

**ALERT SERVICE BULLETIN**

**Bell Helicopter** **TEXTRON**

A Subsidiary of Textron Inc

NO. 430-00-16  
DATE 06-21-00  
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DATE

REV

**MODEL AFFECTED:** 430

**SUBJECT:** INSTRUMENT PANEL COOLING, IMPROVEMENT

**HELICOPTERS AFFECTED:** PART I: Model 430 S/N 49002 through 49060 and 49062.

[Helicopters S/N 49061 and 49063 and subsequent will have the intent of this bulletin accomplished prior to delivery]

PART II: Model 430 S/N 49019, 49021, 49027, 49031, 49037, 49056, 49058 and 49062.

[Helicopters S/N 49061 and 49063 and subsequent will have the intent of this bulletin accomplished prior to delivery]

**COMPLIANCE:** At the next annual inspection, or no later than 30 June, 2001

**DESCRIPTION:**

Detailed analysis of the instrument panel cooling carried out during the single pilot IFR evaluation process has highlighted areas where a system improvement will increase safety and reliability.

The model 430 equipped with electromechanical (E/M) instruments or a 2-tube electronic flight instrument system (EFIS) has three additional instrument fans installed to provide cooling to the equipment installed on the instrument panel.

The model 430 equipped with a 4-tube electronic flight instrument system (EFIS) has two additional instrument fans installed to provide cooling to the equipment installed on the instrument panel.

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Part 1 of this bulletin modifies the wiring, installs 2 additional instrument cooling fans and adds a fan annunciator to all helicopters. An extra circuit breaker is added and the power supplies to the fans are split to ensure that a loss of a single inverter does not cause a complete loss of cooling to one side of the instrument panel.

Part 2 of this bulletin installs an additional instrument cooling fan to the copilot instrument panel to helicopters (S/N 49019 and subsequent) equipped with electro-mechanical instruments or with a 2-tube EFIS system.

**APPROVAL:**

The engineering design aspects of this bulletin are Transport Canada approved.

**MANPOWER:**

Approximately 48 man-hours are required to accomplish Part I of this bulletin, and approximately 8 man-hours are required to accomplish Part II of this bulletin. Man-hours are based on hands-on time and may vary with personnel and facilities available.

**WARRANTY:**

Owners/operators of 430 helicopters who comply with the instructions outlined in this bulletin are eligible to receive a special 100% credit toward the CA-430-00-16-I and CA-430-00-16-II Kits in the Required Material Section of this bulletin.

To receive this part:

- Customers must order the replacement parts from an approved BHTI supply source.
- Submit a warranty claim to BHT Warranty within 30 days of complying with this bulletin.

- NOTE -

Customers who fail to comply with the instruction in this bulletin after 30 June 2001 are not eligible for the special provisions listed above.

**MATERIAL:**

**Required Material:**

The following material is required for the accomplishment of this bulletin and may be obtained through your Bell Helicopter Textron Supply Center.

PART I

Order kit number CA-430-00-16-I, which consists of:

<u>Part Number</u>	<u>Nomenclature</u>	<u>Quantity</u>
035777	Fan	2
100-050B437	Plug	1
100-138-1N	Plate	1
110-164-3	Rivet	5
11614-001	Connector	1
20919-013	Indicator	1
272261	Guard	2
30-014-5	Circuit Breaker	2
30-037-23	Diode	4
30-266-1	End cap	25
31-026-2160	Decal	1
31-026-2161	Decal	1
31-026-2162	Decal	1
31-065-1A1CB1	Decal	1
31-065-1A1CB2	Decal	1
31-065-1A1S1	Decal	1
31-065-NA302	Decal	1
31-065-NA303	Decal	1
430-075-038-105	Bracket Assembly	1
430-075-038-107	Bracket Assembly	1
430-075-038-127	Angle	2
430-799-042-115A	Cable Assy	1
430-799-042-117	Doubler	1
450HS012XW11	Backshell	2
A-A-59178-2	Nipple	2
D38999/26JB35SN	Connector	2
M39029/22-191	Contact	25
M39029/56-348	Contact	30
M39029/56-351	Contact	5
M39029/57-354	Contact	10
M39029/58-360	Contact	5
M39029/58-363	Contact	5
M7885/2-4-01	Rivet	20

<u>Part Number</u>	<u>Nomenclature</u>	<u>Quantity</u>
M7885/3-4-02	Rivet	5
M7885/6-4-03	Rivet	10
M81824/1-2	Splice	10
M83421/01-5222M	Capacitor	2
M83519/1-2	Solder Sleeve	10
MS20426AD3-4	Rivet	20
MS21042L08	Nut	10
MS21042L3	Nut	5
MS21919WDG9	Clamp	2
MS25036-103	Terminal	10
MS25036-149	Terminal	10
MS27039-0809	Screw	8
MS27039-1-07	Screw	10
MS27039-1-12	Screw	2
MS35207-265	Screw	2
MS35338-43	Washer	5
MS35650-302	Nut	2
NAS1149D0316H	Washer	10
NAS1149D0316J	Washer	10
NAS1149D0332J	Washer	5
NAS1149DN816J	Washer	20
NAS1793A3-1	Nutplate	4
NAS43DD3-16N	Spacer	2

**PART II**

Order kit number CA-430-00-16-II, which consists of:

<u>Part Number</u>	<u>Nomenclature</u>	<u>Quantity</u>
035777	Fan	1
272261	Guard	1
430-075-038-101	Bracket Assembly	1
430-075-038-119	Support	1
M83421-01-5222M	Capacitor	1
MS21042L08	Nut	4
MS21042L3	Nut	1
MS21919WDG9	Clamp	1
MS27039-0809	Screw	4
MS27039-1-07	Screw	3
NAS1149D0316J	Washer	4
NAS1149D0332J	Washer	1
NAS1149DN816J	Washer	8
NAS1738MW4-6	Rivet	2
NAS6603-6	Bolt	2

**Consumable Material:**

The following material is required to accomplish this bulletin, but may not require ordering depending on the operator's consumable material stock levels. This material may be obtained through your Bell Helicopter Textron Supply Center.

<u>Part Number</u>	<u>Nomenclature</u>	<u>Reference</u>
TT-N-95, TYII 1 GAL	Naptha	C-305
MILS8784CLB2,3.5OZ	Sealant	C-328
3950 SCOTCHCAL	Sealer	C-349
MIL-C-81706 1 GAL	Chemical Conversion Coating	EC-014
MIL-P-85552, TY1,CL2	Polyamide Epoxy Primer	EC-036
MILT43435TYVFINCSZ3	Lacing Tape	EC-052

**SPECIAL TOOLS:**

Pitot Static Test Set, Barfield 1811GA645 or equivalent  
AD-1377 Crimping tool  
M22520/5-01 Crimping tool (or equivalent)  
M22520/5-100 Die (or equivalent)  
M22520/7-01 Crimping tool  
M22520/7-05 Positioner  
M22520/7-06 Positioner  
M22520/7-07 Positioner  
M22520/7-08 Positioner  
M22520/7-11 Positioner  
M81969/14-01 Insertion/extraction tool  
M81969/14-10 Insertion/extraction tool  
M81969/16-04 Insertion/extraction tool

**WEIGHT AND BALANCE:**

With 2 additional fans  
+4.4 lb at Sta. 125.0, BL 0.0

With 3 additional fans  
+6.6 lb at Sta. 125.0, BL -3.7

**ELECTRICAL LOAD DATA:**

Aircraft 49001-49036 pre ASB 430-99-10

DC Emergency Bus 1

Remove Inverter, P/N PC-251-123A 3.60 amperes

DC Emergency Bus 2

Remove Inverter, P/N PC-251-123A 3.62 amperes

Add Inverter, P/N PC-251-123A 6.75 amperes

DC Essential Bus 1

Add Inverter, P/N PC-251-123A 6.79 amperes

Aircraft 49001-49036 post ASB 430-99-10 and 49037 - 49062

Remove Inverter, P/N PC-251-123A 3.60 amperes

DC Emergency Bus 2

Remove Inverter, P/N PC-251-123A 3.62 amperes

Add Inverter, P/N PC-251-123A 6.75 amperes

DC Essential Bus 1

Remove Inverter, P/N PC-251-123A 3.60 amperes

Add Inverter, P/N PC-251-123A 6.79 amperes

**REFERENCES:**

BHT-430-MM-10  
BHT-430-MM-11  
BHT-ALL-SPM  
BHT-ELEC-SPM

**PUBLICATIONS AFFECTED:**

BHT-430-MM-10  
BHT-430-MM-12  
BHT-430-FM-1

**ACCOMPLISHMENT INSTRUCTIONS:**

**Part I (All Helicopters)**

(Refer to Figure 1)

1. Prepare the helicopter for maintenance.
2. Insure all power is removed from the aircraft.

-NOTE-

Temporarily locate the new fan brackets in position to ensure that proper clearance for the instrument panel is maintained.

