MEGGITT

Meggitt (Addison), Inc.

CR-182-10

MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS CATALOG

FOR THE CESSNA 182
AIR CONDITIONING SYSTEM

ORIGINAL DATE:	**JUNE 10, 1998**
REVISION LEVEL:	**H**
REVISION DATE:	**JAN 11, 2013**

RELEASE DATE

FEB 22 2013

RECORD OF REVISIONS

PREPARED ENGR	CHECKED OTHER	APPROVED ENGR	REVISION RECORD	REV
JLP	N/A	MJR		**NC**
CHECKED ENGR	**CHECKED OTHER**	**APPROVED DATE**	**RELEASED DATE**	
	N/A	JUN 10, 1998	JUN 10, 1998	
DESCRIPTION OF CHANGES				
Original Release – No Changes				

PREPARED ENGR	CHECKED OTHER	APPROVED ENGR	REVISION RECORD	REV
BCS	N/A	MAK		**A**
CHECKED ENGR	**CHECKED OTHER**	**APPROVED DATE**	**RELEASED DATE**	
	N/A	NOV 14, 2001	NOV 14, 2001	
DESCRIPTION OF CHANGES				
Added model 182T to document; Revised title pg., WAS FAA PROJECT NO: ST5118SC-2, NOW STC NO: ST09494SC; Revised record of revisions; Revised list of effective pages; Revised doc., WAS polyol ester, NOW polyolester; Revised doc., WAS ES49000-3, NOW ES49000-1				

PREPARED ENGR	CHECKED OTHER	APPROVED ENGR	REVISION RECORD	REV
TLW/DMF/ BCS/DRC	N/A	TD		**B**
CHECKED ENGR	**CHECKED OTHER**	**APPROVED DATE**	**RELEASED DATE**	
	N/A	APR 5, 2002	APR 5, 2002	
DESCRIPTION OF CHANGES				
Rewrote and reorganized entire document. Added IPL. Reason: Project #22010				

PREPARED ENGR	CHECKED OTHER	APPROVED ENGR	REVISION RECORD	REV
RCG	N/A	MAK		**C**
CHECKED ENGR	**CHECKED OTHER**	**APPROVED DATE**	**RELEASED DATE**	
	N/A	SEP 20, 2002	SEP 20, 2002	
DESCRIPTION OF CHANGES				
Added 21-50-01 page 3 and 21-50-06 to List of Effective Pages. Reason: Drafting error per ER1999. Changed P/N of electrical connector; WAS ES53026-2, NOW ES53025-2. Reason: Vendor change per ER1985.				

RECORD OF REVISIONS

PREPARED ENGR	CHECKED OTHER	APPROVED ENGR	REVISION RECORD	REV
CDW	N/A	MAK		**D**
CHECKED ENGR	**CHECKED OTHER**	**APPROVED DATE**	**RELEASED DATE**	
N/A	N/A	MAR 16,2006	MAR 16,2006	

DESCRIPTION OF CHANGES

Revised I/B's to section 21-50-06: Pg. 102, & added "Inactive after January 11, 2006."
Added to section 21-50-06: Pg. 103
Revised section 21-50-06: Pg 104, renumber I/N's
6-17, added I/N 6, 15, 16, 17, & added, "Use 182-0251-1 for spares replacement."
Listed all pages #'s in section 21-50-06 to the List of Effective Pages & Table of Contents
Added page vi to List Of Effective Pages.
Revised section 21-50-06 Illustrated Parts Catalog pages, was 101 now 1; was 102 now 101; was 103 now 102; was 104 now 103; was 203 now 301; was 204 now 302.
Revised Table of Contents page vii, deleted
101-204 & added 1-501.
Deleted a page from Table of Contents that contains page #'s 401-507.
Revised section 21-50-06 pages 401-403,
182-0700-1 Electrical installation.
Revised Table Of Contents & Introduction page #'s
Added to section 21-50-06 page 7 to IPC, Electrical, Evaporator, Compressor, Condenser, Plumbing
Reason: Product improvement per ER3084

PREPARED ENGR	CHECKED OTHER	APPROVED ENGR	REVISION RECORD	REV
AJ	N/A	MAK		**E**
CHECKED ENGR	**CHECKED OTHER**	**APPROVED DATE**	**RELEASED DATE**	
N/A	N/A	JAN 3, 2012	JAN 3, 2012	

DESCRIPTION OF CHANGES

The following was updated on Section 21-50-06:
Added following pages: 303, 304, 503, 506, 507, 511-705, and renumbered pages following.
Revised following on pg 405: I/N 11 Qty was 5 now 4.
Revised following on pg 501: I/N 35 on was 6; added I/N's 37 & 38 to F/D. Added "For –1 Installation SEE VIEW A-A", "For –2 Installation SEE VIEW G-G", "For –2 Installation SEE VIEW E-E", "For –2 Installation SEE VIEW F-F". Added "182-0800-2 Plumbing Installation" to title.
Revised following on pg 502: Edited I/N 25 was 27
Revised following on pg 505: Added I/N 37 & 38 to F/D. Added callouts (-2 ONLY) & (-1 ONLY) (SHOWN) to F/D.
Revised following on pg 509: Deleted I/N 6 was ES02121-2 Qty 75; I/N 8 Qty was 20 now 50; I/N 17 Qty was 2 now 1; I/N 18 Qty was 2 now 1.
Revised following on pg 510: I/N 29 was JBS6009-2 now JBS6009-9; I/N 35 Qty was ES02126-1 Qty 75 now ES02126-4 Qty 150; I/N 36 Qty was 10 now 20. Added I/N's 37 & 38 to table.
Reason: Drafting error per ER3411

PREPARED ENGR	CHECKED OTHER	APPROVED ENGR	REVISION RECORD	REV
HEB	N/A	MAK		**F**
CHECKED ENGR	**CHECKED OTHER**	**APPROVED DATE**	**RELEASED DATE**	
	N/A	APR 2,2008	APR 2,2008	

DESCRIPTION OF CHANGES

Updated section 21-50-01 page 3 with revision K of drawing 182-0700-1
Updated section 26-50-06 pages 401-403 with revision k of drawing 182-0700-1

RECORD OF REVISIONS

PREPARED ENGR	CHECKED OTHER	APPROVED ENGR	REVISION RECORD	REV
AJ	N/A	MAK		G
CHECKED ENGR	**CHECKED OTHER**	**APPROVED DATE**	**RELEASED DATE**	
TLW	N/A	OCT 15, 2009	OCT 15, 2009	

DESCRIPTION OF CHANGES

Updated 182-0250-1 Electrical Schematic on page 3 of Section 21-50-01
Updated 182-0200-1 Electrical Schematic on page 401, 402, & 403 of Section 21-50-06
Edited callout on page 101 was 182-0200-1 Evaporator Installation Inactive after January 11, 2006.
Edited callout on page 102 was 182-0200-1 Evaporator Installation Effective after January 11, 2006.
Edited I/B on page 102 was 16 now 5
Edited I/B on page 102 was 17 now 6
Revised following for 182-0200-1 Installation on page 103, of Section 21-50-60:
Edited I/N 2 was 182-0250-1 Evaporator Assembly Use 182-0251-1 for spares replacement
Edited I/N 7 was JBS2072-1 Evaporator Coil now 182-0252 Evaporator Coil Assembly
Added "182-0250-1 only" and "182-0251-1 only" to I/N's 5 and 6.
Deleted I/N 15 was 182-0251Evaporator Assy. qty 1
Deleted I/N 16 was ES61027-10 Motor qty 1
Deleted I/N 17 was 172-1251-1 Bracket qty 1
Reason: 182-0200 drawing change per ER4080

PREPARED ENGR	CHECKED OTHER	APPROVED ENGR	REVISION RECORD	REV
CIJU BALAN NAIR	C Wayckesin	MDame		H
CHECKED ENGR	**CHECKED OTHER**	**APPROVED DATE**	**RELEASED DATE**	
	E. Rodriguez	2/18/2013		

DESCRIPTION OF CHANGES

Edited I/N 3 nomenclature on section 21-50-06 page 202 was "Belt (–1 Only)" now "Belt (for configurations without 95 amp alternators)", Edited I/N 13 nomenclature on section 21-50-06 page 202 was "Belt (–2 Only)" now "Belt (for configurations with 95 amp alternators)".
Reason: Document clarification per ER4567.

RELEASE DATE

FEB 22 2013

LIST OF SERVICE BULLETINS

DOC NO.	DATE	SUBJECT	REV.	DATE INCORP.

LIST OF EFFECTIVE PAGES

SECTION	PAGE	DATE
Title	i	January 11, 2013
List of Revisions	ii	September 20, 2002
	iii	April 2, 2008
	iv	January 11, 2013
List of Service Bulletins	v	January 3, 2007
List of Effective Pages	vi	January 11, 2013
	vii	January 11, 2013
	viii	October 15 2009
Table of Contents	ix	October 15, 2009
Introduction	x	October 15, 2009
	xi	October 15, 2009
21-50-00 A/C System, System Description	1	April 5, 2002
	2	April 5, 2002
	3	April 5, 2002
Troubleshooting	101	April 5, 2002
	102	April 5, 2002
	103	April 5, 2002
	104	April 5, 2002
	105	April 5, 2002
Maintenance Practices	201	April 5, 2002
	202	April 5, 2002
System Servicing	301	April 5, 2002
	302	April 5, 2002
	303	January 11, 2013
	304	January 11, 2013
Inspection	601	April 5, 2002
	602	January 11, 2013
	603	January 11, 2013

SECTION	PAGE	DATE
21-50-01 Electrical Description and Operation	1	January 11, 2013
	2	January 11, 2013
	3	October 15, 2009
Troubleshooting	101	January 11, 2013
	102	January 11, 2013
	103	January 11, 2013
	104	April 5, 2002
	105	January 11, 2013
	106	January 11, 2013
	107	April 5, 2002
21-50-02 Plumbing Description and Operation	1	April 5, 2002
Maintenance Practices	201	April 5, 2002
21-50-03 Compressor Description and Operation	1	April 5, 2002
Maintenance Practices	201	April 5, 2002
21-50-04 Condenser Description and Operation	1	April 5, 2002
Maintenance Practices	201	April 5, 2002
21-50-05 Evaporator Description and Operation	1	April 5, 2002
Maintenance Practices	201	April 5, 2002
21-50-06 Illustrated Parts Catalog	1	March 16, 2006
	101	October 15, 2009
	102	October 15, 2009
	103	October 15, 2009
	201	April 5, 2002
	202	January 11, 2013
	301	March 16, 2006
	302	March 16, 2006
	303	January 3, 2007
	304	January 3, 2007
	401	October 15, 2009

SUBJECT	PAGE	DATE
21-50-06 Illustrated Parts Catalog	402	October 15, 2009
	403	October 15, 2009
	404	April 5,2002
	405	January 3, 2007
	501	January 3, 2007
	502	January 3, 2007
	503	January 3, 2007
	504	January 3, 2007
	505	January 3, 2007
	506	January 3, 2007
	507	January 3, 2007
	508	January 3, 2007
	509	January 3, 2007
	510	January 3, 2007
	511	January 3, 2007
	601	January 3, 2007
	602	January 3, 2007
	603	January 3, 2007
	604	January 3, 2007
	605	January 3, 2007
	606	January 3, 2007
	607	January 3, 2007
	701	January 3, 2007
	702	January 3, 2007
	703	January 3, 2007
	704	January 3, 2007
	705	January 3, 2007

TABLE OF CONTENTS

INTRODUCTION

PURPOSE

The purpose of this System Service Manual is to provide detailed instructions for the servicing, troubleshooting, checking and maintaining of the Cessna Model 182 with Keith Products, L.P. air-conditioning system. The System Service Manual supplements the Maintenance Manual supplied by Cessna for your particular aircraft.

SCOPE

The scope of the System Service Manual provides the maintenance technician with detailed information covering:-

- Overall system level description and theory of operation.
- Component level description and theory of operation.
- System level checking and troubleshooting procedures.
- Procedures for servicing the air-conditioning system refrigerant.
- The identification of special equipment to accomplish the specific tasks.

GLOSSARY

Nonstandard abbreviations and symbols used in the Maintenance Manual are described below.

A/C	-	Air-conditioning
A/R	-	As Required
Assy	-	Assembly
Comm. Avail.	-	Commercially Available
Evap	-	Evaporator
Gnd	-	Ground
GPU	-	Ground Power Unit
SW	-	Switch
VDC	-	Volts Direct Current

AIR-CONDITIONING SYSTEM

SYSTEM DESCRIPTION

1. AIR-CONDITIONING SYSTEM DESCRIPTION

The Keith Products vapor cycle air-conditioning system uses liquid refrigerant R134a to cool the aircraft cabin. The major components for the R134a air-conditioning system consist of a compressor, condenser, receiver/drier, expansion valve, and evaporator. The starter ring-gear pulley turns the compressor via a belt. Figure 1 shows an operational schematic of the air-conditioning system.

The gas in the suction hose is pumped into the discharge hose and through the refrigerant system by the **compressor**. The compressor takes the low-temperature, low-pressure gas and compresses it to a high-temperature, high-pressure gas.

After the high-temperature, high-pressure gas leaves the compressor it enters the **condenser**. A 28 VDC blower forces air from the left hand side of the aircraft in the inlet duct and through the condenser. The air exits the condenser and leaves the condenser through the exhaust duct on the right hand side of the tailcone. This air cools the high-temperature, high-pressure gas as much as 100ºF. The gas is cooled until it condenses to a medium-temperature, high-pressure liquid.

After the medium-temperature, high-pressure liquid leaves the condenser it enters the **receiver/drier**. The receiver/drier stores liquid refrigerant and filters any moisture out of the refrigerant.

After the medium-temperature, high-pressure liquid leaves the receiver/drier it enters the **expansion valve**. The expansion valve allows the medium-temperature, high-pressure liquid to expand to a low-temperature, low-pressure spray of liquid.

After the low-temperature, low-pressure spray of liquid leaves the expansion valve it enters the **evaporator**. A 28 VDC blower forces air from the cabin through the evaporator. Since the refrigerant in the evaporator can be as cold as 30ºF, the air from the cockpit causes the low-temperature, low-pressure liquid spray to boil and then evaporate. This low-temperature, low-pressure gas passes through the suction hose into the compressor. The refrigerant cycle continues, cooling the aircraft cabin.

Air from the cabin is cooled as it passes through the evaporator and comes into contact with the refrigerant. Since the air is cooled, moisture from the air condenses in the evaporator and liquid water is formed. The water then drains overboard through the floor of the aircraft.

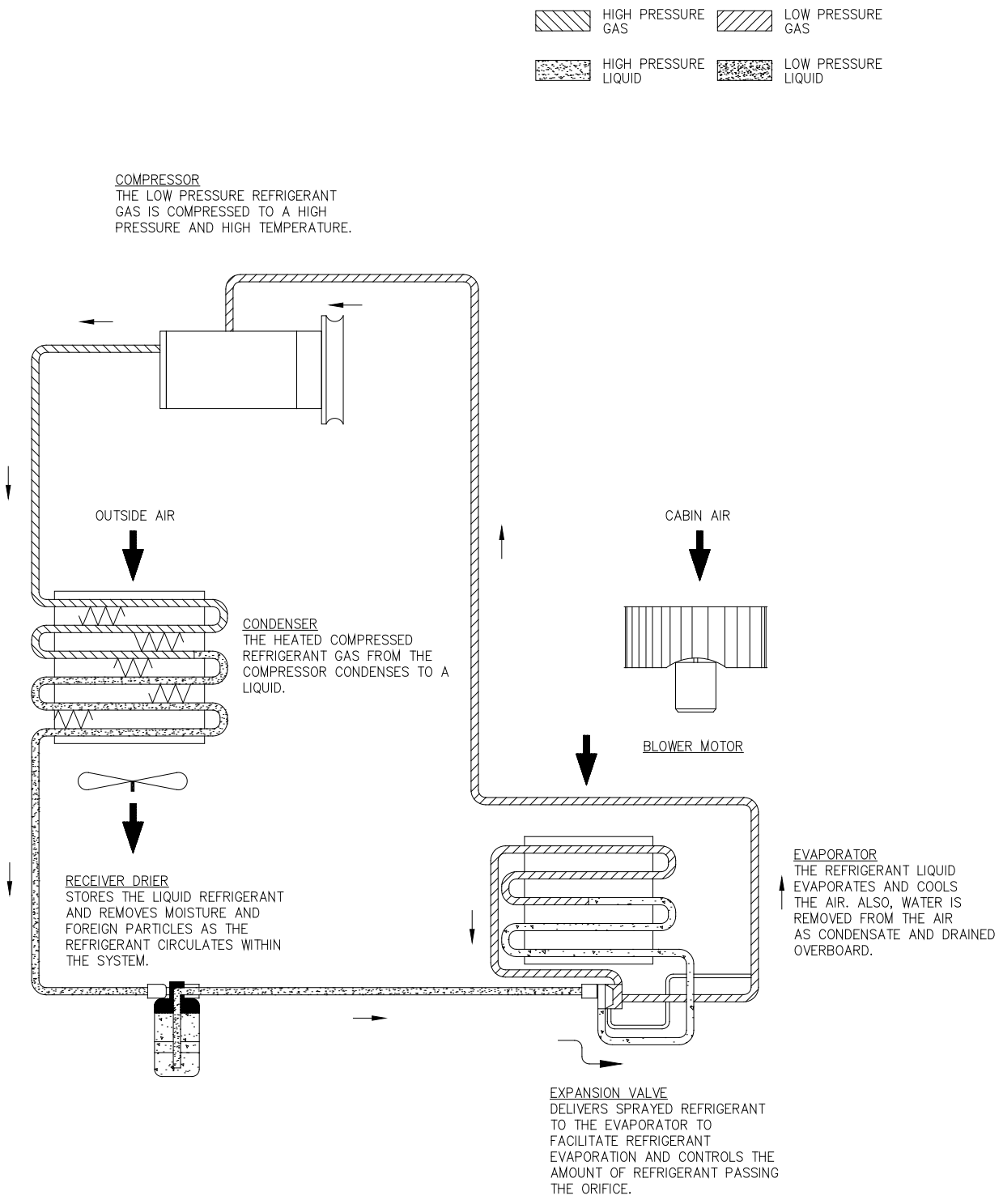


Figure 1. Air-conditioning Vapor Cycle System

2. SYSTEM OPERATION

The air-conditioning system is operated with the engine operating and power supplied to the aircraft electrical system. To operate the system, proceed as follows:

A. Turn on air-conditioning system by placing left hand control switch in the AIR COND position.

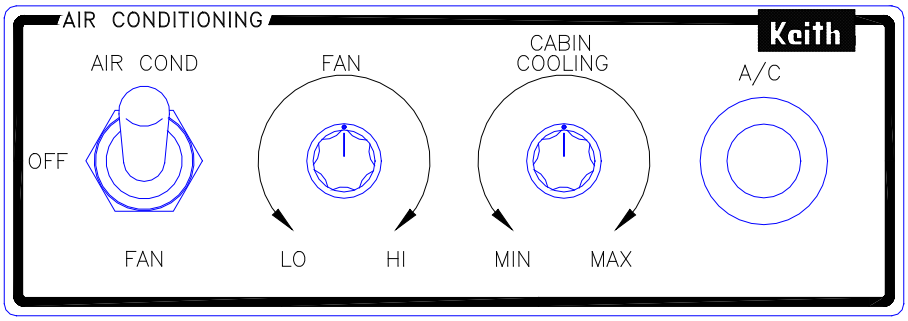
B. For maximum cooling, place the FAN control knob in the HI position, place the CABIN COOLING control knob in the MAX position, and close cabin and baggage doors.

C. Turn off air-conditioning system by placing left hand control switch in the OFF position.

D. Airflow may be varied infinitely by rotating the FAN control knob between the LO and HI positions.

E. Cabin air cooling may be varied by rotating the CABIN COOLING control knob between the MIN and MAX positions.

F. Cabin air may be re-circulated without the air-conditioning system operating by placing the left hand control switch in the FAN position.



AIR-CONDITIONING SYSTEM

TROUBLE SHOOTING

1. GENERAL

The procedures below present troubleshooting charts for the air-conditioning system and the compressor. A diagnoses chart is presented for insufficient air-conditioning system cooling. The performance of the air-conditioning system varies with ambient temperature and humidity. The information below presents possible air-conditioning system problems and solutions.

CAUTION: Do not operate air-conditioning system with condenser air outlet blocked.

2. AIR-CONDITIONING SYSTEM DIAGNOSIS

The following pages show a procedure for diagnosing air-conditioning system problems that will expedite the troubleshooting process.

