

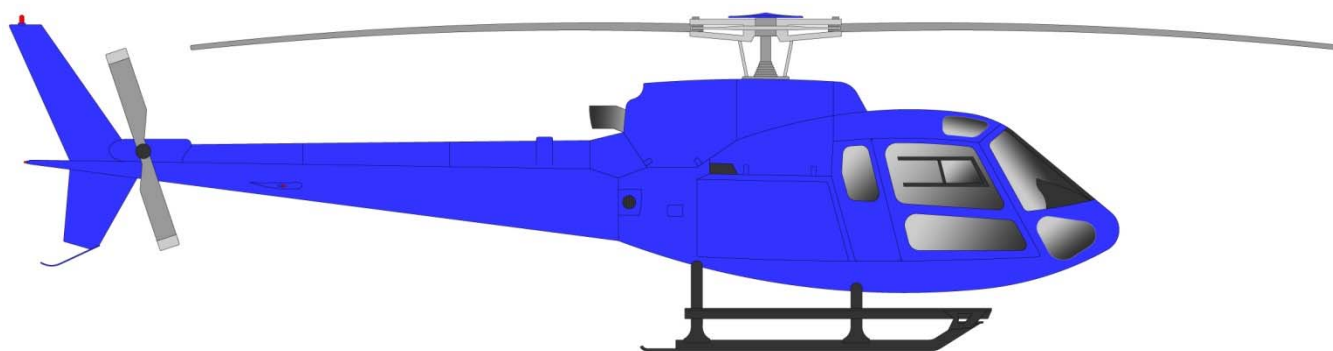
# **ASG**

## **PRODUCTS INC.**

Air Conditioning System

Installation Manual

for



**350-00-011-HP**  
**AEC Basic Version**

(Revised: March 24, 2016, Rev: K)

<b>1</b>	<b>KIT INVENTORY</b>
<b>2</b>	<b>AIRCRAFT PRE-INSPECTION</b>
<b>3</b>	<b>AIRCRAFT PREPARATION</b>
<b>4</b>	<b>REMOVAL OF FACTORY COMPONENTS</b>
<b>5</b>	<b>INSTALLATION OF AFT EVAPORATOR</b>
<b>6</b>	<b>INSTALLATION OF CONDENSER</b>
<b>7</b>	<b>INSTALLATION OF FWD EVAPORATOR</b>
<b>8</b>	<b>INSTALLATION OF COMPRESSOR</b>
<b>9</b>	<b>INSTALLATION OF ELECTRICAL</b>
<b>10</b>	<b>INSTALLATION OF HOSES</b>
<b>11</b>	<b>PAPERWORK</b>
<b>12</b>	<b>CONTINUED AIRWORTHINESS</b>
<b>13</b>	<b>PARTS BREAK DOWN</b>
<b>14</b>	<b>WARRANTY/REPAIR</b>
<b>15</b>	<b>TROUBLE SHOOTING GUIDE</b>

## RECORD OF REVISIONS

<b>Revision</b>	<b>Description</b>	<b>Date</b>	<b>Revised By</b>
IR	Initial Release	04 Nov. 2009	IFS
A	Revised Compressor Install	05 Feb. 2010	IFS
B	Added EMI-RFI filter	28 Jan. 2011	IFS
C	Updated sect. 11, 12, 13, 14 & 15	21 Mar. 2011	IFS
D	Section 1 & 6 Revised	20 May, 2011	IFS
E	Updated Section 1	14 Feb. 2013	RSG
F	Updated Section 1	19 Mar. 2014	RSG
G	Formatted document to RSG Products	01 Jun. 2015	RSG
H	Updated Section 1, 5 – 8, & 11	06 Nov. 2015	RSG
K	Updated Section 1	24 Mar. 2016	RSG

## LIST OF EFFECTIVE PAGES

<b>Rev</b>	<b>Section</b>	<b>Pgs</b>	<b>Description</b>	<b>Date</b>
D	1	Insert	Revised Parts List	05/20/11
E	1	Insert	Revised Parts List	02/14/13
F	1	Insert	Revised Parts List	03/19/14
G	1	Insert	Revised Parts List and added MSDS docs.	06/01/15
H	1	Insert	Revised Parts List	11/06/15
K	1	Insert	Revised Parts List	03/24/16
IR	2	1-4	Initial Release	11/04/09
IR	3	1-3	Initial Release	11/04/09
IR	4	1-2	Initial Release	11/04/09
IR	5	1-5	Initial Release	11/04/09
G	5	Insert	Updated drawings	06/01/15
H	5	5	Update Step 5.17	11/06/15
H	5	Insert	Updated drawing	11/06/15
A	6	1-5	Step 6.22 screw increased length.	05/20/11
G	6	4	Step 6.20 Type of fiberglass	06/01/15
G	6	Insert	Updated drawings	06/01/15
H	6	Insert	Updated drawings	11/06/15
IR	7	1-2	Initial Release	11/04/09
G	7	3	Step 7.9 and 7.10	06/01/15
G	7	Insert	Updated drawings	06/01/15
H	7	Insert	Updated drawing	11/06/15
A	8	1-5	Revised Instructions	02/05/10
G	8	4	Step 8.9	06/01/15
G	8	Insert	Updated drawings	06/01/15

H	8	4	Updated Step 8.9	11/06/15
A	9	1-2	Added EMI-RFI filter	01/28/11
G	9	2	Steps 9.4, 9.6, & 9.7	06/01/15
G	9	Insert	Updated drawings	06/01/15
IR	10	1-3	Initial Release	11/04/09
G	10	Insert	Updated drawings	06/01/15
N/A	11	N/A	Removed Weight & Balance, now in I.C.A., STC Amended.	03/21/11
G	11	2	Updated to RSG	06/01/15
G	11	Insert	Updated STC Cover Sheet	06/01/15
G	11	Insert	Updated RFMS's	06/01/15
H	11	Insert	Updated STC Cover Sheet	11/06/15
H	11	Insert	Updated RFMS's	11/06/15
C	12	1-100	Updated I.C.A.	03/21/11
G	12	Insert	Updated ICA	06/01/15
B	13	1-9	Revised Parts Break Down	03/21/11
G	13	1-5	Updated to RSG	06/01/15
N/A	14	Insert	Air Conditioning Performance Test Procedure & Supporting Documents. (Added)	03/21/11
D	15	1-6	Moved Warranty to Sect. 15. Trouble Shooting now in I.C.A.	03/21/11

# Getting Started

The air conditioning system installation instructions are laid out step-by-step starting with one (1) thru nine (9) for installation and ten (10) thru fifteen (15) for care and airworthiness, the instructions are designed to be easy – to – use.

The example below is designed to give you a basic overview of how the steps work.

**Example:** A. In the step below there is a number **5.1** The “**5**” stands for step 5 and the “**1**” stands for direction 1.

## Installation of Aircraft Systems

**Example:** B. When the parts are called out in a step: **5.1**, locate the part and parts that go with this step (5.1). It is best to organize your parts by step numbers so they can be drawn from as needed.

<b>Step</b>	<b>Procedure</b>	<b>Mech</b>	<b>Insp</b>
5.1	Position the aft evaporator doubler, P/N 261370, on the upper transmission deck per the dimensions shown on drawing number 4-1EC130. Mark and remove all existing rivets, bolts, and nut plates to allow the doubler to sit flat on deck. (Ref photo 501)		

Should you have any questions, problems or need technical support, do not hesitate to call, fax, E-mail, or write us:

Phone: 1-888-545-8371 E-Mail: [info@rotorcraftservices.com](mailto:info@rotorcraftservices.com)  
Fax: 1-800-624-6603

RSG Products Inc.  
REQUIRED TOOLS – AS350 Air-Conditioning

## Required Tools

1.	Drill ¼ or 3/8 Capacity / Straight and 90 degrees
2.	Rivet Gun - #4 & #5 Rivet Set
3.	Blind Rivet Puller
4.	Assorted Drill Bits - 40, 30, 10, ¼, & 21
5.	Standard Wrenches - ¼, 1-¼
6.	Metric Wrenches - 5mm to 19mm
7.	Standard Sockets - ¼ to ¾ cap Ratchet & Extensions
8.	Metric Sockets - 5mm to 19mm
9.	Torque Wrench (For Coupling) 200 <u>inch</u> lbs
10.	Rotary File (Die Grinder)
11.	Drum Sander
12.	Hole Finder - #30 & #10
13.	Cleco - #30, #21 & #40
14.	C-Clamps – Vise Grip Clamps
15.	Wire Cutters
16.	Phillips Screw Driver
17.	Torque-Bite (For Belly Pan) Pan American Tool 170-10 & 170-8 Power Torque
18.	Common Screw Drivers
19.	Cape Chisel
20.	Center Punch
21.	6oz Ballpeen Hammer for Removing Rivets
22.	Assorted Bucking Bars
23.	Safety Wire .032
24.	Wire Twisters
25.	Steel Ruler
26.	Spring scale

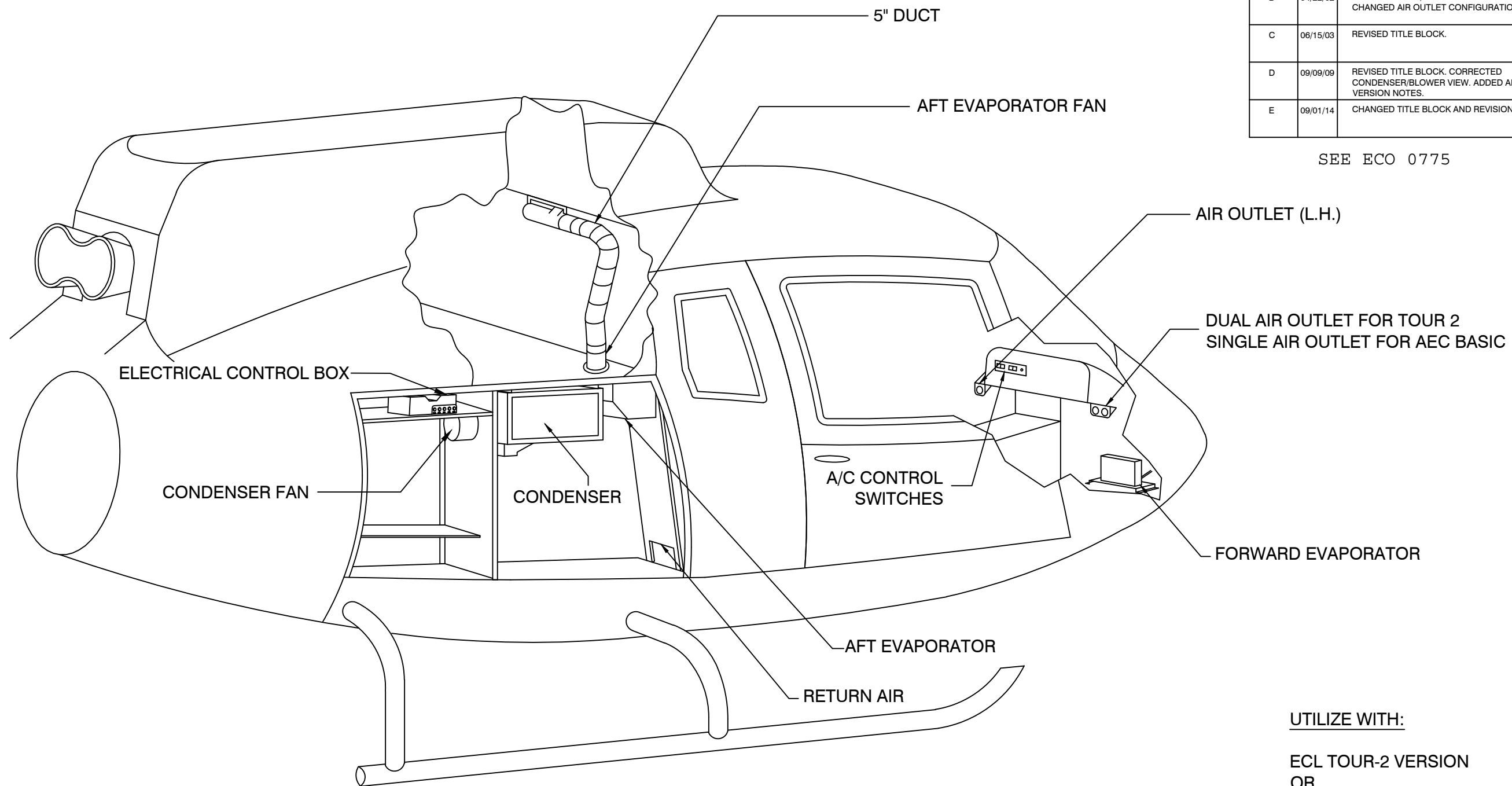
RSG Products Inc.  
REQUIRED TOOLS – AS350 Air-Conditioning

27.	Adjust Wrench Cap 1-1/2
28.	Vacuum Pump
29.	Gauge Manifold
30.	Nitrogen
31.	R-134A
32.	Blocks for Supporting Forward Engine
33.	Vacuum Cleaner
34.	Rivnut Puller



REVISION RECORD				
REV	DATE	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	08/16/00	REVISED DRAWING NUMBER, WAS 1-AS 350		
B	04/22/02	COMPUTERIZED, ADDED PAG TO TITLE BLOCK, CHANGED AIR OUTLET CONFIGURATION.		
C	06/15/03	REVISED TITLE BLOCK.		
D	09/09/09	REVISED TITLE BLOCK. CORRECTED CONDENSER/BLOWER VIEW. ADDED AEC BASIC VERSION NOTES.		
E	09/01/14	CHANGED TITLE BLOCK AND REVISION BLOCK.		AJC

SEE ECO 0775



KIT P/N's:

- KIT 350-00-01  
SINGLE FAN (R-12)
- KIT 350-00-011HP  
SINGLE FAN (R-134a)

UTILIZE WITH:

ECL TOUR-2 VERSION  
OR  
AEC BASIC VERSION

<b>PROPRIETARY NOTICE</b> <small>TO ALL PERSONS RECEIVING THIS DOCUMENT THIS DOCUMENT AND INFORMATION OR TECHNICAL DATA AND DESIGNS CONTAINED HEREIN ARE PROPRIETARY DATA AND EXCLUSIVE PROPERTY OF RSG PRODUCTS INC. AND IS DELIVERED ON THE EXPRESS CONDITION THAT NEITHER THIS DOCUMENT NOR THE INFORMATION CONTAINED HEREIN SHALL BE DISCLOSED TO OTHERS, REPRODUCED IN WHOLE OR IN PART, OR USED FOR THE MANUFACTURE OR FABRICATION OF PARTS FOR ANYONE OTHER THAN RSG PRODUCTS INC. WITHOUT WRITTEN CONSENT AND AUTHORIZATION, AND THAT NO RIGHT IS GRANTED TO DISCLOSE OR SO USE ANY INFORMATION CONTAINED IN SAID DOCUMENT. THIS RESTRICTION DOES NOT LIMIT THE RIGHT TO USE INFORMATION OBTAINED FROM ANOTHER SOURCE.</small>	NEXT ASSY.	TOLERANCES EXCEPT AS SHOWN												
		.X: ±.1 .XX: ±.03 .XXX: ±.010 X.X": ±.5° BREAK ALL SHARP EDGES .01 ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED		TITLE: AIR CONDITIONING OVERVIEW										
	APPROVED BY:		DATE:	<table border="1"> <tr> <td>DRAWN BY: KML</td> <td>DATE: 11/01/96</td> <td>REV.: E</td> <td>SCALE: N/A</td> <td>SHEET: 1 OF 1</td> </tr> <tr> <td colspan="3">APPLICATION: AS350</td> <td colspan="2">DWG. NO.: 1-3-AS350</td> </tr> </table>	DRAWN BY: KML	DATE: 11/01/96	REV.: E	SCALE: N/A	SHEET: 1 OF 1	APPLICATION: AS350			DWG. NO.: 1-3-AS350	
	DRAWN BY: KML	DATE: 11/01/96	REV.: E	SCALE: N/A	SHEET: 1 OF 1									
APPLICATION: AS350			DWG. NO.: 1-3-AS350											



# ENGINEERING CHANGE ORDER

ECO No. 0775	SHT 1 OF 1
DWG No. 1-3-AS350	REV E
REF. STC No. SH3509SW	
REF. STC No.	
REF. STC No.	

CHANGE CLASS:

RECORD CHG. PARTS NOT AFFECTED     NON-INTERCHANGEABLE PARTS

INTERCHANGEABLE PARTS                       OTHER \_\_\_\_\_

EXISTING/IN-WORK STOCK DISPOSITION:

RECORD CHG. PARTS NOT AFFECTED     RE-WORK EXISTING STOCK

SCRAP EXISTING STOCK                       OTHER BREAK IN AT NEXT BUILD

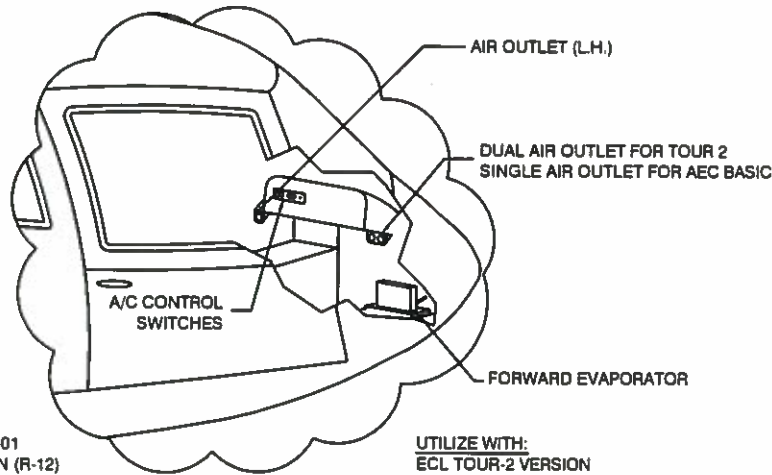
EFFECTIVITY:

ALL UNITS THIS CUSTOMER                       LIMITED UNITS SPECIFIED

ALL UNITS MFG'D AFTER THIS DATE     OTHER ALL UNITS

**DESCRIPTION OF CHANGE:**  
 UPDATE FORWARD AIR OUTLETS, FORWARD EVAPORATOR, INSTRUMENT PANEL VIEWS, & FOD DESCRIPTION.

WAS:

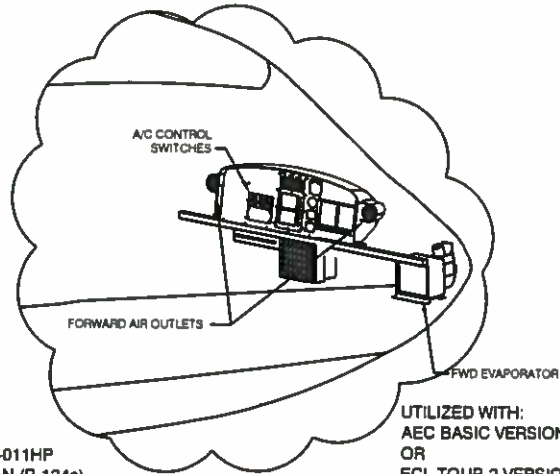


KIT P/N's:

1. KIT 350-00-01 SINGLE FAN (R-12)
2. KIT 350-00-011HP SINGLE FAN (R-134a)

UTILIZE WITH:  
 ECL TOUR-2 VERSION  
 OR  
 AEC BASIC VERSION

IS:



KIT P/N:  
 KIT 350-00-011HP  
 SINGLE FAN (R-134a)

UTILIZED WITH:  
 AEC BASIC VERSION  
 OR  
 ECL TOUR-2 VERSION

REMARKS:  
 MINOR CHANGE FOR PRODUCT IMPROVEMENT.

ENGINEERING REVIEW BOARD		
SIGNATURE	STAMP	DATE
<i>[Signature]</i>	ERB04	5/27/2015
<i>[Signature]</i>	PO16	5/28/2015
<i>[Signature]</i>	QA11	5/28/2015
INCORPORATION STATUS		
<input type="checkbox"/> IMMEDIATE <input checked="" type="checkbox"/> OUTSTANDING		



## Step 1

### Kit Inventory

# P/N 350-00-011-HP AEC Basic Version

(Rev. K)

March 24, 2016



### RECORD OF REVISIONS

Revision	Description	Date	Revised By
IR	Initial Release of Configuration	04 Nov. 2009	IFS
A	Removed Comp/Belt/Intake	02 Feb. 2010	IFS
B	Corrected Screw Stp. 5.10/5.17	03 May 2010	IFS
C	Added Optional EMI-RFI filter & ring terminals	28 Jan. 2011	IFS
D	Screw length increased at Step 6.22	20 May 2011	IFS
E	Added Compressor Bracket Kit Upgrades	14 Feb. 2013	RSG
F	Added Brushless motor option; corrected part numbers; added optional EMI filter	19 Mar. 2015	RSG
G	Formatted to RSG Products. Updated and added P/N's.	1 Jun. 2015	RSG
H	Removed items and corrected P/N's	18 Aug. 2015	RSG
K	Added Alt. P/N.	24 Mar. 2016	RSG

### LIST OF EFFECTIVE PAGES

Rev	Pgs	Description	Date
A	8	Removed P/N's 590008 and 060018-1	02/02/2010
B	5	MS35206-244 is now MS35206-230	03/05/2010
B	4	AN525-10R6 is now AN525-10R7	03/05/2010
C	13	Changed Kit List for: Compressor Bracket Installation Kit (Was: IFS-350/130-507, Is: 350-11-031-02)	01/29/2013
C	9	Added Hose Disconnect Bracket to Step 10.3 (P/N:04-130-21-107-01)	01/29/2013
C	8	Changed P/N for Step 8.9 (Was: IFS-350/130-507, Is: 350-11-031-02)	01/29/2013
D	14	Added P/N's, removed 04-130-21-107-01 and adding it to step 10.3	03/03/2014
E	4	Corrected P/N in 5.10 ABA4-4 is now AD44ABS in step 5.10	7/24/2014
E	6	Updated quantities of rivets MS20470AD-4-3, -4, and -5 to step 6.11	7/24/2014



Air Conditioning System  
Kit Part Number: 350-00-011-HP AEC Basic Version

E	9	Changed SD-507 Compressor Assy. To SD-507 Compressor Assy. (Grooved) in step 8.10	7/24/2014
E	9	Added option for smooth belt compressor P/N 590008	7/24/2014
E	9	Added option for smooth belt P/N 060018	7/24/2014
E	10	Changed part number from 22CR4HM to ZZCR4HM in step 9.4	7/24/2014
F	4	Changed part number from 1/16" i.d. to GM1 in step 5.4	1/16/2015
F	4	Changed part number from #8 x 1/2 to 050020-4 and #8 to 050020-5 in step 5.9	1/16/2015
F	9	Added alternate part numbers for fwd evap high and low hat assemblies	1/16/2015
F	10	Changed part numbers of electrical connectors from description to actual RSG part numbers steps 9.4 and 9.5	1/16/2015
G	9	Added new style vents and vent mounts in steps 7.9 and 7.10	6/1/2015
G	10	Added harness assembly for micro switches in step 9.4	6/1/2015
G	10	Added new instrument panel & new aft switch assembly in steps 9.6 and 9.7	6/1/2015
H	6	Corrected P/N in step 5.17 was: 490017-1 is: 490017-1-02 Removed Resistor and components in step 5.17	8/18/2015
H	9	Corrected P/N was: 050084-7** is: IFSS 050084-7**. Added config. -01 and -02 to P/N: IFSS 050084-7**	8/18/2015
H	9	Removed P/N 050084-6** in step 6.26	8/18/2015
H	10	Replaced P/N 350-11-031-02 with note "SEE PAGE 15" in step 8.9	8/18/2015
H	12	Removed P/N 070003 in step 10.9	8/18/2015
H	15	Removed Kit P/N.	8/18/2015
K	10	Added alternate P/N CR4HM in Step 9.4	3/24/2016



**Kit Configuration Inventory List: 350-00-011-HP AEC Basic Version**

**Customer Information**

Sales Order Number:

Shipping Date:

Customer:

Customer P.O. Number:

Notes:

**Kit Specifics**

Kit S/N:

Condenser Blower S/N:

Condenser Blower S/N:

Aft Evaporator Blower S/N:

Compressor S/N:



### Kit Configuration Inventory List

STEP	PART NAME	PART NUMBER	QTY	CHK'D BY	VERF'D BY
5.1	Aft Evaporator Fan Doubler	260328-1	1		
5.4	Rivets	MS20470AD4-4	100		
5.4	Rivets	MS20470AD4-5	25		
5.4	Rivets	MS20426AD4-4	15		
5.4	Rivets	CR3243-4-03	2		
5.4	Caterpillar Grommet (1/16" I.D.)	GM1	18" in		
5.5	Aft Evaporator Assembly	560010-"O"-5	1		
5.5	Bolt	AN3-5A	4		
5.5	Washer	AN960-10	4		
5.6	Doubler, Return Air	260322-1	1		
5.8	Angle	260322-2	1		
5.8	Rivets	MS20470AD4-3	25		
5.8	Rivets	CR3243-4-03	25		
5.8	Rivets	CR3243-4-04	25		
5.8	Rivets	MS20470AD4-4	10		
5.8	Rivets	MS20426AD4-4	10		
5.9	Return Air Screen	080022-1	1		
5.9	Chrome Screw	050020-4	4		
5.9	Chrome Washer	050020-5	4		
5.10	Angle Return Air Connector Assembly	510261	1		
5.10	Rivets	AD44ABS	15		
5.10	Screw	AN525-10R7	2		
5.10	Return Air Cover Connector	250166	1		
5.11	Return Air Duct	250149	1		



### Kit Configuration Inventory List

STEP	PART NAME	PART NUMBER	QTY	CHK'D BY	VERF'D BY
5.15	Rivnut	A10K80	3		
5.15	Screws	AN525-10R6	3		
5.15	Screws	AN525-10R10	4		
5.15	Clip Nut (Alt P/N: 13100000-5)	RM52LHA4972-10-02	4		
5.16	Aluminum Foil Tape	070076	30' ft.		
5.16	Cork Insulation Tape	070078-0	6' ft.		
5.17	Aft Evaporator Fan Assy. (Brushless)	490017-1-02	1		
5.17	Bolt	AN3-5A	5		
5.17	Washer	AN960-10	5		
5.18	Aft Transition Elbow Assembly	520036-3	1		
5.20	Bolt	AN3-6A	6		
5.20	Nut	MS21044N3	6		
5.20	Washer	AN960-10	12		
5.20	Transition Elbow Strap	261299	1		
5.21	6" Band clamp	060035	2		
5.21	Ø5.0" Duct 25" Long	060004	25" in		
5.21	Insulation Foam Tape	070078	20' ft.		
5.22	Air Duct Closure Assembly	510092	1		
5.23	Hose Doubler, Baggage Comp.	260369	1		
5.23	Rivets	MS20470AD4-4	10		
6.1	Condenser Fan Mount	260148-3	1		
6.1	Fan Channel Base Angle	260020	1		
6.3	Filler	260862	1		





### Kit Configuration Inventory List

STEP	PART NAME	PART NUMBER	QTY	CHK'D BY	VERF'D BY
6.4	Battery Compartment Shelf	260333	1		
6.4	Battery Comp. Shelf Angle Fwd./Aft	260335	2		
6.6	Electrical Panel Assembly	540028-C-2-A	1		
6.6	Bolt	AN3-4A	3		
6.6	Washer	AN960-10	3		
6.7	Rivets	MS20470AD4-3	30		
6.7	Rivets	MS20470AD4-4	10		
6.7	Bolt	AN3-3A	5		
6.7	Bolt	AN3-4A	3		
6.7	Bolt	AN3-5A	3		
6.7	Washer	AN960-10	20		
6.7	Nut	MS21044N3	20		
6.7	Screw	AN507-1032R10	18		
6.7	Rivet	CR3243-4-03	6		
6.7	Battery Comp. Shelf Angle Fwd. Assy.	510265	1		
6.8	Aft Condenser Channel Assembly	510007	1		
6.8	Fwd. Condenser Channel Assembly	510008	1		
6.10	Rivet	MS20470AD4-4	30		
6.10	Rivet	MS20470AD4-5	30		
6.11	Nutplate	MS21059-L3	1		
6.11	Rivet	CCR264SS3-03	2		
6.11	Rivet	MS20470AD4-4	30		
6.11	Rivet	MS20470AD4-5	30		
6.12	Condenser Mount Angle	260002	1		
6.12	Bolt	AN3-4A	2		
6.12	Washer	AN960-10	2		
6.13	Condenser Mount Angle	260002	1		
6.13	Bolt	AN3-4A	2		
6.13	Washer	AN960-10	2		



### Kit Configuration Inventory List

STEP	PART NAME	PART NUMBER	QTY	CHK'D BY	VERF'D BY
6.14	Condenser Assembly	550007-1	1		
6.14	Bolts	AN3-5A	6		
6.14	Washer	AN960-10	6		
6.14	Rivet	CCR264SS3-03	8		
6.15	Condenser Air Intake Assembly	520071-1	1		
6.19	Screen Assembly, Condenser Exhaust	520052-2	1		
6.20	Fiberglass Cloth 7.5 oz. 18" x 38"	7.5 oz. 18" x 38"	2		
6.22	Screw	AN525-10R8	5		
6.22	Washer	AN970-3	5		
6.22	Tinnerman Countersunk Washer	A3235-020-24A	16		
6.22	Screw (Alt: NAS517-3-13)	MS24693S278	16		
6.22	Washer	AN960-10	16		
6.22	Nut (Alt: MS21083N3)	MS20364-1032C	16		
6.22	Delron Insert	405SE1032-06-2	5		
	(Alt. Shurlock SL601-3-3A)	(Alt. NAS1832-3-3)			
6.24	Battery Door Angle	260339	1		
6.24	Battery Door Decal	120087	1		
6.25	Rivet	MS20470AD4-3	10		
6.26	Ø7.0" Vane Axial Blower***	IFSS 050084-7(**)	1		
	(IFSS 050084-7-2 Short IFSS 050084-7-3 Long)				
6.26	Condenser Exhaust Elbow Assy.	520032-1	1		
6.26	7-8" Band Clamp	060038	1		
6.26	3/8" I.D. Drain Hose	090018	5' Ft.		
7.3	Forward Evaporator Assembly	560025-O	1		
	(Config. -01 Low Hat Config. -02 High Hat)				



### Kit Configuration Inventory List

STEP	PART NAME	PART NUMBER	QTY	CHK'D BY	VERF'D BY
7.4	Nut Plate	MS21059-L3	1		
7.4	Rivet	CCR264SS3-03	3		
7.5	Doubler	260373-1	1		
7.5	Rivets	CR3243-4-03	18		
7.7	½" Drain Hose	090018-1	10'-0"		
7.7	Grommet	MS35489-135	1		
7.8	Bolt	AN3-4A	4		
7.8	Washer	AN960-10	4		
7.8	Band Clamp 1"	060037	1		
7.8	Nut	MS21044N3	3		
7.9	Air Outlet Assembly*** (old style)	510259-3	2		
7.9	Air Outlet Assy. L.H.*** (new style)	520156HP	1		
	Air Outlet Assy. R.H.*** (new style)	520157HP	1		
7.10	Rivet (for old style)	CR3243-4-04	6		
7.10	Vent Mount (for new style)	261335HP-01	2		
	Screw	AN525-832R8	6		
	Nutplate	MS21042L08	4		
7.11	3" Band Clamp	060036	5		
7.11	Duct Ø2.5" X 120" Long	060025	1		
8.5	4 Groove Belt***	060005	2		
8.5	Smooth Belt*** (Alt. P/N: 060018)	060018-1	2		
8.9	Compressor Bracket Kit	SEE PAGE 15	1		
8.10	SD-507 Compressor Assy.(Grooved)***	590008-1	1		
8.10	SD-507 Compressor Assy. (Smooth)***	590008	1		



### Kit Configuration Inventory List

STEP	PART NAME	PART NUMBER	QTY	CHK'D BY	VERF'D BY
9.4	Tie Wrap (10" Length Min.)	63128	100		
9.4	Tie Block (Alt. P/N: CR4HM)	ZZCR4HM	25		
9.4	Butt Splice 16-14	050020-1	2		
9.4	Ring Terminal 16-14 X ¼"	MS25036-154	2		
9.4	Knife Splice 22-16	050020-6	2		
9.4	Ring Terminal 16-14 #10	050020-8	2		
9.4	Knife Splice 16-14	050020-2	6		
9.4	1/4" Heat Shrink 4" inches long	070077	4		
9.4	Electrical Harness Assembly***	540044-4	1		
	(Config. -01 for non-microswitch Config. -02 for microswitch)				
9.4	EMI-RFI Filter	LS03-01012	1		
9.4	Ring Terminal	MS25036-157	2		
9.5	Harness Assembly	540045-1	1		
9.5	Ring Terminal	050020-9	1		
9.6	Instrument Panel Switch***	540044-8	1		
	(Config. -01 for non-microswitch Config. -02 for microswitch)				
	Dzus Rail for -02 Switch Assembly	261348HP-01	2		
	Rivets	MS20426AD4-7	6		
9.7	Aft Switch Assembly***	540089	1		
	(Config. -01 for non-microswitch Config. -02 for microswitch)				
10.3	Hose Assy Fwd Evap to Aft. Evap To Comp	570087-"O"-A	1		
10.3	#10 "O" Ring	090094	3		
10.3	Adel Clamp	MS21919WDG12	6		
10.3	Nut	MS21044N3	6		
10.3	Screw	AN525-10R10	6		

\*\*Or Approved Alternate 7" Blower Assembly



### Kit Configuration Inventory List

STEP	PART NAME	PART NUMBER	QTY	CHK'D BY	VERF'D BY
10.3	Washer	AN960-10	12		
10.3	Hose Disconnect Bracket	04-130-21-107-01	2		
10.4	Hose Assy. #6 Fwd. Evap. To Drier	570072-"O"-A	1		
10.4	#6 "O" Ring	090092	2		
10.4	Adel Clamp	MS21919WDG10	6		
10.4	Nut	MS21044N3	6		
10.4	Screw	AN525-10R10	6		
10.4	Washer	AN960-10	12		
10.6	Hose Assembly #8 Comp. Discharge	570024-O-A	1		
10.6	#8 "O" Ring	090093	3		
10.6	Adel Clamp	MS21919WDG11	4		
10.6	Nut	MS21044N3	4		
10.6	Screw	AN525-10R10	4		
10.6	Washer	AN960-10	8		
10.7	Receiver/Drier Bottle "O" Type	090016-5	1		
10.7	Band Clamp 3"	060036	1		
10.7	Rec/Drier Mount Bracket	260123-2	1		
10.7	Bolt	AN3-5A	2		
10.7	Nut	MS21044N3	2		
10.7	Washer	AN960-10	4		
10.8	Hose Assembly #6 Condenser to Drier	570020-"O"-A	1		
10.8	#6 "O" Ring	090092	3		
10.9	Low Pressure Switch	050107	1		
10.9	High Pressure Switch	090004	1		
	Spiral Wrap Ø3/4"	SW12BKV	12' ft.		



### Kit Configuration Inventory List

STEP	PART NAME	PART NUMBER	QTY	CHK'D BY	VERF'D BY
	Fwd Evap EMI Filter *** (optional – for brushless motors)	13619-RF16883	1		
	Screw	MS27039-0807	4		
	Washer	NAS620-8L	4		
	Aft Evap EMI Filter Kit *** (optional - for brushless motors)	050143-2	1		

\*\*\* Indicates it has alternate or optional configuration.



### DRAWING LIST

DRAWING NAME	DRAWING #	QTY	CHK'D BY	VERF'D BY
AIR CONDITIONING OVERVIEW	1-3-AS350	1		
ELECTRICAL ROUTING	2-11-AS350	1		
ELECTRICAL DIAGRAM	2-21-AS350	1		
ELECTRICAL DIAGRAM	2-29-AS350	1		
PLUMBING DIAGRAM	3-4-AS350	1		
PLUMBING DIAGRAM	3-14-AS350	1		
AFT EVAPORATOR INSTALL, SHEET 1 of 2	4-3-AS350	1		
AFT EVAPORATOR INSTALL, SHEET 2 of 2	4-3-AS350	1		
AFT EVAPORATOR INSTALL	4-13-AS350	1		
FORWARD EVAPORATOR INSTALL	4-21-AS350	1		
AIR DISTRIBUTION	5-10-AS350	1		
AIR DISTRIBUTION	5-21-AS350	1		
AIR DISTRIBUTION	5-26-AS350	1		
COMPRESSOR INSTALLATION	6-2-AS350	1		
COMPRESSOR INSTALLATION	6-12-AS350	1		
COMPRESSOR INSTALLATION	6-21-AS350	1		
COMPRESSOR INSTALLATION*	6-3-AS350*	1*		
COMPRESSOR INSTALLATION*	6-13-AS350*	1*		
COMPRESSOR INSTALLATION*	6-22-AS350*	1*		
CONDENSER INSTALL, SHEET 1 of 2	7-2-AS350	1		
CONDENSER INSTALL, SHEET 2 of 2	7-2-AS350	1		
CONDENSER INSTALL	7-11-AS350	1		
BAGGAGE COMPARTMENT MOD SHEET 1 of 2	8-2-AS350	1		
BAGGAGE COMPARTMENT MOD SHEET 2 of 2	8-2-AS350	1		
BAGGAGE COMPARTMENT MOD	8-11-AS350	1		

\* Indicates drawings required for newer Gimbal Housing design



### DOCUMENT LIST

DOCUMENT DESCRIPTION	LOCATION	QTY	CHK'D BY	VERF'D BY
KIT CONFIGURATION INVENTORY LIST (IFS 33.41)	SECTION 1	1		
MAT'L SAFETY DATA SHEETS	SECTION 1	1 EA.		
AIRCRAFT PRE-INSPECTION	SECTION 2	1		
AIRCRAFT PREPERATION	SECTION 3	1		
REMOVAL OF FACTORY INSTALLED COMPONENTS	SECTION 4	1		
INSTALLATION OF AFT EVAPORATOR	SECTION 5	1		
INSTALLATION OF CONDENSER	SECTION 6	1		
INSTALLATION OF FORWARD EVAPORATOR	SECTION 7	1		
INSTALLATION OF COMPRESSOR	SECTION 8	1		
INSTALLATION OF ELECTRICAL	SECTION 9	1		
INSTALLATION OF HOSES	SECTION 10	1		
STC# SH3509SW	SECTION 11	1		
WEIGHT AND BALANCE	SECTION 11	1		
RFMS FOR AS350B, BA, B1, B2, B3, C, D AND D1	SECTION 11	1 EA.		
FOREIGN APPVS, CANADIAN, ANAC AND EASA	SECTION 11	1 EA.		
INSTRUCTIONS FOR CONTINUED AIRWORTHINESS	SECTION 12	1		
MASTER PARTS LIST	SECTION 13	1		
ILLUSTRATED PARTS CATALOG	SECTION 13	1		
WARRANTY AND REPAIR	SECTION 14	1		
TROUBLE SHOOTING GUIDE	SECTION 15	1		
AIR CONDITIONING PERFORMANCE CHECK	SECTION 15	1		





**COMPRESSOR BRACKET INSTALLATION KIT**

ITEM DESCRIPTION	Part Number	QTY	Comment	CHK'D BY	VERF'D BY
COMPRESSOR MOUNT BRACKET	04-130-21-101-01	1			
COMPRESSOR MOUNT TENSION BOLT	04-130-21-102-01	1			
JAM NUT DRILLED	04-130-21-104-01	2			
COMPRESSOR CLAMP	04-130-21-105-01	2			
BUSHING, SD 507	261007	2			
COMPRESSOR STAND OFF	300067-1	1			
SHIM	300363-2	2	Alternate (261155)		
THREADED ROD END	2434K39	1			
PIN	300095	1			
STRAP HOUSING	530100-1	1			
WASHER	NAS1149D0416H	1	Or NAS Hardware equivalent		
WASHER	NAS1149D0632H	6	Or NAS Hardware equivalent		
WASHER	NAS1149D0532H	2	Or NAS Hardware equivalent		
WASHER	AN960-416	4	Alternate (AN960-416L)		
WASHER	AN960-516L	1	Alternate (AN960-516)		
WASHER	AN960-616L	2	Alternate (AN960-616)		
NUT	MS21042-L5	2	Alternate (MS20364-524C)		
NUT	MS21042-L4	2	Alternate (AN365-424)		
NUT	MS21042L6	4	Or NAS Hardware equivalent		
BOLT	AN4-5A	1	Or NAS Hardware equivalent		
BOLT	AN4-14A	2	Or NAS Hardware equivalent		
BOLT	AN5-34A	1	Or NAS Hardware equivalent		
BOLT	AN6-13A	2	Or NAS Hardware equivalent		
BOLT HEX DRIVE	AN6-12	1	Or NAS Hardware equivalent		
BOLT	AN6-33A	1	Or NAS Hardware equivalent		



## 1 Identification of substance

**Product details****Trade name:** 61003 Multi-Coat Blank Aerosol**Article number:** 61003**Manufacturer/Supplier:**SEM Products, Inc.  
651 Michael Wylie Dr.  
Charlotte, NC 28217  
USA  
(704)522-1006**Information department:** 24HR EMERGENCY CHEMTREC 800-424-9300

## 2 Composition/Data on components

**Chemical characterization****Description:** Mixture of the substances listed below with nonhazardous additions.**Dangerous components:**

67-64-1	acetone	50-100%
74-98-6	propane	10-25%
78-93-3	butanone	2.5-10%

## 3 Hazards identification

**Hazard description:**Irritant  
Extremely flammable**Information pertaining to particular dangers for man and environment:**

The product has to be labelled due to the calculation procedure of international guidelines.

Warning! Pressurized container.

Has a narcotizing effect.

Extremely flammable.

Irritating to eyes, respiratory system and skin.

Vapours may cause drowsiness and dizziness.

Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C, i.e. electric lights. Do not pierce or burn, even after use.

100.0 % by mass of the contents are flammable

Keep out of the reach of children.

**Classification system:**

The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.

**NFPA ratings (scale 0 - 4)**Health = 2  
Fire = 4  
Reactivity = 0

THIS INFORMATION PERTAINS TO:  
 IFS PN: 070003 TOUCH UP PAINT - TEAL  
 IFS PN: 070003-1 TOUCH UP PAINT-GREY

**Material Safety Data Sheet**  
*acc. to ISO/DIS 11014*



Printing date 07/28/2005

Reviewed on 02/07/2005

**Trade name: 61003 Multi-Coat Blank Aerosol**

(Contd. of page 1)

**· HMIS-ratings (scale 0 - 4)**

2	Health = 2
4	Fire = 4
REACTIVITY 0	Reactivity = 0

#### 4 First aid measures

- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**  
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** If symptoms persist consult doctor.

#### 5 Fire fighting measures

- **Suitable extinguishing agents:** CO<sub>2</sub>, sand, extinguishing powder. Do not use water.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Protective equipment:** No special measures required.

#### 6 Accidental release measures

- **Person-related safety precautions:** Wear protective equipment. Keep unprotected persons away.
- **Measures for environmental protection:** Do not allow to enter sewers/ surface or ground water.
- **Measures for cleaning/collecting:**  
Ensure adequate ventilation.  
Do not flush with water or aqueous cleansing agents

#### 7 Handling and storage

- **Handling:**
- **Information for safe handling:**  
Open and handle receptacle with care.
- **Information about protection against explosions and fires:**  
Do not spray on a naked flame or any incandescent material.  
Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.  
Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C, i.e. electric lights. Do not pierce or burn, even after use.
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**  
Store in a cool location.  
Observe official regulations on storing packagings with pressurized containers.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**  
Keep receptacle tightly sealed.  
Do not gas tight seal receptacle.  
Store in cool, dry conditions in well sealed receptacles.

(Contd. on page 3)

**Trade name: 61003 Multi-Coat Blank Aerosol**

(Contd. of page 2)

*Protect from heat and direct sunlight.*

## 8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

- **Components with limit values that require monitoring at the workplace:**

**67-64-1 acetone**

PEL () 2400 mg/m<sup>3</sup>, 1000 ppm  
 REL () 590 mg/m<sup>3</sup>, 250 ppm  
 TLV () Short-term value: 1782 mg/m<sup>3</sup>, 750 ppm  
           Long-term value: 1188 mg/m<sup>3</sup>, 500 ppm  
           BEI

**74-98-6 propane**

PEL () 1800 mg/m<sup>3</sup>, 1000 ppm  
 REL () 1800 mg/m<sup>3</sup>, 1000 ppm  
 TLV () (4508) mg/m<sup>3</sup>, (2500) ppm

**78-93-3 butanone**

PEL () 590 mg/m<sup>3</sup>, 200 ppm  
 REL () Short-term value: 885 mg/m<sup>3</sup>, 300 ppm  
           Long-term value: 590 mg/m<sup>3</sup>, 200 ppm  
 TLV () Short-term value: 885 mg/m<sup>3</sup>, 300 ppm  
           Long-term value: 590 mg/m<sup>3</sup>, 200 ppm  
           BEI

- **Additional information:** The lists that were valid during the creation were used as basis.

- **Personal protective equipment:**

- **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.  
 Immediately remove all soiled and contaminated clothing.  
 Wash hands before breaks and at the end of work.  
 Avoid contact with the eyes and skin.

- **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.  
 Use suitable respiratory protective device in case of insufficient ventilation.

- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
 Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

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Printing date 07/28/2005

Reviewed on 02/07/2005

Trade name: 61003 Multi-Coat Blank Aerosol

(Contd. of page 3)

· **Eye protection:**



Tightly sealed goggles

## 9 Physical and chemical properties

· **General Information**

**Form:** Aerosol  
**Color:** According to product specification  
**Odor:** Characteristic

· **Change in condition**

**Melting point/Melting range:** Undetermined.  
**Boiling point/Boiling range:** < 0°C (< 32°F)

· **Flash point:** < 0°C (< 32°F)

· **Ignition temperature:** 465.0°C (869°F)

· **Auto igniting:** Product is not selfigniting.

· **Danger of explosion:**

· **Explosion limits:**  
**Lower:** 1.7 Vol %  
**Upper:** 13.0 Vol %

· **Vapor pressure at 20°C (68°F):** 8300.0 hPa (6226 mm Hg)

· **Density at 20°C (68°F):** 0.70 g/cm<sup>3</sup>

· **Solubility in / Miscibility with**

**Water:** Not miscible or difficult to mix.

· **Solvent content:**

**Organic solvents:** 99.0 %  
**VOC content:** 34.0 %  
 243.6 g/l / 2.03 lb/gal

## 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Dangerous reactions** No dangerous reactions known.
- **Dangerous products of decomposition:** No dangerous decomposition products known.

## 11 Toxicological information

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

**67-64-1 acetone**

Oral	LD50	5800 mg/kg (rat)
Dermal	LD50	20000 mg/kg (rabbit)

(Contd. on page 5)

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Trade name: 61003 Multi-Coat Blank Aerosol

(Contd. of page 4)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
 The product shows the following dangers according to internally approved calculation methods for preparations:  
 Irritant

## 12 Ecological information

- **General notes:**  
 Water hazard class 3 (Self-assessment): extremely hazardous for water  
 Do not allow product to reach ground water, water course or sewage system, even in small quantities.  
 Danger to drinking water if even extremely small quantities leak into the ground.

## 13 Disposal considerations

- **Product:**
- **Recommendation:**  
 Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

## 14 Transport information

- **DOT regulations:**



- **Hazard class:** 2.1
- **Identification number:** UN1950
- **Packing group:** -
- **Proper shipping name (technical name):** AEROSOLS, flammable
- **Label:** 2.1

- **Land transport ADR/RID (cross-border):**



- **ADR/RID class:** 2 5F Gases
- **Danger code (Kemler):** 23
- **UN-Number:** 1950
- **Packaging group:** -
- **Label:** 2.1

(Contd. on page 6)

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Trade name: 61003 Multi-Coat Blank Aerosol

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· **Description of goods:** 1950 AEROSOLS

· **Maritime transport IMDG:**



· **IMDG Class:** 2.1  
 · **UN Number:** 1950  
 · **Label:** 2.1  
 · **Packaging group:** -  
 · **EMS Number:** F-D,S-U  
 · **Marine pollutant:** No  
 · **Propper shipping name:** AEROSOLS

· **Air transport ICAO-TI and IATA-DGR:**



· **ICAO/IATA Class:** 2.1  
 · **UN/ID Number:** 1950  
 · **Label:** 2.1  
 · **Packaging group:** -  
 · **Propper shipping name:** AEROSOLS, flammable

## 15 Regulations

· **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredient is listed.

· **Section 313 (Specific toxic chemical listings):**

78-93-3 butanone

· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity:**

None of the ingredients is listed.

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

67-64-1 acetone

D

78-93-3 butanone

D

· **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

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THIS INFORMATION PERTAINS TO:  
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Reviewed on 02/07/2005

**Trade name: 61003 Multi-Coat Blank Aerosol**

(Contd. of page 6)

· **NTP (National Toxicology Program)**

*None of the ingredients is listed.*

· **TLV (Threshold Limit Value established by ACGIH)**

67-64-1 acetone

A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

*None of the ingredients is listed.*

· **OSHA-Ca (Occupational Safety & Health Administration)**

*None of the ingredients is listed.*

· **Product related hazard informations:**

*The product has been classified and marked in accordance with directives on hazardous materials.*

· **Hazard symbols:**

*Irritant*

*Extremely flammable*

· **Risk phrases:**

*Extremely flammable.*

*Irritating to eyes, respiratory system and skin.*

*Vapours may cause drowsiness and dizziness.*

· **Safety phrases:**

*Keep in a cool place.*

*Keep container in a well-ventilated place.*

*Use only in well-ventilated areas.*

*This material and its container must be disposed of as hazardous waste.*

· **Special labeling of certain preparations:**

*Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C, i.e. electric lights. Do not pierce or burn, even after use.*

*100.0 % by mass of the contents are flammable*

*Keep out of the reach of children.*

## 16 Other information

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

· **Department issuing MSDS:** Environment protection department.

· **Contact:** Mr. George Wallace



# MATERIAL SAFETY DATA SHEET

Trade Name: Johnsen's Ester 100  
MSDS NO. 6711  
Revision Date: 03/26/2007  
Date Printed: 12/30/2008

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Trade Name: Johnsen's Ester 100  
Chemical Family: Refrigeration Oil  
Synonyms: None  
Emergency Telephone (24 hr.): CHEMTREC 1-800-424-9300

Supplier: Technical Chemical Company, P.O. Box 139, Cleburne, Texas 76033

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	Weight %	OSHA TWA	OSHA STEL	OSHA SKIN
Ester Proprietary Inhibitor Package Mixture	0-20	Not Listed	Not Listed	Not Listed
Ester Proprietary Base Stock Mixture	20-80	Not Listed	Not Listed	Not Listed

Component	Weight %	OSHA Z PEL	OSHA Z TWA	OSHA Z Ceiling
Ester Proprietary Inhibitor Package Mixture	0-20	Not Listed	Not Listed	Not Listed
Ester Proprietary Base Stock Mixture	20-80	Not Listed	Not Listed	Not Listed

Component	ACGIH TLV TWA	ACGIH TLV STEL	ACGIH TLV Ceiling
Ester Proprietary Inhibitor Package Mixture	Not Listed	Not Listed	Not Listed
Ester Proprietary Base Stock Mixture	Not Listed	Not Listed	Not Listed

Other: Contains no ingredients in concentrations greater than 0.1% that are now known to be hazardous as defined by OSHA.

## 3. HAZARDS IDENTIFICATION

Emergency Overview: Ingestion of this product may cause gastrointestinal distress with symptoms of nausea, vomiting, diarrhea and abdominal pain. May cause irritation to skin and eyes.

HMIS Classification: Health: 1 Flammability: 1 Physical Hazard: 0  
NFPA Rating: Health: 1 Flammability: 1 Reactivity: 0

## 4. FIRST AID MEASURES

**Eye Contact:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Seek medical attention if irritation persists.  
**Ingestion:** DO NOT INDUCE VOMITING. Give nothing by mouth. Get medical attention! If vomiting occurs, keep head lower than hips to prevent aspiration.  
**Inhalation:** If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.  
**Skin Contact:** Remove contaminated clothing and shoes, and launder before reuse. Get medical attention if irritation persists. Wash with soap and water. Use skin cream for defatted areas.

# MATERIAL SAFETY DATA SHEET

Trade Name: Johnsen's Ester 100  
MSDS NO. 6711  
Revision Date: 03/26/2007  
Date Printed 12/30/2008

## 5. FIRE FIGHTING MEASURES

### Flammable Properties

Flash Point °F(°C): >482 (<250)  
Flash Point Method: COC  
Flammable Limits in Air - Lower (%): Not Determined  
Flammable Limits in Air - Upper (%): Not Determined  
Autoignition Temperature °F(°C): Not Determined  
Extinguishing Media: Carbon dioxide. Dry chemical. Foam.  
Protection Of Fire-Fighters:

Special Fire-Fighting Procedures: Wear approved positive-pressure self-contained breathing apparatus and protective clothing. Do not direct a solid stream of water or foam into hot, burning pools; this may cause frothing and increase fire intensity.  
Hazardous Combustion Products: Oxides of carbon, nitrogen and phosphorus.  
Aerosol Comments: Not Applicable

## 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear appropriate protective clothing and equipment to prevent skin and eye contact.  
Spill Procedures: Wear protective equipment specified. Contain any liquid from leaking containers.  
Action to be taken if material is released or spilled: Absorb spills on inert material such as perlite, vermiculite, sand or dirt. Place in double polyethylene bags. Isolate from other waste materials. Wash walking surfaces with detergent and water to reduce slipping hazard.  
Environmental Precautions: Do not allow to enter sanitary drains, sewer or surface and subsurface waters.

## 7. HANDLING AND STORAGE

Handling and Storage: Avoid contact with eyes. Keep containers tightly closed when not in use. Use only in a well ventilated area. Good hygienic practices should be observed. Work clothes should be washed separately at the end of each work day. Contaminated disposable clothing should be discarded in accordance with local, state and federal rules. Wash thoroughly after handling. Do Not Swallow. Store at room temperature. Avoid prolonged/repeated breathing of vapors, mists or fumes.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Eyewash stations. Showers. Use local exhaust.  
Eyes: Chemical goggles; also wear a face shield if splashing hazard exists.  
Skin Protection: Neoprene coated apron or clothing.  
Respiratory Protection: Appropriate respiratory protection shall be worn when applied engineering controls are not adequate to protect against inhalation exposure.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear to light yellow liquid  
Odor: MILD ETHER  
pH Value: Not Determined  
Vapor Pressure: Not Determined  
Vapor Density (Air=1): Not Determined  
Boiling Point (°F): >300 C.  
Melting/Freezing Point: Not Determined  
Solubility in Water: INSOLUBLE  
Bulk Density at 20°C: Not Determined  
Molecular Weight: Mixture  
Specific Gravity (H2O=1): 1.04 @ 60F  
Viscosity: 100 cSt @ 40C  
Evaporation Rate: Not Determined  
VOC Content(%): Not determined.  
Decomposition Temperature: Not Known

# MATERIAL SAFETY DATA SHEET

Trade Name: Johnsen's Ester 100  
MSDS NO. 6711  
Revision Date: 03/26/2007  
Date Printed: 12/30/2008

## 10. STABILITY AND REACTIVITY

**Chemical Stability:** Stable under normal conditions of handling, use and transportation.  
**Conditions to Avoid:** High temperatures.  
**Materials to Avoid:** Strong oxidizing agents.  
**Hazardous Decomposition Products:** Oxides of nitrogen. Oxides of carbon. Oxides of sulfur.  
**Hazardous Polymerization:** WILL NOT OCCUR

## 11. TOXICOLOGICAL INFORMATION

### Toxicological Data:

Component	Route	Species	Dose
Ester Proprietary Inhibitor Package Mixture	Inhalation	Rats	Not known.
Ester Proprietary Base Stock Mixture	Inhalation	Rats	Not known.

### Carcinogenicity:

Component	IARC	NTP	OSHA
Ester Proprietary Inhibitor Package Mixture	Not Listed	Not Listed	Not Listed
Ester Proprietary Base Stock Mixture	Not Listed	Not Listed	Not Listed

**Comments:** No component known to be present in this product at >.1% is presently listed as a carcinogen by IARC, NTP or OSHA.

## 12. ECOLOGICAL INFORMATION

**Remarks:** Ecological testing has not been conducted on this product.

## 13. DISPOSAL CONSIDERATION

**Waste Classification:** This product as purchased does not fall under current U.S. EPA RCRA definitions of hazardous waste. Under RCRA it is the generator's responsibility to determine the status of the waste at the time of its disposal. This product does not contain any CERCLA regulated materials.  
**Waste Management:** Not determined.  
**Disposal Method:** Disposal of this material to the land may be banned by federal law (40 CFR 268).

## 14. TRANSPORTATION INFORMATION

**U.S. DOT:**  
**Proper Shipping Name:** Not Regulated  
**Hazard Class:** Not Applicable  
**UN/NA Number:** Not Applicable  
**DOT Packing Group:** Not Applicable

**IMDG:**  
**Proper Shipping Name:** Not Regulated  
**Hazard Class:** Not Applicable  
**Hazard Subclass:** Not Applicable  
**UN No.:** Not Applicable  
**Packing Group:** Not Applicable  
**Marine Pollutant:** No

# MATERIAL SAFETY DATA SHEET

Trade Name: Johnsen's Ester 100  
MSDS NO. 6711  
Revision Date: 03/26/2007  
Date Printed: 12/30/2008

## 15. REGULATORY INFORMATION

### US Federal Regulations:

Component	SARA 313	SARA 302	TPQ	RQ
Ester Proprietary Inhibitor Package Mixture	Not Listed	Not Listed	Not Listed	Not Listed
Ester Proprietary Base Stock Mixture	Not Listed	Not Listed	Not Listed	Not Listed

**US OSHA HEALTH CLASSIFICATION:** Hazardous per OSHA 29 CFR 1910.1200  
**SARA 311/312 Hazard Categories:** Immediate Health: Yes, Delayed Health: No, Fire: No, Reactive: No, Pressure: No.

### State Regulations:

Component	California Prop. 65 Cancer list	California - Prop 65 Developmental Toxicity	California Prop. 65 Reproductive Female	California Prop. 65 Reproductive Male
Ester Proprietary Inhibitor Package Mixture	Not Listed	Not Listed	Not Listed	Not Listed
Ester Proprietary Base Stock Mixture	Not Listed	Not Listed	Not Listed	Not Listed

**U.S. TSCA:** One or more components of this product is not listed on the TSCA Inventory.  
**Canadian Inventory:** One or more components of this product is not listed on the Canadian DSL or NDSL Inventory.

### Consumer Product Safety Improvement Act of 2008 General Conformity Certification

The Supplier identified in Section 1 of this MSDS has evaluated this product and certifies it to be labeled and packaged in compliance with the applicable provisions of the Federal Hazardous Substance Act as stated in 16 CFR 1500 and enforced by the Consumer Product Safety Commission, and where applicable the products that require Child Resistant Closures are packaged in accordance with the Poison Prevention Packaging Act as stated in 16 CFR 1700 and enforced by the Consumer Product Safety Commission. All closures have been tested in accordance with the latest protocols. No other testing is required to certify compliance with the above. The date of manufacture is stamped on the product container.

## 16. OTHER INFORMATION

### General Notes: Disclaimer:

Do not allow undiluted material or large quantities to reach groundwater, bodies of water or sewer system. The information and recommendations contained herein are based upon tests believed to be reliable. However, the manufacturer/distributor of this product does not guarantee their accuracy or completeness NOR SHALL ANY OF THIS INFORMATION CONSTITUTE A WARRANTY, WHETHER EXPRESSED OR IMPLIED, AS TO THE SAFETY OF THE GOODS, THE MERCHANTABILITY OF THE GOODS, OR THE FITNESS OF THE GOODS FOR A PARTICULAR PURPOSE. Adjustment to conform to actual conditions of usage may be required. The manufacturer/distributor assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied.

## **Step 2**

# **Aircraft Pre-Inspection**

## Aircraft Pre-Inspection

<b>STEP</b>	<b>PROCEDURE</b>	<b>MECH</b>	<b>INSP</b>
2.1	Inspect the aircraft for other kits and Modifications that may effect the installation of The air conditioning kit.		
2.2	Inspect the airframe structure for any obvious Structural damage or corrosion.		
2.3	Repair discrepancies that are found prior to Installation of kit.		
2.4	Inspect aircraft paperwork for damage history that may effect the installation of this kit.		

## General Safety Instructions

### PROCEDURE

**WARNING:** Always handle the refrigerant fluids carefully.

**WARNING:** Do not mix other refrigerant fluids with the R134a. Do not use refrigerant canned for pressure-operated accessories (such as boat air horns). This refrigerant is not pure and will cause malfunctions in the system.

**WARNING:** When the system must be opened to do maintenance, before you do the work, you must drain the air conditioning system.

**WARNING:** When you open the system, you must collect the refrigerant in accordance with Federal and Local regulations.

**WARNING:** When the R134a is used in normal conditions, it is not flammable. Do not use it near a source of heat to prevent the risk of separation of the vapors.

**WARNING:** Avoid skin and eye contact with R-134a. The liquid R-134a, at normal atmospheric temperatures evaporates so quickly that it will freeze anything it comes in contact with.

**WARNING:** Wear safety goggles when servicing any part of the refrigerant system.

**WARNING:** Never heat a R-134a supply cylinder to produce additional pressure or attempt to empty the container completely.

**WARNING:** Insure adequate ventilation when servicing the refrigerant system.

**WARNING:** If the R-134a and lubrication oil are mixed with water they make hydrochloric acid. This will cause corrosion of the system components.

## General Safety Instructions

PROCEDURE
<p><b><u>WARNING:</u></b> You must replace the filter drier each time you open the system.</p>
<p><b><u>WARNING:</u></b> Comply with the regulations in force in the country where the aircraft is operated when working on the air conditioning system.</p>
<p><b><u>WARNING:</u></b> Only use nitrogen or Alcohol to clean the system components.</p>
<p><b><u>WARNING:</u></b> Always keep the R-134a supply cylinder in an upright position when admitting refrigerant into the system. If a cylinder is on its side or upside down, liquid will enter the R-134a system and cause damage to the compressor.</p>



# Step 3

## Aircraft Preparation

## Aircraft Preparation

STEP	PROCEDURE	MECH	INSP
3.0	Remove or disconnect the battery.		
3.1	Remove pilot and co-pilots doors.		
3.2	Remove right rear door as needed.		
3.3	Remove rear seats.		
3.4	Remove co-pilot anti-torque pedals.		
3.5	Drop the cabin headliner.		
3.6	Remove the two side screws from both sides of the glare shield.		
3.7	Remove back wall covering.		
3.8	Remove the right side baggage door.		
3.9	Remove the forward closeout panel in the right hand baggage compartment.		
3.10	Access panel Aft of landing light.		
3.11	Remove the right hand transmission cowling.		
3.12	Remove the left hand transmission cowling.		
3.13	Remove lower nose right window.		
3.14	Remove the front belly cowling.		
3.15	Remove the center belly cowling.		
3.15a	Remove the right middle belly cowling.		
3.15b	Lower the rear belly cowling.		

## Aircraft Preparation

STEP	PROCEDURE	MECH	INSP
3.16	Remove the cargo net from the rear baggage compartment. (If installed)		
3.17	Remove the rear cargo compartment floor.		
3.18	Remove the electrical compartment cover. <b>NOTE:</b> Determine location for air conditioning power hook up. Reinstall cover to prevent FOD.		
3.19	Remove the rear cargo compartment forward floor panel.		
<b><u>NOTE:</u></b> <b>After installation of system, a thorough inspection of all areas affected must be performed to determine security component installations and workman-ship standards prior to reassembly of aircraft and return to service by a qualified individual.</b>			

## **Step 4**

# **Removal of Factory Installed Components**

## Removal of Factory Installed Components

STEP	PROCEDURE	MECH	INSP
4.1	Unbolt oil cooling fan and shroud tiewrap to transmission.		
4.2	Disconnect oil cooler assembly from aft cabin wall and the wrap to transmission. Do not disconnect oil lines.		
4.3	Remove fresh air duct between oil cooler and discard.		
4.4	Remove aft right side seat mount bracket for installation of doubler. Ref 5-21-AS350		
4.5	(Intentionally left Blank)		
4.6	Remove warning horn forward of co-pilots feet. Hold for reinstallation.		
4.7	Remove NR digital indicator box forward of co-pilots feet. Hold for reinstallation.		
4.8	Remove glare shield.		
4.9	Remove T4 correction chart holder. Hold for reinstallation.		

## **Step 5**

# **Installation of Aft Evaporator**

### Installation of Aft Evaporator

STEP	PROCEDURE	MECH	INSP
5.1	Remove Right Hand Transmission Cowling Forward latch. (See photo 1). Hold for reinstallation. Position the aft evaporator doubler P/N 260328-1 on the upper transmission deck per drawing 4-3-AS350 sheet 1 of 2. Mark around doubler and remove all existing rivets, bolts, and nut plates to allow the doubler to sit flat on deck.		
5.2	Drill through deck using pilot holes in doubler. Back drill the doubler from existing holes in the deck.		
5.3	Mark and cut openings in the transmission deck using doubler P/N 260328-1 as a template.		
5.4	Install aft evaporator doubler P/N 260328-1 on right hand upper transmission deck in accordance with drawing 4-3-AS350 sheet 1 of 2 using rivets as shown. Re-install Right Hand Transmission Cowling Forward latch as shown in drawing 4-3-AS350 sheet 1 of 2.		
5.5	Next temporarily install Aft evaporator assembly P/N 560010-“O”-5 with 4 ea. AN3-5A bolts and 4 ea. AN960-10 washers per drawing 4-13-AS350.		
5.6	Position return air doubler P/N 260322-1 against aft cabin bulk head as shown in drawing 5-21-AS350 trace outline on bulkhead. Remove doubler and drill out rivets inside trace.		
5.7	Reposition doubler P/N 260322-1. Back drill all holes and Clelo in place. Using doubler as guide pen route out return air hole.		
5.8	Remove doubler, clean holes. Install doubler P/N 260322-1 and angle P/N 260322-2 rivet in place per drawing 5-21-AS350.  <b>NOTE: Two different situations, requiring different doublers are utilized depending on the type and location of the aft seat harness reel (if installed). See drawing for specifics.</b>		

RSG Products Inc.  
INSTALLATION OF AFT EVAPORATOR – AS350 Air Conditioning



**PHOTO 1**



## Installation of Aft Evaporator

STEP	PROCEDURE	MECH	INSP
5.9	Install return air screen P/N 080022-1 as per drawing 5-21-AS350.		
<p><b><u>NOTE:</u> Before final install of evaporator. Install condenser channels P/N 510007 and P/N 510008. (See condenser install: Step 6)</b></p>			
5.10	<p>Locate “Return Air Connector” P/N 250166. Trial fit to the aft side of the cabin wall, immediately in front of the aft evaporator. The open side of the connector must face aft. Slide the connector upward until it contacts the forward side of the evaporator. Mark with a pencil, the inside of the connector position on to the evaporator. Remove the connector and evaporator. Reference drawing 4-13-AS350.</p> <p>Draw a line one (1) inch above the lower/forward face of the evaporator case. Trial fit “Return Air Connector” to the evaporator, ensuring that the flanges of the connector <b>DO NOT go past the inboard/outboard sides of the evaporator.</b></p> <p>Confirm the pencil lines. Remove the connector. Cut out the area within the pencil lines, leaving the one (1) inch lower lip on the evaporator case as a drain seal.</p> <p><b>NOTE: ENSURE DURING DRILLING THAT THE COIL INSIDE THE CASE IS NOT DAMAGED.</b></p> <p>Seal and secure the Return Air Duct Connector PN: 250166 with rivets to the Evaporator PN: 560010-O-5 case per drawing 4-13-AS350. Next install the connector angle assembly P/N 510261, per drawing 4-3-AS350 Sheet 1 of 2 and 4-13-AS350. This holds the upper part of the return air duct.</p>		
5.11	Position the aft evaporator return air duct P/N 250149 in the right side baggage compartment as shown on drawing 4-13-AS350. Use the return air opening to locate the return air duct. Trim the return air duct as required to fit.		
5.12	Remove the access panel from the outboard side of the aft evaporator P/N 560010-O-5.		
5.13	Temporarily install the aft evaporator, P/N 560010-O-5 using 4 each, AN3-5A, bolts and AN960-10, washers.		

### Installation of Aft Evaporator

STEP	PROCEDURE	MECH	INSP
5.14	Locate and drill the holes for mounting the aft evaporator return air duct connector P/N 250166. Ref. 4-13-AS350		
5.15	Attach Return Air Duct P/N 250149 per drawings 4-3-AS350 sheet 1 of 2 and 4-13-AS350.		
5.16	<u>SEAL THE EVAPORATOR TO THE RETURN AIR DUCT WITH ALUMINUM FOIL TAPE</u> PN: 070076 as required by reaching through the outboard opening in the evaporator. Re-install the aft evaporator access panel.		
5.17	Install the Aft Evaporator Fan Assembly, P/N 490017-1-02, using five each AN3-5A bolts, and 5 ea. AN960-10 washers.		
5.18	Locate Transition Elbow P/N 520036-3. This will be mounted on upper Aft Cabin Wall on transmission side. See drawing 4-3-AS350 Sheets 1 and 2. Remove oil coolers from upper deck dog house. <b>(Do Not Disconnect oil Lines)</b> Position as to be able to modify Aft cabin wall. Do Not Re-install until step 5.22.		
5.19	Mark hole to be cut out in aft cabin wall per drawing 4-3-AS350 Sheet 1 of 2. Be careful not to cut the cabin air duct bonded to aft cabin wall. Drill a couple of # 40 holes to see if you clear duct.		
5.20	Cut out hole and mount elbow as shown in drawing No. 4-3-AS350 Sheet 1 and 2 of 2.		
5.21	Install a 5-inch flex duct (25" in) long from the aft evaporator fan assembly to the aft air distribution elbow end with two each 6" band clamps P/N 060035. Insulate the duct with foam tape P/N 070078 and wrap with aluminum tape P/N 070076.		
5.22	Modify over head wemac's as shown in drawing 5-10-AS350 if S/N 1302 or lower. Remove existing spacer air duct between oil coolers. Install new Air Duct Closure Assembly PN: 510092 using existing hardware. Re-install oil cooler assembly.		
5.23	Install hose doubler P/N 260369 per drawing 3-4-AS350.		

NOTE:  
RIVET LENGTH MAYBE DETERMINED UPON INSTALLATION.  
INTERCHANGEABILITY BETWEEN MS20470AD-4-X RIVETS  
AND CR3242-4-X RIVETS IS APPROVED.

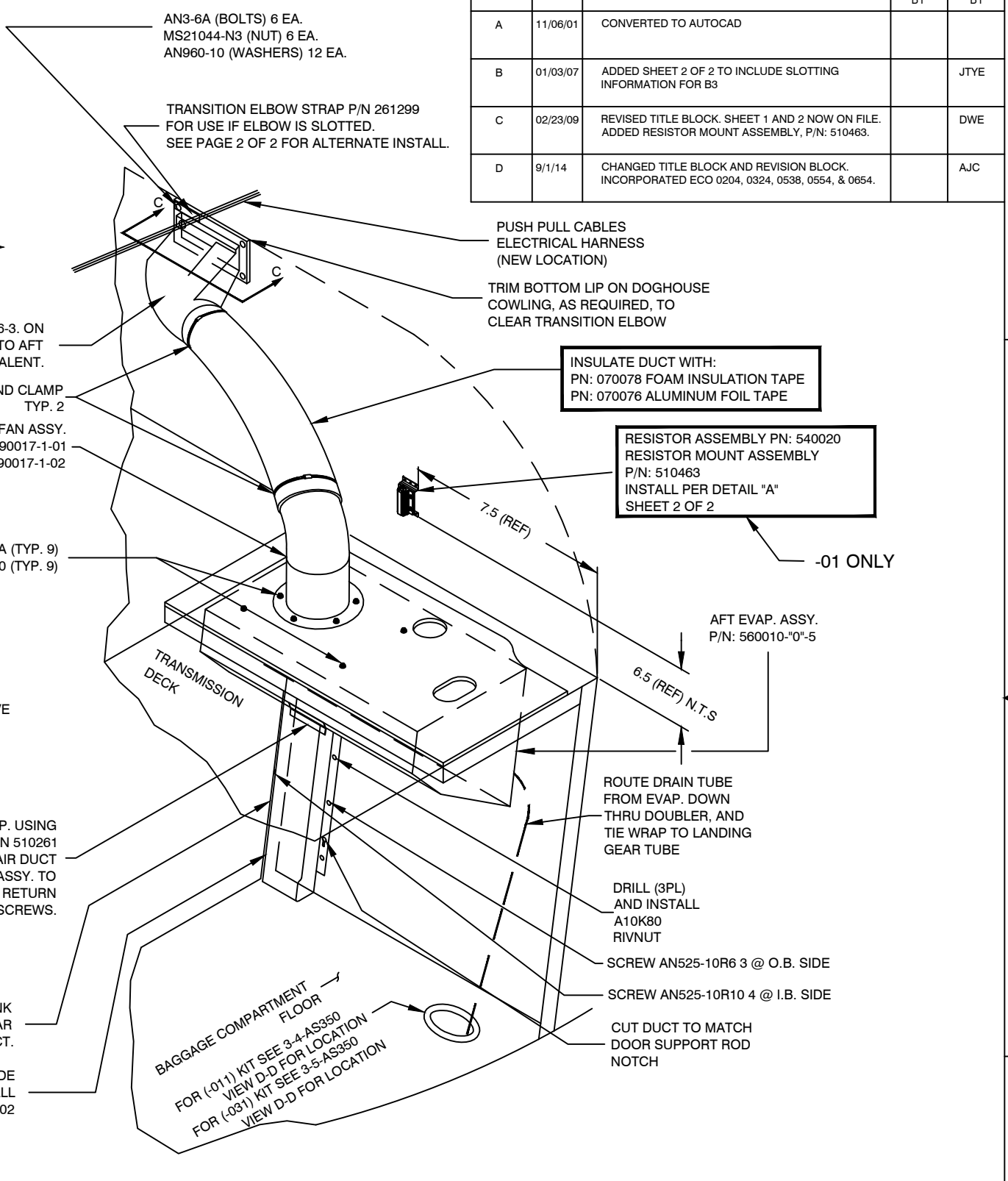
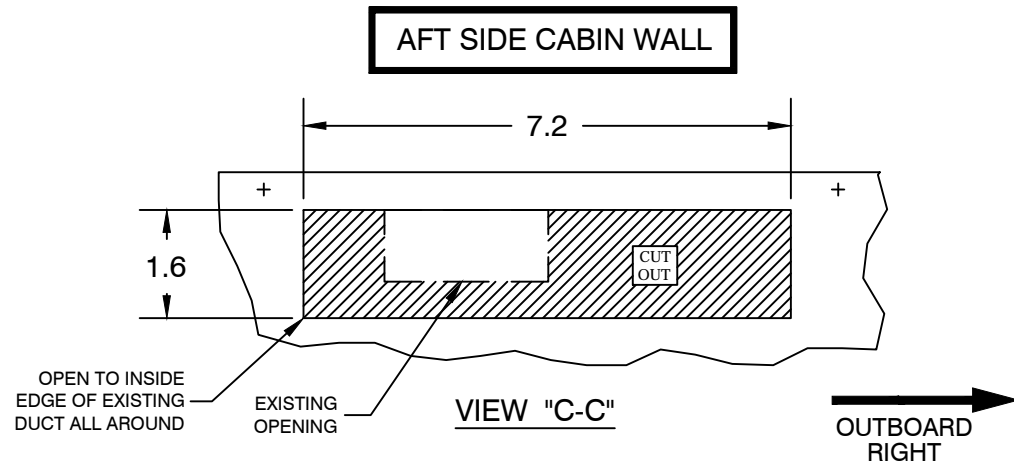
AFTER B3, S/N: 3322, REMOVE GROMMET IN P/N 520036-3.  
CUT OUT OPENING TO 1.6 X 7.2 OR TO MATCH DUCT OPENING AS IN VIEW C-C. ROUTE  
PUSH/PULL CABLES AND ELECTRICAL HARNESS TO LEFT AND TIE WRAP TOGETHER.

SLOT THE TRANSITION ELBOW AS REQUIRED, TYP. B3 MODELS (SEE PAGE 2 OF 2 FOR  
ALTERNATE INSTALL.) SLIDE TRANSITION ELBOW OVER CABLES AND PLACE ELBOW IN  
POSITION AGAINST AFT CABIN WALL. BACK DRILL 6 EACH MOUNTING HOLES. REMOVE AND  
SEAL FLANGE TO AFT CABIN WALL WITH P.R.C. OR EQUIVALENT. REINSTALL DUCT TO AFT  
CABIN WALL USING HARDWARE CALLED OUT.