3. Remove the pilot and copilot instrument panel from the helicopter. (BHT-430-MM-10, chapter 95).
4. Remove the IIDS from the center instrument panel (BHT-430-MM-10 chapter 95)
5. Remove the access panel on the left side of the center pedestal for access.
6. On the aft side of Sta 110, RBL 19 (approx), locate the row of rivets at WL 45.50. Locate and drill out the two existing rivets (Section C and View N).
7. Locate the new angle assembly, P/N 430-075-038-127 in position and attach in position using clecos.
8. Locate the new bracket assembly, P/N 430-075-038-105, on to the forward face of the instrument panel support assembly (430-075-101) (Section C).
9. Backdrill two 0.208/0.203 holes through the nutplates on the bracket, P/N 430-075-038-105. Deburr the holes.
10. Loosely secure the -105 bracket to the instrument panel support assembly using qty 2 screw P/N MS27039-1-07, and qty 2 washer P/N NAS1149D0316J.
11. Place the -105 bracket in position on the -127 angle assembly and locate and drill two 0.198/0.193 holes through the -105 bracket and the -127 angle assembly. Deburr the holes.
12. Remove the -127 angle assembly and attach qty 2 nutplates, P/N NAS1793A3-1, using qty 4 rivet, P/N MS20426AD3-4
13. Attach the new angle assembly, P/N 430-075-038-127, in position using qty 2 rivet, P/N M7885/6-4-03.
14. Secure the -105 bracket to the -127 angle assembly, using qty 2 screw, P/N MS27039-1-07, and qty 2 washer, P/N NAS1149D0316J. Tighten the screws holding the -105 bracket to the instrument panel support assembly.
15. On the aft side of Sta 110, LBL 19.40 (approx), locate the row of rivets at WL 45.50. Locate and drill out the two existing rivets (Section C and View M).
16. Locate the new angle assembly, P/N 430-075-038-127 in position and attach in position using clecos.

17. Locate the new bracket assembly, P/N 430-075-038-107, on to the forward face of the instrument panel support assembly (430-075-101) (Section C).
18. Backdrill two 0.208/0.203 holes through the nutplates on the bracket, P/N 430-075-038-107. Deburr the holes.
19. Loosely secure the -107 bracket to the instrument panel support assembly using qty 2 screw P/N MS27039-1-07, and qty 2 washer P/N NAS1149D0316J.
20. Place the -107 bracket in position on the -127 angle assembly and locate and drill two 0.198/0.193 holes through the -107 bracket and the -127 angle assembly. Deburr the holes.
21. Remove the -127 angle assembly and attach qty 2 nutplates, P/N NAS1793A3-1, using qty 4 rivet, P/N MS20426AD3-4.
22. Attach the new angle assembly, P/N 430-075-038-127, in position using qty 2 rivet, P/N M7885/6-4-03.
23. Secure the -107 bracket to the -127 angle assembly, using qty 2 screw, P/N MS27039-1-07, and qty 2 washer, P/N NAS1149D0316J. Tighten the screws holding the -107 bracket to the instrument panel support assembly.
24. Attach a fan assembly, P/N 035777, and a fan guard, P/N 272261, to both of the bracket assemblies, using qty 4 screw, P/N MS27039-0809, qty 8 washer, P/N NAS1149DN816J, and qty 4 nut, P/N MS21042L08.
25. Locate and drill a 0.198/0.193 hole (2 places) for the installation of the capacitors 1C3 and 1C4 (Section C and View P).
26. Mount capacitor (1C3 and 1C4), P/N M83421/01-5222M, using clamp, P/N MS21919WDG9, spacer, P/N NAS43DD3-16N, screw, P/N MS27039-1-12, washer, P/N NAS1149D0332J, and nut, P/N MS21042L3. (Section C and View P).
27. Carefully remove the registration plate, P/N 100-138-1N, and reinstall in new location. Attach the plate using qty 4 rivet, P/N 110-164-3. Wet install the rivets using sealant (C-328). (View J).
28. On the right side of the center pedestal, remove the 4 lower rivets of the existing doubler. (View H).
29. Install the new doubler, P/N 430-799-042-117, on the right side of the center pedestal, using qty 14 rivets, P/N M7885/2-4-01 and qty 4 rivets, P/N M7885/3-4-02.(View H).



30. Locate the position of the new circuit breakers and new annunciator position on the lower right side of the center pedestal and add holes.
31. Thoroughly wipe the inner surface of the center pedestal above the circuit breakers and annunciator mounting holes with a clean cloth dampened with naphtha (C-305).
32. Peel back a portion of the protective liner from the adhesive backing of the new decals, P/N 31-065-1A1CB1, 31-065-1A1S1 and 31-065-1A1CB2. Align the decals on the inner surface of the center pedestal, making sure that the identification can be seen after the circuit breakers and the annunciator are installed. Press the peeled section of the decal to the surface of the pedestal with a firm finger pressure. Continue to peel off the protective liner and apply finger pressure until the decal is securely applied.
33. Seal all of the edges of the decals using edge sealer (C-349).
34. Install qty 2 circuit breaker, P/N 30-014-5, qty 1 annunciator, P/N 20919-013, and qty 1 connector, P/N 11614-001.
35. Thoroughly wipe the outer surface of the center pedestal above the circuit breakers and annunciator with a clean cloth dampened with naphtha (C-305).
36. Peel back a portion of the protective liner from the adhesive backing of the new decals, P/N 31-026-2160 (1 AND 4), 31-026-2162 (FAN FAIL) and 31-026-2161 (2 AND 3). Align the decals on the outer surface of the center pedestal, making sure that the identification can be seen. Press the peeled section of the decal to the surface of the pedestal with a firm finger pressure. Continue to peel off the protective liner and apply finger pressure until the decal is securely applied.
37. Seal all of the edges of the decals using edge sealer (C-349).
38. Adjacent to ground block WTD480, located in the center pedestal, drill two 0.196/0.193 holes. Prepare a bonding surface around the holes for a class R-II electrical bond. (BHT-ELEC-SPM, Chapter 8). (View A).
39. Thoroughly wipe the surface around the grounding points with a clean cloth dampened with naphtha (C-305).
40. Peel back a portion of the protective liner from the adhesive backing of the new decals, P/N 31-065-NA302 and 31-065-NA303. Align the decals making sure that the identification can be seen after the ground connections are installed. Press the peeled section of the decal to the surface with a firm finger pressure. Continue to peel off the protective liner and apply finger pressure until the decal is securely applied.

41. Seal all of the edges of the decals using edge sealer (C-349).
42. Assemble a ground stud at both locations using qty 1 screw, P/N MS35207-265, qty 4 washer, P/N NAS1149D0316H, qty 2 washer, P/N MS35338-43, qty 1 nut, P/N MS35650-302 and qty 1 nut, P/N MS21042L3.
43. For helicopters S/N 49019 and subsequent with copilot electromechanical instruments installed, refer to part II of this bulletin for the installation of an additional copilot instrument fan.

**Wiring Modification (Refer to Wiring Diagram Figure 2)**

1. On the LH upper nose shelf, disconnect the electrical connectors from the No.1 junction box assembly.
2. Remove the No.1 junction box assembly from the helicopter.
3. Remove the No.1 junction box cover and locate terminal block JB1TB3.

**-NOTE-**

On helicopters S/N 49001 - 49031 it may be necessary to remove and discard wire W129B22 connected between JB1TB3 module N, position L and JB1J4 position 44.

4. Disconnect wire X30G22, from JB1TB3 module K position L, using extraction tool, P/N M81969/16-04.
5. Insert wire X30G22 into terminal block JB1TB3 module K position R, using insertion tool, P/N M81969/16-04.
6. Crimp qty 2 contact, P/N M39029/22-191, to new wire X30H22 using crimping tool P/N M22520/7-01 and positioner, P/N M22520/7-11. Insert the wire into terminal block JB1TB3 module K position L and module K position N, using insertion tool, P/N M81969/16-04.
7. Crimp contact, P/N M39029/22-191, to new wire H220A22 using crimping tool P/N M22520/7-01 and positioner, P/N M22520/7-11. Insert the wire into terminal block JB1TB3 module K position P, using insertion tool, P/N M81969/16-04.
8. Route new wire to connector JB1J4, cut the wire to length. Crimp contact, P/N M39029/58-360, on to wire, using crimping tool P/N M22520/7-01 and positioner, P/N M22520/7-07. Insert the wire into connector JB1J4 position 44, using insertion tool, P/N M81969/14-01.