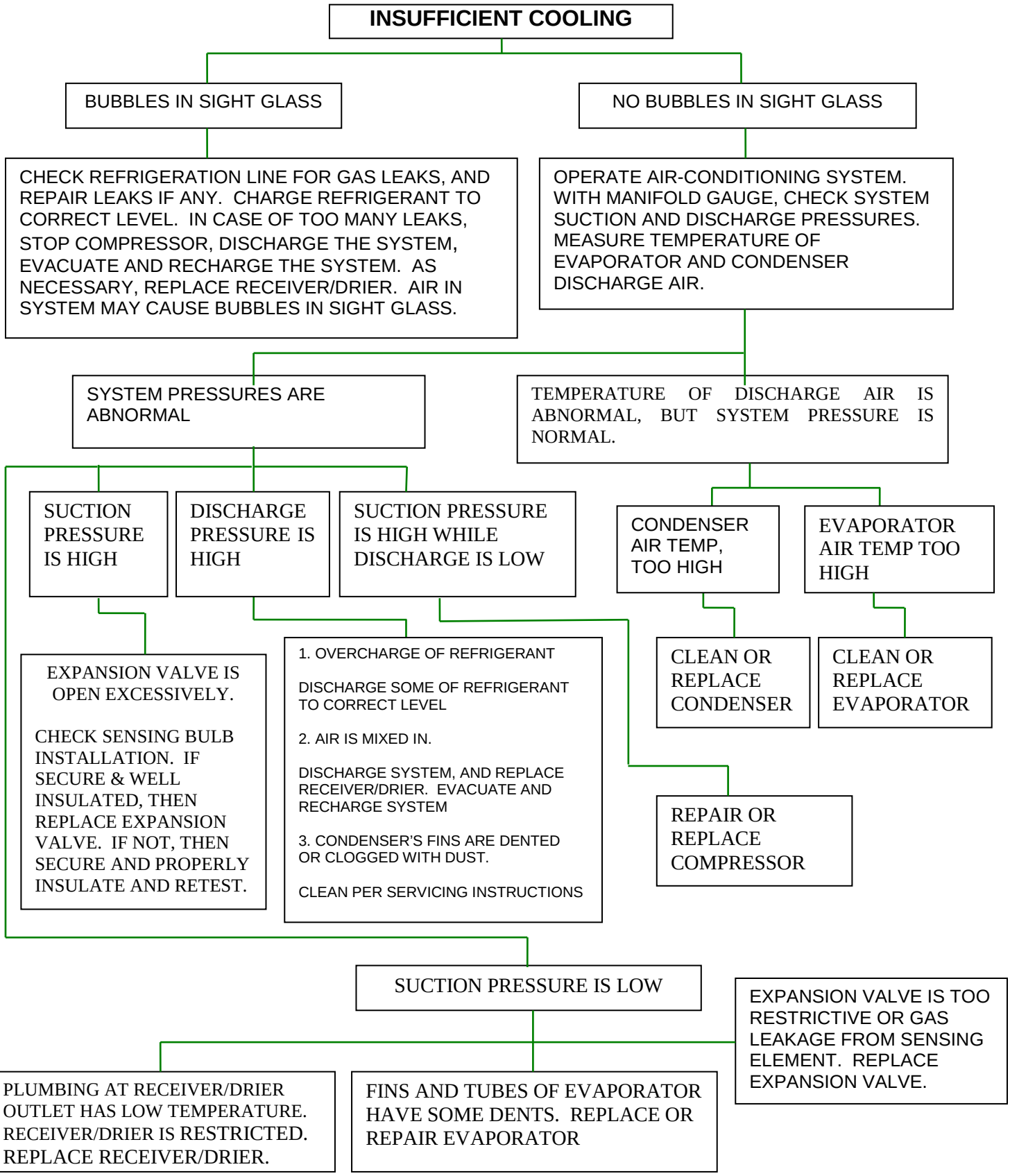


FIGURE 2: AIR-CONDITIONING SYSTEM DIAGNOSIS CHART

3. AIR-CONDITIONING SYSTEM TROUBLESHOOTING

CONDITION	SERVICE PRESSURE GAUGE READING	PROBABLE CAUSE	CORRECTIVE ACTION
INSUFFICIENT REFRIGERANT CHARGE Insufficient cooling. Bubbles appear in sight glass.	SUCTION PRESSURE: below normal DISCHARGE PRESSURE: below normal	Refrigerant is low, or leaking a little.	1. Leak test. 2. Repair leak. 3. Charge system. Evacuate as necessary and recharge system.
ALMOST NO REFRIGERANT No cooling action. A lot of bubbles or something like mist appears in sight glass.	SUCTION PRESSURE: much below normal DISCHARGE PRESSURE: much below normal	Serious refrigerant leak.	Stop compressor immediately. 1. Leak test. 2. Discharge system. 3. Repair Leak(s). 4. Replace receiver/drier, if necessary. 5. Check oil level. 6. Evacuate and recharge system.
FAULTY EXPANSION VALVE a) Slight cooling. Sweating or frosted expansion valve outlet. b) Insufficient cooling. Sweated suction line. c) No cooling. Sweating or frosted suction line.	a) SUCTION PRESSURE: below normal DISCHARGE PRESSURE: below normal b) SUCTION PRESSURE: above normal DISCHARGE PRESSURE: above normal c) SUCTION PRESSURE: above normal DISCHARGE PRESSURE: below normal	a) Expansion valve restricts refrigerant. Or, expansion valve is clogged. Or, expansion valve is inoperative. Or, valve stuck closed. Thermal bulb has lost charge. b) Expansion valve allows too much refrigerant through evaporator. Sensing bulb on suction line not well insulated or properly attached to line. c) Faulty expansion valve.	a) Replace expansion valve. b) 1. Check valve for operation. If suction side does not show a pressure decrease, replace valve. 2. Check security and insulation on sensing bulb. c) 1. Discharge system. 2. Replace valve. 3. Evacuate and replace system.

CONDITION	SERVICE PRESSURE GAUGE READING	PROBABLE CAUSE	CORRECTIVE ACTION
AIR IN SYSTEM Insufficient cooling. Sight glass shows occasional bubbles.	SUCTION PRESSURE: above normal DISCHARGE PRESSURE: above normal	Air mixed with refrigerant in system.	1. Discharge system. 2. Replace receiver/drier. 3. Evacuate and charge system.
MOISTURE IN SYSTEM After operation for a while, pressure on suction side may show vacuum pressure reading. During this condition, discharge air will be warm. As warning of this, reading shows approx. 6 psi oscillation.	SUCTION PRESSURE: below normal DISCHARGE PRESSURE: above normal	Drier is saturated with moisture. Moisture has frozen at expansion valve. Refrigerant flow is restricted.	1. Discharge system. 2. Replace receiver/ drier (twice if necessary). 3. Evacuate system completely. (Repeat 30 minute evacuating three times.) 4. Recharge system.
FAULTY CONDENSER Insufficient cooling. Bubbles appear in sight glass of drier. Suction line is very hot.	SUCTION PRESSURE: above normal DISCHARGE PRESSURE: above normal	Condenser air or refrigerant flow is restricted.	Check condenser for dirt accumulation or bent fins. Clean/ replace as necessary. Check for refrigerant overcharge. If pressure remains high in spite of all above actions taken, remove and inspect the condenser for possible oil clogging.
HIGH PRESSURE LINE BLOCKED Insufficient cooling. Frosted high pressure liquid line.	SUCTION PRESSURE: much below normal DISCHARGE PRESSURE: much above normal	Drier clogged, or restriction in high pressure line.	1. Discharge system. 2. Replace receiver/drier. 3. Evacuate and charge system

CONDITION	SERVICE PRESSURE GAUGE READING	PROBABLE CAUSE	CORRECTIVE ACTION
FAULTY COMPRESSOR a) Insufficient cooling. b) Insufficient cooling. c) Rough running.	a) SUCTION PRESSURE: much below normal DISCHARGE PRESSURE: much below normal b) SUCTION PRESSURE: much above normal DISCHARGE PRESSURE: much below normal	a) Internal problem in compressor, or damaged gasket and valve. b) Internal problem with compressor body. c) Internal problem with compressor body.	1. Discharge system. 2. Remove and check compressor. 3. Repair or replace compressor. 4. Check oil level. 5. Replace receiver/ drier. 6. Evacuate and charge system.
TOO MUCH OIL IN SYSTEM (Excessive) Insufficient cooling.	SUCTION PRESSURE: above normal DISCHARGE PRESSURE: above normal	Too much oil circulates with refrigerant, causing the cooling capacity of the system to be reduced.	Refer to Oil Level Check for correcting oil level.
WATER BEING BLOWN OUT OF EVAPORATOR	SUCTION PRESSURE: normal DISCHARGE PRESSURE: normal	Blocked evaporator drain.	Check evaporator drain for downhill routing and repair any kinks or blockage in drain tubing.

AIR-CONDITIONING SYSTEM

MAINTENANCE PROCEDURES

A. GENERAL

The following procedures are used to perform typical maintenance on the air-conditioning system plumbing. Procedures are provided for making connections to components, and replacing the expansion valve. Keith Products air-conditioning systems use swaged hose fittings with "o-ring" type connections.

B. TOOLS AND EQUIPMENT

Designation	Ref. No.	Qty	Remarks
Polyolester Oil	Comm. Avail.	A/R	Viscosity ISO 68
Sealant	ES49000-1	A/R	None

C. CONNECTION TO COMPONENTS - O-RING REPLACEMENT

1. Place the appropriate o-ring over the tube "O" end of the fitting.
2. Lubricate o-ring with polyolester oil viscosity ISO 68 or ES49000-1 sealant prior to assembly.
3. Apply sealant to all fitting mating surfaces prior to assembly.

D. EXPANSION VALVE REMOVAL AND INSTALLATION

The following procedure is used to remove or install the air-conditioning system expansion valve, located on the inlet side of the evaporator coil.

1. Discharge system in accordance with instructions included in this manual.
2. Disconnect and cap the liquid hose from the expansion valve inlet.
3. Remove the insulation covering the thermal sense bulb on the suction tubing.
4. Cut the tie wraps binding the sense bulb to the suction tubing.
5. Disconnect the fitting that connects the expansion valve to the coil, and remove the expansion valve.
6. Discard the old expansion valve and o-ring.
7. Install new ES26104-1 expansion valve and ES49011 –2 o-ring.
8. Lubricate o-ring with polyolester oil viscosity grade ISO 68 or apply ES49000-1 sealant to fitting mating surfaces prior to assembly.

9. Install the thermal sense bulb such that it makes contact with the suction tube along its entire length with two or more cable ties as shown in Figure 3.

10. Insulate the bulb thoroughly with insulation to suction tubing.

NOTE: Always utilize two wrenches as not to twist or bend the soft copper lines.

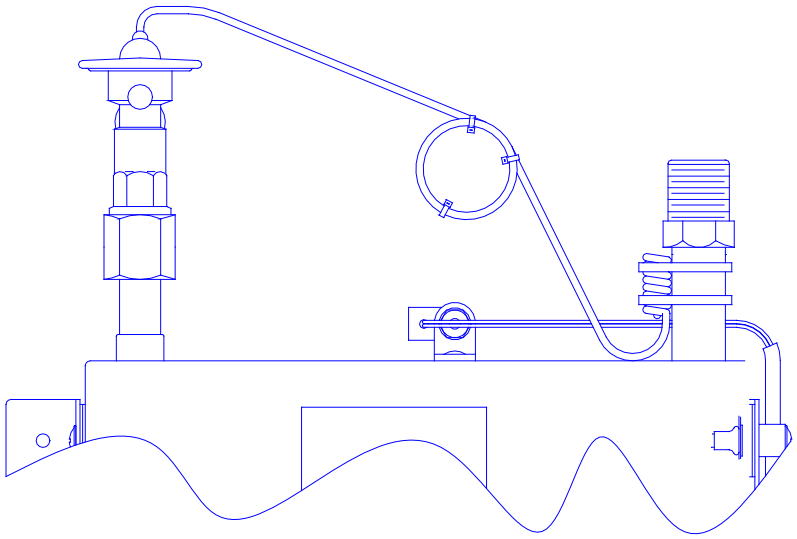


Figure 3. Correct expansion valve and sense bulb orientation

AIR-CONDITIONING SYSTEM

SYSTEM SERVICING

1. GENERAL

The air-conditioning system uses refrigerant R134a and the compressor lubricating oil used is Polyolester Oil viscosity grade (ISO) 68. No other refrigerant or compressor oil should be used.
Refrigerant R134a is non-explosive, non-flammable, non-corrosive, has practically no odor, and is heavier than air. Although R134a is classified as a safe refrigerant, certain precautions must be observed to personnel and property when working with R134a refrigerant.

WARNING:

A. Liquid R134a, at normal atmospheric pressure and temperature, evaporates so quickly that it tends to freeze anything that it contacts. Care must be taken to prevent any liquid refrigerant from coming into contact with skin.

B. Always wear safety goggles when servicing any part of the refrigerant system to prevent refrigerant from coming into contact with the eyes.

C. The refrigerant containers and the air-conditioning components are under pressure. Do not expose the air-conditioning system or refrigerant containers to heat. Do not puncture the air-conditioning components or the refrigerant containers.

CAUTION: Do not operate air-conditioning system with condenser air outlet blocked.

2. DISCHARGING SYSTEM

A. General

The air-conditioning system refrigerant must be discharged prior to disconnecting or removing any components in the refrigerant loop. Federal law prohibits discharging refrigerant into the atmosphere. Use only an R134a compatible recycling/recovery unit when discharging the air-conditioning system.

B. Tools and equipment

Designation	Ref. No.	Qty	Remarks
R134a Compatible Recycling/Recovery Unit	Comm. Avail.	1	None

C. Discharging procedure

1) Connect R134a compatible recycling/recovery unit to the R134a service valves located near the evaporator installation on the right hand side of the aircraft.
2) Empty the recycling/recovery unit of oil.
3) Discharge the air-conditioning system in accordance with the recovery unit's instructions.
4) Empty the oil from the recycling/recovery unit. Note the amount of oil removed during the system discharge. This amount of oil must be added to the air-conditioning system prior to charging. Only use polyolester oil viscosity grade ISO 68.

3. EVACUATING SYSTEM

A. General

The air-conditioning system must be evacuated prior to charging the system with refrigerant. Evacuating the system removes any moisture and air that may be in the system. Use only an R134a compatible recycling/recovery unit when evacuating the air-conditioning system.

B. Tools and Equipment

Designation	Ref. No.	Qty	Remarks
R134a Compatible Recycling/Recovery Unit	Comm. Avail.	1	None

C. Evacuating Procedure

1) Connect R134a compatible recycling/recovery unit to the R134a service valves on the aircraft's air-conditioning system.
2) Empty the oil from the recycling/recovery unit.
3) Evacuate the air-conditioning system in accordance with the recovery unit's instructions for a minimum of 15 minutes.
4) Empty the oil from the recycling/recovery unit. Note the amount of oil removed during the vacuum. This amount of oil must be added to the air-conditioning system prior to charging. Only use polyolester oil viscosity grade ISO 68.
5) Once the air-conditioning system has been evacuated, it is then ready for charging with new/recycled R134a refrigerant.

4. CHARGING SYSTEM

A. General

Use only R134a refrigerant when charging air-conditioning system. Federal law prohibits discharging refrigerant into the atmosphere. Use only R134a compatible recycling/recovery unit when charging the air-conditioning system.

B. Tools and Equipment

Designation	Ref. No.	Qty	Remarks
R134a Compatible Recycling/Recovery Unit	Comm. Avail.	1	None
R134a refrigerant	Comm. Avail	2.5 lbs.	None
Polyolester Oil	Comm. Avail	5 fl. oz.	Viscosity ISO 68

C. Charging Procedure

1) Connect R134a compatible recycling/recovery unit to the R134a service valves on the aircraft's air-conditioning system. If recovery unit does not have pressure gauges, connect service pressure gauges to air-conditioning system.
2) Evacuate the air-conditioning system for 15 minutes in accordance with the instructions in this report.

3) Close the low side and open the high side on the recycling/recovery unit.
4) Add polyolester oil viscosity ISO 68 to the high side service tee using the refrigerant recycling/recovery unit while the system is under a vacuum.

NOTE: Adding refrigerant or oil from the recycling/recovery unit directly to the low-pressure service tee will allow liquid refrigerant or oil to enter the compressor. The compressor is only designed to compressor gas refrigerant, and liquid refrigerant or oil may damage/destroy the compressor. Always close the low side of the recycling/recovery unit during charging.

5) Charge the air-conditioning system in accordance with the recovery unit's instructions except as noted
6) If bubbles are present at the sight glass after the system has been running for a minimum of 5 minutes, add refrigerant as necessary.

AIR-CONDITIONING SYSTEM

INSPECTION/CHECKS

1. GENERAL

General service procedures are provided to keep the air-conditioning system operating at peak efficiency. Procedures are provided for inspection intervals, refrigerant charge inspection, refrigerant leak inspection, and compressor oil level inspection.

CAUTION: Do not operate air-conditioning system with condenser air outlet blocked.

A. Tools and Equipment

Designation	Ref. No.	Qty	Remarks
Service Pressure Gage	Comm. Avail.	1	None
Electronic Leak Detector	Comm. Avail.	A/R	Type H-10G
Polyolester Oil	Comm. Avail.	A/R	Viscosity ISO 68

2. INSPECTION INTERVALS

A. General

Periodic inspections of the air-conditioning system will keep the system operating at peak efficiency. The inspections are simple visual inspections requiring a minimal amount of time.

B. Inspection Intervals

ITEM	INSPECT FOR	INTERVAL	ACTION
AIR-CONDITIONING SYSTEM COMPONENTS	DIRT, DAMAGE	EVERY 600 HOURS*	CLEAN OR REPLACE COMPONENTS AS NECESSARY
COMPRESSOR BELT	TENSION, WEAR	WITHIN 5 HOURS OF INSTALLING A NEW BELT, THEN EVERY 600 HOURS*	TENSION OR REPLACE AS NECESSARY
SIGHT GLASS	PROPER REFRIGERANT LEVEL	WHEN PROBLEM IS SUSPECTED*	DISCHARGE/CHARGE AS NECESSARY
EVAPORATOR AND CONDENSER COILS	DIRT	EVERY 600 HOURS*	CLEAN OR REPLACE AS NECESSARY

*Or every annual inspection, whichever comes first.

3. REFRIGERANT LEVEL INSPECTION

To be performed when improper refrigerant charge is suspected.

A. Select air-conditioning system switch to AIR COND position.

B. Set the cabin temperature knob to the MAX position.

C. Set the fan speed knob to the HI position.

D. Run system for five (5) minutes minimum.

E. Check that the receiver/drier inlet and outlet fitting temperatures are the same. If the outlet is considerably colder, the receiver/drier screen is may be clogged and may need replacement.

F. Check the sight glass for bubbles. No bubbles should be visible after 5 minutes of operation.

NOTE: The refrigerant bubbles are more difficult to see at ambient temperatures below 65ºF. Always re-check refrigerant level when ambient temperature is above 65ºF for proper level.

G. Add/Remove refrigerant as necessary.

4. REFRIGERANT SYSTEM LEAKAGE INSPECTION

To be performed when refrigerant leak is suspected.

A. The system leakage check is to be performed in an area with an ambient temperature of 65ºF or above.

B. Install service pressure gage to low and high pressure R134a service valves.

C. On systems that have not been operated for 2 weeks or longer, operate the system for a minimum of 15 minutes. This will lubricate the compressor shaft seal and ensure a more accurate leakage check of the shaft seal.

D. With the system off, and using a type H-10G electronic leak detector or equivalent, check all connections, compressor shaft seal, and fabricated components for leakage. No leakage is acceptable.

5. COMPRESSOR OIL LEVEL CHECK

NOTE: It is not necessary to check the compressor oil level during routine maintenance. It only needs to be checked when a system component is replaced or when incorrect oil level is suspected. Only polyolester oil viscosity grade ISO 68 should be used.

A. Operate air-conditioning system for 10 minutes. This will collect as much oil as possible in the compressor.

B. Discharge air-conditioning system in accordance with the discharging instructions in this manual.

C. Remove either discharge or suction port hose fitting.

D. Remove oil drain plug and allow all oil to drain.

E. Add 5 ounces of oil to the compressor.

F. Clean oil drain area and install drain plug. Torque to 6 - 9 ft-lbs.

G. Install hose fitting.

H. Charge air-conditioning system in accordance with the charging instructions in this manual.

ELECTRICAL

DESCRIPTION AND OPERATION

1. GENERAL

The electrical system of the Cessna 182 air-conditioning system operates from the main 28 VDC buss. The major components of the electrical system are:

Evaporator Blower: Blows cold air into the cabin.
Condenser Blower: Removes heat from the refrigerant
Compressor Clutch: Engages/disengages the compressor

2. SAFETY FEATURES

During certain flight configurations the compressor clutch and condenser blower are disabled to supply electrical power to more critical systems. Depending on the aircraft model and type, automatic load shedding removes power to the compressor clutch and condenser blower when high load systems are engaged. The evaporator blower will remain available to re-circulate cockpit air during all flight configurations.
Before electrical current reaches the compressor clutch it passes through the JBS2020-5 Pressure Switch and the JBS60-2 Freeze Switch. In the event of excessive refrigerant pressure during flight (caused by failed or blocked condenser blower) or inadequate refrigerant pressure (caused by a leak in the plumbing) the JBS2020-5 pressure switch will open and disable the compressor clutch. In the event of extremely low temperature air exiting the evaporator (which may cause the coil to freeze) the JBS60-2 Freeze Switch will open and disable the compressor clutch.

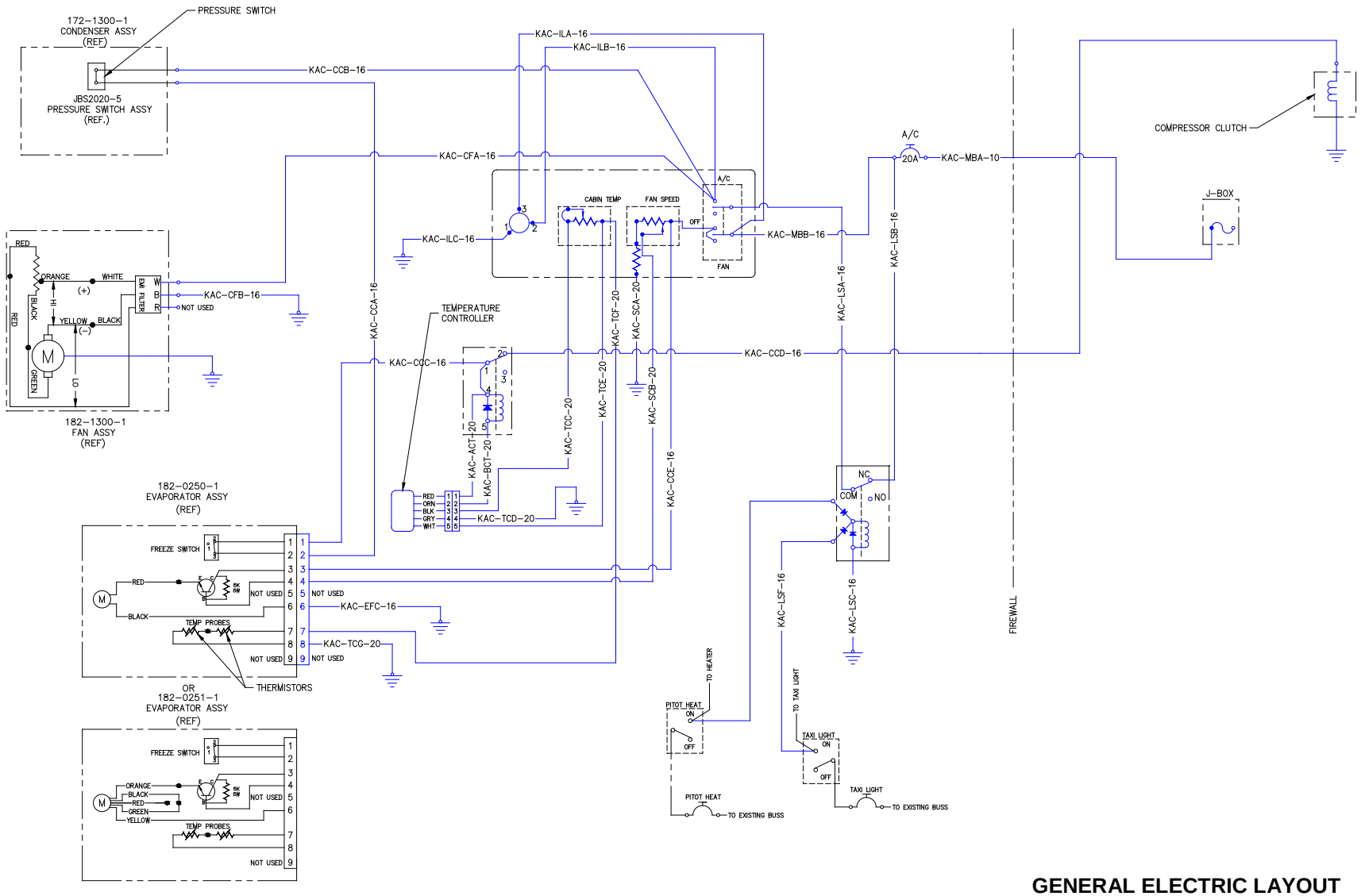
3. TEMPERATURE CONTROLLER OPERATION

The Cessna 182 air-conditioning system is equipped with a variable temperature control on the pilot's instrument panel. ES52126-1 thermistors vary in resistance as temperature changes and are placed at the inlet of the evaporator coil. The ES62117-1 Temperature Controller measures the resistance from the thermistors and compares that resistance with the cooling adjustment knob setting. The temperature controller then energizes and de-energizes the ES56128-1 Relay which engages and disengages the compressor clutch.