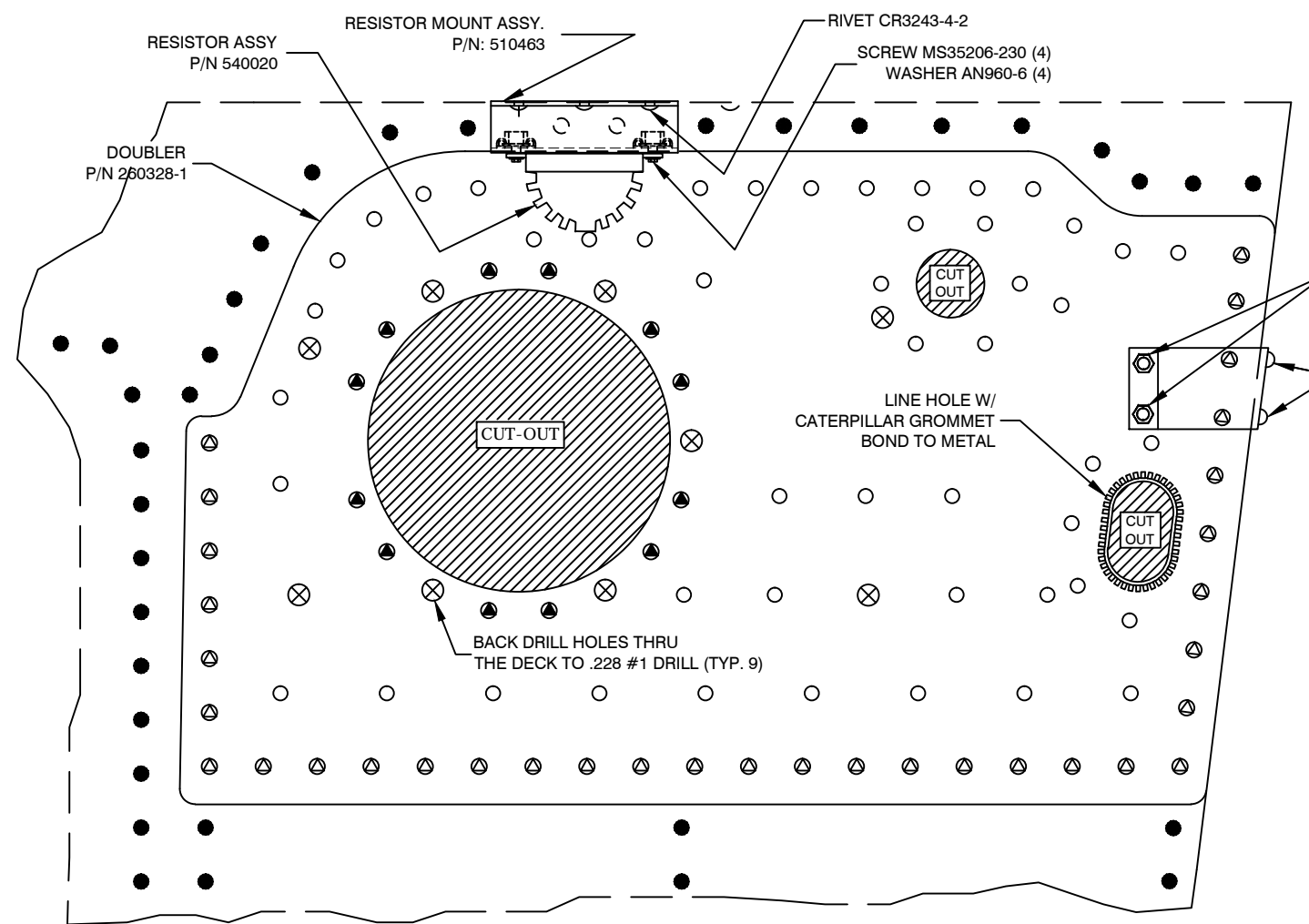
USING STRAP, P/N 261299 SANDWICH DUCT TO AFT CABIN WALL BY USING TOP AND  
TOP/LEFT HAND MOUNTING HOLES AS SHOWN.

REINSTALL GROMMET AND COVER ENTIRE AREA WITH FOIL TAPE.

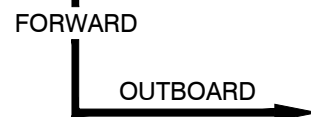
- MS20470AD-4-X (FIELD)
- ⊗ MS20470AD-4-X (REPLACES EXIST. RIVETS)
- ⊙ MS20426AD-4-X (CSK. AT TOP SURFACES)
- ⊗ .228 DIA HOLE #1 DRILL (FOR AN 3-5A BOLT)
- EXISTING



REVISION RECORD				
REV	DATE	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	11/06/01	CONVERTED TO AUTOCAD		
B	01/03/07	ADDED SHEET 2 OF 2 TO INCLUDE SLOTTING INFORMATION FOR B3		JTYE
C	02/23/09	REVISED TITLE BLOCK. SHEET 1 AND 2 NOW ON FILE. ADDED RESISTOR MOUNT ASSEMBLY, P/N: 510463.		DWE
D	9/1/14	CHANGED TITLE BLOCK AND REVISION BLOCK. INCORPORATED ECO 0204, 0324, 0538, 0554, & 0654.		AJC



VIEW LOOKING DOWN AT TRANSMISSION DECK



-01 AFT EVAPORATOR INSTALL WITH FAN ASSEMBLY 490017-1-01 (BRUSH MOTOR)  
-02 AFT EVAPORATOR INSTALL WITH FAN ASSEMBLY 490017-1-02 (BRUSHLESS MOTOR) (AS NOTED)

**PROPRIETARY NOTICE**  
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NEXT ASSY.  
APPROVED BY:

TOLERANCES EXCEPT AS SHOWN  
.X: ±.1  
.XX: ±.03  
.XXX: ±.010  
X.X°: ±.5°  
BREAK ALL SHARP EDGES .01  
ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED  
DATE:

**RSG PRODUCTS INC.**  
A ROTORCRAFT SERVICES GROUP COMPANY

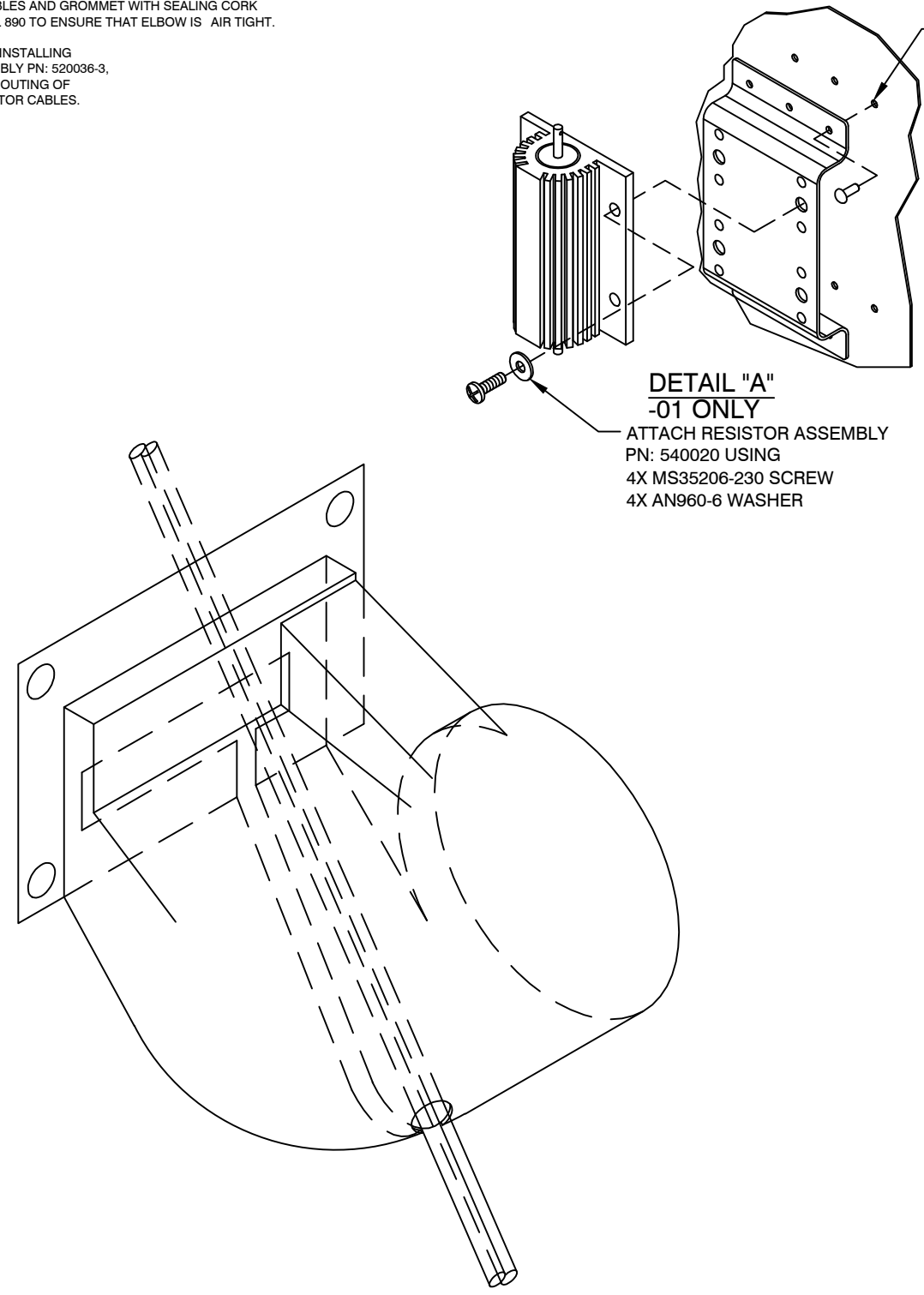
TITLE:  
**AFT EVAPORATOR INSTALL**

DRAWN BY: JDS	DATE: 11/06/01	REV.: D	SCALE: N/A	SHEET: 1 OF 2
APPLICATION: AS350 SERIES			DWG. NO.: 4-3-AS350	

NOTES:

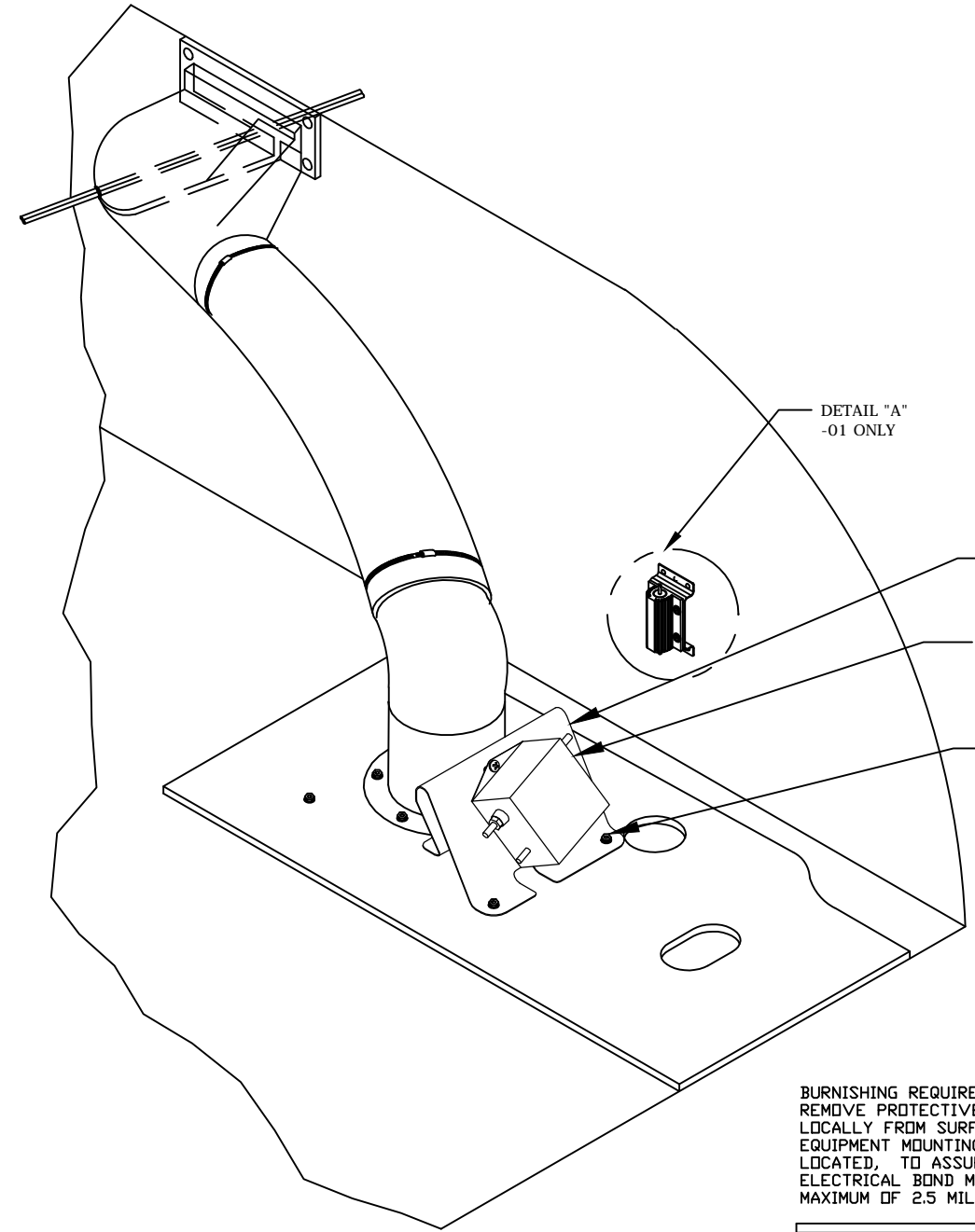
1. TRIM MATING SURFACES OF ELBOW FOR ALIGNMENT OF ELBOW TO CABIN DUCT.
2. POSITION ELBOW ABOVE CABLES AND ALIGN WITH CABIN DUCT.
3. TRACE CABLE ROUTING ONTO LOWER SIDE OF ELBOW.
4. CUT ELBOW TO ALLOW CABLES TO PASS THROUGH WITHOUT INTERFERENCE.
5. OPEN AFT END OF CUT TO APPROX 1" AND INSTALL GROMMET.
6. INSTALL ELBOW TO CABIN AFT WALL PER STANDARD INSTALLATION INSTRUCTIONS.
7. SEAL OPENINGS BOTH INSIDE AND OUT WITH ALUMINUM FOIL. SEAL AREA BETWEEN CABLES AND GROMMET WITH SEALING CORK PN: 070078-6 OR PROSEAL 890 TO ENSURE THAT ELBOW IS AIR TIGHT.

ALTERNATE PROCEEDURE FOR INSTALLING AFT TRANSITION ELBOW ASSEMBLY PN: 520036-3, AS350-B3 SERIES TO AVOID REROUTING OF ROTORBRAKE AND FUEL SELECTOR CABLES.



ALIGN RESISTOR MOUNT ASSEMBLY  
PN: 510463, MARK AND DRILL 6X .098 HOLES. ATTACH WITH 6X CR3243-3-2

**DETAIL "A"**  
-01 ONLY  
ATTACH RESISTOR ASSEMBLY  
PN: 540020 USING  
4X MS35206-230 SCREW  
4X AN960-6 WASHER



**DETAIL "A"**  
-01 ONLY  
OPTIONAL INSTALL FOR NOISE REDUCTION WHEN BRUSHLESS MOTORS ARE INSTALLED; P/Ns: IFSS 050143 DCB, -1 DCB, -2 DCB, AND -3 DCB. INSTALL THE FOLLOWING, MAINTAINING BURNISHING REQ:

04-350-21-108-01 (AFT EVAP EMI FILTER BRACKET) 1EA

13619-RF16883 (EMI FILTER) 1EA  
MS21075-3N (NUTPLATE) 2EA  
CCR264CS-3-02 (RIVET) 4EA  
MS27039-1-07 (SCREW) 2EA  
NAS1149D0316J (WASHER) 2EA

FOR BRACKET ATTACHMENT USE EXISTING AN3-5A BOLTS, 3 PLACES

BURNISHING REQUIREMENTS:  
REMOVE PROTECTIVE FINISH LOCALLY FROM SURFACES WHERE EQUIPMENT MOUNTING HOLES ARE LOCATED, TO ASSURE A PROPER ELECTRICAL BOND MEASURING A MAXIMUM OF 2.5 MILLIDHMS.



TITLE: <b>AFT EVAPORATOR INSTALL</b>				
DRAWN BY: JDS	DATE: 11/06/01	REV.: D	SCALE: N/A	SHEET: 2 OF 2
APPLICATION: AS350 SERIES			DWG. NO.: 4-3-AS350	

REVISION RECORD				
REV	DATE	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	11/07/01	CONVERTED TO AUTOCAD		
B	01/03/07	CORRECTED SENSING BULB POSITION TO MATCH MFG DWGS. REMOVED NOTES CONCERNING SENSING BULB ATTACHMENT, IT IS NOW INSTALLED AT THE ASSEMBLY STAGE, ADDED ALT. CLIPNUT P/Ns SL215-3-1 OR 130082, CHANGED FONT, ADDED DETAILS TO VIEWS TO SHOW INSTALLED. REVISED TITLE BLOCK.		JTYE
C	9/1/14	CHANGED TITLE BLOCK AND REVISION BLOCK.		AJC

**INSTALLATION INSTRUCTIONS:**

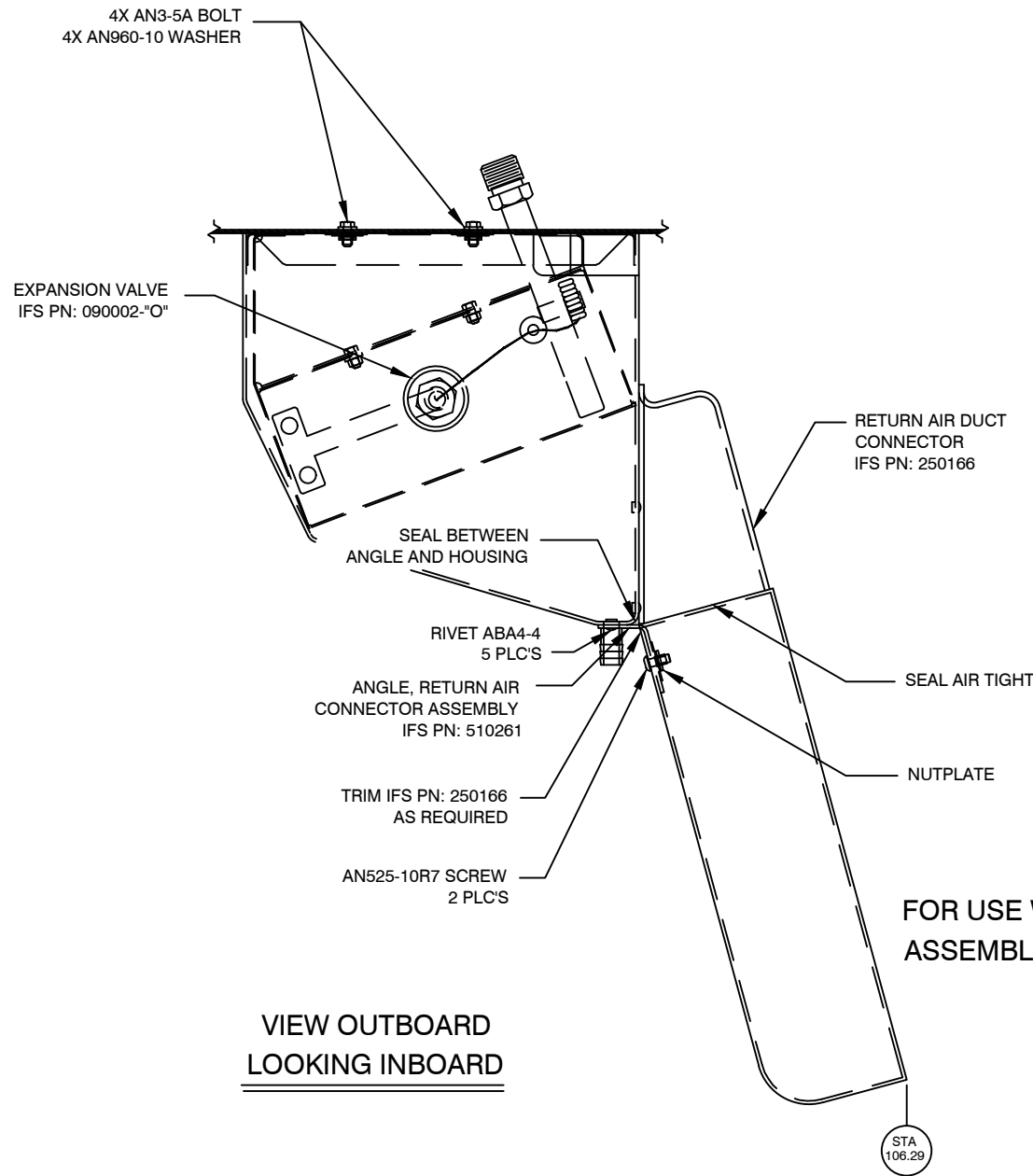
1. AFT EVAPORATOR AND RETURN AIR DUCT INSTALLATION:
2. TEMPORARILY INSTALL EVAPORATOR ASSEMBLY, P/N 560010-"O"-5 UNDER NEWLY INSTALLED DOUBLER WITH 4X AN3-5A BOLTS AND 4X AN960-10 WASHERS AS SHOWN.
3. LOCATE "RETURN AIR CONNECTOR" P/N 250166. TRIAL FIT TO THE AFT SIDE OF THE CABIN WALL, IMMEDIATELY IN FRONT OF THE AFT EVAPORATOR. THE OPEN SIDE OF THE CONNECTOR MUST FACE AFT. SLIDE THE CONNECTOR UPWARD UNTIL IT CONTACTS THE FORWARD SIDE OF THE EVAPORATOR. MARK WITH A PENCIL, THE INSIDE OF THE CONNECTORS POSITION ON TO THE EVAPORATOR. REMOVE THE CONNECTOR AND EVAPORATOR. NOTE: THIS HOLE MAY ALREADY EXIST IF IFS HAS TEST RUN SYSTEM AT ITS LOCATION.
4. LOCATE A LINE ONE (1) INCH ABOVE THE LOWER/FORWARD FACE OF THE EVAPORATOR. TRIAL FIT CONNECTOR TO THE EVAPORATOR, ENSURING THAT THE FLANGES OF THE CONNECTOR DO NOT GO PAST THE INBOARD/OUTBOARD SIDES OF THE EVAPORATOR.
5. CONFIRM THE PENCIL LINES. REMOVE THE CONNECTOR. CUT OUT THE AREA WITHIN THE PENCIL LINES, LEAVING THE ONE (1) INCH LOWER LIP ON THE EVAPORATOR AS A DRAIN SEAL. SEAL AND SECURE WITH RIVETS, THE CONNECTOR TO THE EVAPORATOR PER THE DRAWING.
6. TRIAL FIT RETURN AIR DUCT P/N 250149. BACK DRILL FROM INSIDE THE CABIN AT FOUR PLACES, EQUALLY SPACED, AT INBOARD EDGE OF RETURN AIR DUCT FLANGE. DRILL THREE PLACES, EQUALLY SPACED, ON OUTBOARD EDGE OF RETURN AIR DUCT FLANGE, THROUGH FLANGE INTO AIRCRAFT BOX SECTION.
7. REMOVE DUCT AND INSTALL THREE EACH A10K80 RIVNUTS UNDER OUTBOARD FLANGE LOCATION, INTO AIRCRAFT BOX SECTION. INSTALL FOUR EACH CLIPNUTS, P/N RM52LHA4972-10-02, (ALT. PN: SL215-3-1 OR 130082), ONTO INBOARD FLANGE OF RETURN AIR DUCT. INSTALL RETURN AIR DUCT WITH SEVEN EACH AN525-10R10 SCREWS (FOUR FROM INSIDE CABIN FOR CLIPNUTS), USING K501 TAPE UNDER BOTH DUCT FLANGES AS SEALANT.
8. CONNECT RETURN AIR DUCT TO AFT EVAPORATOR USING ANGLE, RETURN AIR CONNECTOR ASSEMBLY, P/N 510261. USE POP RIVETS, NUTPLATES AND SCREWS. SEAL ANGLE TO RETURN AIR DUCT AND AFT EVAPORATOR HOUSING.
9. INSTALL DRAIN LINE AND ROUTE AS SHOWN IN DRAWING 4-3-AS350 SHEET 1 OF 2. SECURE DRAIN LINE WITH ADEL CLAMPS OR TIE WRAPS AND ROUTE TO A LOCATION OUTBOARD OF THE BELLY PANEL. TIE WRAP TO LANDING GEAR CROSS MEMBER ON AFT SIDE.

**NOTES:**

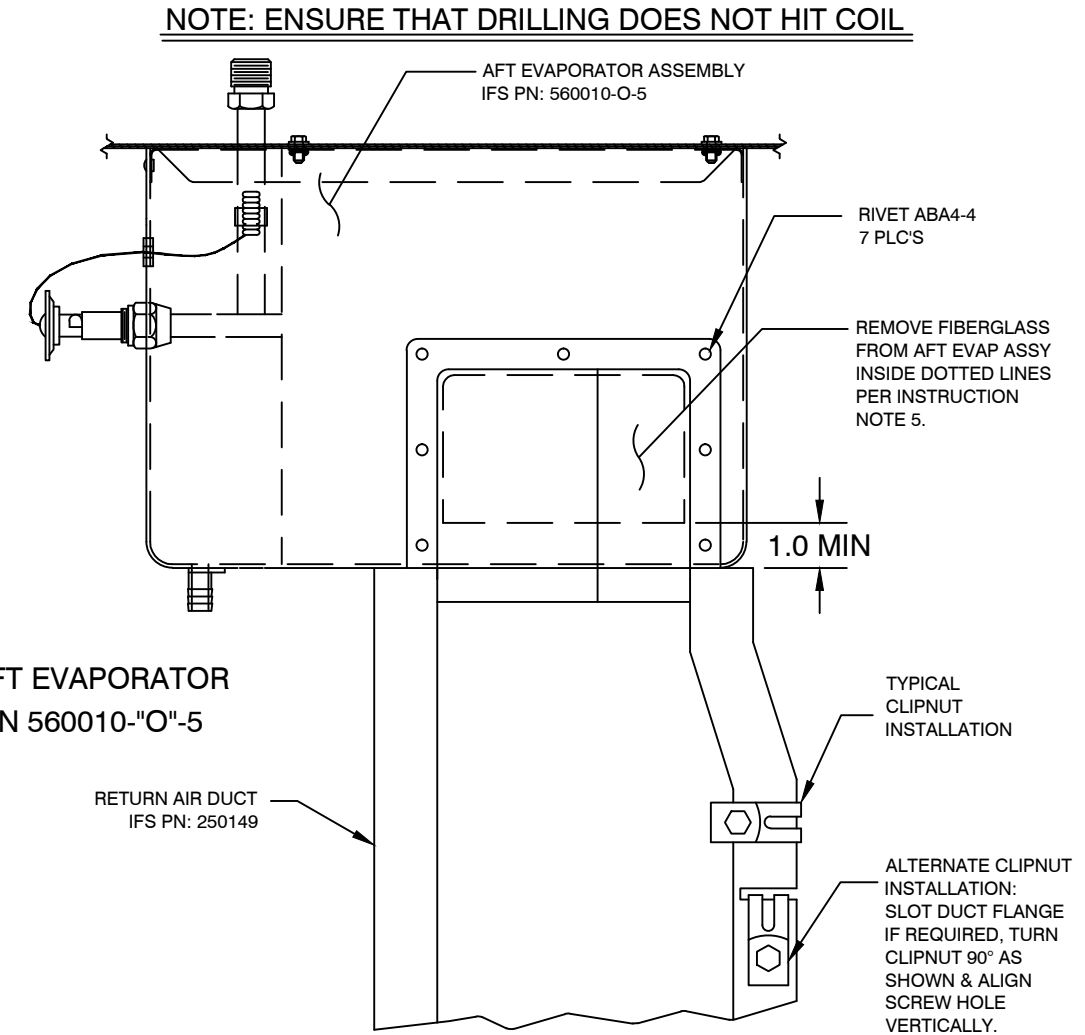
ENSURE THAT DRAIN LINE IS NOT CRIMPED WHEN BELLY PANEL IS RE-INSTALLED.

**CAUTION:**

BE SURE THAT THE DRAIN LINE IS PROPERLY SECURED AND LONG ENOUGH SO THAT CONDENSATION DOES NOT FLOW FROM THE LINE, AFT INTO THE BAGGAGE COMPARTMENT.



**VIEW OUTBOARD  
LOOKING INBOARD**



**VIEW LOOKING AFT**

FOR USE WITH AFT EVAPORATOR ASSEMBLY IFS P/N 560010-"O"-5

<b>PROPRIETARY NOTICE</b> TO ALL PERSONS RECEIVING THIS DOCUMENT THIS DOCUMENT AND INFORMATION OR TECHNICAL DATA AND DESIGNS CONTAINED HEREIN ARE PROPRIETARY DATA AND EXCLUSIVE PROPERTY OF RSG PRODUCTS INC. AND IS DELIVERED ON THE EXPRESS CONDITION THAT NEITHER THIS DOCUMENT NOR THE INFORMATION CONTAINED HEREIN SHALL BE DISCLOSED TO OTHERS, REPRODUCED IN WHOLE OR IN PART, OR USED FOR THE MANUFACTURE OR FABRICATION OF PARTS FOR ANYONE OTHER THAN RSG PRODUCTS INC. WITHOUT WRITTEN CONSENT AND AUTHORIZATION, AND THAT NO RIGHT IS GRANTED TO DISCLOSE OR SO USE ANY INFORMATION CONTAINED IN SAD DOCUMENT. THIS RESTRICTION DOES NOT LIMIT THE RIGHT TO USE INFORMATION OBTAINED FROM ANOTHER SOURCE.	NEXT ASSY.	TOLERANCES EXCEPT AS SHOWN		
		.X: ±.1 .XX: ±.03 .XXX: ±.010 X.X": ±.5° BREAK ALL SHARP EDGES .01 ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED		TITLE: <b>AFT EVAPORATOR INSTALL</b>
	APPROVED BY:	DATE:		DRAWN BY: <b>TMUZZY</b> DATE: <b>11/07/01</b> REV.: <b>C</b> SCALE: <b>N/A</b> SHEET: <b>1 OF 1</b>
				APPLICATION: <b>AS350</b> DWG. NO.: <b>4-13-AS350</b>

REVISION RECORD				
REV	DATE	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	03/27/91	TITLE WAS CAS, IS NOW IFS.		
B	11/15/95	ADDED DETAIL C.		
C	08/16/00	WAS 5-AS350, IS NOW 5-10-AS350. RECONFIGURED AIR OUTLETS		
D	06/15/03	REVISED TITLE BLOCK, REMOVED PAG.		
E	09/09/09	REVISED TITLE BLOCK. ADDED ARROWS FOR VIEW X-X. CORRECTED DETAIL C.		
F	9/1/14	CHANGED TITLE BLOCK AND REVISION BLOCK, ADDED -02 VIEWS AND INSTRUCTIONS PER ECO # 0709.		AJC

ECO 0817

AIR DUCT CLOSURE ASSY  
PN 510092  
REMOVE & DISCARD EXISTING  
FRESH AIR INLET INSTALL  
CLOSURE ASSY USING  
EXISTING HARDWARE

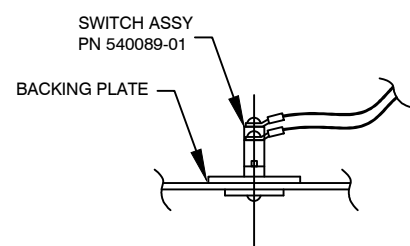
TAP EXISTING AIR OUTLET MOUNTS  
TO 8-32 UNF  
INSTALL WEMAC USING SCREWS  
MS 24693-S55 (4)  
SNAP ON DECOR RING NO 7194-1

TRIM HEADLINER AND CABIN  
STRUCTURE TO FIT WEMAC

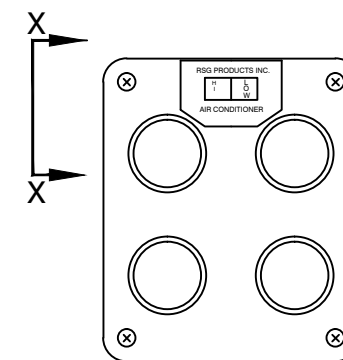
ROTATE NEW WEMAC 90°  
MATCH DRILL NEW HOLES (COUNTERSINK)  
IN WEMAC TO MATCH AIR FRAME

WEMAC NO 2368-503 (CLEAR)  
NOTE: APPLIES TO AIRCRAFT  
W/SMALL ADH AIR OUTLETS

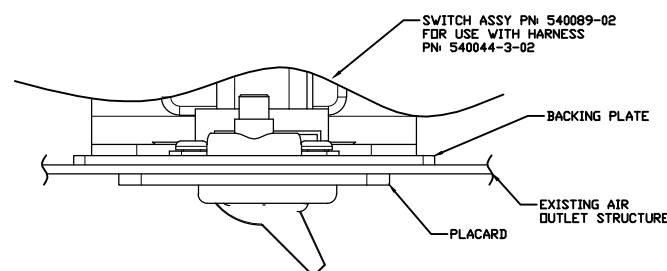
VIEW B-B



VIEW X-X  
540089-01



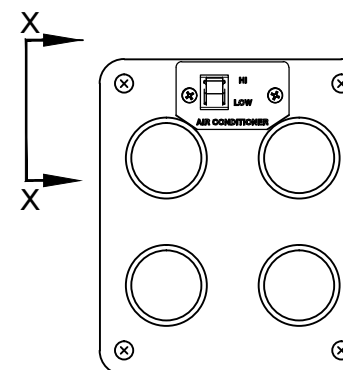
DETAIL C  
540089-01



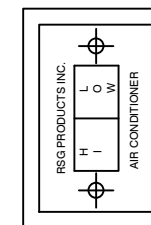
VIEW X-X

REMOVE SWITCH FROM REAR OF SWITCH ASSEMBLY  
PRIOR TO INSTALL. MATCH DRILL SWITCH CUTOUT  
AND SCREW HOLES. TRIM AS REQUIRED.

540089-02



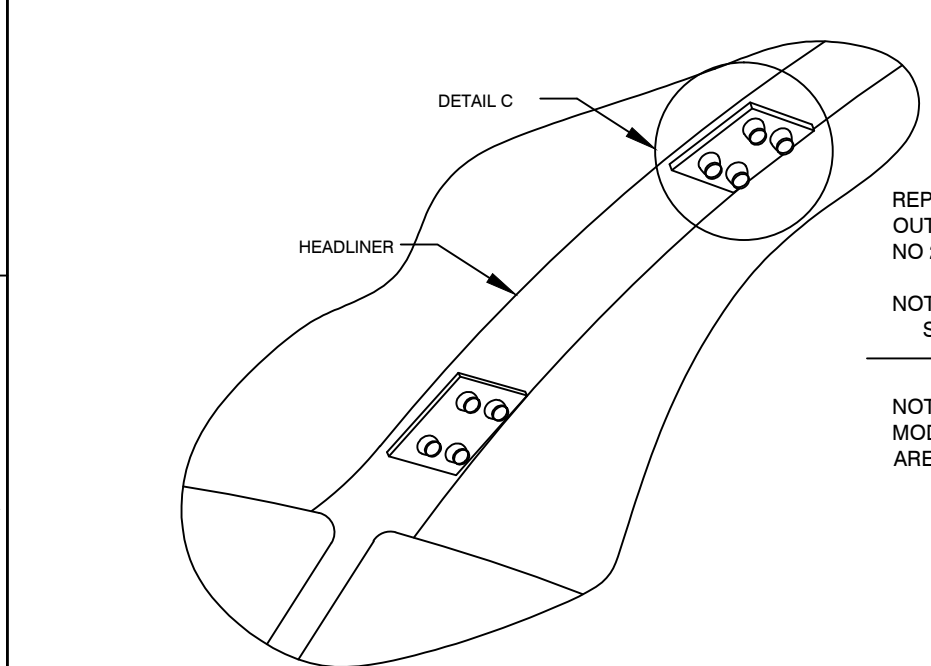
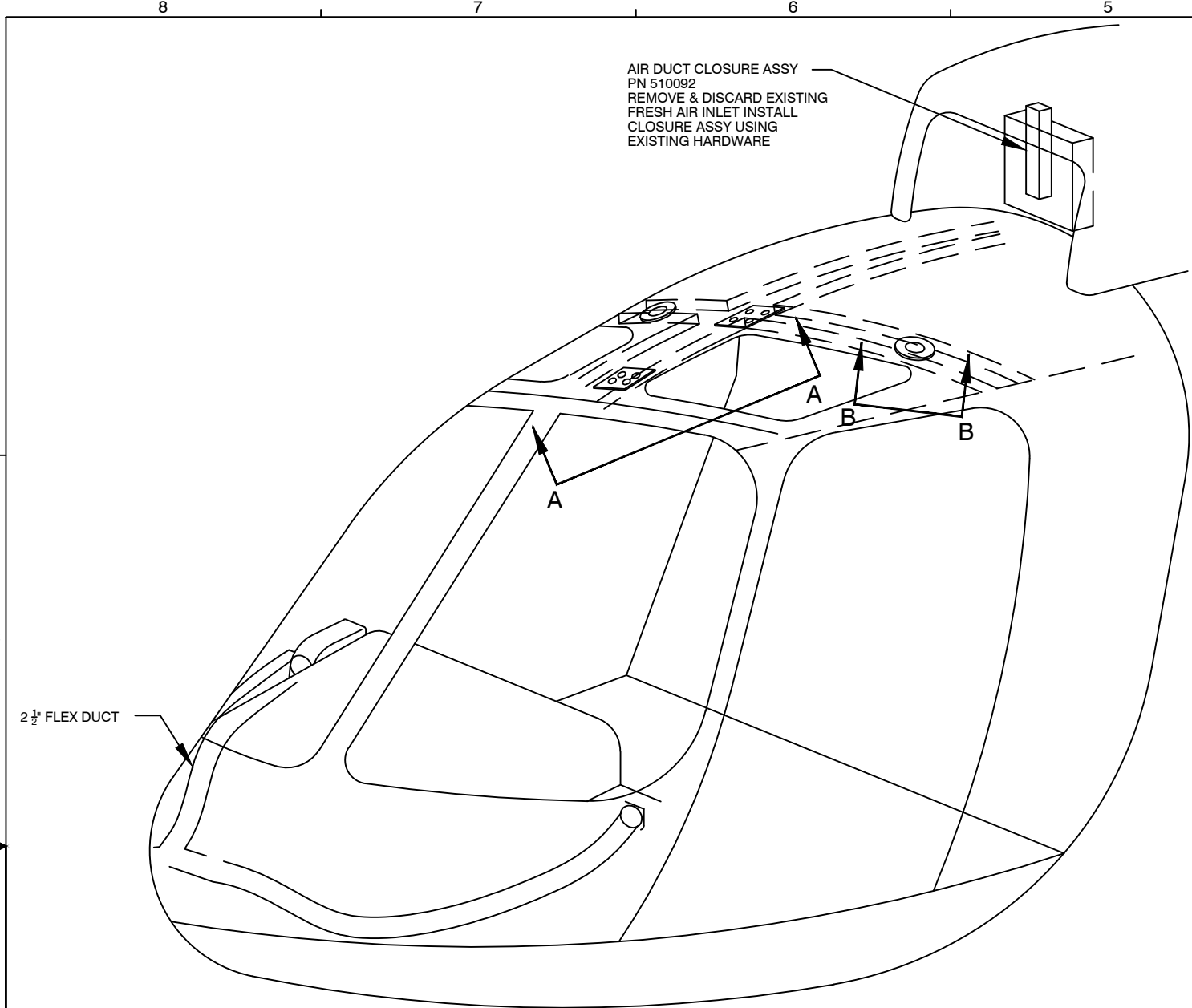
DETAIL C  
540089-02



DETAIL C

LOCATE AFT & LEFT OR RIGHT OF  
EXISTING AIR OUTLETS 1995 & ON

UTILIZED WITH:  
AEC BASIC



VIEW A-A

REPLACE EXISTING AIR  
OUTLETS WITH WEMAC  
NO 2368-503 (4)

NOTE: APPLIES TO  
SN 1302 & DOWN ONLY

NOT REQUIRED IF LATE  
MODEL ADH AIR OUTLETS  
ARE IN PLACE

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		.X: ±.1 .XX: ±.03 .XXX: ±.010 X.X": ±.5° BREAK ALL SHARP EDGES .01 ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED		TITLE: AIR CONDITIONING OVERVIEW
	APPROVED BY:	DATE:		DRAWN BY: JM DATE: 06/20/85 REV.: F SCALE: N/A SHEET: 1 OF 1
				APPLICATION: AS350 DWG. NO.: 5-10-AS350



# ENGINEERING CHANGE ORDER

ECO No.	0817	SHT	1 OF 2
DWG No.	5-10-AS350	REV	F
DWG No.		REV	
DWG No.		REV	

REF. STC No. **SH3509SW**

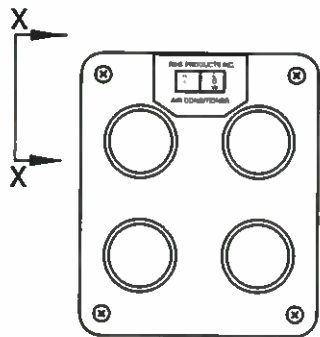
CHANGE CLASS:  
 RECORD CHG. PARTS NOT AFFECTED     NON-INTERCHANGEABLE PARTS  
 INTERCHANGEABLE PARTS                     OTHER \_\_\_\_\_

EXISTING/IN-WORK STOCK DISPOSITION:  
 RECORD CHG. PARTS NOT AFFECTED     RE-WORK EXISTING STOCK  
 SCRAP EXISTING STOCK                     OTHER BREAK IN AT NEXT BUILD

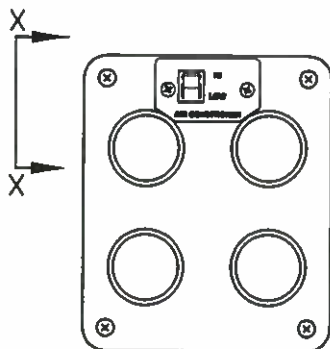
EFFECTIVITY:  
 ALL UNITS THIS CUSTOMER                     LIMITED UNITS SPECIFIED  
 ALL UNITS MFG'D AFTER THIS DATE     OTHER ALL UNITS

DESCRIPTION OF CHANGE:  
 ADDED NOTE TO TOP DETAIL VIEW C. REMOVE BOTTOM DETAIL C VIEW. MODIFY NOTE TO VIEW LOCATED IN ZN B1.

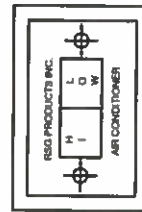
WAS:



**DETAIL C**  
540089-01



**DETAIL C**  
540089-02



**DETAIL C**

LOCATE AFT & LEFT OR RIGHT OF EXISTING AIR OUTLETS 1995 & ON

REMARKS:  
 MINOR CHANGE FOR PRODUCT IMPROVEMENT.

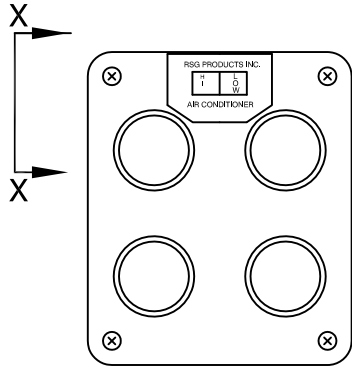
ENGINEERING REVIEW BOARD		
SIGNATURE	STAMP	DATE
<i>[Signature]</i>	<b>P016</b>	9-28-2015
<i>[Signature]</i>	ERB04	9/28/2015
<i>[Signature]</i>	QA11	9/28/2015
INCORPORATION STATUS		
<input type="checkbox"/> IMMEDIATE <input checked="" type="checkbox"/> OUTSTANDING		



**E**NGINEERING  
**C**HANGE  
**O**RDER

ECO No.	0817	SHT	2 OF 2
DWG No.	5-10-AS350	REV	F
DWG No.		REV	
DWG No.		REV	
REF. STC No.	SH3509SW		

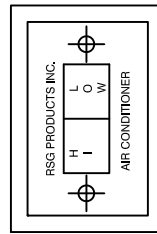
IS:



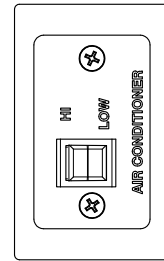
DETAIL C

540089

FOR 1995 MODELS  
& PRIOR



540089-01



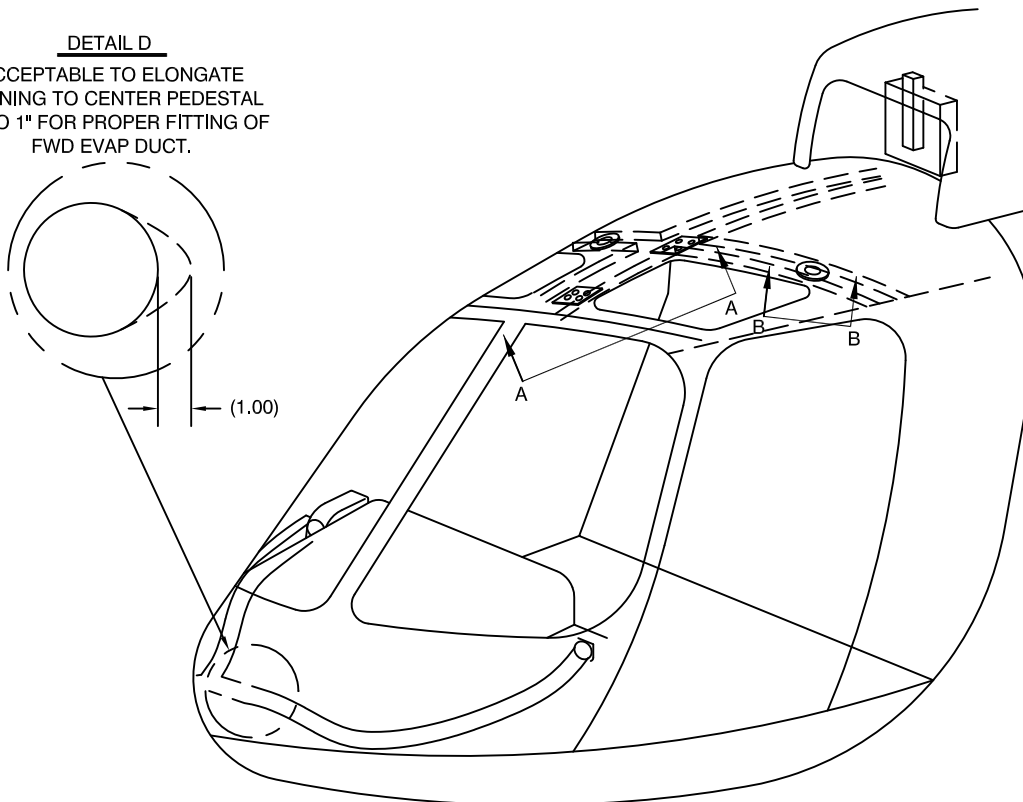
540089-02

LOCATE SWITCH ASSY AFT & LEFT  
OR RIGHT OF  
EXISTING AIR OUTLETS FOR 1995  
MODELS & ON

ADDED "DETAIL D" TO OVERVIEW.

DETAIL D

ACCEPTABLE TO ELONGATE  
OPENING TO CENTER PEDESTAL  
UP TO 1" FOR PROPER FITTING OF  
FWD EVAP DUCT.



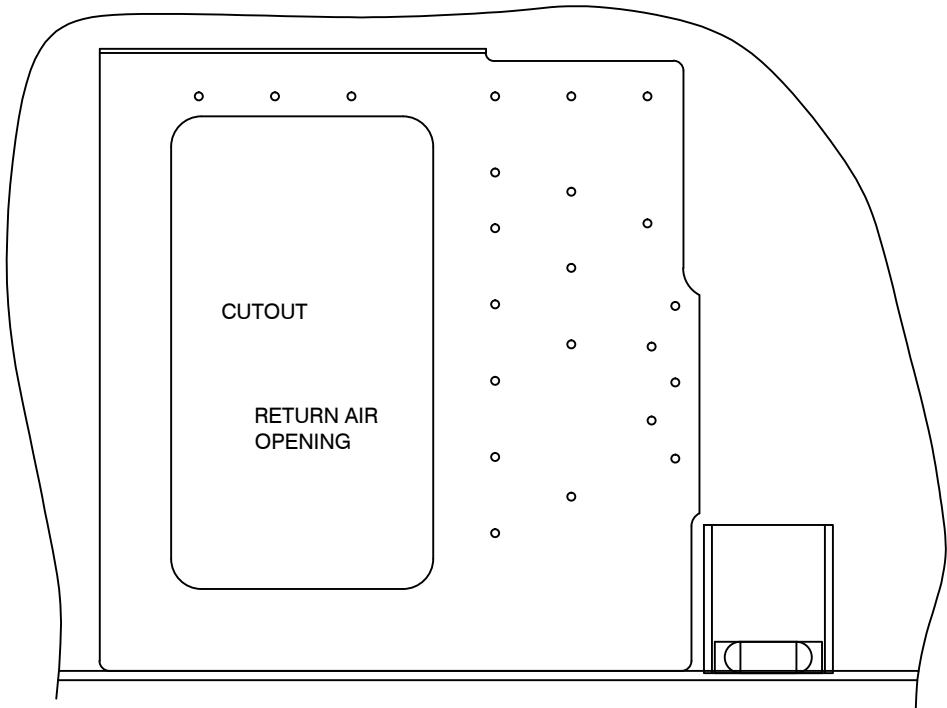


NOTE:

STEPS #1 & #2 PERTAIN TO BOTH DOUBLER INSTALLATIONS

INTERCHANGEABILITY BETWEEN MS20470 AD RIVETS & CR 3243 RIVETS ALLOWABLE, DIA AND LENGTH MAY BE DETERMINED BY THE INSTALLER

RIVET LEGEND	
○	-MS20470 AD4(IN NEW HOLE)
⊗	-CR 3243-4(IN NEW HOLE)
⊙	-CR 3243-4(IN EXISTING HOLE)
●	-MS20426AD4-X(FLUSH RIVET)



STEP 2

MATCH DRILL DOUBLER TO AIRFRAME & AIRFRAME TO DOUBLER RIVET IN PLACE

STEP 3

NOTE: ADD SCREEN SCREWS & SEAL EDGES

REVISION RECORD

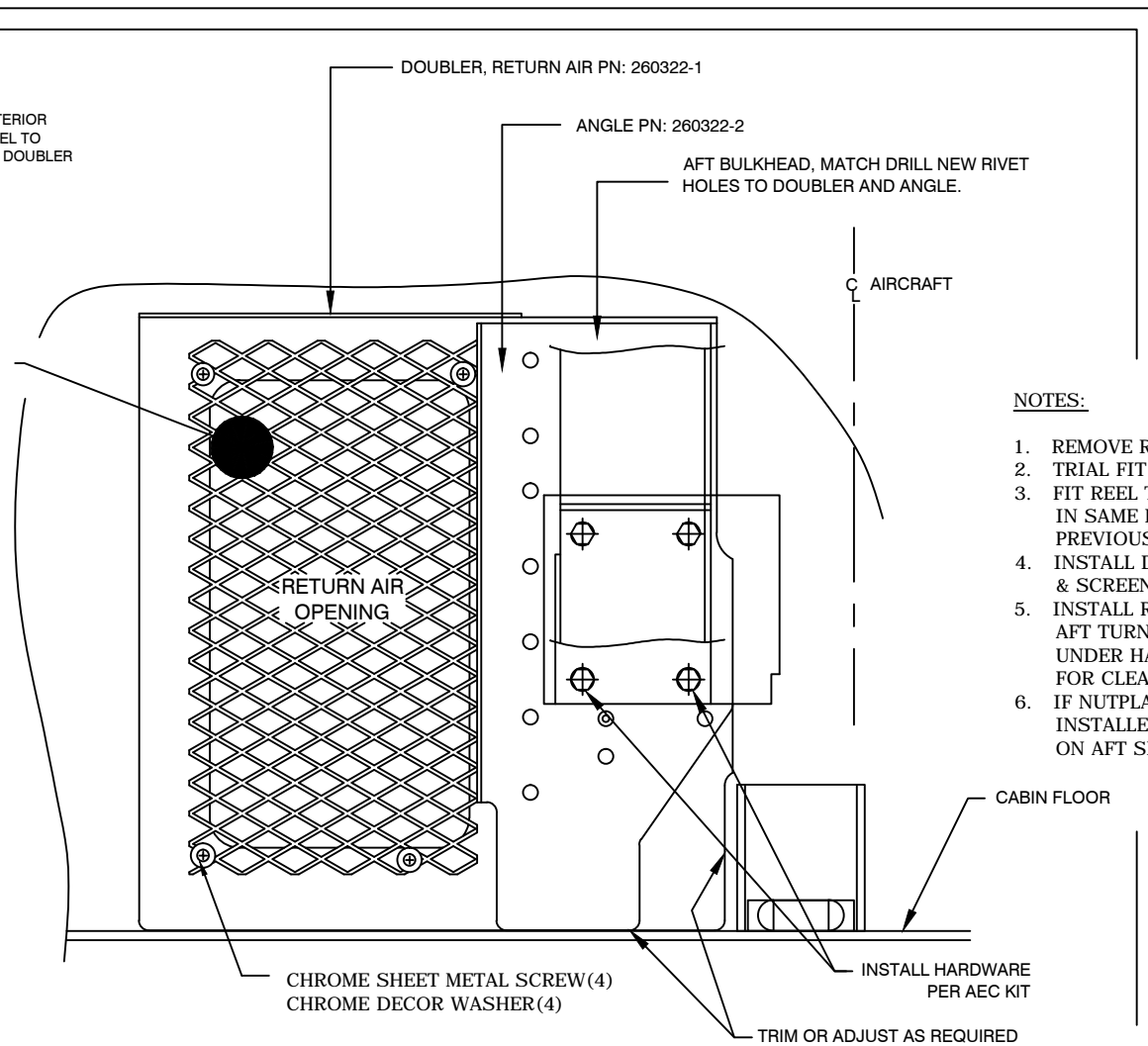
REV	DATE:	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	03/27/91	TITLE BLOCK WAS CAS, IS NOW IFS.		
B	11/15/95	ADD REEL HARNESS.		
C	08/16/00	REVISED DWG No. WAS 5-AS350 SHEET 3 OF 3.		
D	04/12/02	COMPUTERIZED.		
E	04/16/02	ADDED 260322, OPTIONAL.		
F	01/03/07	CORRECTED P'NS, ADDED PHOTO AND TRIMMING NOTATION. REVISED TITLE BLOCK.		JTYE
G	9/1/14	CHANGED TITLE BLOCK AND REVISION BLOCK.		AJC

STEP 1

NOTE: CUT OPENING IN INTERIOR AFT BULKHEAD PANEL TO MATCH RETURN AIR DOUBLER

OUTBOARD, RIGHT

EXPANDED ALUMINUM SCREEN PN: 080022-1



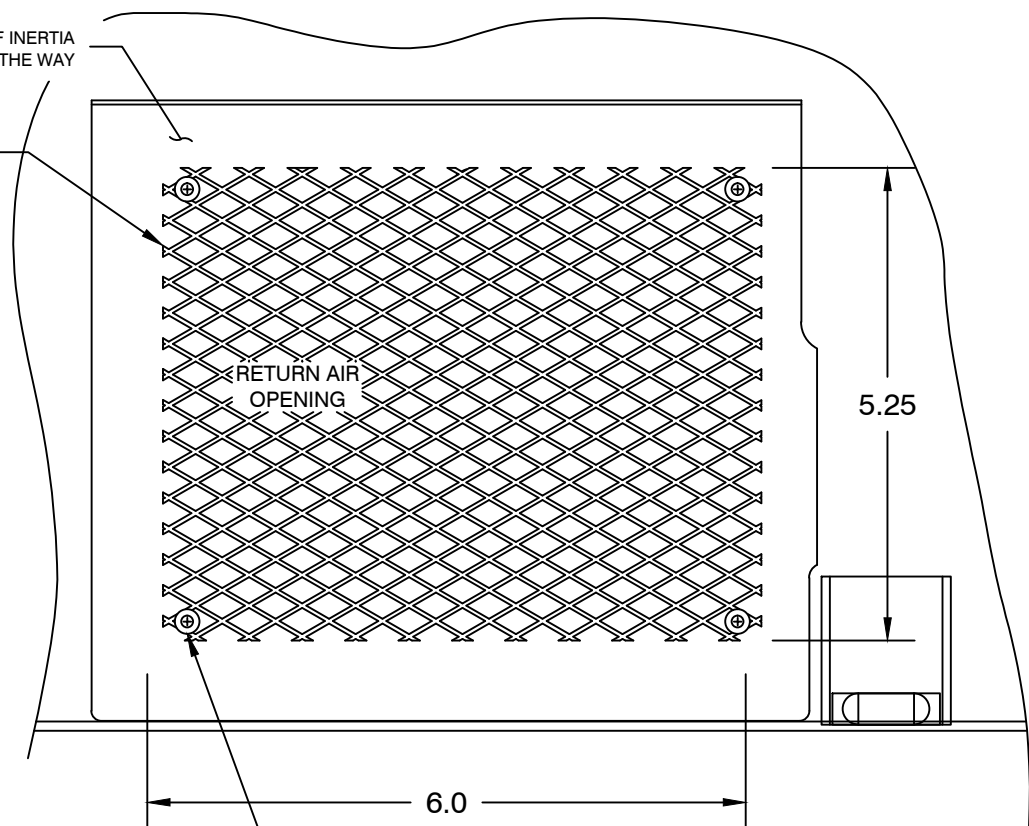
NOTES:

1. REMOVE REEL
2. TRIAL FIT DOUBLER ASSY
3. FIT REEL TO DOUBLER ASSY IN SAME LOCATION AS PREVIOUSLY MOUNTED
4. INSTALL DOUBLER ASSY & SCREEN
5. INSTALL REEL, TRIMMING AFT TURNED LIP OF DOUBLER UNDER HARNESS, AS NECESSARY, FOR CLEARANCE
6. IF NUTPLATES(TYP 4)ARE NOT INSTALLED, ADD PN MS21059-L3 ON AFT SIDE OF WALL

260322 (OPTIONAL) IF INERTIA WHEEL IS NOT IN THE WAY

EXPANDED ALUMINUM SCREEN PN 080022

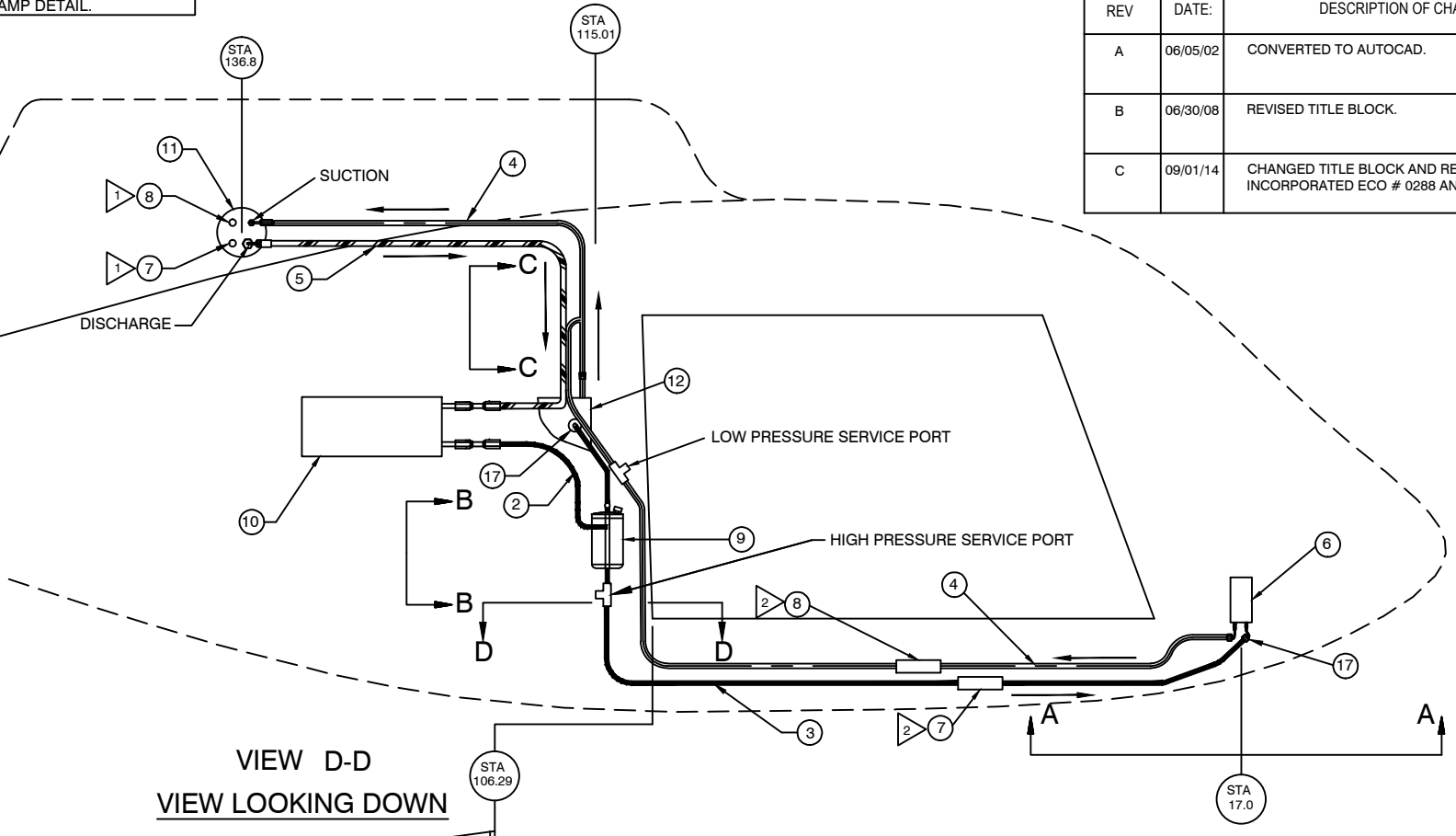
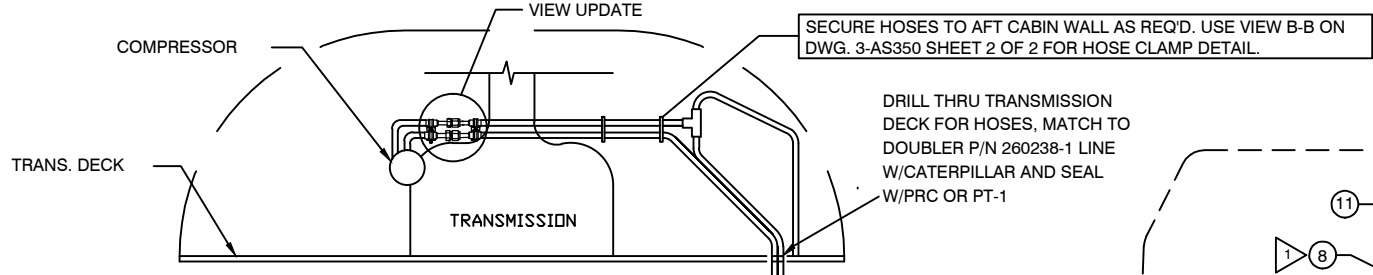
CHROME SHEET METAL SCREW(4)  
CHROME DECOR WASHER(4)



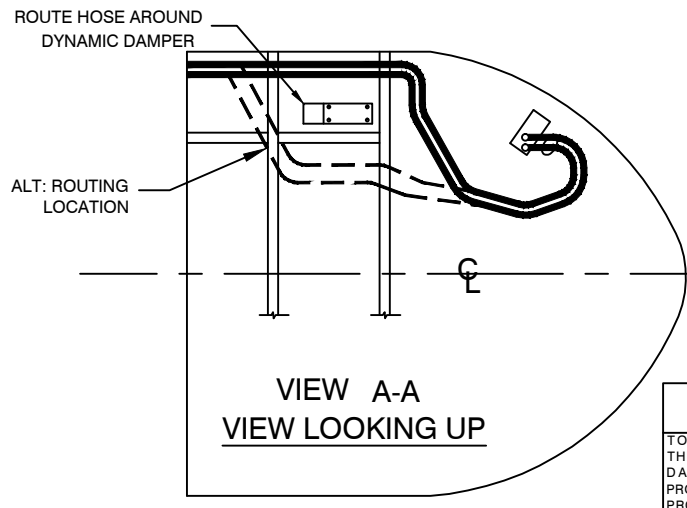
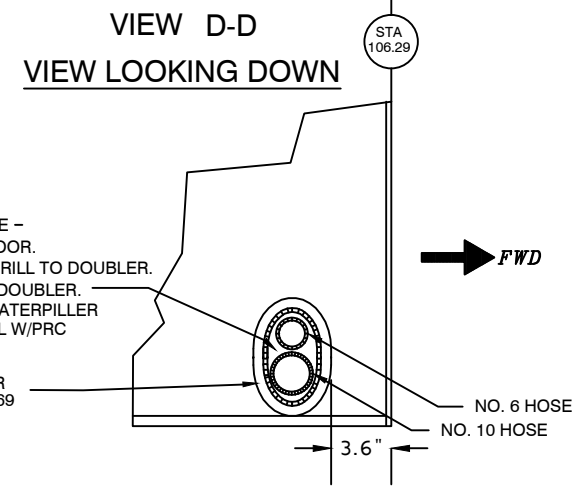
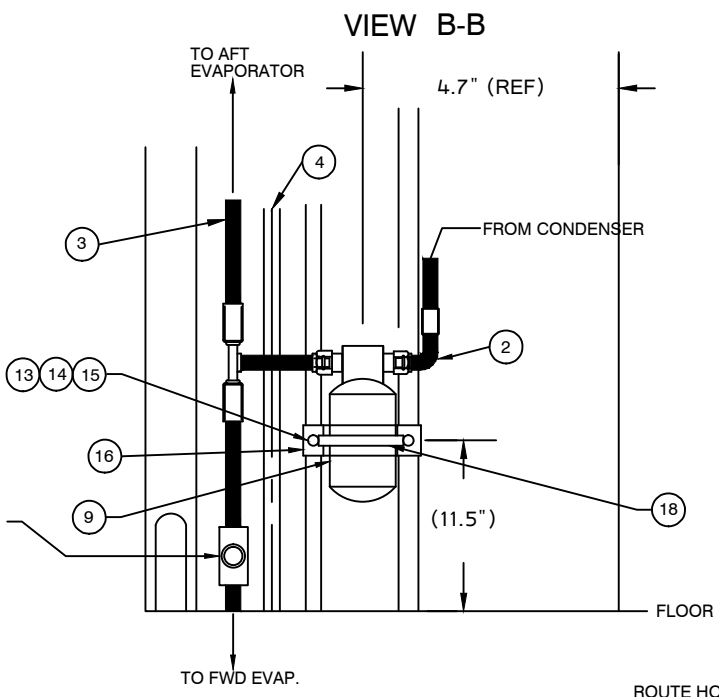
AFT CABIN BULKHEAD  
VIEW LOOKING AFT AT STA 106.29

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	<p>APPROVED BY:</p>	<p>DATE:</p>	<p>DATE:</p>	<p>TITLE: <b>AIR DISTRIBUTION</b></p>			
	<p>DRAWN BY: <b>BP</b></p>		<p>DATE: <b>04/12/85</b></p>	<p>REV.: <b>G</b></p>	<p>SCALE: <b>N/A</b></p>	<p>SHEET: <b>1 OF 1</b></p>	
	<p>APPLICATION: <b>AS350</b></p>			<p>DWG. NO.: <b>5-21-AS350</b></p>			

REVISION RECORD				
REV	DATE	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	06/05/02	CONVERTED TO AUTOCAD.		
B	06/30/08	REVISED TITLE BLOCK.	MLD	JTYE
C	09/01/14	CHANGED TITLE BLOCK AND REVISION BLOCK. INCORPORATED ECO # 0288 AND 0509.		AJC

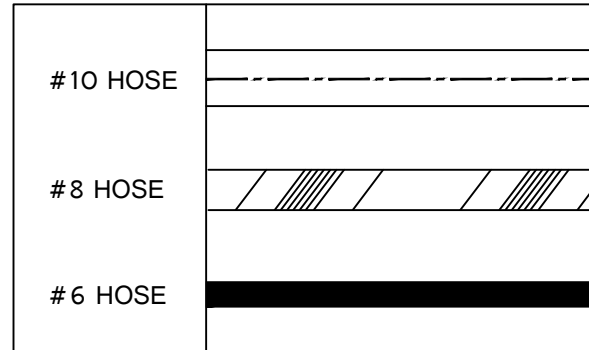


- NOTES:
- 1. LOCATION OF PRESSURE SWITCHES WHEN R-12 COMPRESSOR IS INSTALLED.
  - 2. LOCATION OF PRESSURE SWITCHES WHEN R-134a COMPRESSOR IS INSTALLED.
  - 3. 590001 R-12 FLARE
  - 590001-0" R-12 "0" RING
  - 590001-1"0" R-134a W/ESTER OIL
  - 590001-2"0" R134a W/SP-20 OIL
  - 590008 ALT. 590008-1 R-134a W/ESTER OIL



- NOTES:
- ALTERNATE HOSE:  
1991-ON NEOPRENE BARRIER TYPE
- |                |         |                                       |                |
|----------------|---------|---------------------------------------|----------------|
| #6 P/N 090078  | BASIC   | 1995-ON NEOPRENE REDUCED BARRIER TYPE | #6 P/N 090089  |
| #8 P/N 090079  | PRODUCT |                                       | #8 P/N 090090  |
| #10 P/N 090080 | IFS P/N |                                       | #10 P/N 090091 |
- FERRULES FOR ABOVE
- |                |         |   |
|----------------|---------|---|
| #6 P/N 090081  | BASIC   | MUST USE ATCO REDUCED BARRIER TYPE FITTINGS & ATCO CRIMPER P/N 3700 OR MASTERCOOL P/N 71500 |
| #8 P/N 090082  | PRODUCT |   |
| #10 P/N 090083 | IFS P/N |   |

QTY	ITEM	PART NUMBER	DESCRIPTION
3	21	090094	#10 O-RING
3	20	090093	#8 O-RING
4	19	090092	#6 O-RING
1	18	060036	3 INCH BAND CLAMP
2	17	090002-O	EXPANSION VALVE
1	16	260123-2	RECEIVER DRIER MOUNT
2	15	MS21044-N3	NUT
4	14	AN960-10	WASHER
2	13	AN3-5A	BOLT
1	12	560010-O-5	AFT EVAPORATOR
1	11	590008	COMPRESSOR 24 VDC R-134a O-RING (590008-1 GROOVED)
1	10	550007-1	CONDENSER (ALT.: 550007-2 FOR DUAL BLOWERS)
1	9	090016-5	RECEIVER DRIER BOTTLE
1	8	050107	LOW PRESSURE SWITCH
1	7	090004	HIGH PRESSURE SWITCH
1	6	560025-O	FORWARD EVAPORATOR
1	5	570024-O-A	HOSE ASSY COMPRESSOR TO CONDENSER
1	4	570087-O-A	HOSE ASSY FWD EVAPORATOR TO AFT EVAPORATOR
1	3	570072-O-A	HOSE ASSY. AFT EVAP TO FWD. EVAP TO REC/DRIER
1	2	570020-O-A	HOSE ASSY. COND. TO REC./DRIER
-	1	RESERVED	-



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APPROVED BY:

TOLERANCES EXCEPT AS SHOWN

.X: ±.1  
.XX: ±.03  
.XXX: ±.010  
X.X°: ±.5°  
BREAK ALL SHARP EDGES .01  
ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED  
DATE:

**RSG PRODUCTS INC.**  
A ROTORCRAFT SERVICES GROUP COMPANY

TITLE:  
**PLUMBING DIAGRAM**

DRAWN BY: N.DEAN	DATE: 06/05/02	REV.: C	SCALE: N/A	SHEET: 1 OF 1
APPLICATION: AS350			DWG. NO.: 3-4-AS350	

## **Step 6**

# **Installation of Condenser**

## Installation of Condenser

STEP	PROCEDURE	MECH	INSP
<b><u>NOTE:</u> Do not install P/N 260148-3 before installing mount channels P/N 510007 and 510008. Complete steps 6.8 thru 6.11 prior to step 6.7.</b>			
6.1	Locate Condenser Fan Mounting Channel P/N 260148-3 and Fan Channel Base Angle P/N 260020 these will be mounted in the right hand baggage compartment.		
6.2	Remove support channel AEC P/N 2105000001 per drawing 7-2-AS350 Sheet 1 of 2.		
6.3	Position in place P/N 260148-3 and P/N 260020 as shown in drawing 7-2-AS350 Sheet 1 of 2. Back drill in place and Cleco. Fit filler P/N 260862 and drill in place per drawing 7-2-AS350 Sheet 1 and 2.		
6.4	Position Battery compartment shelf P/N 260333 with mount angles, P/N 260335, drill in place, see drawing 7-2-AS350 Sheet 1 of 2.		
6.5	Be sure to pick up all holes as shown in drawing 7-2-AS350 Sheet 1 of 2, including upper shelf shown in drawing 7-11-AS350.		
6.6	Align electrical panel assembly P/N 540028-C-2-A as shown in drawing 7-11-AS350. Create paper template for hole pattern on bottom of electrical panel assy. Use template to mark and drill shelf, mount P/N 540028-C-2-A using 3 ea. AN3-4A bolts.		
6.7	Remove all parts, clean holes, reinstall and rivet in place, as shown in drawings 7-2-AS350, Sheets 1 and 2 of 2.		
6.8	Locate forward and aft condenser channel assemblies, P/N 510008 and P/N 510007. These will be located in the upper right hand baggage compartment.		
6.9	Position forward channel P/N 510008 as shown in drawing 7-2-AS350 Sheet 2 of 2. Back drill all holes.		

### Installation of Condenser

STEP	PROCEDURE	MECH	INSP
6.10	Remove and clean holes and rivet in place as per drawing 7-2-AS350 Sheet 2 of 2.		
6.11	Repeat steps 6.9 and 6.10 for P/N 510007 install nutplate to channel and install per drawing 7-2-AS350 sheet 2 of 2.		
6.12	Installing mount angle P/N 260002 on condenser: Measure 1.5” from aft (left) of condenser, draw a line parallel to aft end. Center mount angle over existing 3 holes on top of condenser. Align vertical flange over line drawn on condenser. Now transfer 3 holes to mount angle. Drill holes in mount angle. Next mount angle to condenser with 3 ea. AN3-4A bolts and 3 ea. AN960-10 washers as shown in drawing 7-11-AS350.		
6.13	Position the other mount angle P/N 260002 in fwd overhead channel as shown in drawing 7-2-AS350 Sheet 2 of 2, and adjust height as shown in drawing 7-11-AS350. Position condenser assembly in aircraft using previously installed (aft) angle as a guide and slide it up into the aft channel assembly. When condenser is level and at the correct height, check and make sure aft end of condenser is tight against condenser fan channel P/N 260148-3. If not, adjust aft mount angle.		
6.14	Now mark aft mount angle using 2 holes in aft channel assembly P/N 510007 as shown in drawing 7-2-AS350 sheet 1 of 2. Remove condenser and drill holes. Reinstall condenser assembly and temporarily bolt into position. Next mark position of fwd mount angle onto condenser, also mark 7” diameter fan hole along with 4 ea. mounting holes using condenser fan mounting channel 260148-3 as a guide. Remove condenser assembly, position fwd mounting angle on condenser using marking as a guide. Pick up existing 3 holes on condenser. Drill and mount angle using 3 ea. AN3-4A bolts and 3 ea. AN960-10 washers. Now cut out 7” diameter hole as marked and drill out 4 mounting holes. <b>NOTE: Be careful not to cut or drill condenser coil inside condenser, You have about 1” clearance from the end of the housing to the coil.</b> Now mount existing fan mount ring inside of the end of the condenser using drilled mount holes to align ring. Install 4 ea. screws or bolts. Drill 2 ea. #40 holes on either side of each screw (do not drill through nutplates on mount ring) and install with CCR264SS3-3 rivets. Install condenser assembly.		

