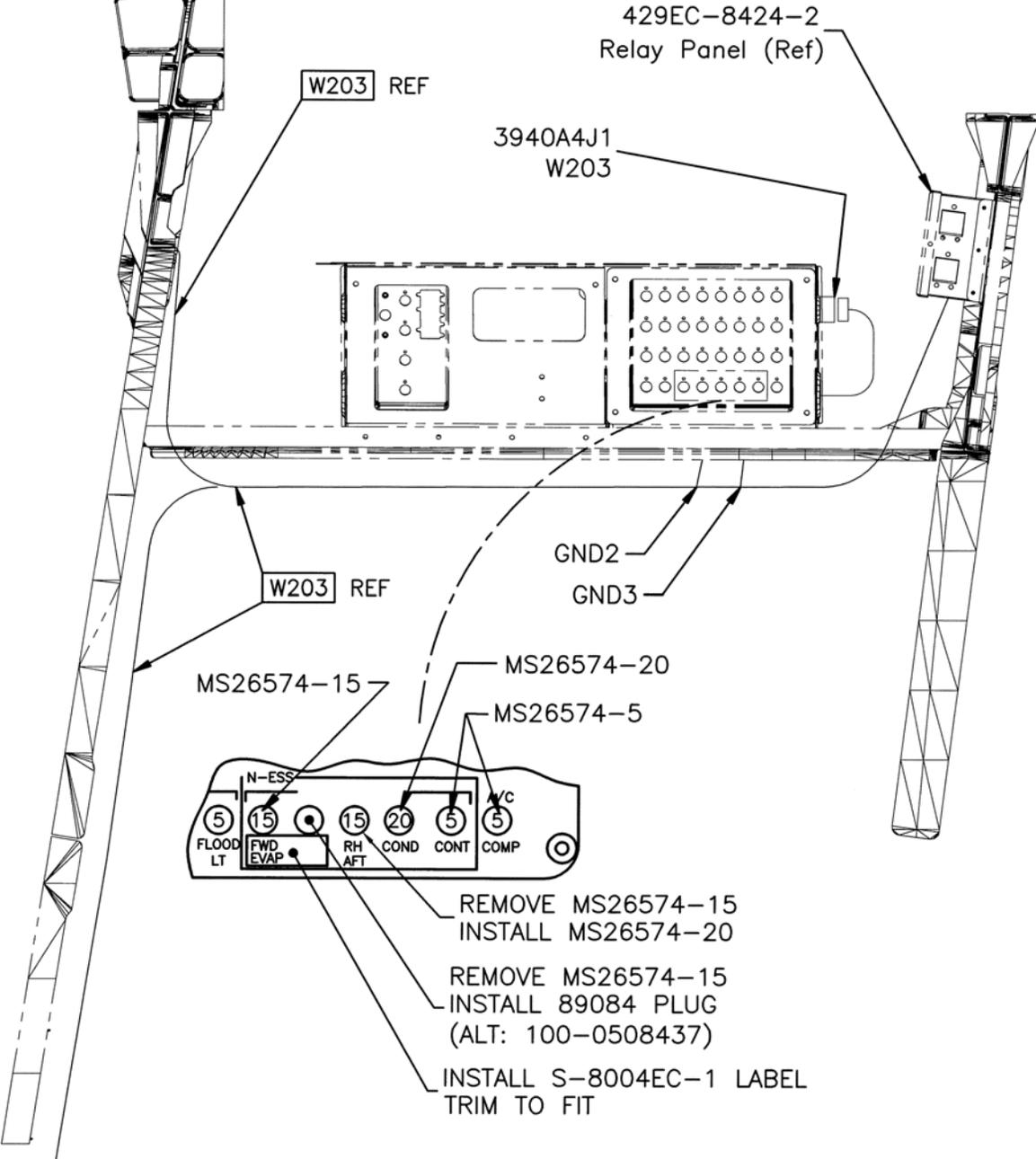


Figure 15: Circuit Breaker Change Details

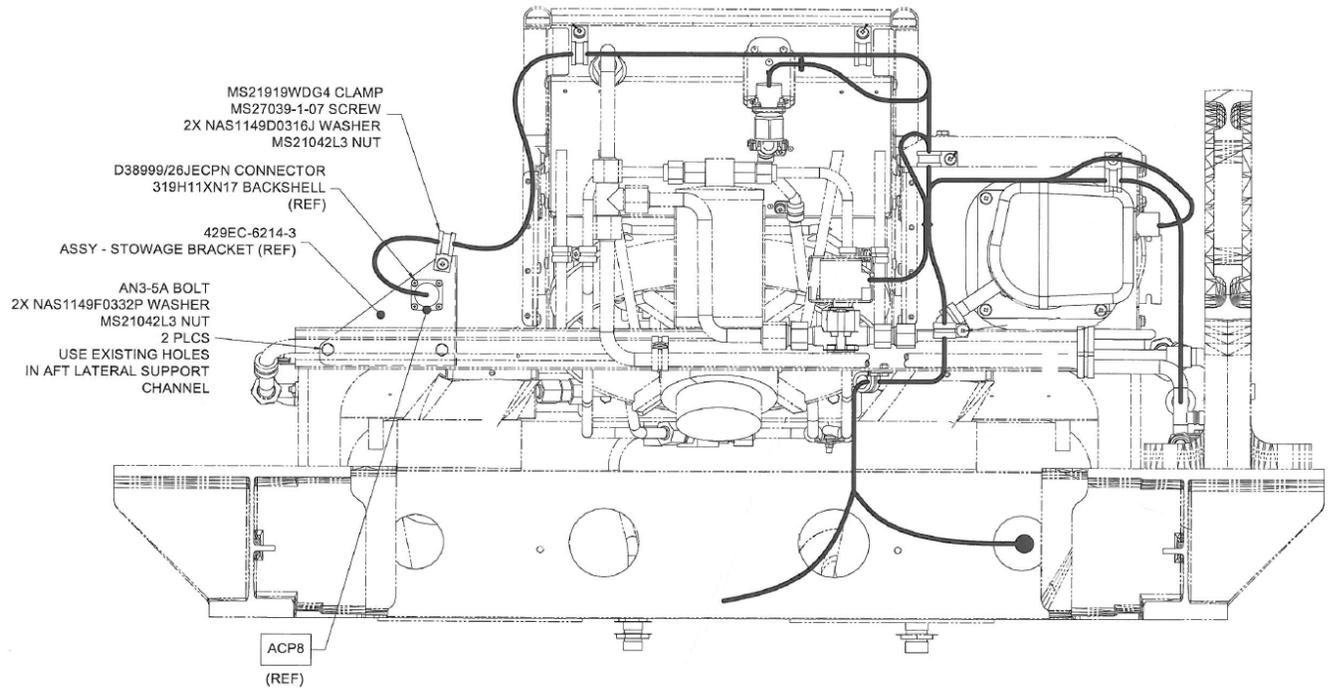


Figure 16: LH Aft Evap Connector ACP8 Stowage Bracket Details

V. Weight & Balance:

NOTE

Reduce the existing licensed empty weight by the amount shown in the “net weight reduction” line.

The weight and balance after application of this service bulletin is as follows:

Item	Dwg. No.	Weight (lb)	X-Arm (in)	*Y-Arm (in)	X-M (in-lb)	Y-M (in-lb)
Total -Dual Configuration (English Units)	429EC-200-1	113.30	176.5	-2.4	19998	-271
Total -Dual Configuration (Metric Units)	429EC-200-1	51.39	4483.4	-60.7	230402	-3121
Total -Single Configuration (English Units)	429EC-202-1	84.54	185.4	0.1	15677	12
Total -Single Configuration (Metric Units)	429EC-202-1	38.35	4710.2	3.5	180617	133
Net Weight Reduction (English Units)	-	28.76	-	-	432.1	-259
Net Weight Reduction (Metric Units)	-	13.04	-	-	49782 mm-Kg	-2984 mm-Kg

*Negative value indicates left of center