Example:

The aircraft operator set the temperature control knob for 70ºF (medium cooling). The temperature controller measures the resistance of the thermistors and determines that the air entering the evaporator is 68ºF. The temperature controller energizes the normally closed relay to remove power to the clutch. Since the compressor is not turning, the air-conditioning is not accomplishing any cooling and the air into the evaporator increases in temperature to 72ºF. The temperature

controller measures the resistance of the thermistors and determines that the air temperature is too high. The temperature controller de-energizes the normally closed relay to send power back to the clutch. The compressor now turns and lowers the air temperature of the cockpit air. This will continue to keep the air at the evaporator inlet temperature at 70ºF.



GENERAL ELECTRIC LAYOUT
60 AMP ALTERNATOR

ELECTRICAL

TROUBLESHOOTING

1. GENERAL

The following procedures are used for troubleshooting the electrical system and the electrical interface with the other assemblies of the air-conditioning system. The procedures systematically check every reasonable cause of the failure, starting from the power source that might result in the inoperation of the evaporator blower, condenser blower, and compressor clutch. If the problem causing the component to fail is suspected, the suspected cause should be checked first. The sequence of checks may be varied to increase the convenience of the checker as desired. If the aircraft is equipped with a 95 amp alternator some of the troubleshooting steps may not apply.

A. TOOLS AND EQUIPMENT

DESIGNATION	REF. NO.	QTY.	REMARKS
Service pressure gauge	Comm. Avail	1	None
Multi-meter	Comm. Avail	1	None
28 VDC source		A/R	None

2. EVAPORATOR BLOWER DOESN'T OPERATE

A. With the engine inoperative turn on the battery power

B. Turn the AIR COND/OFF/FAN switch to FAN.

C. Set the fan speed to high.

D. Disconnect the ES53025-2 Electrical Connector from the blower.

E. Check for power at pin 3 and pin 4 of the power side of the connector. Both terminals

F. Should have a voltage reading between 26.0V and 29.0V. Use a suitable aircraft ground when checking the power.

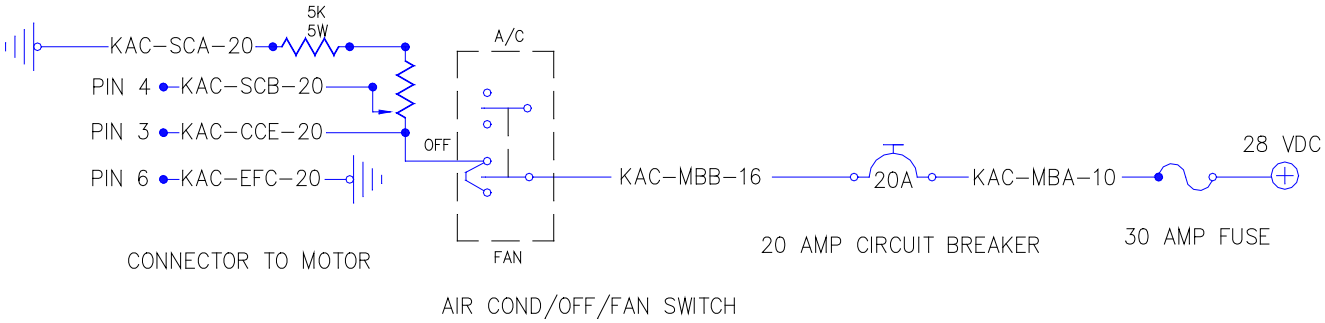
G. If correct power is present at Pin 3, and Pin 4, and ground is present at Pin 6, the problem lies with the evaporator/blower assembly.

H. If power is not present at pin 3 and Pin 4, the problem is due to a failed electrical component, a broken electrical connection, or a broken wire on the power side of the connector.

1) Check the 30 Amp fuse (if applicable) for continuity. Replace as necessary
2) Check for power at the Circuit breaker. If power is not present, check the KAC-MBA-10 wire for continuity. Replace/repair as necessary.
3) Check the 20 Amp Circuit Breaker for continuity between the two wire terminals. Check the wire terminals for good connections to the wires. Replace/repair as necessary.
4) Check for power at the AIR COND/OFF/FAN Switch. If power is not present, check the KAC-MMB-16 wire for continuity. Replace/repair as necessary.
5) Check the operation of the AIR COND/OFF/FAN Switch. Check the wire terminals for good connections. Replace/repair as necessary.
6) Check for power at the Fan Speed Potentiometer. If power is not present, replace/repair the connecting wire as necessary.
7) If power is present at the Fan Speed Potentiometer and not at pin 3 of the evaporator blower connector, check the KAC-CCE-16 wire for continuity. Replace/repair as necessary.

I. If power is present at pin 3, but is not present at pin 4, the problem is due to a failed electrical component, a broken electrical connection, or a broken wire.

1) Check the Fan Speed Potentiometer for correct operation. Replace or rewire as necessary.
2) Check resistance of the 5KΩ Resistor. Replace as necessary.
3) Check the connections and wires from the Fan Speed Potentiometer to the 5KΩ Resistor and from the 5KΩ Resistor to ground. Replace/repair as necessary.
4) Check for continuity from the wiper of the Fan Speed Potentiometer to the pin 4 of the evaporator blower connector. Replace/repair KAC-SCB-20 wire as necessary.



Evaporator Electrical Schematic

3. CONDENSER BLOWER DOESN'T OPERATE

A. With the engine inoperative turn on the battery power.

B. Turn the AIR COND/OFF/FAN switch to AIR COND.

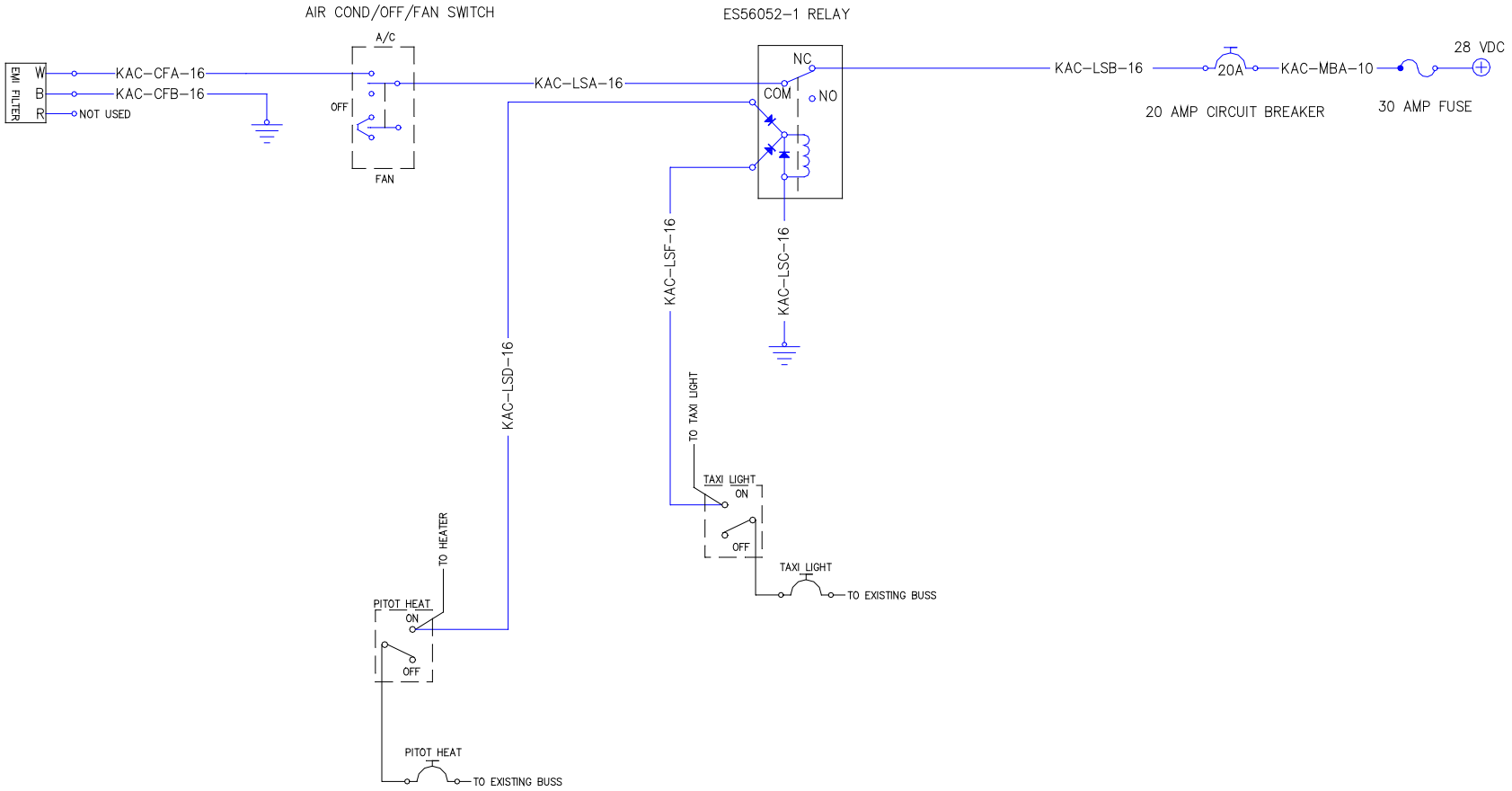
C. Turn the taxi light, prop de-ice and pitot heat off.

D. Check for power between the terminals of the EMI filter on the Condenser Blower Assembly.

E. If the voltage measured at the EMI filter terminals is between 24.0-29.0 VDC and the blower is not operating, the blower needs to be returned for replacement/repair.

F. If no voltage is measured at the EMI filter terminals, the problem is due to a failed electrical component, a broken electrical connection, or a broken wire.

1) Check the 30 Amp fuse for continuity. Replace as necessary
2) Check for power at the Circuit breaker. If power is not present, check the KAC-MBA-10 wire for continuity. Replace/repair as necessary.
3) Check the 20 Amp Circuit Breaker for continuity between the two wire terminals. Check the wire terminals for good connections to the wires. Replace/repair as necessary.
4) Check for power at the ES56052-1 Relay. If power is not present, check the KAC-LSB-16 wire for continuity. Replace/repair as necessary.
5) Check the terminals of the ES56052-1 Relay. If there is no continuity between the KAC-LSB-16 and KAC-LSA-16 (NC and COM) wires, check for power at the relay terminal that connects to wires KAC-LSF-16, KAC-LSE-16, and KAC-LSD-16. There should be no power at this terminal. If there is no power, check the relay for correct wiring and replace if necessary.
6) Check for power at the AIR COND/OFF/FAN Switch. If power is not present, check the KAC-LSA-16 wire for continuity. Replace/repair as necessary.
7) Check the operation of the AIR COND/OFF/FAN Switch. Check the wire terminals for good connections. Replace/repair as necessary.
8) Check for continuity from the AIR COND/OFF/FAN Switch to the positive terminal of the EMI filter. Repair/replace as necessary.
9) Check for continuity from the Negative terminal of the EMI filter to ground. Repair/replace as necessary.



Condenser Electrical Schematic
60 Amp Alternator

4. COMPRESSOR CLUTCH DOESN'T ENGAGE

NOTE: If the ambient temperature is less than 65ºF the temperature controller may disable the compressor clutch. If the ambient temperature is less than 45ºF the freeze switch may disable the compressor clutch. In order to troubleshoot an inoperative compressor clutch at temperatures between 45ºF and 65ºF, use a short wire as a jumper between Pin 7 and Pin 8 of the ES53026-2 Electrical Connector on the evaporator assembly. This will bypass the temperature probes.

A. With the engine inoperative turn on the battery power.

B. Turn the AIR COND/OFF/FAN switch to AIR COND.

C. Turn the taxi light, prop de-ice, and pitot heat off.

D. Turn the cooling control knob to MAX.

E. Check the voltage at the positive terminal of the compressor clutch.

F. If the voltage measured at the positive terminal of the compressor clutch is between 24.0-29.0 VDC, and the clutch does not engage, (it can be rotated without the compressor pulley rotating) the clutch and coil need to be returned for replacement/repair.

G. If no voltage is measured at the positive terminal of the compressor clutch, the problem is due to a failed electrical component, a broken electrical connection, a broken wire, or low temperature measured by the temperature probes.

1) Check the 30 Amp fuse for continuity. Replace as necessary
2) Check for power at the Circuit breaker. If power is not present, check the KAC-MBA-10 wire for continuity. Replace/repair as necessary.
3) Check the 20 Amp Circuit Breaker for continuity between the two wire terminals. Check the wire terminals for good connections to the wires. Replace/repair as necessary.
4) Check for power at the ES56052-1 Relay. If power is not present, check the KAC-LSB-16 wire for continuity. Replace/repair as necessary.
5) Check the terminals of the ES56052-1 Relay. If there is no continuity between the KAC-LSB-16 and KAC-LSA-16 (NC and COM) wires, check for power at the relay terminal that connects to wires KAC-LSF-16, KAC-LSE-16, and KAC-LSD-16. There should be no power at this terminal. If there is no power, and NC to COM is an open circuit, check the relay for correct wiring and replace if necessary.
6) Check for power at the AIR COND/OFF/FAN Switch. If power is not present, check the KAC-LSA-16 wire for continuity. Replace/repair as necessary.

7) Check the operation of the AIR COND/OFF/FAN Switch. Check the wire terminals for good connections. Replace/repair as necessary.

8) Check for power at the JBS2020-5 Pressure Switch. If power is not present, check the KAC-CCB-16 wire for continuity. Replace/repair as necessary.

9) Check for continuity of the pressure switch. If there is no continuity at the pressure switch, check the refrigerant pressure. If the discharge pressure is between 35 and 340 PSIG, discharge the air-conditioning system and replace the JBS2020-5 Pressure Switch. If the pressure is less than 35 PSIG or greater than 340 PSIG add/remove refrigerant to the proper level.

10) Check for power at the Freeze Switch (Pin 3) on the evaporator assembly. If power is not present, check the KAC-CCA-16 wire for continuity. Replace/repair as necessary.

11) Check for continuity between Pin 3 and Pin 2. If there is no continuity between Pin 3 and Pin 2, and the ambient air temperature is greater than 45ºF, replace the Freeze Switch.

12) Check for power at the ES56128-1 Relay. If power is not present, check the KAC-CCC-16 wire for continuity. Replace/repair as necessary.

13) Check for continuity between Pin 1 and Pin 2 of the relay. If the ambient air temperature is greater than 65ºF and there is no continuity between Pin 1 and 2 continue as follows:

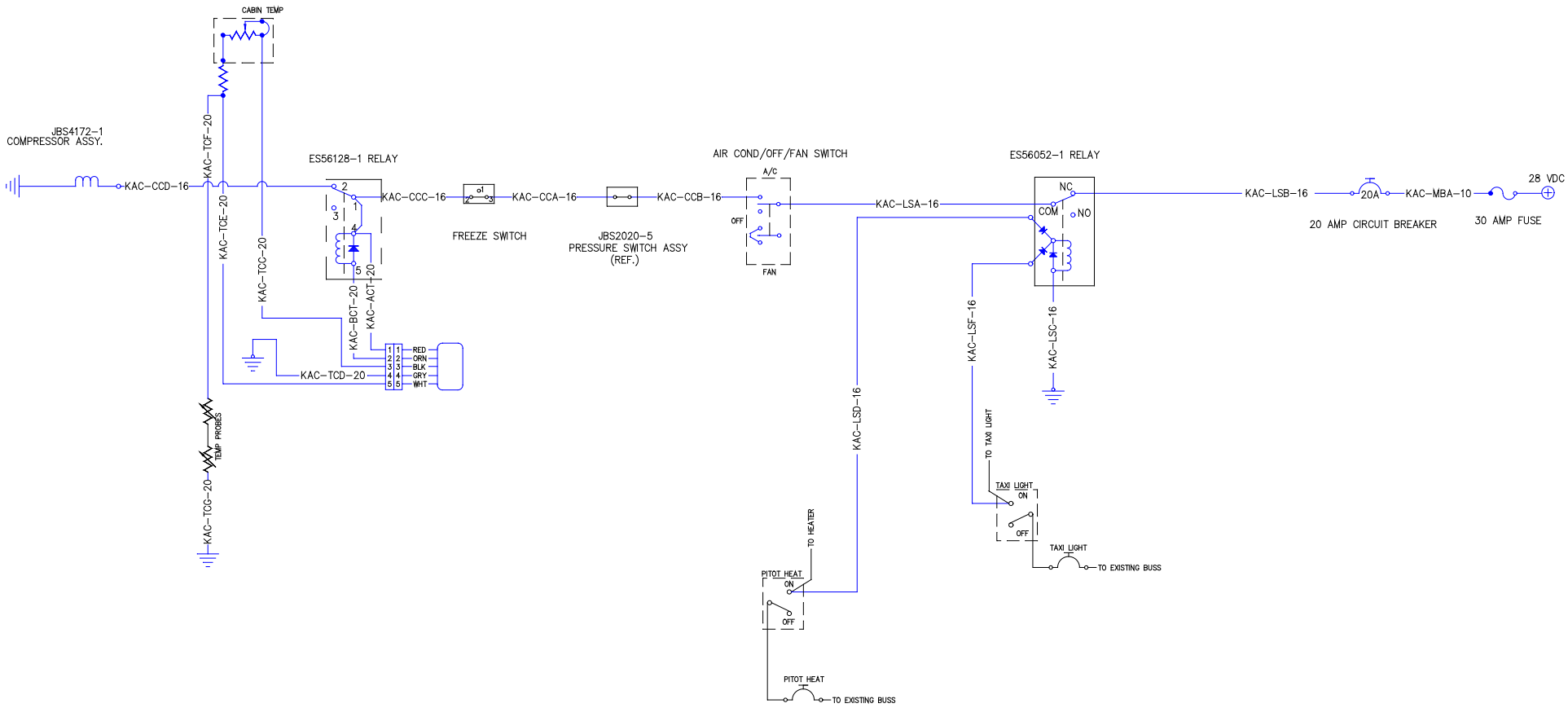
    a) Check for power at Pin 4. If there is no power at Pin 4, replace the ES56128-1 Relay.

    b) If there is power at Pin 4, the temperature controller is powering the relay to disengage the clutch. Using a short piece of wire create a short circuit between Pin 7 and Pin 8 on the power side of the evaporator blower connector.

    c) If the ES56128-1 Relay then disengages, replace the ES52126-1 Temperature Probes.

    d) If the ES56128-1 does not engage, check the temperature controller for correct wiring and replace the ES62117-1 Temperature Controller as necessary.

14) If there is power at pin 2 of the ES56128-1 Relay, and there is not power at the compressor clutch coil, repair/replace the KAC-CCD-16 wire.



Compressor Clutch Electrical Schematic
60 Amp Alternator

PLUMBING

DESCRIPTION AND OPERATION

1. GENERAL

The plumbing system consists of flexible nylon lined refrigerant hose with permanent swaged on fittings. All connections are tube o-ring type with sealant on the fitting mating surfaces to ensure leak-free operation. Hose, o-ring material, and sealants are specially designed to work with refrigerant R134a and polyolester oil viscosity grade ISO 68. Two service valves are located on the right side of the aircraft near the evaporator installation. They are sized differently to avoid incorrect connection when servicing the system. A receiver/drier bottle is located downstream of the condenser to remove moisture from the liquid refrigerant. The receiver/drier bottle is mounted in the tailbone of the aircraft. A binary pressure switch monitors the refrigerant gas pressure. This switch will open at a compressor discharge over pressure of 384 ±29 psi and under-pressure conditions of 30 ±5 psi. This will interrupt the power to the compressor clutch and stop the compressor.

The second overpressure safety device is a fuse plug, which will vent the system refrigerant in the event of a system pressure in excess of 425 PSIG. The R134a gas would then be sucked into the condenser blower and forced out the exhaust duct on the right side of the aircraft. It is located on the receiver/drier.

This section of the maintenance manual discusses maintenance practices used for the plumbing portion of the air-conditioning system. Refer to 182-0800 for parts list and schematics.

PLUMBING

MAINTENANCE PRACTICES

1. GENERAL

The following procedures are used to perform typical maintenance on the air-conditioning system plumbing.

CAUTION: Do not operate air-conditioning system with condenser air inlet or outlet blocked.

A. Connection to components, o-ring replacement:

1) Place the appropriate o-ring (reference 182-0800 drawing) over the tube "O" end of the fitting.
2) Lubricate o-ring with polyolester oil or ES49000-1 sealant prior to assembly.
3) Apply sealant to all fitting-mating surfaces prior to assembly.
4) "Dry" torque recommendations for all fittings are as follows:

Liquid hoses	11-13 ft/lbs
Discharge hoses	15-20 ft/lbs
Suction hoses	21-27 ft/lbs

It is recommended to torque to the low side of the torque range to prevent fitting twisting or damage.

B. Receiver/drier bottle replacement:

1) Replace receiver/drier bottle whenever the compressor is replaced or when the air-conditioning system plumbing is left open to the atmosphere for a period of time greater than one half (1/2) hour.

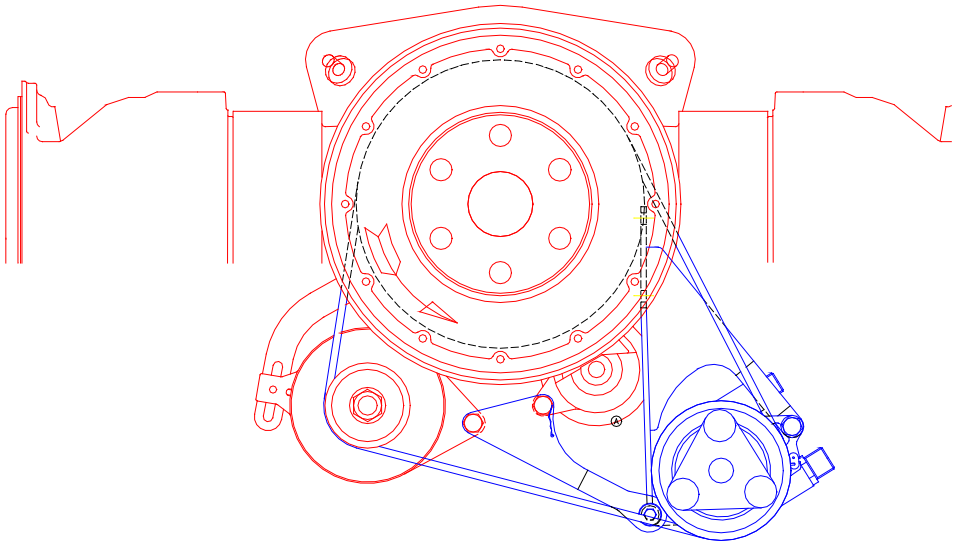
COMPRESSOR

DESCRIPTION AND OPERATION

1. GENERAL

The compressor is mounted on brackets in the engine compartment and is driven by a belt running to the starter ring-gear pulley. The compressor compresses the refrigerant gas for condensing at ambient temperatures and pumps the refrigerant through the system. The compressor clutch is powered by 28 VDC.

This section of the maintenance manual discusses maintenance practices used for the compressor assembly portion of the air-conditioning system.