RSG Products Inc.  
**INSTALLATION OF CONDENSER – AS350 Air Conditioning**

6.15	Locate condenser air intake assembly P/N 520071 or 520071-1. This will be installed in right baggage door per drawing 8-2-AS350, 1 and 2 of 2.		
6.16	Temporarily install right baggage door. Take measurements from door frame to find center of condenser. Mark this center on door. Cut 4” Dia. Hole on center. Put hand through hole and using condenser cut out as guide to mark back of door. Remove door, place air intake assembly P/N 520071(-1) on back of door with lip towards door. Aligning the Aft Lip to mark on door. <b>NOTE: The lip is the part that will be inserted into the door, not the mounting flange.</b> Adjust up and down. See if top line is 3.2” down from top of door. Fit inside of top and bottom marks. Make sure you keep Air Intake level with tip edge of door. Now trace around lip.		
6.17	Cut out hole using marks. Cut inside marks, and cut or sand as necessary to fit air intake.		
6.18	Temporarily install door. Insert air intake. Adjust cutout in condenser as necessary to fit air intake. Do not cut beyond Aft face of condenser. Leave flange going towards condenser. The Fwd end of the condenser can be cut as necessary. The bottom flange of condenser can be trimmed a little, but, leave at least .75” lip. Top can be trimmed almost to top of flange.		
6.19	Mark and cut out fan outlet hole per drawing 8-2-AS350 Sheet 1 of 2. Fit Screen Assy. Cond. Exhaust PN: 520052-1 or -2, adjust holes as necessary. Position Screen Assy. as shown in drawing 8-2-AS350 sheet 2 of 2 and drill 5 holes as shown in drawing 8-2-AS350 sheet 1 of 2.		
6.20	Lay 2 layers of 7.5 oz. – 8 oz. Cloth with resin as shown per drawing 8-2-AS350 sheet 1 of 2.		
6.21	Remove door inner core 1” inside of both cut outs. Next fill in with Hysol 960 or Metalset A-4.		
6.22	Reinstall inlet and outlet. Drill mounting holes and install with MS24693S278 screws, Tinnerman washers A3235-020-24A and nuts MS20364-1032C.		
6.23	Paint to match.		

RSG Products Inc.  
 INSTALLATION OF CONDENSER – AS350 Air Conditioning

## Installation of Condenser

STEP	PROCEDURE	MECH	INSP
6.24	Modify battery cover, P/N 260339 per drawing 8-2-AS350 Sheet 2 of 2.		
6.25	Modify cargo net as shown in drawing 8-11-AS350. Install as shown.		
6.26	When condenser assembly P/N 550007-1 is installed, mount condenser fan assembly, P/N 050084-6** and elbow assembly P/N 520032-1. See drawing 7-2-AS350 Sheet 1 of 2. Install Drain Hose P/N 090018.		

\*\* Or Approved Alternate 7” Blower Assembly. See Sect. 13, for current approved part.

RSG Products Inc.  
INSTALLATION OF CONDENSER – AS350 Air Conditioning

NOTES:

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INSTRUCTIONS:

1. PLACE MOUNTING CHANNEL AS HIGH AS POSSIBLE. INSPECT FOR EXISTING RIVETS THAT MIGHT HOLD CHANNEL OFF DECK.
  2. TRIM/NOTHC CHANNEL AROUND RIVETS.
  3. RE-FIT BEFORE MATCH DRILLING AS IN (4).
  4. MATCH DRILL COND. FAN MT CHAN TO EXISTING MOUNT ANGLE. INSTALL RIVETS CR 3243-4-X
5. TRIM ELBOW FLANGE AS NECESSARY TO ACCOMMODATE CONTROL BOX ON BRUSHLESS MOTORS.

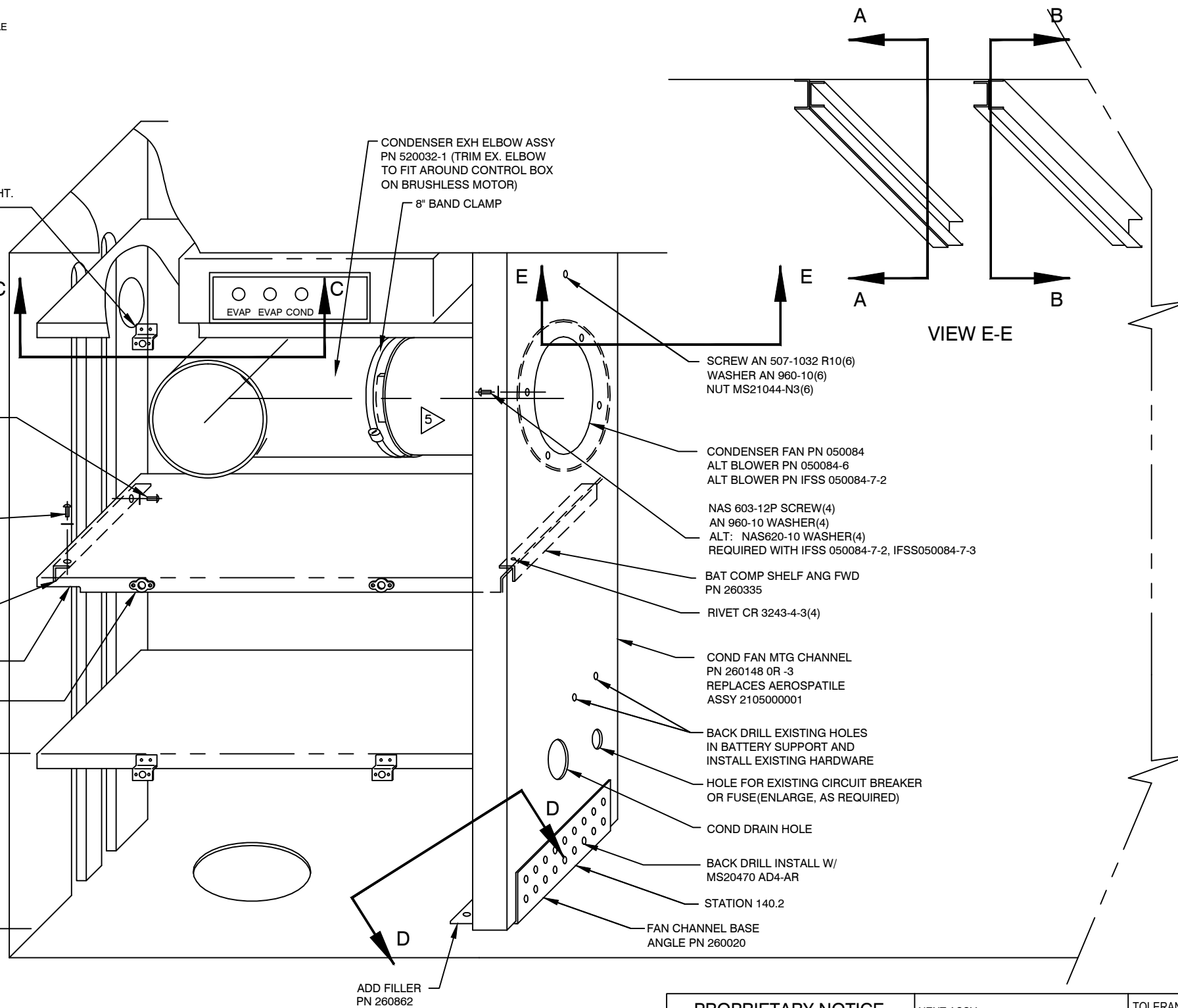
REVISION RECORD

REV	DATE	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	03/27/91	ADDED CP102 AND CP103, INTEGRATED FLIGHT WAS CONSOLIDATED AIRE, TITLE BLOCK WAS CAS, IS IFS.		
B	08/16/00	REVISED DRAWING NUMBER, WAS 5-AS 350; SHEET NUMBER WAS 1 OF 3, ADDED NOTE.		
C	04/12/02	COMPUTERIZED, REVISED TITLE BLOCK.		
D	01/03/07	CORRECTED DRAWING No. REF. WAS 8-AS350, SHEET 1 OF 2. IS 8-11-AS350 SHEET 1 OF 2.		
E	06/30/08	ADDED NOTE 5. REVISED TITLE BLOCK. ADDED TRIM ANNOTATION TO COND. ELBOW ASSY. ADDED INTERCHANGEABLE BLOWERS.		JTYE
F	03/04/10	DELETED BLOWER P/N: IFSS 050084-7 WITH BLOWER P/N: IFSS 050084-7-2.		JM
G	04/08/10	DELETED BLOWER P/N: IFSS 050084-7-1 WITH BLOWER P/N: IFSS 050084-7-3.		JM
H	9/1/14	CHANGED TITLE BLOCK AND REVISION BLOCK. CORRECTED HARDWARE CALLOUT & ADDED SHEET 3 WITH MOUNTING CONFIG. PER ECO # 0289 & 0536		AJC

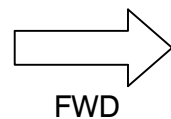
SEE ECO 0823

INTERCHANGEABLE 7" BLOWERS

050084-1
050084-4
050084-6
050084-7
610000 BRUSHLESS
620000 BRUSHLESS
630000
640000
IFSS 050084-1
IFSS 050084-4
IFSS 050084-6
IFSS 050084-6-1
IFSS 050084-7 BRUSHLESS
IFSS 050084-7-1 BRUSHLESS
IFSS 050084-7-2 BRUSHLESS
IFSS 050084-7-3 BRUSHLESS



RIGHT BAGGAGE COMPARTMENT

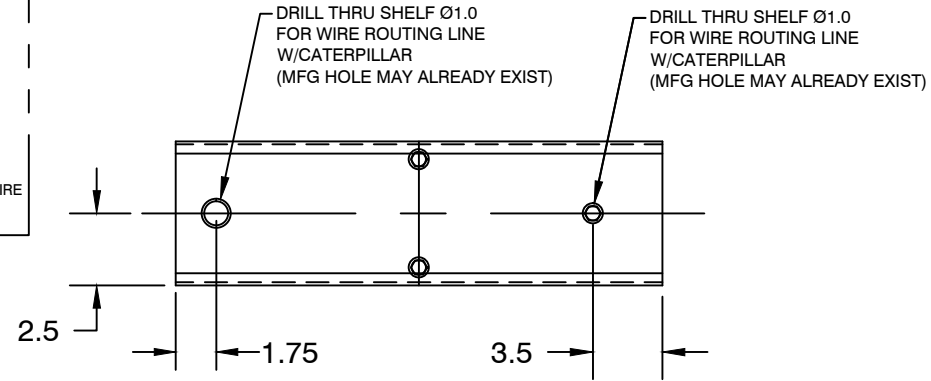


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		.X: ±.1 .XX: ±.03 .XXX: ±.010 X.X": ±.5° BREAK ALL SHARP EDGES .01 ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED		TITLE: <b>CONDENSER INSTALL</b>	
	APPROVED BY:	DATE:		DRAWN BY: <b>BRP</b>	DATE: <b>05/25/95</b>
				REV.: <b>H</b>	SCALE: <b>N/A</b>
			SHEET: <b>1 OF 3</b>		
			APPLICATION: <b>AS350</b>		
			DWG. NO.: <b>7-2-AS350</b>		

NOTE:  
 INTERCHANGABILITY BETWEEN MS20470AD  
 RIVETS AND CR3243 RIVETS ALLOWABLE.  
 DIAMETER AND LENGTH MAY BE  
 DETERMINED BY INSTALLER.

SINGLE CONDENSER BLOWER  
 ENVIRO SYSTEMS INC  
 ALT BLOWER: PN 050084-6  
 ALT BLOWER: PN 050084-7  
 AIR MOVERS, LLC

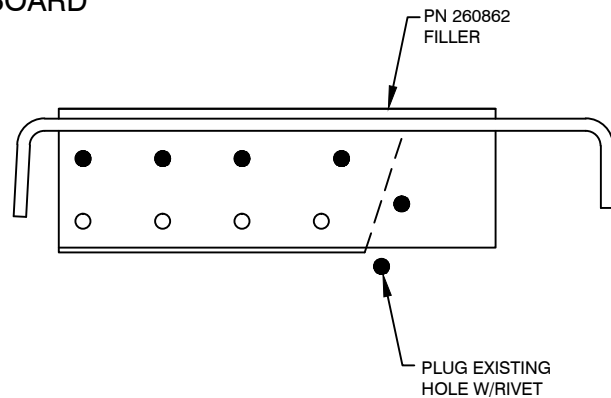
NOTE A:  
 USE CAUTION TO AVOID DAMAGE TO EXISTING WIRE  
 BUNDLE WHEN INSTALLING SHELF



**VIEW C-C  
 LOOKING UP**

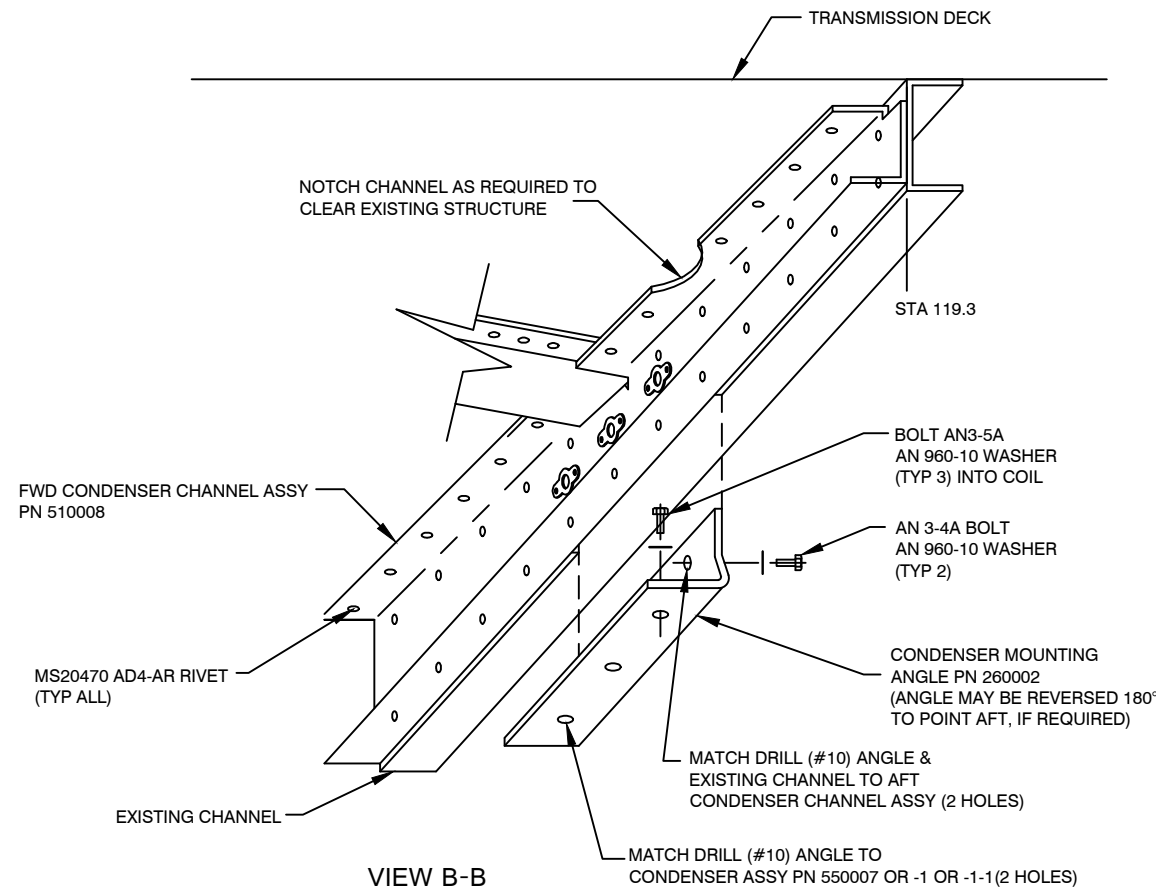
FORWARD  
 OUTBOARD

FORWARD  
 INBOARD

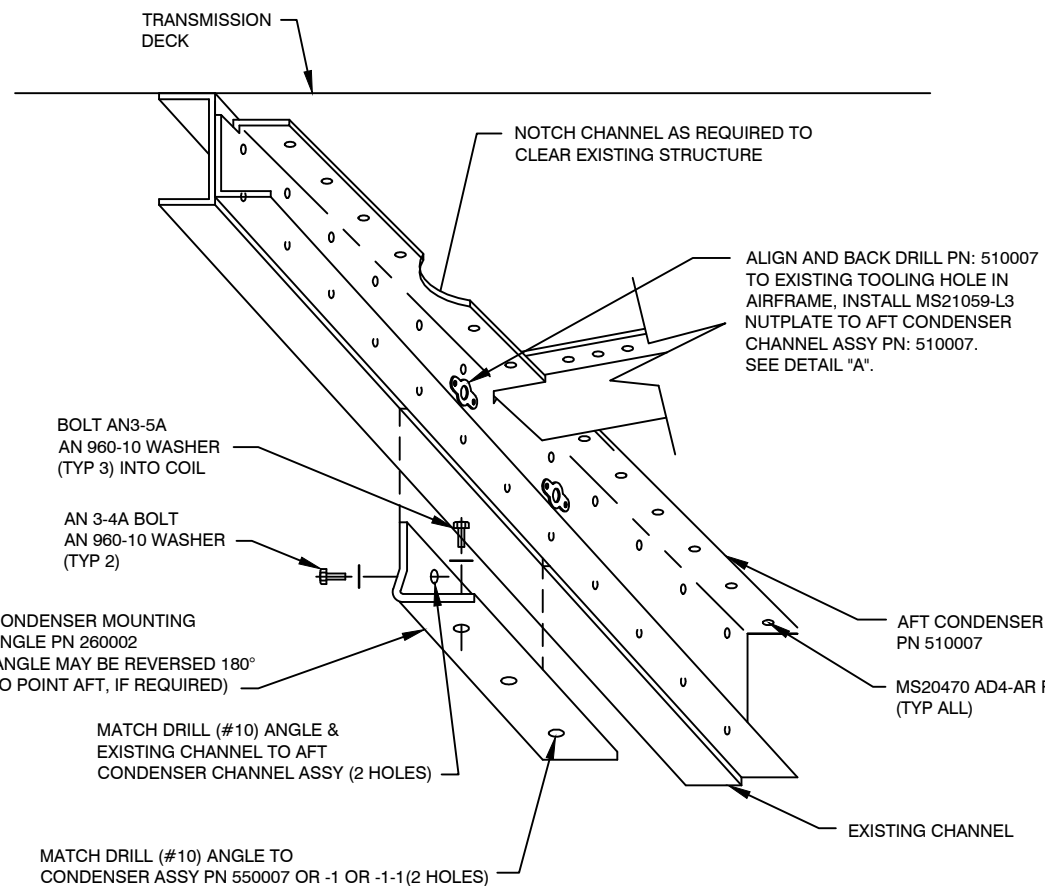


**VIEW D-D  
 LOOKING DOWN**

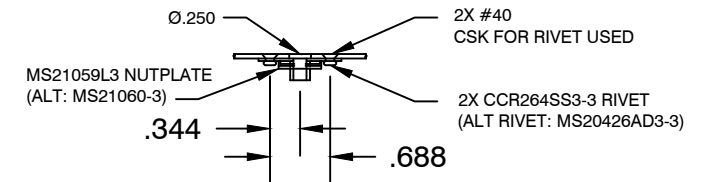
- CR3243-4-3 RIVET DRILL THRU NEW PART FROM ABOVE USE #27 DRILL
- ⊗ CR3243-4-3 RIVET BACK DRILL #27 HOLE THRU EXISTING HOLE INTO NEW PART
- CR3243-4-4 BACK DRILL #27 THRU EXISTING HOLE



**VIEW B-B**



**VIEW A-A**

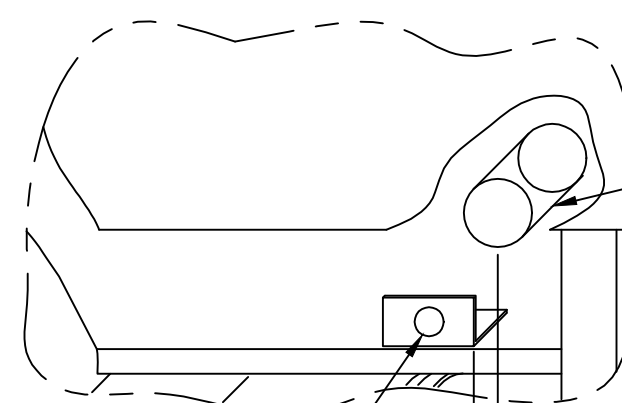
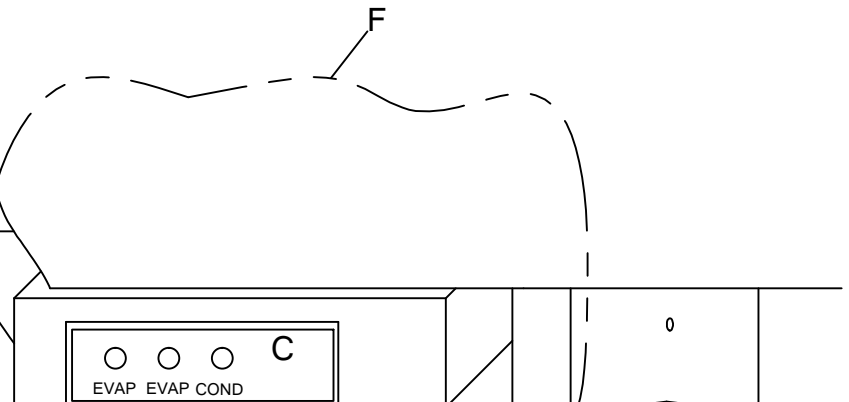
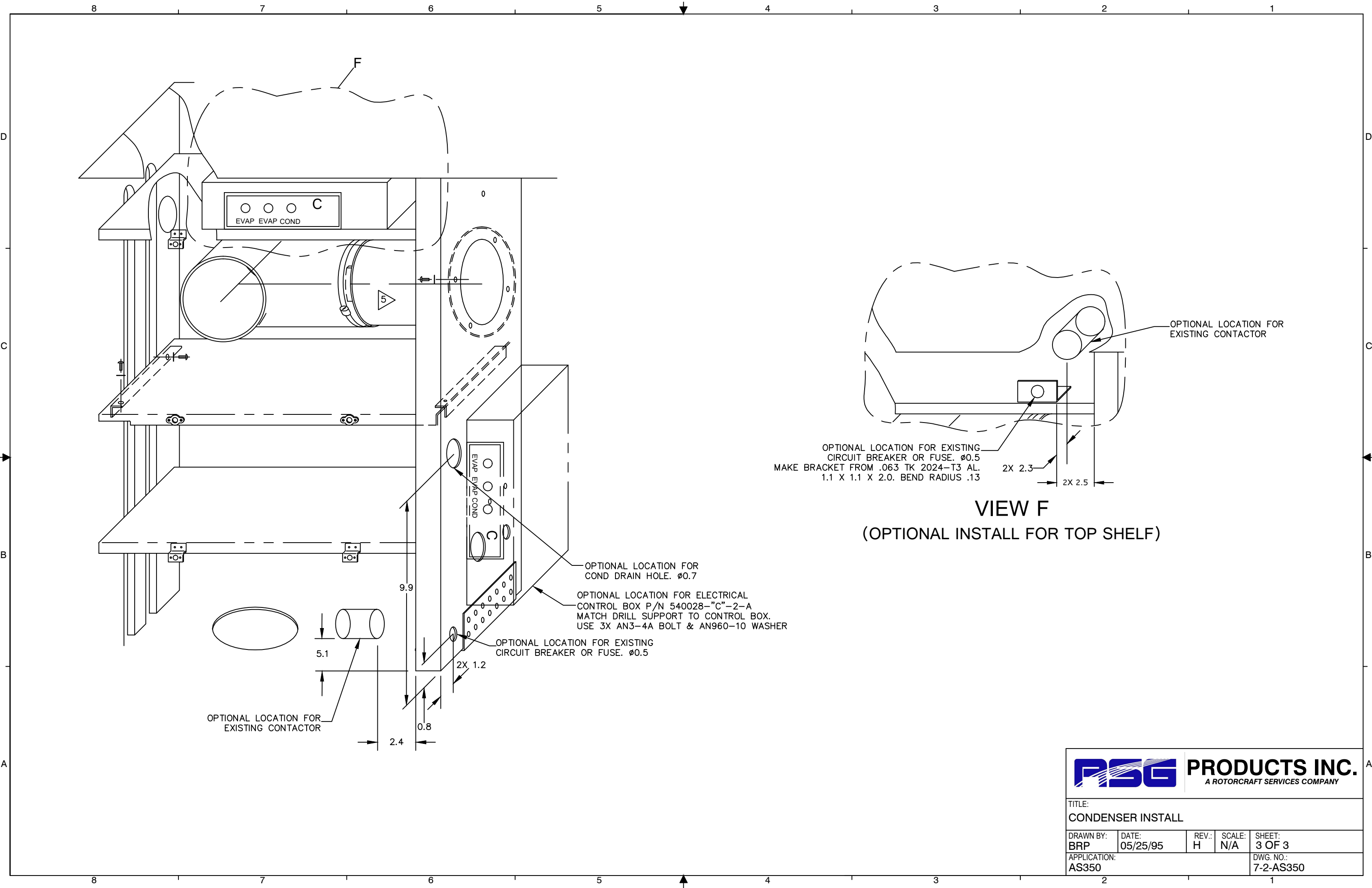


**DETAIL "A"**

TYPICAL NUTPLATE INSTALLATION  
 NOT TO SCALE



TITLE: <b>CONDENSER INSTALL</b>				
DRAWN BY: <b>BRP</b>	DATE: <b>05/25/95</b>	REV.: <b>H</b>	SCALE: <b>N/A</b>	SHEET: <b>2 OF 3</b>
APPLICATION: <b>AS350</b>			DWG. NO.: <b>7-2-AS350</b>	



OPTIONAL LOCATION FOR EXISTING CONTACTOR

OPTIONAL LOCATION FOR EXISTING CIRCUIT BREAKER OR FUSE.  $\phi 0.5$   
 MAKE BRACKET FROM .063 TK 2024-T3 AL.  
 1.1 X 1.1 X 2.0. BEND RADIUS .13

2X 2.3

2X 2.5

**VIEW F**  
 (OPTIONAL INSTALL FOR TOP SHELF)

OPTIONAL LOCATION FOR COND DRAIN HOLE.  $\phi 0.7$

OPTIONAL LOCATION FOR ELECTRICAL CONTROL BOX P/N 540028-"C"-2-A  
 MATCH DRILL SUPPORT TO CONTROL BOX.  
 USE 3X AN3-4A BOLT & AN960-10 WASHER

OPTIONAL LOCATION FOR EXISTING CIRCUIT BREAKER OR FUSE.  $\phi 0.5$

2X 1.2

9.9

5.1

2.4

0.8

OPTIONAL LOCATION FOR EXISTING CONTACTOR

TITLE: CONDENSER INSTALL				
DRAWN BY: BRP	DATE: 05/25/95	REV.: H	SCALE: N/A	SHEET: 3 OF 3
APPLICATION: AS350			DWG. NO.: 7-2-AS350	



# ENGINEERING CHANGE ORDER

ECO No. 0823	SHT 1 OF 2
DWG No. 7-2-AS350	REV H
DWG No.	REV
DWG No.	REV

REF. STC No. SH3509SW

CHANGE CLASS:  
 RECORD CHG. PARTS NOT AFFECTED  NON-INTERCHANGEABLE PARTS  
 INTERCHANGEABLE PARTS  OTHER \_\_\_\_\_

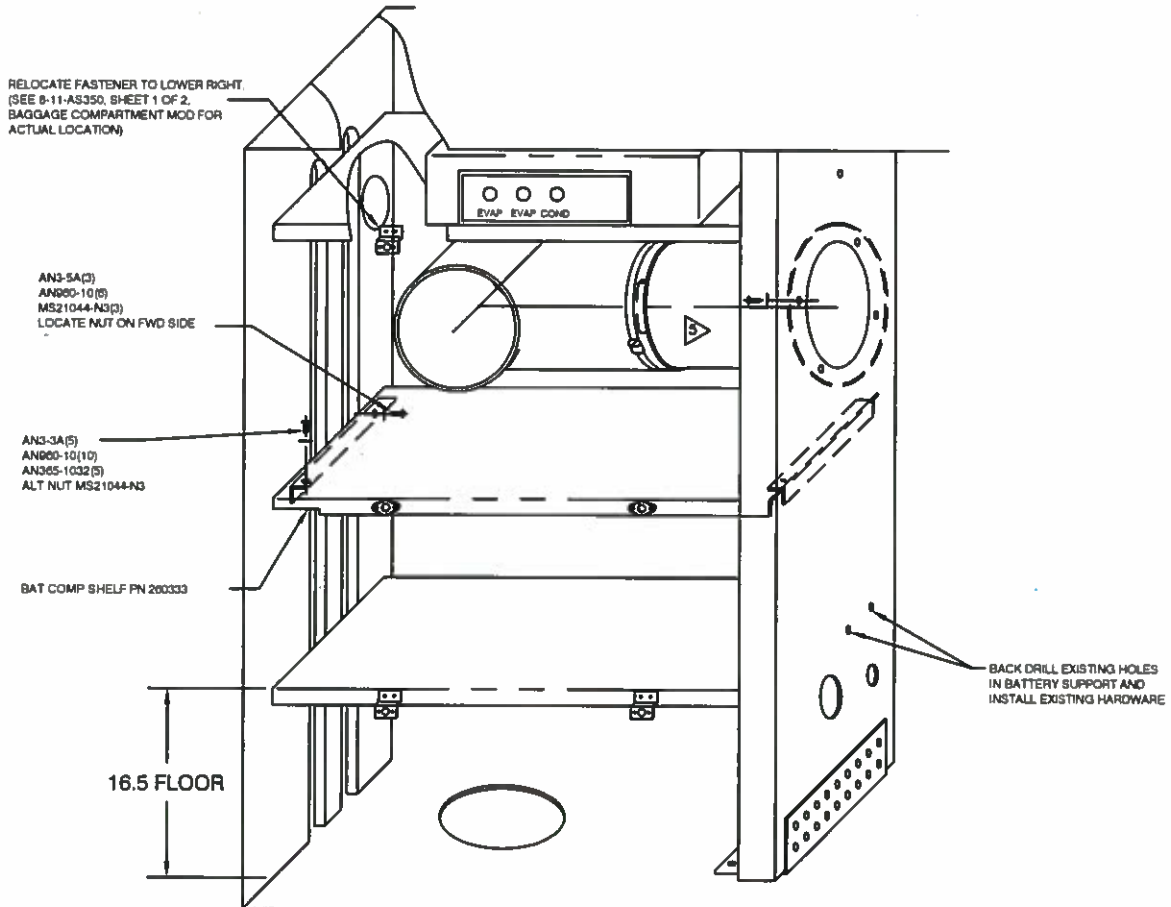
EXISTING/IN-WORK STOCK DISPOSITION:  
 RECORD CHG. PARTS NOT AFFECTED  RE-WORK EXISTING STOCK  
 SCRAP EXISTING STOCK  OTHER BREAK IN AT NEXT BUILD

EFFECTIVITY:  
 ALL UNITS THIS CUSTOMER  LIMITED UNITS SPECIFIED  
 ALL UNITS MFG'D AFTER THIS DATE  OTHER \_\_\_\_\_

DESCRIPTION OF CHANGE:  
 ADDED FLAG NOTE 6. FOR CONFIG. -031 A/C KIT.

**6** NOTE: FOR -031 A/C CONFIG. KIT:  
 FABRICATE CIRCULAR COVER WITH .040 THK 2024-T3 TO CLOSE  
 OUT HOLE UTILIZED FOR -011 CONFIG. A/C KIT FOR  
 BLOWER MOTOR MOUNT LOCATION.

MODIFY DIMENSION & NOTES FOR PARTS AND HARDWARE. REFLECT FLAG NOTE TO VIEW.  
 WAS:

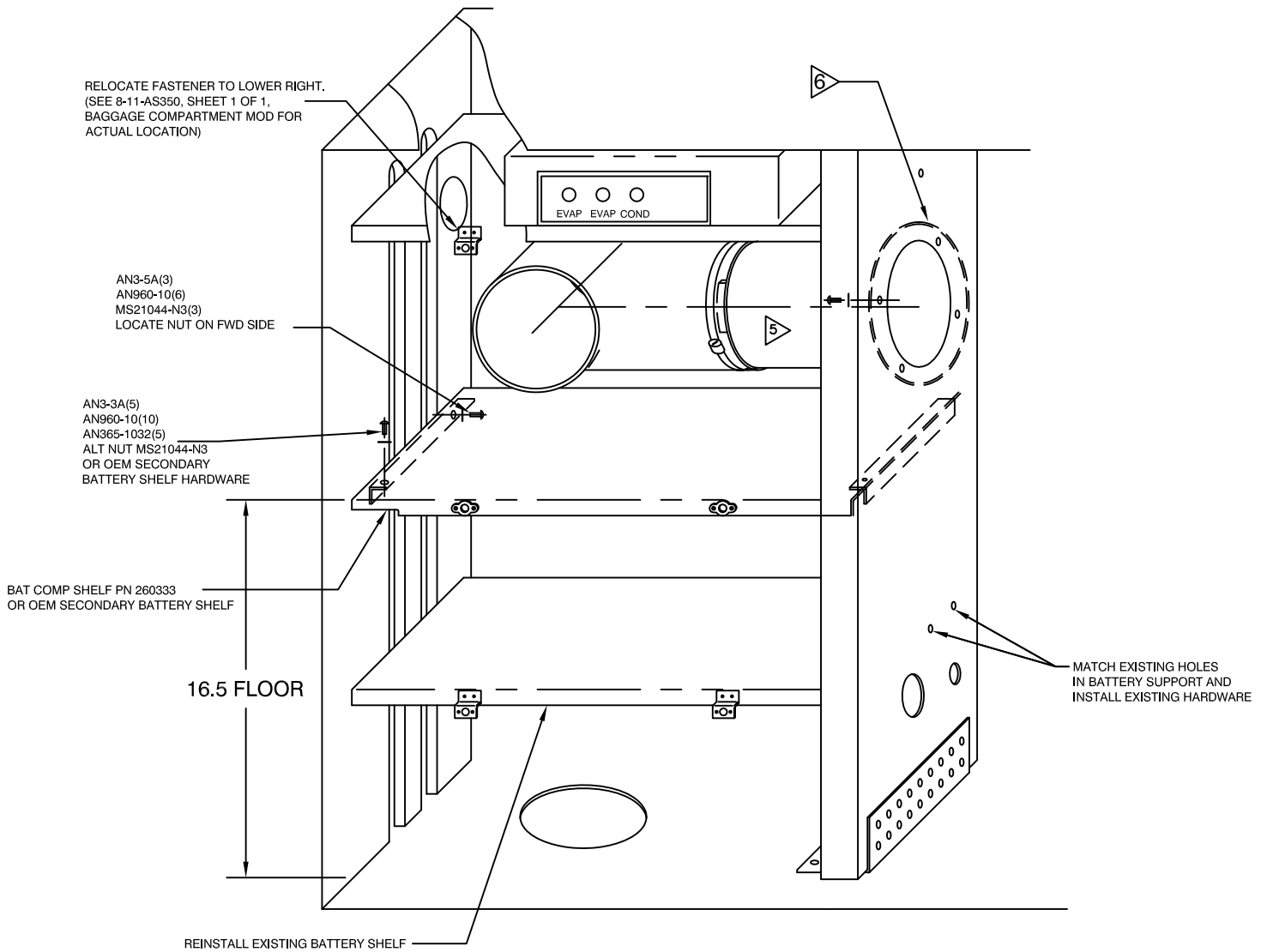


REMARKS:  
 MINOR CHANGE FOR PRODUCT IMPROVEMENT.

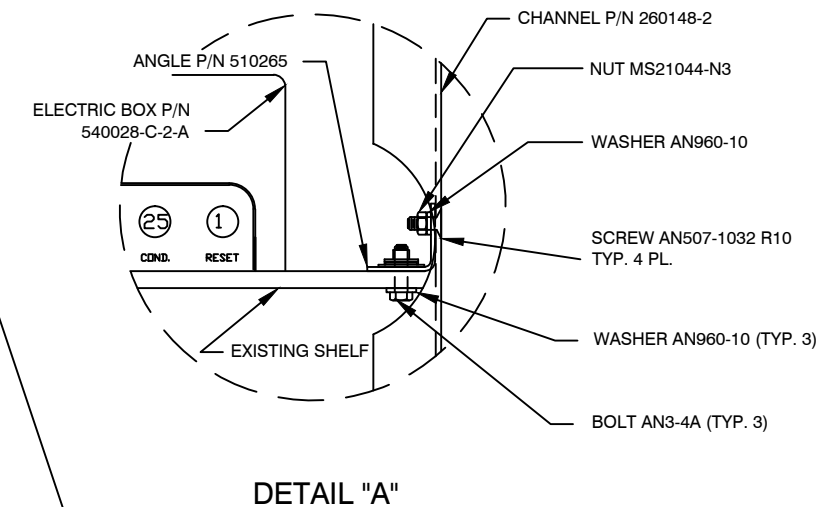
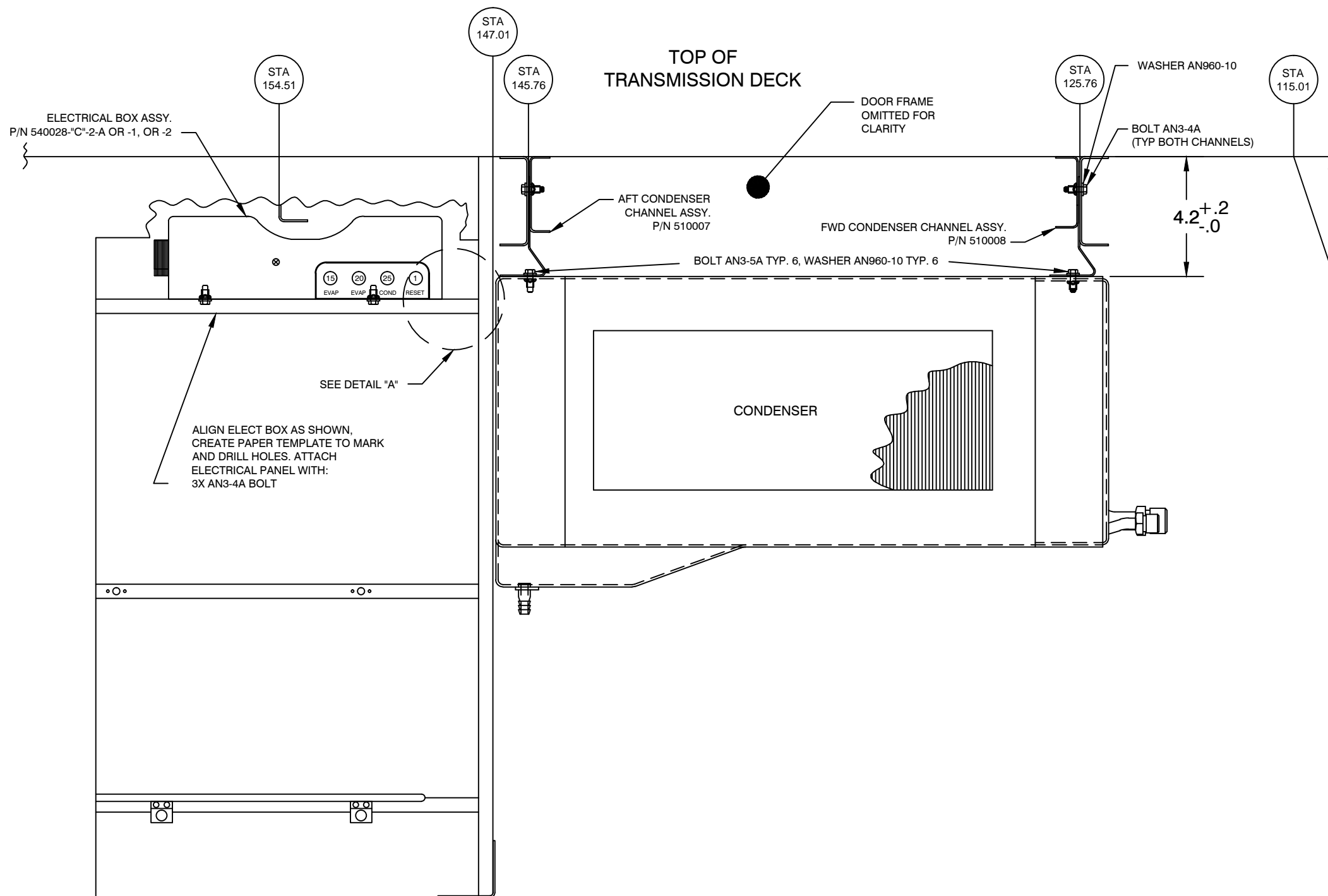
ENGINEERING REVIEW BOARD		
SIGNATURE	STAMP	DATE
<i>[Signature]</i>	ERB04	10/13/15
<i>[Signature]</i>	PD	10/13/15
<i>[Signature]</i>	QA11	10/13/15
INCORPORATION STATUS		
<input type="checkbox"/> IMMEDIATE	<input checked="" type="checkbox"/> OUTSTANDING	

ECO No.	0823	SHT	2 OF 2
DWG No.	7-2-AS350	REV	H
DWG No.		REV	
DWG No.		REV	
REF. STC No.	SH3509SW		

IS:



REVISION RECORD				
REV	DATE	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	11/07/01	REVISED DRAWING NUMBER. WAS 7-AS350, WAS SHEET 2 OF 2.		
B	03/09/05	COMPUTERIZED, REVISED TITLE BLOCK.		JTYE
C	01/03/07	ADDED ELECTRIC BOX DRILLING AND ATTACHMENT NOTATION. REVISED TITLE BLOCK.		JTYE
D	9/1/14	CHANGED TITLE BLOCK AND REVISION BLOCK.		AJC



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		.X: ±.1 .XX: ±.03 .XXX: ±.010 X.X°: ±.5° BREAK ALL SHARP EDGES .01 ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED		TITLE: <b>CONDENSER INSTALL</b>
	APPROVED BY:	DATE:		DRAWN BY: <b>K.A.</b> DATE: <b>05/25/95</b> REV.: <b>D</b> SCALE: <b>N/A</b> SHEET: <b>1 OF 1</b>
				APPLICATION: <b>AS350</b> DWG. NO.: <b>7-11-AS350</b>

REVISION RECORD				
REV	DATE	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	08/16/00	REVISED DRAWING NUMBER, WAS 8-AS 350; SHEET NUMBER WAS 1 OF 2.		
B	04/19/02	COMPUTERIZED, CHANGED TITLE BLOCK TO PAG.		
C	05/07/02	CHANGED NOTE TO ALLOW 520071 AND 520071-1 TO BE UTILIZED WITH OR WITHOUT SLIDING DOOR.		
D	05/16/02	REDRAWN AND REDIMENSIONED FOR CLARITY. REVISED TITLE BLOCK.		
E	11/28/07	CORRECTED NOTE B 2 TO REFLECT PN: 520071-1. REVISED NOTATION. REVISED TITLE BLOCK.		
F	09/01/14	CHANGED TITLE BLOCK AND REVISION BLOCK. CHANGED NOTE A STEP 2 PER ECO # 0558. FIXED SECTION VIEW LINES PER ECO # 0417.		AJC

NOTE A:

1. REMOVE HINGE HARDWARE FROM INSIDE DOOR.
2. LAY UP 2 LAYERS OF 7.5 OZ. - 8 OZ. FIBERGLASS CLOTH WITH RESIN IN AREA SHOWN ON INSIDE ONLY
3. ALLOW FIBERGLASS TO CURE.
4. REINSTALL HARDWARE.

NOTE B:

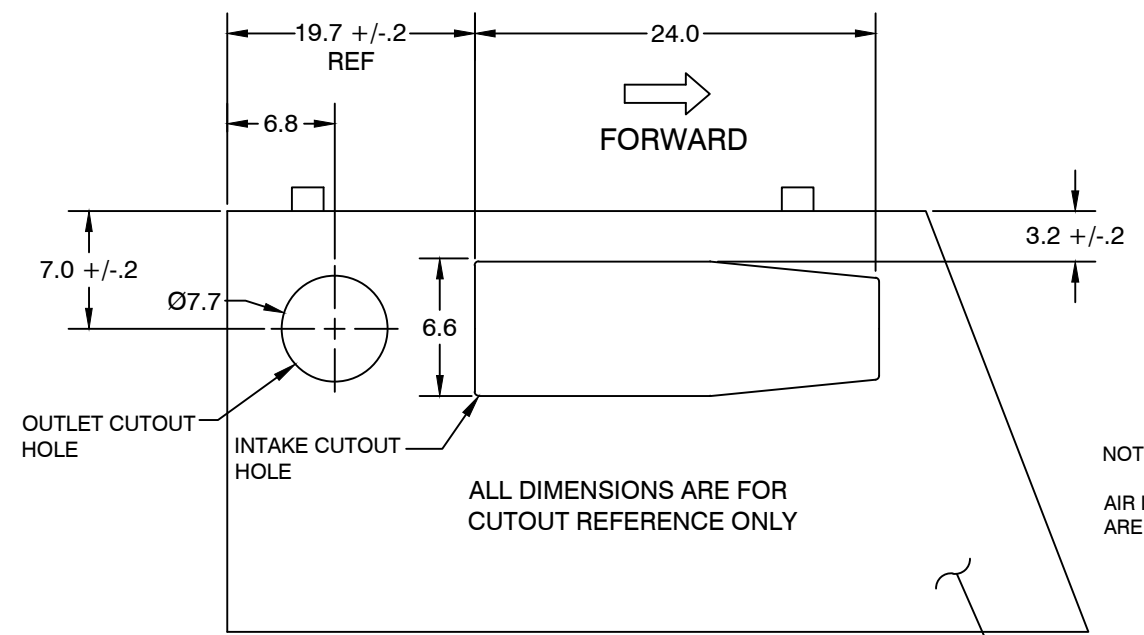
1. TRIM CONDENSER AIR INTAKE OPENING, FORWARD, UP & DOWN AS REQUIRED TO ACCEPT AIR INTAKE ASSY PN 520071 OR 520071-1.
2. TRIM AIR INTAKE ASSY ON INSIDE TO FIT INSIDE CONDENSER AIR INLET OPENING.

NOTE C:

THESE DIMENSIONS REFERENCE FIBERGLASS REINFORCEMENT AREA.

NOTE:

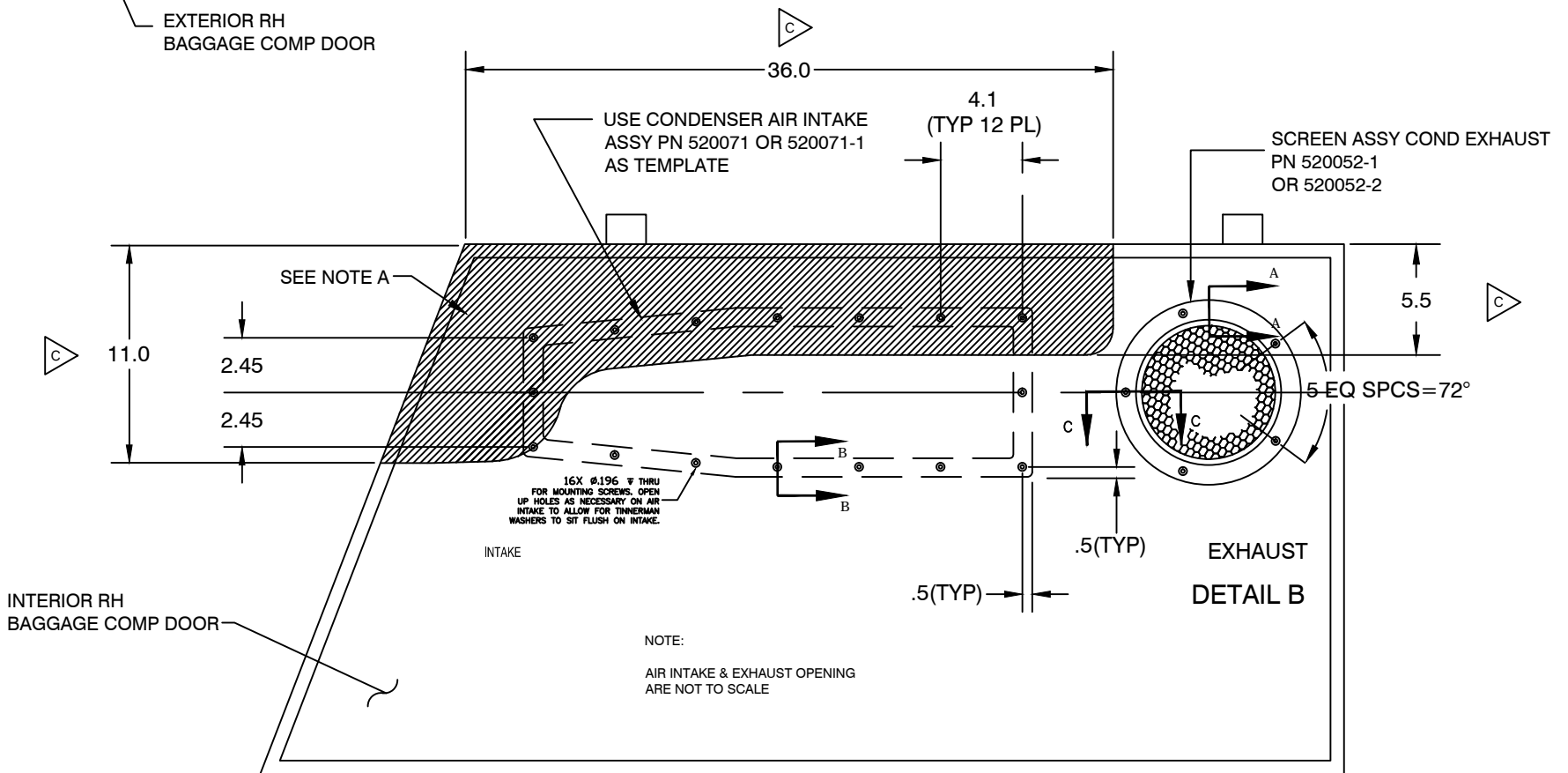
IF RIGHT SIDE SLIDING DOOR IS INSTALLED PN: 520071-1 MUST BE INSTALLED FOR CLEARANCE.



ALL DIMENSIONS ARE FOR CUTOUT REFERENCE ONLY

NOTE:  
AIR INTAKE & EXHAUST CUTOUTS ARE NOT TO SCALE

CUTOUT LOCATIONS DIMENSIONS SHOWN ARE APPROX SEE INSTRUCTIONS FOR PROCEDURE



NOTE:  
AIR INTAKE & EXHAUST OPENING ARE NOT TO SCALE

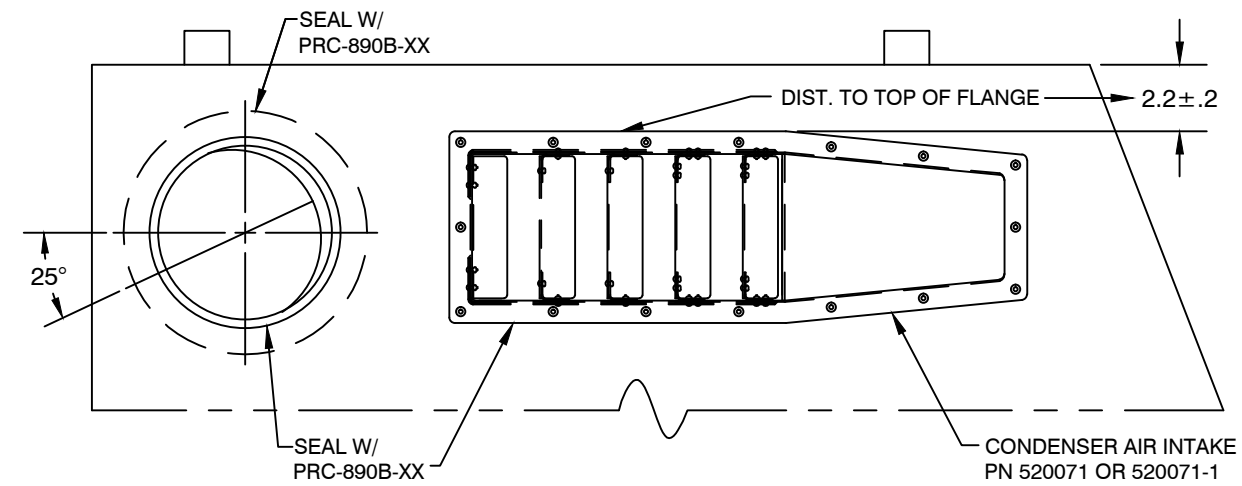
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	APPROVED BY:	.X: ±.1 .XX: ±.03 .XXX: ±.010 X.X": ±.5° BREAK ALL SHARP EDGES .01 ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED		TITLE: BAGGAGE COMPARTMENT MOD.
		DATE:		DRAWN BY: K.A.    DATE: 11/15/95    REV.: F    SCALE: N/A    SHEET: 1 OF 2
				APPLICATION: AS350    DWG. NO.: 8-2-AS350

- NOTE A:
1. REMOVE HINGE HARDWARE FROM INSIDE DOOR.
  2. LAY UP 2 LAYERS OF 10OZ FIBERGLASS CLOTH WITH RESIN IN AREA SHOWN ON INSIDE ONLY.
  3. ALLOW FIBERGLASS TO CURE.
  4. REINSTALL HARDWARE.

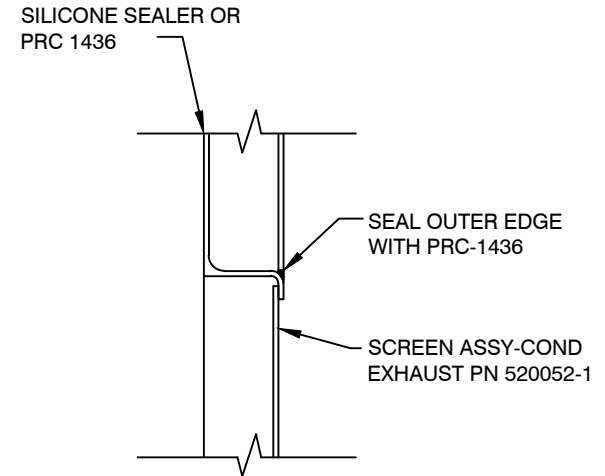
- NOTE B:
1. TRIM CONDENSER AIR INTAKE OPENING, FORWARD, UP & DOWN AS REQUIRED TO ACCEPT AIR INTAKE ASSY PN 520071 OR 520071-1.
  2. TRIM AIR INTAKE ASSY ON INSIDE TO FIT INSIDE CONDENSER AIR INLET OPENING.

NOTE:  
WHEN RIGHT SIDE SLIDING DOOR IS INSTALLED PN: 520071-1 MUST BE INSTALLED FOR CLEARANCE.

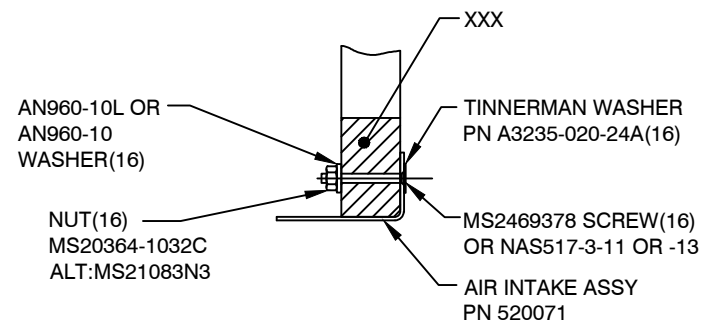
FORWARD



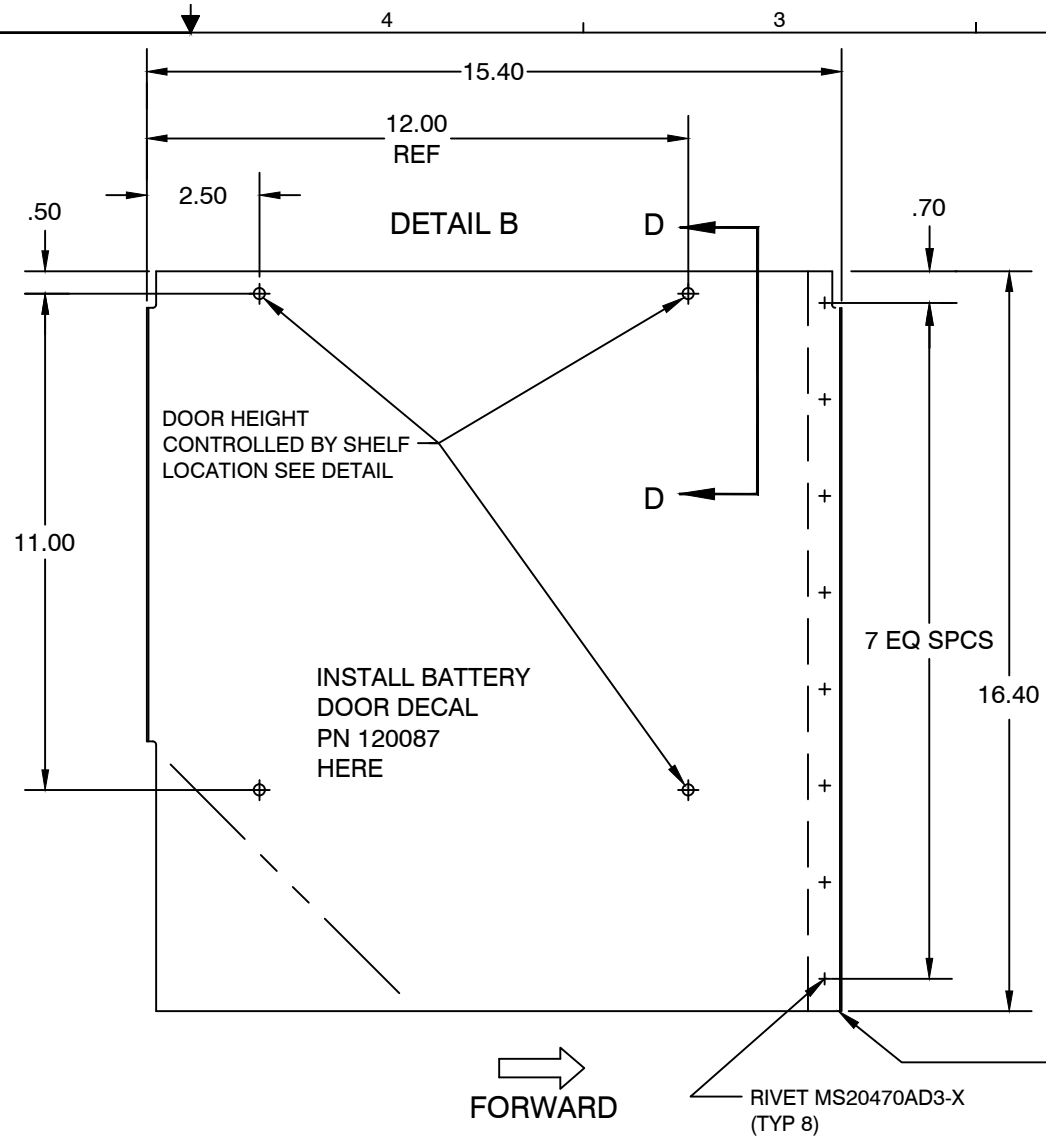
EXTERIOR RH DOOR VIEW



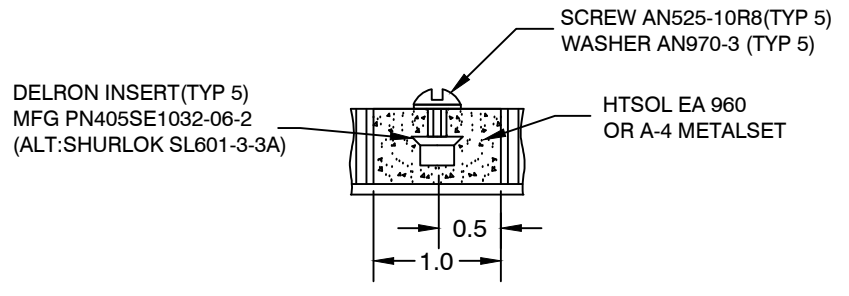
SECTION A-A



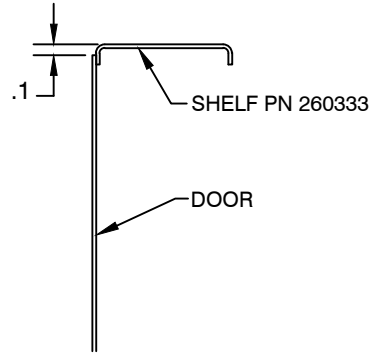
SECTION B-B



BATTERY COMPARTMENT COVER MOD (EXISTING DOOR)



DETAIL C-C INSERT INSTAL



DETAIL SECTION D-D VIEW LOOKING AFT

REVISION RECORD				
REV	DATE	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	08/16/00	REVISED DRAWING NUMBER, WAS 8-AS 350; SHEET NUMBER WAS 1 OF 2.		
B	04/16/02	COMPUTERIZED, CHANGED TITLE BLOCK TO PAG.		
C	06/15/03	REVISED TITLE BLOCK, REMOVED PAG.		
D	11/28/07	ADDED CONDENSER AIR INTAKE ASSEMBLY PN: 520071-1. REVISED NOTATION. REVISED TITLE BLOCK.		
E	9/1/14	CHANGED TITLE BLOCK AND REVISION BLOCK.		AJC

DOOR HEIGHT CONTROLLED BY SHELF LOCATION SEE DETAIL

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	APPROVED BY:	.X: ±.1 .XX: ±.03 .XXX: ±.010 X.X°: ±.5° BREAK ALL SHARP EDGES .01 ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED DATE:

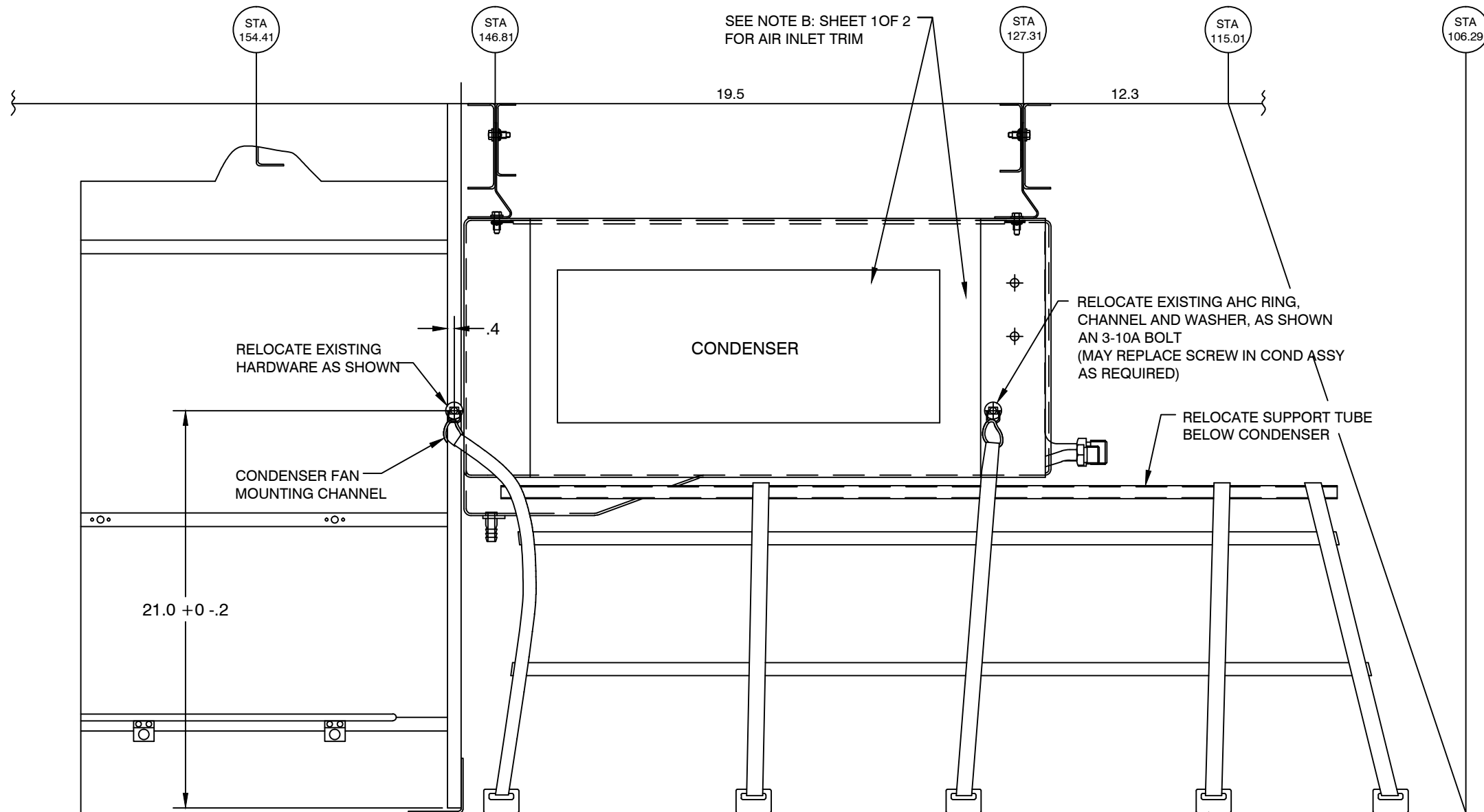
**RSG PRODUCTS INC.**  
A ROTORCRAFT SERVICES GROUP COMPANY

TITLE:  
**BAGGAGE COMPARTMENT MOD.**

DRAWN BY: BT	DATE: 04/16/02	REV.: E	SCALE: N/A	SHEET: 2 OF 2
APPLICATION: AS350			DWG. NO.: 8-2-AS350	



REVISION RECORD				
REV	DATE:	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	03/27/91	WAS 22.4 ± .2 IS 21.0 +0 -.2 CHANGED ALL STA'S. TITLE BLOCK WAS CAS, IS IFS.		
B	06/16/01	REVISED DRAWING NUMBER. WAS 8-AS 350; SHEET NUMBER WAS 2 OF 2.		
C	04/17/02	COMPUTERIZED, REVISED TITLE BLOCK.		
D	09/09/09	REVISED TITLE BLOCK.		
E	9/1/14	CHANGED TITLE BLOCK AND REVISION BLOCK.		AJC



**CARGO NET MODIFICATION**  
AS 350  
RIGHT SIDE LOOKING INBOARD

NOTE:  
SHORT CARGO NET TO ACCOMODATE  
A/C INSTALL BY ELIMINATING LOWER  
MOST HORIZONTAL STRAP AND  
RELOCATING HARDWARE, AS SHOWN

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		.X: ±.1 .XX: ±.03 .XXX: ±.010 X.X°: ±.5° BREAK ALL SHARP EDGES .01 ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED		TITLE: <b>BAGGAGE COMPARTMENT MOD</b>
	APPROVED BY:	DATE:	DRAWN BY: <b>BRP</b> DATE: <b>05/30/85</b> REV.: <b>E</b> SCALE: <b>1/8</b> SHEET: <b>1 OF 1</b>	APPLICATION: <b>AS350</b> DWG. NO.: <b>8-11-AS350</b>

## **Step 7**

# **Installation of Forward Evaporator**

## Installation of Forward Evaporator

STEP	PROCEDURE	MECH	INSP
7.1	Relocate NR digital indicator. Higher 12” min., and aft of pitot static lines, using assisting hardware. See note on drawing 4-21-AS350.		
7.2	Relocate warning horn up and forward as required.		
7.3	Position forward evaporator assembly, P/N 560025-O, as shown in drawing 4-21-AS350. Mark rivets to be drilled out and existing bolts that will be used to mount evaporator. Also mark location on inboard forward mount hole on floor as shown in note on drawing 4-21-AS350.		
7.4	Remove and drill out rivets and marked hole. Install nut plate on evaporator.		
7.5	Position doubler P/N 260373-1 as shown in drawing 4-21-AS350, drill and install as shown. Cut out center. Line hole with Caterpillar, bond to edge of metal.		
7.6	Do not install evaporator until Freon lines are connected.		
7.7	Install drain line from the evaporator out through the cabin floor. The existing hole normally found in the aircraft skin (right forward side) can be utilized. Cutting of the aircraft skin will not usually be required. “IF” no vacant hole is found, locate and drill a hole according to the detail “A” on drawing 4-21-AS350. Secure drain line and cut off at a negative angle.		
7.8	When connecting Freon lines, make sure you install sensing bulb on #10 line. Wrap cork tape around fittings. See drawing 4-21 AS350 “Expansion Valve Detail”. After all lines are attached install Fwd Evaporator with hardware per drawing 4-21-AS350.		

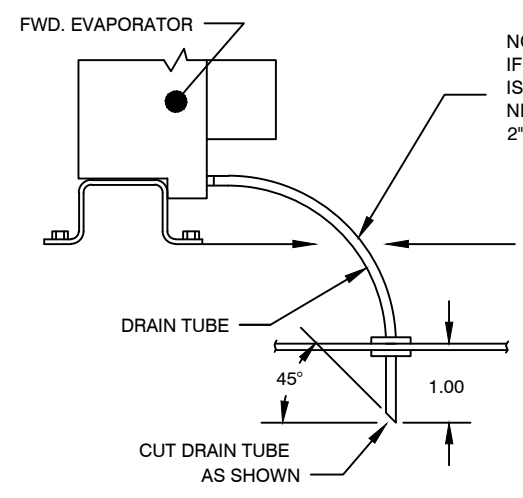
### Air Distribution

STEP	PROCEDURE	MECH	INSP
7.9	<p><b><u>AIR DISTRIBUTION:</u></b></p> <p>Drawings 5-26-AS350, 5-10-AS350 and 5-21-AS350</p> <p>For config. -01: Locate the air outlets on the left and right underside of panel support bar as shown in drawing 5-26-AS350.</p> <p>For config. -02: Locate the air outlets on the left and right upper side of panel as shown in drawing 5-26-AS350.</p>		
7.10	<p>For config. -01: Install 2 each Air Outlet Assembly PN: 510259-3 per drawing 5-26-AS350 View A-A, sheet 1 of 3.</p> <p>For config. -02: Install 2 each Air Outlet Assembly PN's: 520156HP-01 and 520157HP-01 per drawing 5-26-AS350 sheet 2 of 3.</p>		
7.11	<p>After installation of air outlet assemblies, attach 2 ½" flex hoses from the assemblies to the evaporator. The hose to the right hand air outlet is very straight forward.</p> <p>The installation of the left side flexible air hose can vary according to the avionics package installed. In some aircraft, it is quite simple to route the hose aft of the radio stack through existing holes in the vertical sheet metal aircraft parts. In other aircraft, due to the type of radios installed, it will be necessary to cut a round hole in the vertical aircraft sheet metal components and route the flex hose through this hole after lining the edges with Caterpillar for protection against chafing of the hose.</p>		

NOTES:  
RELOCATE WARNING HORN UP & FORWARD, AS REQUIRED.

NOTE B3 ONLY:  
RELOCATE NR DIGITAL INDICATOR MOUNTED NEAR FLOOR, ON RIGHT SIDE OF CONSOLE PANEL UP 12.0" MIN. FROM FLOOR AND AFT OF PITOT STATIC LINES USING EXISTING HARDWARE. REROUTE NR WIRE TO ACCOMMODATE NEW NR LOCATION.

EXTREMELY IMPORTANT:  
FAILURE TO SECURE EXPANSION VALVE SENSING BULB, TIGHTLY, TO THE RETURN LINE HOSE FITTING (#10) WITH A STAINLESS STEEL CLAMP (AND INSULATE SENSING BULB & LINE) WILL DRAMATICALLY DECREASE THE PERFORMANCE OF THE AFT EVAPORATOR (NOT FORWARD).



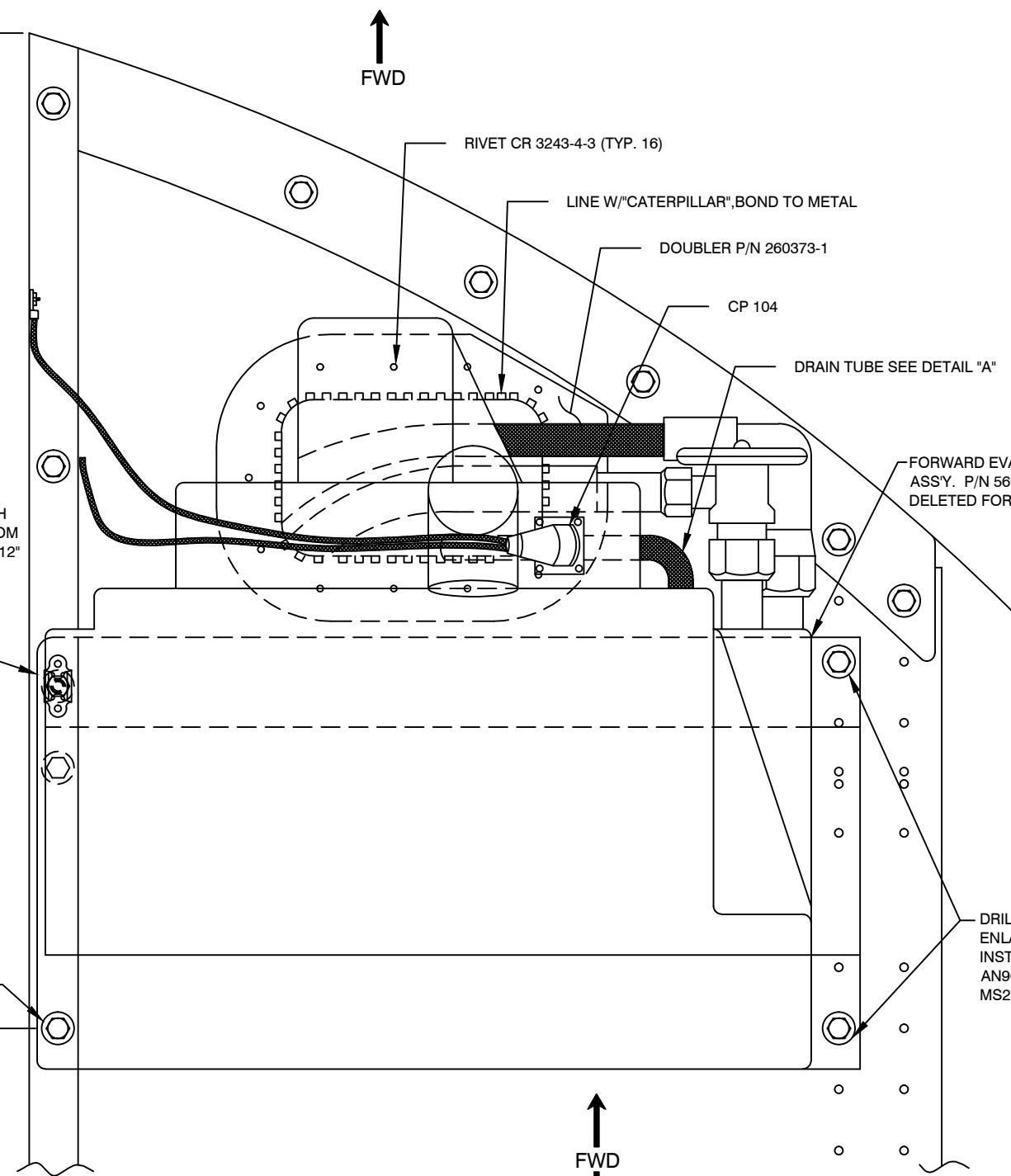
DETAIL A  
FORWARD

NOTE:  
IF EXISTING GROMMET IS NOT AVAILABLE, INSTALL NEW GROMMET MS35489-135 2" AFT OF EXISTING FOR A/C DRAIN.

INSTALL EVAP TEMPORALLY AND LOCATE FWD INBOARD NUTPLATE LOCATION. REMOVE EVAP AND INSTALL NUTPLATE MS21059L3 W/2 EA. RIVET CCR264SS3-3

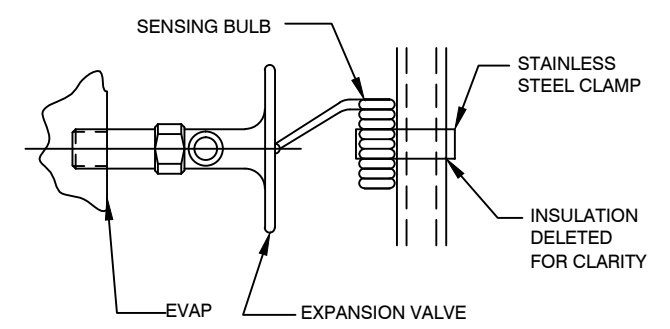
INSTALL W/EXISTING AIRCRAFT FASTENER

USE 5TH BOLT FROM CORNER 12"



VIEW LOOKING DOWN AT COCKPIT FLOOR FORWARD OF PILOT'S SEAT

REVISION RECORD				
REV	DATE	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	05/27/91	REPOSITIONED EVAPORATOR AND LINES. ADDED DETAIL "A" AND NOTES. TITLE BLOCK WAS "CAS" IS NOW "IFS" WAS 2 OF 2, IS NOW 3 OF 3.	MD	
B	11/15/99	ADDED NUTPLATE AND NOTE.	JHK	
C	01/25/99	SEE NR NOTE.	JHK	
D	08/16/00	REVISED DRAWING NUMBER, WAS 4-AS350 SHEET 3 OF 3. IS NOW 4-21-AS350	JHK	
E	04/12/02	COMPUTERIZED, CHANGED TITLE BLOCK		JDB
F	01/03/07	CORRECTED FWD EVAP PN: 560025-1-O TO 560025-O. REVISED TITLE BLOCK.	IFS	JTYE
G	9/1/14	CHANGED TITLE BLOCK AND REVISION BLOCK.		AJC



EXPANSION VALVE DETAIL  
SCALE: NONE  
INSULATE SENSION BULB BEFORE CHARGING WITH REFRIGERENT.