9. Reinstall the cover on to the No.1 junction box and reinstall the junction box on the helicopter.
10. On the RH upper nose shelf, disconnect the electrical connectors from the No.2 junction box assembly.
11. Remove the No.2 junction box assembly from the helicopter.
12. Remove the No.2 junction box cover and locate terminal blocks JB2TB1 and JB2TB2.
13. Disconnect wire X26C22, from JB2TB2 module M position E, using extraction tool, P/N M81969/16-04.
14. Insert wire X26C22 into terminal block JB2TB2 module M position R, using insertion tool, P/N M81969/16-04.
15. Crimp qty 2 contact, P/N M39029/22-191, to new wire X26E22 using crimping tool P/N M22520/7-01 and positioner, P/N M22520/7-11. Insert the wire into terminal block JB2TB2 module M position E and module M position N, using insertion tool, P/N M81969/16-04.
16. Crimp contact, P/N M39029/22-191, to new wires H221A22 and H227B22 using crimping tool P/N M22520/7-01 and positioner, P/N M22520/7-11. Insert wire H221A22 into terminal block JB2TB2 module M position P, and wire H227B22 into terminal block JB2TB1 module L position E, using insertion tool, P/N M81969/16-04.
17. Route new wires to connector JB2J1, and cut the wires to length. Crimp contact, P/N M39029/58-363, on to wires H221A22 and H227B22, using crimping tool P/N M22520/7-01 and turret head, P/N M22520/7-08. Insert the wire H221A22 into position small t and wire H227B22 into position small u, using insertion tool, P/N M81969/14-10.
18. Reinstall the cover on to the No.2 junction box and reinstall the junction box on the helicopter.
19. Remove the four(4) screws holding the ESS BUS 1 and AC BUS 1 lighted panel, P/N 430-375-075-111. Carefully remove the lighted panel from the overhead control console and retain.
20. Lower the overhead console and disconnect the wire H200A22 from the circuit breaker CB-A2 (INSTR FAN). Cut off the terminal and cap and stow the wire, using an end cap, P/N 30-266-1.
21. Remove and discard the circuit breaker from position CB-A2 and install a plug, P/N 100-050B437

22. Raise the overhead console and secure in position.
23. Reinstall the ESS BUS 1 and AC BUS 1 lighted panel, P/N 430-375-075-111, removed in step 19.
24. Locate the IIDS connector 1A1P1. Disconnect wire H206A22 from position 39, using an extraction tool, P/N M81969/14-01. Cut off the terminal and cap and stow the wire, using an end cap, P/N 30-266-1.

### **Circuit Breaker and Annunciator Installation**

25. Using crimping tool, P/N M22520/7-01 and positioner, M22520/7-06, crimp a contact, P/N M39029/57-354, on to the new wires, H223B22, H225B22, H227A22, H244A22, and H246A22.
26. Using an insertion tool, P/N M81969/14-01, insert the following wires into the annunciator connector, 1A1S1:  
H244A22 into position 2  
H246A22 into position 3  
H227A22 into position 6  
H225B22 into position 11  
H223B22 into position 12
27. Using a splice, P/N M81824/1-2, connect wire H223B22 to new wire H223A22 and the cathode (grey line) of new diode assembly (1A1CR1), P/N 30-037-23.
28. Using a splice, P/N M81824/1-2, connect wire H225B22 to new wire H225A22 and the cathode (grey line) of new diode assembly (1A1CR2), P/N 30-037-23.
29. Using a splice, P/N M81824/1-2, connect wire H244A22 to new wire H244B22 and the cathode (grey line) of new diode assembly (1A1CR4), P/N 30-037-23.
30. Using a splice, P/N M81824/1-2, connect wire H246A22 to new wire H246B22 and the cathode (grey line) of new diode assembly (1A1CR3), P/N 30-037-23.
31. Using a splice, P/N M81824/1-2, connect new wire H247A22 to the anode of diode assemblies (1A1CR1 and 1A1CR3).
32. Using a splice, P/N M81824/1-2, connect wire H247A22 to new wire H226A22 and the anode of diode assemblies (1A1CR2 and 1A1CR4).

-NOTE-

Protect the connections on the circuit breaker using a nipple,  
P/N A-A-59178-2.

33. Crimp a terminal, P/N MS25036-149, on to new wire H220B22, using crimping tool, P/N M22520/5-01 and die assembly M22520/5-100. Connect the wire, to the bus side of circuit breaker 1A1CB1.

-NOTE-

When preparing the shielded wire ensure that the blue conductor will reach the ground NA303.

34. Prepare the end of the shielded wire H220C22 as shown in BHT-ELEC-SPM, Chapter 4-00-00, using a solder sleeve shield termination, P/N M83519/1-2. Connect the new shield wire H245A22N to the shield of the shielded wire.
35. Crimp a terminal, P/N MS25036-149, on to the white conductor of the new wire H220C22, using crimping tool, P/N M22520/5-01 and die assembly M22520/5-100. Connect the wire, to the load side of circuit breaker 1A1CB1.
36. Route the blue conductor of wire H220C22 and the shield wire, H245A22N to ground stud NA303. Cut the wires to length and crimp a terminal, P/N MS25036-103, on to each of the wires, using crimping tool, P/N M22520/5-01 and die assembly M22520/5-100. Connect the wires to the ground stud, NA303.
37. Prepare the end of the new shielded wire H237A22 as shown in BHT-ELEC-SPM, Chapter 4-00-00, using a solder sleeve shield termination, P/N M83519/1-2. Connect the new shield wire H229A22N to the shield of the shielded wire.
38. Crimp a terminal, P/N MS25036-149, on to the white conductor of the new wire H237A22, using crimping tool, P/N M22520/5-01 and die assembly M22520/5-100. Connect the wire, to the load side of circuit breaker 1A1CB1.
39. Route the blue conductor of wire H237A22 and the shield wire, H229A22N to ground stud NA303. Cut the wires to length and crimp a terminal, P/N MS25036-103, on to each of the wires, using crimping tool, P/N M22520/5-01 and die assembly M22520/5-100. Connect the wires to the ground stud, NA303.
40. Crimp a terminal, P/N MS25036-149, on to new wire H221B22, using crimping tool, P/N M22520/5-01 and die assembly M22520/5-100. Connect the wire, to the bus side of circuit breaker 1A1CB2.

- NOTE -

When preparing the shielded wire ensure that the blue conductor will reach the ground NA302.

41. Prepare the end of the shielded wire H221C22 as shown in BHT-ELEC-SPM, Chapter 4-00-00, using a solder sleeve shield termination, P/N M83519/1-2. Connect the new shield wire H243A22N to the shield of the shielded wire.
42. Crimp a terminal, P/N MS25036-149, on to the white conductor of the new wire H221C22, using crimping tool, P/N M22520/5-01 and die assembly M22520/5-100. Connect the wire, to the load side of circuit breaker 1A1CB2.
43. Route the blue conductor of wire H221C22 and the shield wire, H243A22N to ground stud NA302. Cut the wires to length and crimp a terminal, P/N MS25036-103, on to each of the wires, using crimping tool, P/N M22520/5-01 and die assembly M22520/5-100. Connect the wires to the ground stud, NA302.
44. Prepare the end of the shielded wire H230A22 as shown in BHT-ELEC-SPM, Chapter 4-00-00, using a solder sleeve shield termination, P/N M83519/1-2. Connect the new shield wire H228A22N to the shield of the shielded wire.
45. Crimp a terminal, P/N MS25036-149, on to the white conductor of the new wire H230A22, using crimping tool, P/N M22520/5-01 and die assembly M22520/5-100. Connect the wire, to the load side of circuit breaker 1A1CB2.
46. Route the blue conductor of wire H230A22 and the shield wire, H228A22N to ground stud NA302. Cut the wires to length and crimp a terminal, P/N MS25036-103, on to each of the wires, using crimping tool, P/N M22520/5-01 and die assembly M22520/5-100. Connect the wires to the ground stud, NA302.
47. Route wires H221B22 and H227A22, with existing harnesses to the No.2 junction box connector JB2P1. Cut the wires to length and crimp contact, P/N M39029/56-351, to wires using crimping tool P/N M22520/7-01 and positioner, P/N M22520/7-08. Insert wire H221B22 into position small t and wire H227A22 into position small u, using insertion tool, P/N M81969/14-10.
48. Route the wire, H220B22 with existing harnesses to the No.1 junction box connector JB1P4. Cut the wire to length and crimp contact, P/N M39029/56-348, to wire using crimping tool P/N M22520/7-01 and turret head, P/N M22520/7-05. Insert wire into position 44, using insertion tool, P/N M81969/14-01.
49. Route the wire, H226A22, with existing harnesses, to the IIDS connector 1A1P1. Cut the wire to length and crimp contact, P/N M39029/56-348, to wire using crimping tool P/N M22520/7-01 and turret head, P/N M22520/7-05. Insert wire into position 39, using insertion tool, P/N M81969/14-01.
50. Route wires H221C22 and H244B22, with existing harnesses to the pilot inboard fan (1B8) position.

51. Route wires H225A22 and H237A22, with existing harnesses to the pilot outboard fan (1B12) position.
52. Route wires H220C22 and H246B22, with existing harnesses to the copilot inboard fan (1B9) position.
53. Route wires H223B22 and H230B22, with existing harnesses to the copilot outboard fan (1B11) position.
54. Locate terminal block TB33 in the LH footwell. Disconnect the following wires, using an extraction tool, P/N M81969/16-04:
  - H206A22 from module L position M
  - H206B22 from module L position K
  - H206C22 from module L position L
  - The white conductor of H200B22 from module L position N
  - The blue conductor of H200B22 from module L position T
  - The white conductor of H200C22 from module L position P,
  - The blue conductor of H200C22 from module L position W,
  - The white conductor of H200D22 from module L position R,
  - The blue conductor of H200D22 from module L position Y.
55. Cut off the terminals on wire H200B22 and H200D22 and cap and stow the wire, using end cap, P/N 30-266-1.
56. Discard wires H206A22, H206B22 and H200C22.
57. Locate ground module block WTC415. Disconnect wire H201A22N from position K and discard.