COMPRESSOR INSTALLATION

COMPRESSOR

MAINTENANCE PRACTICES

1. GENERAL

The following procedures are used to perform typical maintenance on the compressor assembly.

2. TOOLS AND EQUIPMENT

DESIGNATION	REF. NO.	QTY.	REMARKS
Polyolester oil	Comm Avail	A/R	Viscosity ISO 68

3. COMPRESSOR ASSEMBLY MAINTENANCE PROCEDURES

A. Compressor drive belt adjustment:

1. Adjust belt for moderate tension and then rotate large pulley through 2 revolutions.

2. Tension belt to deflect 0.25 inch with a 10 lb. force applied at mid-span location. The belt should deflect .5 inches with a 22 lb force applied at the mid-span location.

3. Rotate belt 5 revolutions. Re-tension as required.

4. Cessna alternator belt adjustment procedures should always take precedence over any recommendations here within.

B. Compressor oil level check:

NOTE: It is not necessary to check the compressor oil level at any time during routine maintenance as long as servicing instructions are properly followed. The compressor comes equipped with 5 oz. of polyolester oil viscosity grade ISO 68. If the amount of oil removed during system discharging and vacuuming is always added before charging, oil never needs to be added to the compressor.

CONDENSER

DESCRIPTION AND OPERATION

1. GENERAL

The condenser assembly is located in the tailcone and is attached to support structure mounted to frames in the aircraft. The assembly consists of a condenser coil unit and shroud with associated brackets. The condenser converts the refrigerant from a gas to a liquid. The receiver/drier bottle removes moisture from the refrigerant. The condenser fan draws in cool (ambient) air from the intake duct on the left side of the aircraft and blows this air through the condenser coil where the refrigerant gas can be condensed to a liquid. The air is then exhausted overboard through the exhaust duct on the right side of the tailcone.

This section of the maintenance manual discusses maintenance practices used for the condenser assembly portion of the air-conditioning system.

CONDENSER

MAINTENANCE PRACTICES

1. GENERAL

The following procedures are used to perform typical maintenance on the condenser assembly.

2. TOOLS AND EQUIPMENT

DESIGNATION	REF. NO.	QTY.	REMARKS
Vacuum Cleaner	Comm Avail	1	None
Coil Cleaner	Comm Avail	A/R	Non-acid based

3. CONDENSER ASSEMBLY MAINTENANCE PROCEDURES

A. Condenser coil cleaning procedure:

1. Remove condenser coil from aircraft and use vacuum cleaner to remove large debris from upstream and downstream coil faces.

2. Spray coil cleaner on both coil faces. Wash off with water (ends capped if not installed).

3. Allow coil to dry thoroughly prior to additional maintenance.

EVAPORATOR

DESCRIPTION AND OPERATION

1. GENERAL

The evaporator assemblies are mounted aft of the cabin on the right side of the aircraft. The evaporator assemblies are made up of an evaporator coil, and blower. Cabin air is pulled through the evaporator coil, cooled and then distributed back to the cabin.

This section of the maintenance manual discusses maintenance practices used for the evaporator assembly portion of the air-conditioning system.

EVAPORATOR

MAINTENANCE PRACTICES

1. GENERAL

The following procedures are used to perform typical maintenance on the evaporator assembly.

2. TOOLS AND EQUIPMENT

DESIGNATION	REF. NO.	QTY.	REMARKS
Vacuum Cleaner	Comm Avail	1	None
Coil Cleaner	Comm Avail	A/R	Non-acid based

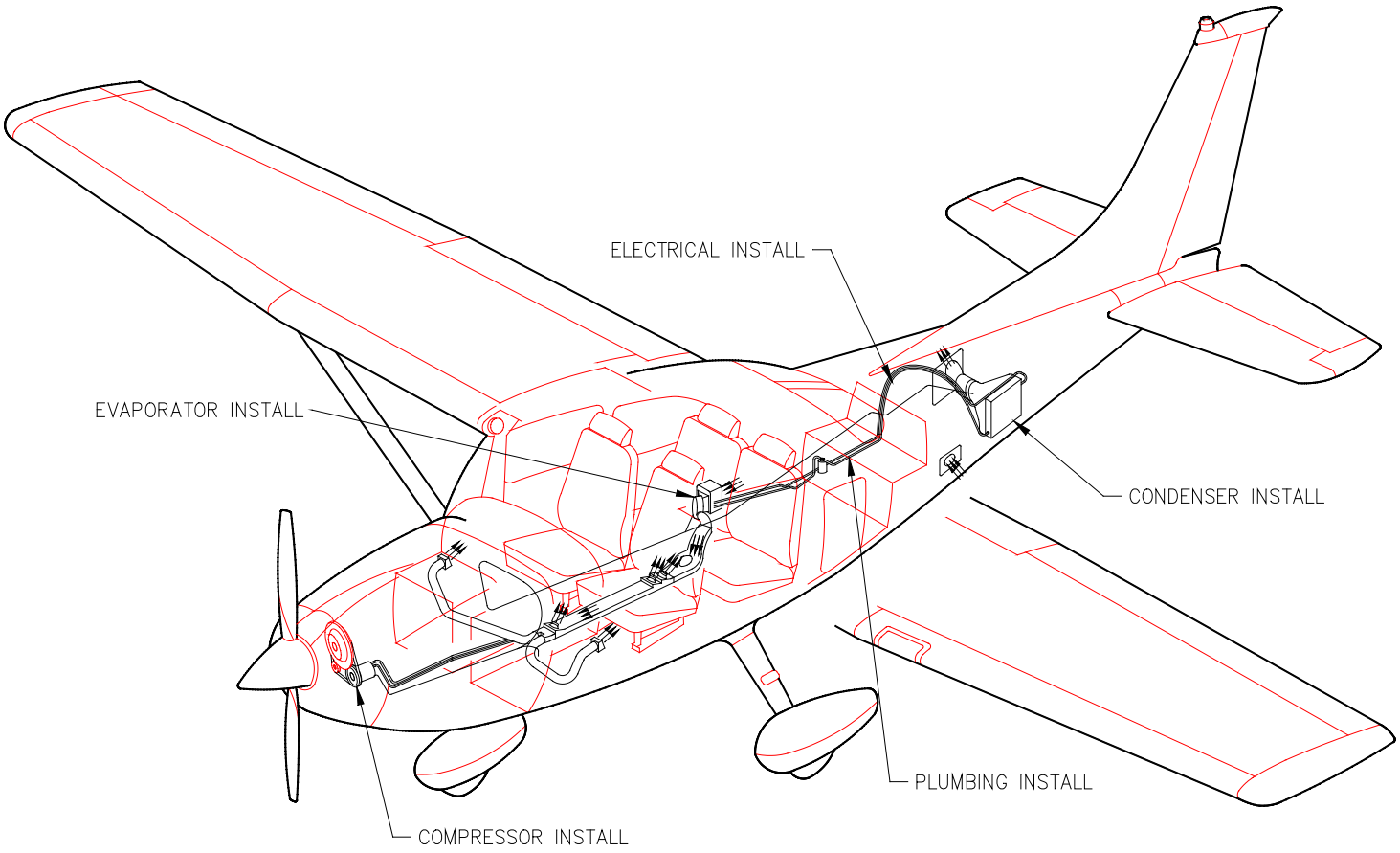
3. EVAPORATOR ASSEMBLY MAINTENANCE PROCEDURES

A. Evaporator coil cleaning procedure:

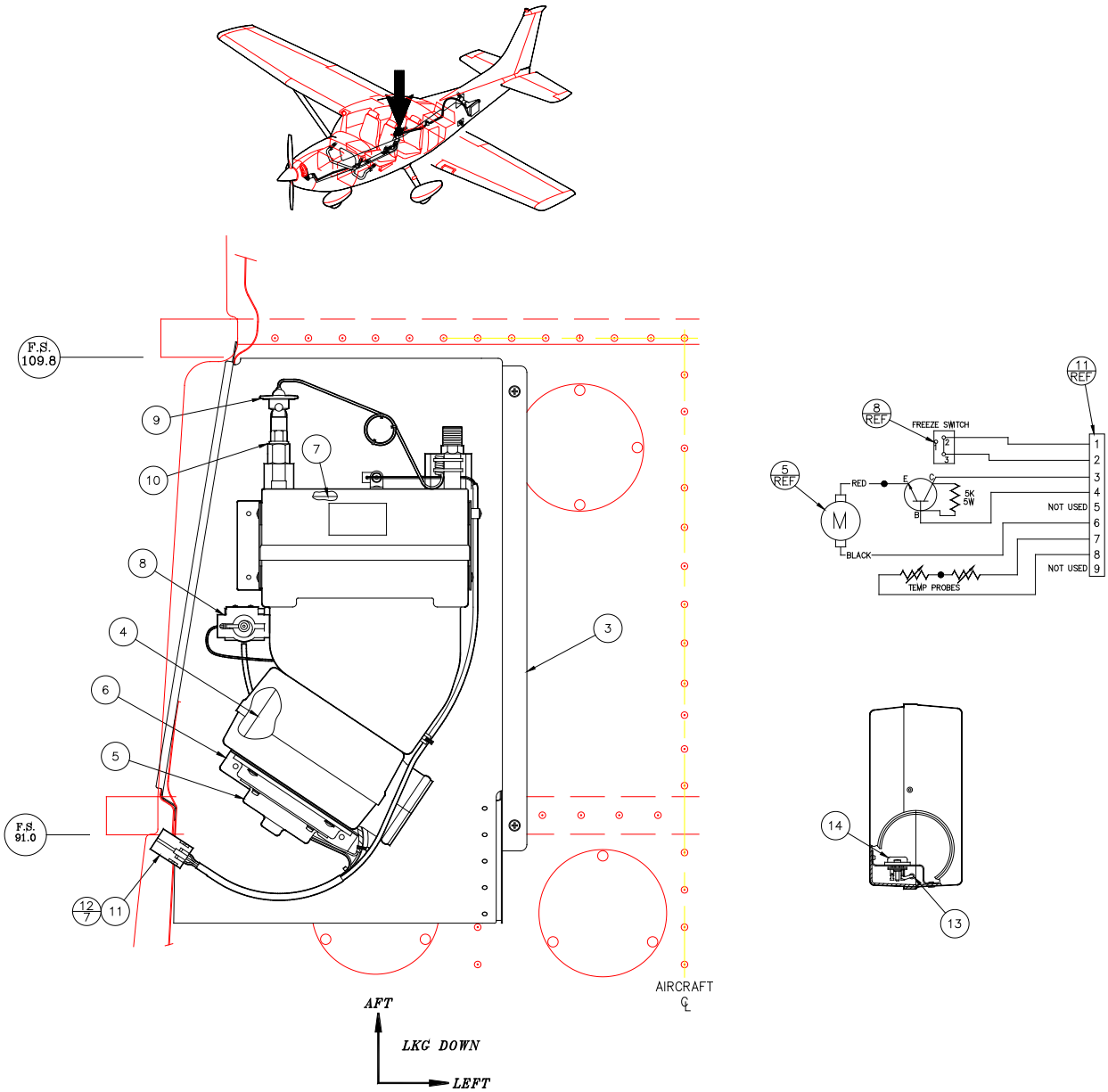
1. Remove evaporator coil from aircraft and use vacuum cleaner to remove large debris from upstream and downstream coil faces.

2. Spray coil cleaner on both coil faces. Wash off with water (ends capped if not installed).

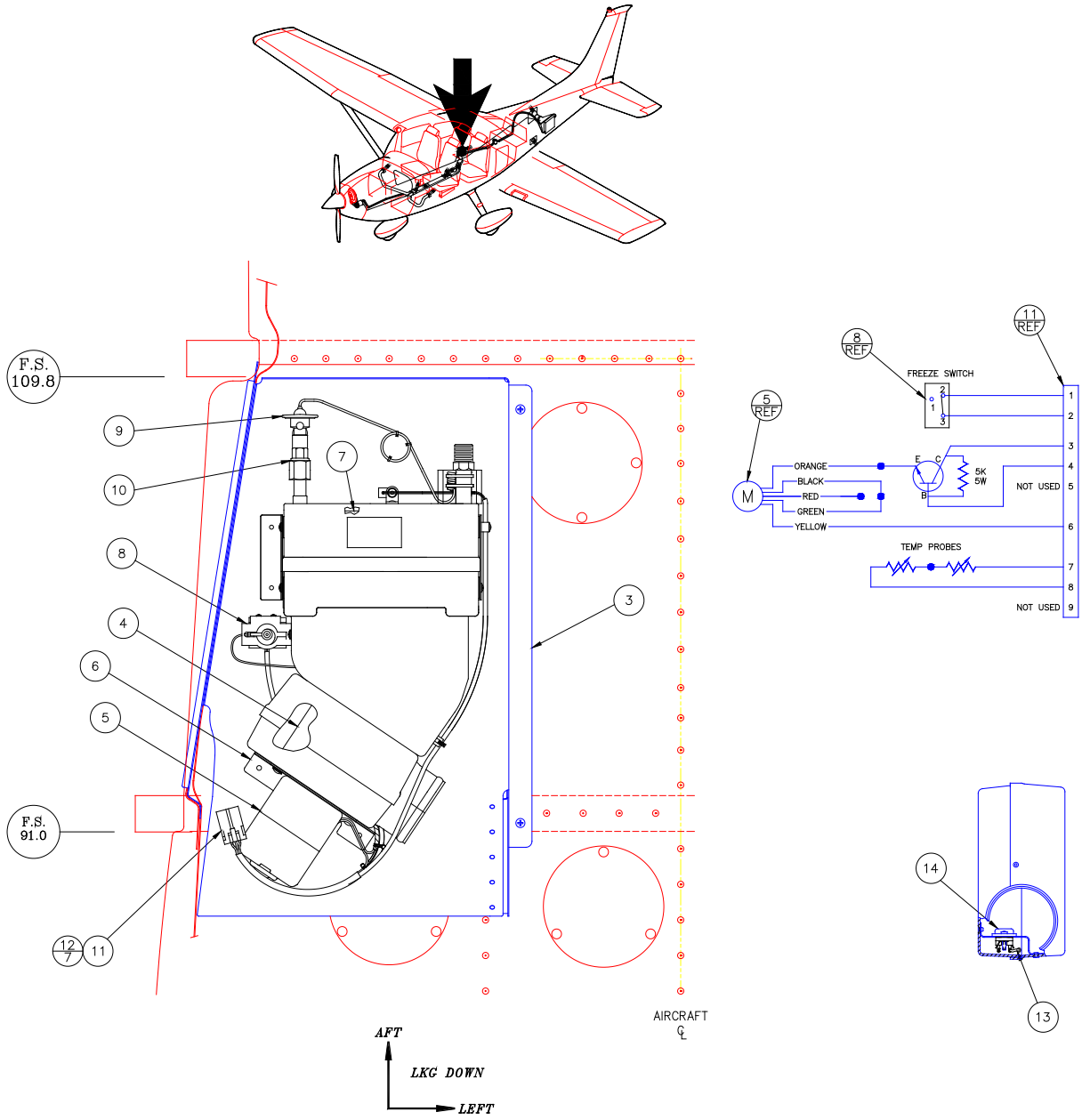
3. Allow coil to dry thoroughly prior to additional maintenance.



ILLUSTRATED PARTS CATALOG

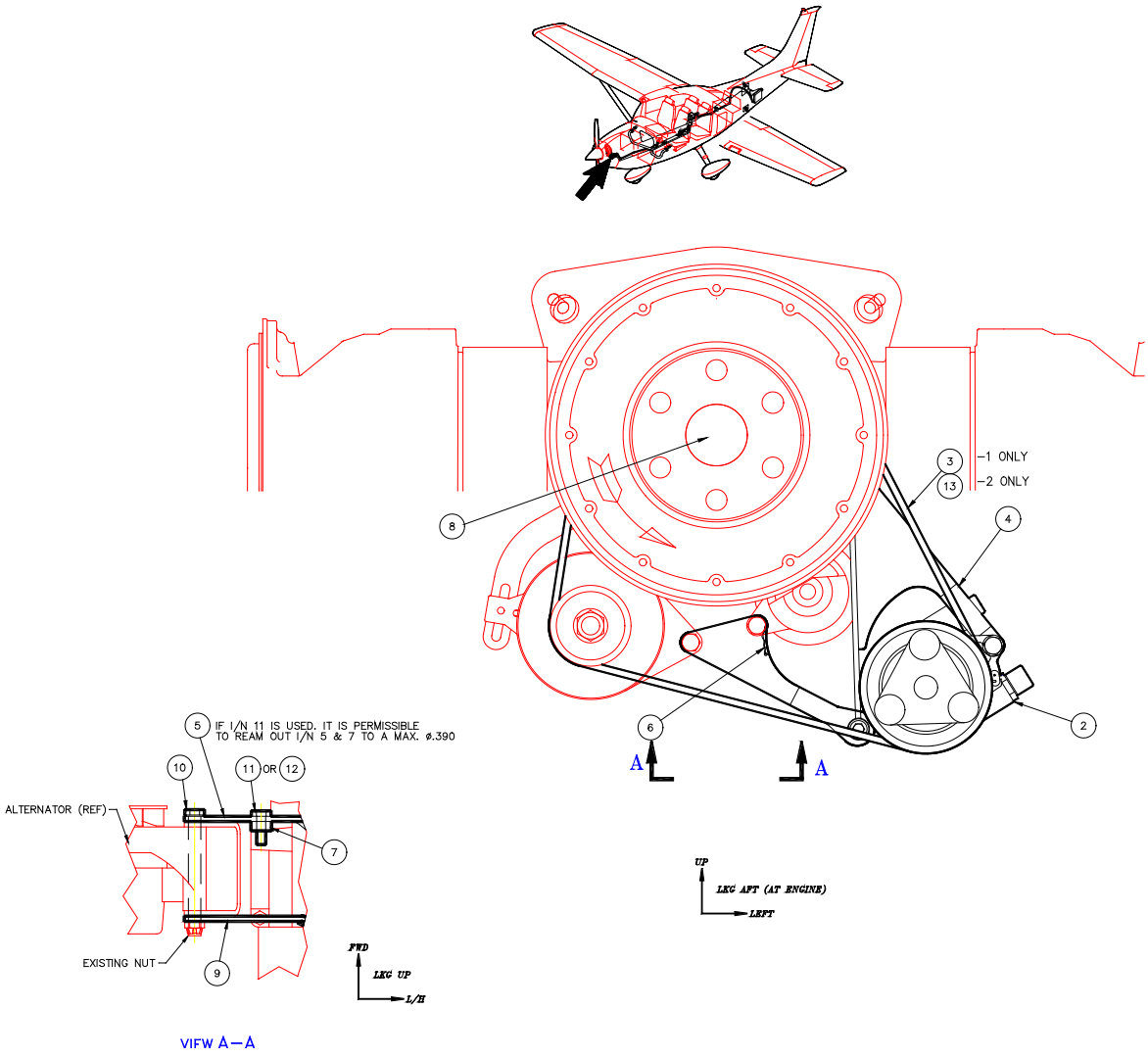


182-0200-1 Evaporator Installation
With 182-0250-1 Evap Assy.



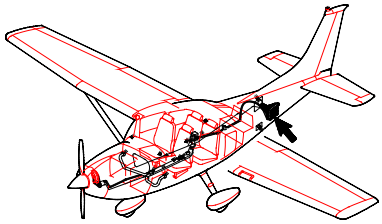
182-0200-1 Evaporator Installation
With 182-0251-1 Evap Assy.

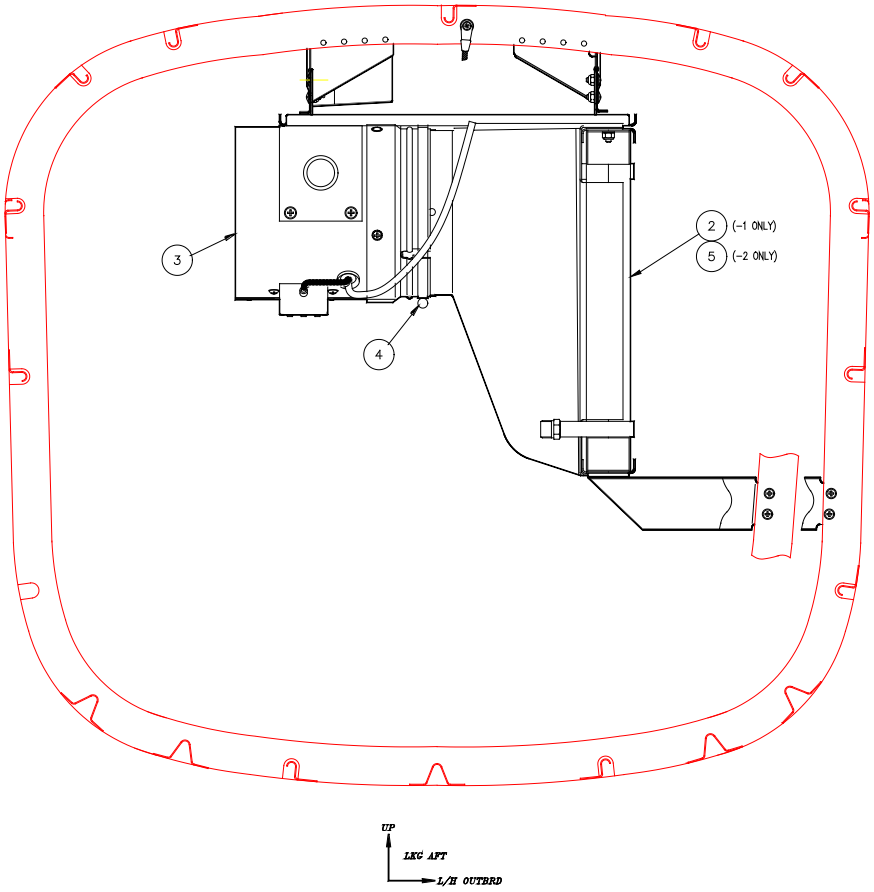
ITEM	PART NUMBER	NOMENCLATURE	UNITS PER ASSEMBLY
1	182-0200-1	Evaporator Installation	
2	182-0250-1 182-0251-1	Evaporator Assembly (Alternate Spare 182-0251-1) Evaporator Assembly (Alternate Spare 182-0250-1)	1
3	182-0250-2	Evaporator Cover Assembly	1
4	ES73088-10	Blower Wheel	1
5	ES61060-2 ES61027-10	Motor (182-0250-1 only) Motor (182-0251-1 only)	1
6	172-1250-1 172-1251-1	Bracket (182-0250-1 only) Bracket (182-0251-1 only)	1
7	182-0252-1	Evaporator Coil Assembly	1
8	JBS60-2	Thermostat	1
9	ES26104-1	Expansion Valve	1
10	ES49011-2	O-Ring	1
11	ES53025-2	Receptacle	1
12	ES53027-2	Pin	7
13	ES63015-2	Resistor	1
14	ES58181-79	Transistor	1