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	APPROVED BY:	.X: ±.1 .XX: ±.03 .XXX: ±.010 X.X": ±.5" BREAK ALL SHARP EDGES .01 ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED DATE:

**RSG PRODUCTS INC.**  
A ROTORCRAFT SERVICES GROUP COMPANY

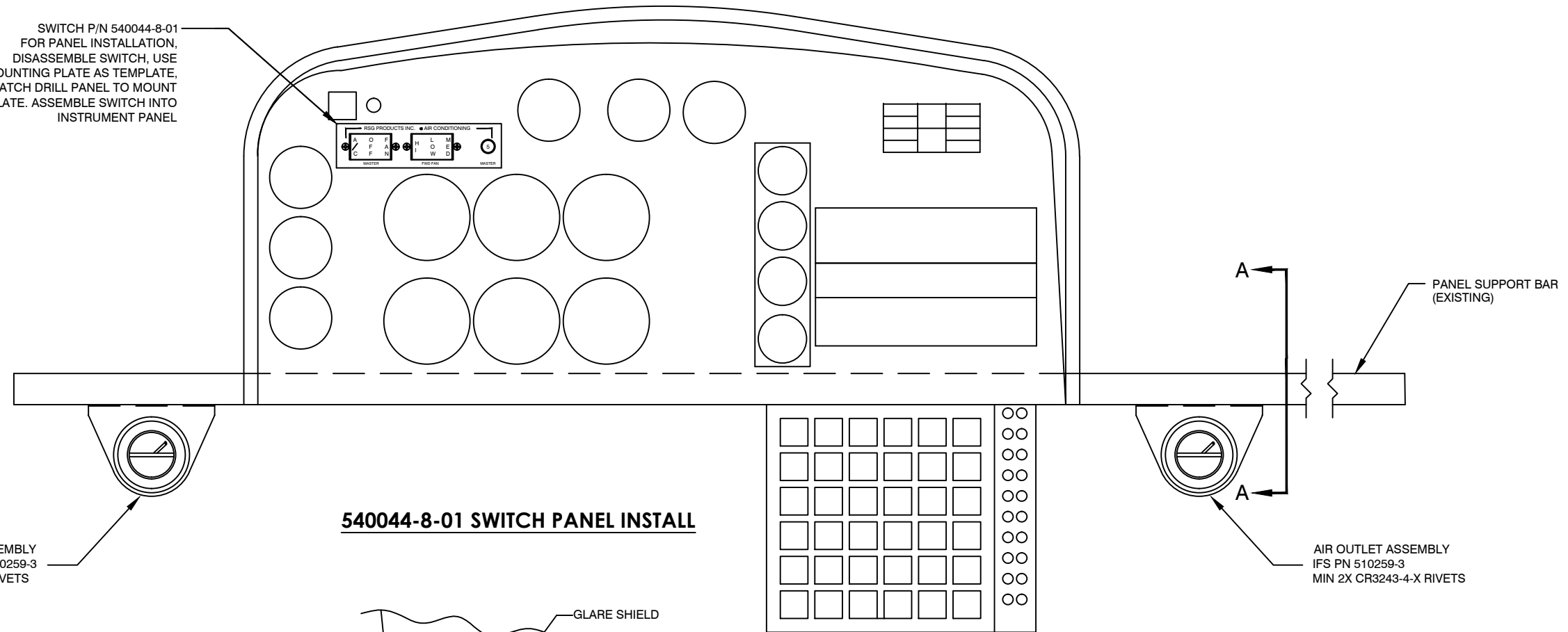
TITLE:  
**FORWARD EVAPORATOR INSTALL**

DRAWN BY: JEL	DATE: 06/20/85	REV.: G	SCALE: N/A	SHEET: 1 OF 1
APPLICATION: AS350			DWG. NO.: 4-21-AS350	

REVISION RECORD				
REV	DATE	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	03/12/13	CHANGE TITLE BLOCK AND REVISION BLOCK. ADDED -02 AIR OUTLET INSTALL AND 540044-8-02 SWITCH PANEL INSTALL PER ECO # 0642 & 0716		AJC

NOTES:  
 ▷ ATTACH 2.5" DIAMETER DUCT TO ADAPTER AND SECURE WITH 2.5" BAND CLAMP. QTY. 1 EA. FOR L.H. AND R.H.

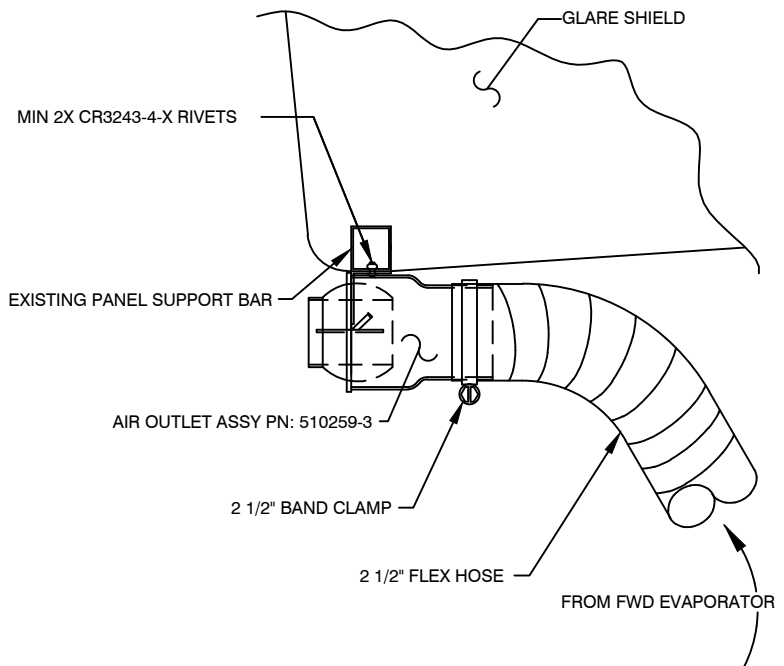
SWITCH P/N 540044-8-01 FOR PANEL INSTALLATION, DISASSEMBLE SWITCH, USE MOUNTING PLATE AS TEMPLATE, MATCH DRILL PANEL TO MOUNT PLATE. ASSEMBLE SWITCH INTO INSTRUMENT PANEL



AIR OUTLET ASSEMBLY  
 IFS PN 510259-3  
 MIN 2X CR3243-4-X RIVETS

**540044-8-01 SWITCH PANEL INSTALL**

AIR OUTLET ASSEMBLY  
 IFS PN 510259-3  
 MIN 2X CR3243-4-X RIVETS



**VIEW A-A**

**-01 AIR OUTLET INSTALLATION**

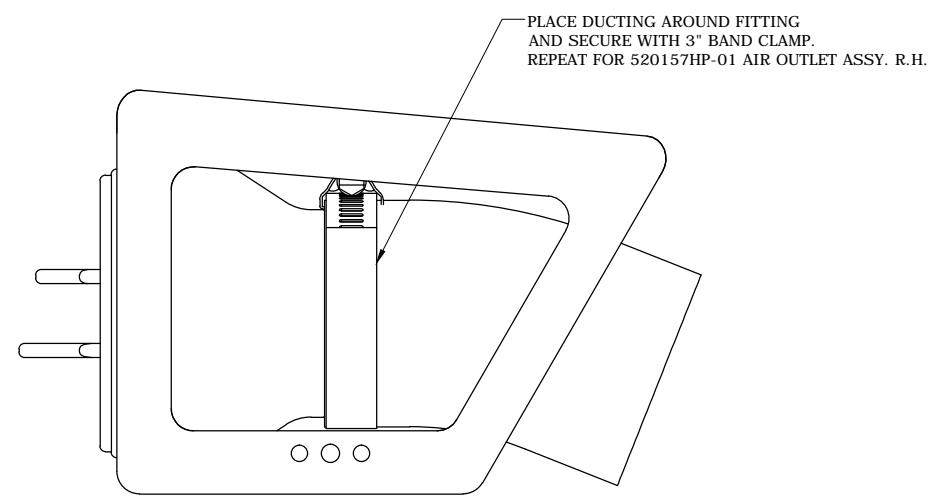
UTILIZE WITH AEC BASIC CONFIGURATION

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		.X: ±.1 .XX: ±.03 .XXX: ±.010 X.X°: ±.5° BREAK ALL SHARP EDGES .01 ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED		TITLE: <b>AIR DISTRIBUTION</b>
	APPROVED BY:	DATE:	DRAWN BY: <b>JTYE</b>	DATE: <b>06/30/08</b> REV.: <b>A</b> SCALE: <b>N/A</b> SHEET: <b>1 OF 3</b>
			APPLICATION: <b>AS350</b>	DWG. NO.: <b>5-26-AS350</b>

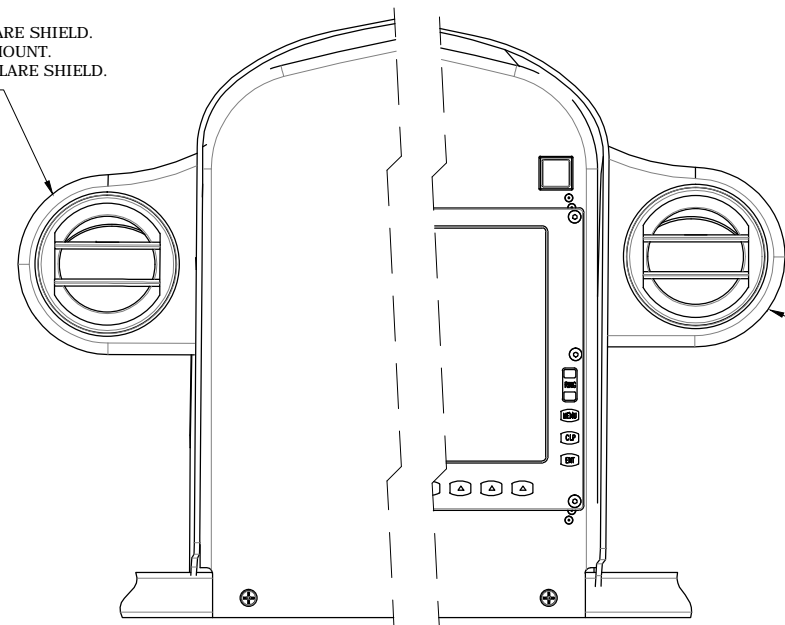
8 7 6 5 4 3 2 1

D  
C  
B  
A

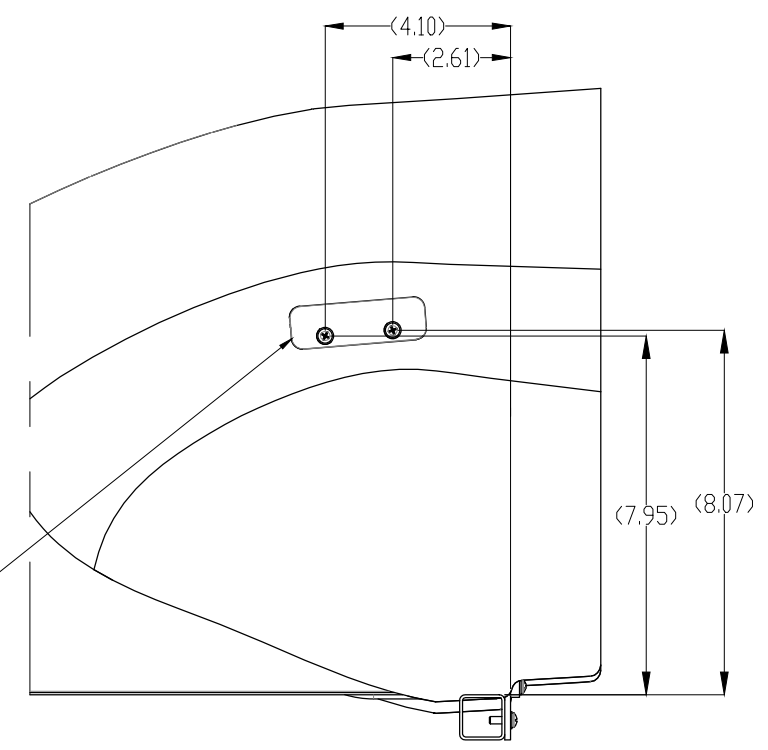
D  
C  
B  
A



AIR OUTLET ASSY. L.H.  
P/N: 520156HP-01  
PLACE AIR OUTLET FLUSH WITH GLARE SHIELD.  
SLIDE AIR OUTLET DOWN ONTO Z MOUNT.  
MATCH DRILL NUTPLATE HOLE TO GLARE SHIELD.  
ATTACH USING 1X AN525-832R8.

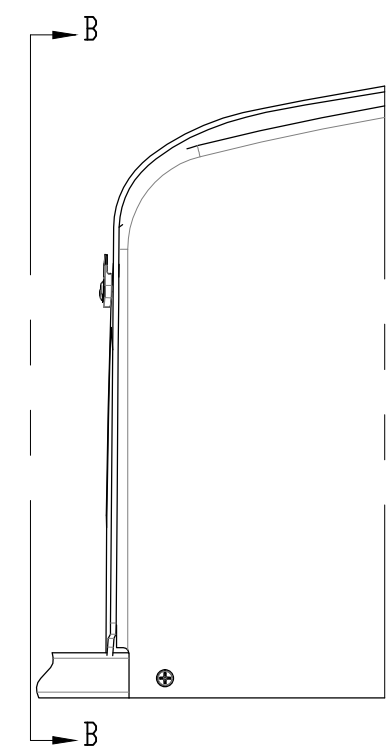


VENT MOUNT P/N: 261335HP-01  
LOCATE AS DIMENSIONED.  
MATCH DRILL 2X Ø.177 THRU.  
ATTACH USING 2X AN525-832R8  
AND 2X MS21042L08.  
REPEAT FOR RIGHT SIDE  
OF GLARE SHIELD.



AIR OUTLET ASSY. R.H.  
P/N: 520157HP-01  
PLACE AIR OUTLET FLUSH WITH GLARE SHIELD.  
SLIDE AIR OUTLET DOWN ONTO Z MOUNT.  
MATCH DRILL NUTPLATE HOLE TO GLARE SHIELD.  
ATTACH USING 1X AN525-832R8.

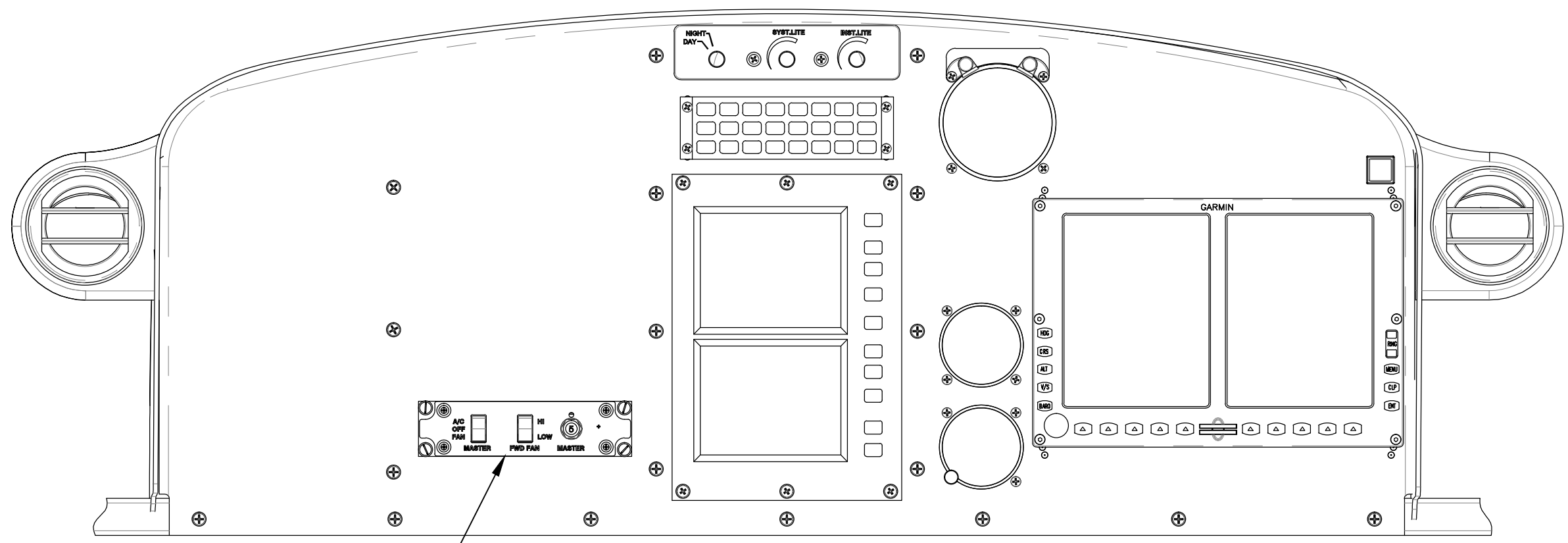
SECTION B-B  
GLARE SHIELD HOLE REFERENCE  
AIR VENT REMOVED FOR CLARITY



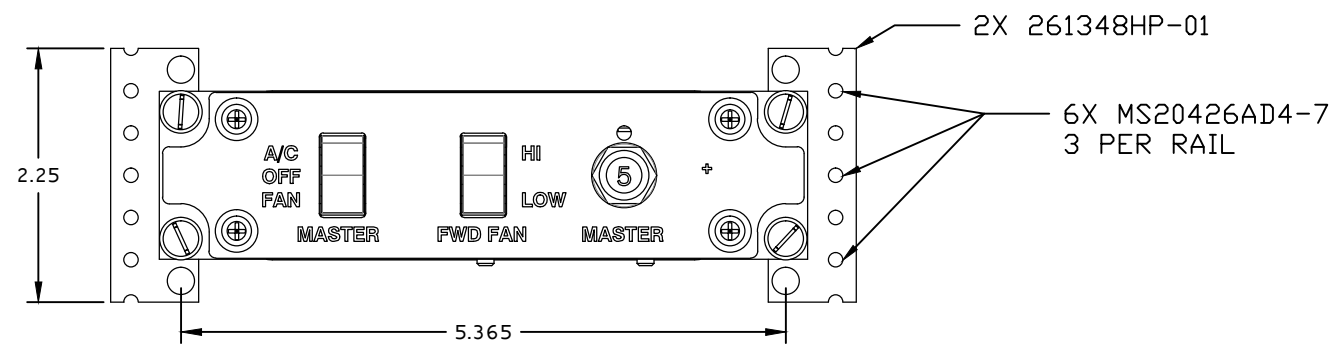
**-02 AIR OUTLET INSTALLATION, ALT. ASSY.**

TITLE: AIR DISTRIBUTION				
DRAWN BY: JT YE	DATE: 6/30/08	REV.: A	SCALE: N/A	SHEET: 2 OF 3
APPLICATION: AS 350			DWG. NO.: 5-26-AS350	

8 7 6 5 4 3 2 1



LOCATE 540044-8-02 ANYWHERE ON INSTRUMENT PANEL. MATCH CUTOUT TO SWITCH ASSEMBLY. INSTALL 2X DZUS RAILS P/N: D5-PR35-1 USING 6X RIVET P/N MS20426AD4-7. COUNTERSINK AND TOUCH UP PAINT AS REQUIRED. FASTEN SWITCH PANEL TO DZUS RAILS.



DZUS INSTALL DETAIL  
INSTRUMENT PANEL OMITTED FOR CLARITY

**540044-8-02 SWITCH PANEL INSTALL**

TITLE: AIR DISTRIBUTION				
DRAWN BY: JT YE	DATE: 6/30/08	REV.: A	SCALE: N/A	SHEET: 3 OF 3
APPLICATION: AS 350			DWG. NO.: 5-26-AS350	



REVISION RECORD				
REV	DATE	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	03/27/91	TITLE WAS CAS, IS NOW IFS.		
B	11/15/95	ADDED DETAIL C.		
C	08/16/00	WAS 5-AS350, IS NOW 5-10-AS350. RECONFIGURED AIR OUTLETS		
D	06/15/03	REVISED TITLE BLOCK, REMOVED PAG.		
E	09/09/09	REVISED TITLE BLOCK. ADDED ARROWS FOR VIEW X-X. CORRECTED DETAIL C.		
F	9/1/14	CHANGED TITLE BLOCK AND REVISION BLOCK, ADDED -02 VIEWS AND INSTRUCTIONS PER ECO # 0709.		AJC

ECO 0817

AIR DUCT CLOSURE ASSY  
PN 510092  
REMOVE & DISCARD EXISTING  
FRESH AIR INLET INSTALL  
CLOSURE ASSY USING  
EXISTING HARDWARE

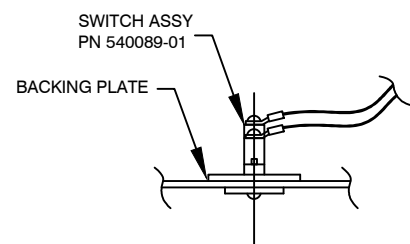
TAP EXISTING AIR OUTLET MOUNTS  
TO 8-32 UNF  
INSTALL WEMAC USING SCREWS  
MS 24693-S55 (4)  
SNAP ON DECOR RING NO 7194-1

TRIM HEADLINER AND CABIN  
STRUCTURE TO FIT WEMAC

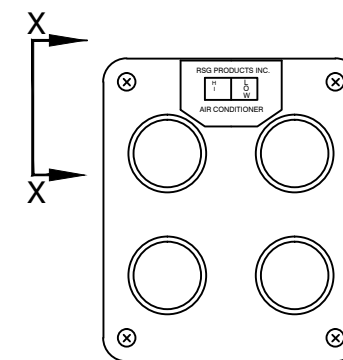
ROTATE NEW WEMAC 90°  
MATCH DRILL NEW HOLES (COUNTERSINK)  
IN WEMAC TO MATCH AIR FRAME

WEMAC NO 2368-503 (CLEAR)  
NOTE: APPLIES TO AIRCRAFT  
W/SMALL ADH AIR OUTLETS

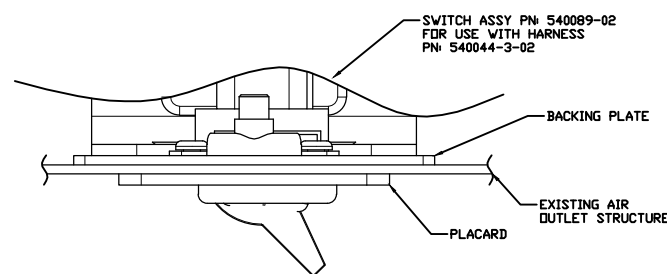
VIEW B-B



VIEW X-X  
540089-01



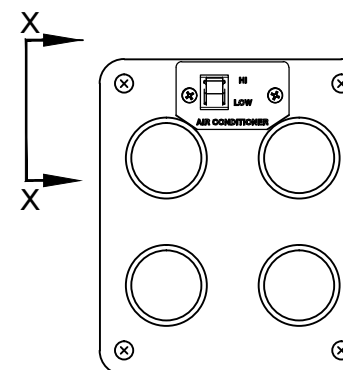
DETAIL C  
540089-01



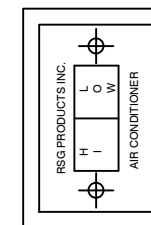
VIEW X-X

REMOVE SWITCH FROM REAR OF SWITCH ASSEMBLY  
PRIOR TO INSTALL. MATCH DRILL SWITCH CUTOUT  
AND SCREW HOLES. TRIM AS REQUIRED.

540089-02



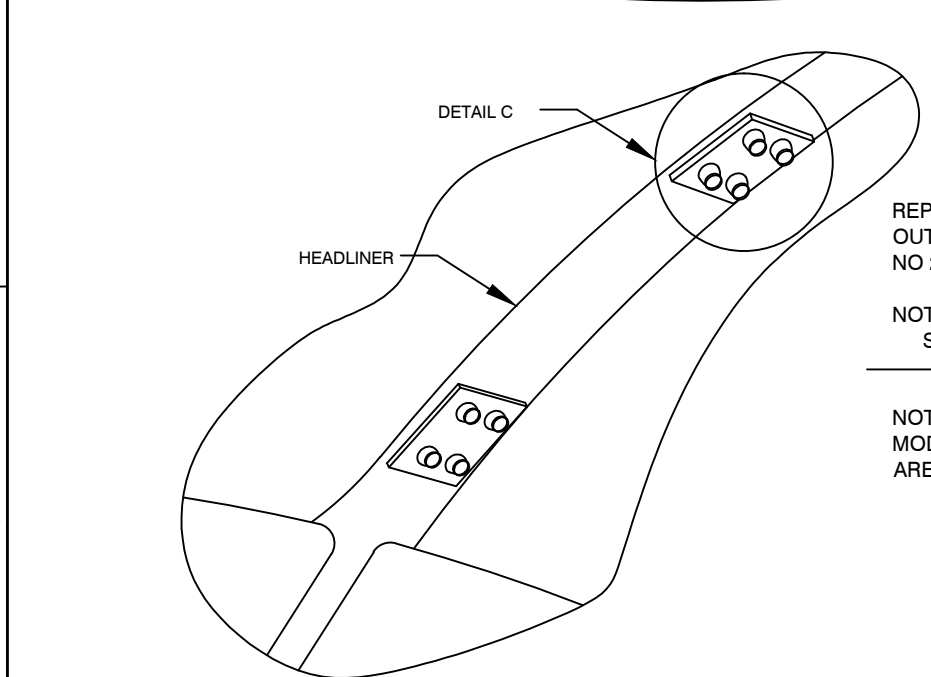
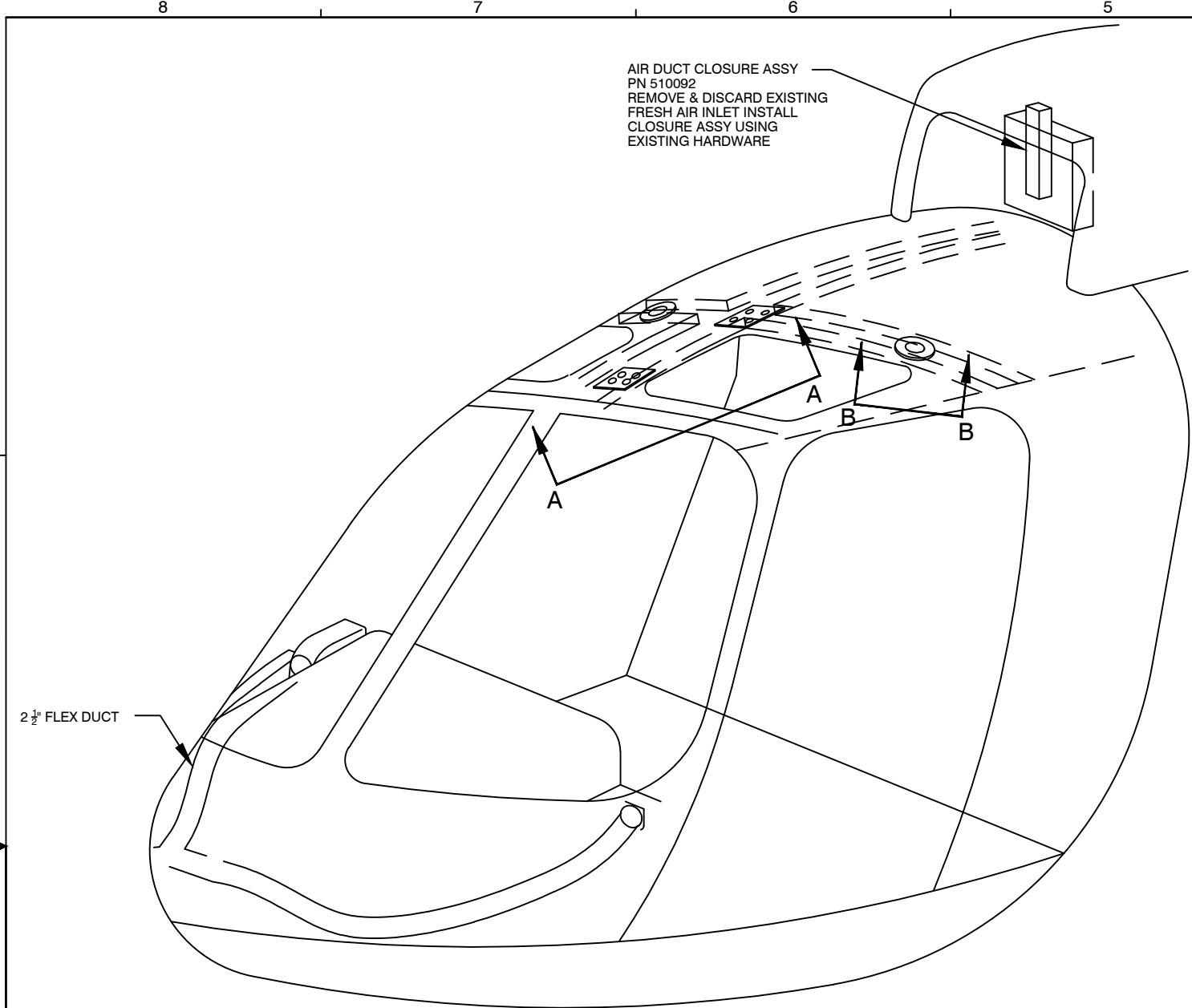
DETAIL C  
540089-02



DETAIL C

LOCATE AFT & LEFT OR RIGHT OF  
EXISTING AIR OUTLETS 1995 & ON

UTILIZED WITH:  
AEC BASIC



VIEW A-A

REPLACE EXISTING AIR  
OUTLETS WITH WEMAC  
NO 2368-503 (4)

NOTE: APPLIES TO  
SN 1302 & DOWN ONLY

NOT REQUIRED IF LATE  
MODEL ADH AIR OUTLETS  
ARE IN PLACE

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		.X: ±.1 .XX: ±.03 .XXX: ±.010 X.X": ±.5° BREAK ALL SHARP EDGES .01 ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED		
	APPROVED BY:	DATE:		TITLE: <b>AIR CONDITIONING OVERVIEW</b>
				DRAWN BY: <b>JM</b> DATE: <b>06/20/85</b> REV.: <b>F</b> SCALE: <b>N/A</b> SHEET: <b>1 OF 1</b> APPLICATION: <b>AS350</b> DWG. NO.: <b>5-10-AS350</b>



# ENGINEERING CHANGE ORDER

ECO No.	0817	SHT	1 OF 2
DWG No.	5-10-AS350	REV	F
DWG No.		REV	
DWG No.		REV	

REF. STC No. **SH3509SW**

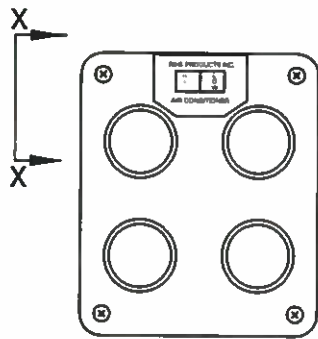
CHANGE CLASS:  
 RECORD CHG. PARTS NOT AFFECTED     NON-INTERCHANGEABLE PARTS  
 INTERCHANGEABLE PARTS     OTHER \_\_\_\_\_

EXISTING/IN-WORK STOCK DISPOSITION:  
 RECORD CHG. PARTS NOT AFFECTED     RE-WORK EXISTING STOCK  
 SCRAP EXISTING STOCK     OTHER BREAK IN AT NEXT BUILD

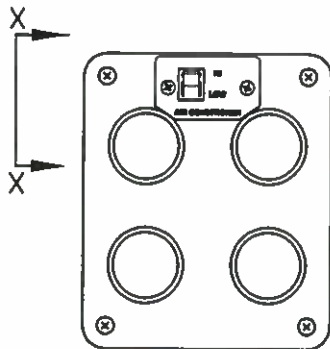
EFFECTIVITY:  
 ALL UNITS THIS CUSTOMER     LIMITED UNITS SPECIFIED  
 ALL UNITS MFG'D AFTER THIS DATE     OTHER ALL UNITS

DESCRIPTION OF CHANGE:  
 ADDED NOTE TO TOP DETAIL VIEW C. REMOVE BOTTOM DETAIL C VIEW. MODIFY NOTE TO VIEW LOCATED IN ZN B1.

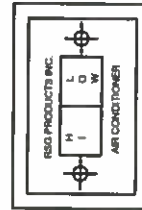
WAS:



**DETAIL C**  
540089-01



**DETAIL C**  
540089-02



**DETAIL C**

LOCATE AFT & LEFT OR RIGHT OF EXISTING AIR OUTLETS 1995 & ON

REMARKS:  
 MINOR CHANGE FOR PRODUCT IMPROVEMENT.

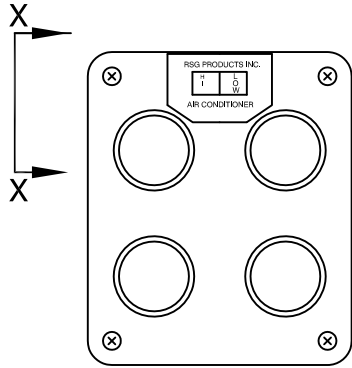
ENGINEERING REVIEW BOARD		
SIGNATURE	STAMP	DATE
<i>[Signature]</i>	<b>P016</b>	9-28-2015
<i>[Signature]</i>	ERB04	9/28/2015
<i>[Signature]</i>	QA11	9/28/2015
INCORPORATION STATUS		
<input type="checkbox"/> IMMEDIATE <input checked="" type="checkbox"/> OUTSTANDING		



**E**NGINEERING  
**C**HANGE  
**O**RDER

ECO No.	0817	SHT	2 OF 2
DWG No.	5-10-AS350	REV	F
DWG No.		REV	
DWG No.		REV	
REF. STC No.	SH3509SW		

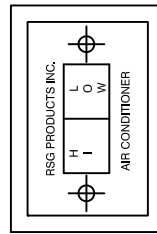
IS:



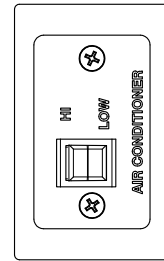
DETAIL C

540089

FOR 1995 MODELS  
& PRIOR



540089-01



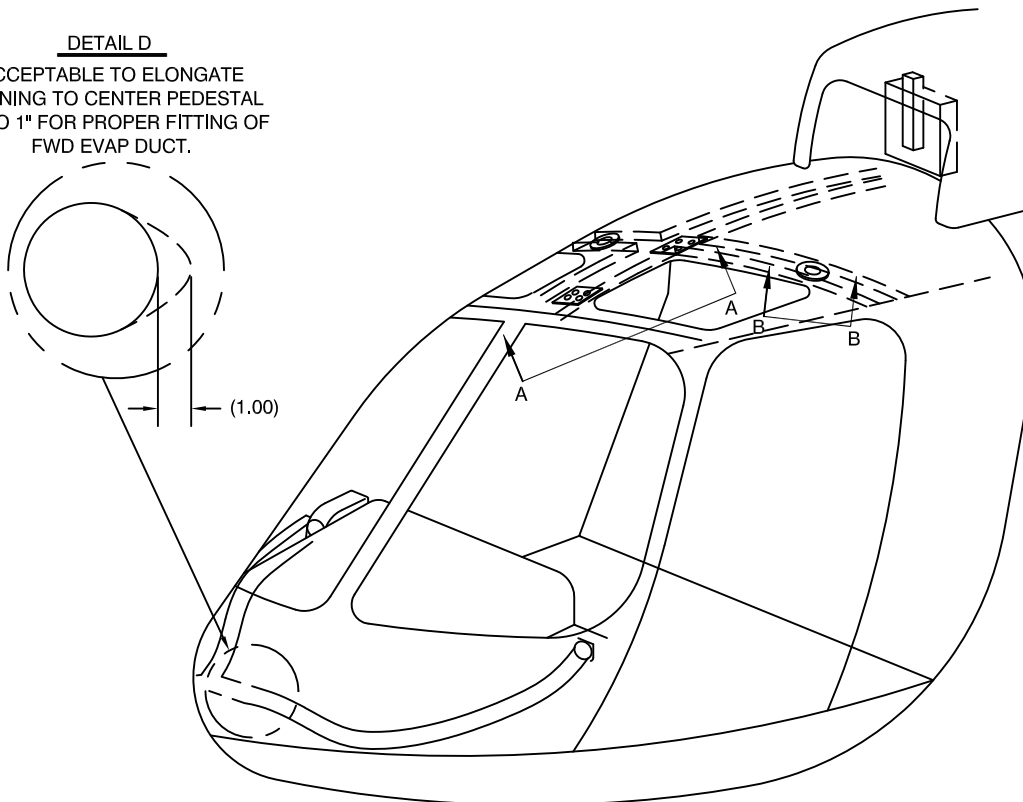
540089-02

LOCATE SWITCH ASSY AFT & LEFT  
OR RIGHT OF  
EXISTING AIR OUTLETS FOR 1995  
MODELS & ON

ADDED "DETAIL D" TO OVERVIEW.

DETAIL D

ACCEPTABLE TO ELONGATE  
OPENING TO CENTER PEDESTAL  
UP TO 1" FOR PROPER FITTING OF  
FWD EVAP DUCT.

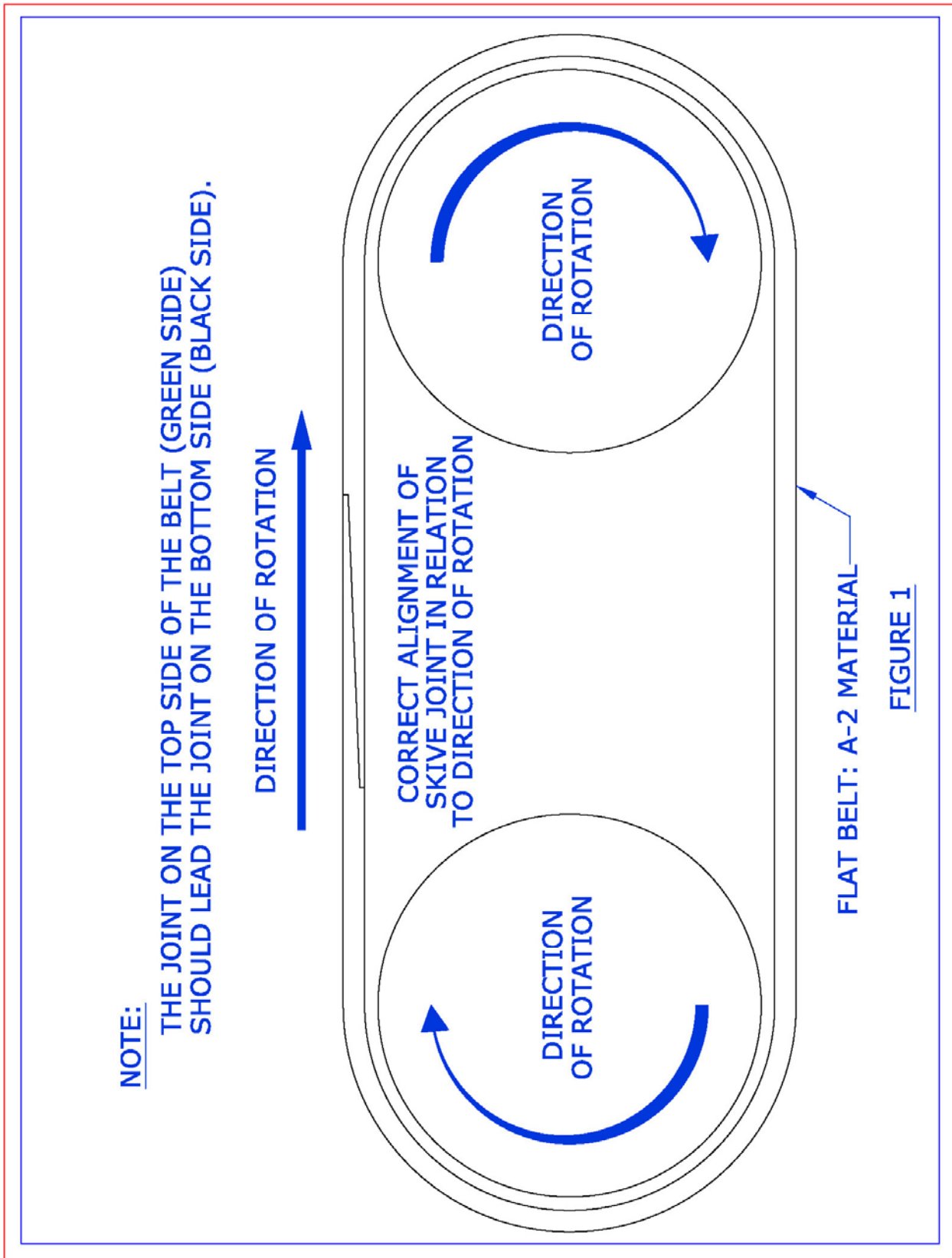


## **Step 8**

# **Installation of Compressor**

## Installation of Compressor

STEP	PROCEDURE	MECH	INSP
8.0	<b>NOTE: MUST BE PERFORMED IN ACCORDANCE WITH CURRENT EUROCOPTER TECHNICAL DATA.</b>		
8.1	Place a support on the transmission deck to support the engine drive while the shaft is disconnected for belt installation.		
8.2	Remove the cotter pins from the four pins holding the “Gimble Ring” at the Thomas coupling.		
8.3	Slide the “Gimble Ring” aft to gain access to the Thomas coupling.		
8.4	Remove the 6 bolts and Thomas coupling connecting the drive shaft and shift slightly aft.		
8.5	Install two (2) Compressor Drive belts		
8.6	Reassemble the Thomas coupling per <b>AEC Specifications. Torque and Safety Coupling!! Torque Mark all bolts.</b>		
8.7	Secure 1 belt to the outside of the drive shaft cover for a spare and slip one through the housing and over the drive pulley.  <b>NOTE: THE CURRENT BELT P/N 060018-1 HAS A SPECIFIC DIRECTION OF ROTATION. (See figure 1, page 3)</b>  <b>NOTE: THE CURRENT BELT P/N 060005 HAS NO SPECIFIC DIRECTION OF ROTATION.</b>		

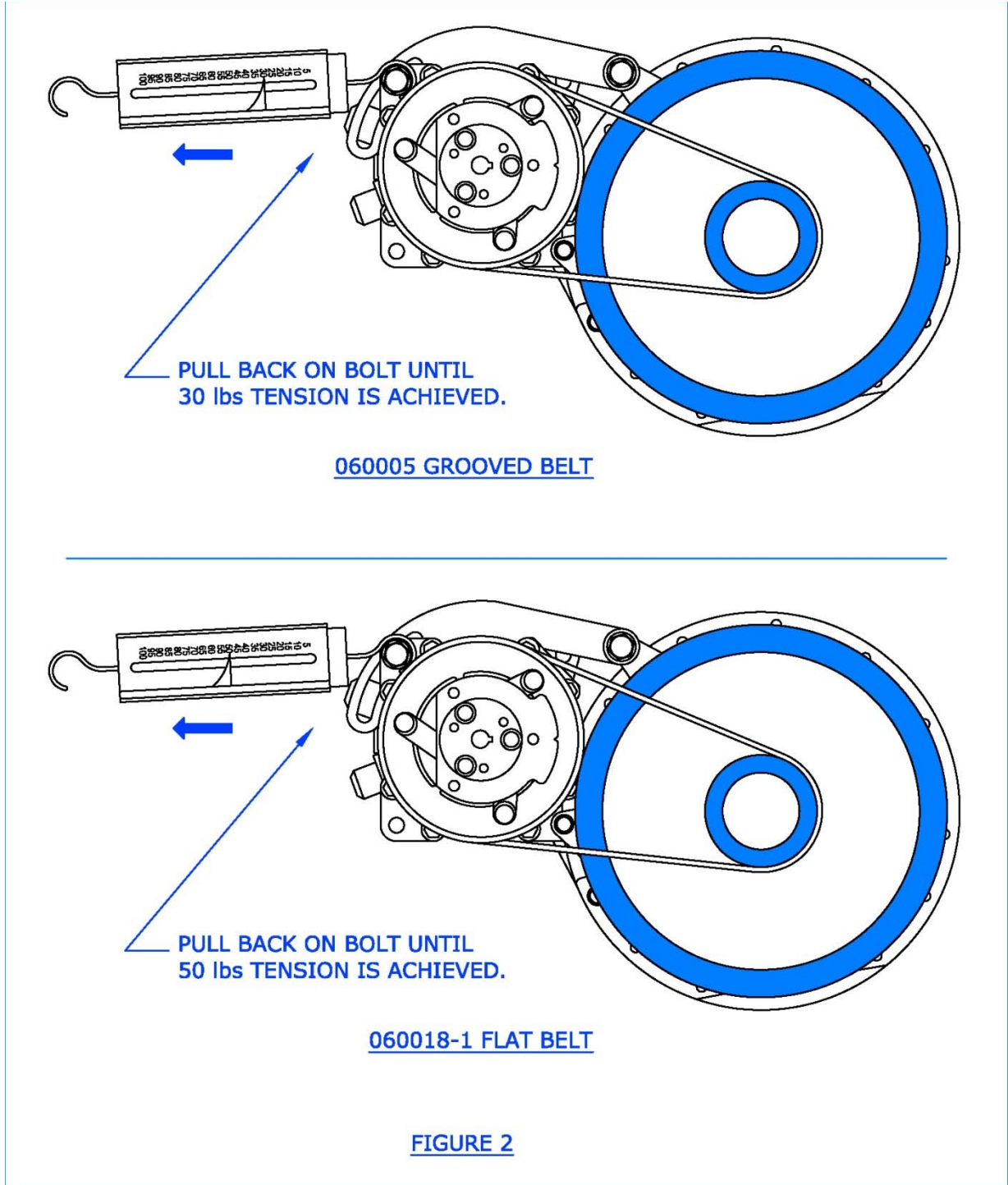


**FIGURE 1**

## Installation of Compressor

STEP	PROCEDURE	MECH	INSP
8.8	Install the “Gimble Ring” pins and cotter pins. Remove supports.		
8.9	Install Compressor Bracket in accordance with: 6-2-AS350, 6-12-AS350 and 6-21-AS350 or 6-3-AS350, 6-13-AS350 and 6-22-AS350.		
8.10	Install the Forward Compressor Bracket, Compressor Standoffs and Compressor per Drawings: 6-2-AS350, 6-12-AS350 and 6-21-AS350 or 6-3-AS350, 6-13-AS350 and 6-22-AS350		
8.11	Install the compressor drive belt on the drive pulley and the compressor clutch pulley. Tighten bolts at the adjustment arm assuring the belt proper amount of tension. Tighten the lower forward mounting bolt.		
8.12	This tension may be performed by either pull scale. (See Belt Tension Recommendation)		
8.13	50/30 lbs pull tension at tension adjustment bolt should provide adequate belt tension. (See figure 2, page 5)		
<p><b><u>BELT TENSION RECOMMENDATION:</u></b></p> <p><b>FLAT BELT IFS P/N 060018-1 _____ TENSION TO 50lbs</b></p> <p><b>GROOVED BELT IFS P/N 060005 _____ TENSION TO 30lbs</b></p>			

RSG Products Inc.  
INSTALLATION OF COMPRESSOR – AS350 Air Conditioning

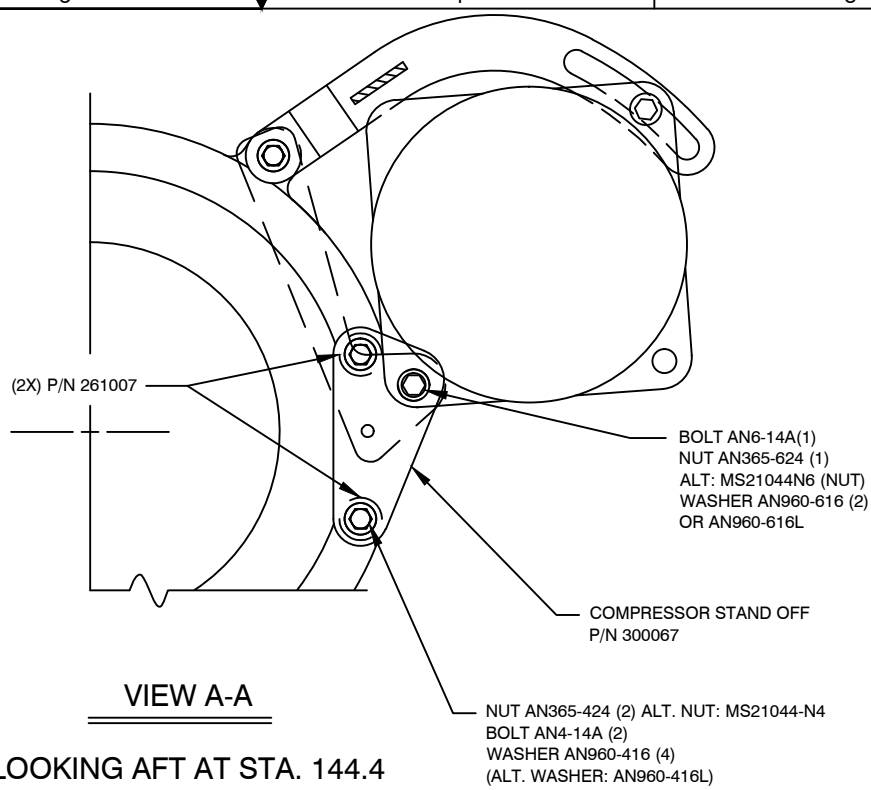




INSTALLATION INSTRUCTIONS:

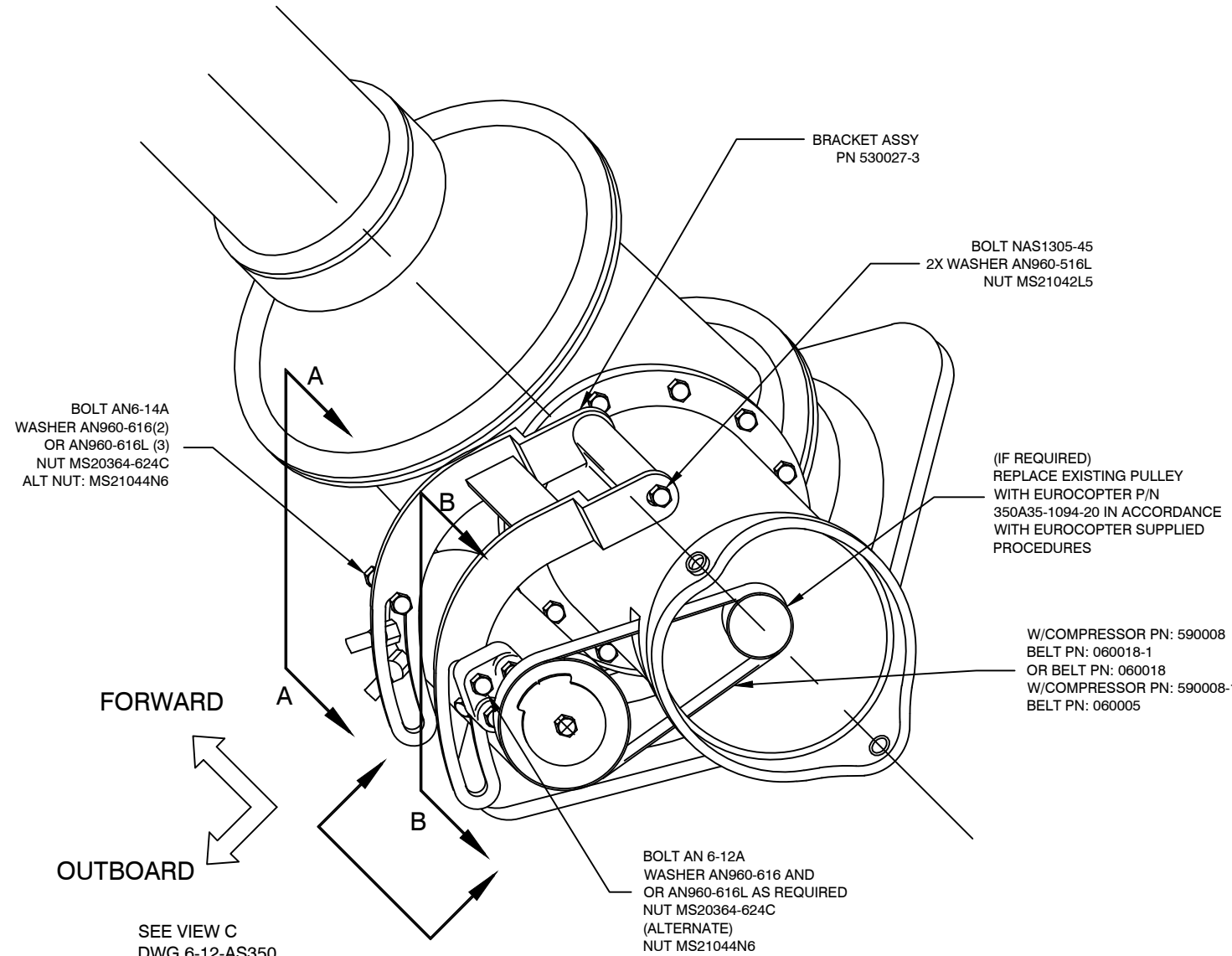
KIT P/N: 350-00-011HP OR -031HP  
(HIGH PERFORMANCE)

- 1) THE ABOVE TWO (2) KITS UTILIZE THE SANDEN SD-507 COMPRESSOR IFS PN: 590008 OR COMPRESSOR PN: 590008-1 IN LIEU OF THE SANDEN SD-505 IFS P/N: 590001-1-"O". AN INCREASE OF 2 CUBIC INCHES IN DISPLACEMENT IS ACHIEVED. BOTH UNITS HAVE THE SAME "FOOT PRINT". HOWEVER, THE SD-507 IS SLIGHTLY LONGER.
- 2) THE SAME BELT P/Ns: 060018 OR 060018-1 ARE UTILIZED IN THIS INSTALLATION WITH COMPRESSOR PN: 590008. BELT PN's: 060005 WILL BE UTILIZED WITH COMPRESSOR PN: 590008-1.
- 3) THE SAME COMPRESSOR MOUNT ASSEMBLY P/N: 530027-3, PIN P/N: 300095, AND COMPRESSOR STAND OFF P/N: 300067 ARE UTILIZED IN THIS INSTALLATIONS.
- 4) THE AFT, INBOARD COMPRESSOR MOUNTING POINT IS RELOCATED FORWARD BY PLACING TWO ALUMINUM "BUSHINGS", P/N: 261007 BETWEEN THE "STAND OFF" P/N: 300067 AND THE TRANSMISSION HOUSING. TWO (2) EACH AN4-15A BOLTS MUST BE UTILIZED IN LIEU OF THE AN4-11A FORMERLY USED.
- 6) THE FORWARD, UPPER INBOARD COMPRESSOR EAR IS ALIGNED WITH THE COMPRESSOR UNIT ASSEMBLY BY PLACING A "BUSHING", P/N 261008 BETWEEN THE AFT SIDE OF THE EAR AND THE MOUNT ASSEMBLY.
- 7) AN6-12A BOLTS ARE USED TO ENSURE BELT TENSION IN THE SAME MANNER AS WITH THE SD-505 COMPRESSOR. A MINIMUM THREAD PROTRUSION ON THE FORWARD UPPER BOLT REQUIRES THAT A STEEL SELF LOCKING NUT P/N: MS20364-624C MUST BE UTILIZED.

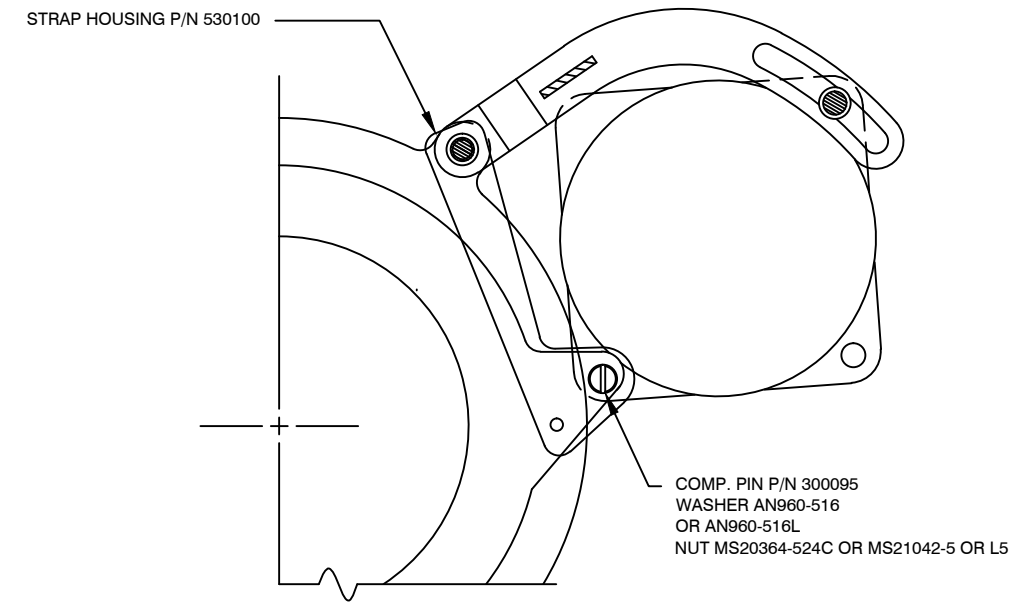


**VIEW A-A**  
LOOKING AFT AT STA. 144.4

REVISION RECORD				
REV	DATE	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	08-16-00	REVISED DRAWING NUMBER, WAS 6-AS350 SHEET NUMBER WAS 1 OF 3.		
B	04/15/02	COMPUTERIZED. CHANGED TITLE BLOCK TO PAG. ADDED VIEW OF P/N 530100. CHANGED 530027-1 TO 530027-3.		
C	07/15/02	CHANGED PN: 261008 TO 2X PN: 261007, REVISED TITLE BLOCK.		
D	01/30/06	CHANGED BOLT, NAS1305-44 TO NAS1305-45 FOR EXTRA LENGTH. ADDED BELT PN 060018-1 TO ADDRESS LENGTH ISSUE. CHANGED NO. OF WASHERS ADDED "AS REQUIRED" TO WASHER NOTATION. ADDED COMPRESSOR PN: 590008-1 ADDED BELTS PN's 060005 AND 060006 FOR ALT. COMPRESSOR INSTALLATION. ADDED NOTATION TO CHANGE PULLEY ON TAIL ROTOR DRIVE SHAFT. REVISED APPLICABLE NOTATION.		JTYE
E	06/30/08	AEC PN: 350A351094 IS NOW PN: 350A35-1094-20. CORRECTED TO MATCH AEC IPC. REMOVED BELT PN: 060006, CORRECTED NOTE 2 TO MATCH. REVISED TITLE BLOCK.		JTYE
F	09/01/14	CHANGED TITLE BLOCK AND REVISION BLOCK.		AJC



- UTILIZED WITH:**
1. AS 350 WITH OLDER TRANSMISSION HOUSING DESIGN.



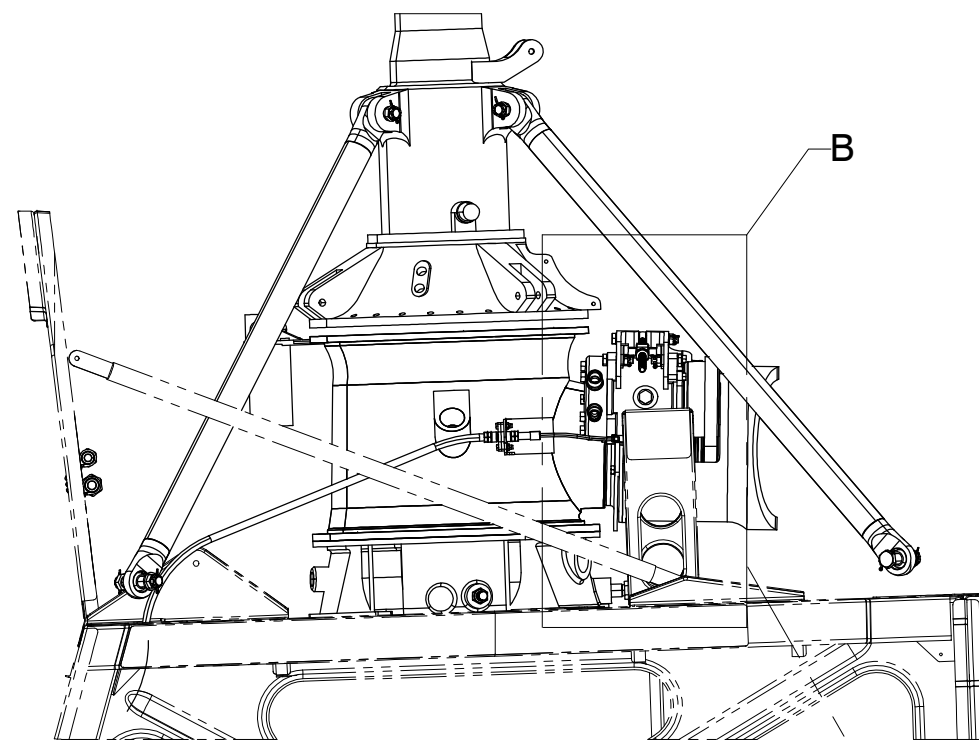
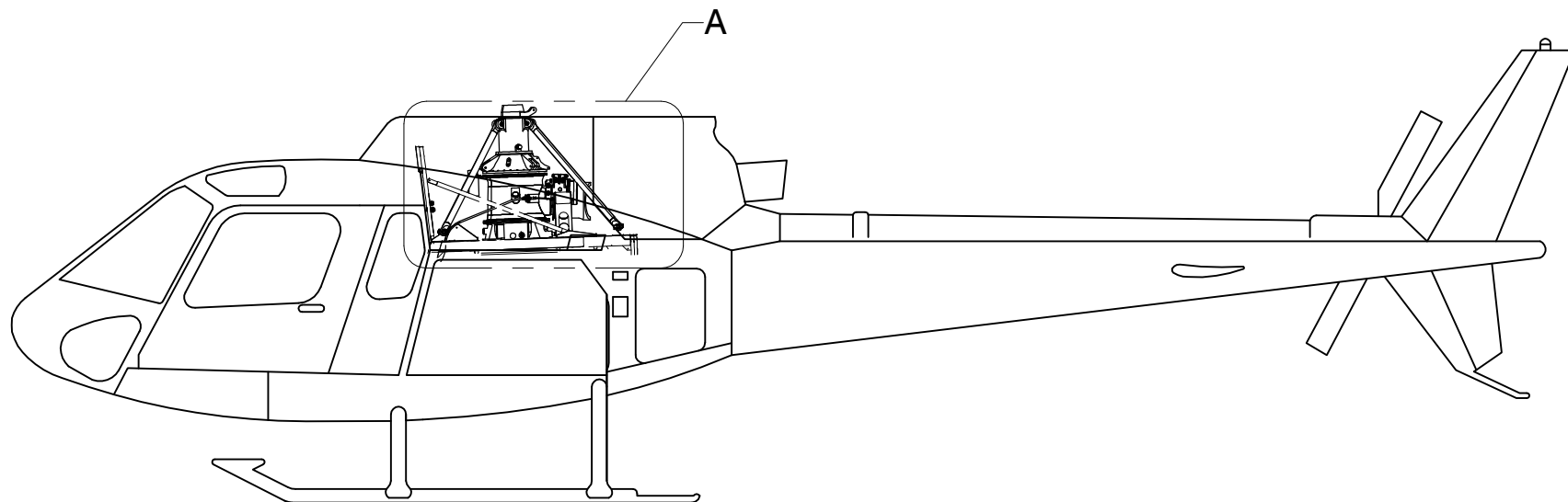
**VIEW B-B**  
LOOKING AFT AT STA. 151.2

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	<p>APPROVED BY:</p>	<p>DATE:</p>		<p>TITLE: <b>COMPRESSOR INSTALLATION</b></p>	
	<p>DATE:</p>	<p>DATE: 11/10/96</p>	<p>REV.: F</p>	<p>SCALE: N/A</p>	<p>SHEET: 1 OF 1</p>
	<p>APPLICATION: AS350</p>	<p>DWG. NO.: 6-2-AS350</p>			

NOTES:

- UTILIZED ON AS350 WITH LATEST TRANSMISSION HOUSING DESIGN
- ALTERNATE FOR ITEM 16 COMPRESSOR IS P/N 590008 WHICH CAN ONLY BE USED WITH ITEM 7 ALTERNATE BELT P/N 060018-1.
- ENSURE PLANAR TOLERANCE BETWEEN THE TAIL ROTOR & COMPRESSOR PULLEY CENTERLINE IS ±.100 IN. ALIGNMENT CAN BE ADJUSTED BY CHANGING THE WASHER STACKUP BETWEEN ITEM 11 & GEAR BOX COUPLING CASE.
- REAM ITEM 10 BUSHING FOR PROPER FIT OF ITEM 12 PIN WITH RANGE .302 TO .359 IN.
- TENSION BELT TO F= 30 LBS. DEFLECTION AT CENTER OF THE BELT TO BE .10 IN. UNDER 5 LB LOAD.