### **Copilot Fans Installation**

-NOTE-

On helicopters with copilot E/M instruments connector 1B9P1 may be stowed. It is permissible to cap and stow any removed wires using end cap, P/N 30-266-1.

58. Locate the copilot fan connector, 1B9P1. Disconnect the following wires, using an extraction tool, P/N M81969/14-01:
  - H207B22 from position 1,
  - The blue conductor of H200D22 from position 6
  - The white conductor of H200D22 from position 8
  - H206C22 from position 12.
59. Cut off the shield wire, H203A22N, from wire H200D22 and retain.

60. Discard wires H206C22 and H200D22.
61. Route wire H207B22, following existing harnesses from the copilot fan connector to terminal block, TB33, located in the LH footwell. Extend the length of the wire using wire, P/N M22759/41-22-9 and splice, P/N M81824/1-1, if necessary.
62. Cut wire H207B22 to length and crimp contact, P/N M39029/22-191, to wire using crimping tool P/N M22520/7-01 and positioner, P/N M22520/7-11. Insert wire into terminal block TB33 module L position N, using insertion tool, P/N M81969/16-04.
63. Using crimping tool, P/N M22520/7-01 and positioner, M22520/7-11, crimp a contact, P/N M39029/22-191, on to the new wires, H207C22 and H208D22.
64. Using an insertion tool, P/N M81969/16-04, insert the following wires into the terminal block TB33:  
H207C22 into module L position P  
H208D22 into module L position W
65. Route the wire H207C22 with existing harnesses to the copilot inboard fan (1B9) position.
66. Route the wire H208D22 with existing harnesses to the copilot outboard fan (1B11) position.
67. At the copilot inboard fan connector (1B9P1) locate the previously routed wires and cut to length.
68. Prepare the end of the new shielded wire H220C22 as shown in BHT-ELEC-SPM, Chapter 4-00-00, using a solder sleeve shield termination, P/N M83519/1-2. Connect the shield wire H203A22N to the shield of the new shielded wire.
69. Using crimping tool, P/N M22520/7-01 and positioner, M22520/7-05, crimp a contact, P/N M39029/56-348, on to the new wires, H207C22, H246B22, the white conductor of H220C22 and the blue conductor of H220C22.
70. Using an insertion tool, P/N M81969/14-01, insert the following wires into the connector 1B9P1:  
H246B22 into position 12  
The white conductor of H220C22 into position 8  
The blue conductor of H220C22 into position 6  
H207C22 into position 1
71. Connect the connector, 1B9P1, to the inboard copilot side instrument fan.



72. At the copilot outboard fan connector (1B11P1) locate the previously routed wires and cut to length.
73. Prepare the end of the new shielded wire H230A22 as shown in BHT-ELEC-SPM, Chapter 4-00-00, using a solder sleeve shield termination, P/N M83519/1-2. Connect the new shield wire H248A22N to the shield of the new shielded wire.
74. Using crimping tool, P/N M22520/7-01 and positioner, M22520/7-05, crimp a contact, P/N M39029/56-348, on to the new wires, H208D22, H223A22, the white conductor of H230A22, the blue conductor of H230A22, H231A22N, H233A22N, H234A22 and H235A22.
75. Using an insertion tool, P/N M81969/14-01, insert the following wires into the new connector 1B11P1, P/N D38999/26JB35SN and backshell, P/N 450HS012XW11:  
H223A22 into position 12  
H233A22N into position 11  
H234A22 into position 9  
H235A22 into position 7  
The white conductor of H230A22 into position 8  
The blue conductor of H230A22 into position 6  
H231A22N into position 3  
H208D22 into position 1
76. Connect the connector, 1B11P1, to the outboard copilot side instrument fan.
77. Route the wire, H231A22N with existing harnesses, to ground module WTB351, located in the copilot footwell. Cut the wire to length and crimp contact, P/N M39029/22-191, to wire using crimping tool P/N M22520/7-01 and positioner, P/N M22520/7-11. Insert wire into ground module WTB351 position S, using insertion tool, P/N M81969/16-04.
78. Route the wire, H233A22N with existing harnesses, to ground module WTD487, located in the copilot footwell. Cut the wire to length and crimp contact, P/N M39029/22-191, to wire using crimping tool P/N M22520/7-01 and positioner, P/N M22520/7-11. Insert wire into ground module WTD487 position E, using insertion tool, P/N M81969/16-04.
79. Route the wire, H248A22N with existing harnesses, to ground module WTC415, located in the copilot footwell. Cut the wire to length and crimp contact, P/N M39029/22-191, to wire using crimping tool P/N M22520/7-01 and positioner, P/N M22520/7-11. Insert wire into ground module WTC415 position K, using insertion tool, P/N M81969/16-04.

80. Route the wires H234A22 and H235A22 to the new capacitor, 1C3. Cut the wires to length and connect the wires. Using crimping tool, P/N AD-1377 splice the wires to the capacitor leads using qty 2 splice, P/N M81824/1-2. Secure the lead wires of the capacitor with lacing cord (EC-052).

### **Pilot Fans Installation**

81. Locate the pilot fan connector, 1B8P1. Disconnect the following wires, using an extraction tool, P/N M81969/14-01:
  - H208B22 from position 1
  - The blue conductor of H200C22 from position 6
  - The white conductor of H200C22 from position 8
  - H206B22 from position 12
82. Cut off the shield wire, H202A22N, from wire H200C22 and retain.
83. Route wire H208B22, following existing harnesses from the pilot fan connector to terminal block, TB33, located in the LH footwell. Extend the length of the wire using wire, P/N M22759/41-22-9 and splice, P/N M81824/1-1, if necessary.
84. Cut wire H208B22 to length and crimp contact, P/N M39029/22-191, to wire using crimping tool P/N M22520/7-01 and positioner, P/N M22520/7-11. Insert wire into terminal block TB33 module L position T, using insertion tool, P/N M81969/16-04.
85. Using crimping tool, P/N M22520/7-01 and positioner, M22520/7-11, crimp a contact, P/N M39029/22-191, on to the new wires, H207D22 and H208C22.
86. Using an insertion tool, P/N M81969/16-04, insert the following wires into the terminal block TB33:
  - H207D22 into module L position R
  - H208C22 into module L position Y
87. Route the wire H207D22 with existing harnesses to the pilot outboard fan (1B12) position.
88. Route the wire H208C22 with existing harnesses to the pilot inboard fan (1B8) position.
89. At the pilot inboard fan connector (1B8P1) locate the previously routed wires and cut to length.
90. Prepare the end of the new shielded wire H221C22 as shown in BHT-ELEC-SPM, Chapter 4-00-00, using a solder sleeve shield termination, P/N M83519/1-2. Connect the shield wire H202A22N to the shield of the new shielded wire.

91. Using crimping tool, P/N M22520/7-01 and positioner, M22520/7-05, crimp a contact, P/N M39029/56-348, on to the new wires, H208C22, H244B22, the white conductor of H221C22 and the blue conductor of H221C22.
92. Using an insertion tool, P/N M81969/14-01, insert the following wires into the connector 1B8P1:  
H244B22 into position 12  
The white conductor of H221C22 into position 8  
The blue conductor of H221C22 into position 6  
H208C22 into position 1
93. Connect the connector, 1B8P1, to the inboard pilot side instrument fan.
94. At the pilot outboard fan connector (1B12P1) locate the previously routed wires and cut to length.
95. Prepare the end of the new shielded wire H237A22 as shown in BHT-ELEC-SPM, Chapter 4-00-00, using a solder sleeve shield termination, P/N M83519/1-2. Connect the new shield wire H236A22N to the shield of the new shielded wire.
96. Using crimping tool, P/N M22520/7-01 and positioner, M22520/7-05, crimp a contact, P/N M39029/56-348, on to the new wires, H207D22, H225A22, the white conductor of H237A22, the blue conductor of H237A22, H238A22N, H240A22N, H241A22 and H242A22.
97. Using an insertion tool, P/N M81969/14-01, insert the following wires into the new connector 1B12P1, P/N D38999/26JB35SN and backshell, P/N 450HS012XW11:  
H225A22 into position 12  
H240A22N into position 1  
H241A22 into position 9  
H242A22 into position 7  
The white conductor of H237A22 into position 8  
The blue conductor of H237A22 into position 6  
H238A22N into position 3  
H207D22 into position 1
98. Connect the connector, 1B12P1, to the outboard pilot side instrument fan.
99. Route the wire, H236A22N with existing harnesses, to ground module WTC420, located in the pilot footwell. Cut the wire to length and crimp contact, P/N M39029/22-191, to wire using crimping tool P/N M22520/7-01 and positioner, P/N M22520/7-11. Insert wire into ground module WTC420 position W, using insertion tool, P/N M81969/16-04.