182-0400-1 Compressor Installation
182-0400-2 Compressor Installation

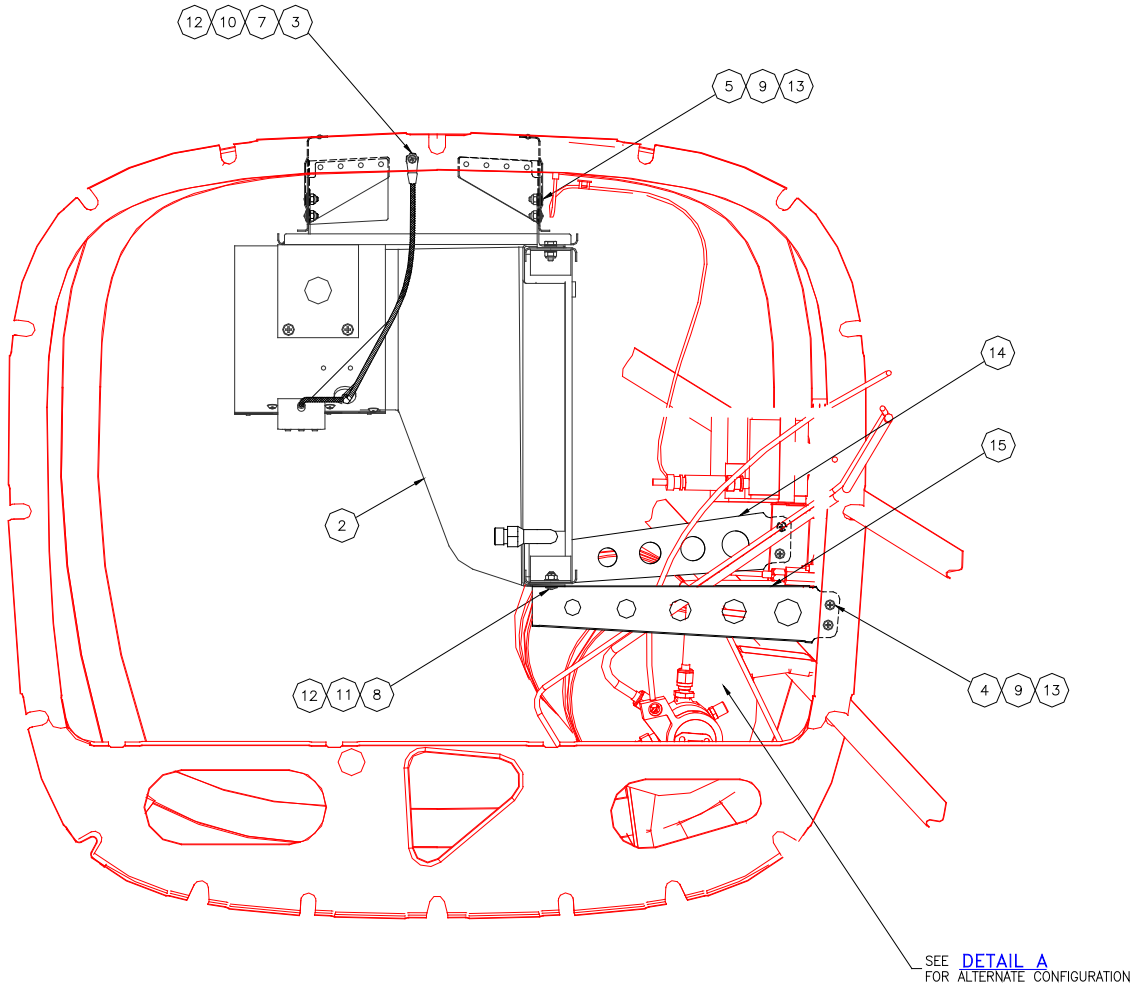
ITEM	PART NUMBER	NOMENCLATURE	UNITS PER ASSEMBLY
1	182-0400-1, -2	Compressor Installation	
2	JBS4172-1	Compressor Assembly	1
3	ES20172-2	Belt (for configurations without 95 amp alternators)	1
4	182-1400-5	Support Assembly	1
5	182-1400-8	Bracket	1
6	MS20995C20	Spacer Safety Wire	A/R
7	172-1400-6	Spacer	1
8	MS28775-228	O-ring	1
9	182-1400-7	Brace	1
10	AN7-44A	Bolt	1
11	MS20074-06-11	Bolt	1
12	MS20074-05-11	Bolt	1
13	ES20172-4	Belt (for configurations with 95 amp alternators)	1

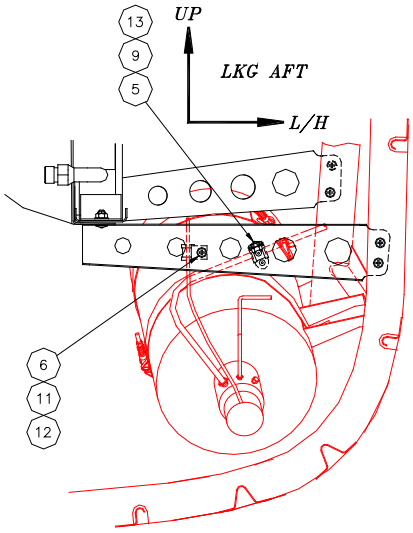




182-0300-1 Condenser Installation
182-0300-2 Condenser Installation

ITEM	PART NUMBER	NOMENCLATURE	UNITS PER ASSEMBLY
1	182-0300-1,-2	Condenser Installation	
2	182-0301-1	Condenser/Fan Assembly (-1 only)	1
3	182-0335-1	Condenser Fan Assembly	1
4	ES30042-10	Clamp	1
5	182-0301-2	Condenser/Fan Assembly (-2 only)	1

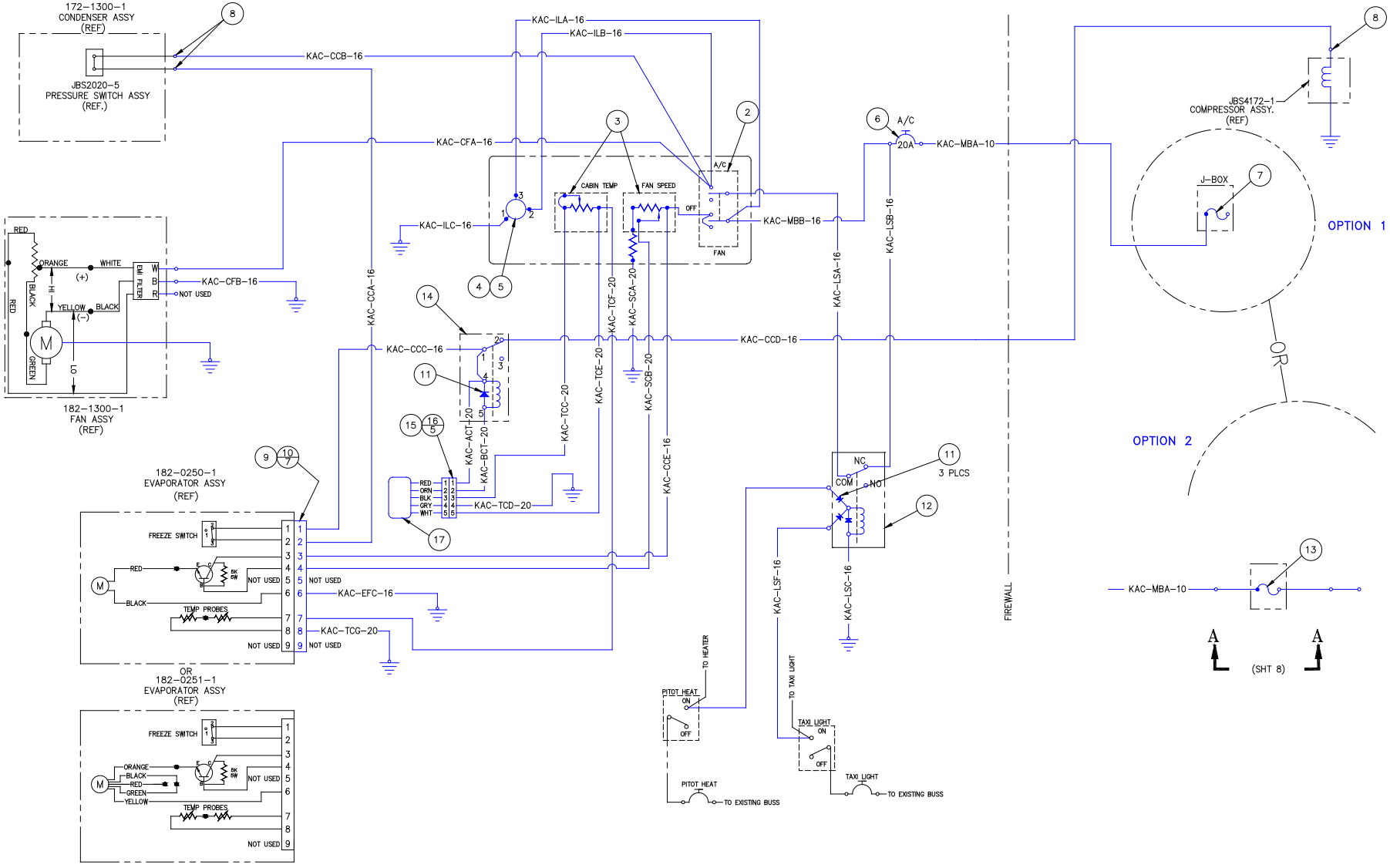




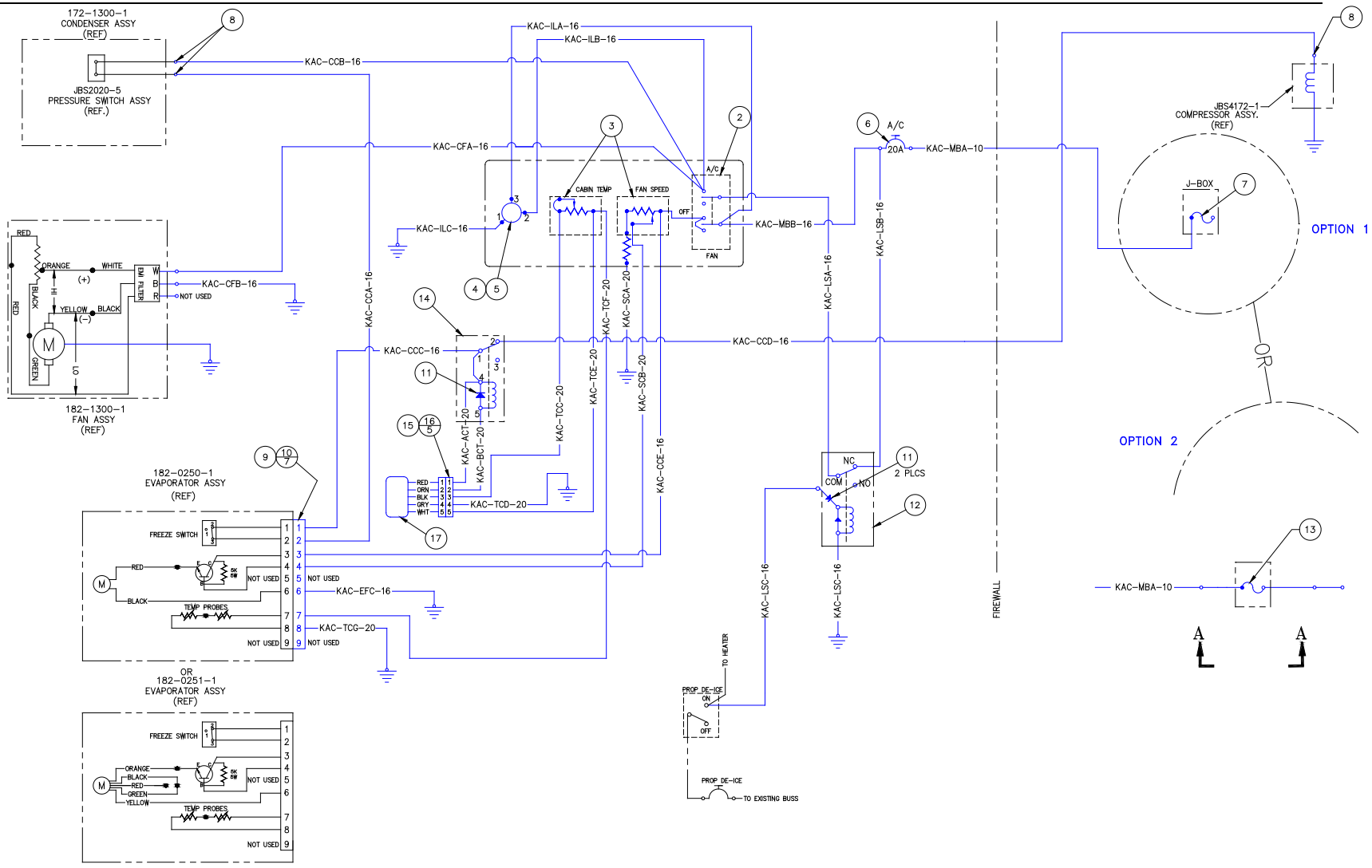
DETAIL A
ALTERNATE OXYGEN
BOTTLE CONFIGURATION

182-0302-1 Condenser Installation

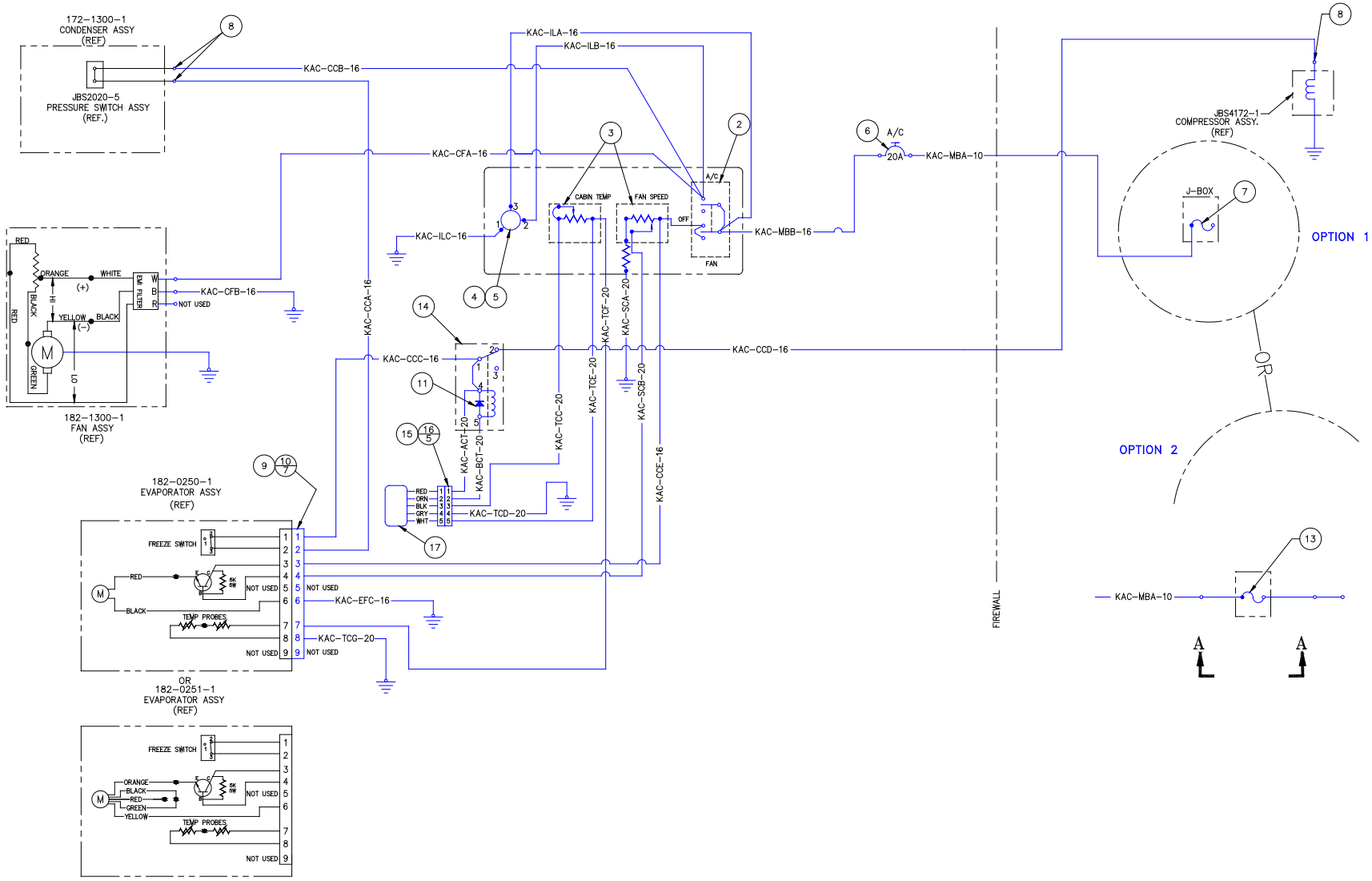
ITEM	PART NUMBER	NOMENCLATURE	UNITS PER ASSEMBLY
1	182-0302-1	Condenser Installation	1
2	182-0303-1	Condenser/Fan Assy.	1
3	ES55074-1	Terminal	1
4	AN525-832R6	Screw	8
5	AN525-832R7	Screw	9
6	AN525-10R6	Screw	2
7	AN525-10R7	Screw	2
8	AN525-10R8	Screw	1
9	AN960-8L	Washer	17
10	AN960-10	Washer	1
11	AN960-10L	Washer	4
12	MS20365-1032	Nut	5
13	MS21044N08	Nut	17
14	182-1310-1	Aft Support	1
15	182-1309-1	Forward Support	1



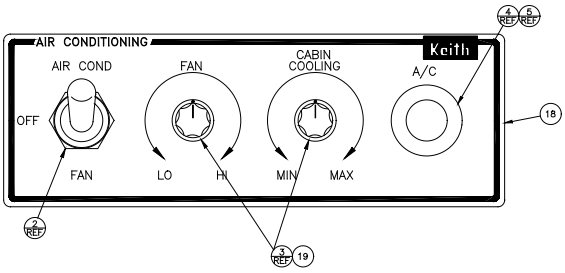
182-0700-1 Electrical Installation
For aircraft equipped with a 60 amp alternator.



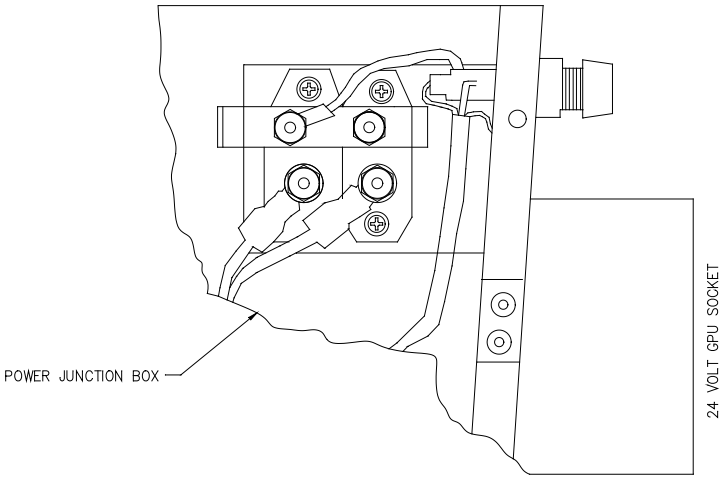
182-0700-1 Electrical Installation
For aircraft equipped with a 95 amp alternator and propeller de-icing system



182-0700-1 Electrical Installation
For aircraft equipped with a 95 amp alternator without propeller de-icing.