REVISION RECORD				
REV	DATE	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	01/30/06	CHANGED BOLT, NAS1305-44 TO NAS1305-45 FOR EXTRA LENGTH. CHANGED BELT TO 060018-1 TO ADDRESS LENGTH ISSUE. ADDED COMPRESSOR SHIM PN: 300363-2 AND SHIM PN: 261155 TO ISOMETRIC VIEW. CHANGED WASHER NOTES. REMOVED BEVELED EDGE NOTE. ADDED COMPRESSOR PN 590008-1. ADDED BELT PN: 060005. REVISED NOTES TO MATCH.		JTYE
B	06/30/08	CHANGED AEC PN: 350A351094 TO PN: 350A35-1094-20 TO MATCH AEC IPC. REVISED TITLE BLOCK.		JTYE
C	10/03/12	INCORPORATED ECO 0508.		WST
D	09/01/14	CHANGED TITLE BLOCK AND REVISION BLOCK. ADDED AND CHANGED PART NUMBERS, DESCRIPTION AND QUANTITIES TO BOM PER ECO # 0568.		AJC



**DETAIL A**  
(SOME A/C STRUCTURES REMOVED FOR CLARITY)  
AFT →

1 OR 2  
REF REF

QTY	QTY	ITEM	PART NUMBER	DESCRIPTION	VENDOR	WEIGHT
1	1	37	NAS1149DO416H	WASHER		
1	1	36	MS21042L4	NUT		
1	1	35	AN4-5A	BOLT		
		34	NAS1305-45	BOLT		
6		33	NAS1149D0632H	WASHER		
2		32	NAS1149D0532H	WASHER		
	2	31	MS20364-624C	NUT (ALT. MS21044N6)		
	1	30	AN365-624	NUT (ALT. MS21044N6)		
4		29	MS21042L6	NUT		
2	2	28	MS21042L5	NUT (ALT. MS20364-524C)		
2	2	27	MS21042L4	NUT (ALT. AN365-424)		
A/R		26	MS20995C32	SAFETY WIRE		
2	A/R	25	AN960-616L	WASHER (ALT. AN960-616)		
1	3	24	AN960-516L	WASHER (ALT. AN960-516)		
4	4	23	AN960-416	WASHER (ALT. AN960-416L)		
1		22	AN6-33A	BOLT		
1	2	21	AN6-12	BOLT		
2		20	AN6-13A	BOLT		
	1	19	AN6-12A	BOLT		
1		18	AN5-34A	BOLT		
2	2	17	AN4-14A	BOLT		
1	1	16	590008-1	COMPRESSOR		12.85 LB
1	1	15	530100-1	STRAP HOUSING		
	1	14	530027-3	BRACKET ASSEMBLY		
2	2	13	300363-2	SHIM (ALT: 261155)		
1	1	12	300095	PIN		
1	1	11	300067-1	COMPRESSOR STAND OFF		
	1	10	261008	BUSHING		
2	2	9	261007	BUSHING		
1		8	2434K39	THREADED ROD END	McMASTER CARR	
1	1	7	060005	BELT		
2		6	04-130-21-105-01	COMPRESSOR CLAMP		
2		5	04-130-21-104-01	JAM NUT, DRILLED		
1		4	04-130-21-102-01	COMP MOUNT TENSION BOLT		
1		3	04-130-21-101-01	COMPRESSOR MOUNT BRACKET		0.52 LB
--		2	-02	COMPRESSOR INSTALLATION		
--		1	-01	COMPRESSOR INSTALLATION		

**PROPRIETARY NOTICE**

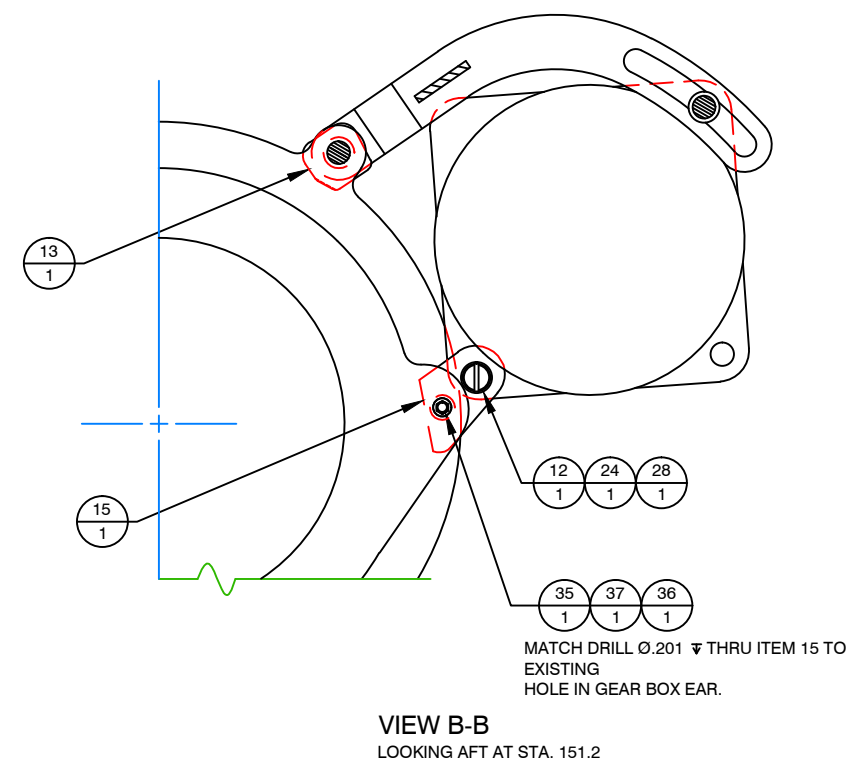
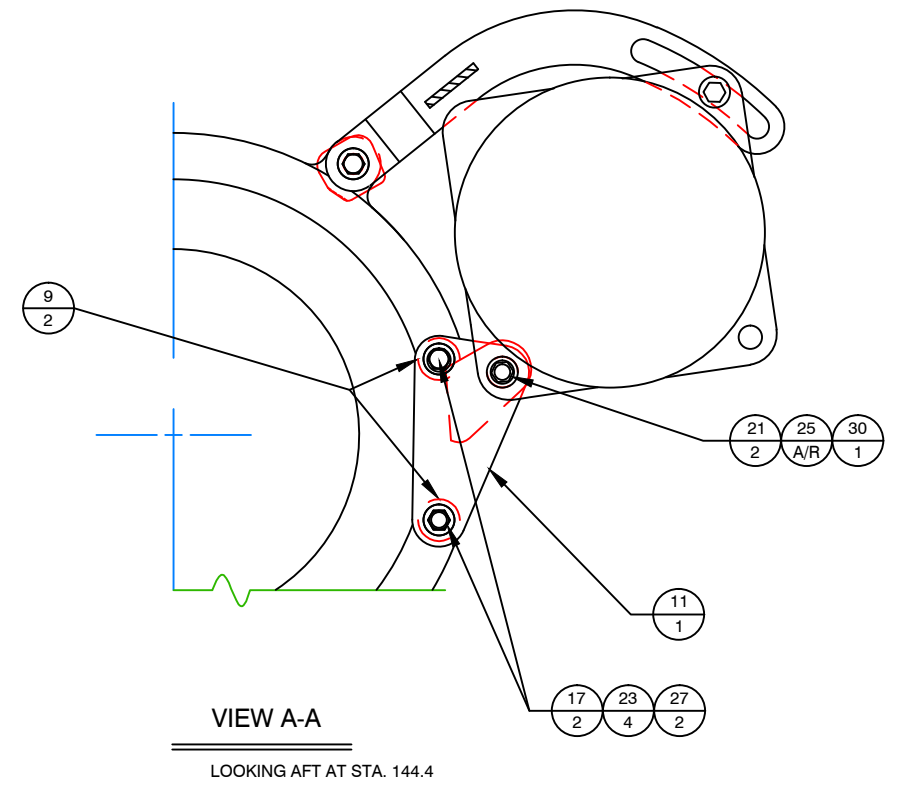
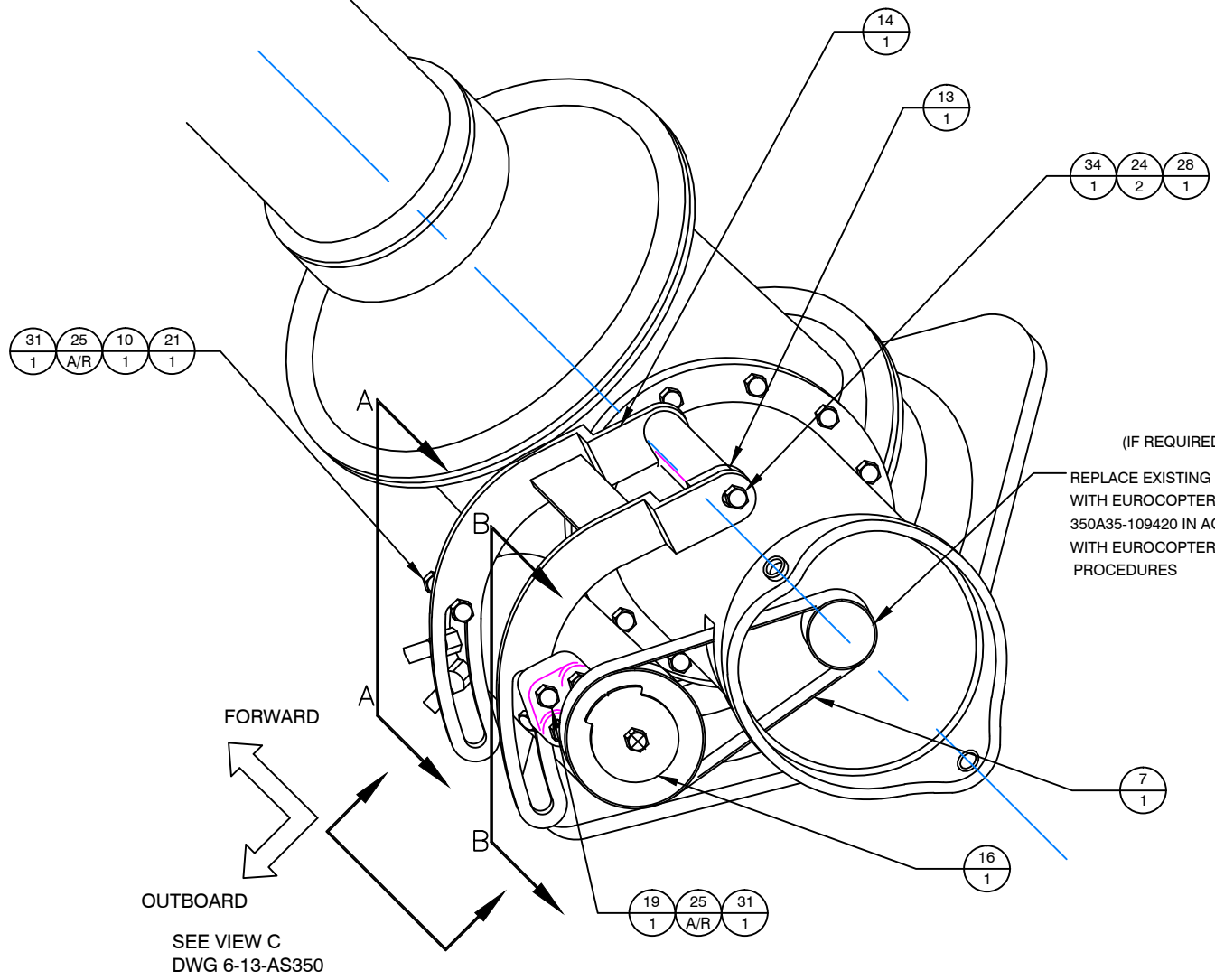
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NEXT ASSY.	TOLERANCES EXCEPT AS SHOWN
	.X: ±.1 .XX: ±.03 .XXX: ±.010 X.X": ±.5° BREAK ALL SHARP EDGES .01 ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED
APPROVED BY:	DATE:



**PRODUCTS INC.**  
A ROTORCRAFT SERVICES GROUP COMPANY

TITLE: <b>COMPRESSOR INSTALLATION</b>				
DRAWN BY: S. THORNTON	DATE: 10/03/2012	REV.: D	SCALE: N/A	SHEET: 1 OF 4
APPLICATION: AS350			DWG. NO.: 6-3-AS350	

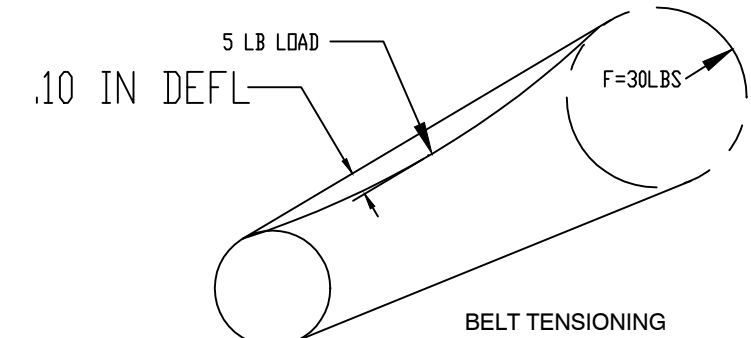
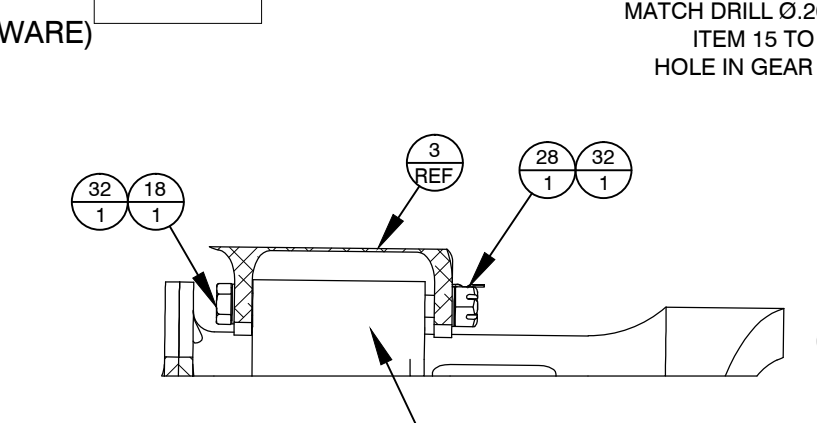
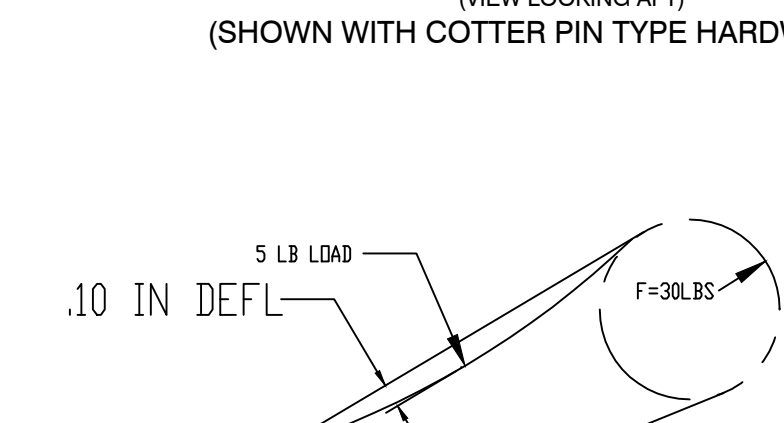
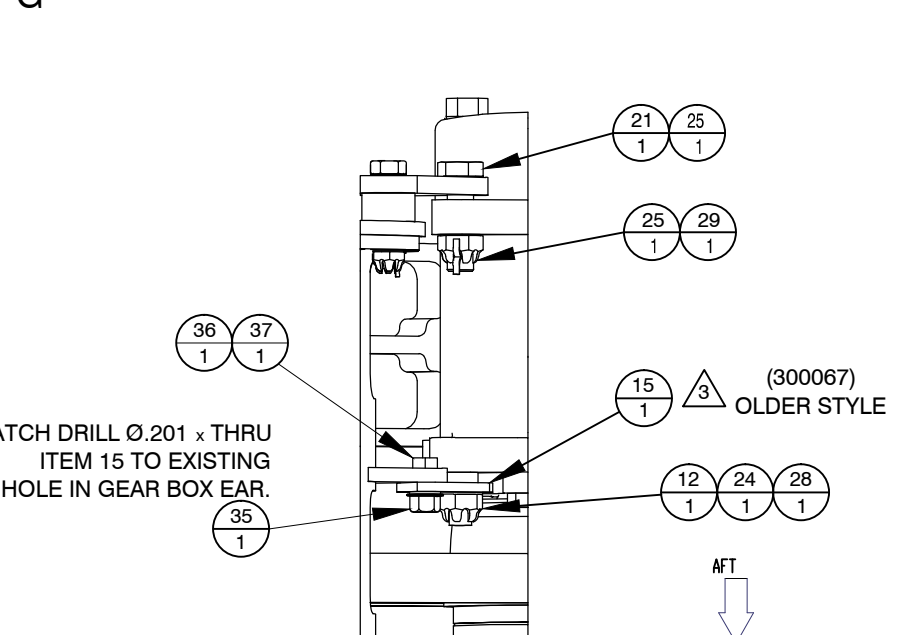
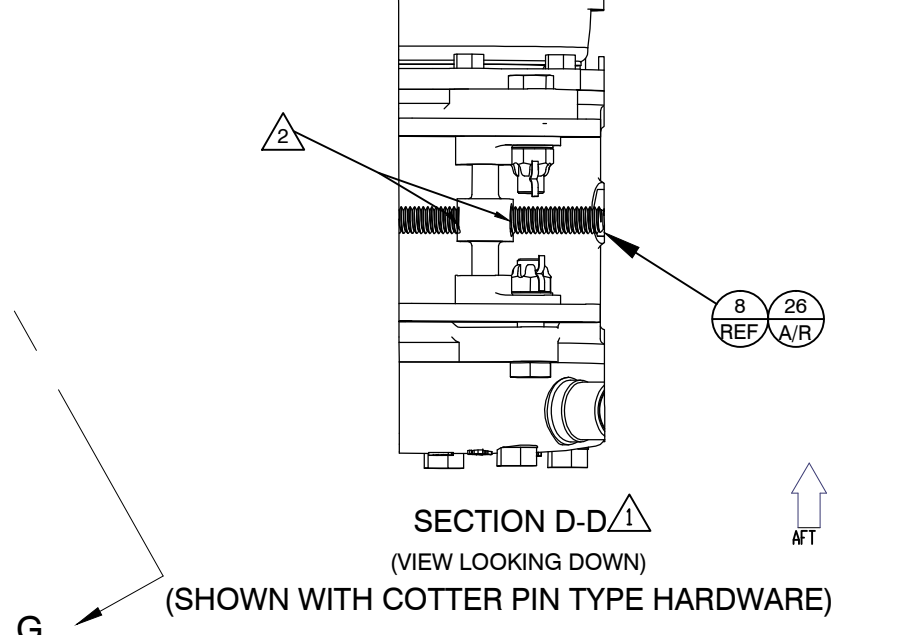
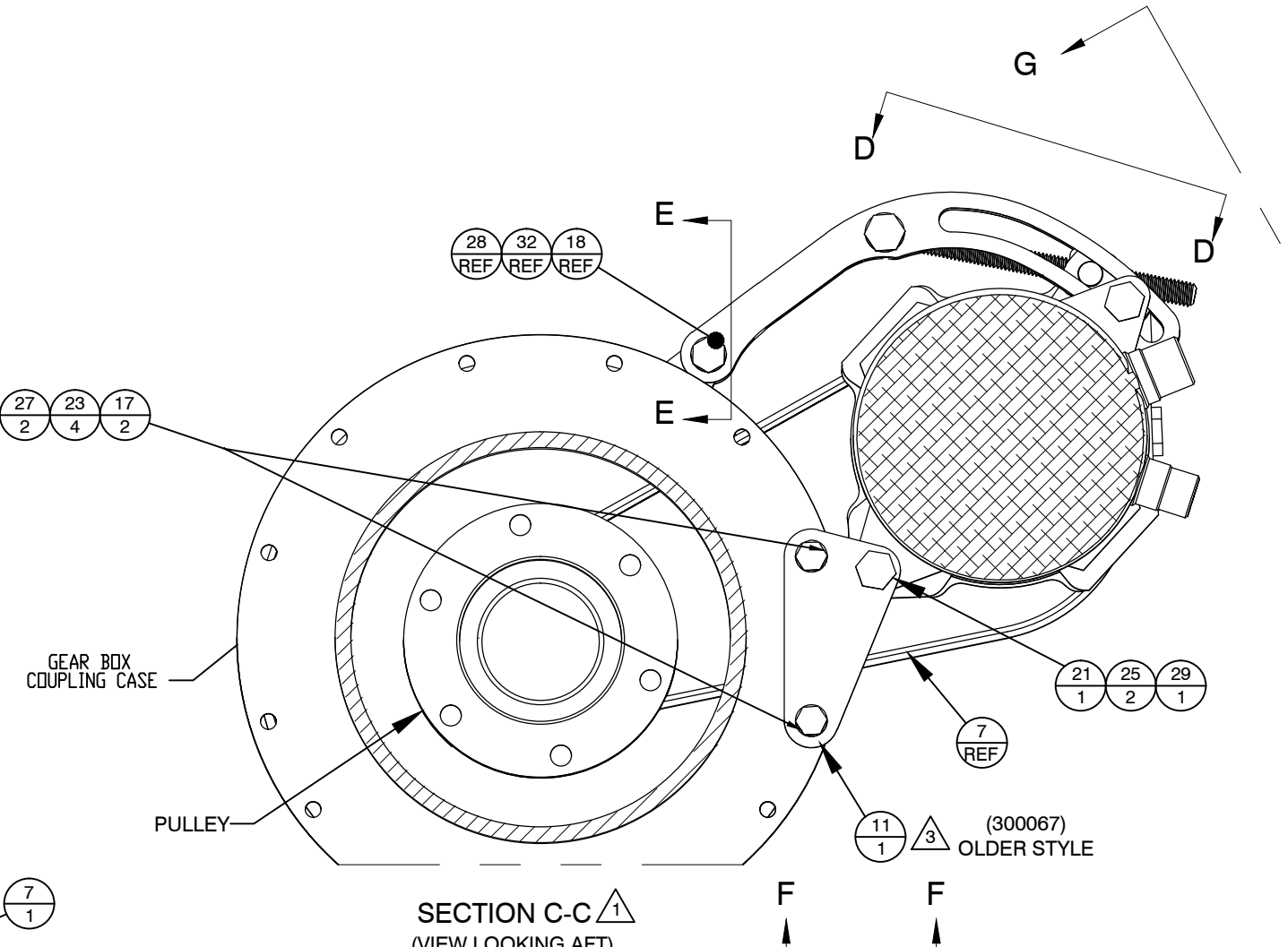
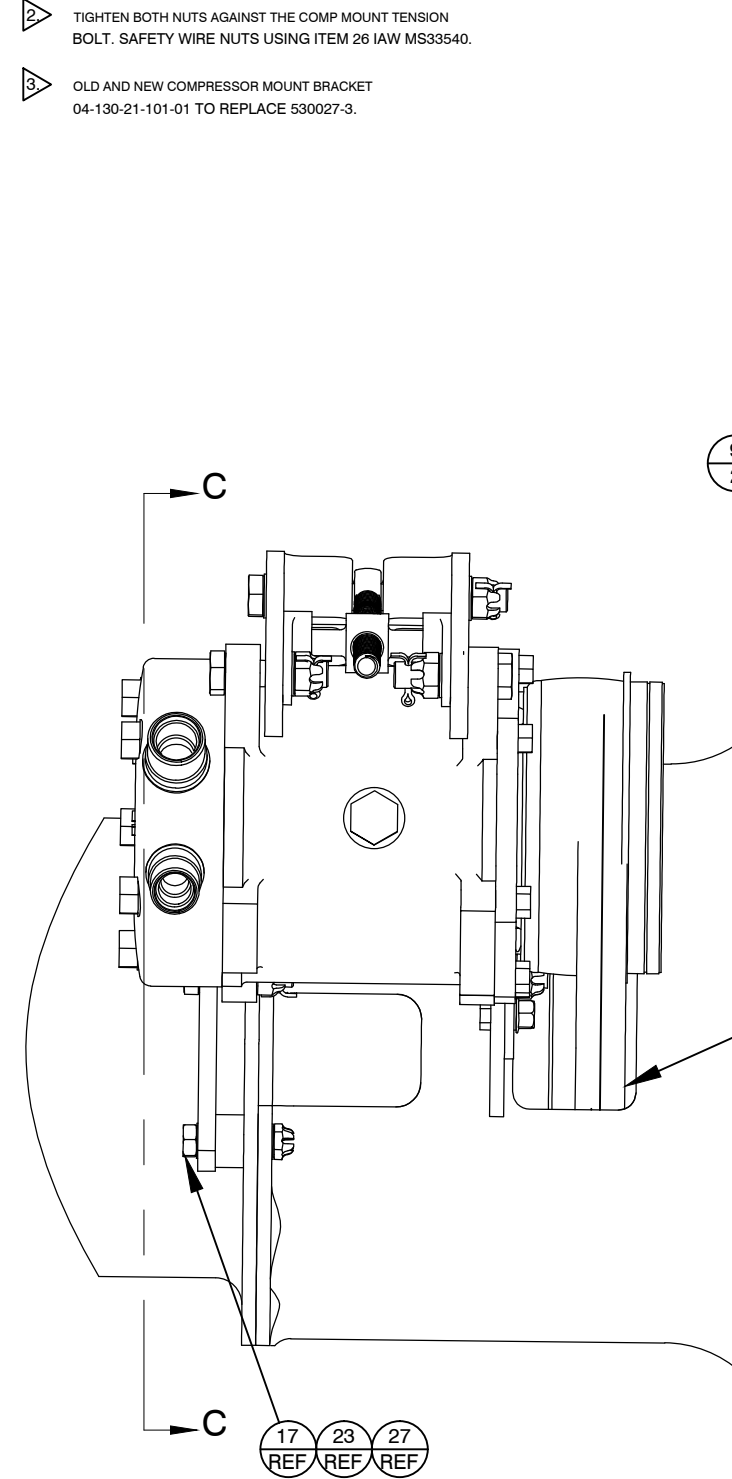


**-01**

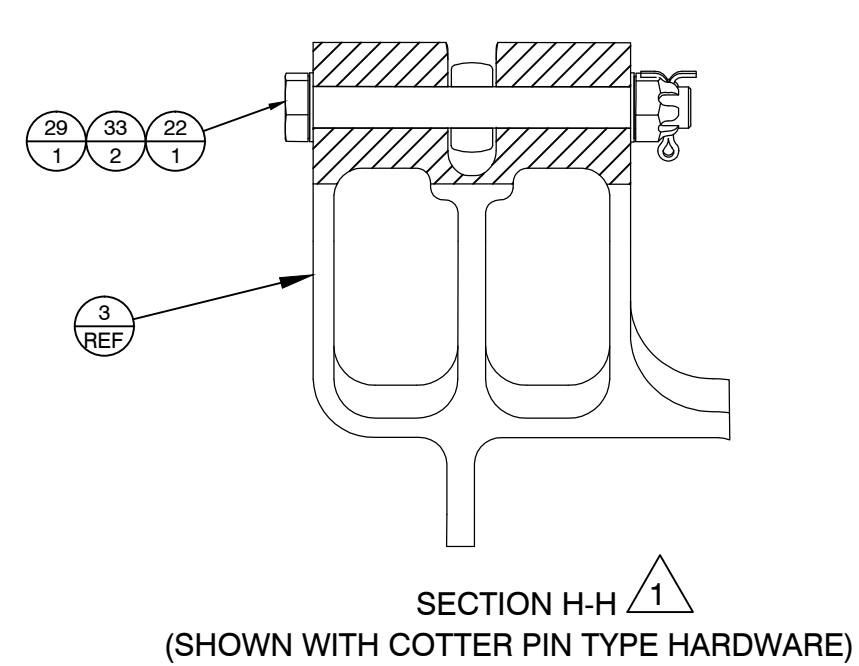
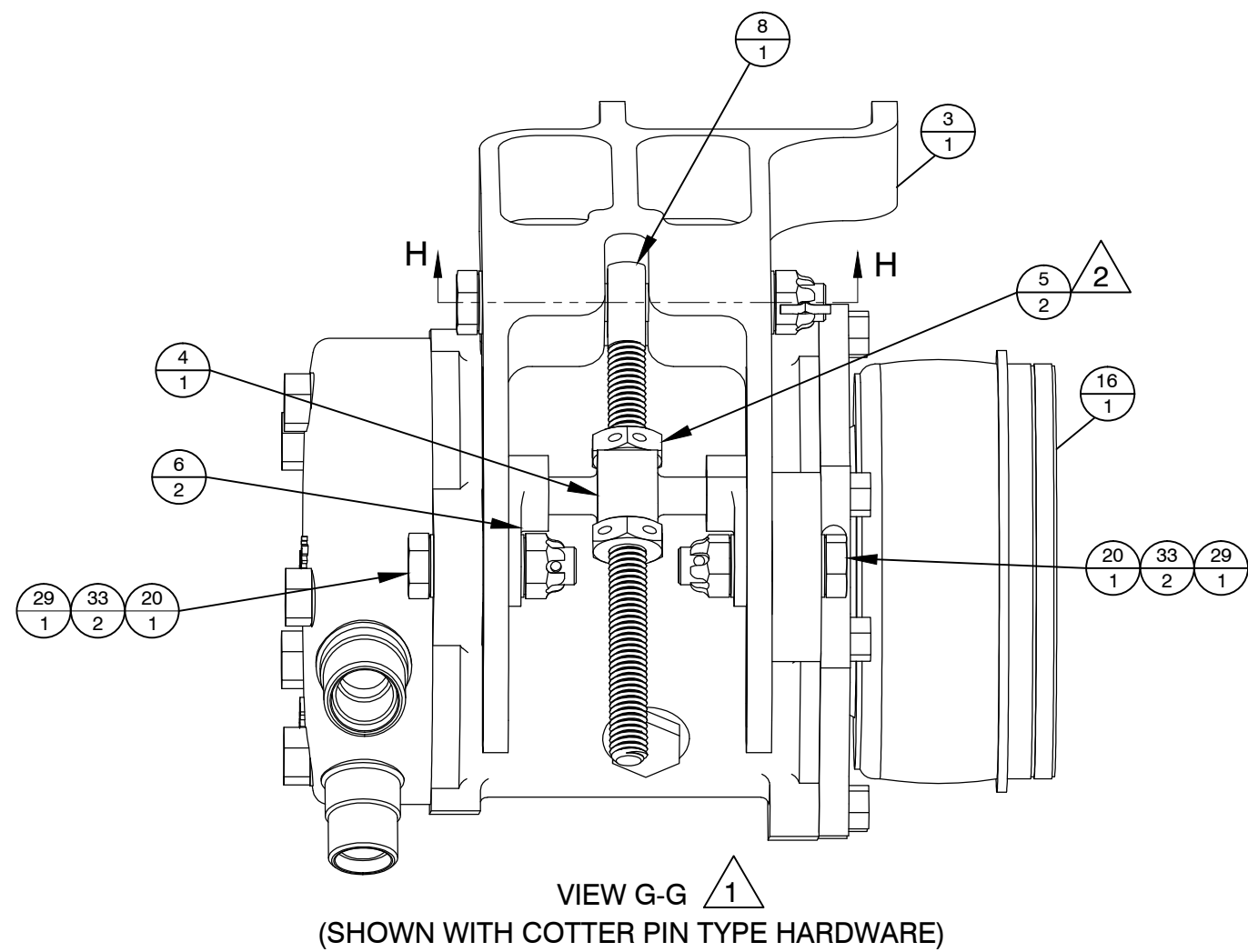
TITLE: <b>COMPRESSOR INSTALLATION</b>				
DRAWN BY: S. THORNTON	DATE: 10/03/2012	REV.: D	SCALE: N/A	SHEET: 2 OF 4
APPLICATION: AS350			DWG. NO.: 6-3-AS350	

NOTES:  
(APPLICABLE TO -.02 CONFIGURATION ONLY)

- 1 PERMISSIBLE TO USE ALTERNATE COTTER PIN TYPE HARDWARE:  
BOLT ANX-XX, NUT AN310-X, COTTER PIN MS24665-XXX.
- 2 TIGHTEN BOTH NUTS AGAINST THE COMP MOUNT TENSION  
BOLT. SAFETY WIRE NUTS USING ITEM 26 IAW MS33540.
- 3 OLD AND NEW COMPRESSOR MOUNT BRACKET  
04-130-21-101-01 TO REPLACE 530027-3.



<b>RSG PRODUCTS INC.</b> A ROTORCRAFT SERVICES GROUP COMPANY				
TITLE: COMPRESSOR INSTALLATION				
DRAWN BY: S. THORNTON	DATE: 10/03/2012	REV.: D	SCALE: N/A	SHEET: 3 OF 4
APPLICATION: AS350			DWG. NO.: 6-3-AS350	



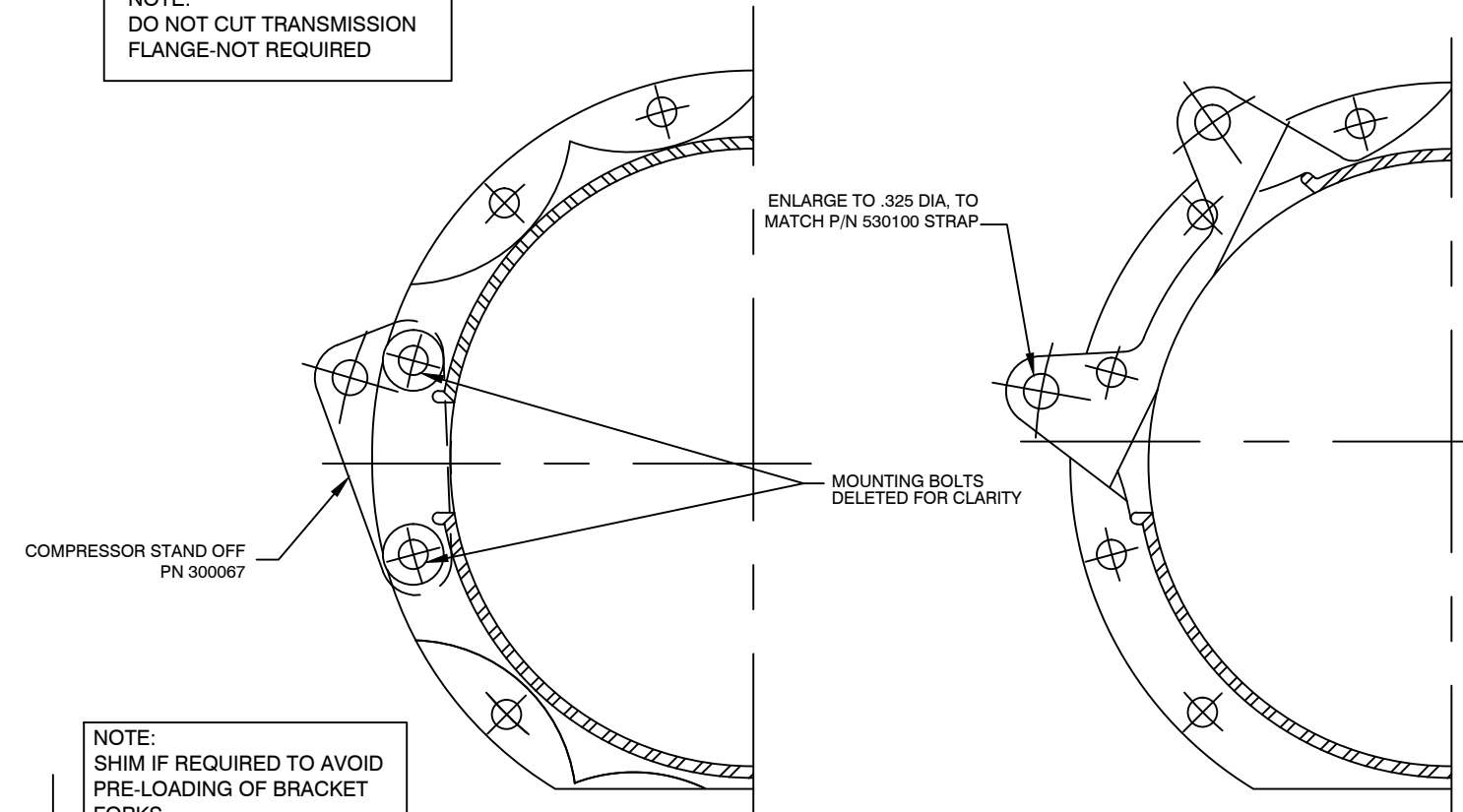
-02 (CONTINUED)



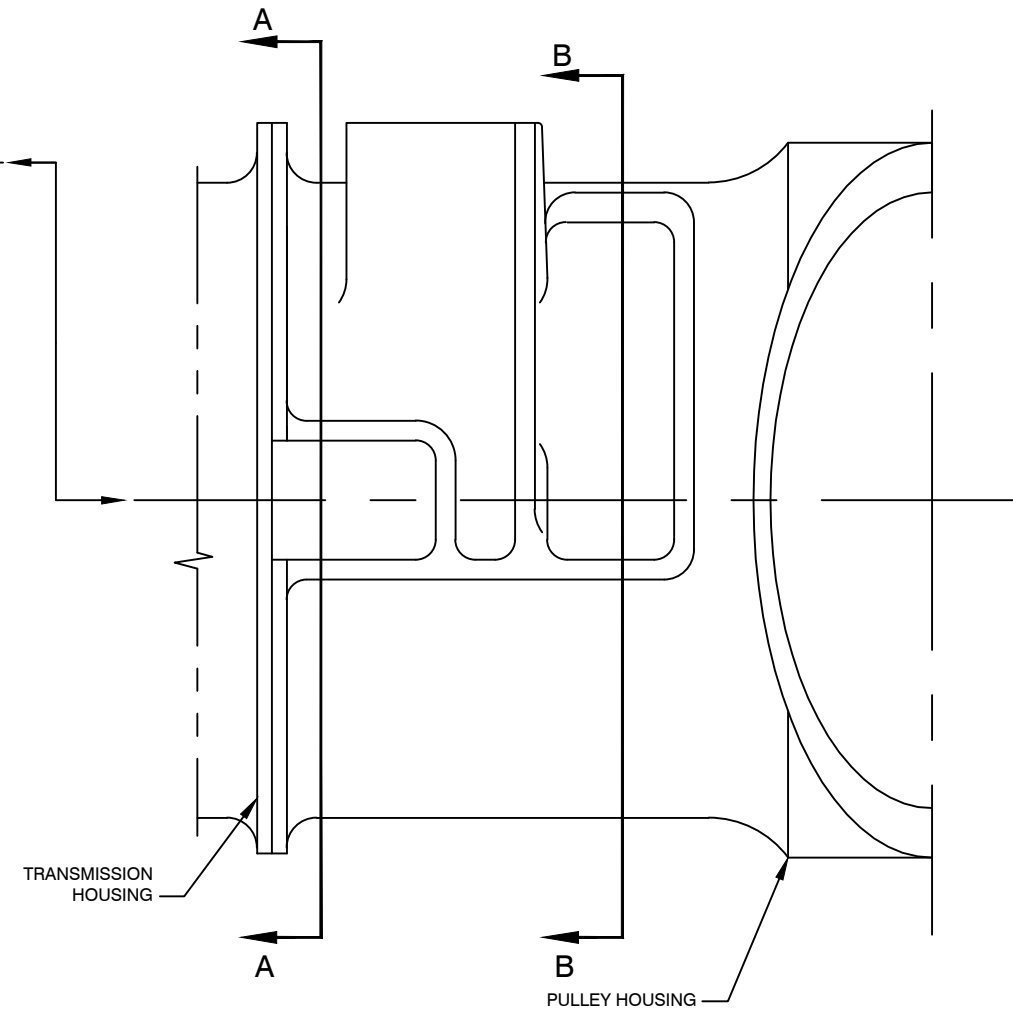
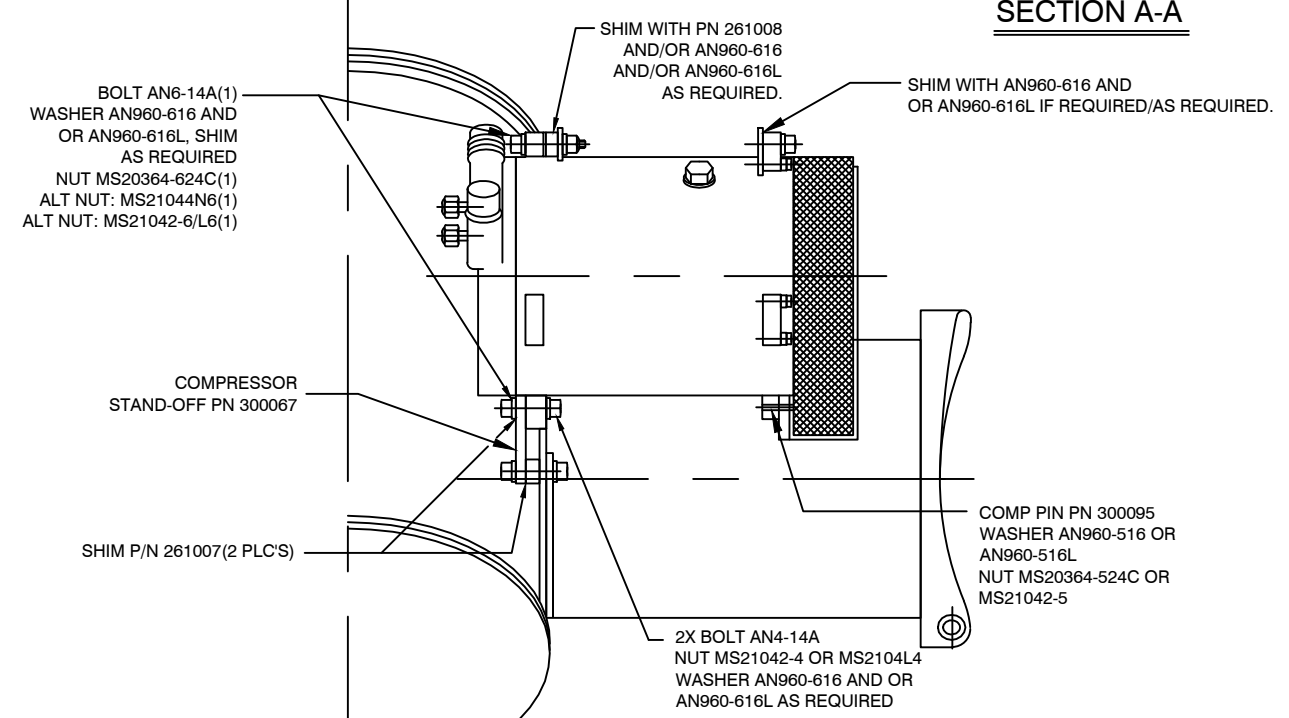
TITLE: COMPRESSOR INSTALLATION				
DRAWN BY: S. THORNTON	DATE: 10/03/2012	REV.: D	SCALE: N/A	SHEET: 4 OF 4
APPLICATION: AS350			DWG. NO.: 6-3-AS350	

REVISION RECORD				
REV	DATE	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	08/16/00	REVISED DRAWING NUMBER, WAS 6-AS350, SHEET No. WAS 2 OF 3.		
B	04/16/02	COMPUTERIZED, CLARIFIED NOTE, REVISED TITLE BLOCK.		
c	01/30/06	CHANGED NOTES, ADDED PRELOAD NOTE. ADDED SHIMMING NOTES.		JTYE
D	06/30/08	REVISED TITLE BLOCK.		JTYE
E	9/1/14	CHANGED TITLE BLOCK AND REVISION BLOCK. CORRECTED HARDWARE CALLOUT PER ECO # 0261.		AJC

NOTE:  
DO NOT CUT TRANSMISSION  
FLANGE-NOT REQUIRED



NOTE:  
SHIM IF REQUIRED TO AVOID  
PRE-LOADING OF BRACKET  
FORKS.



FORWARD  
VIEW LOOKING INBOARD

FORWARD

VIEW C  
REF 6-2-AS350

<b>PROPRIETARY NOTICE</b> TO ALL PERSONS RECEIVING THIS DOCUMENT THIS DOCUMENT AND INFORMATION OR TECHNICAL DATA AND DESIGNS CONTAINED HEREIN ARE PROPRIETARY DATA AND EXCLUSIVE PROPERTY OF RSG PRODUCTS INC. AND IS DELIVERED ON THE EXPRESS CONDITION THAT NEITHER THIS DOCUMENT NOR THE INFORMATION CONTAINED HEREIN SHALL BE DISCLOSED TO OTHERS, REPRODUCED IN WHOLE OR IN PART, OR USED FOR THE MANUFACTURE OR FABRICATION OF PARTS FOR ANYONE OTHER THAN RSG PRODUCTS INC. WITHOUT WRITTEN CONSENT AND AUTHORIZATION, AND THAT NO RIGHT IS GRANTED TO DISCLOSE OR SO USE ANY INFORMATION CONTAINED IN SAD DOCUMENT. THIS RESTRICTION DOES NOT LIMIT THE RIGHT TO USE INFORMATION OBTAINED FROM ANOTHER SOURCE.	NEXT ASSY.	TOLERANCES EXCEPT AS SHOWN		
		.X: ±.1 .XX: ±.03 .XXX: ±.010 X.X°: ±.5° BREAK ALL SHARP EDGES .01 ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED		TITLE: <b>COMPRESS INSTALLATION</b>
	APPROVED BY:	DATE:	DATE:	DRAWN BY: <b>BT</b> DATE: <b>11/10/96</b> REV.: <b>E</b> SCALE: <b>N/A</b> SHEET: <b>1 OF 1</b>
				APPLICATION: <b>AS350</b> DWG. NO.: <b>6-12-AS350</b>

REVISION RECORD				
REV	DATE	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	01/30/06	CHANGED WASHER NOTES FOR PRE-LOADING OF BRACKET.		JTYE
B	06/30/08	REVISED TITLE BLOCK.		JTYE
C	9/1/14	CHANGED TITLE BLOCK AND REVISION BLOCK. CORRECTED HARDWARE CALLOUT PER ECO # 0261.		AJC

NOTE:  
DO NOT CUT TRANSMISSION  
FLANGE-NOT REQUIRED

BACKDRILL TO P/N 530100-1  
WITH THIS HOLE USING Ø.250.

COMPRESSOR STAND OFF  
PN 300067-1

NOTE:  
SHIM IF REQUIRED TO AVOID  
PRE-LOADING OF BRACKET  
FORKS.

MOUNTING BOLTS  
DELETED FOR CLARITY

530100-1  
FLUSH TO  
THIS EDGE.

FLUSH AGAINST  
MACHINED EDGE.

**SECTION A-A**

**SECTION B-B**

BOLT AN6-14A(1)  
WASHER AN960-616 AND  
OR AN960-616L, SHIM  
AS REQUIRED  
NUT MS20364-624C(1)  
ALT NUT: MS21044N6(1)  
ALT NUT: MS21042-6/L6(1)

SHIM WITH PN 261008  
AND/OR AN960-616  
AND/OR AN960-616L  
AS REQUIRED.

SHIM WITH AN960-616 AND  
OR AN960-616L IF REQUIRED/AS REQUIRED.

COMPRESSOR  
STAND-OFF PN 300067-1

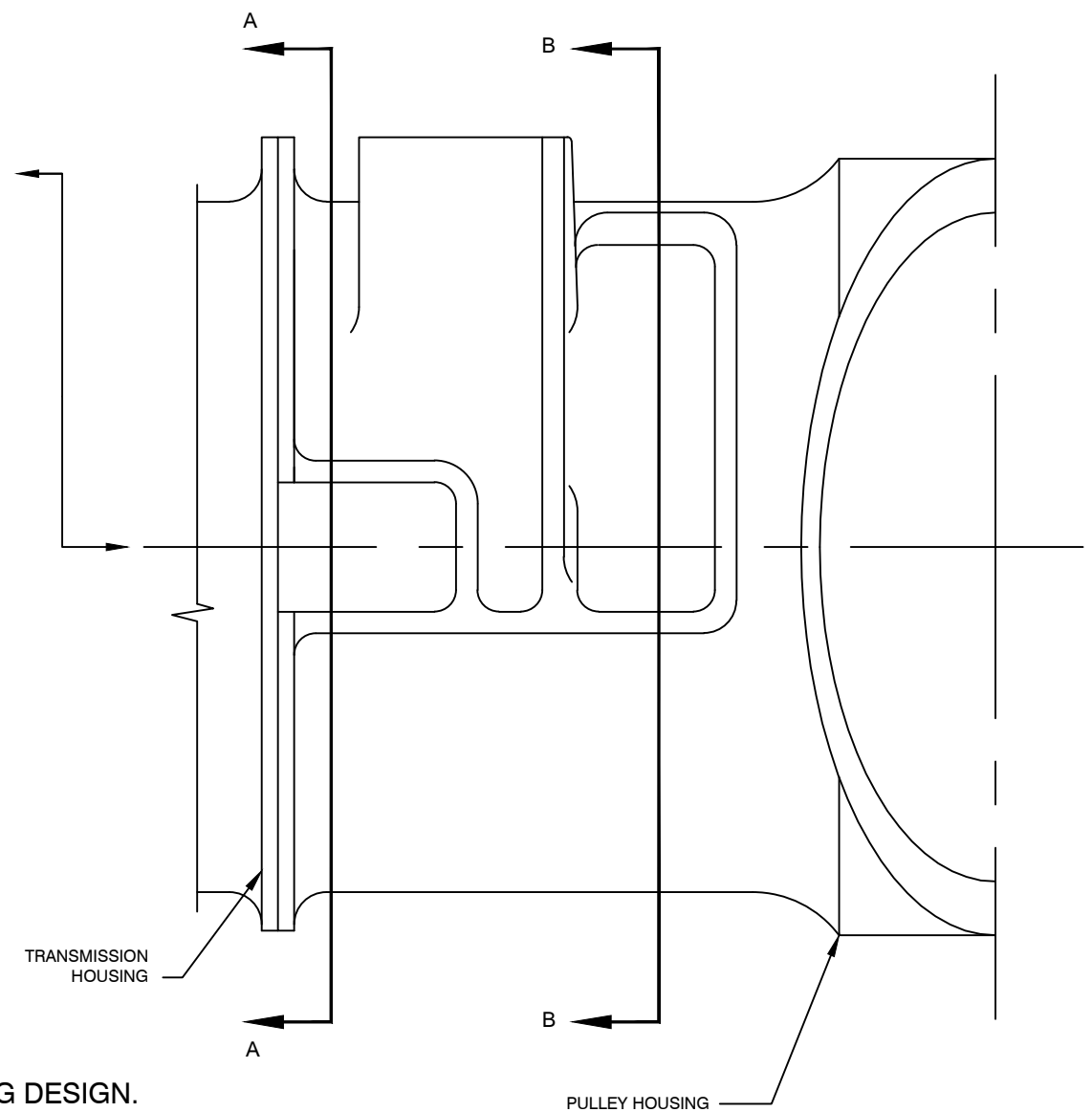
SHIM P/N 261007(2 PLC'S)

2X BOLT AN4-14A  
NUT MS21042-4 OR MS21042L4  
WASHER AN960-616 AND OR  
AN960-616L AS REQUIRED

COMP PIN PN 300095  
WASHER AN960-516 OR  
AN960-516L  
NUT MS20364-524C OR  
MS21042-5

UTILIZED WITH:

1. AS 350 WITH LATEST TRANSMISSION HOUSING DESIGN.



← FORWARD  
VIEW LOOKING INBOARD

→ AFT

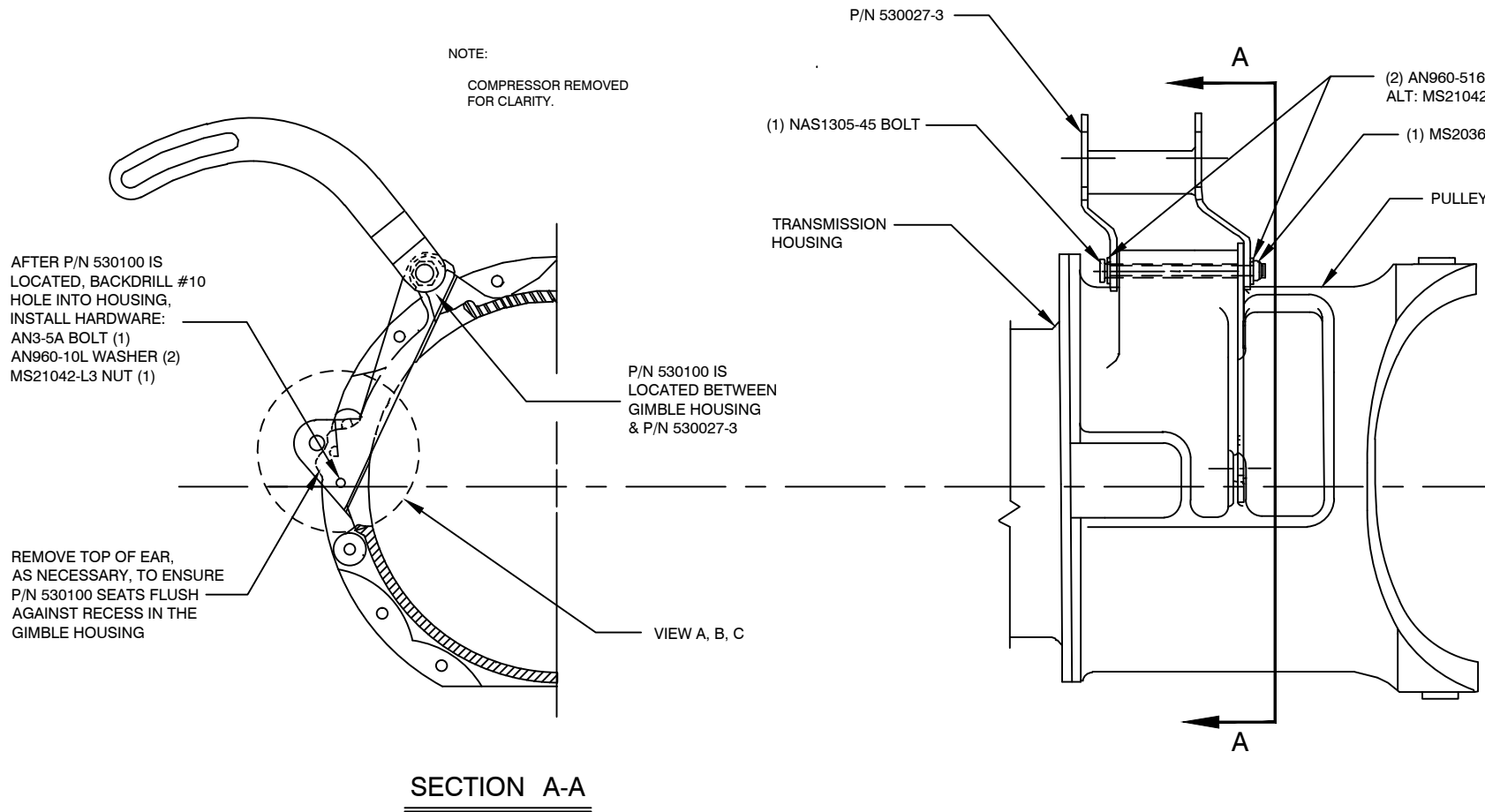
**VIEW C**  
REF 6-3-AS350

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	APPROVED BY:	.X: ±.1 .XX: ±.03 .XXX: ±.010 X.X": ±.5° BREAK ALL SHARP EDGES .01 ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED DATE:		TITLE: <b>COMPRESSOR INSTALLATION</b>
				DRAWN BY: JTYE DATE: 05/28/03 REV.: C SCALE: N/A SHEET: 1 OF 1
				APPLICATION: AS350 DWG. NO.: 6-13-AS350

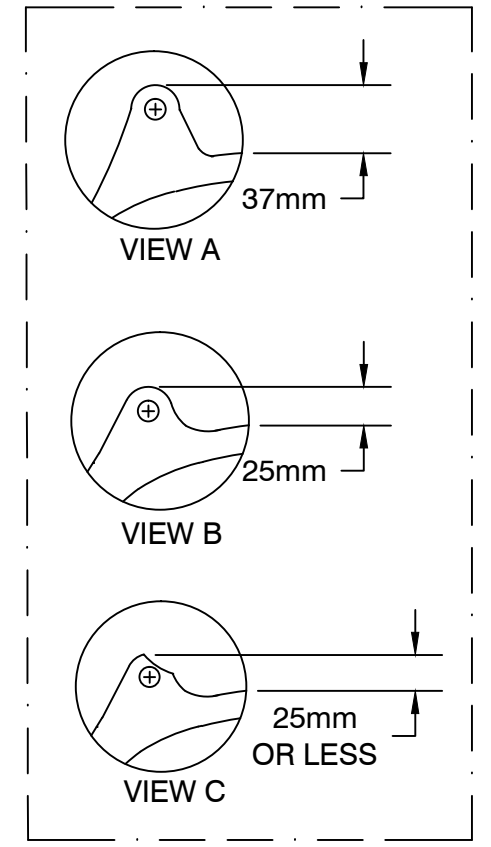
INSTALLATION INSTRUCTIONS:

KIT P/N: 350-00-01, -011, -031, -011HP, AND -031HP

- 1) THE ABOVE KITS UTILIZE THE SANDEN SD-505 OR SD-507 COMPRESSOR (SEE DRAWING 350-00-011HP OR -031HP FOR DETAILS OF SD-507 INSTALLATION)..
- 2) IN EARLY 1997 IT WAS NOTICED BY AMERICAN EUROCOPTER AND LATER EUROCOPTER CANADA, LTD. THAT A FEW AS350 MODELS WERE ARRIVING WITH A DIFFERENT "ENGINE TO MAIN GEAR BOX COUPLING CASING", COMMONLY CALLED A "HOUSING", INSTALLED. THE PART NUMBER SHOWN IN THE EUROCOPTER IPC WAS: 350A35-1104-03. THIS COMPONENT HAS "EARS" EXTENDING OFF THE "HOUSING", ON BOTH SIDES, 37 mm IN LENGTH (SEE VIEW "A").  
  
THE NEW "HOUSING " PART NUMBER IS 350A08-1635-21. IT HAS ONE EAR ON THE LEFT SIDE THAT IS ONLY 25 mm LONG.  
(SEE VIEW "B")  
  
THE 25 mm LONG EAR WILL NOT ALLOW AN INTEGRATED FLIGHT SYSTEMS, INC. SD-505 OR SD-507 COMPRESSOR TO BE INSTALLED IN ITS USUAL LOCATION.
- 3) THE "LOGICAL ANSWER" WAS TO LOCATE THE "MOUNTING POINT" OF THE COMPRESSOR(S) SO THAT A DIFFERENT LENGTH BELT, ETC. WOULD NOT BE REQUIRED..
- 4) ONLY TWO (2) PART CHANGES WERE REQUIRED TO ALLOW ITEM 3 TO OCCUR.
  - a. COMPRESSOR MOUNT ASSEMBLY 530027-1 WAS CHANGED TO -2 (.125 WIDER AT THE TOP MOUNTING POINT).
  - b. A NEW COMPONENT, NOT PREVIOUSLY USED, "STRAP, HOUSING MOD. ASSEMBLY", P/N: 530100 IS UTILIZED TO LOCATE THE COMPRESSOR MOUNTING POINT BACK TO ITS ORIGINAL LOCATION.
  - c. A AN3-5A BOLT AND ASSOCIATED HARDWARE SECURES THE "STRAP" TO THE "HOUSING".
- 5) IN SOME CASES IT MAY BE NECESSARY TO REMOVE A SMALL AMOUNT OF MATERIAL FROM THE OUTER EDGE OF THE 25 mm EAR TO ALLOW THE "NEW" IFS COMPONENT TO LAY IN ITS PROPER LOCATION. THIS IS DUE TO THE "SHIM" WELDED ON THE FORWARD SIDE OF THE COMPONENT WHICH ALLOWS ALIGNMENT TO THE COMPRESSOR EAR. ANY PAINT REMOVED FROM THE "HOUSING" EAR MUST BE TOUCHED UP BEFORE INSTALLING THE IFS PARTS.
- 6) IF AERO AIRE OR OTHER SIMILAR TYPE A/C COMPRESSOR HAS BEEN PREVIOUSLY INSTALLED PER VIEW "B" or "C", IT MAY BE NECESSARY TO FOLLOW THE STEPS IN ITEM 5 FOR CORRECT CLEARANCE.



REVISION RECORD				
REV	DATE:	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	08/16/00	REDRAWN INTO AUTOCAD, REVISED DRAWING No. WAS 6-AS350; SHEET No. WAS 3 OF 3. ADDED ITEMS 6 TO "INSTRUCTIONS". CHANGED "CASING" TO "HOUSING". ADDED VIEW A, B AND C.		
B	05/08/02	REVISED TITLE BLOCK. CHANGED 530027-2 TO 530027-3. CONVERTED TO AUTOCAD.		
C	01/30/06	CHANGED NAS1305-44 BOLT TO NAS1305-45 FOR LENGTH.		JTYE
D	06/30/08	REVISED TITLE BLOCK.		JTYE
E	9/1/14	CHANGED TITLE BLOCK AND REVISION BLOCK.		AJC



VIEW LOOKING INBOARD  
← FORWARD →

<p><b>PROPRIETARY NOTICE</b></p> <p>TO ALL PERSONS RECEIVING THIS DOCUMENT THIS DOCUMENT AND INFORMATION OR TECHNICAL DATA AND DESIGNS CONTAINED HEREIN ARE PROPRIETARY DATA AND EXCLUSIVE PROPERTY OF RSG PRODUCTS INC. AND IS DELIVERED ON THE EXPRESS CONDITION THAT NEITHER THIS DOCUMENT NOR THE INFORMATION CONTAINED HEREIN SHALL BE DISCLOSED TO OTHERS, REPRODUCED IN WHOLE OR IN PART, OR USED FOR THE MANUFACTURE OR FABRICATION OF PARTS FOR ANYONE OTHER THAN RSG PRODUCTS INC. WITHOUT WRITTEN CONSENT AND AUTHORIZATION, AND THAT NO RIGHT IS GRANTED TO DISCLOSE OR SO USE ANY INFORMATION CONTAINED IN SAD DOCUMENT. THIS RESTRICTION DOES NOT LIMIT THE RIGHT TO USE INFORMATION OBTAINED FROM ANOTHER SOURCE.</p>	<p>NEXT ASSY.</p>	<p>TOLERANCES EXCEPT AS SHOWN</p> <p>.X: ±.1 .XX: ±.03 .XXX: ±.010 X.X": ±.5° BREAK ALL SHARP EDGES .01 ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED</p>	<p><b>RSG PRODUCTS INC.</b> A ROTORCRAFT SERVICES GROUP COMPANY</p>	
	<p>APPROVED BY:</p>	<p>DATE:</p>		<p>TITLE: <b>COMPRESSOR INSTALLATION</b></p>
	<p>DATE:</p>	<p>DATE:</p>	<p>DATE:</p>	<p>DRAWN BY: <b>KLM</b></p> <p>DATE: <b>11/10/96</b></p> <p>REV.: <b>E</b></p> <p>SCALE: <b>N/A</b></p> <p>SHEET: <b>1 OF 1</b></p>
	<p>DATE:</p>	<p>DATE:</p>	<p>DATE:</p>	<p>APPLICATION: <b>AS350</b></p> <p>DWG. NO.: <b>6-21-AS350</b></p>



REVISION RECORD				
REV	DATE	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	01/30/06	CHANGED NAS1305-44 BOLT TO NAS1305-45 FOR LENGTH. ADDED ALT. COMPRESSOR SHIMS. REMOVED BEVELED EDGE NOTATION FOR ALIGNMENT.		JTYE
B	06/30/08	REVISED TITLE BLOCK.		JTYE
C	9/1/14	CHANGED TITLE BLOCK AND REVISION BLOCK.		AJC

NOTE:  
COMPRESSOR REMOVED FOR CLARITY.

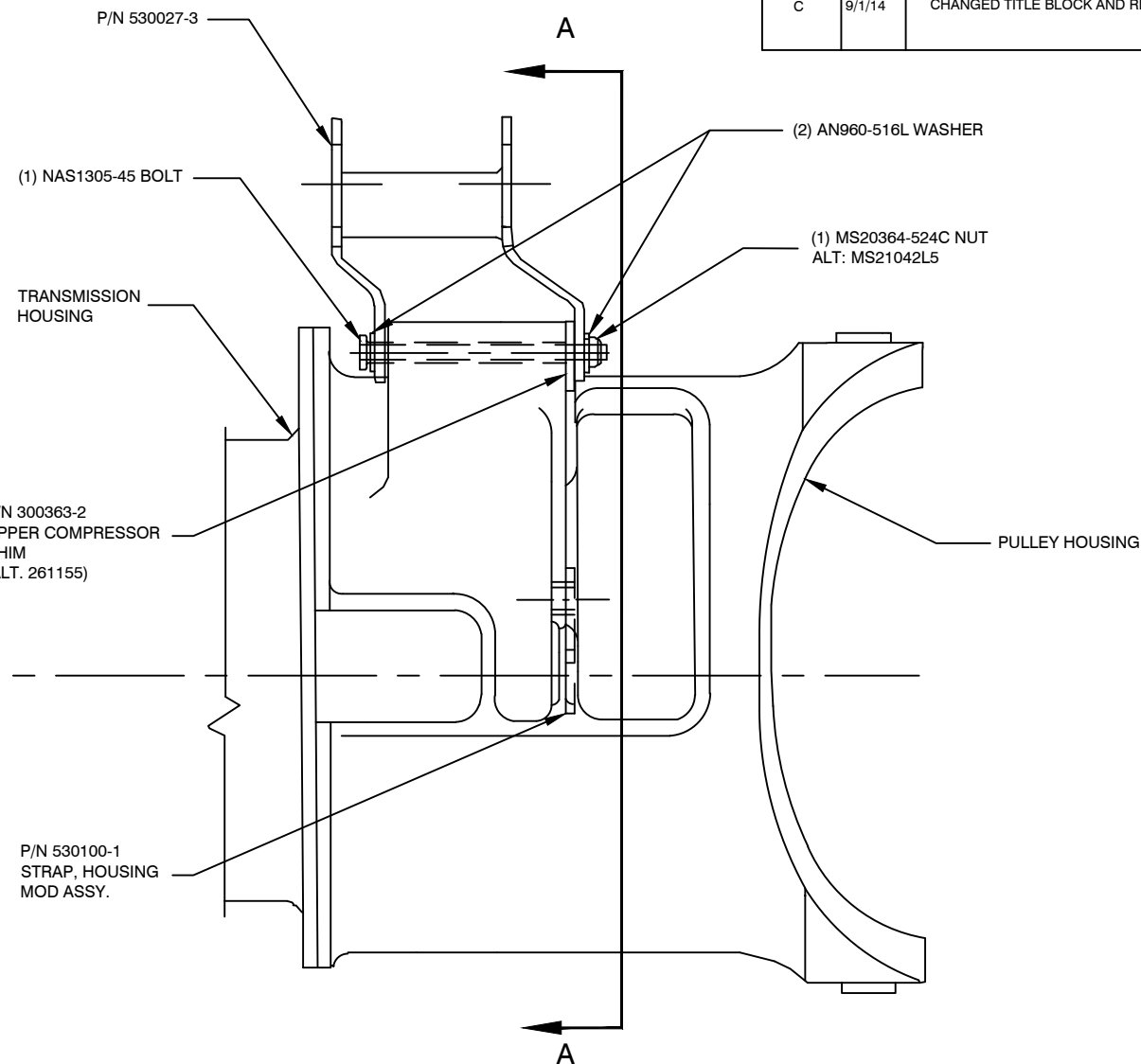
P/N 300363-2 IS LOCATED BETWEEN GIMBLE HOUSING & P/N 530027-3 (ALT. 261155)

BACKDRILL Ø.250 HOLE INTO 530100-1 ONCE LOCATED AND INSTALL HARDWARE:  
AN4-5A BOLT (1)  
AN960-416L WASHER (2)  
MS21042-L4 NUT (1)

ALIGN 530100-1 ON AFT SIDE OF GIMBLE HOUSING, FLUSH EDGE TO EAR CONTOUR.

SECTION A-A

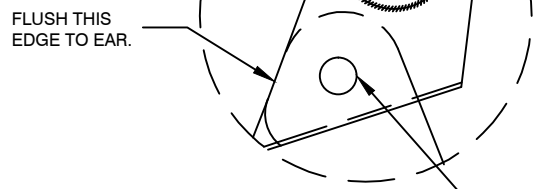
DETAIL A  
NOT TO SCALE



VIEW LOOKING INBOARD  
FORWARD

UTILIZED WITH:

- AS 350 WITH LATEST TRANSMISSION HOUSING DESIGN.



BACKDRILL Ø.250 HOLE.

<b>PROPRIETARY NOTICE</b> TO ALL PERSONS RECEIVING THIS DOCUMENT THIS DOCUMENT AND INFORMATION OR TECHNICAL DATA AND DESIGNS CONTAINED HEREIN ARE PROPRIETARY DATA AND EXCLUSIVE PROPERTY OF RSG PRODUCTS INC. AND IS DELIVERED ON THE EXPRESS CONDITION THAT NEITHER THIS DOCUMENT NOR THE INFORMATION CONTAINED HEREIN SHALL BE DISCLOSED TO OTHERS, REPRODUCED IN WHOLE OR IN PART, OR USED FOR THE MANUFACTURE OR FABRICATION OF PARTS FOR ANYONE OTHER THAN RSG PRODUCTS INC. WITHOUT WRITTEN CONSENT AND AUTHORIZATION, AND THAT NO RIGHT IS GRANTED TO DISCLOSE OR SO USE ANY INFORMATION CONTAINED IN SAD DOCUMENT. THIS RESTRICTION DOES NOT LIMIT THE RIGHT TO USE INFORMATION OBTAINED FROM ANOTHER SOURCE.	NEXT ASSY.	TOLERANCES EXCEPT AS SHOWN		
		.X: ±.1 .XX: ±.03 .XXX: ±.010 X.X°: ±.5° BREAK ALL SHARP EDGES .01 ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED		TITLE: COMPRESSOR INTALLATION
	APPROVED BY:	DATE:		DRAWN BY: JTYE DATE: 05/28/03 REV.: C SCALE: N/A SHEET: 1 OF 1
				APPLICATION: AS350 DWG. NO.: 6-22-AS350

## **Step 9**

# **Installation of Electrical**

### Installation of Electrical

STEP	PROCEDURE	MECH	INSP
9.1	(Intentionally left blank)		
9.2	(Intentionally left blank)		
9.3	(Intentionally left blank)		
9.4	Install and route the electrical harness, P/N 540044-4 config. -01 or -02, per Drawing 2-29-AS350, 2-11-AS350 and 2-21 AS350. Install EMI-RFI filter per drawing 2-11-AS350 View A with hardware shown.		
9.5	Install and route electrical harness P/N 540045-1 using 1 ea. 8 x #10 Ring Terminal and ANL-50 Limiter (not incl.).		
9.6	Install Instrument Panel Switch P/N 540044-8 config. -01 or -02, per drawing 5-26-AS350.		
9.7	Install aft switch assembly P/N 540089 config. -01 or -02, per drawings 5-10-AS350, 2-29-AS350, 2-11-AS350 and 2-21-AS350		

REVISION RECORD				
REV	DATE	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	05/17/02	CONVERTED TO AUTOCAD.		
B	09/01/14	CHANGE TITLE BLOCK AND REVISION BLOCK.		AJC

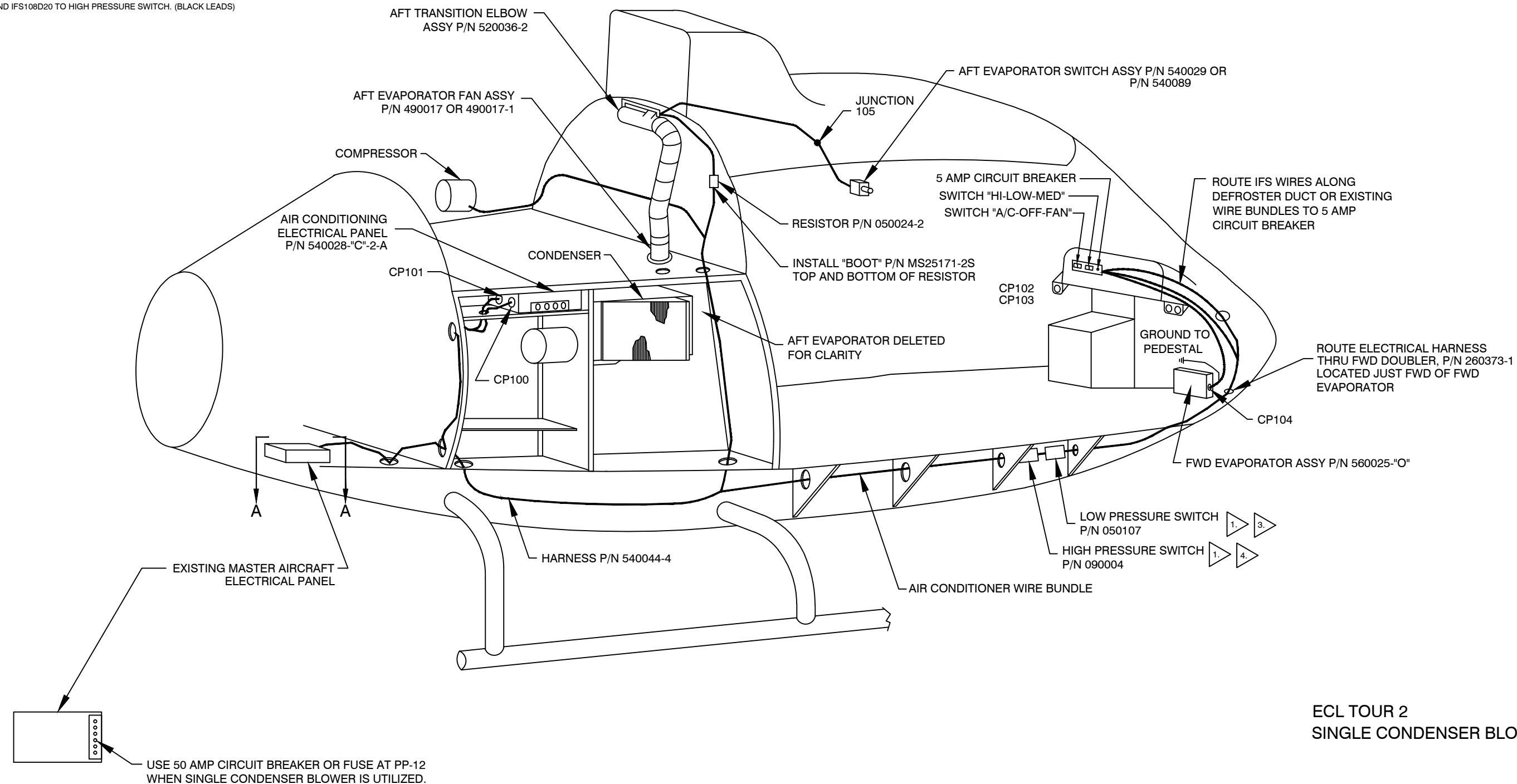
SEE ECO 0778

NOTES:

USE EXISTING LIGHTENING HOLES ONLY FOR ALL ROUTING OR SECURE WIRES TO EXISTING BUNDLES OR REFRIGERATION HOSE USING TY-WRAPPS, STAND-OFFS, AND SPACERS BLOCKS AS REQUIRED.

- 1 LOCATION OF PRESSURE SWITCHES WHEN R-134a IS UTILIZED.
- 2 ON B3 MODELS IFS WIRE ROUTING MUST BE ACCORDANCE WITH THIS DRAWING.
- 3 INSTALL IFS104C14 TO LOW PRESSURE SWITCH. (BLUE LEADS)
- 4 INSTALL IFS108B20 AND IFS108D20 TO HIGH PRESSURE SWITCH. (BLACK LEADS)

D  
C  
B  
A



ECL TOUR 2  
SINGLE CONDENSER BLOWER

VIEW A-A

USE 50 AMP CIRCUIT BREAKER OR FUSE AT PP-12 WHEN SINGLE CONDENSER BLOWER IS UTILIZED.

<b>PROPRIETARY NOTICE</b> TO ALL PERSONS RECEIVING THIS DOCUMENT THIS DOCUMENT AND INFORMATION OR TECHNICAL DATA AND DESIGNS CONTAINED HEREIN ARE PROPRIETARY DATA AND EXCLUSIVE PROPERTY OF RSG PRODUCTS INC. AND IS DELIVERED ON THE EXPRESS CONDITION THAT NEITHER THIS DOCUMENT NOR THE INFORMATION CONTAINED HEREIN SHALL BE DISCLOSED TO OTHERS, REPRODUCED IN WHOLE OR IN PART, OR USED FOR THE MANUFACTURE OR FABRICATION OF PARTS FOR ANYONE OTHER THAN RSG PRODUCTS INC. WITHOUT WRITTEN CONSENT AND AUTHORIZATION, AND THAT NO RIGHT IS GRANTED TO DISCLOSE OR SO USE ANY INFORMATION CONTAINED IN SAID DOCUMENT. THIS RESTRICTION DOES NOT LIMIT THE RIGHT TO USE INFORMATION OBTAINED FROM ANOTHER SOURCE.	NEXT ASSY.	TOLERANCES EXCEPT AS SHOWN		
		.X: ±.1 .XX: ±.03 .XXX: ±.010 X.X°: ±.5° BREAK ALL SHARP EDGES .01 ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED		TITLE: ELECTRICAL ROUTING
	APPROVED BY:	DATE:	DRAWN BY: BT	DATE: 05/17/02 REV.: B SCALE: N/A SHEET: 1 OF 1
			APPLICATION: AS350	DWG. NO.: 2-29-AS350

8 7 6 5 4 3 2 1



# ENGINEERING CHANGE ORDER

ECO No.	0778	SHT 1 OF 2
DWG No.	2-29-AS350	REV B
DWG No.		REV
DWG No.		REV

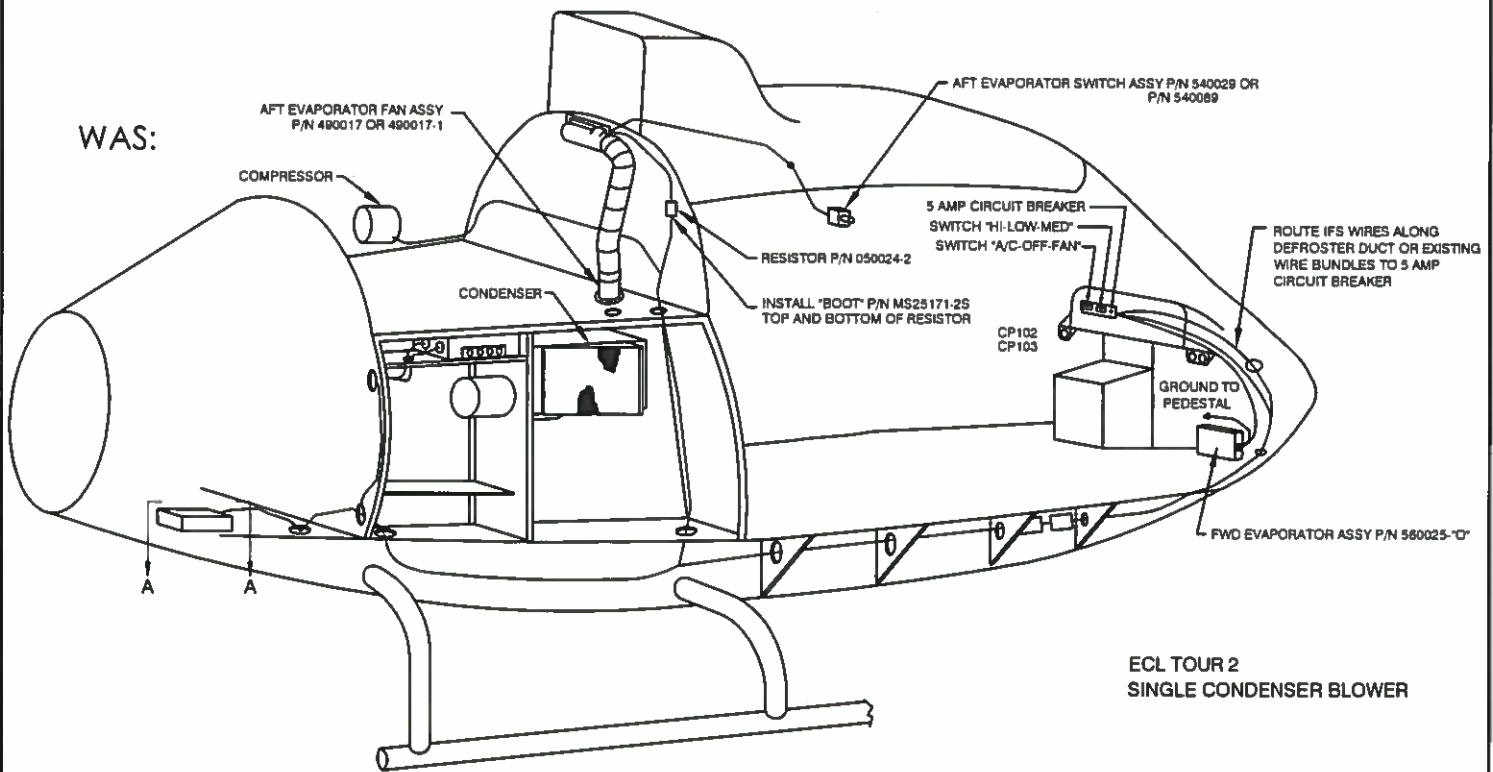
REF. STC No. **SH3509SW**

CHANGE CLASS:  
 RECORD CHG. PARTS NOT AFFECTED     NON-INTERCHANGEABLE PARTS  
 INTERCHANGEABLE PARTS                     OTHER \_\_\_\_\_

EXISTING/IN-WORK STOCK DISPOSITION:  
 RECORD CHG. PARTS NOT AFFECTED     RE-WORK EXISTING STOCK  
 SCRAP EXISTING STOCK                       OTHER BREAK IN AT NEXT BUILD

EFFECTIVITY:  
 ALL UNITS THIS CUSTOMER                     LIMITED UNITS SPECIFIED  
 ALL UNITS MFG'D AFTER THIS DATE     OTHER \_\_\_\_\_

**DESCRIPTION OF CHANGE:**  
 REMOVE RESISTOR AND ASSOCIATED COMPONENTS. ADDED AND REMOVED PART NUMBERS TO NOTE CALL OUTS. UPDATED FORWARD AIR OUTLETS, FWD EVAP, AND INSTRUMENT PANEL. ADDED NOTES 5-11.



REMARKS:  
 MINOR CHANGE FOR PRODUCT IMPROVEMENT.

ENGINEERING REVIEW BOARD		
SIGNATURE	STAMP	DATE
<i>[Signature]</i>	ERB04	5/27/2015
<i>[Signature]</i>	PO16	5/28/2015
<i>[Signature]</i>	QA11	5/28/2015
INCORPORATION STATUS		
<input type="checkbox"/> IMMEDIATE <input checked="" type="checkbox"/> OUTSTANDING		

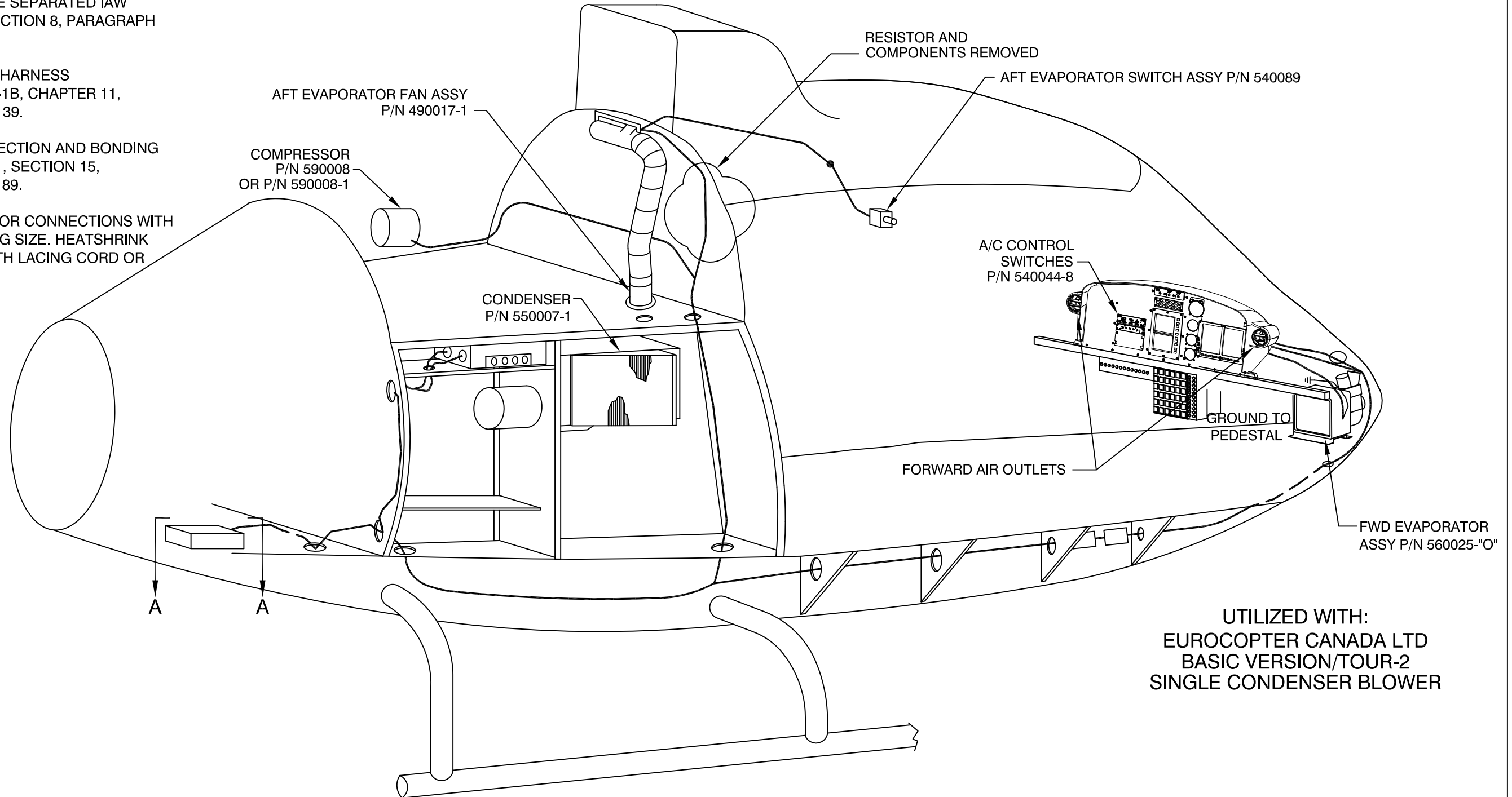


ENGINEERING  
CHANGE  
ORDER

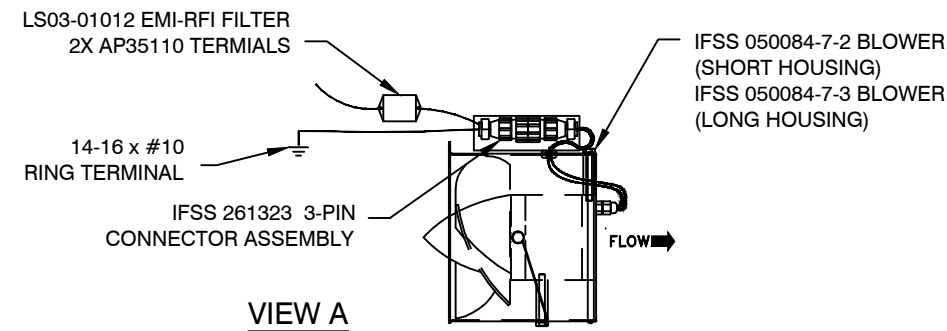
ECO No. 0778	SHT 2 OF 2
DWG No. 2-29-AS350	REV B
DWG No.	REV
DWG No.	REV
REF. STC No. SH3509SW	

IS:

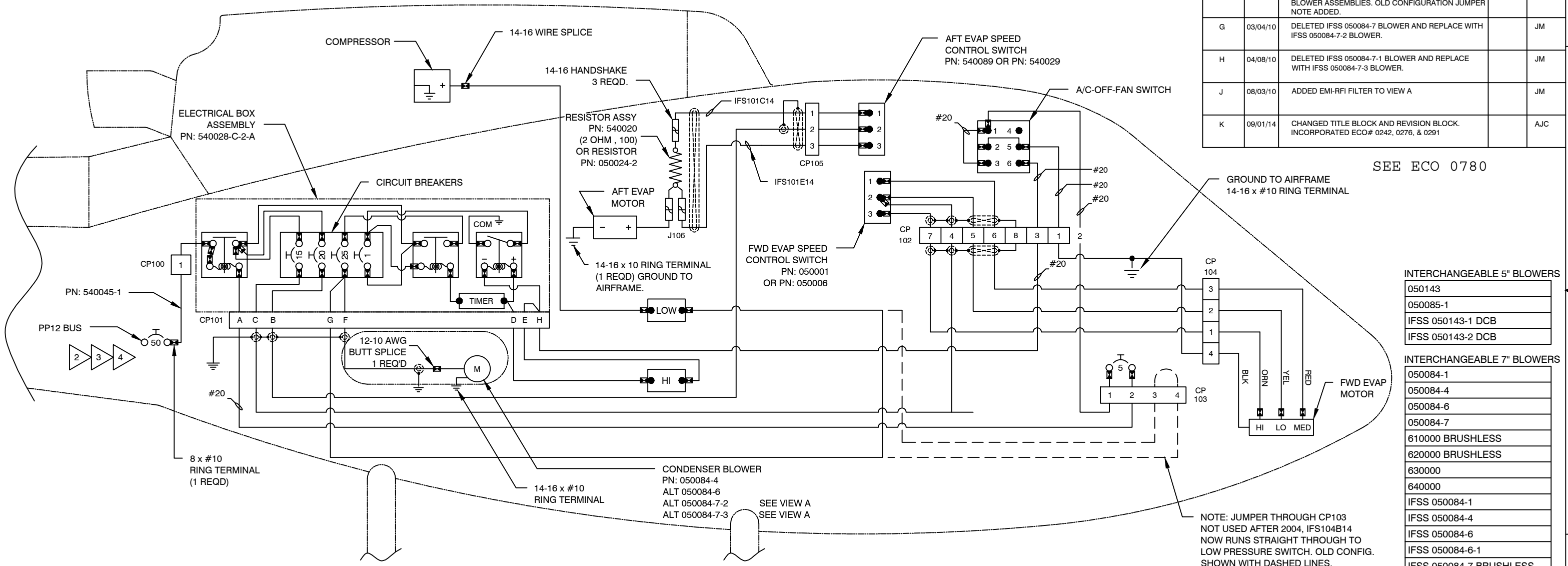
5. ROUTE AND SUPPORT WIRING HARNESSES IAW AC43.13-1B, CHAPTER 11 SECTION 8, PARAGRAPH 11-96.
6. CLAMP WIRING HARNESS IAW AC43.13-1B, CHAPTER 11, SECTION 11, PARAGRAPH 11-146.
7. CLAMP AND ROUTE WIRES AROUND MOVABLE CONTROLS IAW AC43.13-1B, CHAPTER 11, SECTION 9, PARAGRAPH 11-125.
8. WIRING AND HARNESS TO BE SEPARATED IAW AC43.13-1B, CHAPTER 11, SECTION 8, PARAGRAPH 11-105 AND 11-106.
9. INSTALL SERVICE LOOPS AT HARNESS TERMINATIONS IAW AC43.13-1B, CHAPTER 11, SECTION 9, PARAGRAPH 11-139.
10. INSTALL GROUNDING CONNECTION AND BONDING IAW AC43.13-1B, CHAPTER 11, SECTION 15, PARAGRAPH 11-186 AND 11-189.
11. COVER ALL KNIFE CONNECTOR CONNECTIONS WITH PROPER HEATSHRINK TUBING SIZE. HEATSHRINK TUBING TO BE SECURED WITH LACING CORD OR SMALL TIE WRAPS.