100. Route the wire, H238A22N with existing harnesses, to ground module WTB356, located in the pilot footwell. Cut the wire to length and crimp contact, P/N M39029/22-191, to wire using crimping tool P/N M22520/7-01 and positioner, P/N M22520/7-11. Insert wire into ground module WTB356 position E, using insertion tool, P/N M81969/16-04.
101. Route the wire, H240A22N with existing harnesses, to ground module WTD452, located in the pilot footwell. Cut the wire to length and crimp contact, P/N M39029/22-191, to wire using crimping tool P/N M22520/7-01 and positioner, P/N M22520/7-11. Insert wire into ground module WTD452 position R, using insertion tool, P/N M81969/16-04.
102. Route the wires H241A22 and H242A22 to the new capacitor, 1C4. Using crimping tool, P/N AD-1377 splice the wires to the capacitor leads using qty 2 splice, P/N M81824/1-2. Secure the lead wires of the capacitor with lacing cord (EC-052).

### **Operational Test**

103. Reconnect the connectors to No.1 junction box and to No.2 junction box.
104. Carefully raise the overhead control console and re-secure the six (6) dzus fasteners.
105. Carefully install the ESS BUS 1 edge lit panel, P/N 430-375-075-111, to the RH overhead control console and secure with the four (4) original screws.
106. Install the IIDS in the center instrument panel (BHT-430-MM-10, chapter 95).
107. Install the pilot and copilot instrument panel (BHT-430-MM-10, chapter 95).
108. Carry out a leak test of the pilot and copilot pitot static systems (BHT-430-MM-10, chapter 95).
109. Open circuit breakers 1A1CB1 (INSTR FAN 1 AND 4) and 1A1CB2 (INSTR FAN 2 AND 3).
110. Connect a source of external power to the helicopter.
111. Verify that the 1, 2, 3, and 4 legends are illuminated on the FANS FAIL annunciator.
112. Close circuit breaker 1A1CB1 (INSTR FAN 1 AND 4).
113. Set the INV 1 switch (3S1) to ON. Verify that both of the copilot fans run and the 1 and 4 legends on the FANS FAIL annunciator are not on.

114. Close circuit breaker 1A1CB2 (INSTR FAN 2 AND 3).
115. Set the INV 2 switch (3S2) to ON. Verify that both of the pilot fans run and the 2 and 3 legends on the FANS FAIL annunciator are not on.
116. Set the INV 1 and INV 2 switches to OFF. Verify that the 1, 2, 3, and 4 legends are illuminated on the FANS FAIL annunciator.
117. Remove the power source from the helicopter.
118. Annotate the helicopter records to reflect compliance with this bulletin.
119. Return the helicopter to flight status.

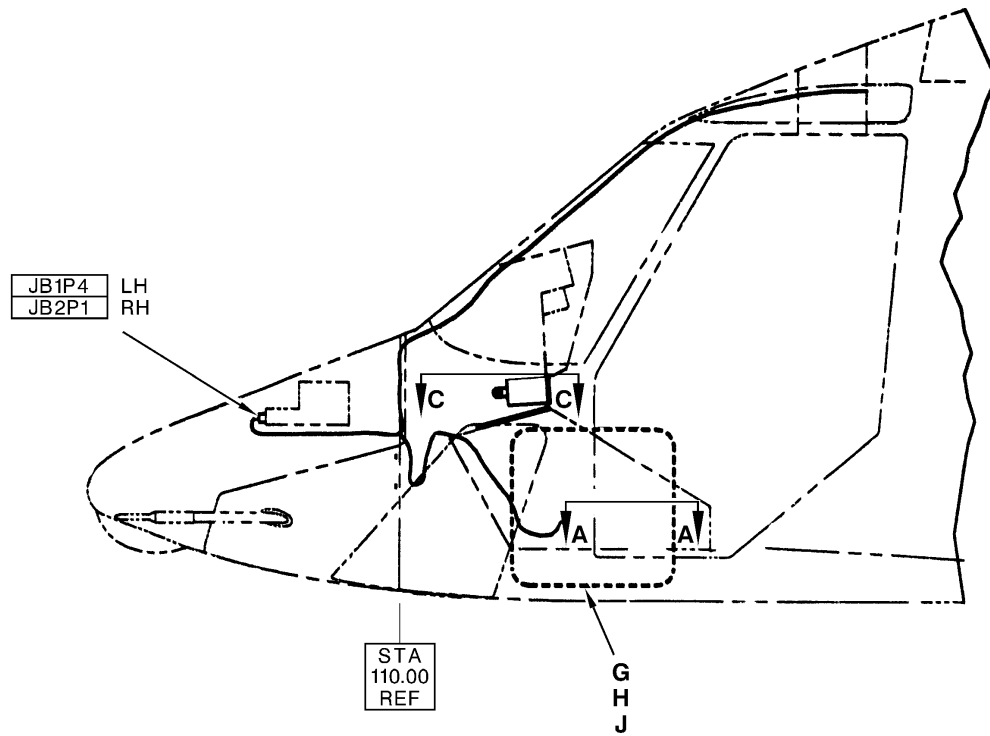
**Part II** (helicopters S/N 49019 and subsequent with copilot E/M instruments only)  
Refer to Figure 1, View D and E).

### CAUTION

Cap and cover any disconnected pitot static tubing.

1. Locate the pitot and static fittings behind the copilot instrument panel at WL 44.34 LBL 5.98, and remove the nuts holding the quick release fittings to the bracket.
2. Attach the new support , P/N 430-075-038-119, in position using qty 2 rivet, P/N NAS1738MW4-6. Wet install the rivets using sealant (C-328). (View E).
3. Secure the pitot and static quick release fittings in place on the new support.
4. Locate and drill a 0.198/0.193 hole ) for the installation of the capacitor 1C2 (View E).
5. Mount capacitor (1C1), P/N M83421/01-5222M, using clamp, P/N MS21919WDG9, screw, P/N MS27039-1-07, washer, P/N NAS1149D0332J, and nut, P/N MS21042L3.
6. Locate the new bracket assembly, P/N 430-075-038-101, on to the forward face of the instrument panel support assembly (430-075-101) (View D).
7. Backdrill two 0.208/0.203 holes through the nutplates on the bracket, P/N 430-075-038-101. Deburr the holes.
8. Secure the bracket to the instrument panel support assembly using qty 2 screw P/N MS27039-1-07, and qty 2 washer P/N NAS1149D0316J.

9. Place the bracket in position on the -119 support and drill two 0.208/0.203 holes through the nutplates of the -101 bracket assembly. Deburr the holes.
10. Secure the -101 bracket to the -119 support, using qty 2 bolt, P/N NAS6603-6, and qty 2 washer, P/N NAS1149D0316J.
11. Attach a fan assembly, P/N 035777, and a fan guard, P/N 272261, to the bracket assembly, using qty 4 screw, P/N MS27039-0809, Qty 8 washer, P/N NAS1149DN816J, and qty 4 nut, P/N MS21042L08.