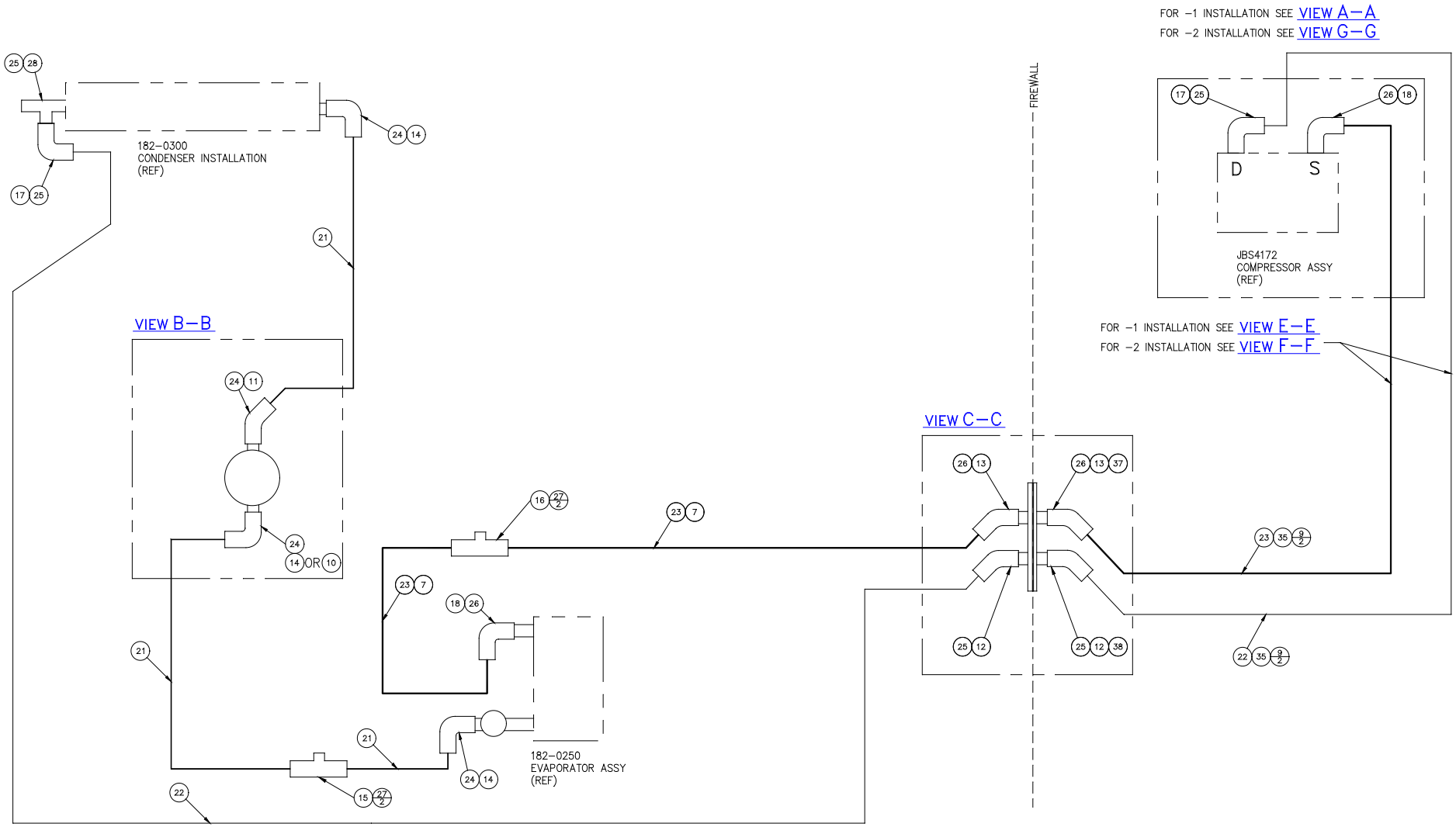


SWITCH PANEL

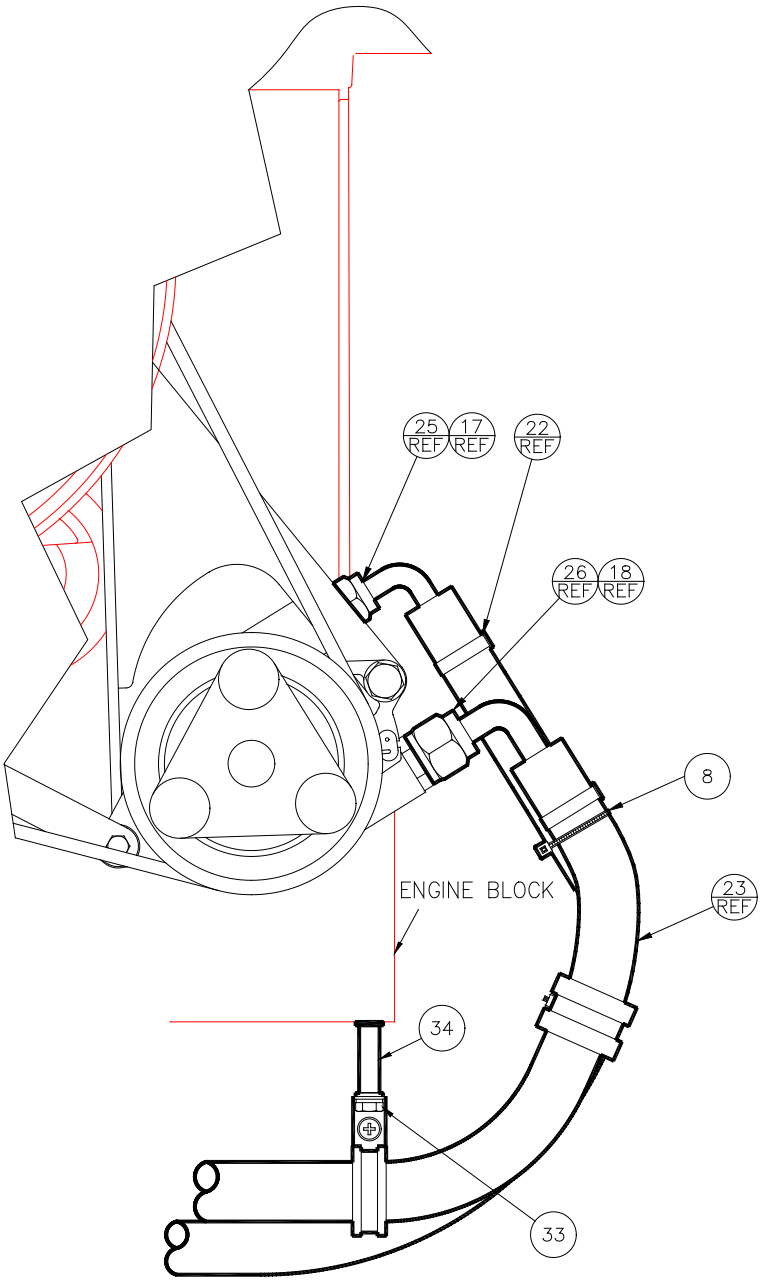


VIEW A–A

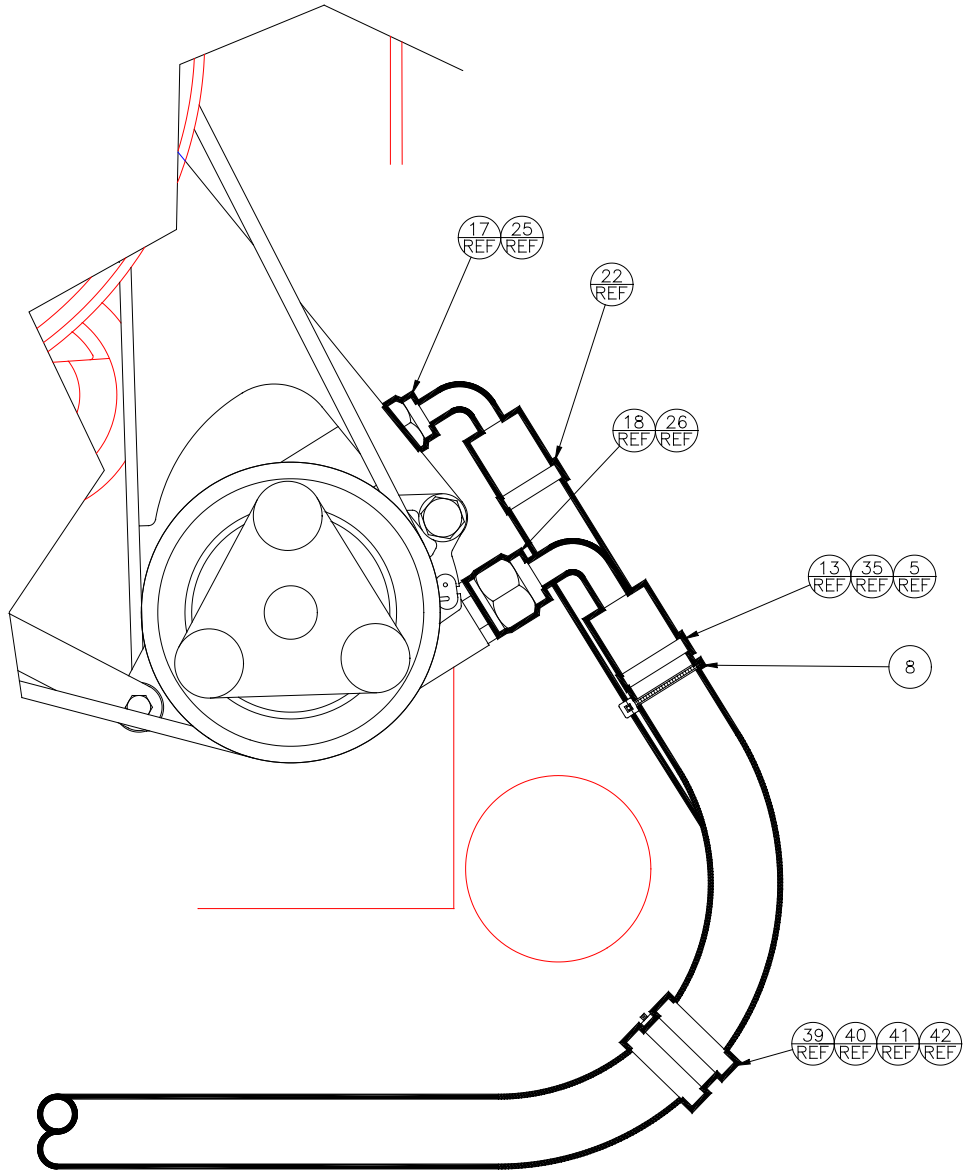
ITEM	PART NUMBER	NOMENCLATURE	UNITS PER ASSEMBLY
1	182-0700-1	Electrical Installation	
2	ES57016-5	Switch	1
3	ES62114-1	Rheostat	2
4	MS25041-10	Light, Indicator	1
5	ES50162-1	Lamp	1
6	JBS75-33	Circuit Breaker (20A)	1
7	ES51172-1	Fuse (30A)	1
8	ES55079-1	Splice, Knife Disconnect	3
9	ES53026-2	Plug	1
10	ES53028-2	Socket	7
11	ES58161-15	Diode	4
12	ES56052-1	Relay	1
13	JBS64-13	Fuse (30A)	1
14	ES56128-1	Relay	1
15	ES53001-1	Connector	1
16	ES53003-1	Pin, Female Crimp Type	5
17	ES62117-1	Temp Controller	1
18	JBS7002-12	Panel, Switch	1
19	ES59118-1	Knob	2



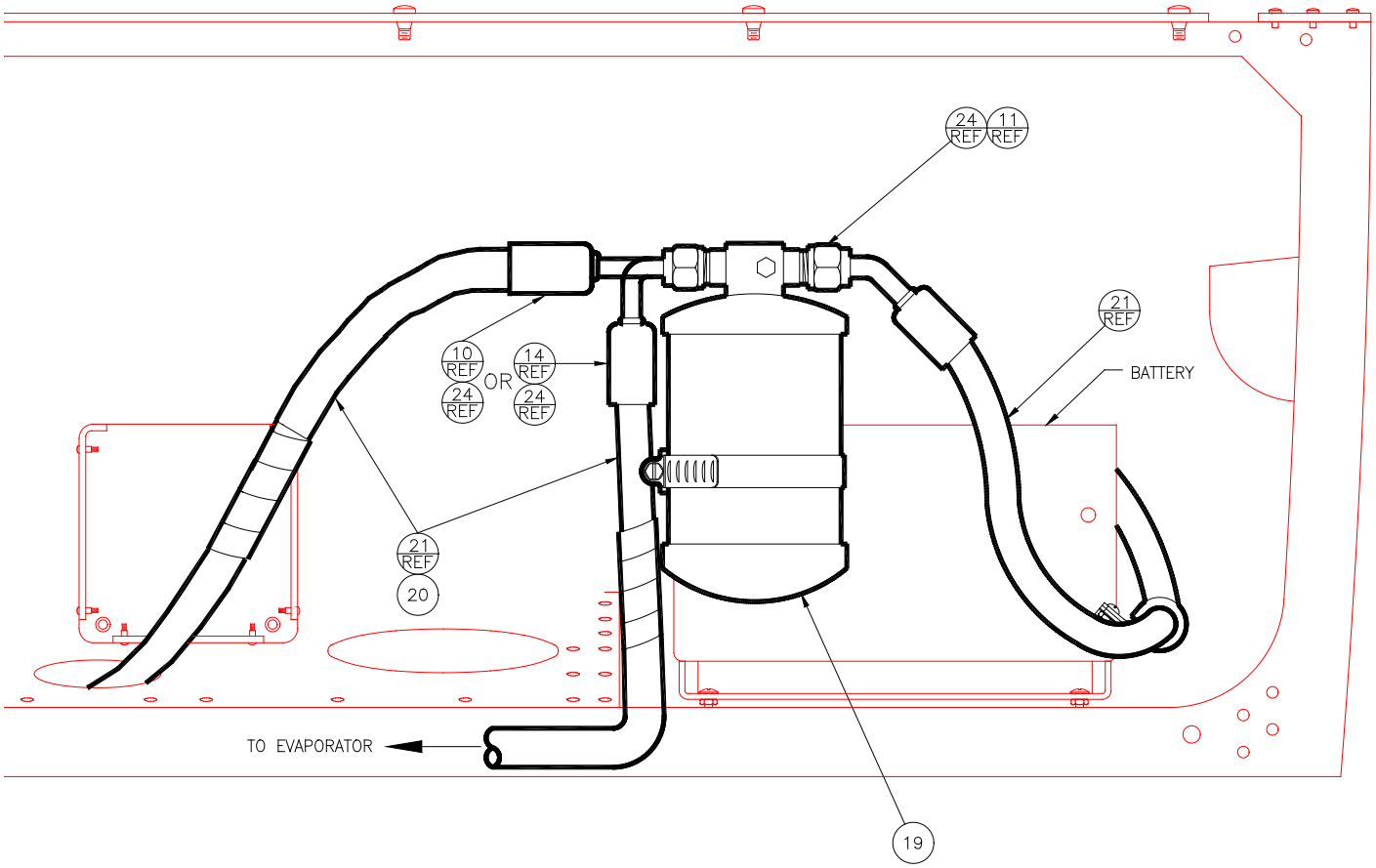
182-0800-1 Plumbing Installation
182-0800-2 Plumbing Installation