- NOTES:
- 1 ALL WIRE MIL-W-22759/16 & MIL-W-22759/16. ALL WIRE 14ga UNLESS OTHERWISE SPECIFIED.
  - 2 FUSES MAY BE USED, P/N 100FU01-050 (50AMP).
  - 3 LOCATE #8 WIRE AT T4, T5, T6, OR T7 (INSTALL 50 AMP FUSE IF NOT PRESENT, SEE NOTE 2)
  - 4 WHEN ALL EUROCOPTER FUSES OR C/B LOCATIONS ARE UTILIZED, A "AUX" CURRENT LIMITER BASE FU1541-501, BRACKET/SUPPLY BAR AND CURRENT LIMITER MAY BE INSTALLED AT F9 OR F10 PER EUROCOPTERS COMPONENT MAINTENANCE MANUAL. IFS P/N FOR LIMITER BASE IS 050023. IFS P/N FOR LIMITER, 50 A, P IS 050015-2.



REVISION RECORD				
REV	DATE	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	01/21/99	ADDED T-4, T-5, F8, AND F9 TO NOTE 3, REWORDED NOTE 1. CHANGED PP-2 TO PP-12. ADDS B3.		
B	05/10/99	ADDED ALT BLOWER IFS PN: 050084-6, EVAP BREAKER WAS 15 AMP, IS 20 AMP. CHANGED LOCATION OF LOW SWITCH.		
C	08/16/00	ADDED ALT BLOWER IFS PN: 050084-7, REVISED DRAWING, NUMBER WAS 2-AS350 SHEET 1 OF 3. CORRECTED NOTES 1, 2 AND 3. ADDED NOTE 4.		
D	04/15/02	CONVERTED TO AUTOCAD.		
E	01/03/07	ADDED ALT. RESISTOR ASSEMBLY PN: 540020. REDRAWN FOR CLARITY. REVISED TITLE BLOCK.	LA	JTYE
F	03/31/09	ADDED LISTING OF INTERCHANGEABLE 5 AND 7" BLOWER ASSEMBLIES. OLD CONFIGURATION JUMPER NOTE ADDED.	MLD	JTYE
G	03/04/10	DELETED IFSS 050084-7 BLOWER AND REPLACE WITH IFSS 050084-7-2 BLOWER.		JM
H	04/08/10	DELETED IFSS 050084-7-1 BLOWER AND REPLACE WITH IFSS 050084-7-3 BLOWER.		JM
J	08/03/10	ADDED EMI-RFI FILTER TO VIEW A		JM
K	09/01/14	CHANGED TITLE BLOCK AND REVISION BLOCK. INCORPORATED ECO# 0242, 0276, & 0291		AJC



SEE ECO 0780

INTERCHANGEABLE 5" BLOWERS	
050143	
050085-1	
IFSS 050143-1 DCB	
IFSS 050143-2 DCB	
INTERCHANGEABLE 7" BLOWERS	
050084-1	
050084-4	
050084-6	
050084-7	
610000 BRUSHLESS	
620000 BRUSHLESS	
630000	
640000	
IFSS 050084-1	
IFSS 050084-4	
IFSS 050084-6	
IFSS 050084-6-1	
IFSS 050084-7 BRUSHLESS	
IFSS 050084-7-1 BRUSHLESS	
IFSS 050084-7-2 BRUSHLESS	
IFSS 050084-7-3 BRUSHLESS	

NOTE: JUMPER THROUGH CP103 NOT USED AFTER 2004, IFS104B14 NOW RUNS STRAIGHT THROUGH TO LOW PRESSURE SWITCH. OLD CONFIG. SHOWN WITH DASHED LINES.

**AS350**  
**ELECTRICAL WIRING DIAGRAM**  
 (CORP, EMS, TOUR 2, LAW ENF.)  
 FOR SINGLE CONDENSER BLOWER  
 ADDS B3 TO PREVIOUS APPROVALS

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	APPROVED BY:	.X: ±.1 .XX: ±.03 .XXX: ±.010 X.X": ±.5° BREAK ALL SHARP EDGES .01 ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED DATE:

**RSG PRODUCTS INC.**  
 A ROTORCRAFT SERVICES GROUP COMPANY

TITLE:  
**ELECTRICAL DIAGRAM**

DRAWN BY: MAH	DATE: 04/15/02	REV.: K	SCALE: N/A	SHEET: 1 OF 1
APPLICATION: AS350			DWG. NO.: 2-11-AS350	

CHANGE CLASS:  
 RECORD CHG. PARTS NOT AFFECTED     NON-INTERCHANGEABLE PARTS  
 INTERCHANGEABLE PARTS     OTHER \_\_\_\_\_

EXISTING/IN-WORK STOCK DISPOSITION:  
 RECORD CHG. PARTS NOT AFFECTED     RE-WORK EXISTING STOCK  
 SCRAP EXISTING STOCK     OTHER BREAK IN AT NEXT BUILD

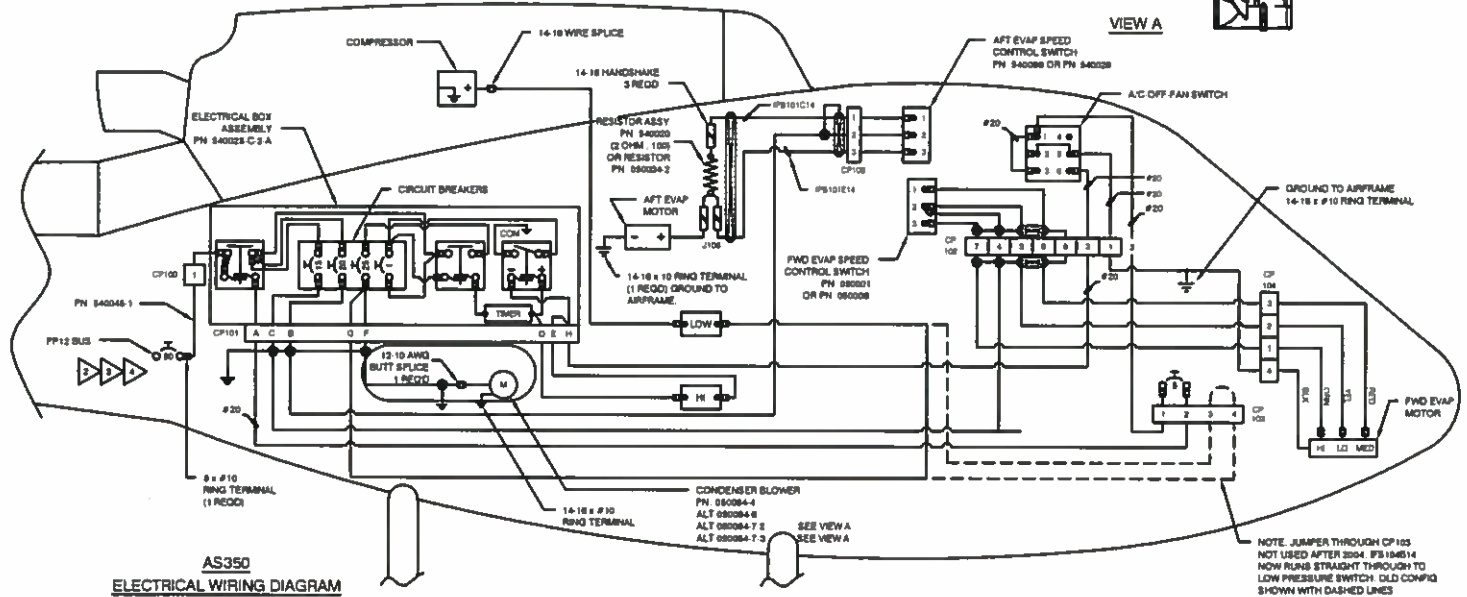
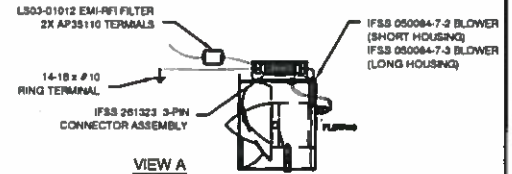
EFFECTIVITY:  
 ALL UNITS THIS CUSTOMER     LIMITED UNITS SPECIFIED  
 ALL UNITS MFG'D AFTER THIS DATE     OTHER \_\_\_\_\_

**DESCRIPTION OF CHANGE:**

ADDED SHEET 2 TO DRAWING, SHEET 1 OF 2 DEPICTS CONFIGURATION -01, SHEET 2 OF 2 DEPICTS CONFIGURATION -02. REVISED NOTES AND UPDATED WIRING LAYOUT FOR THE USE OF MICROSWITCHES AND BRUSHLESS AFT MOTORS. REMOVED RESISTOR, SHIELDED WIRES AND ADDED OPTIONAL EMI FILTERS.

**WAS: NOTES:**

1. ALL WIRE MIL-W-22759/16 & MIL-L-22759/18. ALL WIRE 14ga UNLESS OTHERWISE SPECIFIED.
2. FUSES MAY BE USED, P/N 100FU01-050 (50AMP).
3. LOCATE #8 WIRE AT T4, T5, T6, OR T7 (INSTALL 50 AMP FUSE IF NOT PRESENT, SEE NOTE 2)
4. WHEN ALL EUROCOPTER FUSES OR C/B LOCATIONS ARE UTILIZED, A "AUX" CURRENT LIMITER BASE P/N FU1541-501, BRACKET/SUPPLY BAR AND CURRENT LIMITER MAY BE INSTALLED AT F9 OR F10 PER EUROCOPTERS COMPONENT MAINTENANCE MANUAL. IFS P/N FOR LIMITER BASE IS 050023. IFS P/N FOR LIMITER, 50 AMP IS 050015-2.



**AS350**  
ELECTRICAL WIRING DIAGRAM  
(CORP. EMS. TOUR 2, LAW ENF.)  
FOR SINGLE CONDENSER BLOWER  
ADDS B3 TO PREVIOUS APPROVALS

**REMARKS:**  
MINOR CHANGE FOR PRODUCT IMPROVEMENT.

ENGINEERING REVIEW BOARD		
SIGNATURE	STAMP	DATE
<i>[Signature]</i>	ERB04	5/27/2015
<i>[Signature]</i>	PO16	5/28/2015
<i>[Signature]</i>	QA11	5/28/2015
INCORPORATION STATUS		
<input type="checkbox"/> IMMEDIATE	<input checked="" type="checkbox"/> OUTSTANDING	



SHEET 1:  
IS:



**E**NGINEERING  
**C**HANGE  
**O**RDERS

ECO No. 0780	SHT 2 OF 3
DWG No. 2-11-AS350	REV K
DWG No.	REV
DWG No.	REV
REF. STC No. SH3509SW	

NOTES:

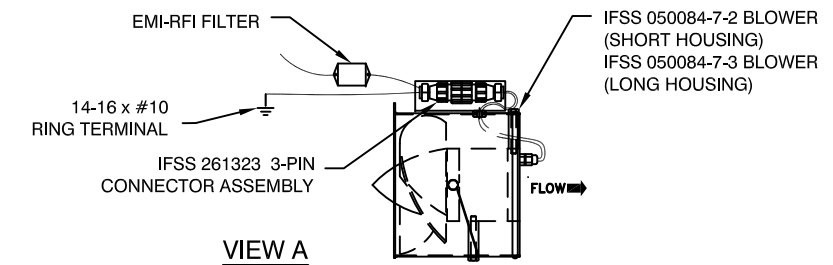
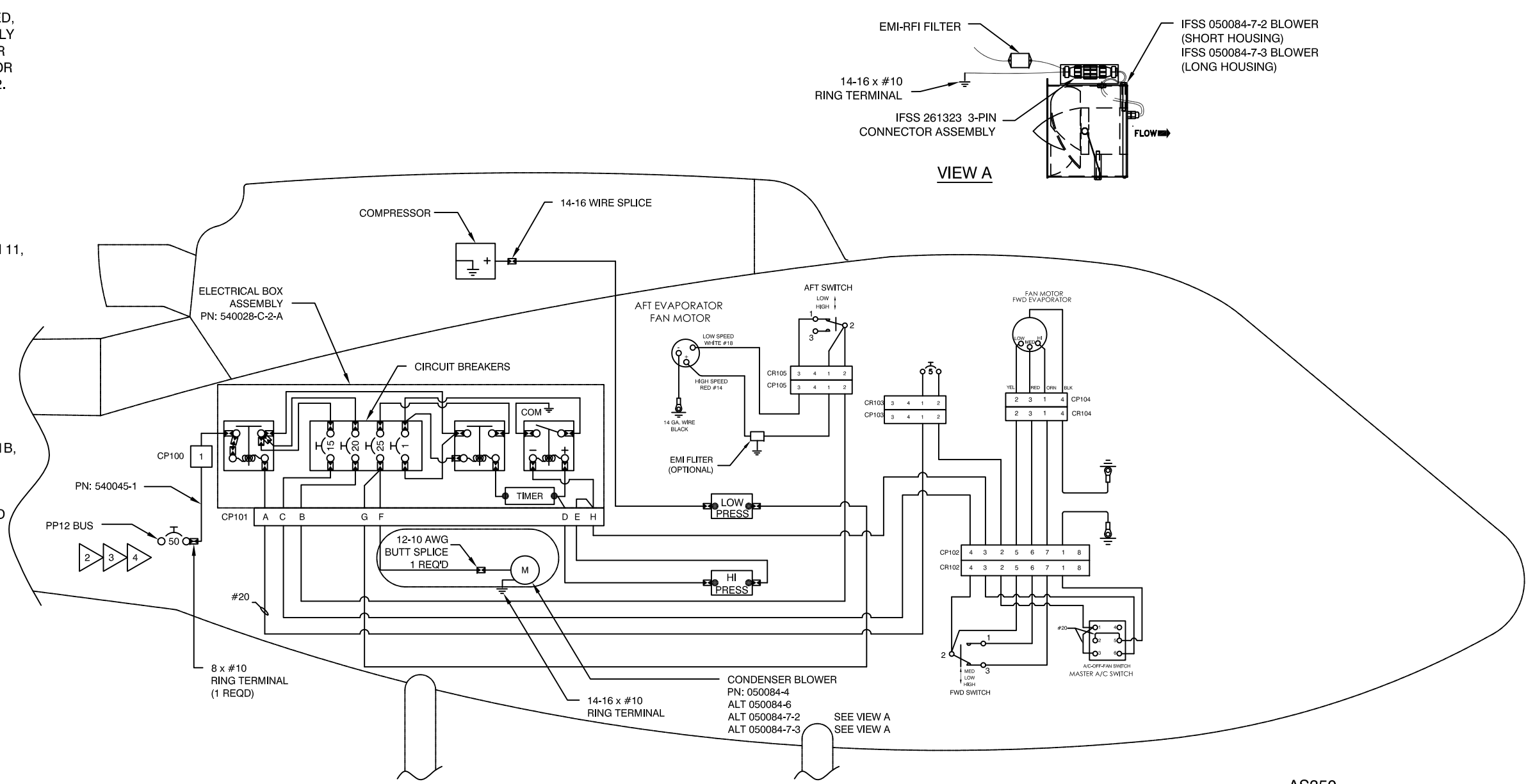
- ALL WIRE MIL-W-22759/16.  
ALL WIRE 14ga UNLESS OTHERWISE SPECIFIED.
- FUSES MAY BE USED, P/N 100FU01-050 (50AMP).
- LOCATE #8 WIRE AT T4, T5, T6, OR T7 (INSTALL 50 AMP FUSE IF NOT PRESENT, SEE NOTE 2)
- WHEN ALL EUROCOPTER FUSES OR C/B LOCATIONS ARE UTILIZED, A "AUX" CURRENT LIMITER BASE P/N FU1541-501, BRACKET/SUPPLY BAR AND CURRENT LIMITER MAY BE INSTALLED AT F9 OR F10 PER EUROCOPTERS COMPONENT MAINTENANCE MANUAL. IFS P/N FOR LIMITER BASE IS 050023. IFS P/N FOR LIMITER, 50 AMP IS 050015-2.
- RFI CORP. EMI FILTER MODEL NUMBER 13619-RF16883.
- FOR BACKLIGHTING, MODELS B2/B3, CONNECT TO 131-L1, ANY AVAILABLE PIN.
- ROUTE AND SUPPORT WIRING HARNESSES IAW AC43.13-1B, CHAPTER 11 SECTION 8, PARAGRAPH 11-96.
- CLAMP WIRING HARNESS IAW AC43.13-1B, CHAPTER 11, SECTION 11, PARAGRAPH 11-146.
- CLAMP AND ROUTE WIRES AROUND MOVABLE CONTROLS IAW AC43.13-1B, CHAPTER 11, SECTION 9, PARAGRAPH 11-125.
- WIRING AND HARNESS TO BE SEPARATED IAW AC43.13-1B, CHAPTER 11, SECTION 8, PARAGRAPH 11-105 AND 11-106.
- INSTALL SERVICE LOOPS AT HARNESS TERMINATIONS IAW AC43.13-1B, CHAPTER 11, SECTION 9, PARAGRAPH 11-139.
- INSTALL GROUNDING CONNECTION AND BONDING IAW AC43.13-1B, CHAPTER 11, SECTION 15, PARAGRAPH 11-186 AND 11-189.
- COVER ALL KNIFE CONNECTOR CONNECTIONS WITH PROPER HEATSHRINK TUBING SIZE. HEATSHRINK TUBING TO BE SECURED WITH LACING CORD OR SMALL TIE WRAPS.

INTERCHANGEABLE 5" BLOWERS

050143
IFSS 050143-1 DCB
IFSS 050143-2 DCB

INTERCHANGEABLE 7" BLOWERS

050084-1
050084-4
050084-6
050084-7
IFSS 050084-1
IFSS 050084-4
IFSS 050084-6
IFSS 050084-6-1
IFSS 050084-7-2 BRUSHLESS
IFSS 050084-7-3 BRUSHLESS



-01

USE THIS SCHEMATIC FOR AFT EVAP. BRUSHLESS FAN MOTOR. WHEN OPTIONAL EMI FILTER (P/N: 13619-RF16883) INSTALLED, TERMINATE FILTER INPUT AND OUTPUT TERMINALS WITH P/N: 51864-2. GROUND TERMINAL WITH P/N: 51864-1

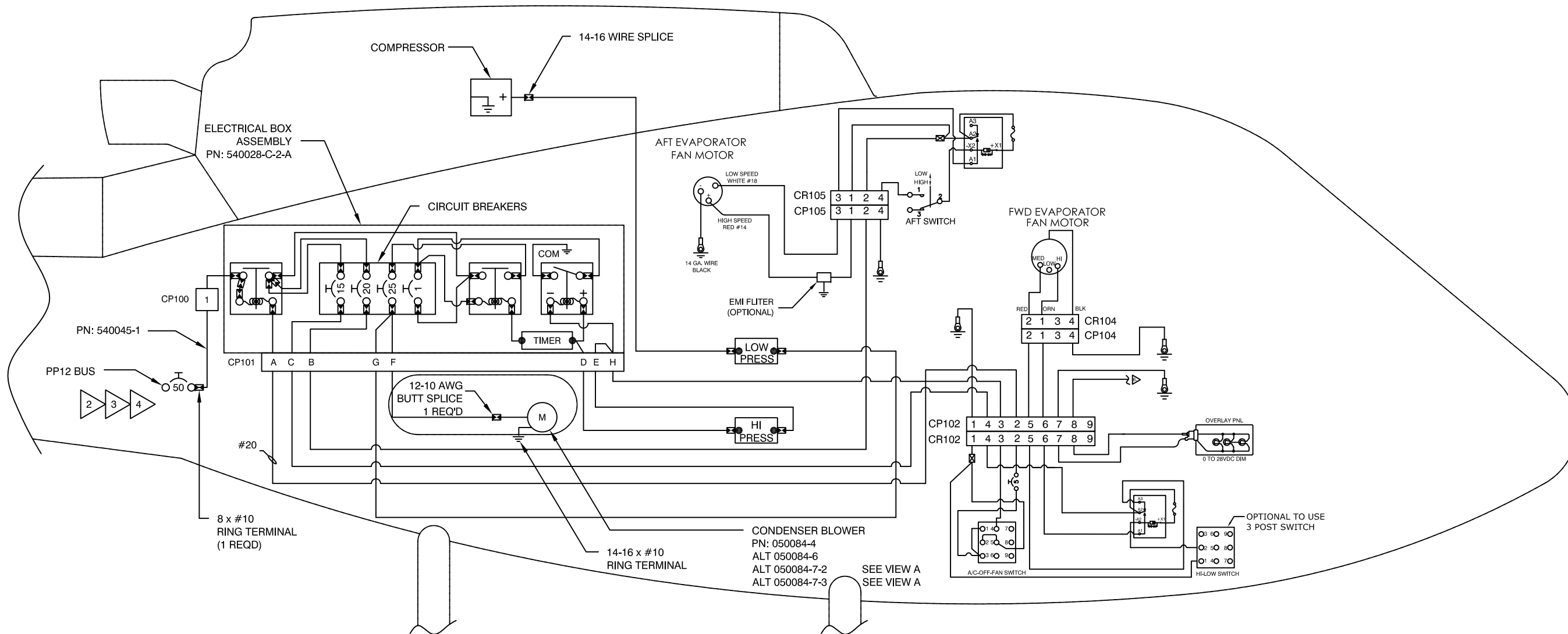
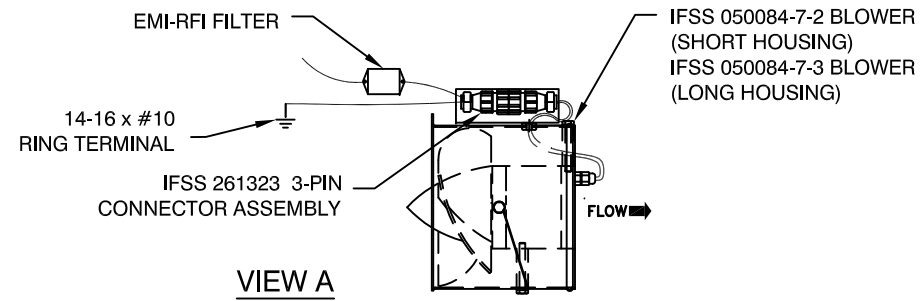
AS350  
ELECTRICAL WIRING DIAGRAM  
(BASIC, CORP, EMS, TOUR 2, LAW ENF.)  
FOR SINGLE CONDENSER BLOWER  
ADDS B3 TO PREVIOUS APPROVALS

SHEET 2:  
IS:



**E**NGINEERING  
**C**HANGE  
**O**RDER

ECO No. 0780	SHT 3 OF 3
DWG No. 2-11-AS350	REV K
DWG No.	REV
DWG No.	REV
REF. STC No. SH3509SW	



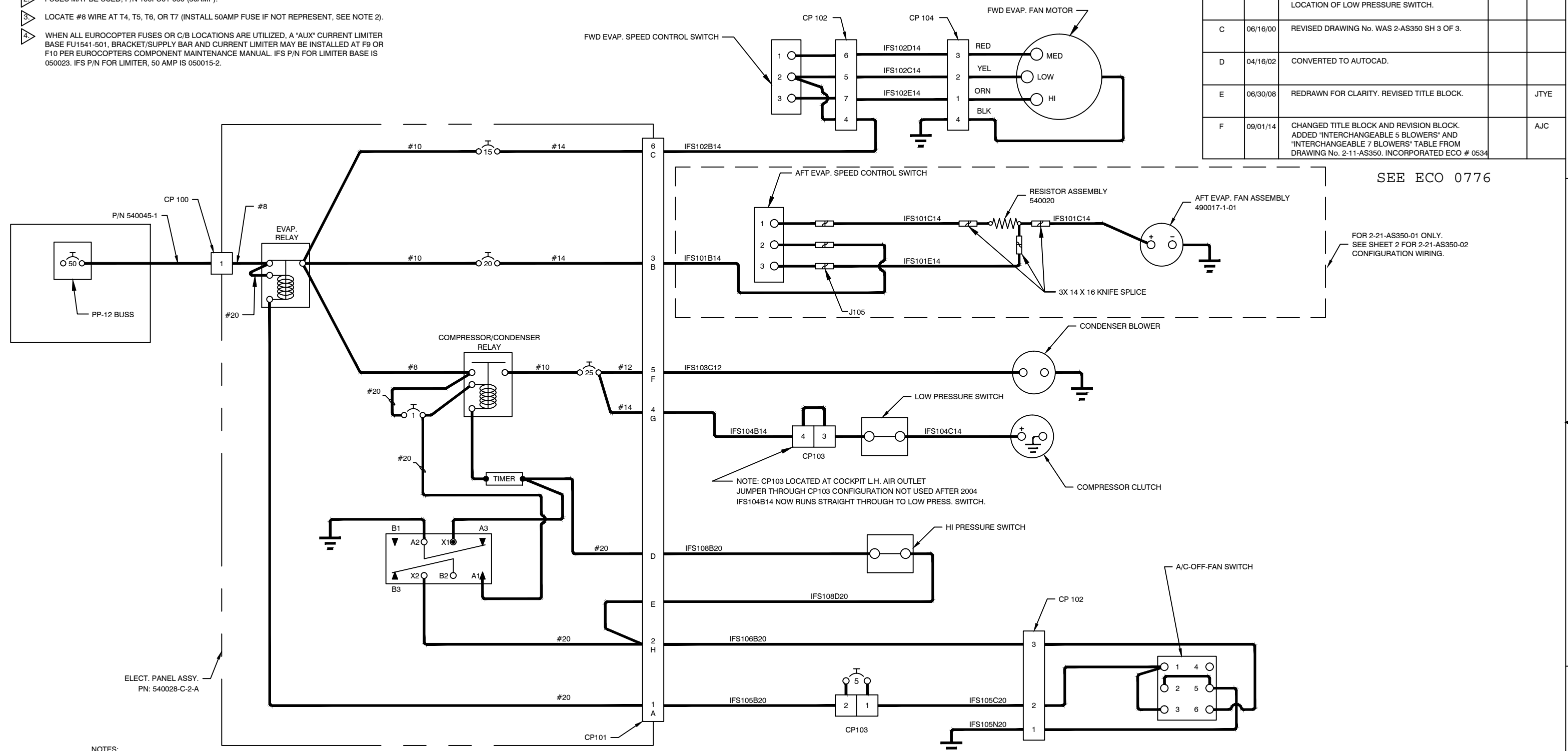
-02

USE THIS SCHEMATIC FOR MICROSWITCHES AND AFT EVAP. BRUSHLESS FAN MOTOR. WHEN OPTIONAL EMI FILTER (P/N: 13619-RF16883) INSTALLED, TERMINATE FILTER INPUT AND OUTPUT TERMINALS WITH P/N: 51864-2. GROUND TERMINAL WITH P/N: 51864-1

NOTES:

- 1. ALL WIRE MIL-W-22759/16. ALL WIRE 14ga UNLESS OTHERWISE SPECIFIED.
- 2. FUSES MAY BE USED, P/N 100FU01-050 (50AMP).
- 3. LOCATE #8 WIRE AT T4, T5, T6, OR T7 (INSTALL 50AMP FUSE IF NOT REPRESENT, SEE NOTE 2).
- 4. WHEN ALL EUROCOPTER FUSES OR C/B LOCATIONS ARE UTILIZED, A "AUX" CURRENT LIMITER BASE FU1541-501, BRACKET/SUPPLY BAR AND CURRENT LIMITER MAY BE INSTALLED AT F9 OR F10 PER EUROCOPTERS COMPONENT MAINTENANCE MANUAL. IFS P/N FOR LIMITER BASE IS 050023. IFS P/N FOR LIMITER, 50 AMP IS 050015-2.

REVISION RECORD				
REV	DATE	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	01/21/99	WAS PP-2, IS PP-12. DELETED REMAINDER OF NOTE. ADDS B3		
B	05/10/99	EVAP BREAKER WAS 15 AMP. IS 20 AMP. CHANGED LOCATION OF LOW PRESSURE SWITCH.		
C	06/16/00	REVISED DRAWING No. WAS 2-AS350 SH 3 OF 3.		
D	04/16/02	CONVERTED TO AUTOCAD.		
E	06/30/08	REDRAWN FOR CLARITY. REVISED TITLE BLOCK.		JTYE
F	09/01/14	CHANGED TITLE BLOCK AND REVISION BLOCK. ADDED "INTERCHANGEABLE 5 BLOWERS" AND "INTERCHANGEABLE 7 BLOWERS" TABLE FROM DRAWING No. 2-11-AS350. INCORPORATED ECO # 0534		AJC

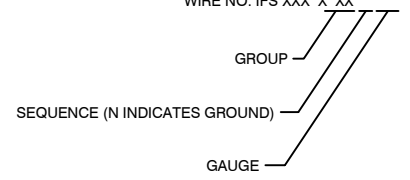


SEE ECO 0776

FOR 2-21-AS350-01 ONLY. SEE SHEET 2 FOR 2-21-AS350-02 CONFIGURATION WIRING.

NOTE: CP103 LOCATED AT COCKPIT L.H. AIR OUTLET JUMPER THROUGH CP103 CONFIGURATION NOT USED AFTER 2004 IFS104B14 NOW RUNS STRAIGHT THROUGH TO LOW PRESS. SWITCH.

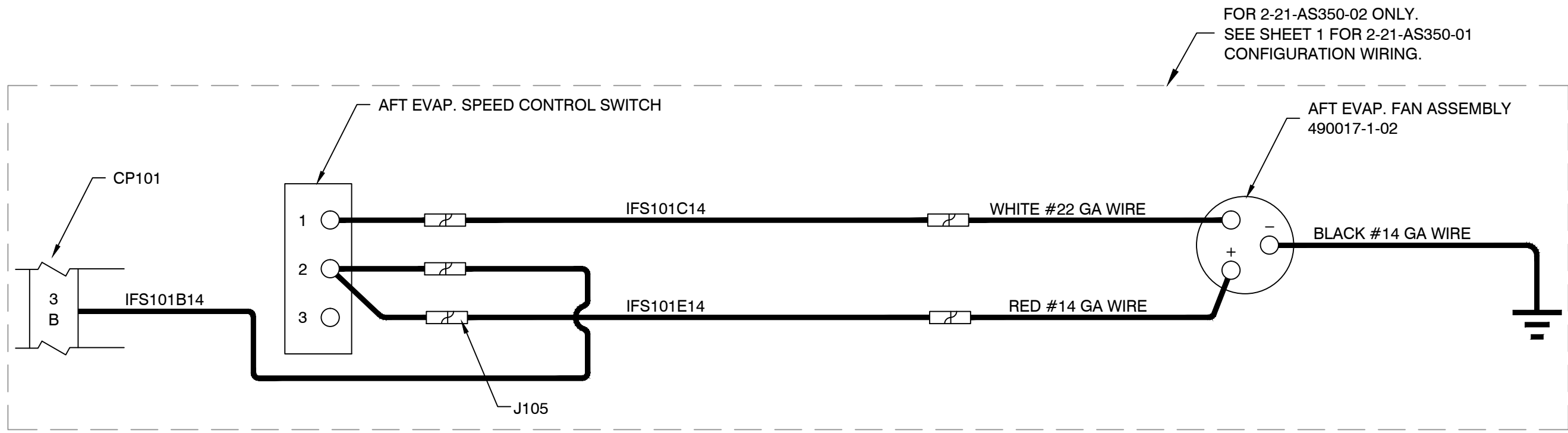
- NOTES:
- 1. SEE 2-5-AS350 SH 1 OF 1 FOR WIRE SPLICE LOC.
  - 2. WIRE SPEC: MIL-W-22759/16 WIRE NO. IFS XXX X XX



**AS350  
ELECTRICAL WIRING DIAGRAM  
FOR SINGLE CONDENSER BLOWER  
B3 ADDED TO PREVIOUS APPROVALS  
(AEC BASIC)**

-01 USE IF FAN ASSEMBLY 490017-1-01 IS INSTALLED (BRUSH)

<p><b>PROPRIETARY NOTICE</b></p> <p>TO ALL PERSONS RECEIVING THIS DOCUMENT THIS DOCUMENT AND INFORMATION OR TECHNICAL DATA AND DESIGNS CONTAINED HEREIN ARE PROPRIETARY DATA AND EXCLUSIVE PROPERTY OF RSG PRODUCTS INC. AND IS DELIVERED ON THE EXPRESS CONDITION THAT NEITHER THIS DOCUMENT NOR THE INFORMATION CONTAINED HEREIN SHALL BE DISCLOSED TO OTHERS, REPRODUCED IN WHOLE OR IN PART, OR USED FOR THE MANUFACTURE OR FABRICATION OF PARTS FOR ANYONE OTHER THAN RSG PRODUCTS INC. WITHOUT WRITTEN CONSENT AND AUTHORIZATION, AND THAT NO RIGHT IS GRANTED TO DISCLOSE OR SO USE ANY INFORMATION CONTAINED IN SAD DOCUMENT. THIS RESTRICTION DOES NOT LIMIT THE RIGHT TO USE INFORMATION OBTAINED FROM ANOTHER SOURCE.</p>	<p>NEXT ASSY.</p>	<p>TOLERANCES EXCEPT AS SHOWN</p> <p>.X: ±.1 .XX: ±.03 .XXX: ±.010 X.X": ±.5° BREAK ALL SHARP EDGES .01 ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED DATE:</p>			
	<p>APPROVED BY:</p>	<p>DATE:</p>		<p>TITLE: <b>ELECTRICAL DIAGRAM</b></p>	
<p>DRAWN BY: MAH</p>		<p>DATE: 04/16/02</p>	<p>REV.: F</p>	<p>SCALE: N/A</p>	<p>SHEET: 1 OF 2</p>
<p>APPLICATION: AS350</p>		<p>DWG. NO.: 2-21-AS350</p>			



-02 USE IF FAN ASSEMBLY 490017-1-02 IS INSTALLED (BRUSHLESS)

INTERCHANGEABLE 5" BLOWERS

050143
050085-1
IFSS 050143-1 DCB
IFSS 050143-2 DCB

INTERCHANGEABLE 7" BLOWERS

050084-1
050084-4
050084-6
050084-7
610000 BRUSHLESS
620000 BRUSHLESS
630000
640000
IFSS 050084-1
IFSS 050084-4
IFSS 050084-6
IFSS 050084-6-1
<del>IFSS 050084-7 BRUSHLESS</del>
<del>IFSS 050084-7-1 BRUSHLESS</del>
IFSS 050084-7-2 BRUSHLESS
IFSS 050084-7-3 BRUSHLESS



**PRODUCTS INC.**  
A ROTORCRAFT SERVICES GROUP COMPANY

TITLE:  
ELECTRICAL DIAGRAM

DRAWN BY: MAH	DATE: 4/16/02	REV.: F	SCALE: N/A	SHEET: 2 OF 2
------------------	------------------	------------	---------------	------------------

APPLICATION: AS350	DWG. NO.: 2-21-AS350
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# ENGINEERING CHANGE ORDER

ECO No. 0776	SHT 1 OF 4
DWG No. 2-21-AS350	REV F
DWG No.	REV
DWG No.	REV
REF. STC No. SH3509SW	

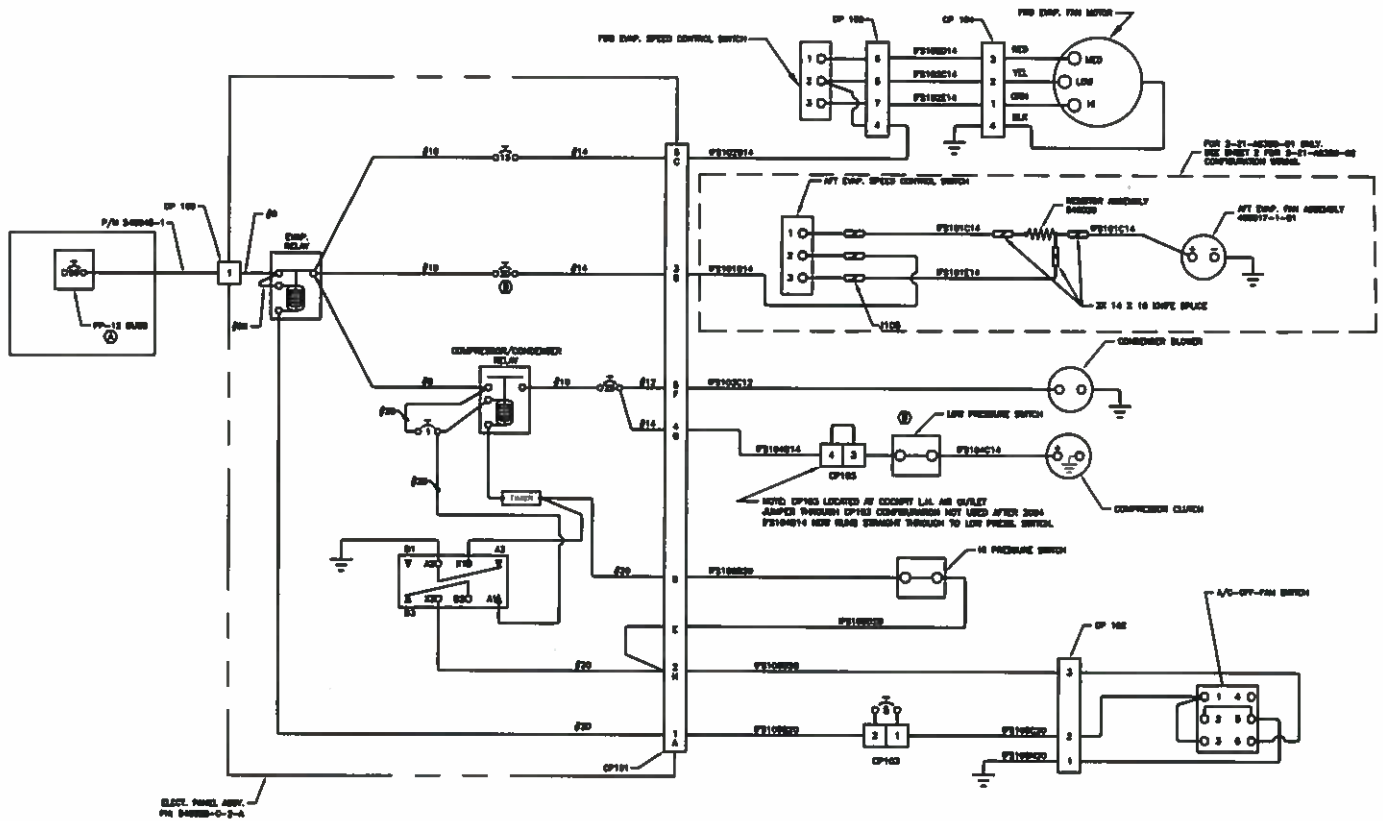
CHANGE CLASS:  
 RECORD CHG. PARTS NOT AFFECTED  NON-INTERCHANGEABLE PARTS  
 INTERCHANGEABLE PARTS  OTHER \_\_\_\_\_

EXISTING/IN-WORK STOCK DISPOSITION:  
 RECORD CHG. PARTS NOT AFFECTED  RE-WORK EXISTING STOCK  
 SCRAP EXISTING STOCK  OTHER BREAK IN AT NEXT BUILD

EFFECTIVITY:  
 ALL UNITS THIS CUSTOMER  LIMITED UNITS SPECIFIED  
 ALL UNITS MFG'D AFTER THIS DATE  OTHER \_\_\_\_\_

DESCRIPTION OF CHANGE:  
 ADDING SHEET 3 OF 3: SHEET 1 OF 1 WILL DEPICT ELECTRICAL BOX WIRING DIAGRAM; SHEET 2 OF 3 WILL DEPICT CONFIGURATION -01: WIRING DIAGRAM USING BRUSHLESS AFT FAN MOTOR WITHOUT MICROSWITCHES; SHEET 3 OF 3 WILL DEPICT -02 CONFIGURATION WIRING DIAGRAM USING BRUSHLESS AFT FAN MOTOR AND MICROSWITCHES. REMOVE RESISTOR AND ADDED OPTIONAL EMI FILTER FOR AFT FAN MOTOR.

SHEET 1 :  
 WAS:



REMARKS:  
 MINOR CHANGE FOR PRODUCT IMPROVEMENT.

ENGINEERING REVIEW BOARD		
SIGNATURE	STAMP	DATE
	ERB04	5/27/2015
	PO16	5/28/2015
	QA H	5/28/2015
INCORPORATION STATUS		
<input type="checkbox"/> IMMEDIATE	<input checked="" type="checkbox"/> OUTSTANDING	

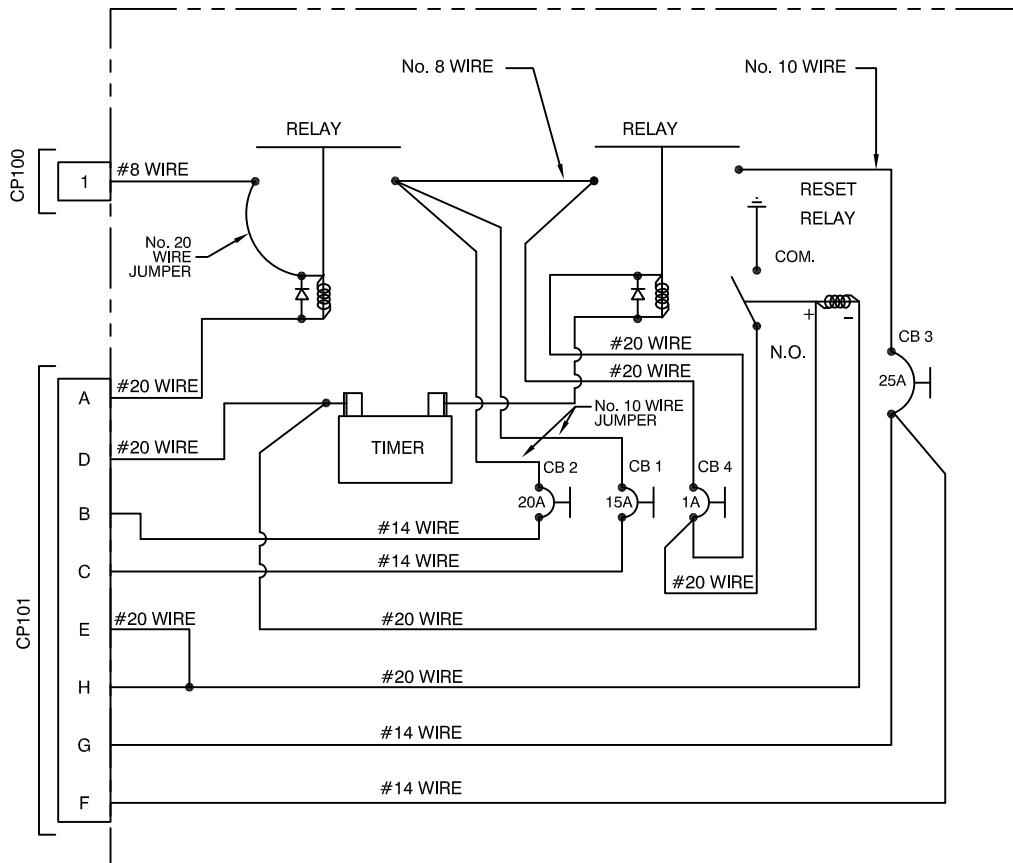
ECO No.	0776	SHT	2 OF 4
DWG No.	2-21-AS350	REV	F
DWG No.		REV	
DWG No.		REV	
REF. STC No.	SH3509SW		

DESCRIPTION OF CHANGE:  
SHEET 1: UPDATED LAYOUT & ADDED NOTES 5 - 13.

NOTES:

5. RFI CORPORATION EMI FILTER MODEL NUMBER 13619-RF16883.
6. FOR BACKLIGHTING, MODELS B2/B3, CONNECT TO 131-L1, ANY AVAILABLE PIN.
7. ROUTE AND SUPPORT WIRING HARNESSES IAW AC43.13-1B, CHAPTER 11 SECTION 8, PARAGRAPH 11-96.
8. CLAMP WIRING HARNESS IAW AC43.13-1B, CHAPTER 11, SECTION 11, PARAGRAPH 11-146.
9. CLAMP AND ROUTE WIRES AROUND MOVABLE CONTROLS IAW AC43.13-1B, CHAPTER 11, SECTION 9, PARAGRAPH 11-125.
10. WIRING AND HARNESS TO BE SEPARATED IAW AC43.13-1B, CHAPTER 11, SECTION 8, PARAGRAPH 11-105 AND 11-106.
11. INSTALL SERVICE LOOPS AT HARNESS TERMINATIONS IAW AC43.13-1B, CHAPTER 11, SECTION 9, PARAGRAPH 11-139.
12. INSTALL GROUNDING CONNECTION AND BONDING IAW AC43.13-1B, CHAPTER 11, SECTION 15, PARAGRAPH 11-186 AND 11-189.
13. COVER ALL KNIFE CONNECTOR CONNECTIONS WITH PROPER HEATSHRINK TUBING SIZE. HEATSHRINK TUBING TO BE SECURED WITH LACING CORD OR SMALL TIE WRAPS.

IS:



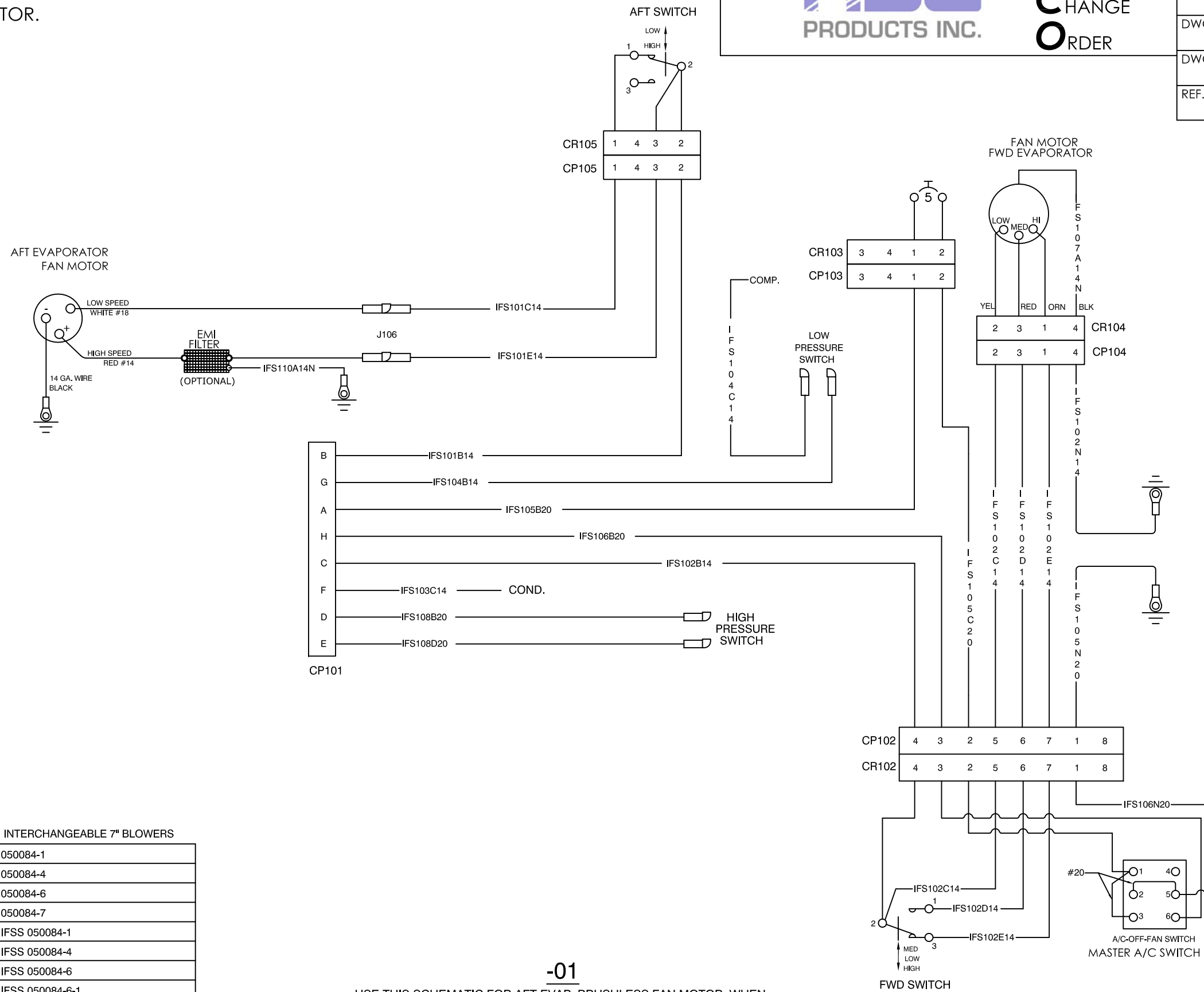
DESCRIPTION OF CHANGE:  
 SHEET 2: CONFIGURATION -01 FOR THE USE OF AFT EVAP. BRUSHLESS FAN MOTOR. CHANGED LAYOUT & REMOVED RESISTOR.



**E**NGINEERING  
**C**HANGE  
**O**RDERS

ECO No. 0776	SHT 3 OF 4
DWG No. 2-21-AS350	REV F
DWG No.	REV
DWG No.	REV
REF. STC No. SH3509SW	

IS:



INTERCHANGEABLE 7" BLOWERS

050084-1
050084-4
050084-6
050084-7
IFSS 050084-1
IFSS 050084-4
IFSS 050084-6
IFSS 050084-6-1
IFSS 050084-7-2 BRUSHLESS
IFSS 050084-7-3 BRUSHLESS

INTERCHANGEABLE 5" BLOWERS

050143
IFSS 050143-1 DCB
IFSS 050143-2 DCB

**-01**

USE THIS SCHEMATIC FOR AFT EVAP. BRUSHLESS FAN MOTOR. WHEN OPTIONAL EMI FILTER (P/N: 13619-RF16883) IS INSTALLED, TERMINATE FILTER INPUT AND OUTPUT TERMINALS WITH P/N: 51864-2. GROUND TERMINAL WITH P/N: 51864-1.

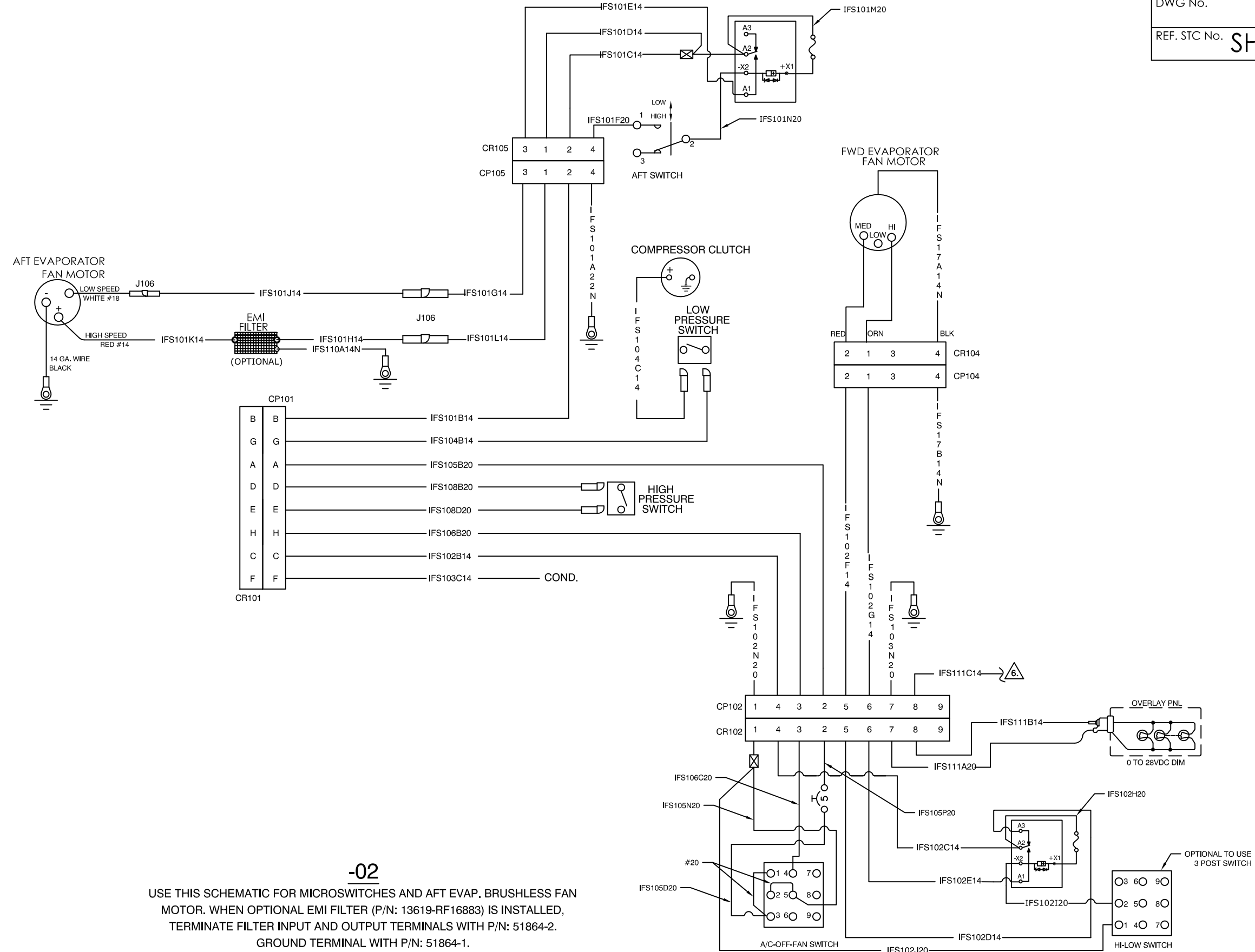
DESCRIPTION OF CHANGE:  
 SHEET 3: CONFIGURATION -02 FOR THE USE OF  
 MICROSWITCHES AND AFT EVAP. BRUSHLESS FAN MOTOR.



**E**NGINEERING  
**C**HANGE  
**O**RDER

ECO No. 0776	SHT 4 OF 4
DWG No. 2-21-AS350	REV F
DWG No.	REV
DWG No.	REV
REF. STC No. SH3509SW	

IS:



**-02**

USE THIS SCHEMATIC FOR MICROSWITCHES AND AFT EVAP. BRUSHLESS FAN MOTOR. WHEN OPTIONAL EMI FILTER (P/N: 13619-RF16883) IS INSTALLED, TERMINATE FILTER INPUT AND OUTPUT TERMINALS WITH P/N: 51864-2. GROUND TERMINAL WITH P/N: 51864-1.



# Step 10

## Installation of Hoses

RSG Products Inc.  
 INSTALLATION OF HOSES – AS350 Air Conditioning

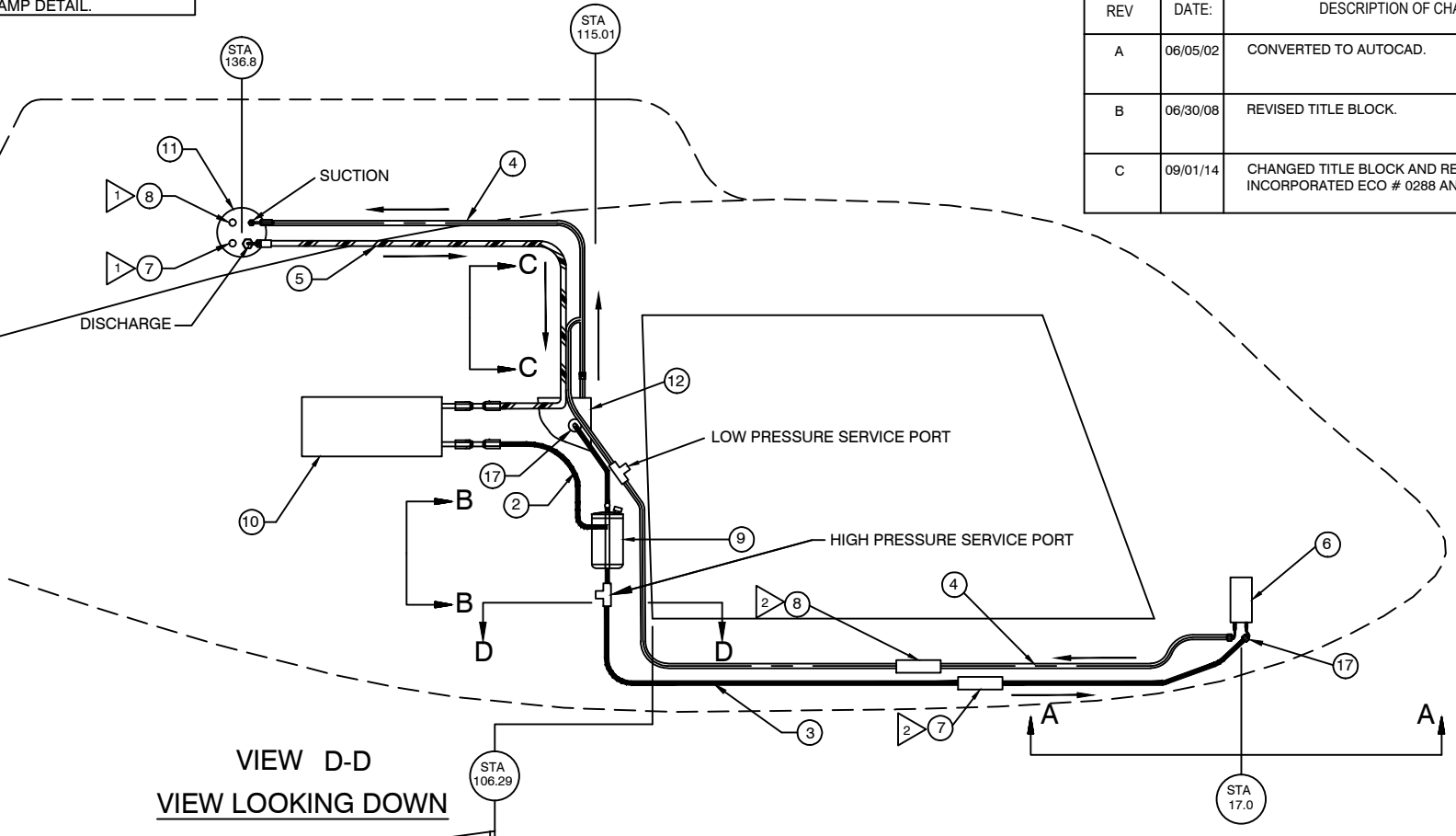
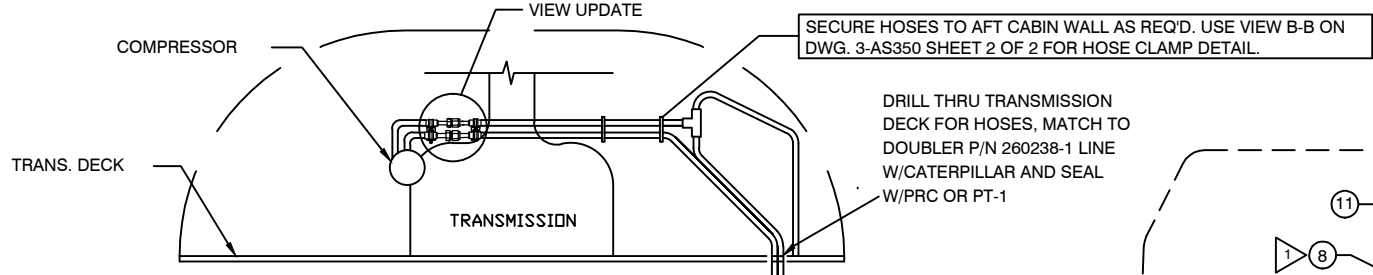
**Installation of hoses**

STEP	PROCEDURE	MECH	INSP
10.1	Review Install Drawings 3-4-AS350 and 3-14-AS350.		
10.2	<b><u>WARNING: Before connecting hoses, be sure all fittings have R134 approved “O” Rings installed.</u></b>		
10.3	Route evaporator return line hose assembly #10 suction hose (tee fitting above deck), P/N 570087-O-A from the upper transmission deck down through the right side baggage compartment, through the existing opening in the baggage compartment floor, under the floor forward to the forward evaporator. The short length of hose connects to the Aft evaporator return fitting above the transmission deck. The longer length above the transmission deck is routed against the cabin back wall to the compressor suction fitting located on the left side of the transmission.		
10.4	Route the evaporator expansion valve supply line high pressure hose assembly #6, P/N 570072-O-A from the baggage department down through the existing opening in the baggage compartment floor, under the floor forward to the forward evaporator. The tee fitting connects to the “out” or supply fitting on the dryer bottle. The short length to the evaporator.		
10.5	Clamp the coil on the end of the expansion valve to the return hose fitting (#10 large line) with a 1-inch band clamp. Assure the fitting is clean where the coil is clamped. Insulate the coil completely with cork tape, P/N 070078-0.		
10.6	Route the condenser supply line hose assembly #8, P/N 570024-“O”-A from the compressor discharge fitting against the cabin back wall to the right side of the transmission deck. Route down the same opening in the transmission deck as the return hose was routed. Connect to condenser. Ref. Drawing No. 3-4-AS350.		

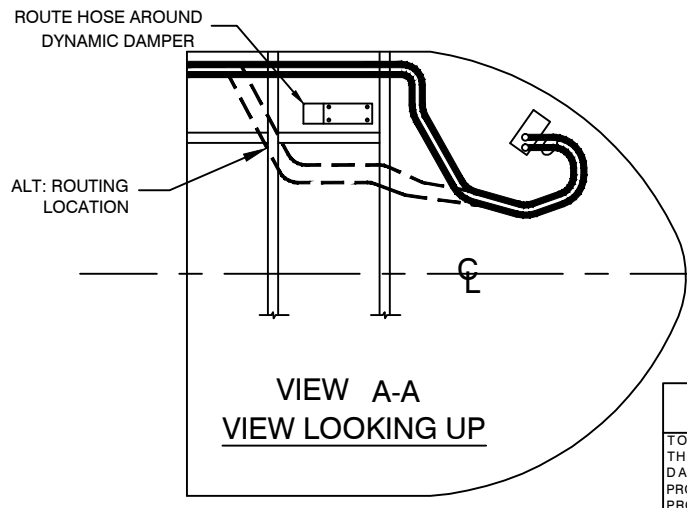
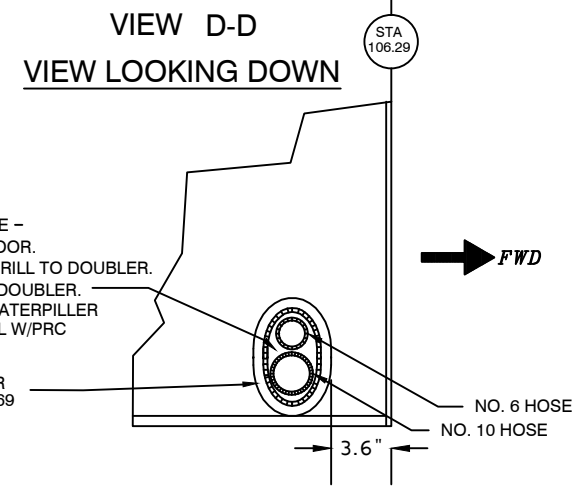
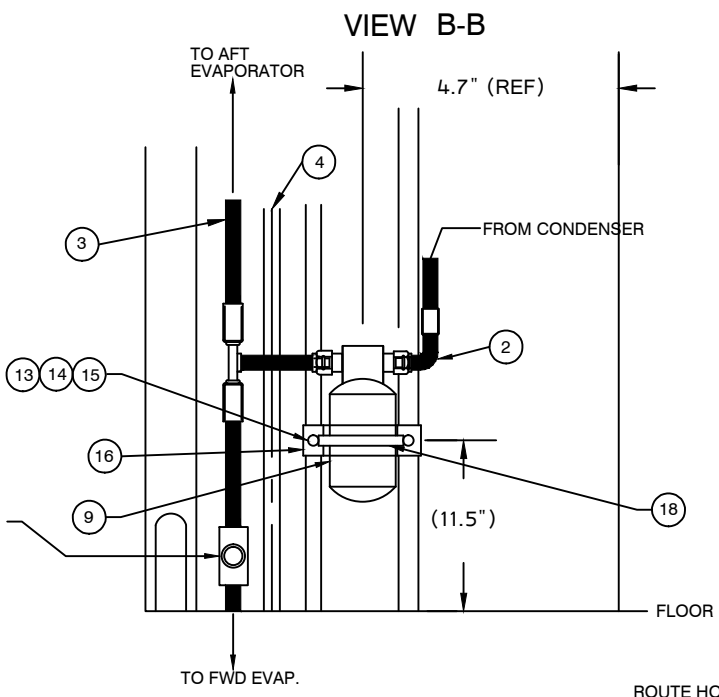
### Installation of Hoses

STEP	PROCEDURE	MECH	INSP
10.7	Install drier mount bracket, P/N 260123-2 per Drawing No. 3-4-AS350 and drier bottle, P/N 090016-5.		
10.8	Do not connect drier bottle up until all lines are connected and you are ready to vacuum down system. Install hose assembly, P/N 570020-“O”-A.		
10.9	Connect high and low pressure switches. Be sure to connect the correct wire to each switch. Low pressure switch P/N 050107, High pressure switch, P/N 90004.		

REVISION RECORD				
REV	DATE	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	06/05/02	CONVERTED TO AUTOCAD.		
B	06/30/08	REVISED TITLE BLOCK.	MLD	JTYE
C	09/01/14	CHANGED TITLE BLOCK AND REVISION BLOCK. INCORPORATED ECO # 0288 AND 0509.		AJC

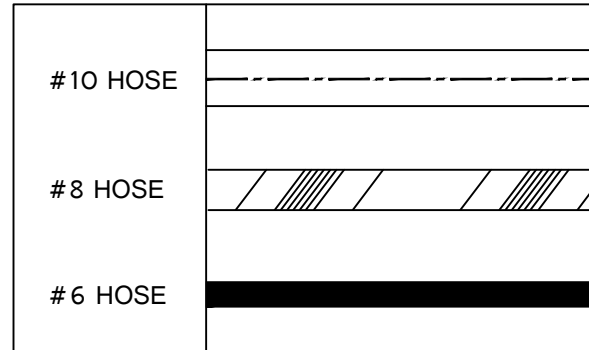


- NOTES:
- 1. LOCATION OF PRESSURE SWITCHES WHEN R-12 COMPRESSOR IS INSTALLED.
  - 2. LOCATION OF PRESSURE SWITCHES WHEN R-134a COMPRESSOR IS INSTALLED.
  - 3. 590001 R-12 FLARE
  - 590001-0" R-12 "O" RING
  - 590001-1"0" R-134a W/ESTER OIL
  - 590001-2"0" R134a W/SP-20 OIL
  - 590008 ALT. 590008-1 R-134a W/ESTER OIL



- NOTES:
- ALTERNATE HOSE:  
1991-ON NEOPRENE BARRIER TYPE
- |                |         |                                       |                |
|----------------|---------|---------------------------------------|----------------|
| #6 P/N 090078  | BASIC   | 1995-ON NEOPRENE REDUCED BARRIER TYPE | #6 P/N 090089  |
| #8 P/N 090079  | PRODUCT |                                       | #8 P/N 090090  |
| #10 P/N 090080 | IFS P/N |                                       | #10 P/N 090091 |
- FERRULES FOR ABOVE
- |                |         |   |
|----------------|---------|---|
| #6 P/N 090081  | BASIC   | MUST USE ATCO REDUCED BARRIER TYPE FITTINGS & ATCO CRIMPER P/N 3700 OR MASTERCOOL P/N 71500 |
| #8 P/N 090082  | PRODUCT |   |
| #10 P/N 090083 | IFS P/N |   |

QTY	ITEM	PART NUMBER	DESCRIPTION
3	21	090094	#10 O-RING
3	20	090093	#8 O-RING
4	19	090092	#6 O-RING
1	18	060036	3 INCH BAND CLAMP
2	17	090002-O	EXPANSION VALVE
1	16	260123-2	RECEIVER DRIER MOUNT
2	15	MS21044-N3	NUT
4	14	AN960-10	WASHER
2	13	AN3-5A	BOLT
1	12	560010-O-5	AFT EVAPORATOR
1	11	590008	COMPRESSOR 24 VDC R-134a O-RING (590008-1 GROOVED)
1	10	550007-1	CONDENSER (ALT.: 550007-2 FOR DUAL BLOWERS)
1	9	090016-5	RECEIVER DRIER BOTTLE
1	8	050107	LOW PRESSURE SWITCH
1	7	090004	HIGH PRESSURE SWITCH
1	6	560025-O	FORWARD EVAPORATOR
1	5	570024-O-A	HOSE ASSY COMPRESSOR TO CONDENSER
1	4	570087-O-A	HOSE ASSY FWD EVAPORATOR TO AFT EVAPORATOR
1	3	570072-O-A	HOSE ASSY. AFT EVAP TO FWD. EVAP TO REC./DRIER
1	2	570020-O-A	HOSE ASSY. COND. TO REC./DRIER
-	1	RESERVED	-



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APPROVED BY:

TOLERANCES EXCEPT AS SHOWN

.X: ±.1  
.XX: ±.03  
.XXX: ±.010  
X.X°: ±.5°  
BREAK ALL SHARP EDGES .01  
ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED  
DATE:

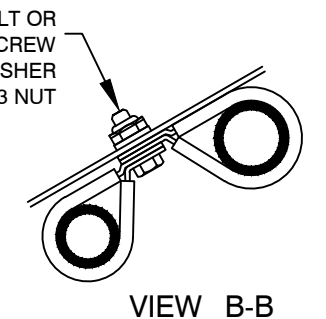
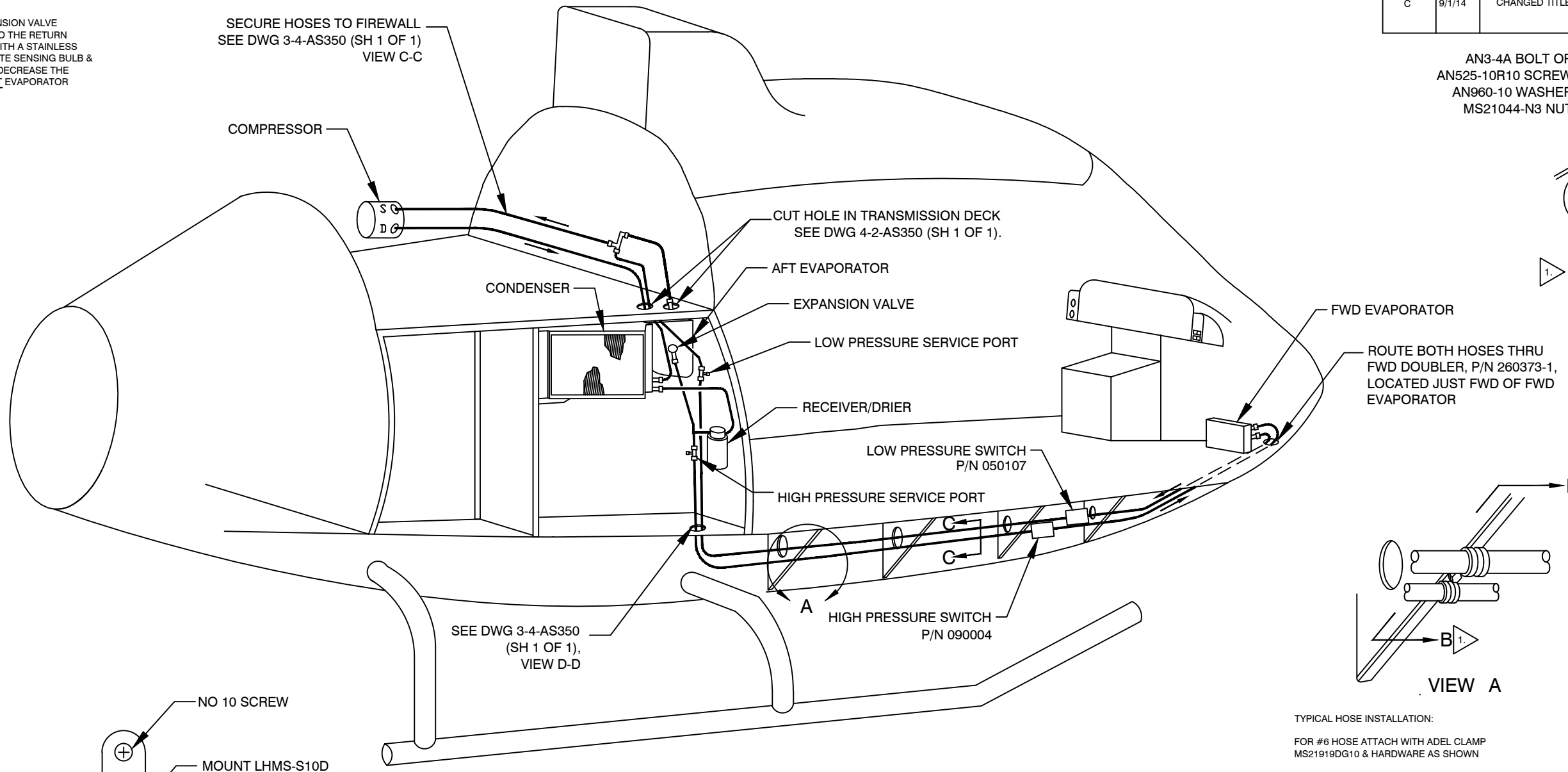
**RSG PRODUCTS INC.**  
A ROTORCRAFT SERVICES GROUP COMPANY

TITLE:  
**PLUMBING DIAGRAM**

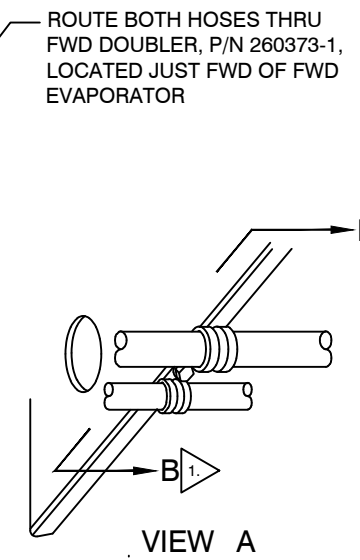
DRAWN BY: N.DEAN	DATE: 06/05/02	REV.: C	SCALE: N/A	SHEET: 1 OF 1
APPLICATION: AS350			DWG. NO.: 3-4-AS350	

REVISION RECORD				
REV	DATE	DESCRIPTION OF CHANGE	APPVD. BY	REV. BY
A	06/05/02	CONVERTED TO AUTOCAD.		
B	06/30/08	REVISED TITLE BLOCK.	MLD	JTYE
C	9/1/14	CHANGED TITLE BLOCK AND REVISION BLOCK.		AJC

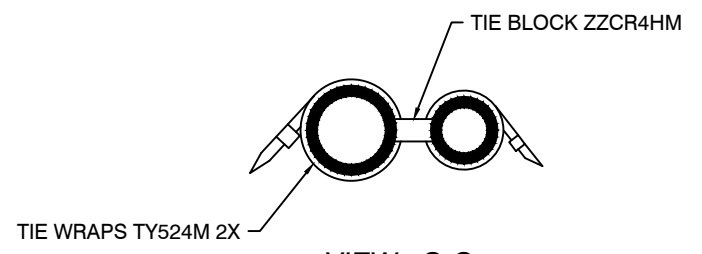
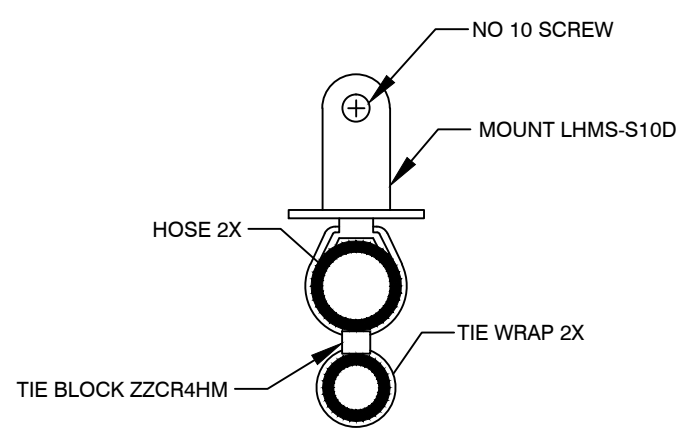
NOTE:  
 USE EXISTING LIGHTENING HOLES ONLY FOR ALL ROUTING (PREFERRED).  
 INSTALL PER VIEW B-B OR ALTERNATE VIEW B-B OR VIEW C-C  
 EXTREMELY IMPORTANT  
 FAILURE TO SECURE EXPANSION VALVE SENSING BULB, TIGHTLY, TO THE RETURN LINE HOSE FITTING (#10) WITH A STAINLESS STEEL CLAMP (AND INSULATE SENSING BULB & LINE) WILL DRAMATICALLY DECREASE THE PERFORMANCE OF THE AFT EVAPORATOR (NOT FORWARD).