VIEW LOOKING INBOARD LHS

FIGURE 1  
PAGE 1 OF 8

VTB00201

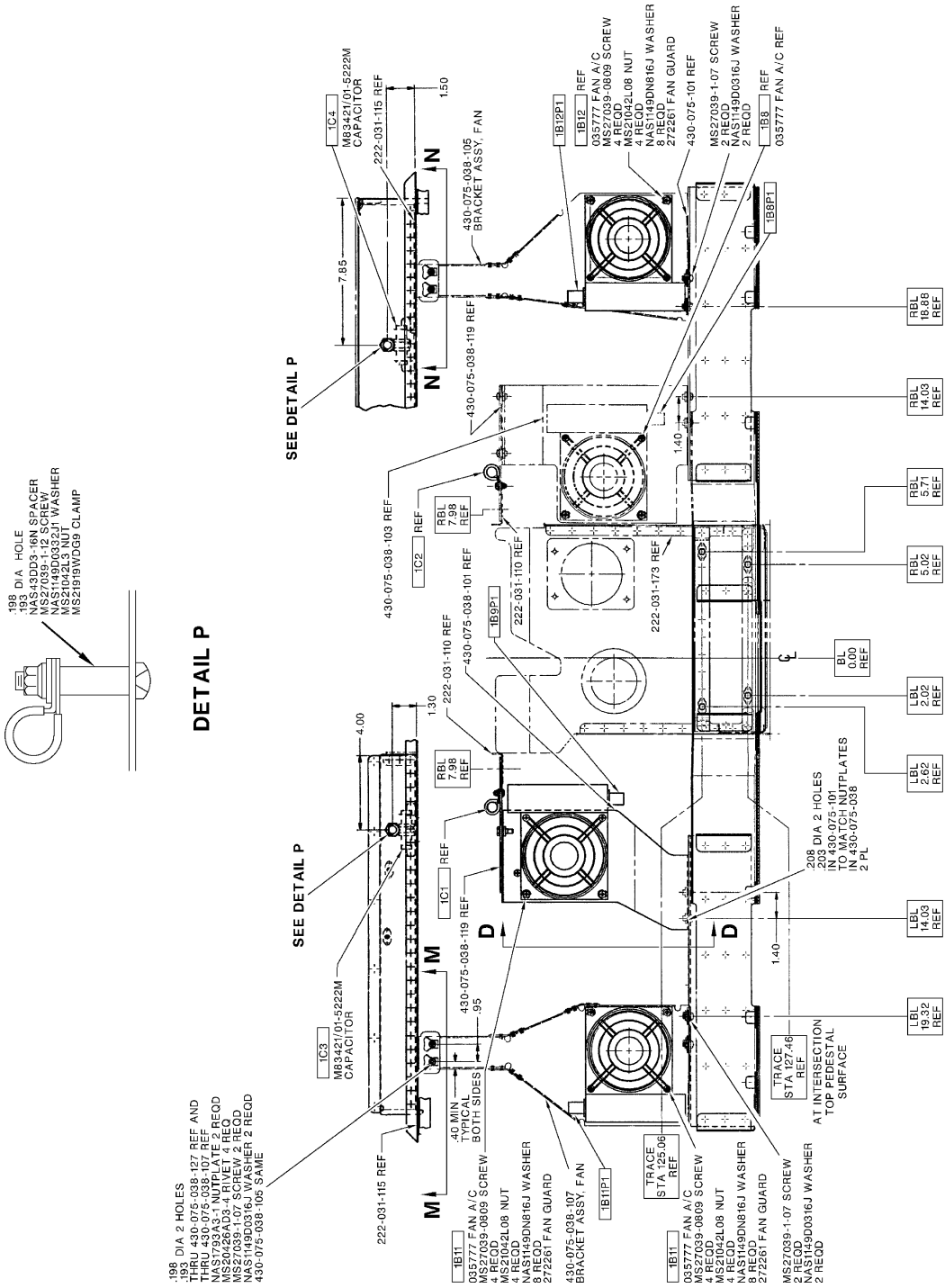
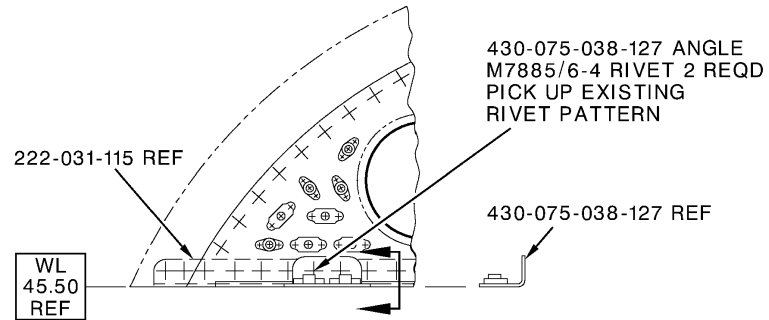