25 REF
17 REF
22 REF
26 REF
18 REF
8
23 REF
ENGINE BLOCK
34
33
UP
LKG AFT (AT ENGINE)
LEFT

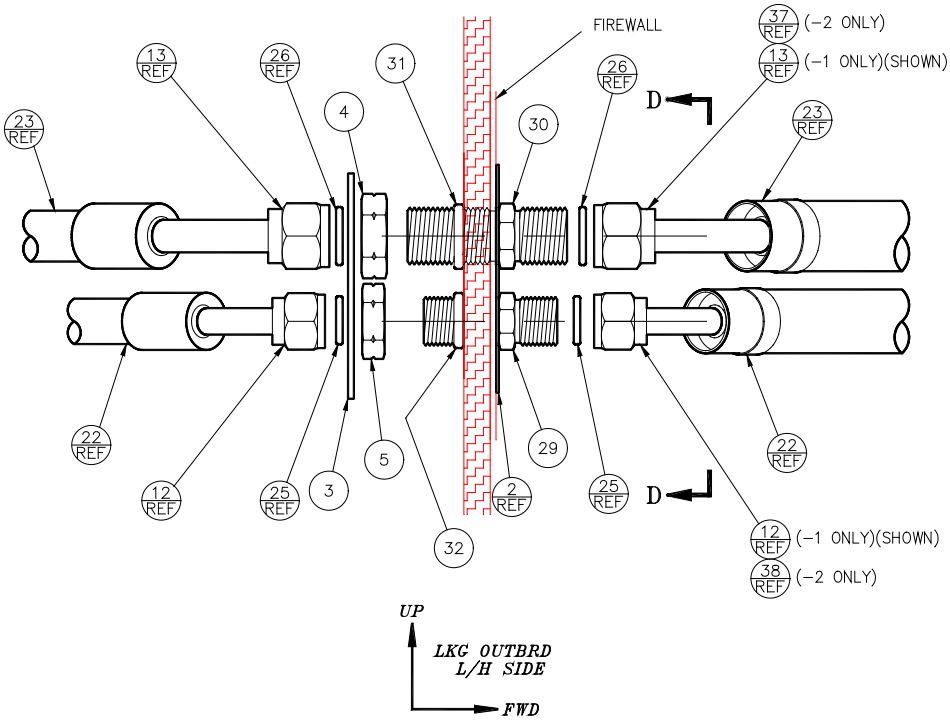
VIEW A–A


17 REF
25 REF
22 REF
18 REF
26 REF
13 REF
35 REF
5 REF
8
39 REF
40 REF
41 REF
42 REF
UP
LKG AFT (AT ENGINE)
LEFT

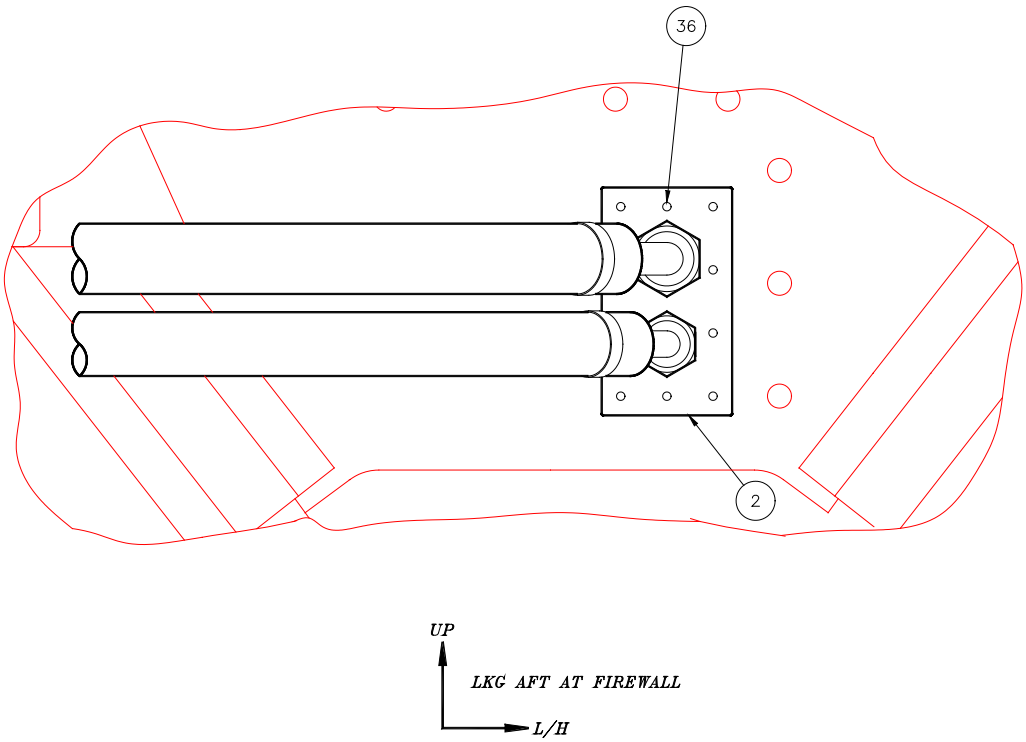
VIEW G–G


24 REF
11 REF
21 REF
BATTERY
10 REF
OR
14 REF
24 REF
24 REF
21 REF
20
TO EVAPORATOR
19

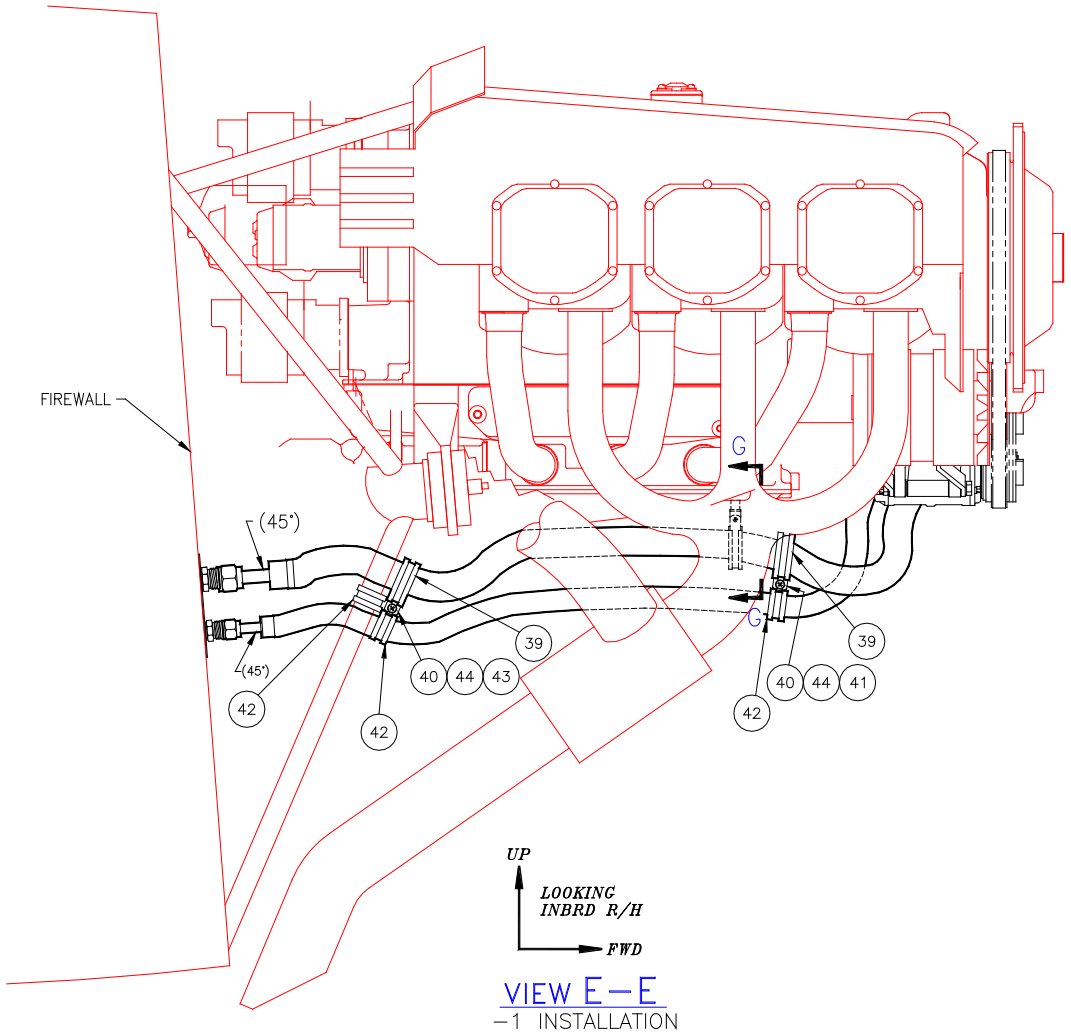
VIEW B–B



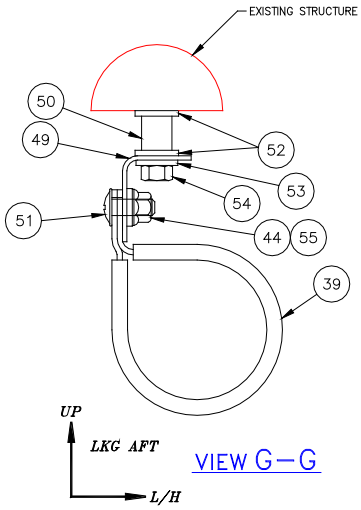
VIEW C-C



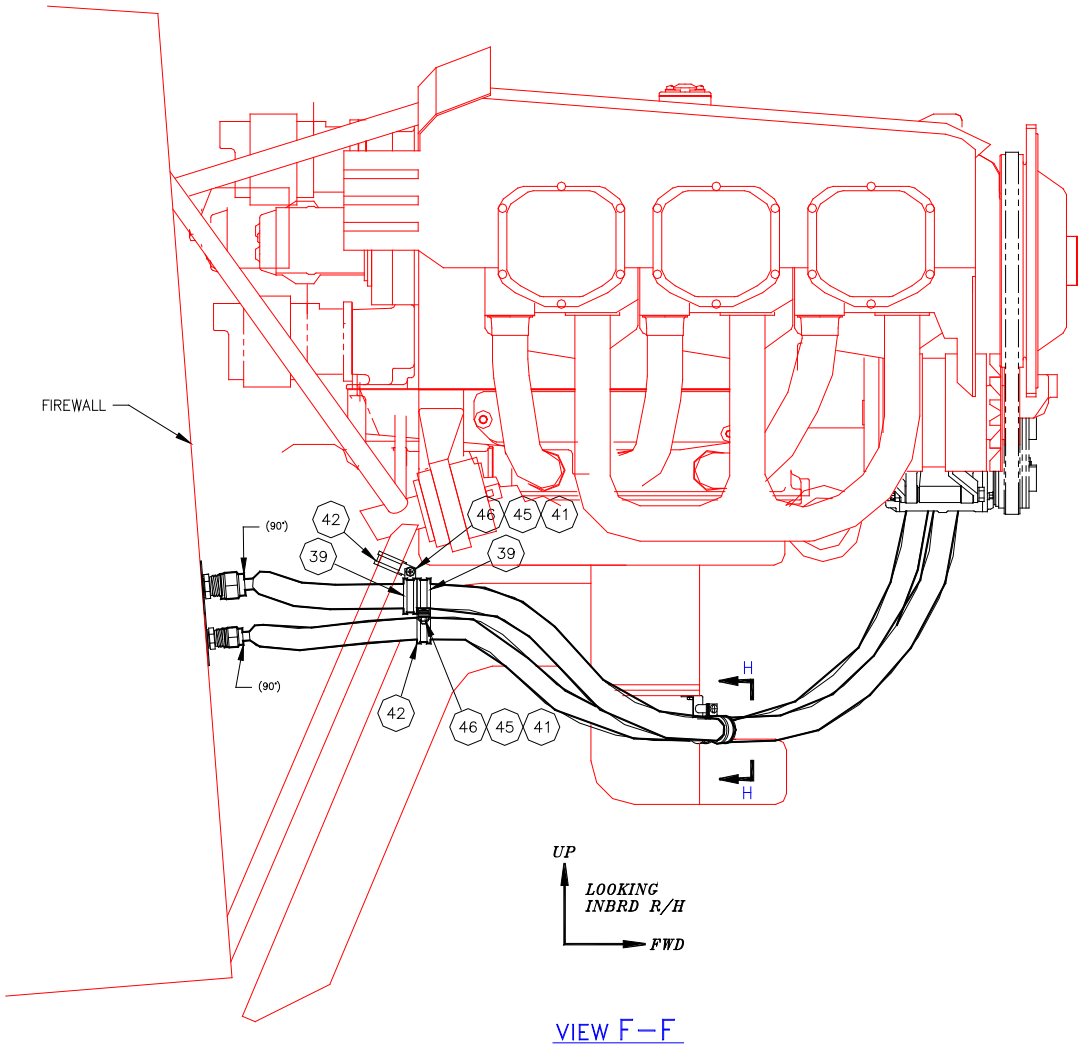
VIEW D-D



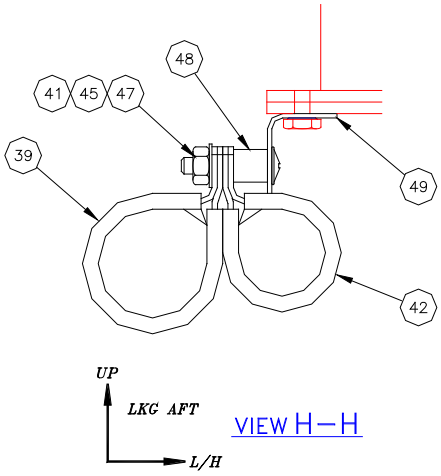
VIEW E–E
–1 INSTALLATION



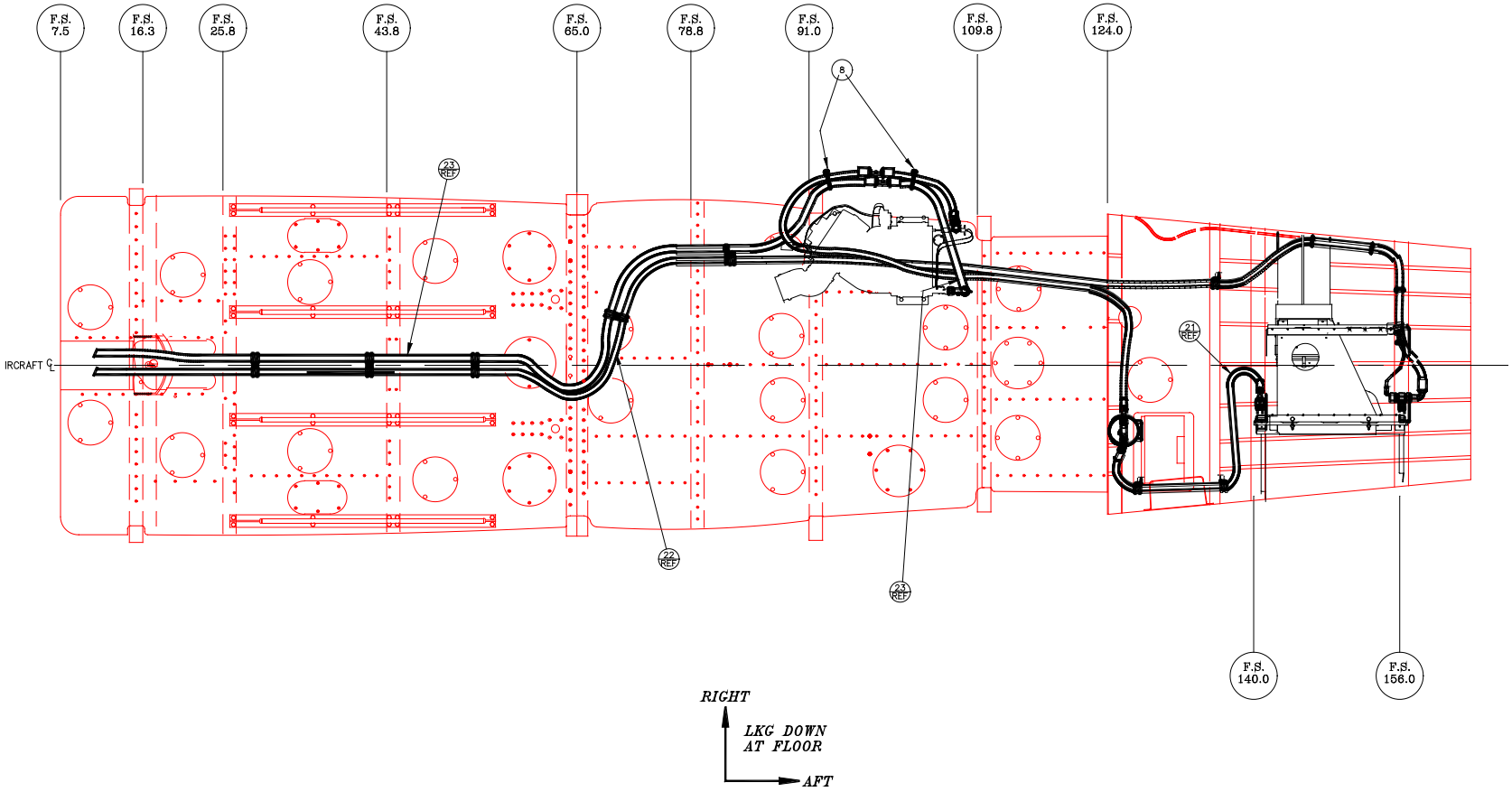
VIEW G–G



VIEW F–F
–2 INSTALLATION



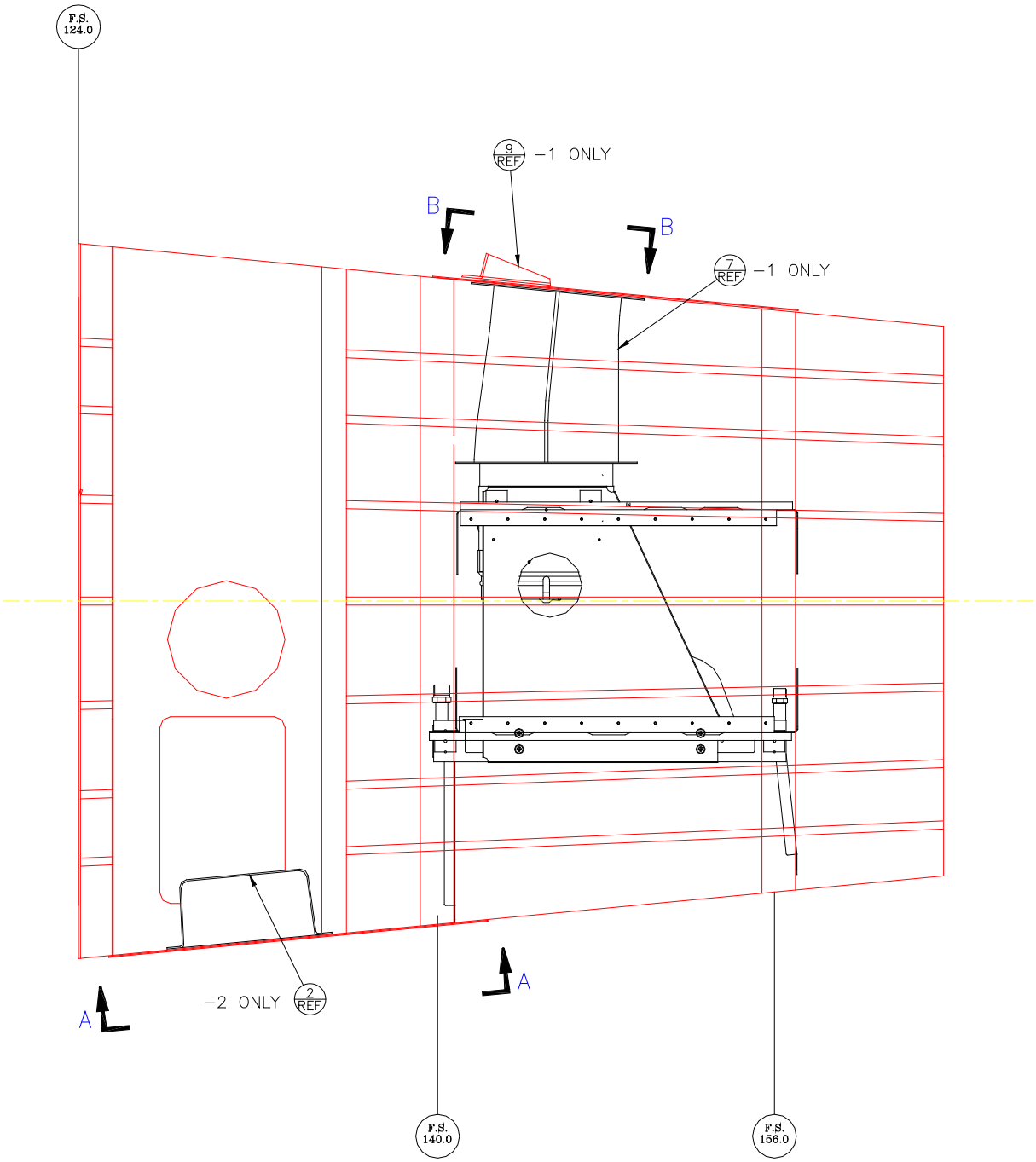
VIEW H–H


F.S. 7.5
F.S. 16.3
F.S. 25.8
F.S. 43.8
F.S. 65.0
F.S. 78.8
F.S. 91.0
F.S. 109.8
F.S. 124.0
F.S. 140.0
F.S. 156.0
8
23 REF
22 REF
24 REF
21 REF
IRCRAFT ℄
RIGHT
LKG DOWN AT FLOOR
AFT

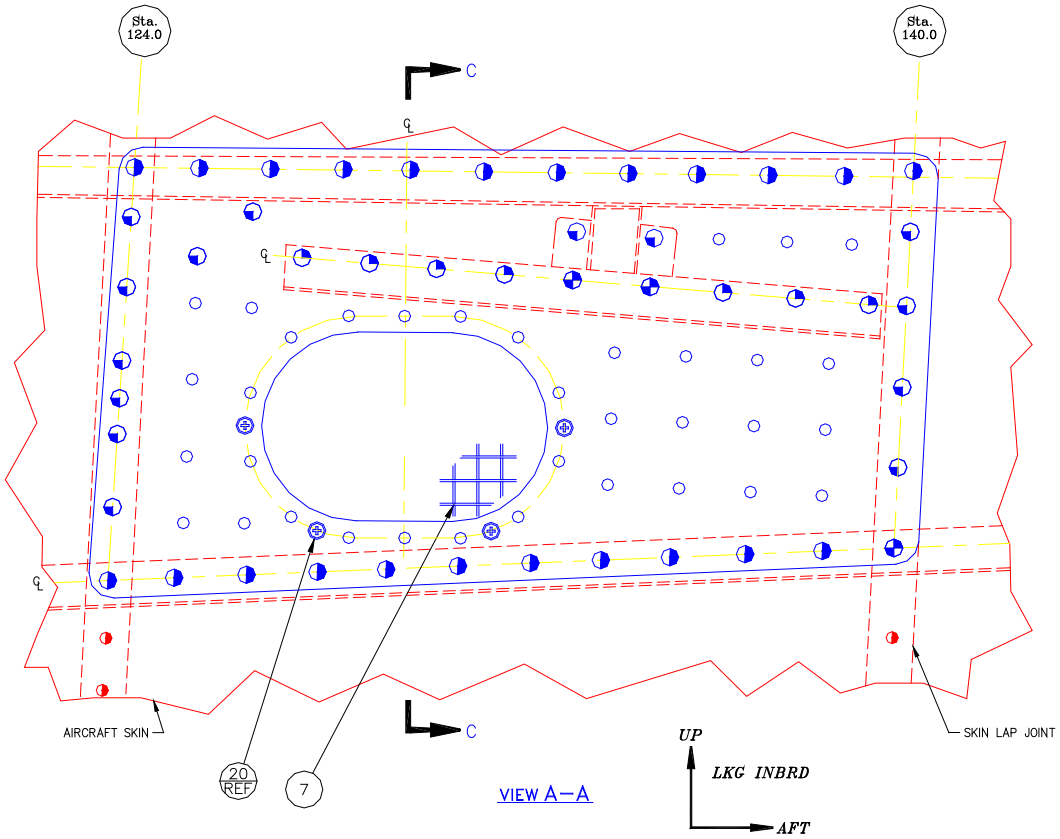
ITEM	PART NUMBER	NOMENCLATURE	UNITS PER ASSEMBLY
1	182-0800-1, -2	Plumbing Installation	
2	172-1800-2	Doubler	1
3	182-1800-1	Cover	1
4	AN6289-10D	Nut	1
5	AN6289-8D	Nut	1
6	DELETED	-	-
7	ES06022-1	Insulation Tape (IN)	720
8	ES30015-6	Cable Tie	50
9	ES30072-1	Band-It Clamp	4
10	ES40149-1	Fitting	1
11	ES40150-1	Fitting	1
12	ES40150-2	Fitting (Qty for –1 and –2)	2, 1
13	ES40150-3	Fitting (Qty for –1 and –2)	2, 1
14	ES40151-1	Fitting	3
15	ES40158-1	Splicer W/ R134a SV	1
16	ES40158-3	Splicer W/ R134a SV	1
17	ES40159-1	Fitting	1
18	ES40159-2	Fitting	1
19	ES43030-2	Receiver Dryer	1

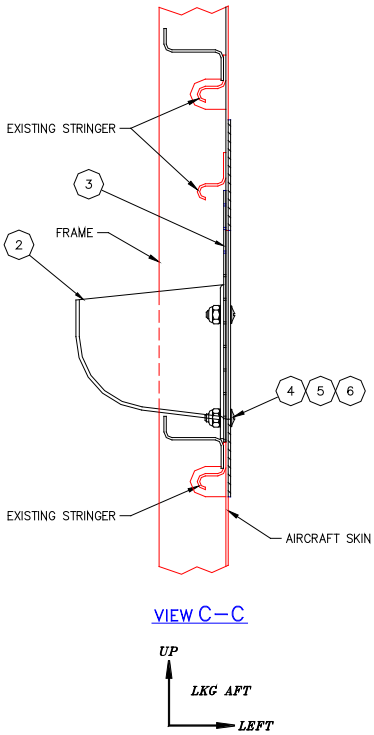
ITEM	PART NUMBER	NOMENCLATURE	UNITS PER ASSEMBLY
20	ES48004-4	Spiral Wrap (IN)	36
21	ES48149-1	Hose (IN)	145
22	ES48149-2	Hose (IN)	415
23	ES48149-3	Hose (IN)	270
24	ES49011-1	O-Ring	4
25	ES49011-2	O-Ring	5
26	ES49011-3	O-Ring	4
27	JBS10-64	Placard	4
28	JBS2020-5	Pressure Switch Assembly	1
29	JBS6009-9	Fitting, Bulkhead O-Ring	1
30	JBS6009-3	Fitting, Bulkhead O-Ring	1
31	MS28775-211	O-Ring	1
32	MS28775-114	O-Ring	1
33	MS90725-14	Bolt (–1 Only)	1
34	NAS75-4-040	Bushing (–1 Only)	1
35	ES02126-4	Fire Sleeve (IN)	150
36	ES31101DS4-2	Rivet	20
37	ES40151-3	Fitting (Qty for –1 and –2)	1, 2
38	ES40151-2	Fitting (Qty for –1 and –2)	1, 2

ITEM	PART NUMBER	NOMENCLATURE	UNITS PER ASSEMBLY
39	MS21919WDG20	Clamp (Qty for –1 and –2)	5, 4
40	AN525-10R10	Screw (Qty for –1 and –2)	8, 6
41	MS20365-1032	Nut (Qty for –1 and –2)	8, 9
42	MS21919WDG16	Hose Clamp	4
43	AN525-10R12	Screw (–1 Only)	1
44	AN960-10	Washer (Qty for –1 and –2)	5, 1
45	AN960-10L	Washer (Qty for –1 and –2)	5, 8
46	AN525-10R9	Screw (Qty for –1 and –2)	1, 2
47	AN525-10R16	Screw (–2 Only)	1
48	NAS43DD3-15	Spacer (–2 Only)	1
49	182-1400-4	Bracket (Qty for –1 and –2)	2, 1
50	NAS43HT4-24	Spacer (–1 Only)	1
51	AN525-10R7	Screw (–1 Only)	1
52	AN960-416	Washer (–1 Only)	4
53	MS35338-44	Washer (–1 Only)	2
54	ES39251-1	Bolt	1
55	MS21042-3	Nut (–1 Only)	1