1. ALTERNATE: P/N LHMS-S10D MOUNT USE #10 SCREW OR AN3 BOLT WITH TIE WRAP & ZZCR4HM BLOCK IF DESIRED (SEE VIEW B-B "ALTERNATE")



TYPICAL HOSE INSTALLATION:  
 FOR #6 HOSE ATTACH WITH ADEL CLAMP MS21919DG10 & HARDWARE AS SHOWN  
 FOR #8 HOSE ATTACH WITH ADEL CLAMP MS21919DG11 & HARDWARE AS SHOWN  
 FOR #10 HOSE ATTACH WITH ADEL CLAMP MS21919DG12 & HARDWARE AS SHOWN  
 NOTE, INWARD PLACEMENT OF CLAMPS TO FACILITATE INSTALLATION USING ONLY ONE SCREW, WASHER, & NUT SET-UP.



<b>PROPRIETARY NOTICE</b> TO ALL PERSONS RECEIVING THIS DOCUMENT THIS DOCUMENT AND INFORMATION OR TECHNICAL DATA AND DESIGNS CONTAINED HEREIN ARE PROPRIETARY DATA AND EXCLUSIVE PROPERTY OF RSG PRODUCTS INC. AND IS DELIVERED ON THE EXPRESS CONDITION THAT NEITHER THIS DOCUMENT NOR THE INFORMATION CONTAINED HEREIN SHALL BE DISCLOSED TO OTHERS, REPRODUCED IN WHOLE OR IN PART, OR USED FOR THE MANUFACTURE OR FABRICATION OF PARTS FOR ANYONE OTHER THAN RSG PRODUCTS INC. WITHOUT WRITTEN CONSENT AND AUTHORIZATION, AND THAT NO RIGHT IS GRANTED TO DISCLOSE OR SO USE ANY INFORMATION CONTAINED IN SAD DOCUMENT. THIS RESTRICTION DOES NOT LIMIT THE RIGHT TO USE INFORMATION OBTAINED FROM ANOTHER SOURCE.	NEXT ASSY.	TOLERANCES EXCEPT AS SHOWN		
		.X: ±.1 .XX: ±.03 .XXX: ±.010 X.X": ±.5° BREAK ALL SHARP EDGES .01 ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED		TITLE: <b>PLUMBING ROUTING</b>
	APPROVED BY:	DATE:	DATE:	DRAWN BY: MAH DATE: 11/01/99 REV.: C SCALE: N/A SHEET: 1 OF 1 APPLICATION: AS350 DWG. NO.: 3-14-AS350

# Step 11

# Paperwork

RSG Products Inc.  
PAPERWORK – AS350 Air Conditioning

DETAILED WEIGHT AND BALANCE DATA

FOR

**RSG PRODUCTS INC.**

FREON AIR CONDITIONING

UNIT INSTALLED IN A

TYPICAL HELICOPTER, MODEL AS350 B, BA, B1, B2, B3, C, D OR D1

**PERTAINS TO KIT #350-00-011**

<b>ITEM</b>	<b>WEIGHT</b>	<b>ARM</b>	<b>MOMENT</b>
Forward Evaporator Assembly	10.00	19.00	190.00
Forward Air Outlets	4.00	31.32	125.28
Aft Evaporator and Return Air	9.00	120.00	1080.90
Aft Evaporator Blower	6.00	120.85	725.10
Condenser Coil & Mount	20.0	133.80	2676.00
Condenser Blower and Mount	8.0	148.60	1188.80
Compressor and Mount	12.00	147.80	1773.60
Electrical Relay Panes	4.0	153.70	614.80
Refrigerant, Hoses and Fittings	6.0	76.90	461.4
Sub Total: (Air Conditioner)	79.0	111.85	8835.88



United States of America  
Department of Transportation  
Federal Aviation Administration

# Supplemental Type Certificate

Number: SH3509SW

This certificate issued to: RSG Products Inc.  
3900 Falcon Way West, Hangar 16S  
Fort Worth, TX 76106

certifies that the change in the type design for the following product with the limitations and conditions therefore as specified hereon meets the airworthiness requirements of Part 27 of the Federal Aviation Regulations

Original Product – Type Certificate Number: H9EU  
Make: Airbus Helicopters  
Model: AS350 B, B1, B2, B3, BA, C, D, D1; EC130B4

Description of Type Design Change:

Installation of a Single and Dual Condenser Blower Air Conditioning System in accordance with Integrated Flight Systems (IFS) Master Drawing List (MDL), Document No. DL-9 (Vapor Cycle Air Conditioning System with Belt Driven Compressor Utilizing Refrigerant R134a), Rev. T, dated 10/1/2014, or later FAA approved revision.

(See Continuation Sheet 3 of 3)

Limitations and Conditions:

The installer must determine whether this design change is compatible with previously approved modifications. If the holder agrees to permit another person to use this certificate to alter a product, the holder must give the other person written evidence of that permission.

*This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, and revoked or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.*

Date of Application: September 10, 1984  
Date Reissued: April 30, 1991; August 22, 2001; October 23, 2008; August 26, 2011  
Date of Issuance: September 20, 1985  
Date Amended: February 11, 1999; February 9, 2009; February 23, 2009; November 5, 2010; October 14, 2015

By Direction of the Administrator

Signature 

Title Scott A. Horn  
Manager, Fort Worth Aircraft Certification Office  
Southwest Region

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both. This certificate may be transferred or made available to third persons by licensing agreements in accordance with 14 CFR 21.47. Possession of this Supplemental Type Certificate (STC) document by persons other than the STC holder does not constitute rights to the design data nor to alter an aircraft, aircraft engine, or propeller. The STC's supporting documentation (drawings, instructions, specifications, flight manual supplements, etc.) is the property of the STC holder. An STC holder who allows a person to use the STC to alter an aircraft, aircraft engine, or propeller must provide that person with written permission acceptable to the FAA. (Ref. 14 CFR 21.120).





United States of America  
Department of Transportation  
Federal Aviation Administration  
*Supplemental Type Certificate*  
(Continuation Sheet)  
Number: SH3509SW

Date of Issuance: September 20, 1985  
Date Amended: September 14, 2015

Description of Type Design Change (Continued):

For Single Condenser Configurations the following FAA Approved Flight Manual Supplements (FMSs) and revisions, or later FAA approved revisions, are required accordingly:

AS350B, C, D, D1: FMS 19-350-21-002-011, Rev. D, dated 11/17/2014.  
AS350B1: FMS 19-350-21-004-011, Rev. C, dated 11/17/2014.  
AS350B2: FMS 19-350-21-006-011, Rev. B, dated 11/17/2014.  
AS350B3: FMS 19-350-21-008-011, Rev. B, dated 11/17/2014.  
AS350BA: FMS 19-350-21-010-011, Rev. B, dated 11/17/2014.  
EC130B4: FMS dated 2/6/04.

For Dual Condenser Configurations the following FAA approved FMSs and revisions, or later FAA approved revisions, are required accordingly:

AS350B, C, D, D1: FMS 19-350-21-001-031, Rev. D, dated 11/17/2014.  
AS350B1: FMS 19-350-21-003-031, Rev. C, dated 11/17/2014.  
AS350B2: FMS 19-350-21-005-031, Rev. B, dated 11/17/2014.  
AS350B3: FMS 19-350-21-007-031, Rev. B, dated 11/17/2014.  
AS350BA: FMS 19-350-21-009-011, Rev. B, dated 11/17/2014.

Instructions for Continued Airworthiness, IFS Document No. IFSE-0007, Rev. C, dated 8/12/2010, or later revision is required.

(END)

---

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both. This certificate may be transferred or made available to third persons by licensing agreements in accordance with 14 CFR 21.47. Possession of this Supplemental Type Certificate (STC) document by persons other than the STC holder does not constitute rights to the design data nor to alter an aircraft, aircraft engine, or propeller. The STC's supporting documentation (drawings, instructions, specifications, flight manual supplements, etc.) is the property of the STC holder. An STC holder who allows a person to use the STC to alter an aircraft, aircraft engine, or propeller must provide that person with written permission acceptable to the FAA. (Ref. 14 CFR 21.120).



Transport  
Canada  
Civil Aviation

Transports  
Canada  
Aviation Civile

Suite 620  
800 Burrard Street  
Vancouver, B.C.  
V6Z 2J8

Your file    Votre référence

Our file    Notre référence  
P-03-0350

July 8, 2003

Integrated Flight Systems, subsidiary  
of Platinum Aviation Group, Inc.  
4655 Aircenter Circle  
Reno, Nevada 89502

**Attn:** Mr. Leroy Aday, President

**Subject:** Acceptance of FAA STCs SH3509SW and SH5947SW

Dear Mr. Aday:

This letter is in response to your application for Canadian acceptance of FAA STCs SH3509SW and SH5947SW, submitted to our office June 13, 2003, by the FAA Los Angeles Aircraft Certification Office.

In accordance with current Transport Canada policy concerning review of FAA-issued STCs for non-US state-of-design Normal Category rotorcraft, both STCs have been accepted in Canada without having to issue corresponding Canadian certificates.

Both FAA STC's will be entered into the national index of STCs that have been reviewed and accepted by Transport Canada for installation on Canadian-registered aeronautical products.

This letter confirms formal acceptance of the referenced STC by Transport Canada.

If you have any questions concerning this matter, I can be contacted by telephone at (604) 666-5269.

Yours truly,

David Bafia

For Regional Manager,  
Aircraft Certification

Canada 



AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL - BRASIL

## CERTIFICADO DE HOMOLOGAÇÃO SUPLEMENTAR DE TIPO

(Supplemental Type Certificate)

**NÚMERO** 2006S12-08  
(Number)

Este certificado, emitido com base na Lei nº 7565 "Código Brasileiro de Aeronáutica", de 19 de dezembro de 1986,  
(This certificate, issued in the basis of the Law No. 7565 "Código Brasileiro de Aeronáutica", dated 19 December 1986,

é conferido ao (à): Integrated Flight Systems Corp.  
(is granted to:)

4607 B. Aircenter Circle  
Reno, Nevada 89502  
USA

por ter a modificação ao projeto de tipo do produto abaixo citado, observadas as limitações e condições  
(for having the change to the type design of the product mentioned below, with the limitations and conditions therefor as)

especificadas, satisfeito aos requisitos de aeronavegabilidade aplicáveis.  
(specified hereon, met the applicable airworthiness requirements.)

**Produto Original - Número do Certificado de Tipo:** 84 (FN 157).  
(Original Product - Type Certificate No.)

**Fabricante:** Eurocopter France.  
(Manufacturer:)

**Modelo(s):** AS 350 B.  
(Model(s):)

**DESCRIÇÃO DA MODIFICAÇÃO AO PROJETO DE TIPO:**  
(Description of Type Design Change:)

Installation of a Belt-Driven Freon Air Conditioning System in accordance with Integrated Flight Systems Drawing List No. DL-9 (single Condenser blower), Rev. J, dated 5 Dec. 2003, or later approved revision or Drawing List No. DL-9-1 (Dual Condenser blower), Rev. NC, dated 1 Jan. 1992, or later approved revision.

This CHST validates in Brazil the STC # SH3509SW, issued by FAA (USA).

**LIMITAÇÕES E CONDIÇÕES:**  
(Limitations and Conditions:)

See continuation sheet for applicable data.

**DATAS:**  
(Dates of:)

**Do Requerimento:** 28 Aug. 2006  
(Application:)

**Da emissão:** 13 Dec. 2006  
(Issue:)

**Da reemissão:**  
(Reissue:)

  
**CLÁUDIO PASSOS SIMÃO**

Gerente Geral, Certificação de Produtos Aeronáuticos  
(Manager, Aeronautical Products Certification)

  
**MILTON ZUANAZZI**  
Diretor-Presidente  
(Director President)



**AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL**

Folha de Continuação ao  
(Continuation Sheet to)

**CERTIFICADO DE HOMOLOGAÇÃO SUPLEMENTAR DE TIPO**  
(Supplemental Type Certificate)

**NÚMERO 2006S12-08**  
(Number)

**LIMITAÇÕES E CONDIÇÕES:**  
(Limitations and Conditions:)

- I. The approval of this type design change should not be extended to other aircraft of these models on which other previously approved modifications are incorporated unless it is determined by the installer that the relationship between this change and any of those other previously approved modifications, including changes in Type Design, will introduce no adverse effect upon the airworthiness of that aircraft.
- II. If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of that permission.
- III. This installation is approved only for VFR operations.
- IV. Operation must be performed in accordance with the FAA approved Helicopter Flight Manual Supplement (FMS), Rev. B, dated 30 Apr. 1991, or later approved revision.
- V. For the Instructions for Continued Airworthiness, see the Operators Manual supplied with the Air Conditioning Kits.
- VI. A copy of this Certificate and the Supplement referred on item IV above shall be maintained as part of the permanent records of the modified aircraft.

----- END -----

*Lawson JP*



**ANAC**

**AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL - BRASIL**

**CERTIFICADO DE HOMOLOGAÇÃO SUPLEMENTAR DE TIPO**

(Supplemental Type Certificate)

**NÚMERO 2006S12-09**  
(Number)

**Este certificado, emitido com base na Lei nº 7565 "Código Brasileiro de Aeronáutica", de 19 de dezembro de 1986,**  
(This certificate, issued in the basis of the Law No. 7565 "Codigo Brasileiro de Aeronáutica", dated 19 December 1986,

**é conferido ao (à): Integrated Flight Systems Corp.**  
is granted to:)

4607 B. Aircenter Circle  
Reno, Nevada 89502  
USA

**por ter a modificação ao projeto de tipo do produto abaixo citado, observadas as limitações e condições**  
(for having the change to the type design of the product mentioned below, with the limitations and conditions thereof as)

**especificadas, satisfeito aos requisitos de aeronavegabilidade aplicáveis.**  
(specified hereon, met the applicable airworthiness requirements.)

**Produto Original - Número do Certificado de Tipo: 8812 (ANAC).**  
(Original Product - Type Certificate No:)

**Fabricante: Eurocopter France.**  
(Manufacturer:)

**Modelo(s): AS 350 B1, AS 350 B2, AS 350 B3, AS 350 BA and.**  
(Model(s):) EC 130 B4.

**DESCRIÇÃO DA MODIFICAÇÃO AO PROJETO DE TIPO:**  
(Description of Type Design Change:)

Installation of a Belt-Driven Freon Air Conditioning System in accordance with Integrated Flight Systems Drawing List No. DL-9 (single Condenser blower), Rev. J, dated 5 Dec. 2003, or later approved revision or Drawing List No. DL-9-1 (Dual Condenser blower), Rev. NC, dated 1 Jan. 1992, or later approved revision.

This CHST validates in Brazil the STC # SH3509SW, issued by FAA (USA).

**LIMITAÇÕES E CONDIÇÕES:**  
(Limitations and Conditions:)

See continuation sheet for applicable data.

**DATAS:**  
(Dates of:)

**Do Requerimento: 28 Aug. 2006**  
(Application:)

**Da emissão: 13 Dec. 2006**  
(Issue:)

**Da reemissão:**  
(Reissue:)

**CLÁUDIO PASSOS SIMÃO**  
Gerente Geral, Certificação de Produtos Aeronáuticos  
(Manager, Aeronautical Products Certification)

**MILTON ZUANAZZI**  
Diretor-Presidente  
(Director President)



**AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL**

Folha de Continuação ao  
(Continuation Sheet to)

**CERTIFICADO DE HOMOLOGAÇÃO SUPLEMENTAR DE TIPO**  
(Supplemental Type Certificate)

**NÚMERO 2006S12-09**  
(Number)

**LIMITAÇÕES E CONDIÇÕES:**  
(Limitations and Conditions:)

- I. The approval of this type design change should not be extended to other aircraft of these models on which other previously approved modifications are incorporated unless it is determined by the installer that the relationship between this change and any of those other previously approved modifications, including changes in Type Design, will introduce no adverse effect upon the airworthiness of that aircraft.
- II. If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of that permission.
- III. This installation is approved only for VFR operations.
- IV. Operation must be performed in accordance with the FAA approved Helicopter Flight Manual Supplement (FMS), as applicable:
  - Model AS 350 B1, requires FMS, Rev. A, dated 30 Apr. 1991 or later FAA approved revision;
  - Model AS 350 B2, requires FMS, Rev. NC, dated 30 Apr. 1991 or later FAA approved revision;
  - Model AS 350 B3, requires FMS, Rev. NC, dated 8 Feb. 1999 or later FAA approved revision;
  - Model AS 350 BA, requires FMS, Rev. NC, dated 15 May 1992 or later FAA approved revision;
  - Model EC 130 B4, requires FMS, Rev. NC, dated 6 Feb. 2004 or later FAA approved revision.
- V. For the Instructions for Continued Airworthiness, see the Operators Manual supplied with the Air Conditioning Kits.
- VI. A copy of this Certificate and the Supplement referred on item IV above shall be maintained as part of the permanent records of the modified aircraft.

-----END-----

*Paulo* *[Signature]*



AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL - BRASIL

**CERTIFICADO DE HOMOLOGAÇÃO SUPLEMENTAR DE TIPO**

(Supplemental Type Certificate)

**NÚMERO** 2006S12-10  
(Number)

Este certificado, emitido com base na Lei nº 7565 "Código Brasileiro de Aeronáutica", de 19 de dezembro de 1986,  
(This certificate, issued in the basis of the Law No. 7565 "Código Brasileiro de Aeronáutica", dated 19 December 1986,

é conferido ao (à): Integrated Flight Systems Corp.  
(is granted to:) 4607 B. Aircenter Circle  
Reno, Nevada 89502  
USA

por ter a modificação ao projeto de tipo do produto abaixo citado, observadas as limitações e condições  
(for having the change to the type design of the product mentioned below, with the limitations and conditions therefor as)

especificadas, satisfeito aos requisitos de aeronavegabilidade aplicáveis.  
(specified hereon, met the applicable airworthiness requirements.)

**Produto Original - Número do Certificado de Tipo:** 8001 (ANAC).  
(Original Product - Type Certificate No:)

**Fabricante:** Helicópteros do Brasil S/A.  
(Manufacturer:)

**Modelo(s):** HB-350B.  
(Model(s):)

**DESCRIÇÃO DA MODIFICAÇÃO AO PROJETO DE TIPO:**  
(Description of Type Design Change:)

Installation of a Belt-Driven Freon Air Conditioning System in accordance with Integrated Flight Systems Drawing List No. DL-9 (single Condenser blower), Rev. J, dated 5 Dec. 2003, or later approved revision or Drawing List No. DL-9-1 (Dual Condenser blower), Rev. NC, dated 1 Jan. 1992, or later approved revision.

This CHST validates in Brazil the STC # SH3509SW, issued by FAA (USA).

**LIMITAÇÕES E CONDIÇÕES:**  
(Limitations and Conditions:)

See continuation sheet for applicable data.

**DATAS:**  
(Dates of:)

**Do Requerimento:** 28 Aug. 2006  
(Application:)

**Da emissão:** 13 Dec. 2006  
(Issue:)

**Da reemissão:**  
(Reissue:)

**CLÁUDIO PASSOS SIMÃO**

Gerente Geral, Certificação de Produtos Aeronáuticos  
(Manager, Aeronautical Products Certification)

**MILTON ZUANAZZI**

Diretor-Presidente  
(Director President)



**AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL**

Folha de Continuação ao  
(Continuation Sheet to)

**CERTIFICADO DE HOMOLOGAÇÃO SUPLEMENTAR DE TIPO**  
(Supplemental Type Certificate)

**NÚMERO 2006S12-10**  
(Number)

**LIMITAÇÕES E CONDIÇÕES:**  
(Limitations and Conditions:)

- I. The approval of this type design change should not be extended to other aircraft of these models on which other previously approved modifications are incorporated unless it is determined by the installer that the relationship between this change and any of those other previously approved modifications, including changes in Type Design, will introduce no adverse effect upon the airworthiness of that aircraft.
- II. If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of that permission.
- III. This installation is approved only for VFR operations.
- IV. Operation must be performed in accordance with the FAA approved Helicopter Flight Manual Supplement (FMS), Rev. B, dated 30 Apr. 1991, or later approved revision.
- V. For the Instructions for Continued Airworthiness, see the Operators Manual supplied with the Air Conditioning Kits.
- VI. A copy of this Certificate and the Supplement referred on item IV above shall be maintained as part of the permanent records of the modified aircraft.

----- END -----

*Paulo* *P*





European Aviation Safety Agency

## SUPPLEMENTAL TYPE CERTIFICATE

**EASA.IM.R.S.01243**

This certificate, established in accordance with Regulations (EC) No 1592/2002 and (EC) No 1702/2003 and issued to:

**Integrated Flight Systems Corp.**  
4607 B Aircentre Circle  
Reno  
Nevada 89502  
USA

certifies that the change in the type design for the product listed below with the limitations and conditions specified meets the applicable type certification basis and environmental protection requirements when operated within the conditions and limitations specified below:

**Original Product Type Certificate number:** *EASA TCDS EASA.R.008*

**Manufacturer:** *Eurocopter*

**Model:** *AS 350 B, B1, B2, B3, BA, D, EC130B4*

**Original STC Number:** *SH3509SW*

**Description of Design Change:**

Installation of a Belt Driven Freon Air Conditioning System (FAA STC SH3509SW).



**Associated Technical Documentation:**

- DL-9 rev A dated 12 Sept 1985 – Drawing List, Single Condenser Blower
- DL-9-1 rev N/C dated 10 Jan 1992 – Drawing List, Dual Condenser Blowers
- Models AS350B & D, FMS dated 26 June 1985 or later approved revision
- Model AS 350B1, FMS dated 27 October 1988 or later approved revision
- Model AS350B2, FMS dated 30 April 1991 or later approved revision
- Model AS350BA, FMS dated 15 May 1992 or later approved revision
- Model AS350B3, FMS dated 8 February 1999 or later approved revision
- Model EC130B4, RFM-130-00-031HP rev Original dated 6 February 2004 or later approved revision

**Limitations and Conditions:**

1. VFR Operations only
2. This STC is approved only for the product configuration as defined in the approved design data referred to in the paragraphs "Description" and "Associated Technical Documentation". Compatibility with other aircraft/engine configurations shall be determined by the installer.

This certificate shall remain valid unless otherwise surrendered or revoked.

For the European Aviation Safety Agency,  
Date of Issue: 26 April 2007

Massimo Mazzoletti  
Certification Manager  
Rotorcraft, Balloons & Airships

FLIGHT MANUAL  
SUPPLEMENT  
FOR  
AS350B, C, D AND D1



RSG Products Inc.  
3900 Falcon Way West  
Hangar 16S  
Fort Worth, TX 76106  
817-624-6600  
rotorcraftercservices.com

**FAA Approved**  
**Rotorcraft Flight Manual Supplement**  
**For**  
**Airbus Helicopters**

**Model: AS350 B, C, D, D1**

**Document Number: 19-350-21-001**

**-031 Dual Condenser**

**Registration Number: \_\_\_\_\_**

**Serial Number: \_\_\_\_\_**

This supplement must be attached to the FAA approved Rotorcraft Flight Manual, dated June 7, 1978, or later approved revision, when an RSG Products Inc. air conditioning system is installed in accordance with STC No. SH3509SW.

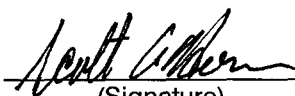
The Information contained herein supplements or supersedes the basic Rotorcraft Flight Manual only in those areas listed herein. For limitations, procedures, and performance information not contained in this document, consult the basic Rotorcraft Flight Manual.

APPROVED: Scott A. Horn DATE: August 18, 2015

Scott A. Horn, Manager  
Fort Worth Aircraft  
Certification Office, ASW-140  
Federal Aviation Administration  
Fort Worth, Texas 76177

**LOG OF REVISIONS**

<u>REV</u>	<u>Affected Pages</u>	<u>Reason for Change</u>	<u>Date</u>	<u>FAA APPROVED</u>
Original	1-7		6/26/1985	Denver ACO
A	1-2	Company name was Consolidated Aire Systems, is Av-Aire Corporation	4/30/1991	Denver ACO
B	1-2	Company name was Av-Aire Corporation, is Integrated Flight Systems, Inc.		Denver ACO
C	6-7	Page 6: Section 4: Replaced existing data with performance degradation information.  Page 7: System change. Was: "2 each 15 amp and 2 each 20 amp circuit breakers", Is: "1 each 15 amp and 3 each 20 amp circuit breakers."	7/12/2013	Scott Horn Mgr. ASW170 Fort Worth, TX

D	1-9	<p>Reformatted document to RSG Products Template.</p> <p>Page 1: Changed aircraft manufacturer. Was: "Aerospatiale Helicopter Corporation."          Is: "Airbus Helicopters."</p> <p>Page 5/6: Added switch names to normal and emergency procedure instructions.</p> <p>Page 7/8: Added instructions based on A/C configuration descriptions.</p> <p>Page 8: Location of FWD Switch Panel          Was: "to the right of the instrument panel."          Is: "on the instrument panel."</p> <p>Page 8: 5 amp circuit breaker location          Was: "below the left air outlet."          Is: "in the instrument panel on the right of the switch assembly."</p>	11/17/2014	<p>          (Signature)</p> <p>Scott A. Horn, Manager          Fort Worth Aircraft          Certification Office, ASW-140          Federal Aviation          Administration          Fort Worth, TX 76177</p> <p><u>    <b>AUG 18 2015</b>    </u>          (Date)</p>
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NOTE: Revised portions of affected pages are identified by a vertical black line in the margin adjacent to the change.



RSG Products Inc.  
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rotorcraftservices.com

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## **1.0 GENERAL**

The installation consist of a belt drive vapor-cycle air conditioning system.

## **2.0 OPERATING LIMITATIONS**

- The air conditioning system must be "OFF" during engine start.
- Operation of the air conditioning system is prohibited if the generator is inoperative.
- "MAG" compass deviation may be excessive with air conditioner, "A/C", or fan, "FAN", "ON". Turn air conditioner "OFF" to read "MAG" compass.
- The air conditioning system must be turned "OFF" during takeoff, approach, and landing above 7000 feet density altitude.

## **3.0 EMERGENCY PROCEDURES**

### **3.1 EMERGENCY PROCEDURES**

- In the event of an engine failure, turn air conditioner "MASTER" switch to "OFF".
- In the event of electrical power failure, turn air conditioner "MASTER" switch to "OFF".

### **3.2 EXCESSIVE TEMPERATURE, FIRE, SMOKE**

In the event of any of the following, turn air conditioner "MASTER" switch to "OFF".

1. Cabin or other fire.
2. Presence of smoke.



## 4.0 NORMAL PROCEDURES

### 4.1 GROUND OPERATIONS

- Air conditioning system operation: The forward air conditioning control switches are located on the instrument panel.
- To turn the air conditioner "ON" - Move "MASTER" switch to "A/C".
- To turn the air conditioner "OFF" – Move "MASTER" switch to "OFF".
- For air circulation without cooling – Move "MASTER" switch to "FAN".
- For high speed air circulation – Move "FWD FAN" switch to "HI".
- For low speed air circulation – Move "FWD FAN" switch to "LOW".

The aft air conditioning control switch is located on the overhead aft cabin (Basic) or on the instrument panel (Tour 1).

- For high speed air circulation – Move "AIR CONDITIONER" or "AFT FAN" switch to "HI".
- For low speed air circulation – Move "AIR CONDITIONER" or "AFT FAN" switch to "LOW".
- For medium speed air circulation – Move "FWD FAN" switch to "MED" (when option is present).

### 4.2 NORMAL PROCEDURES

Ground and flight operations:

- Ventilation control – As desired (Close for cockpit/cabin cooling).
- Air conditioning "MASTER" control switch – As desired.
- Air conditioning "FWD FAN" speed control switch – As desired.
- "AIR CONDITIONER" or "AFT FAN" speed control switch – As desired.



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## **5.0 PERFORMANCE DATA**

Reduce IGE maximum weight by 25 lbs. at all altitudes.

Reduce OGE maximum weight by 25 lbs. at all altitudes.

Reduce RFM Rate of Climb by 70 fpm.

## MANUFACTURER'S DATA

### **6.0 WEIGHT AND BALANCE**

Weight and Balance must be computed with the air conditioning system installed. Approximate air conditioning weight is 80 lbs. See installation instructions supplied with kit for actual weight.

### **7.0 SYSTEMS DESCRIPTION**

The air conditioning installation consists of a belt driven vapor cycle (Freon) air conditioning system using R-134a refrigerant .

The air conditioning system provides for cabin comfort during all operations both on the ground and in flight. During ground operations when the engine is running, cooling may be provided. Controls for the air conditioning system are located based on the configuration selected.

#### **For Basic Configuration:**

(Control switches located on instrument panel & overhead aft cabin)

The control switches are located on the instrument panel and overhead in the aft cabin. The switch panel on the instrument panel contains two (2) switches, the "MASTER" control selector consists of a toggle type switch, labeled "A/C", "OFF", and "FAN". Selecting the "A/C" position turns on the system's dual evaporator fans, dual condenser blowers, and belt driven compressor. The second toggle switch, "FWD FAN", provides "HI" and "LOW" forward evaporator fan speed selection for the cockpit. Another toggle switch, "AIR CONDITIONER", is located overhead in the aft cabin and provides "HI" and "LOW" aft evaporator fan speed selection.

MANUFACTURER'S DATA (continued)

**For Tour 1 Configuration:**

(Control switches located on instrument panel)

The control switches are located on the instrument panel. The switch panel on the instrument panel contains three (3) switches, the "MASTER" control selector consists of a rocker type switch, labeled "A/C", "OFF", and "FAN". Selecting the "A/C" position turns on the system's dual evaporator fans, dual condenser blowers, and belt driven compressor. The second rocker switch, "FWD FAN", provides "HI", "LOW", and "MED" forward evaporator fan speed selection for the cockpit. The third rocker switch, "AFT FAN", provides "HI" and "LOW" aft evaporator fan speed selection for the cabin.

**Applies to Both Configurations:**

Thermostatic temperature control is not provided. A 5 amp circuit breaker located in the instrument panel on the right of the switch assembly disconnects power to all relays.

A high pressure safety switch, located on the condenser, disengages the compressor and stops operation of the system in the event of excessive Freon pressure. This can occur due to failure of the condenser blower or restricted air intake. The switch will automatically reset itself and the system will cycle on again when the pressures are reduced below a predetermined point.

The evaporator fan system may be used anytime air circulation is desired. This is accomplished by placing the "MASTER" rocker/toggle switch in the "FAN" position.

System electrical protection is provided by 1 each 15 amp and 3 each 20 amp circuit breakers labeled "CONDENSER FAN" and "EVAPORATOR FAN", in the air conditioning electrical control panel. The panel is located in the right side baggage compartment above the battery.



**RSG Products Inc.**  
3900 Falcon Way West  
Hangar 16S  
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MANUFACTURER'S DATA (continued)

**APPENDIX**

**A.0 ELECTRICAL LOADING**

The maximum electrical requirements of the air conditioning system are as follows:

Condenser Blower	2 each @ 13 amps = 26 amps
Compressor	1 each @ 2 amps = 2 amps
Evaporator Fan (FWD)	1 each @ 7 amps = 7 amps
Evaporator Fan (AFT)	1 each @ 13 amps = <u>13 amps</u>
<b>TOTAL</b>	<b>48 amps</b>



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**FAA Approved**  
**Rotorcraft Flight Manual Supplement**  
**For**  
**Airbus Helicopters**

**Model: AS350 B, C, D, D1**

**Document Number: 19-350-21-002**

**-011 Single Condenser**

**Registration Number: \_\_\_\_\_**

**Serial Number: \_\_\_\_\_**

This supplement must be attached to the FAA approved Rotorcraft Flight Manual, dated June 7, 1978, or later approved revision, when an RSG Products Inc. air conditioning system is installed in accordance with STC No. SH3509SW.


The Information contained herein supplements or supersedes the basic Rotorcraft Flight Manual only in those areas listed herein. For limitations, procedures, and performance information not contained in this document, consult the basic Rotorcraft Flight Manual.

APPROVED: Scott A. Horn DATE: August 19, 2015

Scott A. Horn, Manager  
Fort Worth Aircraft  
Certification Office, ASW-140  
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**LOG OF REVISIONS**

<u>REV</u>	<u>Affected Pages</u>	<u>Reason for Change</u>	<u>Date</u>	<u>FAA APPROVED</u>
Original	1-8		6/26/1985	Denver ACO
A	1-2	Company name was Consolidated Aire Systems, is Av-Aire Corporation	4/30/1991	Denver ACO
B	1-2	Company name was Av-Aire Corporation, is Integrated Flight Systems, Inc.		Denver ACO
C	6-8	<p>Page 6: Section 4: Replaced existing data with performance degradation information.</p> <p>Page 7: System change.            Was: "either"            Is: "high pressure"</p> <p>Page 8: Changed component electrical requirement.            Was: "14 amps"            Is: "20 amps"</p> <p>Page 8: Changed total electrical requirement.            Was: "37 amps"            Is: "43 amps"</p>	7/12/2013	Scott Horn Mgr. ASW170 Fort Worth, TX

D	1-10	<p>Reformatted document to RSG Products Template.</p> <p>Page 1: Changed aircraft manufacturer. Was: "Aerospatiale Helicopter Corporation."          Is: "Airbus Helicopters."</p> <p>Page 5/6: Added switch names to normal and emergency procedure instructions.</p> <p>Page 7/8: Added instructions based on A/C configuration descriptions.</p> <p>Page 8: Location of FWD Switch Panel Was: "to the right of the instrument panel."          Is: "on the instrument panel."</p> <p>Page 8: 5 amp circuit breaker location          Was: "below the left air outlet."          Is: "in the instrument panel on the right of the switch assembly."</p>	11/17/2014	<p>          (Signature)</p> <p>Scott A. Horn, Manager          Fort Worth Aircraft          Certification Office, ASW-140          Federal Aviation          Administration          Fort Worth, TX 76177</p> <p><u>AUG 18 2015</u>          (Date)</p>
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NOTE: Revised portions of affected pages are identified by a vertical black line in the margin adjacent to the change.



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## **1.0 GENERAL**

The installation consist of a belt drive vapor-cycle air conditioning system.

## **2.0 OPERATING LIMITATIONS**

- The air conditioning system must be "OFF" during engine start.
- Operation of the air conditioning system is prohibited if the generator is inoperative.
- "MAG" compass deviation may be excessive with air conditioner, "A/C", or fan, "FAN", "ON". Turn air conditioner "OFF" to read "MAG" compass.
- The air conditioning system must be turned "OFF" during takeoff, approach, and landing above 7000 feet density altitude.
- The air conditioning system must be turned "OFF" to obtain the FAA approved Rotorcraft Flight Manual performance above 7000 feet density altitude.

## **3.0 EMERGENCY PROCEDURES**

### **3.1 EMERGENCY PROCEDURES**

- In the event of an engine failure, turn air conditioner "MASTER" switch to "OFF".
- In the event of electrical power failure, turn air conditioner "MASTER" switch to "OFF".

### **3.2 EXCESSIVE TEMPERATURE, FIRE, SMOKE**

In the event of any of the following, turn air conditioner "MASTER" switch to "OFF".

1. Cabin or other fire.
2. Presence of smoke.

## **4.0 NORMAL PROCEDURES**

### **4.1 GROUND OPERATIONS**

- Air conditioning system operation: The forward air conditioning control switches are located on the instrument panel.
- To turn the air conditioner "ON" - Move "MASTER" switch to "A/C".
- To turn the air conditioner "OFF" - Move "MASTER" switch to "OFF".
- For air circulation without cooling - Move "MASTER" switch to "FAN".
- For high speed air circulation - Move "FWD FAN" switch to "HI".
- For low speed air circulation - Move "FWD FAN" switch to "LOW".
- For medium speed air circulation - Move "FWD FAN" switch to "MED" (when option is present).

The aft air conditioning control switch is located on the overhead aft cabin (Basic) or on the instrument panel (Tour 1).

- For high speed air circulation - Move "AIR CONDITIONER" or "AFT FAN" switch to "HI".
- For low speed air circulation - Move "AIR CONDITIONER" or "AFT FAN" switch to "LOW".

### **4.2 NORMAL PROCEDURES**

Ground and flight operations:

- Ventilation control - As desired (Close for cockpit/cabin cooling).
- Air conditioning "MASTER" control switch - As desired.
- Air conditioning "FWD FAN" speed control switch - As desired.
- "AIR CONDITIONER" or "AFT FAN" speed control switch - As desired.

## **5.0 PERFORMANCE DATA**

Reduce IGE maximum weight by 25 lbs. at all altitudes.

Reduce OGE maximum weight by 25 lbs. at all altitudes.

Reduce RFM Rate of Climb by 70 fpm.

## **MANUFACTURER'S DATA**

### **6.0 WEIGHT AND BALANCE**

Weight and Balance must be computed with the air conditioning system installed. Approximate air conditioning weight is 80 lbs. See installation instructions supplied with kit for actual weight.

### **7.0 SYSTEMS DESCRIPTION**

The air conditioning installation consists of a belt driven vapor cycle (Freon) air conditioning system using R-134a refrigerant.

The air conditioning system provides for cabin comfort during all operations both on the ground and in flight. During ground operations when the engine is running, cooling may be provided. Controls for the air conditioning system are located based on the configuration selected.

#### **For Basic Configuration:**

(Control switches located on instrument panel & overhead aft cabin)

The control switches are located on the instrument panel and overhead in the aft cabin. The switch panel on the instrument panel contains two (2) switches (rocker or toggle depending on configuration selected), the "MASTER" control selector consists of a rocker/toggle type switch, labeled "A/C", "OFF", and "FAN". Selecting the "A/C" position turns on the system's dual evaporator fans, single condenser blower, and belt driven compressor. The second rocker/toggle switch, "FWD FAN", provides "HI" and "LOW" forward evaporator fan speed selection for the cockpit ("MED" speed option is available with rocker switch configuration). Another rocker/toggle switch, "AIR CONDITIONER", is located overhead in the aft cabin and provides "HI" and "LOW" aft evaporator fan speed selection.

## MANUFACTURER'S DATA (continued)

**For Tour 1 Configuration:**

(Control switches located on instrument panel)

The control switches are located on the instrument panel. The switch panel on the instrument panel contains three (3) switches, the "MASTER" control selector consists of a rocker type switch, labeled "A/C", "OFF", and "FAN". Selecting the "A/C" position turns on the system's dual evaporator fans, single condenser blower, and belt driven compressor. The second rocker switch, "FWD FAN", provides "HI", "LOW", and "MED" forward evaporator fan speed selection for the cockpit. The third rocker switch, "AFT FAN", provides "HI" and "LOW" aft evaporator fan speed selection for the cabin.

**Applies to Both Configurations:**

Thermostatic temperature control is not provided. A 5 amp circuit breaker located in the instrument panel on the right of the switch assembly disconnects power to all relays.

A high pressure safety switch, located on the compressor (or under the cabin floor, outboard of the right side keel beam on later kits), disengages the compressor and stops operation of the system in the event of excessive refrigerant pressure. This can occur due to failure of the condenser blower or restricted air intake. The switch will automatically reset itself.

A low pressure safety switch is located on the compressor (or under the cabin floor, outboard of the right side keel beam). It opens and stops operation of the compressor clutch in the event refrigerant loss occurs. The switch will automatically reset.

Although both safety switches will reset, the occurrence of high pressure fault causes a 1 amp circuit breaker in the "Master A/C Electrical Panel" to trip. The compressor clutch and condenser blower are electrically dis-engaged when this occurs. Maintenance personnel MUST correct the fault once the aircraft is on the ground.

Air circulation is still available, even if a fault occurs.

The evaporator fan system may be used anytime air circulation is desired. This is accomplished by placing the "MASTER" rocker/toggle switch in the "FAN" position.



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MANUFACTURER'S DATA (continued)

**APPENDIX**

**A.0 ELECTRICAL LOADING**

The maximum electrical requirements of the air conditioning system are as follows:

Condenser Blower	1 each @ 20 amps = 20 amps
Compressor	1 each @ 3 amps = 3 amps
Evaporator Fan (FWD)	1 each @ 7 amps = 7 amps
Evaporator Fan (AFT)	1 each @ 13 amps = <u>13 amps</u>
<b>TOTAL</b>	<b>43 amps</b>

FLIGHT MANUAL

SUPPLEMENT

FOR

AS350BA



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**FAA Approved**  
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**For**  
**Airbus Helicopters**

**Model: AS350 BA**

**Document Number: 19-350-21-009**

**-031 Dual Condenser**

**Registration Number: \_\_\_\_\_**

**Serial Number: \_\_\_\_\_**


This supplement must be attached to the FAA approved Rotorcraft Flight Manual, dated March 11, 1992, or later approved revision, when an RSG Products Inc. air conditioning system is installed in accordance with STC No. SH3509SW.

The Information contained herein supplements or supersedes the basic Rotorcraft Flight Manual only in those areas listed herein. For limitations, procedures, and performance information not contained in this document, consult the basic Rotorcraft Flight Manual.

APPROVED: Scott A. Horn DATE: August 18, 2015

Scott A. Horn, Manager  
Fort Worth Aircraft  
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**LOG OF REVISIONS**

<u>REV</u>	<u>Affected Pages</u>	<u>Reason for Change</u>	<u>Date</u>	<u>FAA APPROVED</u>
Original	1-8		5/15/1992	ASW170
A	6-7	<p>Page 6: Section 5: Replaced existing data with performance degradation information.</p> <p>Page 7: System change.            Was: "2 each 15 amp and 2 each 20 amp circuit breakers"            Is: "1 each 15 amp and 3 each 20 amp circuit breakers"</p>	7/12/2013	Scott Horn Mgr. ASW170 Fort Worth, TX
B	1-9	<p>Reformatted document to RSG Products Template.</p> <p>Page 1: Changed aircraft manufacturer. Was: "Aerospatiale Helicopter Corporation."            Is: "Airbus Helicopters."</p> <p>Page 4/5: Added switch names to normal and emergency procedure instructions.</p> <p>Page 6/7: Added instructions based on A/C configuration descriptions.</p> <p>Page 7: Location of FWD Switch Panel Was: "to the right of the instrument panel."            Is: "on the instrument panel."</p> <p>Page 7: 5 amp circuit breaker location            Was: "below the left air outlet."            Is: "in the instrument panel on the right of the switch assembly."</p>	11/17/2014	 (Signature)  Scott A. Horn, Manager Fort Worth Aircraft Certification Office, ASW-140 Federal Aviation Administration Fort Worth, TX 76177  <u>AUG 18 2015</u> (Date)

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A.0 ELECTRICAL LOADING ..... 8

## **1.0 GENERAL**

The installation consist of a belt drive vapor-cycle air conditioning system.

## **2.0 OPERATING LIMITATIONS**

- The air conditioning system must be "OFF" during engine start.
- Operation of the air conditioning system is if the generator is inoperative.
- "MAG" compass deviation may be excessive with air conditioner, "A/C", or fan, "FAN", "ON". Turn air conditioner "OFF" to read "MAG" compass.
- The air conditioning system must be turned "OFF" during takeoff, approach, and landing above 7000 feet density altitude.
- The air conditioning system must be turned "OFF" to obtain the FAA approved Rotorcraft Flight Manual performance above 7000 feet density altitude.

## **3.0 EMERGENCY PROCEDURES**

### **3.1 EMERGENCY PROCEDURES**

- In the event of an engine failure, turn air conditioner "MASTER" switch to "OFF".
- In the event of electrical power failure, turn air conditioner "MASTER" switch to "OFF".

### **3.2 EXCESSIVE TEMPERATURE, FIRE, SMOKE**

In the event of any of the following, turn air conditioner "MASTER" switch to "OFF".

1. Cabin or other fire.
2. Presence of smoke.

#### **4.0 NORMAL PROCEDURES**

##### **4.1 GROUND OPERATIONS**

- Air conditioning system operation: The forward air conditioning control switches are located on the instrument panel.
- To turn the air conditioner “ON” - Move “MASTER” switch to “A/C”.
- To turn the air conditioner “OFF” – Move “MASTER” switch to “OFF”.
- For air circulation without cooling – Move “MASTER” switch to “FAN”.
- For high speed air circulation – Move “FWD FAN” switch to “HI”.
- For low speed air circulation – Move “FWD FAN” switch to “LOW”.
- For medium speed air circulation – Move “FWD FAN” switch to “MED” (when option is present).

The aft air conditioning control switch is located on the overhead aft cabin (Basic) or on the instrument panel (Tour 1).

- For high speed air circulation – Move “AIR CONDITIONER” or “AFT FAN” switch to “HI”.
- For low speed air circulation – Move “AIR CONDITIONER” or “AFT FAN” switch to “LOW”.

##### **4.2 NORMAL PROCEDURES**

Ground and flight operations:

- Ventilation control – As desired (Close for cockpit/cabin cooling).
- Air conditioning “MASTER” control switch – As desired.
- Air conditioning “FWD FAN” speed control switch – As desired.
- “AIR CONDITIONER” or “AFT FAN” speed control switch – As desired.

## **5.0 PERFORMANCE DATA**

Reduce IGE maximum weight by 25 lbs.

Reduce OGE maximum weight by 25 lbs.

Reduce RFM Rate of Climb by 70 fpm.

## **MANUFACTURER'S DATA**

### **6.0 WEIGHT AND BALANCE**

Weight and Balance must be computed with the air conditioning system installed. Approximate air conditioning weight is 80 lbs. See installation instructions supplied with kit for actual weight.

### **7.0 SYSTEMS DESCRIPTION**

The air conditioning installation consists of a belt driven vapor cycle (Freon) air conditioning system using R-134a refrigerant.

The air conditioning system provides for cabin comfort during all operations both on the ground and in flight. During ground operations when the engine is running, cooling may be provided. Controls for the air conditioning system are located based on the configuration selected.

#### **For Basic Configuration:**

(Control switches located on instrument panel & overhead aft cabin)

The control switches are located on the instrument panel and overhead in the aft cabin. The switch panel on the instrument panel contains two (2) switches, the "MASTER" control selector consists of a toggle type switch, labeled "A/C", "OFF", and "FAN". Selecting the "A/C" position turns on the system's dual evaporator fans, dual condenser blowers, and belt driven compressor. The second toggle switch, "FWD FAN", provides "HI" and "LOW" forward evaporator fan speed selection for the cockpit. Another toggle switch, "AIR CONDITIONER", is located overhead in the aft cabin and provides "HI" and "LOW" aft evaporator fan speed selection.

## MANUFACTURER'S DATA (continued)

**For Tour 1 Configuration:**

(Control switches located on instrument panel)

The control switches are located on the instrument panel. The switch panel on the instrument panel contains three (3) switches, the "MASTER" control selector consists of a rocker type switch, labeled "A/C", "OFF", and "FAN". Selecting the "A/C" position turns on the system's dual evaporator fans, dual condenser blowers, and belt driven compressor. The second rocker switch, "FWD FAN", provides "HI", "LOW", and "MED" forward evaporator fan speed selection for the cockpit. The third rocker switch, "AFT FAN", provides "HI" and "LOW" aft evaporator fan speed selection for the cabin.

**Applies to Both Configurations:**

Thermostatic temperature control is not provided. A 5 amp circuit breaker located in the instrument panel on the right of the switch assembly disconnects power to all relays.

A high pressure safety switch, located on the condenser or compressor, disengages the compressor and stops operation of the system in the event of excessive refrigerant pressure. This can occur due to failure of the condenser blower or restricted air intake. The switch will automatically reset itself and the system will cycle on again when the pressures are reduced below a predetermined point.

The evaporator fan system may be used anytime air circulation is desired. This is accomplished by placing the "MASTER" rocker/toggle switch in the "FAN" position.

System electrical protection is provided by 1 each 15 amp and 3 each 20 amp circuit breakers labeled "CONDENSER FAN" and "EVAPORATOR FAN" in the Air Conditioning Electrical Control Panel. This panel is located in the right side baggage compartment above the battery.



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MANUFACTURER'S DATA (continued)

**APPENDIX**

**A.0 ELECTRICAL LOADING**

The maximum electrical requirements of the air conditioning system are as follows:

Condenser Blower	2 each @ 13 amps = 26 amps
Compressor	1 each @ 2 amps = 2 amps
Evaporator Fan (FWD)	1 each @ 7 amps = 7 amps
Evaporator Fan (AFT)	1 each @ 13 amps = <u>13 amps</u>
<b>TOTAL</b>	<b>48 amps</b>



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**For**  
**Airbus Helicopters**

**Model: AS350 BA**

**Document Number: 19-350-21-010**

**-011 Single Condenser**

**Registration Number: \_\_\_\_\_**

**Serial Number: \_\_\_\_\_**

This supplement must be attached to the FAA approved Rotorcraft Flight Manual, dated March 11, 1992, or later approved revision, when an RSG Products Inc. air conditioning system is installed in accordance with STC No. SH3509SW.

The Information contained herein supplements or supersedes the basic Rotorcraft Flight Manual only in those areas listed herein. For limitations, procedures, and performance information not contained in this document, consult the basic Rotorcraft Flight Manual.


APPROVED: Scott A. Horn DATE: August 18, 2015

Scott A. Horn, Manager  
Fort Worth Aircraft  
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**LOG OF REVISIONS**

<u>REV</u>	<u>Affected Pages</u>	<u>Reason for Change</u>	<u>Date</u>	<u>FAA APPROVED</u>
Original	1-8		5/15/1992	ASW170
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B	1-9	<p>Reformatted document to RSG Products Template.</p> <p>Page 1: Changed aircraft manufacturer.          Was: "Aerospatiale Helicopter Corporation."          Is: "Airbus Helicopters."</p> <p>Page 5/6: Added switch names to normal and emergency procedure instructions.</p> <p>Page 7/8: Added instructions based on A/C configuration descriptions.</p> <p>Page 8: Location of FWD Switch Panel Was: "to the right of the instrument panel."          Is: "on the instrument panel."</p> <p>Page 8: 5 amp circuit breaker location          Was: "below the left air outlet."          Is: "in the instrument panel on the right of the switch assembly."</p>	11/17/2014	<p>          (Signature)</p> <p>Scott A. Horn, Manager          Fort Worth Aircraft Certification Office, ASW-140          Federal Aviation Administration          Fort Worth, TX 76177</p> <p><b>AUG 18 2015</b>          (Date)</p>
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## **1.0 GENERAL**

The installation consist of a belt drive vapor-cycle air conditioning system.

## **2.0 OPERATING LIMITATIONS**

- The air conditioning system must be “OFF” during engine start.
- Operation of the air conditioning system is prohibited if the generator is inoperative.
- “MAG” compass deviation may be excessive with air conditioner, “A/C”, or fan, “FAN”, “ON”. Turn air conditioner “OFF” to read “MAG” compass.
- The air conditioning system must be turned “OFF” during takeoff, approach, and landing above 7000 feet density altitude.
- The air conditioning system must be turned “OFF” to obtain the FAA approved Rotorcraft Flight Manual performance above 7000 feet density altitude.

## **3.0 EMERGENCY PROCEDURES**

### **3.1 EMERGENCY PROCEDURES**

- In the event of an engine failure, turn air conditioner “MASTER” switch to “OFF”.
- In the event of electrical power failure, turn air conditioner “MASTER” switch to “OFF”.

### **3.2 EXCESSIVE TEMPERATURE, FIRE, SMOKE**

In the event of any of the following, turn air conditioner “MASTER” switch to “OFF”.

1. Cabin or other fire.
2. Presence of smoke.

#### **4.0 NORMAL PROCEDURES**

##### **4.1 GROUND OPERATIONS**

- Air conditioning system operation: The forward air conditioning control switches are located on the instrument panel.
- To turn the air conditioner "ON" - Move "MASTER" switch to "A/C".
- To turn the air conditioner "OFF" – Move "MASTER" switch to "OFF".
- For air circulation without cooling – Move "MASTER" switch to "FAN".
- For high speed air circulation – Move "FWD FAN" switch to "HI".
- For low speed air circulation – Move "FWD FAN" switch to "LOW".
- For medium speed air circulation – Move "FWD FAN" switch to "MED" (when option is present).

The aft air conditioning control switch is located on the overhead aft cabin (Basic) or on the instrument panel (Tour 1).

- For high speed air circulation – Move "AIR CONDITIONER" or "AFT FAN" switch to "HI".
- For low speed air circulation – Move "AIR CONDITIONER" or "AFT FAN" switch to "LOW".

##### **4.2 NORMAL PROCEDURES**

Ground and flight operations:

- Ventilation control – As desired (Close for cockpit/cabin cooling).
- Air conditioning "MASTER" control switch – As desired.
- Air conditioning "FWD FAN" speed control switch – As desired.
- "AIR CONDITIONER" or "AFT FAN" speed control switch – As desired.

## **5.0 PERFORMANCE DATA**

Reduce IGE maximum weight by 25 lbs.

Reduce OGE maximum weight by 25 lbs.

Reduce RFM Rate of Climb by 70 fpm.

## **MANUFACTURER'S DATA**

### **6.0 WEIGHT AND BALANCE**

Weight and Balance must be computed with the air conditioning system installed. Approximate air conditioning weight is 80 lbs. See installation instructions supplied with kit for actual weight.

### **7.0 SYSTEMS DESCRIPTION**

The air conditioning installation consists of a belt driven vapor cycle (Freon) air conditioning system using R-134a refrigerant.

The air conditioning system provides for cabin comfort during all operations both on the ground and in flight. During ground operations when the engine is running, cooling may be provided. Controls for the air conditioning system are located based on the configuration selected.

#### **For Basic Configuration:**

(Control switches located on instrument panel & overhead aft cabin)

The control switches are located on the instrument panel and overhead in the aft cabin. The switch panel on the instrument panel contains two (2) switches (rocker or toggle depending on configuration selected), the "MASTER" control selector consists of a rocker/toggle type switch, labeled "A/C", "OFF", and "FAN". Selecting the "A/C" position turns on the system's dual evaporator fans, single condenser blower, and belt driven compressor. The second rocker/toggle switch, "FWD FAN", provides "HI" and "LOW" forward evaporator fan speed selection for the cockpit ("MED" speed option is available with rocker switch configuration). Another rocker/toggle switch, "AIR CONDITIONER", is located overhead in the aft cabin and provides "HI" and "LOW" aft evaporator fan speed selection.

## MANUFACTURER'S DATA (continued)

**For Tour 1 Configuration:**

(Control switches located on instrument panel)

The control switches are located on the instrument panel. The switch panel on the instrument panel contains three (3) switches, the "MASTER" control selector consists of a rocker type switch, labeled "A/C", "OFF", and "FAN". Selecting the "A/C" position turns on the system's dual evaporator fans, single condenser blower, and belt driven compressor. The second rocker switch, "FWD FAN", provides "HI", "LOW", and "MED" forward evaporator fan speed selection for the cockpit. The third rocker switch, "AFT FAN", provides "HI" and "LOW" aft evaporator fan speed selection for the cabin.

**Applies to Both Configurations:**

Thermostatic temperature control is not provided. A 5 amp circuit breaker located in the instrument panel on the right of the switch assembly disconnects power to all relays.

A high pressure safety switch, located on the compressor (or under the cabin floor, outboard of the right side keel beam on later kits) disengages the compressor and stops operation of the system in the event of excessive refrigerant pressure. This can occur due to failure of the condenser blower or restricted air intake. The switch will automatically reset itself.

A low pressure safety switch is located on the compressor (or under the cabin floor, outboard of the right side keel beam). It opens and stops operation of the compressor clutch in the event refrigerant loss occurs. The switch will automatically reset.

Although both safety switches will reset, the occurrence of high pressure fault causes a 1 amp circuit breaker in the "Master A/C Electrical Panel" to trip. The compressor clutch and condenser blower are electrically dis-engaged when this occurs. Maintenance personnel MUST correct the fault once the aircraft is on the ground.

Air circulation is still available, even if a fault occurs.

The evaporator fan system may be used anytime air circulation is desired. This is accomplished by placing the "MASTER" rocker/toggle switch in the "FAN" position.



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MANUFACTURER'S DATA (continued)

**APPENDIX**

**A.0 ELECTRICAL LOADING**

The maximum electrical requirements of the air conditioning system are as follows:

Condenser Blower	1 each @ 20 amps = 20 amps
Compressor	1 each @ 3 amps = 3 amps
Evaporator Fan (FWD)	1 each @ 7 amps = 7 amps
Evaporator Fan (AFT)	1 each @ 13 amps = <u>13 amps</u>
<b>TOTAL</b>	<b>43 amps</b>

FLIGHT MANUAL

SUPPLEMENT

FOR

AS350B1





RSG Products Inc.  
3900 Falcon Way West  
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Fort Worth, TX 76106  
817-624-6600  
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**FAA Approved**  
**Rotorcraft Flight Manual Supplement**  
**For**  
**Airbus Helicopters**

**Model: AS350 B1**

**Document Number: 19-350-21-003**

**-031 Dual Condenser**

**Registration Number: \_\_\_\_\_**

**Serial Number: \_\_\_\_\_**

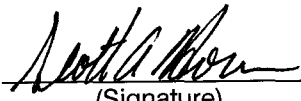
This supplement must be attached to the FAA approved Rotorcraft Flight Manual, dated February 13, 1987, or later approved revision, when an RSG Products Inc. air conditioning system is installed in accordance with STC No. SH3509SW.

The Information contained herein supplements or supersedes the basic Rotorcraft Flight Manual only in those areas listed herein. For limitations, procedures, and performance information not contained in this document, consult the basic Rotorcraft Flight Manual.

APPROVED: Scott A. Horn DATE: August 18, 2015

Scott A. Horn, Manager  
Fort Worth Aircraft  
Certification Office, ASW-140  
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Fort Worth, Texas 76177

**LOG OF REVISIONS**

<u>REV</u>	<u>Affected Pages</u>	<u>Reason for Change</u>	<u>Date</u>	<u>FAA APPROVED</u>
Original	1-7		10/27/1988	Denver ACO
A	1-2	Company name was Av-Aire Corporation, is Integrated Flight Systems, Inc.	4/30/1991	Denver ACO
B	5-6	Page 5: Section 5: Replaced existing data with performance degradation information.  Page 6: System change. Was: "2 each 15 amp and 2 each 20 amp circuit breakers" Is: "1 each 15 amp and 3 each 20 amp circuit breakers"	7/12/2013	ASW170 Fort Worth, TX
C	1-9	Reformatted document to RSG Products Template.  Page 1: Changed aircraft manufacturer. Was: "Aerospatiale Helicopter Corporation." Is: "Airbus Helicopters."  Page 5/6: Added switch names to normal and emergency procedure instructions.  Page 7/8: Added instructions based on A/C configuration descriptions.  Page 8: Location of FWD Switch Panel Was: "to the right of the instrument panel." Is: "on the instrument panel."  Page 8: 5 amp circuit breaker location Was: "below the left air outlet." Is: "in the instrument panel on the right of the switch assembly."	11/17/2014	 (Signature)  Scott A. Horn, Manager Fort Worth Aircraft Certification Office, ASW-140 Federal Aviation Administration Fort Worth, TX 76177 <b>AUG 18 2015</b> (Date)

NOTE: Revised portions of affected pages are identified by a vertical black line in the margin adjacent to the change.



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A.0 ELECTRICAL LOADING ..... 8

## **1.0 GENERAL**

The installation consist of a belt drive vapor-cycle air conditioning system.

## **2.0 OPERATING LIMITATIONS**

- The air conditioning system must be "OFF" during engine start.
- Operation of the air conditioning system is prohibited if the generator is inoperative.
- "MAG" compass deviation may be excessive with air conditioner, "A/C", or fan, "FAN", "ON". Turn air conditioner "OFF" to read "MAG" compass.
- The air conditioning system must be turned "OFF" during takeoff, approach, and landing above 7000 feet density altitude.
- The air conditioning system must be turned "OFF" to obtain the FAA approved Rotorcraft Flight Manual performance above 7000 feet density altitude.

## **3.0 EMERGENCY PROCEDURES**

### **3.1 EMERGENCY PROCEDURES**

- In the event of an engine failure, turn air conditioner "MASTER" switch to "OFF".
- In the event of electrical power failure, turn air conditioner "MASTER" switch to "OFF".

### **3.2 EXCESSIVE TEMPERATURE, FIRE, SMOKE**

In the event of any of the following, turn air conditioner "MASTER" switch to "OFF".

1. Cabin or other fire.
2. Presence of smoke.

#### 4.0 NORMAL PROCEDURES

##### 4.1 GROUND OPERATIONS

- Air conditioning system operation: The forward air conditioning control switches are located on the instrument panel.
- To turn the air conditioner "ON" - Move "MASTER" switch to "A/C".
- To turn the air conditioner "OFF" – Move "MASTER" switch to "OFF".
- For air circulation without cooling – Move "MASTER" switch to "FAN".
- For high speed air circulation – Move "FWD FAN" switch to "HI".
- For low speed air circulation – Move "FWD FAN" switch to "LOW".
- For medium speed air circulation – Move "FWD FAN" switch to "MED" (when option is present).

The aft air conditioning control switch is located on the overhead aft cabin (Basic) or on the instrument panel (Tour 1).

- For high speed air circulation – Move "AIR CONDITIONER" or "AFT FAN" switch to "HI".
- For low speed air circulation – Move "AIR CONDITIONER" or "AFT FAN" switch to "LOW".

##### 4.2 NORMAL PROCEDURES

Ground and flight operations:

- Ventilation control – As desired (Close for cockpit/cabin cooling).
- Air conditioning "MASTER" control switch – As desired.
- Air conditioning "FWD FAN" speed control switch – As desired.
- "AIR CONDITIONER" or "AFT FAN" speed control switch – As desired.

## **5.0 PERFORMANCE DATA**

Reduce IGE maximum weight by 25 lbs. above 3000 ft. altitude.

Reduce OGE maximum weight by 25 lbs. at all altitudes.

Reduce RFM Rate of Climb by 70 fpm.

## **MANUFACTURER'S DATA**

### **6.0 WEIGHT AND BALANCE**

Weight and Balance must be computed with the air conditioning system installed. Approximate air conditioning weight is 80 lbs. See installation instructions supplied with kit for actual weight.

### **7.0 SYSTEMS DESCRIPTION**

The air conditioning installation consists of a belt driven vapor cycle (Freon) air conditioning system using R-134a refrigerant.

The air conditioning system provides for cabin comfort during all operations both on the ground and in flight. During ground operations when the engine is running, cooling may be provided. Controls for the air conditioning system are located based on the configuration selected.

#### **For Basic Configuration:**

(Control switches located on instrument panel & overhead aft cabin)

The control switches are located on the instrument panel and overhead in the aft cabin. The switch panel on the instrument panel contains two (2) switches, the "MASTER" control selector consists of a toggle type switch, labeled "A/C", "OFF", and "FAN". Selecting the "A/C" position turns on the system's dual evaporator fans, dual condenser blowers, and belt driven compressor. The second toggle switch, "FWD FAN", provides "HI" and "LOW" forward evaporator fan speed selection for the cockpit. Another toggle switch, "AIR CONDITIONER", is located overhead in the aft cabin and provides "HI" and "LOW" aft evaporator fan speed selection.

MANUFACTURER'S DATA (continued)

**For Tour 1 Configuration:**

(Control switches located on instrument panel)

The control switches are located on the instrument panel. The switch panel on the instrument panel contains three (3) switches, the "MASTER" control selector consists of a rocker type switch, labeled "A/C", "OFF", and "FAN". Selecting the "A/C" position turns on the system's dual evaporator fans, dual condenser blowers, and belt driven compressor. The second rocker switch, "FWD FAN", provides "HI", "LOW", and "MED" forward evaporator fan speed selection for the cockpit. The third rocker switch, "AFT FAN", provides "HI" and "LOW" aft evaporator fan speed selection for the cabin.

**Applies to Both Configurations:**

Thermostatic temperature control is not provided. A 5 amp circuit breaker located in the instrument panel on the right of the switch assembly disconnects power to all relays.

A high pressure safety switch, located on the condenser or compressor, disengages the compressor and stops operation of the system in the event of excessive refrigerant pressure. This can occur due to failure of the condenser blower or restricted air intake. The switch will automatically reset itself and the system will cycle on again when the pressures are reduced below a predetermined point.

The evaporator fan system may be used anytime air circulation is desired. This is accomplished by placing the "MASTER" rocker/toggle switch in the "FAN" position.

System electrical protection is provided by 1 each 15 amp and 3 each 20 amp circuit breakers labeled "CONDENSER FAN" and "EVAPORATOR FAN" in the Air Conditioning Electrical Control Panel. This panel is located in the right side baggage compartment above the battery.



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MANUFACTURER'S DATA (continued)

**APPENDIX**

**A.0 ELECTRICAL LOADING**

The maximum electrical requirements of the air conditioning system are as follows:

Condenser Blower	2 each @ 13 amps = 26 amps
Compressor	1 each @ 2 amps = 2 amps
Evaporator Fan (FWD)	1 each @ 7 amps = 7 amps
Evaporator Fan (AFT)	1 each @ 13 amps = <u>13 amps</u>
<b>TOTAL</b>	<b>48 amps</b>





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**For**  
**Airbus Helicopters**

**Model: AS350 B1**

**Document Number: 19-350-21-004**

**-011 Single Condenser**

**Registration Number: \_\_\_\_\_**

**Serial Number: \_\_\_\_\_**

This supplement must be attached to the FAA approved Rotorcraft Flight Manual, dated February 13, 1987, or later approved revision, when an RSG Products Inc. air conditioning system is installed in accordance with STC No. SH3509SW.

The Information contained herein supplements or supersedes the basic Rotorcraft Flight Manual only in those areas listed herein. For limitations, procedures, and performance information not contained in this document, consult the basic Rotorcraft Flight Manual.

APPROVED: Scott A. Horn DATE: August 18, 2015

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Fort Worth Aircraft  
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**LOG OF REVISIONS**

<u>REV</u>	<u>Affected Pages</u>	<u>Reason for Change</u>	<u>Date</u>	<u>FAA APPROVED</u>
Original	1-7		10/27/1988	Denver ACO
A	1-2	Company name was Av-Aire Corporation, is Integrated Flight Systems, Inc.	4/30/1991	Denver ACO
B	5-7	<p>Page 5: Section 5: Replaced existing data with performance degradation information.</p> <p>Page 6: System change.            Was: "2 each 15 amp and 2 each 20 amp circuit breakers"            Is: "1 each 15 amp and 3 each 20 amp circuit breakers"</p> <p>Page 7: Changed component electrical requirement            Was: "14 amps"            Is: "20 amps"</p> <p>Page 7: Changed total electrical requirement            Was: "37 amps"            Is: "43 amps"</p>	7/12/2013	Scott Horn Mgr. ASW170 Fort Worth, TX

FAA APPROVED **AUG 13 2015**  
 ISSUE DATE : \_\_\_\_\_

C	1-10	<p>Reformatted document to RSG Products Template.</p> <p>Page 1: Changed aircraft manufacturer. Was: "Aerospatiale Helicopter Corporation."          Is: "Airbus Helicopters."</p> <p>Page 5/6: Added switch names to normal and emergency procedure instructions.</p> <p>Page 7/8: Added instructions based on A/C configuration descriptions.</p> <p>Page 8: Location of FWD Switch Panel Was: "to the right of the instrument panel."          Is: "on the instrument panel."</p> <p>Page 8: 5 amp circuit breaker location          Was: "below the left air outlet."          Is: "in the instrument panel on the right of the switch assembly."</p>	11/17/2014	<p>          (Signature)</p> <p>Scott A. Horn, Manager          Fort Worth Aircraft          Certification Office, ASW-140          Federal Aviation          Administration          Fort Worth, TX 76177</p> <p><u>AUG 18 2015</u>          (Date)</p>
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ISSUE DATE : \_\_\_\_\_

## **1.0 GENERAL**

The installation consist of a belt drive vapor-cycle air conditioning system.

## **2.0 OPERATING LIMITATIONS**

- The air conditioning system must be "OFF" during engine start.
- Operation of the air conditioning system is prohibited if the generator is inoperative.
- "MAG" compass deviation may be excessive with air conditioner, "A/C", or fan, "FAN", "ON". Turn air conditioner "OFF" to read "MAG" compass.
- The air conditioning system must be turned "OFF" during takeoff, approach, and landing above 7000 feet density altitude.

## **3.0 EMERGENCY PROCEDURES**

### **3.1 EMERGENCY PROCEDURES**

- In the event of an engine failure, turn air conditioner "MASTER" switch to "OFF".
- In the event of electrical power failure, turn air conditioner "MASTER" switch to "OFF".

### **3.2 EXCESSIVE TEMPERATURE, FIRE, SMOKE**

In the event of any of the following, turn air conditioner "MASTER" switch to "OFF".

1. Cabin or other fire.
2. Presence of smoke.

## **4.0 NORMAL PROCEDURES**

### **4.1 GROUND OPERATIONS**

- Air conditioning system operation: The forward air conditioning control switches are located on the instrument panel.
- To turn the air conditioner "ON" - Move "MASTER" switch to "A/C".
- To turn the air conditioner "OFF" – Move "MASTER" switch to "OFF".
- For air circulation without cooling – Move "MASTER" switch to "FAN".
- For high speed air circulation – Move "FWD FAN" switch to "HI".
- For low speed air circulation – Move "FWD FAN" switch to "LOW".
- For medium speed air circulation – Move "FWD FAN" switch to "MED" (when option is present).

The aft air conditioning control switch is located on the overhead aft cabin (Basic) or on the instrument panel (Tour 1).

- For high speed air circulation – Move "AIR CONDITIONER" or "AFT FAN" switch to "HI".
- For low speed air circulation – Move "AIR CONDITIONER" or "AFT FAN" switch to "LOW".

### **4.2 NORMAL PROCEDURES**

Ground and flight operations:

- Ventilation control – As desired (Close for cockpit/cabin cooling).
- Air conditioning "MASTER" control switch – As desired.
- Air conditioning "FWD FAN" speed control switch – As desired.
- "AIR CONDITIONER" or "AFT FAN" speed control switch – As desired.

## **5.0 PERFORMANCE DATA**

Reduce IGE maximum weight by 25 lbs. above 3000 ft. altitude.

Reduce OGE maximum weight by 25 lbs. at all altitudes.

Reduce RFM Rate of Climb by 70 fpm.

## **MANUFACTURER'S DATA**

### **6.0 WEIGHT AND BALANCE**

Weight and Balance must be computed with the air conditioning system installed. Approximate air conditioning weight is 80 lbs. See installation instructions supplied with kit for actual weight.

### **7.0 SYSTEMS DESCRIPTION**

The air conditioning installation consists of a belt driven vapor cycle (Freon) air conditioning system using R-134a refrigerant.

The air conditioning system provides for cabin comfort during all operations both on the ground and in flight. During ground operations when the engine is running, cooling may be provided. Controls for the air conditioning system are located based on the configuration selected.

#### **For Basic Configuration:**

(Control switches located on instrument panel & overhead aft cabin)

The control switches are located on the instrument panel and overhead in the aft cabin. The switch panel on the instrument panel contains two (2) switches (rocker or toggle depending on configuration selected), the "MASTER" control selector consists of a rocker/toggle type switch, labeled "A/C", "OFF", and "FAN". Selecting the "A/C" position turns on the system's dual evaporator fans, single condenser blower, and belt driven compressor. The second rocker/toggle switch, "FWD FAN", provides "HI" and "LOW" forward evaporator fan speed selection for the cockpit ("MED" speed option is available with rocker switch configuration). Another rocker/toggle switch, "AIR CONDITIONER", is located overhead in the aft cabin and provides "HI" and "LOW" aft evaporator fan speed selection.

MANUFACTURER'S DATA (continued)

**For Tour 1 Configuration:**

(Control switches located on instrument panel)

The control switches are located on the instrument panel. The switch panel on the instrument panel contains three (3) switches, the "MASTER" control selector consists of a rocker type switch, labeled "A/C", "OFF", and "FAN". Selecting the "A/C" position turns on the system's dual evaporator fans, single condenser blower, and belt driven compressor. The second rocker switch, "FWD FAN", provides "HI", "LOW", and "MED" forward evaporator fan speed selection for the cockpit. The third rocker switch, "AFT FAN", provides "HI" and "LOW" aft evaporator fan speed selection for the cabin.

**Applies to Both Configurations:**

Thermostatic temperature control is not provided. A 5 amp circuit breaker located in the instrument panel on the right of the switch assembly disconnects power to all relays.

A high pressure safety switch, located on the condenser, disengages the compressor and stops operation of the system in the event of excessive Freon pressure. This can occur due to failure of the condenser blower or restricted air intake. The switch will automatically reset itself and the system will cycle on again when the pressures are reduced below a predetermined point.

The evaporator fan system may be used anytime air circulation is desired. This is accomplished by placing the "MASTER" rocker/toggle switch in the "FAN" position.

System electrical protection is provided by 1 each 15 amp, 1 each 20 amp, and 1 each 25 amp circuit breakers labeled "CONDENSER FAN" and "EVAPORATOR FANS", in the Air Conditioning Electrical Control Panel. This panel is located in the right side baggage compartment above the battery.