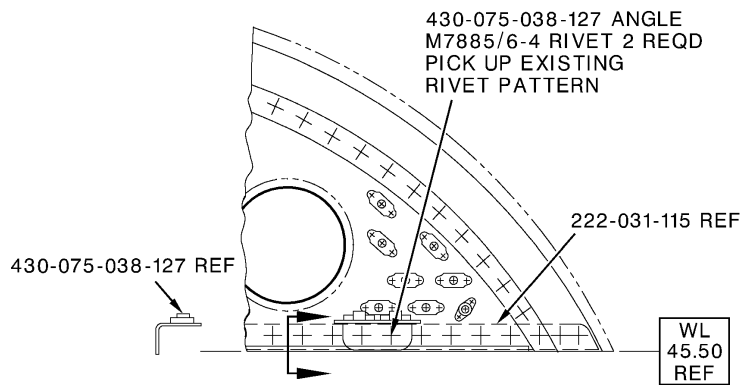
FIGURE 1  
PAGE 2 OF 8

VTB00202



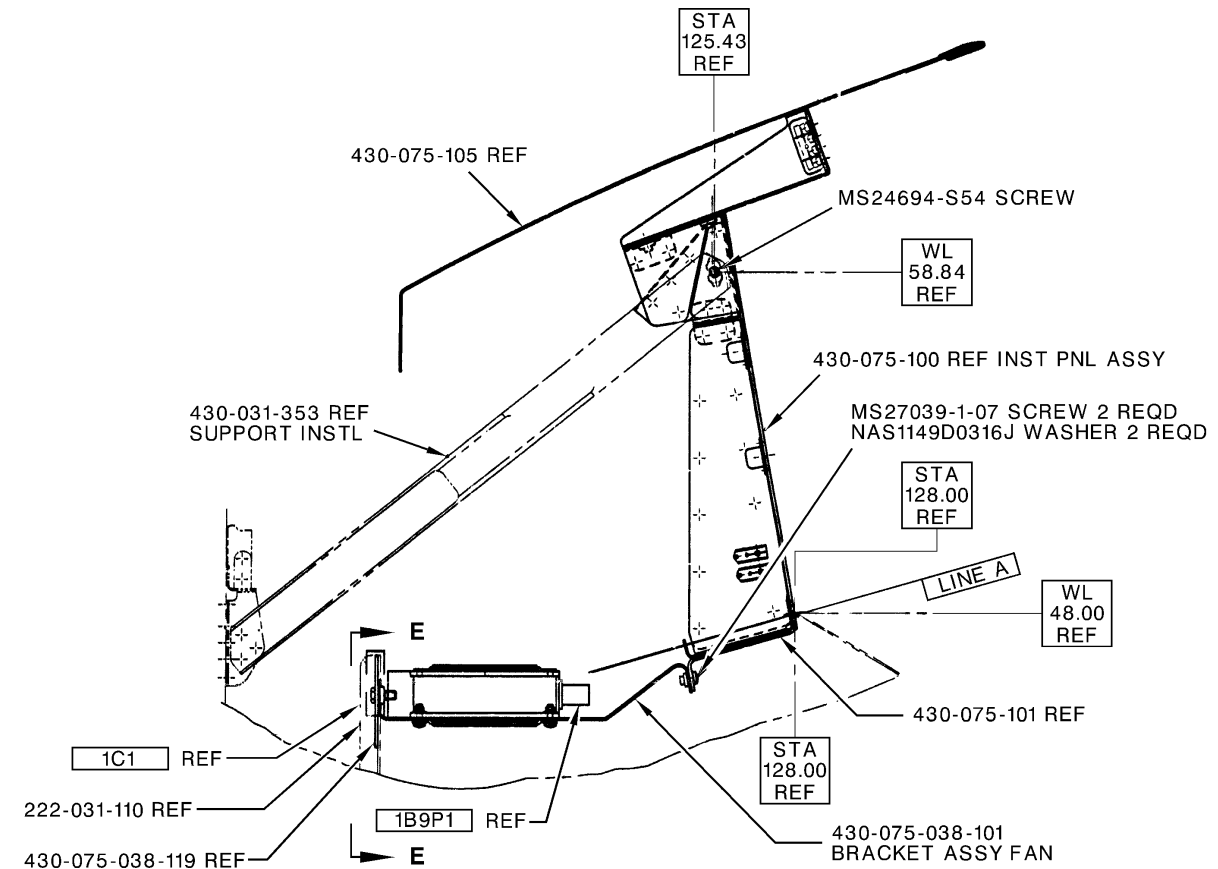


VIEW M-M



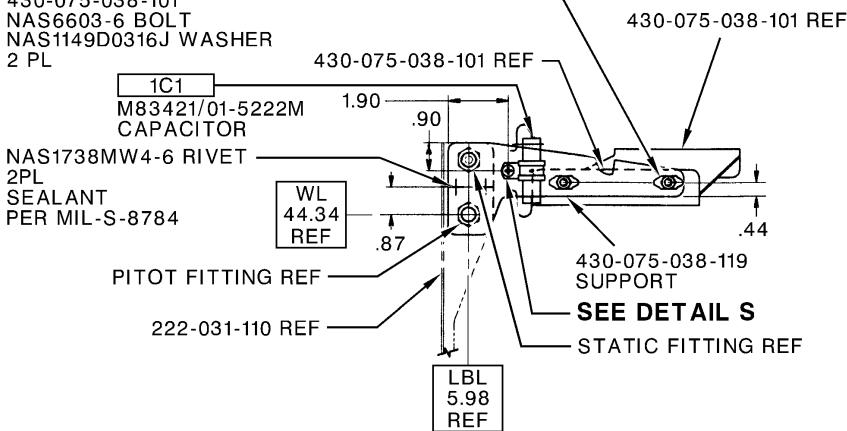
VIEW N-N

VTB00208



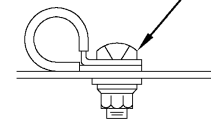
**SECTION D-D**

.208  
.203 DIA HOLE  
DRILL HOLE TO MATCH  
430-075-038-101  
NAS6603-6 BOLT  
NAS1149D0316J WASHER  
2 PL



**VIEW E-E**

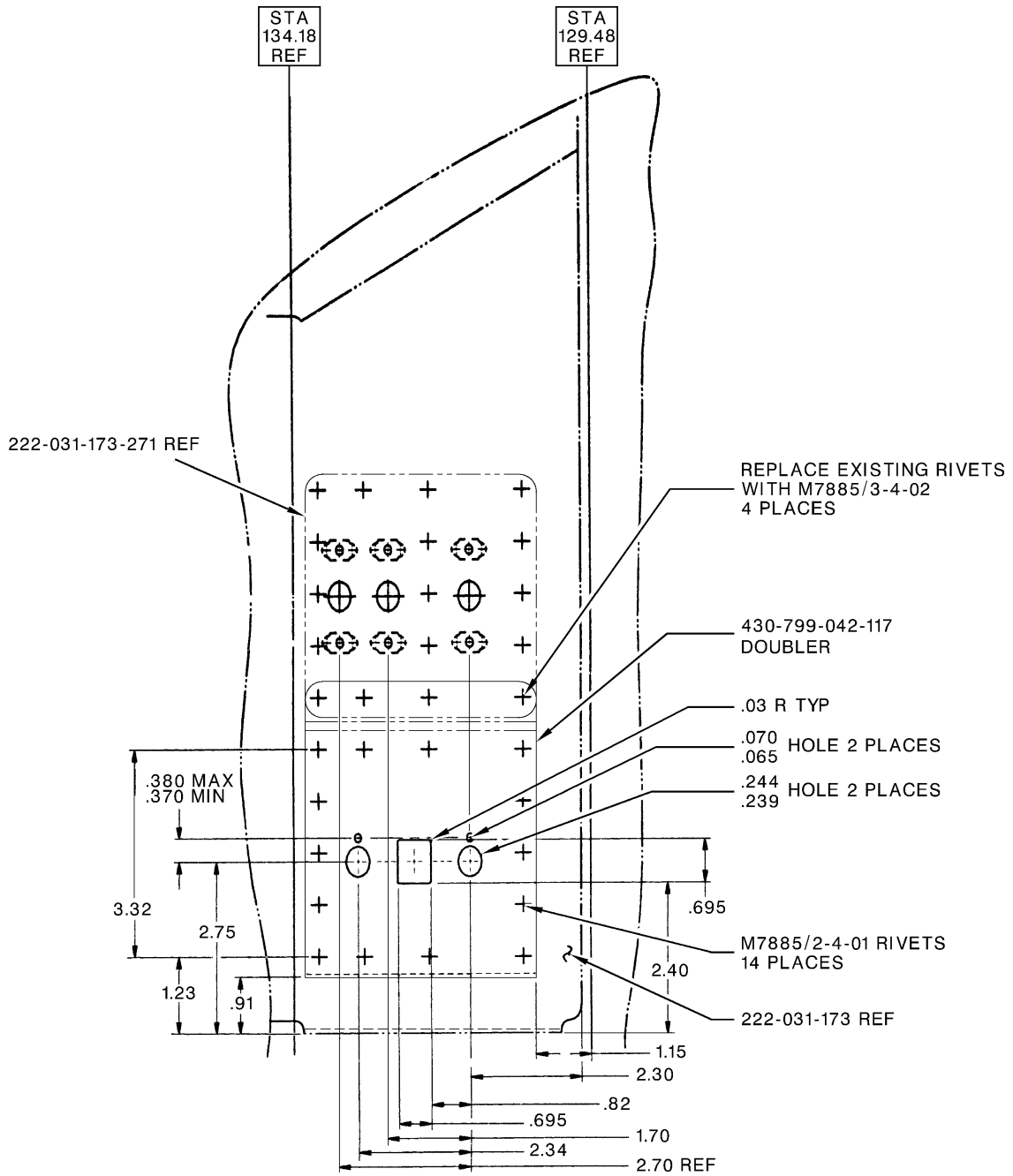
.198  
.193 DIA HOLE  
NAS43DD3-16N SPACER  
MS27039-1-12 SCREW  
NAS1149D0332J1 WASHER  
MS21042L3 NUT  
MS21919WDG9 CLAMP