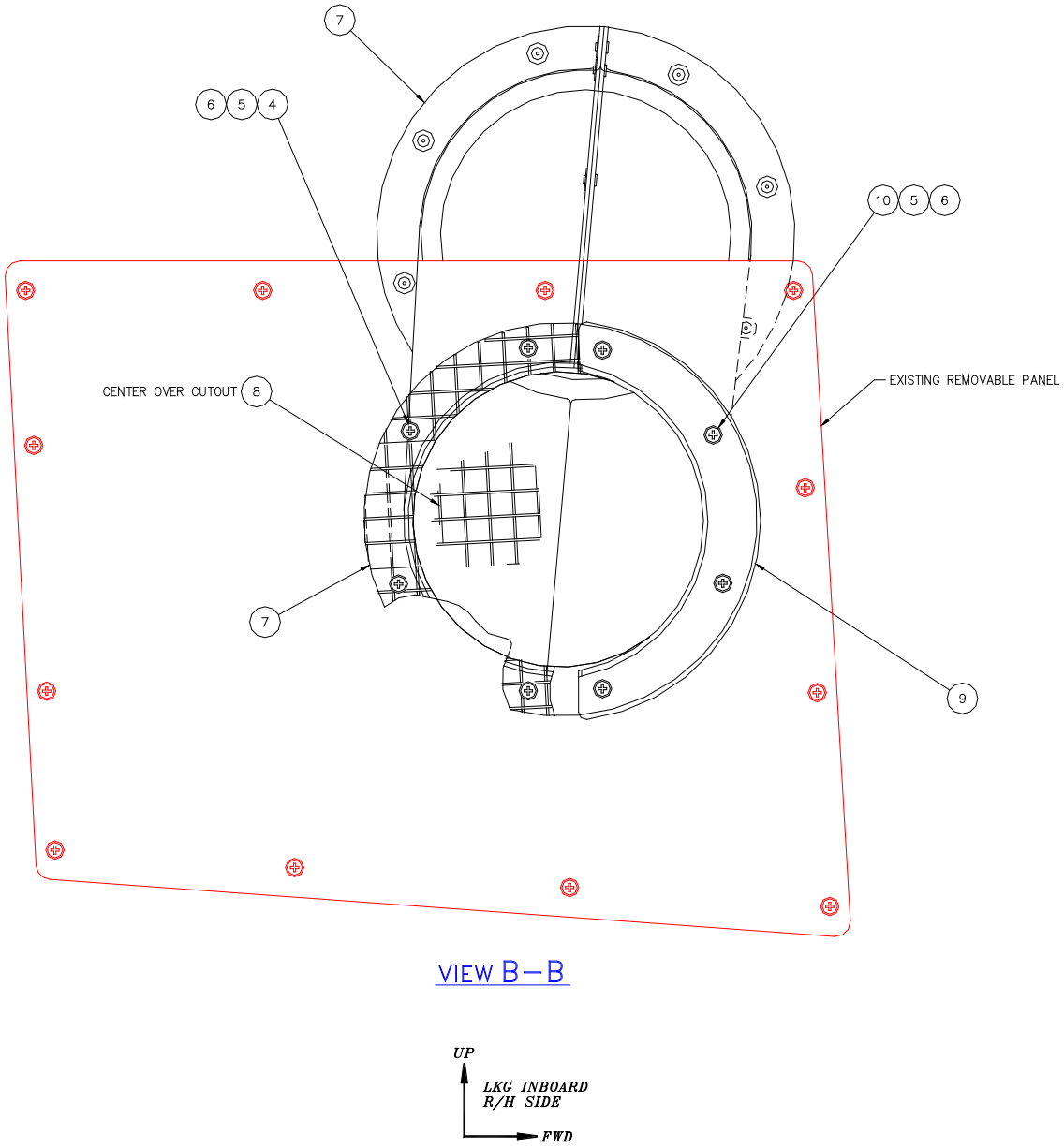


182-0330-1 Intake / Exhaust Installation



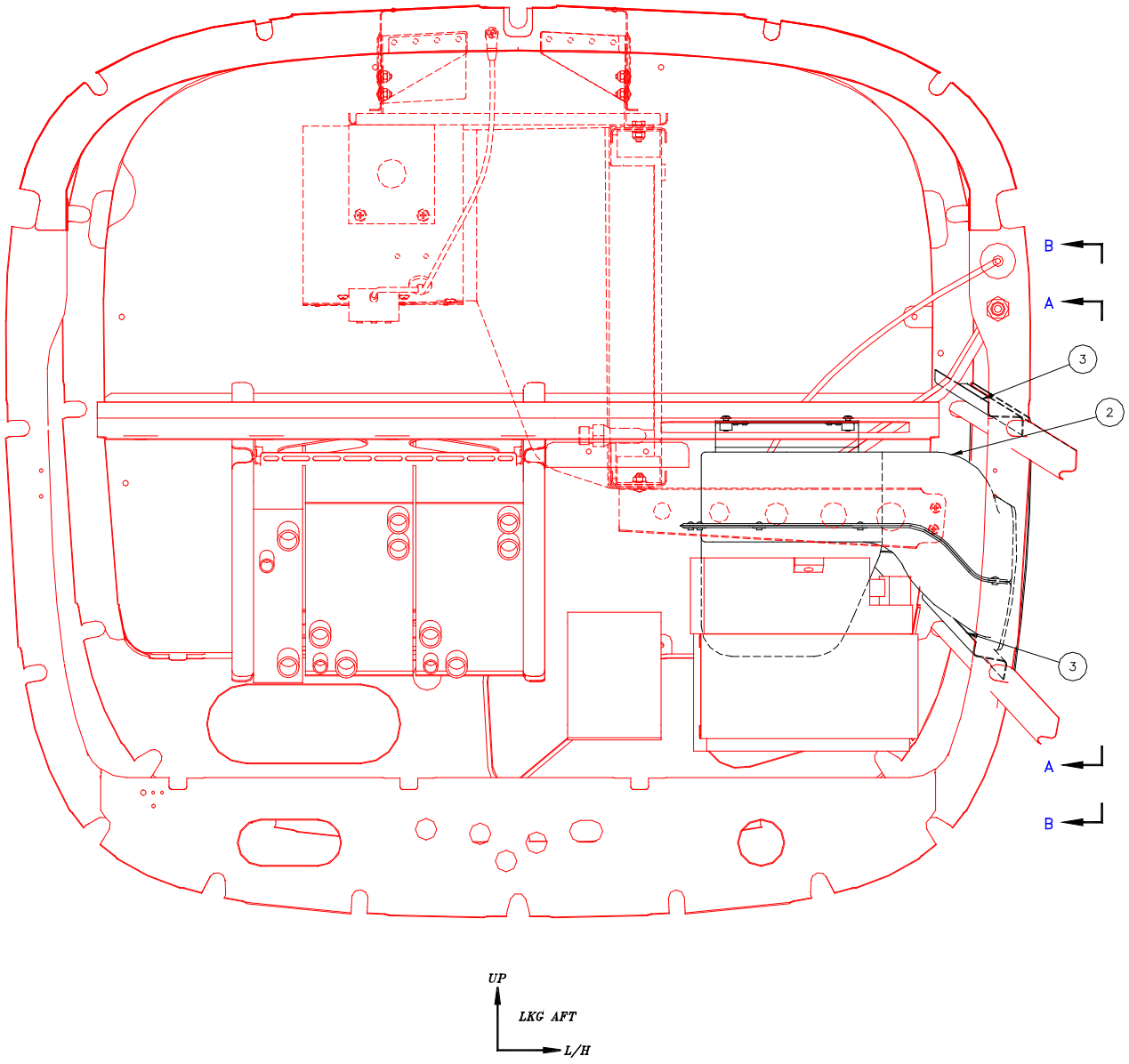


182-0330-2 Intake Installation

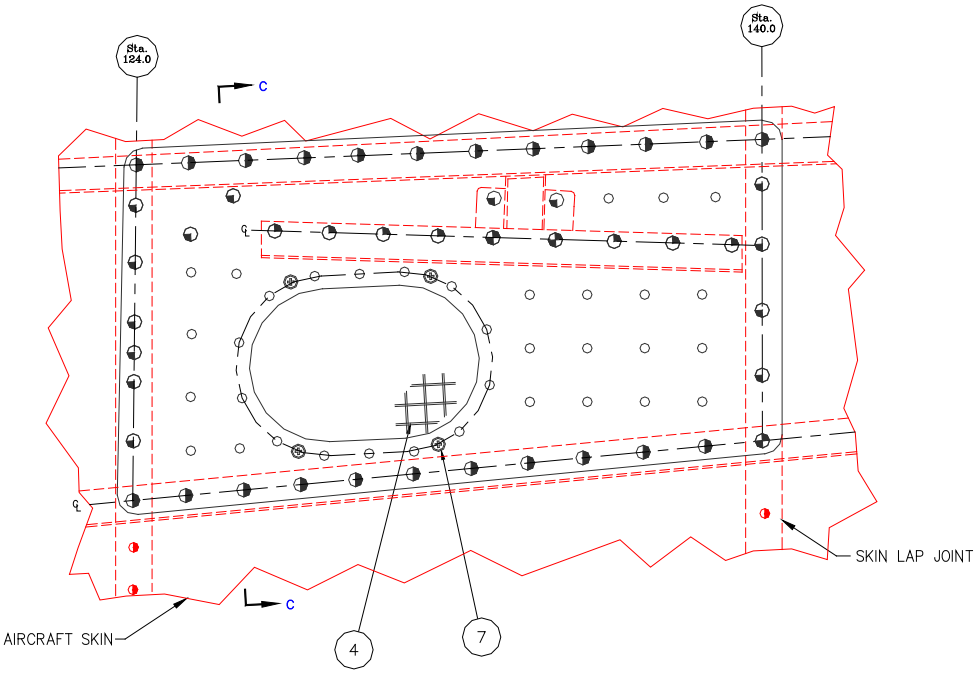


182-0330-1 Exhaust Installation

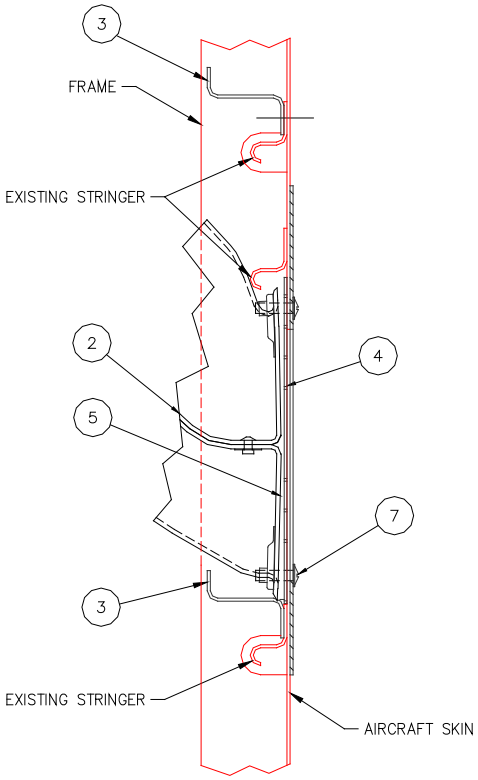
ITEM	PART NUMBER	NOMENCLATURE	UNITS PER ASSEMBLY
1	182-0330-1,-2	Intake/Exhaust Installation	
2	182-1330-4	Rain Shield (–2 Only)	1
3	182-1330-5	Intake Screen (–2 Only)	1
4	AN525-832R7	Screw	4
5	AN960-8L	Washer (Qty for –1 and –2)	8, 4
6	MS21044N08	Nut (Qty for –1 and –2)	8, 4
7	182-0333-1	Exhaust Duct Assy. (–1 Only)	1
8	182-1330-6	Exhaust Screen (–1 Only)	1
9	JBS71-2	Deflector, Exhaust (–1 Only)	1
10	A525-832R9	Screw (–1 Only)	4

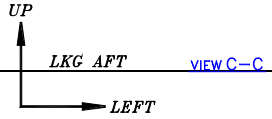


182-0331-1 Intake Installation



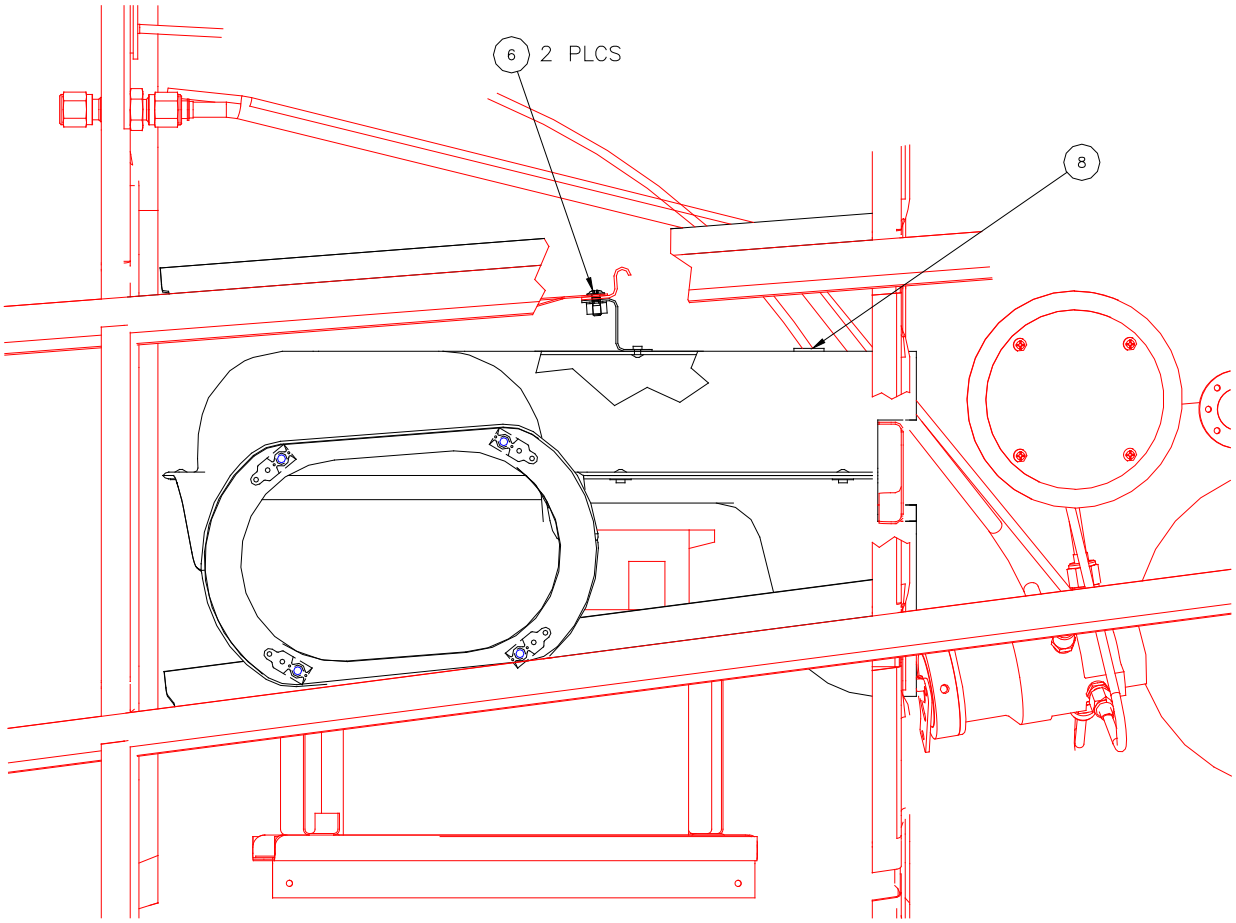
VIEW A–A

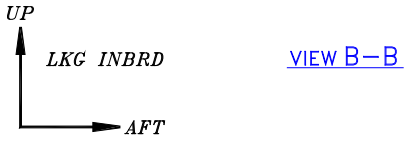




VIEW C–C

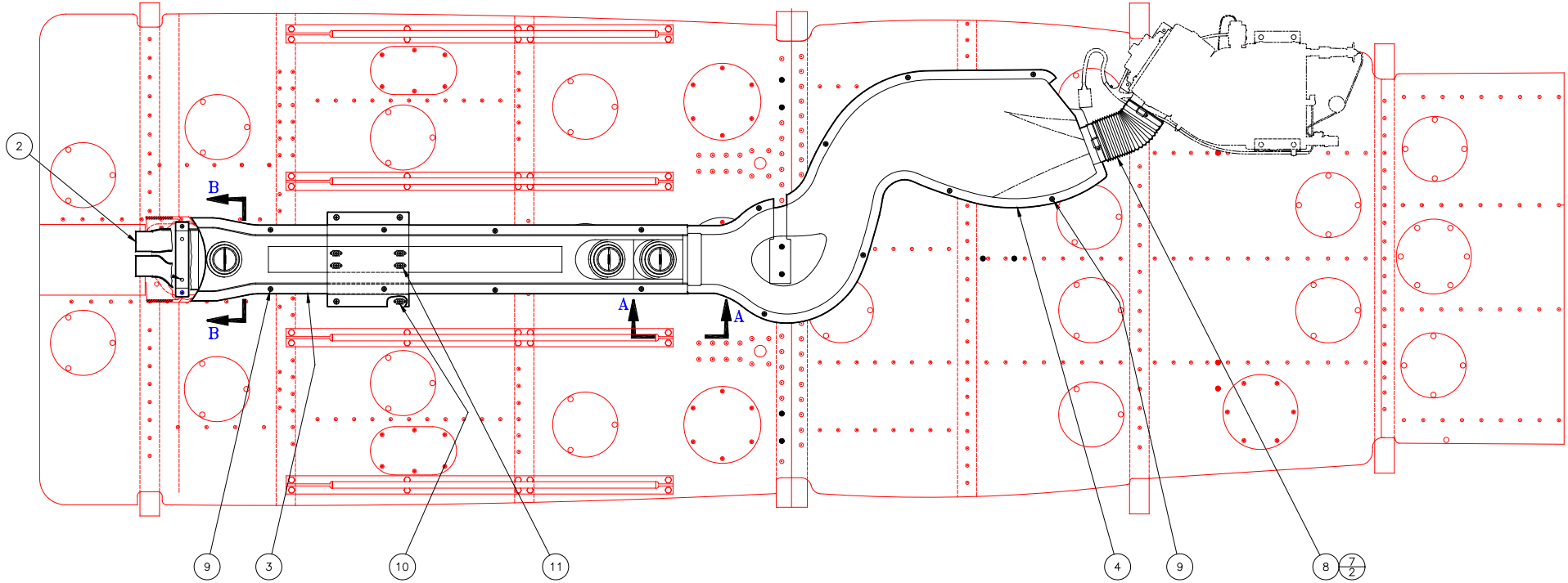
Meggitt (Addison), Inc.
4554 Claire Chennault, Addison TX 75001, USA
Tel: +1 (972) 407 1234
Fax: +1 (972) 407 1571
www.meggitt.com

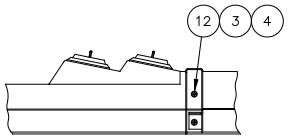




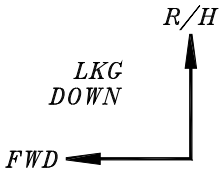
182-0331-1 Intake Installation

ITEM	PART NUMBER	NOMENCLATURE	UNITS PER ASSEMBLY
1	182-0331-1	Intake Installation	
2	182-0332-1	Intake Duct Assembly	1
3	182-1330-2	Intercostal	2
4	182-1330-5	Intake Screen	1
5	182-1313-1	Intake Seal	1
6	AN525-832R7	Screw	2
7	AN525-832R8	Screw	4
8	MS35489-6	Grommet	1

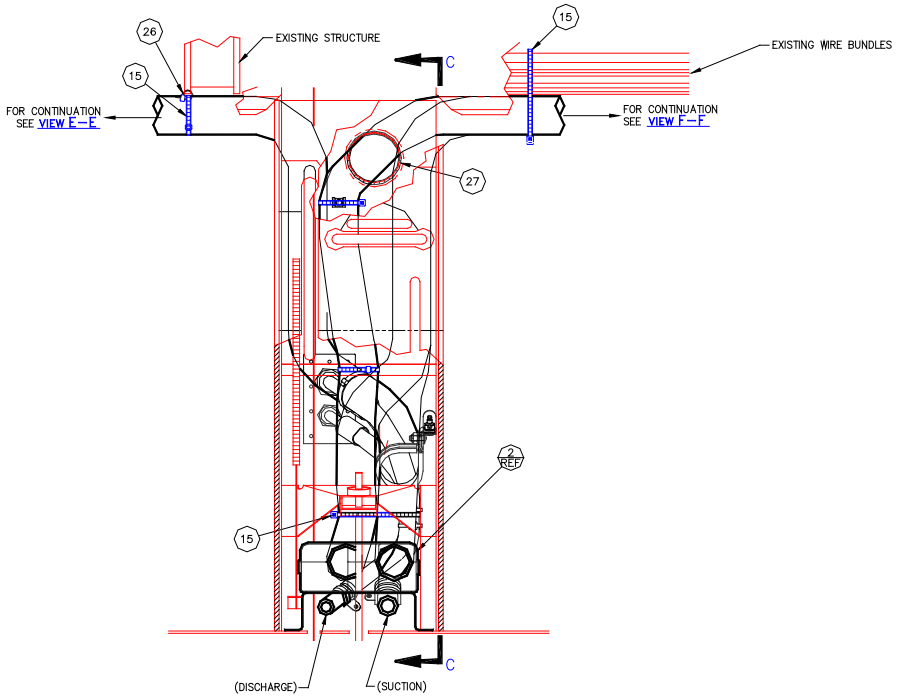




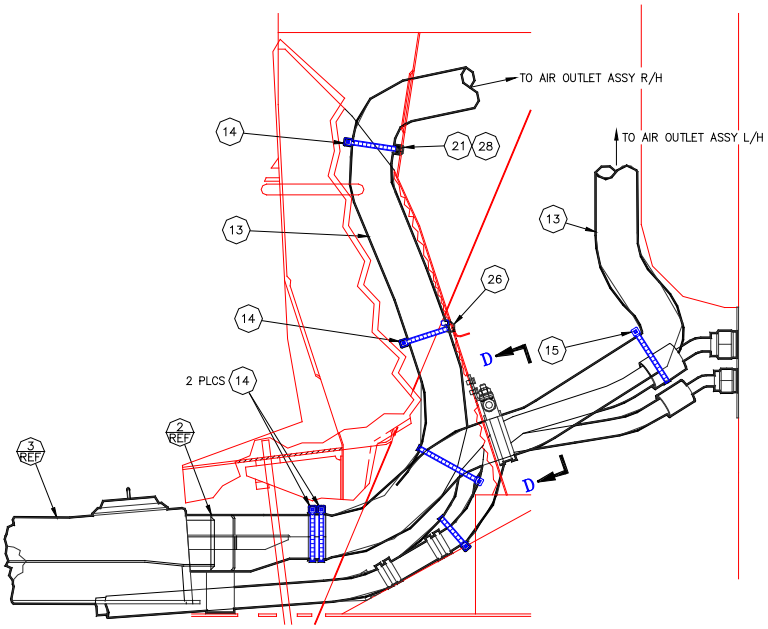
VIEW A–A



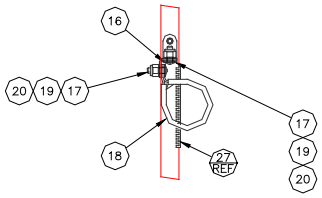
182-0600-1 Cabin Air Ducting Installation



VIEW B–B



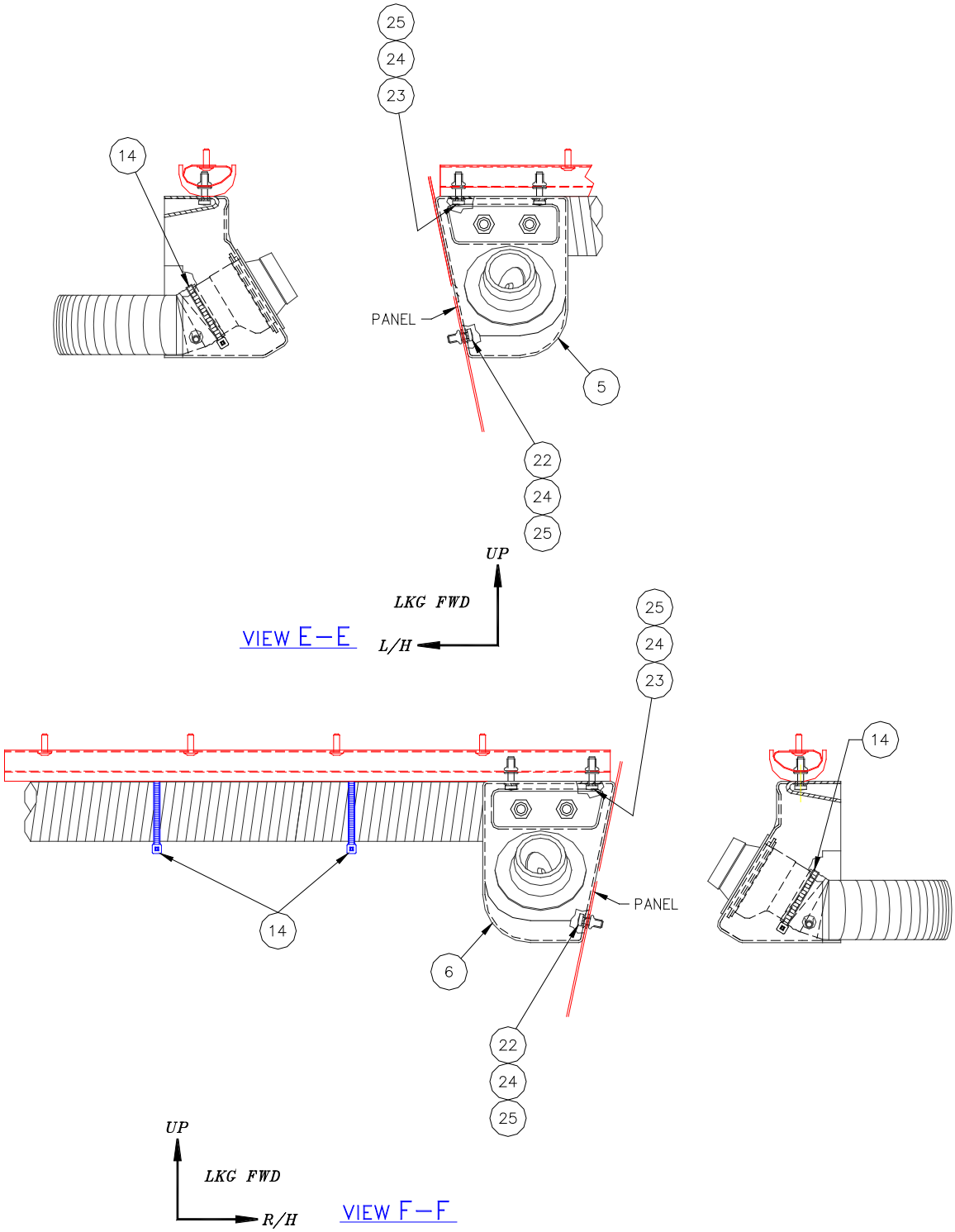
VIEW C–C



VIEW D–D

182-0600-1 Cabin Air Ducting Installation

Meggitt (Addison), Inc.
4554 Claire Chennault, Addison TX 75001, USA
Tel: +1 (972) 407 1234
Fax: +1 (972) 407 1571
www.meggitt.com



182-0600-1 Cabin Air Ducting Installation

Meggitt (Addison), Inc.
4554 Claire Chennault, Addison TX 75001, USA
Tel: +1 (972) 407 1234
Fax: +1 (972) 407 1571
www.meggitt.com

ITEM	PART NUMBER	NOMENCLATURE	UNITS PER ASSEMBLY
1	182-0600-1	Cabin Air Ducting Installation	
2	182-0650-2	Duct Assembly	1
3	182-0650-3	Center Duct Assembly	1
4	182-0650-4	AFT Duct Assembly	1
5	182-0651-1	Air Outlet Assy. L/H	1
6	182-0652-1	Air Outlet Assy. R/H	1
7	ES30042-6	Clamp	2
8	ES70009-2	Flex Duct (IN)	7
9	AN525-832R12	Screw	16
10	AN525-10R10	Screw	4
11	AN525-10R6	Screw	4
12	AN525-832R10	Screw	4
13	ES70009-4	Flex Duct (IN)	240
14	ES30015-1	Cable Tie	13
15	ES30015-2	Cable Tie	4
16	AN743-12	Bracket	1
17	AN525-10R9	Screw	2
18	MS21919WDG24	Clamp	1
19	AN960-10L	Washer	2

ITEM	PART NUMBER	NOMENCLATURE	UNITS PER ASSEMBLY
20	MS20365-1032	Nut	2
21	AN960-D4L	Washer	1
22	MS27039-0806	Screw	2
23	MS27039-0810	Screw	4
24	MS35338-42	Lock Washer	6
25	AN960-8L	Washer	6
26	ES30015-5	Cable Tie	2
27	MS21266-1N	Grommet, Plastic Edge (IN)	12
28	ES30014-2	Tie Mount	1