**DETAIL S**

VTB00204

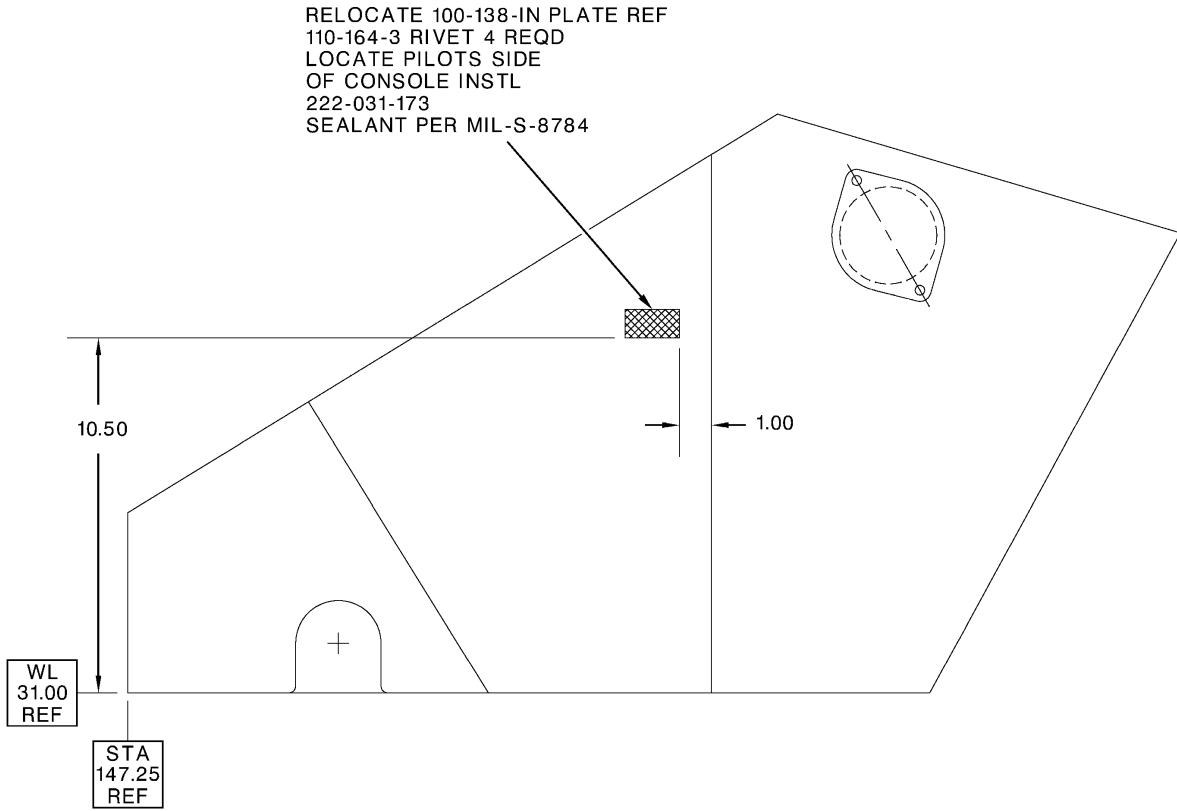
FIGURE 1  
PAGE 4 OF 8



**VIEW H**  
PEDESTAL LOOKING INBOARD RHS

VTB00206

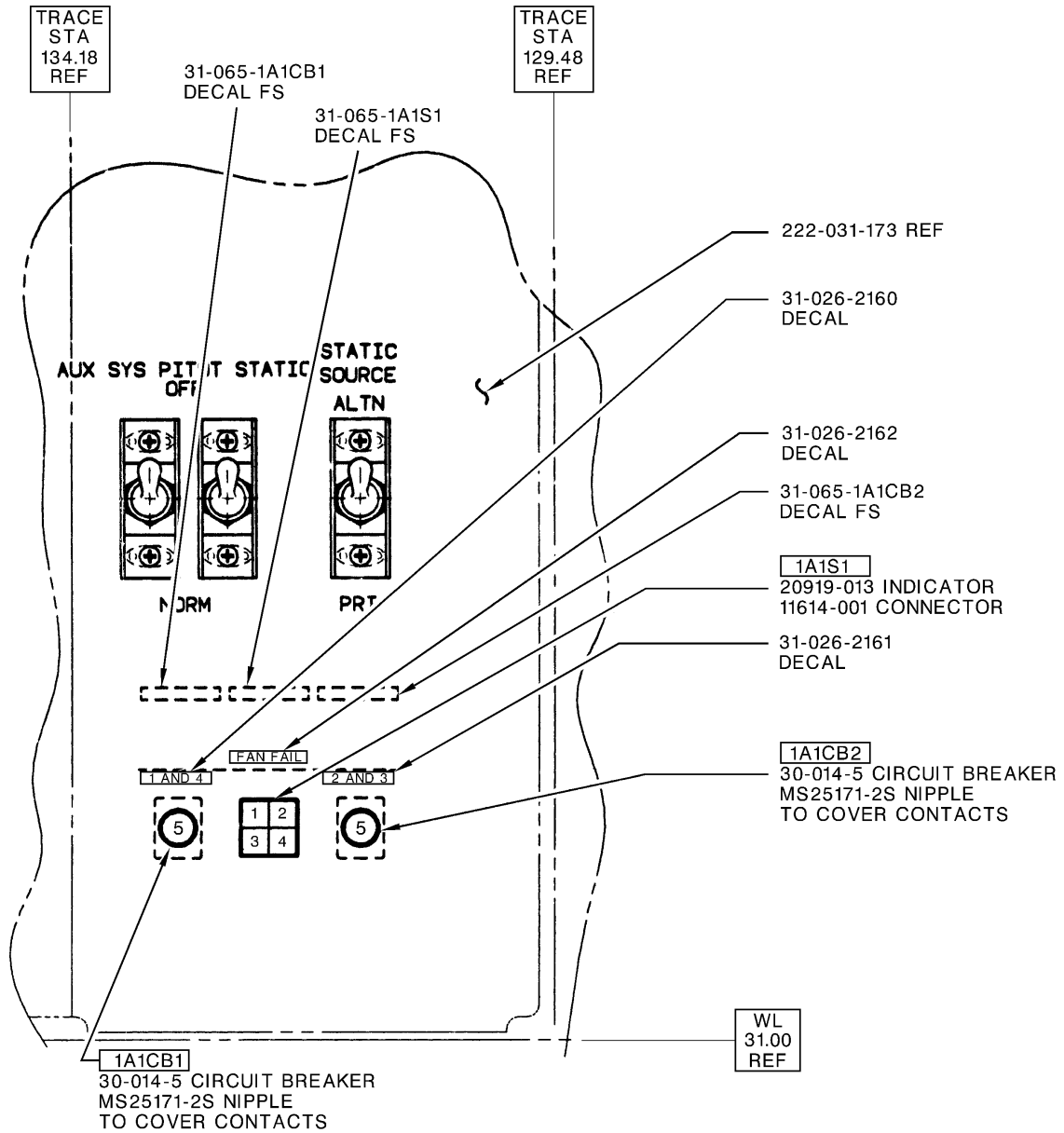
FIGURE 1  
PAGE 5 OF 8



**VIEW J**  
PEDESTAL LOOKING INBOARD RHS

**FIGURE 1**  
PAGE 6 OF 8

VTB00207



**VIEW G**  
LOOKING INBOARD RHS

VTB00205

**FIGURE 1**  
**PAGE 7 OF 8**

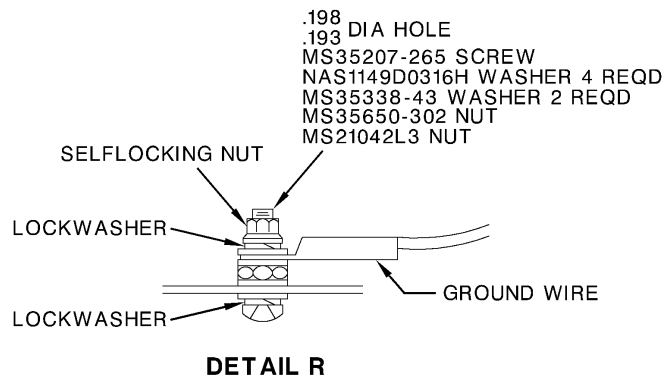
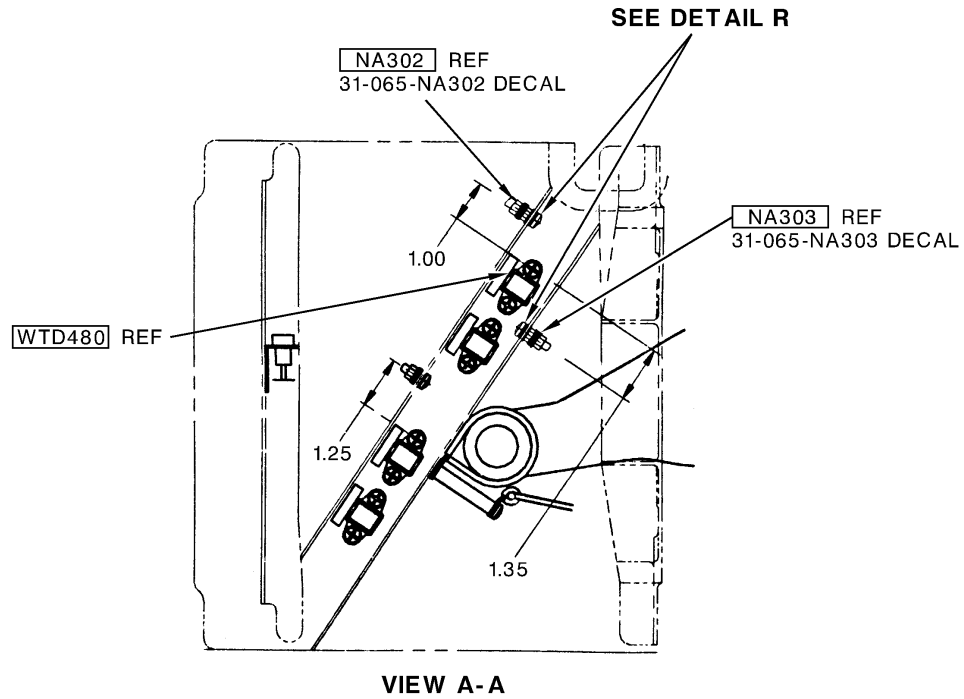


FIGURE 1  
 PAGE 8 OF 8

VTB00203

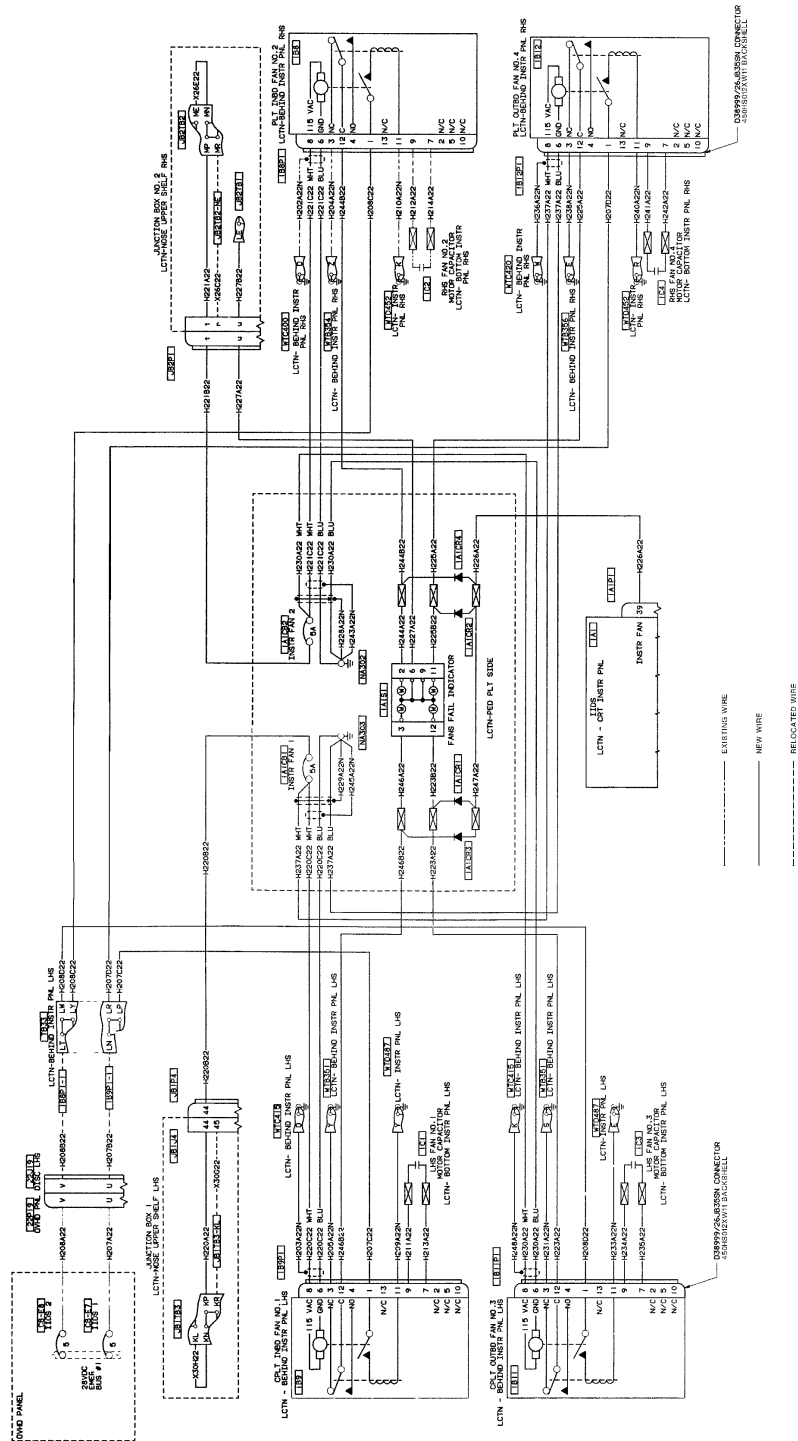


FIGURE 2  
WIRING DIAGRAM

VTB00209