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MANUFACTURER'S DATA (continued)

**APPENDIX**

**A.0 ELECTRICAL LOADING**

The maximum electrical requirements of the air conditioning system are as follows:

Condenser Blower	1 each @ 20 amps = 20 amps
Compressor	1 each @ 3 amps = 3 amps
Evaporator Fan (FWD)	1 each @ 7 amps = 7 amps
Evaporator Fan (AFT)	1 each @ 13 amps = <u>13 amps</u>
<b>TOTAL</b>	<b>43 amps</b>

FLIGHT MANUAL

SUPPLEMENT

FOR

AS350B2



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**For**  
**Airbus Helicopters**

**Model: AS350 B2**

**Document Number: 19-350-21-005**

**-031 Dual Condenser**

**Registration Number: \_\_\_\_\_**

**Serial Number: \_\_\_\_\_**

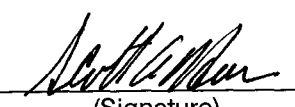
This supplement must be attached to the FAA approved Rotorcraft Flight Manual, dated June 8, 1990, or later approved revision, when an RSG Products Inc. air conditioning system is installed in accordance with STC No. SH3509SW.

The Information contained herein supplements or supersedes the basic Rotorcraft Flight Manual only in those areas listed herein. For limitations, procedures, and performance information not contained in this document, consult the basic Rotorcraft Flight Manual.

APPROVED:  DATE: August 18, 2015

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**LOG OF REVISIONS**

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A.0 ELECTRICAL LOADING ..... 8

## **1.0 GENERAL**

The installation consist of a belt drive vapor-cycle air conditioning system.

## **2.0 OPERATING LIMITATIONS**

- The air conditioning system must be "OFF" during engine start.
- Operation of the air conditioning system is prohibited if the if generator is inoperative.
- "MAG" compass deviation may be excessive with air conditioner, "A/C", or fan, "FAN", "ON". Turn air conditioner "OFF" to read "MAG" compass.

## **3.0 EMERGENCY PROCEDURES**

### **3.1 EMERGENCY PROCEDURES**

- In the event of an engine failure, turn air conditioner "MASTER" switch to "OFF".
- In the event of electrical power failure, turn air conditioner "MASTER" switch to "OFF".

### **3.2 EXCESSIVE TEMPERATURE, FIRE, SMOKE**

In the event of any of the following, turn air conditioner "MASTER" switch to "OFF".

1. Cabin or other fire.
2. Presence of smoke.

#### **4.0 NORMAL PROCEDURES**

##### **4.1 GROUND OPERATIONS**

- Air conditioning system operation: The forward air conditioning control switches are located on the instrument panel.
- To turn the air conditioner "ON" - Move "MASTER" switch to "A/C".
- To turn the air conditioner "OFF" - Move "MASTER" switch to "OFF".
- For air circulation without cooling - Move "MASTER" switch to "FAN".
- For high speed air circulation - Move "FWD FAN" switch to "HI".
- For low speed air circulation - Move "FWD FAN" switch to "LOW".
- For medium speed air circulation - Move "FWD FAN" switch to "MED" (when option is present).

The aft air conditioning control switch is located on the overhead aft cabin (Basic) or on the instrument panel (Tour 1).

- For high speed air circulation - Move "AIR CONDITIONER" or "AFT FAN" switch to "HI".
- For low speed air circulation - Move "AIR CONDITIONER" or "AFT FAN" switch to "LOW".

##### **4.2 NORMAL PROCEDURES**

Ground and flight operations:

- Ventilation control - As desired (Close for cockpit/cabin cooling).
- Air conditioning "MASTER" control switch - As desired.
- Air conditioning "FWD FAN" speed control switch - As desired.
- "AIR CONDITIONER" or "AFT FAN" speed control switch - As desired.

## **5.0 PERFORMANCE DATA**

Reduce IGE maximum weight by 25 lbs. above 2500 ft. altitude.

Reduce OGE maximum weight by 25 lbs. at all altitudes.

Reduce RFM Rate of Climb by 70 fpm.

## **MANUFACTURER'S DATA**

### **6.0 WEIGHT AND BALANCE**

Weight and Balance must be computed with the air conditioning system installed. Approximate air conditioning weight is 80 lbs. See installation instructions supplied with kit for actual weight.

### **7.0 SYSTEMS DESCRIPTION**

The air conditioning installation consists of a belt driven vapor cycle (Freon) air conditioning system using R-134a refrigerant.

The air conditioning system provides for cabin comfort during all operations both on the ground and in flight. During ground operations when the engine is running, cooling may be provided. Controls for the air conditioning system are located based on the configuration selected.

#### **For Basic Configuration:**

(Control switches located on instrument panel & overhead aft cabin)

The control switches are located on the instrument panel and overhead in the aft cabin. The switch panel on the instrument panel contains two (2) switches, the "MASTER" control selector consists of a toggle type switch, labeled "A/C", "OFF", and "FAN". Selecting the "A/C" position turns on the system's dual evaporator fans, dual condenser blowers, and belt driven compressor. The second toggle switch, "FWD FAN", provides "HI" and "LOW" forward evaporator fan speed selection for the cockpit. Another toggle switch, "AIR CONDITIONER", is located overhead in the aft cabin and provides "HI" and "LOW" aft evaporator fan speed selection.



## MANUFACTURER'S DATA (continued)

**For Tour 1 Configuration:**

(Control switches located on instrument panel)

The control switches are located on the instrument panel. The switch panel on the instrument panel contains three (3) switches, the "MASTER" control selector consists of a rocker type switch, labeled "A/C", "OFF", and "FAN". Selecting the "A/C" position turns on the system's dual evaporator fans, dual condenser blowers, and belt driven compressor. The second rocker switch, "FWD FAN", provides "HI", "LOW", and "MED" forward evaporator fan speed selection for the cockpit. The third rocker switch, "AFT FAN", provides "HI" and "LOW" aft evaporator fan speed selection for the cabin.

**Applies to Both Configurations:**

Thermostatic temperature control is not provided. A 5 amp circuit breaker located in the instrument panel on the right of the switch assembly disconnects power to all relays.

A high pressure safety switch, located on the condenser or compressor, disengages the compressor and stops operation of the system in the event of excessive refrigerant pressure. This can occur due to failure of the condenser blower or restricted air intake. The switch will automatically reset itself and the system will cycle on again when the pressures are reduced below a predetermined point.

The evaporator fan system may be used anytime air circulation is desired. This is accomplished by placing the "MASTER" rocker/toggle switch in the "FAN" position.

System electrical protection is provided by 1 each 15 amp and 3 each 20 amp circuit breakers labeled "CONDENSER FAN" and "EVAPORATOR FAN" in the Air Conditioning Electrical Control Panel. This panel is located in the right side baggage compartment above the battery.



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MANUFACTURER'S DATA (continued)

**APPENDIX**

**A.0 ELECTRICAL LOADING**

The maximum electrical requirements of the air conditioning system are as follows:

Condenser Blower	2 each @ 13 amps = 26 amps
Compressor	1 each @ 2 amps = 2 amps
Evaporator Fan (FWD)	1 each @ 7 amps = 7 amps
Evaporator Fan (AFT)	1 each @ 13 amps = <u>13 amps</u>
<b>TOTAL</b>	<b>48 amps</b>



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**FAA Approved**  
**Rotorcraft Flight Manual Supplement**  
**For**  
**Airbus Helicopters**

**Model: AS350 B2**

**Document Number: 19-350-21-006**

**-011 Single Condenser**

**Registration Number: \_\_\_\_\_**

**Serial Number: \_\_\_\_\_**

This supplement must be attached to the FAA approved Rotorcraft Flight Manual, dated June 8, 1990, or later approved revision, when an RSG Products Inc. air conditioning system is installed in accordance with STC No. SH3509SW.

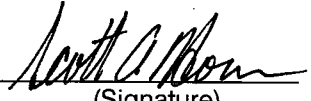
The Information contained herein supplements or supersedes the basic Rotorcraft Flight Manual only in those areas listed herein. For limitations, procedures, and performance information not contained in this document, consult the basic Rotorcraft Flight Manual.

APPROVED: Scott A. Horn DATE: August 18, 2015

Scott A. Horn, Manager  
Fort Worth Aircraft  
Certification Office, ASW-140  
Federal Aviation Administration  
Fort Worth, Texas 76177

**LOG OF REVISIONS**

<u>REV</u>	<u>Affected Pages</u>	<u>Reason for Change</u>	<u>Date</u>	<u>FAA APPROVED</u>
Original	1-7		4/30/1991	Denver ACO
A	5-7	<p>Page 5: Section 5: Replaced existing data with performance degradation information.</p> <p>Page 6: System change. Was: "either" Is: "high pressure"</p> <p>Page 7: System change. Was: "2 each 15 amp circuit breakers" Is: "1 each 15 amp and 1 each 20 amp circuit breakers"</p> <p>Page 7: System change. Was: "4 seconds" Is: "15 seconds"</p> <p>Page 7: System change. Was: "21 amps" Is: "22 amps"</p> <p>Page 7: Removed callout for (7" Enviro System, Inc. blower)</p> <p>Page 7: Changed component electrical requirement. Was: "19 amps" Is: "20 amps"</p> <p>Page 7: Changed total electrical requirement. Was: "41 amps" Is: "42 amps"</p>	7/12/2013	Scott Horn Mgr. ASW170 Fort Worth, TX

B	1-10	<p>Reformatted document to RSG Products Template.</p> <p>Page 1: Changed aircraft manufacturer. Was: "Aerospatiale Helicopter Corporation."          Is: "Airbus Helicopters."</p> <p>Page 5/6: Added switch names to normal and emergency procedure instructions.</p> <p>Page 7/8: Added instructions based on A/C configuration descriptions.</p> <p>Page 8: Location of FWD Switch Panel Was: "to the right of the instrument panel."          Is: "on the instrument panel."</p> <p>Page 8: 5 amp circuit breaker location          Was: "below the left air outlet."          Is: "in the instrument panel on the right of the switch assembly."</p>	11/17/2014	<p>          (Signature)</p> <p>Scott A. Horn, Manager          Fort Worth Aircraft          Certification Office, ASW-140          Federal Aviation          Administration          Fort Worth, TX 76177</p> <p><b>AUG 18 2015</b>          (Date)</p>
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## **1.0 GENERAL**

The installation consist of a belt drive vapor-cycle air conditioning system.

## **2.0 OPERATING LIMITATIONS**

- The air conditioning system must be "OFF" during engine start.
- Operation of the air conditioning system is prohibited if the generator is inoperative.
- "MAG" compass deviation may be excessive with air conditioner, "A/C", or fan, "FAN", "ON". Turn air conditioner "OFF" to read "MAG" compass.

## **3.0 EMERGENCY PROCEDURES**

### **3.1 EMERGENCY PROCEDURES**

- In the event of an engine failure, turn air conditioner "MASTER" switch to "OFF".
- In the event of electrical power failure, turn air conditioner "MASTER" switch to "OFF".

### **3.2 EXCESSIVE TEMPERATURE, FIRE, SMOKE**

In the event of any of the following, turn air conditioner "MASTER" switch to "OFF".

1. Cabin or other fire.
2. Presence of smoke.

## **4.0 NORMAL PROCEDURES**

### **4.1 GROUND OPERATIONS**

- Air conditioning system operation: The forward air conditioning control switches are located on the instrument panel.
- To turn the air conditioner "ON" - Move "MASTER" switch to "A/C".
- To turn the air conditioner "OFF" – Move "MASTER" switch to "OFF".
- For air circulation without cooling – Move "MASTER" switch to "FAN".
- For high speed air circulation – Move "FWD FAN" switch to "HI".
- For low speed air circulation – Move "FWD FAN" switch to "LOW".
- For medium speed air circulation – Move "FWD FAN" switch to "MED" (when option is present).

The aft air conditioning control switch is located on the overhead aft cabin (Basic) or on the instrument panel (Tour 1).

- For high speed air circulation – Move "AIR CONDITIONER" or "AFT FAN" switch to "HI".
- For low speed air circulation – Move "AIR CONDITIONER" or "AFT FAN" switch to "LOW".

### **4.2 NORMAL PROCEDURES**

Ground and flight operations:

- Ventilation control – As desired (Close for cockpit/cabin cooling).
- Air conditioning "MASTER" control switch – As desired.
- Air conditioning "FWD FAN" speed control switch – As desired.
- "AIR CONDITIONER" or "AFT FAN" speed control switch – As desired.



## **5.0 PERFORMANCE DATA**

Reduce IGE maximum weight by 25 lbs. above 2500 ft. altitude.

Reduce OGE maximum weight by 25 lbs. at all altitudes.

Reduce RFM Rate of Climb by 70 fpm.

## **MANUFACTURER'S DATA**

### **6.0 WEIGHT AND BALANCE**

Weight and Balance must be computed with the air conditioning system installed. Approximate air conditioning weight is 79 lbs. See installation instructions supplied with kit for actual weight.

### **7.0 SYSTEMS DESCRIPTION**

The air conditioning installation consists of a belt driven vapor cycle (Freon) air conditioning system using R-134a refrigerant.

The air conditioning system provides for cabin comfort during all operations both on the ground and in flight. During ground operations when the engine is running, cooling may be provided. Controls for the air conditioning system are located based on the configuration selected.

#### **For Basic Configuration:**

(Control switches located on instrument panel & overhead aft cabin)

The control switches are located on the instrument panel and overhead in the aft cabin. The switch panel on the instrument panel contains two (2) switches (rocker or toggle depending on configuration selected), the "MASTER" control selector consists of a rocker/toggle type switch, labeled "A/C", "OFF", and "FAN". Selecting the "A/C" position turns on the system's dual evaporator fans, single condenser blower, and belt driven compressor. The second rocker/toggle switch, "FWD FAN", provides "HI" and "LOW" forward evaporator fan speed selection for the cockpit ("MED" speed option is available with rocker switch configuration). Another rocker/toggle switch, "AIR CONDITIONER", is located overhead in the aft cabin and provides "HI" and "LOW" aft evaporator fan speed selection.

## MANUFACTURER'S DATA (continued)

**For Tour 1 Configuration:**

(Control switches located on instrument panel)

The control switches are located on the instrument panel. The switch panel on the instrument panel contains three (3) switches, the "MASTER" control selector consists of a rocker type switch, labeled "A/C", "OFF", and "FAN". Selecting the "A/C" position turns on the system's dual evaporator fans, single condenser blower, and belt driven compressor. The second rocker switch, "FWD FAN", provides "HI", "LOW", and "MED" forward evaporator fan speed selection for the cockpit. The third rocker switch, "AFT FAN", provides "HI" and "LOW" aft evaporator fan speed selection for the cabin.

**Applies to Both Configurations:**

Thermostatic temperature control is not provided. A 5 amp circuit breaker located in the instrument panel on the right of the switch assembly disconnects power to all relays.

A high pressure safety switch, located on the compressor (or under the cabin floor, outboard of the right side keel beam on later kits) disengages the compressor and stops operation of the system in the event of excessive refrigerant pressure. This can occur due to failure of the condenser blower or restricted air intake. The switch will automatically reset itself.

A low pressure safety switch is located on the compressor (or under the cabin floor, outboard of the right side keel beam). It opens and stops operation of the compressor clutch in the event refrigerant loss occurs. The switch will automatically reset.

Although both safety switches will reset, the occurrence of high pressure fault causes a 1 amp circuit breaker in the "Master A/C Electrical Panel" to trip. The compressor clutch and condenser blower are electrically dis-engaged when this occurs. Maintenance personnel MUST correct the fault once the aircraft is on the ground.

Air circulation is still available, even if a fault occurs.

The evaporator fan system may be used anytime air circulation is desired. This is accomplished by placing the "MASTER" rocker/toggle switch in the "FAN" position.



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MANUFACTURER'S DATA (continued)

**Single 7" Vane Axial Condenser Blower (1):**

System electrical protection is provided by 1 each 15 amp, 1 each 20 amp, 1 each 25 amp, and 1 each 1 amp circuit breakers. Labeled "EVAP", "EVAP", "COND", and "RESET" on the Air Conditioning Electrical Control Panel. This panel is located in the right side baggage compartment above the battery.

Electrical "soft start" is provided. When the "A/C" switch is positioned to "ON", both evaporator fan/blowers immediately start causing a 20 amp draw. A timer delays the condenser blower and clutch operation for about 15 seconds, when an additional 22 amps are added to the system load.



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MANUFACTURER'S DATA (continued)

**APPENDIX**

**A.0 ELECTRICAL LOADING**

The maximum electrical requirements of the air conditioning system are as follows:

Condenser Blower	1 each @ 20 amps = 20 amps
Compressor	1 each @ 2 amps = 2 amps
Evaporator Fan (FWD)	1 each @ 7 amps = 7 amps
Evaporator Fan (AFT)	1 each @ 13 amps = <u>13 amps</u>
<b>TOTAL</b>	<b>42 amps</b>

Automatic electrical load shedding will not occur if a D.C. generator failure occurs.

Note: \*\*During conditions of high D.C. current use, such as battery recharging after engine start, use of landing lights, etc., it is possible that the electrical power requirements with the air conditioning "ON" may exceed rated output of the generator (150 amps, max.).

FLIGHT MANUAL

SUPPLEMENT

FOR

AS350B3



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**FAA Approved**  
**Rotorcraft Flight Manual Supplement**  
**For**  
**Airbus Helicopters**

**Model: AS350 B3**

**Document Number: 19-350-21-007**

**-031 Dual Condenser**

**Registration Number: \_\_\_\_\_**

**Serial Number: \_\_\_\_\_**


This supplement must be attached to the FAA approved Rotorcraft Flight Manual, dated May 7, 1998, or later approved revision, when an RSG Products Inc. air conditioning system is installed in accordance with STC No. SH3509SW.

The Information contained herein supplements or supersedes the basic Rotorcraft Flight Manual only in those areas listed herein. For limitations, procedures, and performance information not contained in this document, consult the basic Rotorcraft Flight Manual.

APPROVED: Scott A Horn DATE: August 18, 2015

Scott A. Horn, Manager  
Fort Worth Aircraft  
Certification Office, ASW-140  
Federal Aviation Administration  
Fort Worth, Texas 76177

**LOG OF REVISIONS**

<u>REV</u>	<u>Affected Pages</u>	<u>Reason for Change</u>	<u>Date</u>	<u>FAA APPROVED</u>
Original	1-7		2/8/1999	ASW170
A	5-6	<p>Page 5: Section 5: Replaced existing data with performance degradation information.</p> <p>Page 6: System change. Was: "2 each 15 amp and 2 each 20 amp circuit breakers" Is: "1 each 15 amp and 3 each 20 amp circuit breakers"</p>	7/12/2013	<p>Scott Horn Mgr. ASW170 Fort Worth, TX</p>
B	1-9	<p>Reformatted document to RSG Products Template.</p> <p>Page 1: Changed aircraft manufacturer. Was: "Aerospatiale Helicopter Corporation."</p> <p>Page 4/5: Added switch names to normal and emergency procedure instructions.</p> <p>Page 6/7: Added instructions based on A/C configuration descriptions.</p> <p>Page 7: Location of FWD Switch Panel Was: "to the right of the instrument panel." Is: "on the instrument panel."</p> <p>Page 7: 5 amp circuit breaker location Was: "below the left air outlet." Is: "in the instrument panel on the right of the switch assembly."</p>	11/17/2014	<p> (Signature)</p> <p>Scott A. Horn, Manager Fort Worth Aircraft Certification Office, ASW-140 Federal Aviation Administration Fort Worth, TX 76177</p> <p><b>AUG 18 2015</b> (Date)</p>

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## **1.0 GENERAL**

The installation consist of a belt drive vapor-cycle air conditioning system.

## **2.0 OPERATING LIMITATIONS**

- The air conditioning system must be “OFF” during engine start.
- Operation of the air conditioning system is prohibited if the total electrical load will exceed 150 amps, continuous or if generator is inoperative.
- “MAG” compass deviation may be excessive with air conditioner, “A/C”, or fan, “FAN”, “ON”. Turn air conditioner “OFF” to read “MAG” compass.

## **3.0 EMERGENCY PROCEDURES**

### **3.1 EMERGENCY PROCEDURES**

- In the event of an engine failure, turn air conditioner “MASTER” switch to “OFF”.
- In the event of electrical power failure, turn air conditioner “MASTER” switch to “OFF”.

### **3.2 EXCESSIVE TEMPERATURE, FIRE, SMOKE**

In the event of any of the following, turn air conditioner “MASTER” switch to “OFF”.

1. Cabin or other fire.
2. Presence of smoke.

#### **4.0 NORMAL PROCEDURES**

##### **4.1 GROUND OPERATIONS**

- Air conditioning system operation: The forward air conditioning control switches are located on the instrument panel.
- To turn the air conditioner "ON" - Move "MASTER" switch to "A/C".
- To turn the air conditioner "OFF" – Move "MASTER" switch to "OFF".
- For air circulation without cooling – Move "MASTER" switch to "FAN".
- For high speed air circulation – Move "FWD FAN" switch to "HI".
- For low speed air circulation – Move "FWD FAN" switch to "LOW".
- For medium speed air circulation – Move "FWD FAN" switch to "MED" (when option is present).

The aft air conditioning control switch is located on the overhead aft cabin (Basic) or on the instrument panel (Tour 1).

- For high speed air circulation – Move "AIR CONDITIONER" or "AFT FAN" switch to "HI".
- For low speed air circulation – Move "AIR CONDITIONER" or "AFT FAN" switch to "LOW".

##### **4.2 NORMAL PROCEDURES**

Ground and flight operations:

- Ventilation control – As desired (Close for cockpit/cabin cooling).
- Air conditioning "MASTER" control switch – As desired.
- Air conditioning "FWD FAN" speed control switch – As desired.
- "AIR CONDITIONER" or "AFT FAN" speed control switch – As desired.

## **5.0 PERFORMANCE DATA**

Reduce IGE maximum weight by 25 lbs. above 7500 ft. altitude.

Reduce OGE maximum weight by 25 lbs. above 6000 ft. altitude.

Reduce RFM Rate of Climb by 70 fpm.

## **MANUFACTURER'S DATA**

### **6.0 WEIGHT AND BALANCE**

Weight and Balance must be computed with the air conditioning system installed. Approximate air conditioning weight is 80 lbs. See installation instructions supplied with kit for actual weight.

### **7.0 SYSTEMS DESCRIPTION**

The air conditioning installation consists of a belt driven vapor cycle (Freon) air conditioning system using R-134a refrigerant.

The air conditioning system provides for cabin comfort during all operations both on the ground and in flight. During ground operations when the engine is running, cooling may be provided. Controls for the air conditioning system are located based on the configuration selected.

#### **For Basic Configuration:**

(Control switches located on instrument panel & overhead aft cabin)

The control switches are located on the instrument panel and overhead in the aft cabin. The switch panel on the instrument panel contains two (2) switches, the "MASTER" control selector consists of a toggle type switch, labeled "A/C", "OFF", and "FAN". Selecting the "A/C" position turns on the system's dual evaporator fans, dual condenser blowers, and belt driven compressor. The second toggle switch, "FWD FAN", provides "HI" and "LOW" forward evaporator fan speed selection for the cockpit. Another toggle switch, "AIR CONDITIONER", is located overhead in the aft cabin and provides "HI" and "LOW" aft evaporator fan speed selection.

MANUFACTURER'S DATA (continued)

**For Tour 1 Configuration:**

(Control switches located on instrument panel)

The control switches are located on the instrument panel. The switch panel on the instrument panel contains three (3) switches, the "MASTER" control selector consists of a rocker type switch, labeled "A/C", "OFF", and "FAN". Selecting the "A/C" position turns on the system's dual evaporator fans, dual condenser blowers, and belt driven compressor. The second rocker switch, "FWD FAN", provides "HI", "LOW", and "MED" forward evaporator fan speed selection for the cockpit. The third rocker switch, "AFT FAN", provides "HI" and "LOW" aft evaporator fan speed selection for the cabin.

**Applies to Both Configurations:**

Thermostatic temperature control is not provided. A 5 amp circuit breaker located in the instrument panel on the right of the switch assembly disconnects power to all relays.

A high pressure safety switch, located on the condenser or compressor, disengages the compressor and stops operation of the system in the event of excessive refrigerant pressure. This can occur due to failure of the condenser blower or restricted air intake. The switch will automatically reset itself and the system will cycle on again when the pressures are reduced below a predetermined point.

The evaporator fan system may be used anytime air circulation is desired. This is accomplished by placing the "MASTER" rocker/toggle switch in the "FAN" position.

System electrical protection is provided by 1 each 15 amp and 3 each 20 amp circuit breakers labeled "CONDENSER FAN" and "EVAPORATOR FAN" in the Air Conditioning Electrical Control Panel. This panel is located in the right side baggage compartment above the battery.



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MANUFACTURER'S DATA (continued)

**APPENDIX**

**A.0 ELECTRICAL LOADING**

The maximum electrical requirements of the air conditioning system are as follows:

Condenser Blower	2 each @ 13 amps = 26 amps
Compressor	1 each @ 2 amps = 2 amps
Evaporator Fan (FWD)	1 each @ 7 amps = 7 amps
Evaporator Fan (AFT)	1 each @ 13 amps = <u>13 amps</u>
<b>TOTAL</b>	<b>48 amps</b>



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**Rotorcraft Flight Manual Supplement**  
**For**  
**Airbus Helicopters**

**Model: AS350 B3**

**Document Number: 19-350-21-008**

**-011 Single Condenser**

**Registration Number: \_\_\_\_\_**

**Serial Number: \_\_\_\_\_**

This supplement must be attached to the FAA approved Rotorcraft Flight Manual, dated May 7, 1998, or later approved revision, when an RSG Products Inc. air conditioning system is installed in accordance with STC No. SH3509SW.

The Information contained herein supplements or supersedes the basic Rotorcraft Flight Manual only in those areas listed herein. For limitations, procedures, and performance information not contained in this document, consult the basic Rotorcraft Flight Manual.

APPROVED: Scott A. Horn DATE: August 18, 2015

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FAA APPROVED  
 ISSUE DATE : \_\_\_\_\_

**AUG 13 2015**

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FAA APPROVED  
 ISSUE DATE :     AUG 13 2015    

AUG 13 2015

## **1.0 GENERAL**

The installation consist of a belt drive vapor-cycle air conditioning system.

## **2.0 OPERATING LIMITATIONS**

- The air conditioning system must be "OFF" during engine start.
- Operation of the air conditioning system is prohibited if the total electrical load will exceed 150 amps, continuous or if generator is inoperative.
- "MAG" compass deviation may be excessive with air conditioner, "A/C", or fan, "FAN", "ON". Turn air conditioner "OFF" to read "MAG" compass.

## **3.0 EMERGENCY PROCEDURES**

### **3.1 EMERGENCY PROCEDURES**

- In the event of an engine failure, turn air conditioner "MASTER" switch to "OFF".
- In the event of electrical power failure, turn air conditioner "MASTER" switch to "OFF".

### **3.2 EXCESSIVE TEMPERATURE, FIRE, SMOKE**

In the event of any of the following, turn air conditioner "MASTER" switch to "OFF".

1. Cabin or other fire.
2. Presence of smoke.

## **4.0 NORMAL PROCEDURES**

### **4.1 GROUND OPERATIONS**

- Air conditioning system operation: The forward air conditioning control switches are located on the instrument panel.
- To turn the air conditioner "ON" - Move "MASTER" switch to "A/C".
- To turn the air conditioner "OFF" – Move "MASTER" switch to "OFF".
- For air circulation without cooling – Move "MASTER" switch to "FAN".
- For high speed air circulation – Move "FWD FAN" switch to "HI".
- For low speed air circulation – Move "FWD FAN" switch to "LOW".
- For medium speed air circulation – Move "FWD FAN" switch to "MED" (when option is present).

The aft air conditioning control switch is located on the overhead aft cabin (Basic) or on the instrument panel (Tour 1).

- For high speed air circulation – Move "AIR CONDITIONER" or "AFT FAN" switch to "HI".
- For low speed air circulation – Move "AIR CONDITIONER" or "AFT FAN" switch to "LOW".

### **4.2 NORMAL PROCEDURES**

Ground and flight operations:

- Ventilation control – As desired (Close for cockpit/cabin cooling).
- Air conditioning "MASTER" control switch – As desired.
- Air conditioning "FWD FAN" speed control switch – As desired.
- "AIR CONDITIONER" or "AFT FAN" speed control switch – As desired.

## **5.0 PERFORMANCE DATA**

Reduce IGE maximum weight by 25 lbs. above 7500 ft. altitude.

Reduce OGE maximum weight by 25 lbs. above 6000 ft. altitude.

Reduce RFM Rate of Climb by 70 fpm.

## **MANUFACTURER'S DATA**

### **6.0 WEIGHT AND BALANCE**

Weight and Balance must be computed with the air conditioning system installed. Approximate air conditioning weight is 79 lbs. See installation instructions supplied with kit for actual weight.

### **7.0 SYSTEMS DESCRIPTION**

The air conditioning installation consists of a belt driven vapor cycle (Freon) air conditioning system using R-134a refrigerant.

The air conditioning system provides for cabin comfort during all operations both on the ground and in flight. During ground operations when the engine is running, cooling may be provided. Controls for the air conditioning system are located based on the configuration selected.

#### **For Basic Configuration:**

(Control switches located on instrument panel & overhead aft cabin)

The control switches are located on the instrument panel and overhead in the aft cabin. The switch panel on the instrument panel contains two (2) switches (rocker or toggle depending on configuration selected), the "MASTER" control selector consists of a rocker/toggle type switch, labeled "A/C", "OFF", and "FAN". Selecting the "A/C" position turns on the system's dual evaporator fans, single condenser blower, and belt driven compressor. The second rocker/toggle switch, "FWD FAN", provides "HI" and "LOW" forward evaporator fan speed selection for the cockpit ("MED" speed option is available with rocker switch configuration). Another rocker/toggle switch, "AIR CONDITIONER", is located overhead in the aft cabin and provides "HI" and "LOW" aft evaporator fan speed selection.

MANUFACTURER'S DATA (continued)

**For Tour 1 Configuration:**

(Control switches located on instrument panel)

The control switches are located on the instrument panel. The switch panel on the instrument panel contains three (3) switches, the "MASTER" control selector consists of a rocker type switch, labeled "A/C", "OFF", and "FAN". Selecting the "A/C" position turns on the system's dual evaporator fans, single condenser blower, and belt driven compressor. The second rocker switch, "FWD FAN", provides "HI", "LOW", and "MED" forward evaporator fan speed selection for the cockpit. The third rocker switch, "AFT FAN", provides "HI" and "LOW" aft evaporator fan speed selection for the cabin.

**Applies to Both Configurations:**

Thermostatic temperature control is not provided. A 5 amp circuit breaker located in the instrument panel on the right of the switch assembly disconnects power to all relays.

A high pressure safety switch, located on the compressor (or under the cabin floor, outboard of the right side keel beam on later kits), disengages the compressor and stops operation of the system in the event of excessive refrigerant pressure. This can occur due to failure of the condenser blower or restricted air intake. The switch will automatically reset itself.

A low pressure safety switch is located on the compressor (or under the cabin floor, outboard of the right side keel beam). It opens and stops operation of the compressor clutch in the event refrigerant loss occurs. The switch will automatically reset.

Although both safety switches will reset, the occurrence of high pressure fault causes a 1 amp circuit breaker in the "Master A/C Electrical Panel" to trip. The compressor clutch and condenser blower are electrically dis-engaged when this occurs. Maintenance personnel MUST correct the fault once the aircraft is on the ground.

Air circulation is still available, even if a fault occurs.

The evaporator fan system may be used anytime air circulation is desired. This is accomplished by placing the "MASTER" rocker/toggle switch in the "FAN" position.



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MANUFACTURER'S DATA (continued)

**Single 7" Vane Axial Condenser Blower (1):**

System electrical protection is provided by 1 each 15 amp, 1 each 20 amp, 1 each 25 amp, and 1 each 1 amp circuit breakers. Labeled "EVAP", "EVAP", "COND", and "RESET" on the Air Conditioning Electrical Control Panel. This panel is located in the right side baggage compartment above the battery.

Electrical "soft start" is provided. When the "A/C" switch is positioned to "ON", both evaporator fan/blowers immediately start causing a 20 amp draw. A timer delays the condenser blower and clutch operation for about 15 seconds, when an additional 22 amps are added to the system load.



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MANUFACTURER'S DATA (continued)

**APPENDIX**

**A.0 ELECTRICAL LOADING**

The maximum electrical requirements of the air conditioning system are as follows:

Condenser Blower	1 each @ 20 amps = 20 amps
Compressor	1 each @ 2 amps = 2 amps
Evaporator Fan (FWD)	1 each @ 7 amps = 7 amps
Evaporator Fan (AFT)	1 each @ 13 amps = <u>13 amps</u>

**TOTAL            42 amps**

Automatic electrical load shedding will not occur if a D.C. generator failure occurs.

Note: \*\*During conditions of high D.C. current use, such as battery recharging after engine start, use of landing lights, etc., it is possible that the electrical power requirements with the air conditioning "ON" may exceed rated output of the generator (150 amps, max.).

# Step 12

## Continued Airworthiness

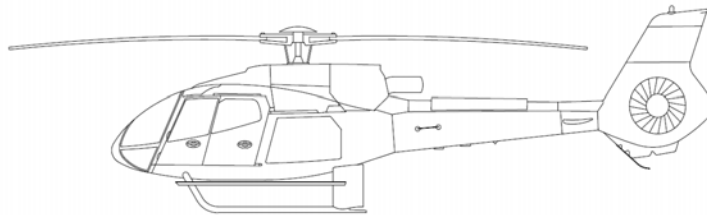
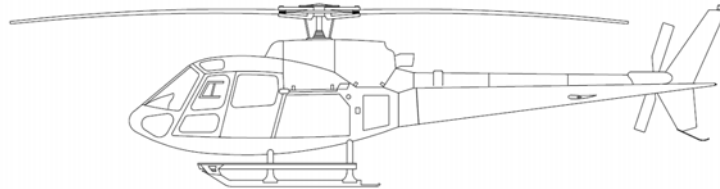


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Air Conditioning System Installation

Instructions for Continued Airworthiness  
for  
Airbus Helicopters AS-350 B, C, D, D1, B1, B2, B3, BA &  
EC-130 B4



**FAA Project Number: SA3109RC-R**  
**STC Number: SH3509SW**



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## LOG OF REVISIONS

Instructions for Continued Airworthiness for the Airbus Helicopters AS-350 B, C, D, D1, B, B1, B2, B3, BA and EC-130 B4 Air Conditioning System Installation have been reviewed and found to be acceptable to the Administrator. For the purpose of these Instructions for Continued Airworthiness (ICA), acceptable to the Administrator means the ICA contains the applicable requirements specified in Appendix A to Federal Aviation Regulations Part 27, as appropriate, do not contain any incorrect terminology or incorrect references, and contain a Cover Page, Log of Accepted Revisions, Revision Control Procedure and Record of Temporary Revisions, a list of Effective Pages, and a Table of Contents. Changes to this document will be distributed to owners of the kits within 10 days after the revision is approved. Changes to this document will be indicated by a revision letter in the header, in the Record of Revisions, and on the List of Effective Pages. Contact RSG Products by mail at 3900 Falcon Way West Hangar 16S, Fort Worth, TX, 76106. Or by phone at 817-624-6600.

REV	Date	Description	Written By	Checked By	FAA Approval	Approval Date
-	05/03/10	Original Issue	E. Sherrill	P. Ban		
A	06/11/10	Incorporated FAA redlines	E. Sherrill	K. Sheridan		
B	08/08/10	Revised to add Brushless Motor part information, page 87	E. Sherrill	P. Ban		
C	08/12/10	Incorporated FAA redlines	E. Sherrill	P. Ban		
C-1	12/11/13	Revised Chapter 5, 100 hour inspection to change belt on condition. Changed Name.	A. Weidler	S. Weidler		
C-2	09/17/14	Revised Chapter 12 and 21. Removed paragraphs 7 - 9 of Section 12-10-02.d. Removed sight glass troubleshooting information Section 21-00-06 under symptoms.	A. Cuellar	S. Weidler		
C-3	09/30/14	Revised chapter 5 to increase inspection interval to 150 Hours +/- 15	S. Weidler	S. Weidler		
D	11/19/14	Changed Template. Changed Mfr. Name. Was: Eurocopter, Is: Airbus Helicopters. Updated parts list with newer configurations. Parts list is now under Chapter 31. Updated	S. Johnson	S. Thornton		



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		electrical and plumbing diagrams and install drawings. Updated annual/150-hour inspection program in sections 05-00-00 and 05-10-00.				
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Typed signatures indicate approval. Handwritten signature approvals of this document are on file at RSG Products Inc.





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## LIST OF EFFECTIVE PAGES

### LIST OF REVISIONS

Revision A	December 06, 2012
Revision B	February 27, 2013
Revision C	May 14, 2013
Revision D	November 19, 2014

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Chapter 5 Continued Airworthiness Inspections	3 - 9	D
Chapter 6 Dimensions and Access	10 - 12	D
Chapter 11 Markings and Placards	13	D
Chapter 12 Servicing Maintenance Practices	14 - 30	D
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Chapter 21 Air Conditioning	42 - 56	D
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Chapter 98 Wiring Diagrams and Plumbing Schematics	89 - 101	D
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## Chapter 1

### Section 01-00-00 Introduction

These are accepted Instructions for Continued Airworthiness for modifications performed in accordance with the Airbus Helicopters AS-350 B, C, D, D1, B, B1, B3, BA and EC-130 B4 Belt-Driven Vapor Cycle Air Conditioning System Installation. All references to the Air Conditioning System in this document will refer to the Belt-Driven Air Conditioning System Installation and other related components specified in STC – SH3509SW. Whether modified by Rotorcraft Services Group. or by another Agency with expressed permission from RSG these Instructions for Continued Airworthiness (ICA) should be supplied to the owner/operator of the STC at the time of completion. Subsequent accepted changes to the ICA will be submitted by Rotorcraft Services Group for distribution to owners and operators of the STC.

This, Instructions for Continued Airworthiness, is intended to supplement the AS-350 B, C, D, D1, B, B1, B2, B3, BA, and EC-130 B4 rotorcraft maintenance manuals provided by Airbus Helicopters. The information, procedures, requirements, and limitations contained in this, Instructions for Continued Airworthiness, for this type design change supersede the information, procedures, requirements, and limitations contained in the rotorcraft's maintenance manual when the type design change is installed on the Type Certificate Holder's rotorcraft.





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## Chapter 4

### Section 04-00-00 Airworthiness Limitations

“The Airworthiness Limitations section is FAA approved and specifies inspections and other maintenance required under §§43.16 and 91.403 of the Federal Aviation Regulation unless an alternative program has been FAA approved.”

There are no additional airworthiness limitations associated with the Air Conditioning System Installation.

There are no life limited components associated with the Air Conditioning System Installation.

## Chapter 5

### Section 05-00-00 Continued Airworthiness Inspections

#### 1. General

This chapter contains time limit intervals for the Component Overhaul Schedule and Scheduled Inspections for the Air Conditioning System. This chapter is to be added to the approved scheduled inspection for the rotorcraft.

#### 2. Component Overhaul Schedule & Scheduled Maintenance Practices

This chapter describes the inspections that must be accomplished on the Air Conditioning System Installation at Scheduled Inspection intervals. Scheduled Inspection requirements must be complied with at the hourly and/or calendar time intervals specified. Refer to Tables 5-01 and 5-02, in Section 05-20-00 for hourly and/or calendar inspection schedules.

#### 3. Conditional Inspection

After any operational incident involving hard landings, sudden stoppage of the drive train or water immersions the system must not be operated and an Annual or 150 flight hour inspection is required.

#### 4. Documentation

Aircraft mechanics, owners, or operators are required to keep records of the aircraft systems inspections and repairs. This includes, but is not limited to, airworthiness directives, service notices, scheduled inspections, records and life limited components.

#### 5. Definitions

The following is short descriptions of words and terms used in the procedures for the required scheduled inspections.

- **Ambient air temperature:** The temperature of the air surrounding a person.
- **Charging station:** An air conditioning system service.
- **Cold:** The absence of heat.
- **Condensation:** The process of changing a vapor into a liquid.
- **Condition:** The state of an item or component compared to a known standard.



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- **Damage:** Physical deterioration of a component.
- **Desiccant:** A material used in the receiver/dryer bottle, to absorb moisture from the refrigerant.
- **Evaporate:** To change from a liquid into a vapor.
- **Examine:** Look carefully to find the condition of the component. Find how that condition is related to a specific standard.
- **Heat load:** The amount of heat which the air conditioner is required to remove from the aircraft cabin.
- **Inches of Mercury:** A measurement of pressure normally used for pressures below atmospheric, one i-h of mercury is equal to approximately one half pound per square i-h.
- **Inspection:** A procedure that includes checking, inspecting and examining a system or component.
- **Maintenance:** The servicing and/or repair of a rotorcraft, a system or a component that keeps it serviceable.
- **Pressure, ambient:** The pressure of the air surrounding a body, normally measured in Pounds per Square i-h, or PSIG.
- **Refrigerant:** A fluid which is used in an air conditioning system to absorb heat from the cabin and carry it outside the helicopter where it can be transferred to the outside air.
- **Relative Humidity:** The ratio of the amount of water vapor in the air to the amount of water vapor required to saturate the air at the existing temperature.
- **Scheduled Inspection:** An inspection procedure that must occur at a specified calendar interval or at specific operational time intervals. Scheduled Inspections are required to help ensure the rotorcraft stays airworthy.
- **Security:** Term used for inspection of hardware and components to make sure they are properly attached and tightened.
- **Temperature Differential:** Difference in temperature.
- **Thermostat:** An air condition control which senses the temperature of the evaporator coil and causes the system to cycle or by-pass to maintain the proper temperature of cooling air.
- **Vacuum:** A negative pressure, or pressure below atmospheric; it is usually expressed in inches of mercury.
- **Vapor:** The gaseous state of a material.



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## 6. Abbreviations:

- **ICA:** Instructions for Continued Airworthiness
- **TD:** Temperature differential
- **In:** Inches
- **InHg:** Inches of Mercury
- **lbs:** Pounds
- **oz:** Ounces
- **Psig:** Pounds per Square I-h (gauge)
- **gr:** Grams
- **kg:** Kilograms
- **kgcm:** Kilograms Per Centimeter
- **ml:** Milliliters
- **mm:** Millimeters
- **N-m:** Newton-meters



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## Section 05-10-00 Continued Airworthiness Scheduled Inspections

### 1. General

This section contains requirements for scheduled inspections.

### 2. Scheduled Inspection Program

The Air Conditioning System Installation requires scheduled inspections in order to maintain continued airworthiness. Every effort should be made to perform the inspections with the aircraft placed in a clean well lit environment. There are two different scheduled inspections required for the Air Conditioning System Installation.

#### a) 50-Hour Inspection

The 50-hour inspection is required to be performed every 50 hours of rotorcraft time-in-service. Inspection Table 5-01 specifies the requirements of the 50-hour inspection. The 50 hour inspection does not require any component removal unless a discrepancy is encountered.

#### b) Annual or 150-Hour Inspection

The inspection is required to be performed annually or every 150 hours of rotorcraft time-in-service, whichever comes first, +/- 15 hours. If inspection is overflowed then overflowed time must be deducted from the next inspection due. Inspection Table 5-02 specifies the requirements of the annual inspection.

### 3. Tools and Special Tools for Scheduled Inspection

Although not necessarily considered special tools, the adjustable ball swivel mirror and bright flashlight and / or drop light are standard requirements for doing inspections. These items should be used freely and frequently to enhance inspection quality and help ensure discrepancies are not missed. It is important to have adequate lighting for all phases of the inspection.

The special tools necessary for the Air Conditioning System Installation inspection are listed as follows:

- a) Vacuum Pump
- b) Gauge Manifold
- c) Vacuum Cleaner
- d) Pull Scale



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**Table 5-01 50 – Hour Inspection**

Registration No.	Serial No.	Helicopter Total Hours
<ul style="list-style-type: none"> <li>The 50-hour inspection shall be accomplished each 50 hours, time-in-service.</li> <li>Initial each item after accomplishing the inspection.</li> <li>Record all findings and attach a copy of findings to this inspection form.</li> <li>After correction of all findings, make maintenance record entry.</li> </ul>		
<b>PRE-INSPECTION</b>		<b>Initial</b>
1. Review Airworthiness Directives.		
2. Review records for the Air Conditioning System.		
3. Review log books for discrepancies.		
<b>INSPECTION</b>		<b>Initial</b>
1. Access the condenser (Ref. Section 6-00-00 Dimensions and Access). Check the entire condenser assembly for security, including support brackets and attachment fittings. Visually inspect the condenser blower mount.		
2. Access the compressor (Ref. Section 6-00-00 Dimensions and Access). Visually inspect the security of the compressor and mount.		
3. Inspect the condition of the belt for cracks, deterioration, separation and worn or flat spots. Change belt if necessary. Check belt for proper tension (Ref. 12-60-00 Belt Tension).		
4. Access the evaporators (Ref. 6-00-00 Dimensions and Access). Visually inspect for security.		
5. Inspect air outlets for condition.		
6. Test normal operation functions. (Ref. Section 12-50-00 Normal Operation Function Test)		



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**Table 5-02 Annual or 150 – Hour Inspection**

Registration No.	Serial No.	Helicopter Total Hours
<ul style="list-style-type: none"> <li>The inspection shall be accomplished annually or every 150 hours of rotorcraft time-in-service, whichever comes first, +/- 15 hours.</li> <li>If inspection is overflowed then overflowed time must be deducted from the next inspection due.</li> <li>Initial each item after accomplishing the inspection.</li> <li>Record all findings and attach a copy of findings to this inspection form.</li> <li>After correction of all findings, make maintenance record entry.</li> </ul>		
<b>PRE-INSPECTION</b>		<b>Initial</b>
1. Review Airworthiness Directives.		
2. Review records for the Air Conditioning System.		
3. Review log books for discrepancies.		
<b>INSPECTION</b>		<b>Initial</b>
1. Perform an operational test of the system in accordance with Section 12-50-00		
2. Complete the 50 Flight Hour Scheduled Inspection found in Table 5-01		
3. Inspect the condition of the belt for cracks, deterioration, separation and worn or flat spots. Change belt if necessary. Check belt for proper tension (Ref. 12-60-00 Belt Tension).		
4. Inspect the compressor for a true turning and free clutch. One mechanic should turn the main rotor blade while another observes the belt and clutch faceplate. Turn system to "A/C" and check magnetic operation of clutch faceplate. An independent #14 wire may be necessary from the compressor to an airframe ground in order to ensure that the clutch engages in a positive manner. If clutch plate and pulley show signs of excessive heat, replace clutch pulley assembly, bearing and coil (Ref. Section 12-20-00 Clutch Servicing Procedures)		
5. Inspect the compressor clutch bearing. It is <b>not mandatory</b> to grease the bearing. If the bearing is greased use a hypodermic needle, without removing the bearing using 3 to 5cc of Mobil 25 grease. This has proven to be satisfactory when performed at regularly scheduled inspections of 500 hours. Some operators flying as much as 200 hours per month have found that re-greasing can occur at more than 500 hour intervals, provided they <b>DO NOT OVER PACK THE BEARING.</b>		
<b>100% capacity packing of the bearing can cause a failure to occur in 1 to 1 ½ hours.</b>		
5. Inspect hoses for general condition, cuts or swelling. Replace as required.		
6. Check for security of all plumbing fittings (Ref. Section 12-40-00 Fitting Torque Procedures). Replace fittings as needed. Check security of clamps and anti-chaff material. Perform system leak check (Ref. 12-30-00 System leak check).		
7. For brushed motors only, access the Aft Evaporator (Ref. Section 6-00-00		



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<p>Dimensions and Access). Aft evaporator motor has two (2) removable brushes. Detach elbow from top of blower assembly. Remove brushes one (1) at a time. Note position relative to curvature of armature. Inspect brush for wear. Replace if brush is 5/16" or less. Install new brushes and run at 12 VDC (utilizing an independent power source).</p> <p>Until seating occurs on 70% of the surface (this should be accomplished with motor assembly removed from aircraft). This action will greatly enhance brush life. Reconnect wires to aircraft system and reinstall insulated duct. Run both of the blower/fans in the "FAN" position and perform visual inspection of the assemblies to see that foreign materials have not been ingested into the blower/fan, which might cause blade damage. The blower/fan should also be run at the various speeds available to check the motor operation.</p>	
<p>8. Access the condenser (Ref. Section 6-00-00 Dimensions and Access). Check the fins of the condenser coil for cleanliness and ensure that they are straight. If damage has occurred to the fins, a fin comb should be utilized to put them in like new condition.</p>	
<p>9. If the kit installed has a condenser motor with brushes: Two (2) brushes are located under caps on each side of the motor. Inspect brushes every 300 hours. Replace brushes with 5/16" or less.</p> <p><b>NOTE: TAKE CARE WHEN INSTALLING BRUSHES THAT BRAIDED POSITIVE LEAD DOES NOT CONTACT HOUSING, CAUSING A SHORT</b></p>	



## Chapter 6

### Section 06-00-00 Dimensions and Access

#### 1. Access Methods

##### a) Access Item Identification (Ref. figures 6-01 & 6-02)

- **Condenser-** The condenser is located in one of two positions depending on kit part number (Ref. Section 21.00.00 System Description). The aft mounted condenser (Kit numbers 350-00-031HP and 130-00-031HP) (Ref. figure 6-02) is mounted in the tail boom mounted 5 in. above the baggage floor and is accessed by removing the tail boom closeout panel. The side mounted condenser is located in the right baggage compartment (Ref. figure 6-01) and is accessed by removing to baggage compartment close out panel.
- **Compressor-** The compressor is located aft and to the left side on main transmission deck. It is accessed by opening the upper transmission cowling.
- **Aft Evaporator-** The aft evaporator is located on the right hand upper transmission deck in all configurations. It is accessed by opening the right hand transmission cowling forward latch.
- **Forward Evaporator-** In the AS-350 series, the forward evaporator is located on the cockpit floor forward of the pilots' controls. In the EC-130, it is located on the cockpit floor forward of the pedestal and mounted to the pedestal. No additional access method is required.

##### b) Removal and Installation Methods

**Caution:** Use of power tools during removal or installation of panels and attaching hardware may damage nut plates or deform holes in composite doors, covers, panels, and fairings.

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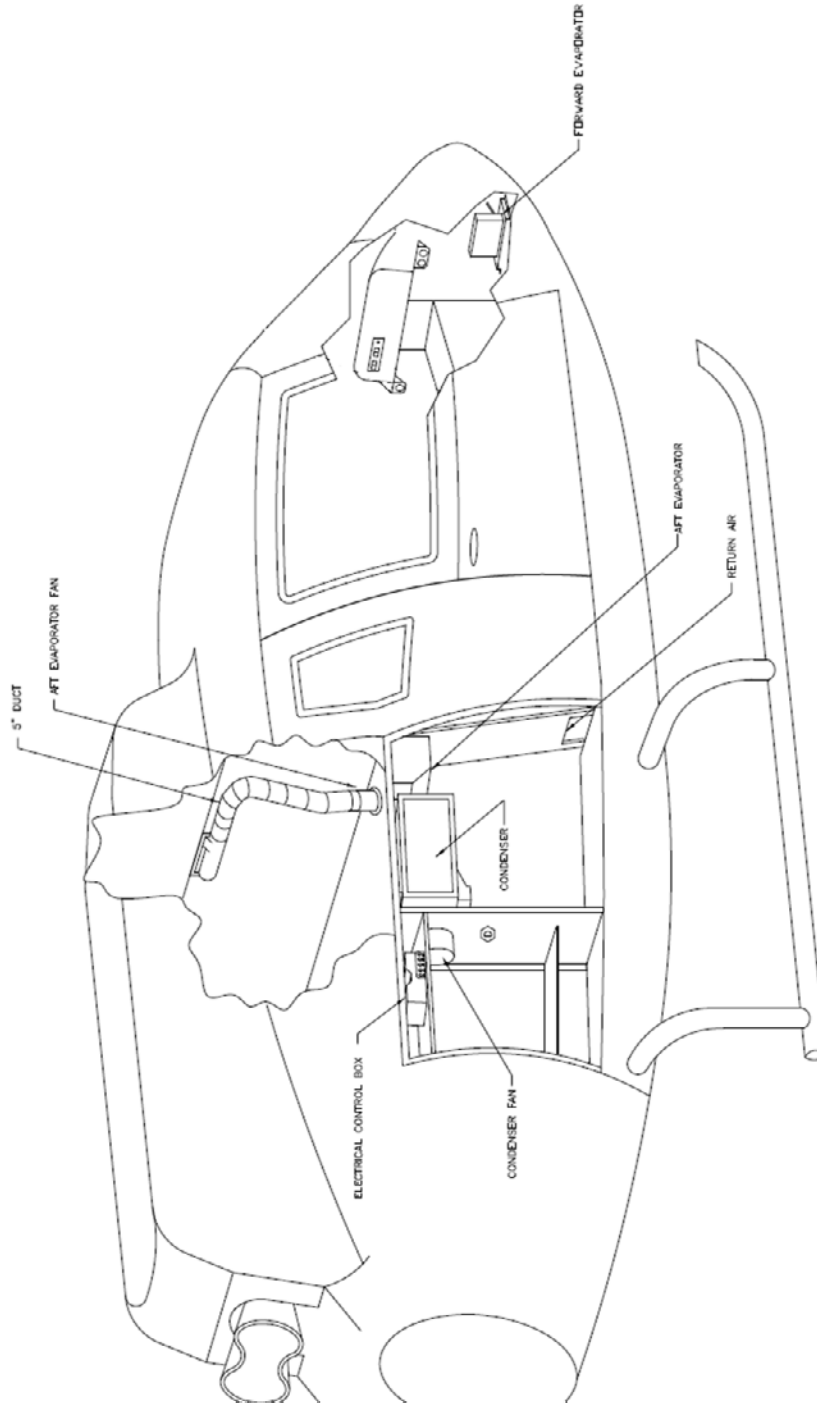


Figure 6-01: Side Mounted Condenser Configuration

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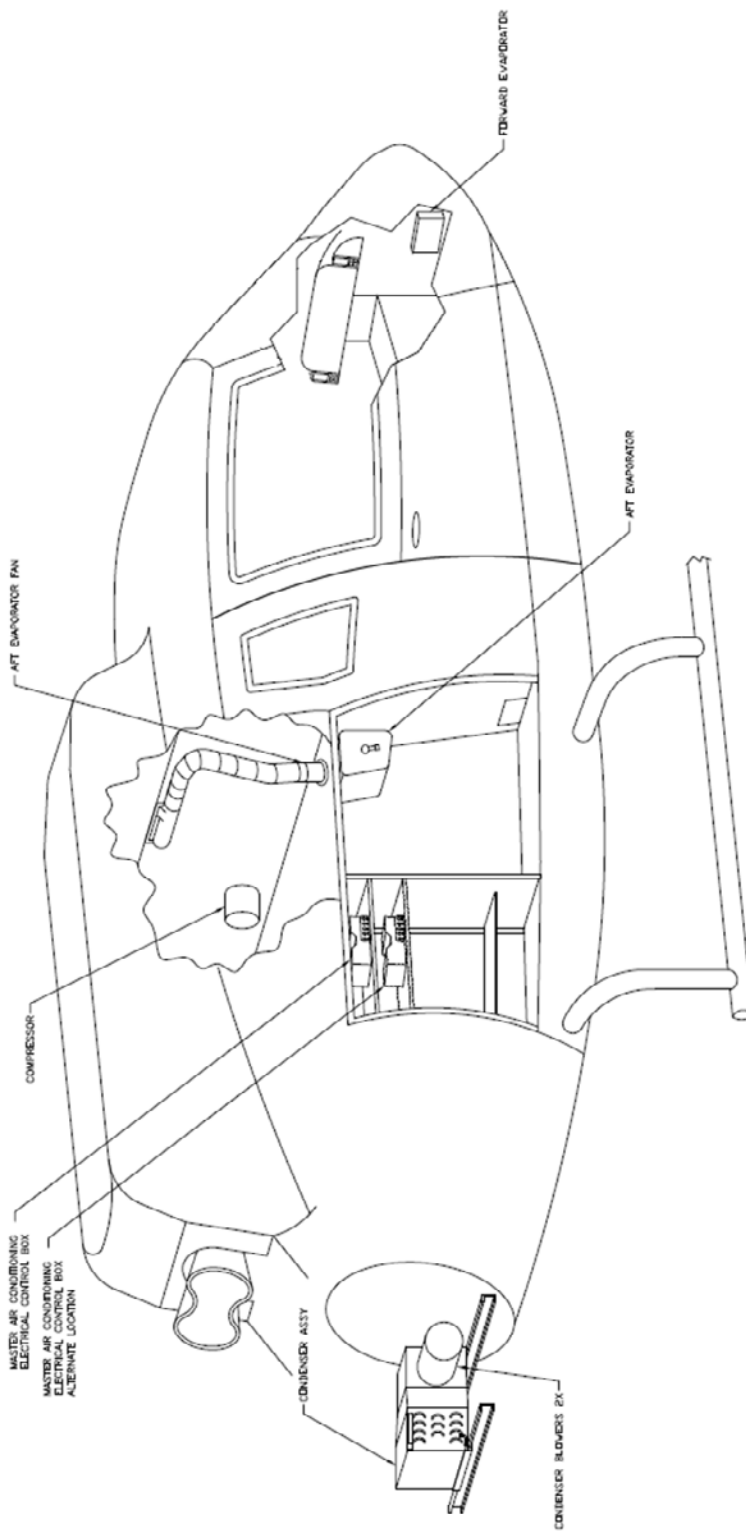
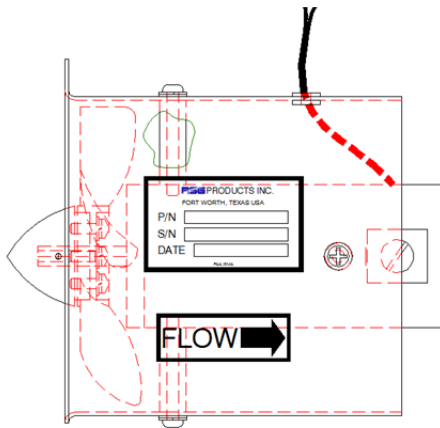


Figure 6-02: Aft Mounted Condenser Configuration

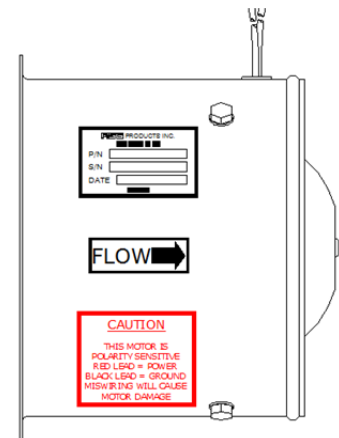
## Chapter 11

### Section 11-00-00 Placards and Markings

#### 1. Placards and Decals



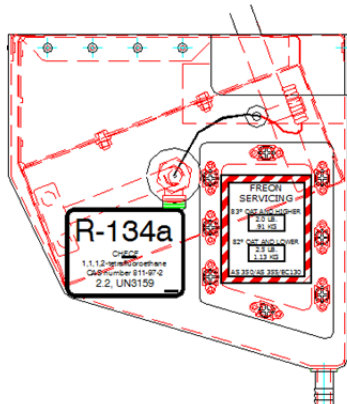
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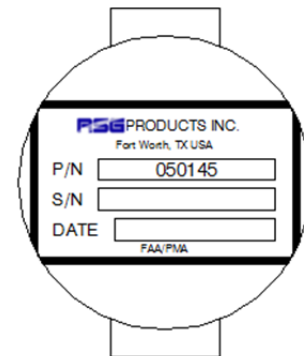
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## Chapter 12

### Section 12-00-00 Servicing Maintenance Practices

#### 1. General

It is assumed in the following practices that the personnel engaged in Charging, Servicing, or Maintenance of the system will be either an experienced air conditioning mechanic under the supervision of a qualified A & P mechanic or an A & P mechanic possessing good air conditioning skills.



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## Section 12-10-00 Charging Practices

### 1. Reclaiming

- a) Connect the EPA approved recovery unit services hoses, which shall have shut-off valves to the aircraft air conditioning system service ports.
- b) Operate the recovery equipment as covered by the equipment manufacturers recommended procedure.
- c) Start the recovery process and remove the refrigerant from the aircraft air conditioning system. Operate the recovery unit until the aircraft system has been reduced from a pressure to a vacuum. With the recovery unit shut off for at least 5 minutes, determine that there is not refrigerant remaining in the aircraft air conditioning system. If the aircraft system has pressure, additional recover operation is required to remove the remaining refrigerant. Repeat the operation until the aircraft air conditioning system vacuum level remains stable for two minutes.
- d) Close the valves in the service lines and then remove the service lines from the aircraft system. Proceed with the repair/service. If the recovery equipment has automatic closing valves, be sure they are properly operating.

### 2. Charging

#### a) **Prior to Charging the System**

Prior to charging the system with R-134a, the evaporator fan/blower and condenser blower should be checked for operation and direction of airflow. This is most easily done by utilizing a GPU unit for electrical power. Since the compressor is belt driven only those maintenance and operational functions that are electrically powered may be checked either in the hanger or on the ramp without running the engine.

After the GPU is connected to the aircraft and the Aircraft Master Switch is "On", the air conditioning system may be turned "On". Place the rocker switch on the Master Air Conditioning Control Panel to "A/C". It does not cause the compressor to run or refrigerant to be pumped. All evaporator blowers and the forward evaporator fan should start immediately. The 7" condenser blower and clutch will not engage until after approximately 4 seconds after evaporator fan start.

**NOTE: SYSTEM MUST HAVE MINIMUM 30 PSI CHARGE**

Check airflow of each evaporator fan/blower. Determine that air is coming out of the cockpit and the cabin air outlets.



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Check airflow into and out of condenser air openings.

b) **Charging the System**

\*NOTE: All evaporators' fan/blower, condenser blowers, and controls are 28 volt DC.

**DANGER: R-134a, particularly liquid R-134a, should never be allowed to come in contact with the eyes or skin. Under normal conditions, R-134a as a gas or vapor is an inert substance and non-poisonous. A flame-type leak detector should never be used because of the danger of fire or explosion around an aircraft. Several electronic leak detectors are available on the market.**

Never heat a cylinder of R-134a to produce additional pressure or to squeeze that last bit of refrigerant from the cylinder. If the cylinder has become cooled to the point where additional refrigerant cannot be obtained from it, the only approved method is to place the entire cylinder in a container of warm water. **Do Not Exceed 120 Degrees Fahrenheit.**

Never attempt to repair a leak requiring brazing or soldering within the aircraft structure as fire or explosion can result. Remove the entire assembly from the aircraft to a safe location before attempting such a procedure.

**CAUTION: Should R-134a come in contact with the eyes or skin, Do Not attempt first aid beyond the immediate washing of the eye or skin with clear water. A doctor should be contacted immediately for diagnosis and treatment even though the injury may be considered slight.**

**The refrigerant used in this system R-134a, and no other refrigerant is to be considered.** Normal safety practices, such as wearing of gloves and the use of goggles, should be utilized as R-134a could freeze the eyeball instantly were it to come in contact with the eye. Also, frostbite could occur to areas of the skin if R-134a were allowed to come in contact.

Charging of the system is a simple procedure whether on initial or recharging after leakage repair. A set of refrigerant gauges with a minimum of three hoses should be connected to the high side and low side service ports provided.

Prior to charging each newly installed system with R-134a, **you will not need to charge compressor with oil since 7.5 ounces of ESTER oil has already been added. Do not add additional oil if replacing a compressor in an existing system.**

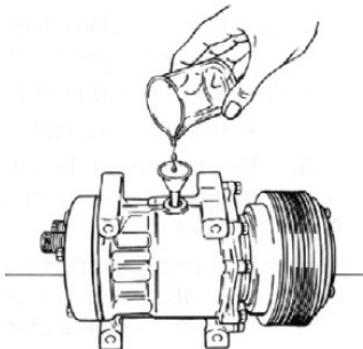


Figure 12 - 01: Adding Oil to the Compressor

c) **Initial Charging**

Tighten any leaking connections or make repairs as necessary to eliminate leaks. Shut off and disconnect hose from the refrigerant cylinder. Connect the hose to a regulator mounted on a cylinder of dry nitrogen. Purge the regulator to center manifold hose. **Close low side valve (left) at manifold. Failure to do so can cause pressure to flow to the low side (left) gauge. Failure of gauge can result.**

**Pressurize system to 250-PSI minimum, 300-PSI maximum.**

After the system has been rechecked with the leak detector and it is determined that no leaks exist, disconnect the charging hose from the manifold set to the cylinder of nitrogen. Open the valves allowing the R-134a and nitrogen within the system to be collected into an EPA approved recycling until (expelling of refrigerant is not allowed).

Connect a vacuum pump to the center manifold hose. Open both valves and evacuate the system for a minimum of twenty minutes. (**NOTE:** For each 1,000 foot rise in altitude above sea level, a decrease below 30" of vacuum of 1" per one thousand feet rise in altitude will occur).

d) **Adding R134-a Refrigerant**

Close both the manifold valves and connect the center charging hoses to a cylinder of R-134a. Open the valves of the cylinder. Purge the charging hose by loosening it at the charging manifold's center hose. **ONLY THE HIGH SIDE VALVE OF THE CHARGING MANIFOLD MAY NOW BE OPENED**

The combination of the vacuum still existing and the pressure in the R-134a cylinder transfers the R-134a from the cylinder into the system, **on the high side only**, without the compressor running. If a scale is available, the cylinder may be





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pre-weighted and **2.0 pounds of refrigerant R-134a added to the system**. No additional refrigerant should be added after the system is in operation. Close manifold.

The system is now ready for operation. **This must be performed on the flight line with the engine at 100%**. As soon as the "A/C" Master Control Switch is turned to "A/C" all 28 VDC evaporator fans will immediately begin operations.

If, after the system has been in the "A/C" mode for at least 2 minutes and cooling is not being accomplished, then check all circuit breakers.

Determine that 28 VDC power is available for control circuitry. Check operations of the relays and contacts

After the compressor has come on line, the entire system is operational with the manifold valve closed on the high side. The R-134a cylinder valve should be closed initially in order to get an accurate reading on the low side gauge of the "system pressure". The reading on the gauge should not be allowed to go below 10 PSI, as this will indicate that the low-pressure safety switch is possibly set too low. It will disconnect the electrical power to the compressor clutch if allowed to open. Open or close the cylinder valve as required to monitor the flow of R-134a from the cylinder into the low side of the system, if additional R-134a is needed.

**Smoke test is no longer required for R-134a receiver/drier (without sight glass) like it was for R-12 receiver/drier (with sight glass).**

If the outside air temperature is 83 degrees F or more MAX CHARGE is 2.0 lbs. If the outside air temperature is 82 degrees F or less MAX CHARGE is 2.5 lbs. The optimum method of determining the correct charge using at least two digital thermometers and place them near the return air and the discharge air of each evaporator. R-134a can then be added or deleted, as required, until the highest T.D. is noted, per the paragraph below. At that time, the correct amount of refrigerant is installed. **THE REFRIGERANT CHARGE SHOULD NOT EXCEED 2.5 POUNDS AT ANY TIME**

A test sheet should be completed noting the average cabin temperature, the temperature on the return or entering air to all evaporators and the discharge air from the evaporators, at the nearest point. If a Temperature Differential (T.D.) of less than 20 degrees Fahrenheit with a humidity of 30% or less is recorded through the evaporators at sea level, the system should be considered as having possible defects, which will need investigation. At altitudes above sea level, less than 20 degrees Fahrenheit temperature difference may be recorded at humidity of 30% or less. This is due to less dense air moving more rapidly through the evaporators.



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e) **Effect of Humidity on TD**

It should be noted that in measurements taken and entered on a test sheet that similar measurements made at a later date, when the humidity is considerably higher, would dramatically change the T.D.

The higher the humidity, as compared to a previous T.D. reading taken with a low humidity, will result in a lower T.D. The reason for this lower T.D. measurement is that when a test is performed at lower humidity, only "SENSIBLE HEAT" is being removed. With higher humidity, a different condition exists. It requires that "LATENT HEAT" containing moisture borne heat must first be removed prior to the removal of the sensible heat

If the system is found to be completely empty of R-134a, a set of charging gauges should be connected to both high and low side service ports and to a cylinder of R-134a. Purge the charging hoses from the cylinder to the service ports with R-134a vapor. Open both the low and high side charging valves and allow pressure from the cylinder to equalize through the system until at least 50 PSI is noted. Utilizing an electronic leak detector, check all fittings on the system to determine the point of leakage. Any fitting indicating an oily or dirty condition is a prime suspect.

f) **Recharging the System**

After the leaks have been found and corrected, pressurize the system with dry nitrogen. Re-check for leaks. Connect a vacuum pump to the system and evacuate the system for a minimum of 20 minutes from both the high and low sides. If the system has been allowed to become contaminated, then the receiver/drier is to be replaced.

It is always good air conditioning practice to replace the receiver/drier whenever it is suspected that moisture has contaminated the system.

The balance of the recharging procedure is exactly the same as pointed out previously under the **Charging Operation**. A judgment must be made as to the amount of oil, if any, lost at the point of leakage. Additional oil may be required to be added to the system. If the refrigerant has been expelled rapidly by the rupture of a line or similar situation then two (2) ounces of refrigerant oil of the type previously specified should be applied to the system at this time and immediately prior to charging of the system with R-134a.

## Section 12-20-00 Clutch Servicing Practices

### 1. General

These clutch servicing practices are applicable to all compressors that can be installed with the Air Conditioning System Installation.

#### a) Clutch Armature Assembly Removal

- (1) If armature dust cover is present, remove the 3 or 6 bolts holding it in place and remove cover. If auxiliary sheet metal pulley is present, remove the screws holding it in place. Then remove pulley.
- (2) Insert pins of armature plate spanner into threaded holes of armature assembly.
- (3) Hold armature assembly stationary while removing retaining nut with 3/4 in, 19 mm or 14 mm socket wrench as appropriate. (Ref. Figure 12-02)

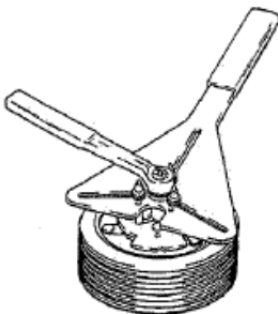


Figure 12 - 02

- (4) Remove armature assembly using puller. Thread 3 puller bolts into the threaded holes in the armature assembly. Turn center screw clockwise until armature assembly comes loose. (Ref. Figure 12-03)

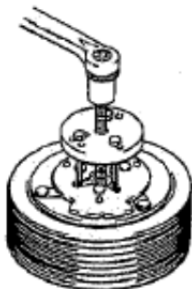


Figure 12 - 03

- (5) If shims are above shaft key, the key and bearing dust cover (if present) must be removed before the shims can be removed.
- (6) Remove bearing dust cover (if present). Use caution to prevent distorting cover when removing it.
- (7) Remove shaft key by tapping loose with a flat blade screwdriver and hammer.
- (8) Remove shims. Use a pointed tool and a small screwdriver to prevent the shims from binding on the shaft.



Figure 12 - 04

**b) Rotor Assembly Removal**

- (1) If bearing dust cover has not been removed, remove it now.
- (2) If internal snap ring for bearing is visible above the bearing, remove it with internal snap ring pliers.
- (3) Remove rotor snap ring.
- (4) Remove shaft key.
- (5) Remove rotor assembly: insert the lip of the jaws into the snap ring groove, place rotor puller shaft protector (puller set) over the exposed shaft, align thumb screws to puller jaws and finger tighten and turn puller center bolt clockwise using a socket wrench until rotor pulley is free. (Ref. Figure 12-05)

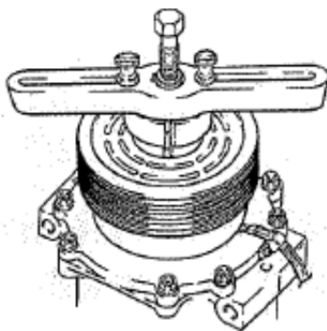


Figure 12 - 05

c) **Field Coil Assembly Removal**

- (1) Loosen lead wire clamp screw with #2 Phillips screwdriver until wire(s) can be slipped out from under clamp.
- (2) Undo any wire connections on the compressor which would prevent removal of the field coil assembly.
- (3) Remove snap ring.
- (4) Remove the field coil assembly. (Ref. Figure 12-06)

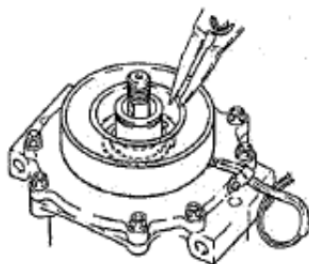


Figure 12 - 06

d) **Field Coil Assembly Installation**

- (1) Reverse the steps of the field coil assembly removal. Protrusion on underside of coil ring must match hole in front housing to prevent movement and correctly locate lead wire(s).

e) **Rotor Assembly Installation**

- (1) Place compressor on support stand, supported at rear end of compressor. If the compressor must be clamped in a vice, clamp only on the mounting ears, never on the body of the compressor.

- (2) Set rotor squarely over the front housing boss.
- (3) Place the rotor installer ring into the bearing bore. Ensure that the edge rests only on the inner race of the bearing, not on the seal, pulley, or outer race of the bearing.
- (4) Place the driver into the ring and drive the rotor down onto the front housing with a hammer or arbor press. Drive the rotor against the front housing step. A distinct change of sound can be heard when using a hammer to install the rotor. (Ref. figure 12-07).



Figure 12 - 07

- (5) Reinstall rotor bearing snap ring, if it has been removed, with internal snap ring pliers. (Ref. figure 12-08)

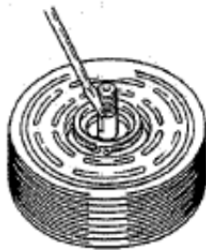


Figure 12 - 08

- (6) Reinstall rotor retaining snap ring with external snap ring pliers. If a bevel is present in the snap ring, it should be face up (away from the body of the compressor).
- (7) Reinstall rotor bearing dust cover (if present) by gently tapping it into place.

f) **Armature Assembly Installation**

- (1) Install shaft key with pliers. (Ref. figure 12-09)



Figure 12 - 09

- (2) Install clutch shims. NOTE: Clutch air gap is determined by shim thickness. When installing a clutch on a used compressor, try the original shims first. When installing a clutch on a compressor that has not had a clutch installed before, first try 0.04 in, 0.02 in and 0.004 in (1.0, 0.5, 0.1 mm) shims.
- (3) Align keyway in armature assembly to shaft key. Using driver and a hammer or arbor press, drive the armature assembly down over the shaft until it bottoms on the shims. A distinct sound change will be noted if driving with a hammer. (Ref. figure 12-10)

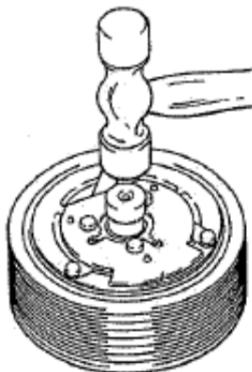


Figure 12 - 10

- (4) Replace retaining nut and torque to specification

**1/2-20:** 20-25 ft\*lb (27-34 N\*m)

**M8:** 11-15 ft\*lb (15-21 N\*m)

- (5) Check air gap with a feeler gauge. Specification is 0.011-0.019 in (0.3-0.5mm). If gap is not even around the clutch, gently tap down at the high spots. If the overall gap is out of spec, remove the armature assembly and change shims as necessary.

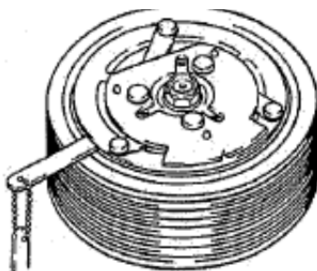


Figure 12 - 11

- (6) Replace armature dust cover (if used) and torque 3 or 6 bolts to specification below.

**3-1/4-20 bolts:** 2-4 ft\*lb (2-5 N\*m)

**6-M5 bolts:** 5-8 ft\*lb (7-11 N\*m)

NOTE: Over torque of dust cover bolts will cause air gap to become out of spec.





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## Section 12-30-00 System Leak Check

### 1. General

Identification and elimination of system fitting leaks is extremely important to the operation of this air conditioning system installation.

A system which contains a partial charge of refrigerant can be leak tested with the aid of an electronic leak detector and be recharged without evacuating the system.

A new or empty system can be pressurized with nitrogen 70-80 psi (5.1-5.6 kgcm) or R134a 50 psi to conduct a leak survey. Do not use compressed air, for it can introduce moisture into the system causing degradation to the operation of the system.

The preferred method is to use an electronic leak detector in conjunction with a small charge of R134a refrigerant. All checks done in this manner should be conducted with the air conditioner off. Since the refrigerant is heavier than air, leaks are most likely to be detected on the underside of the hoses and fittings. Refrigerants will collect in low areas and provide erroneous leak detection. A stream of compressed air from a nozzle may be useful in clearing the area just prior to conducting a leak test.

If the nitrogen method is used, it will be necessary to mix together a water and mild soap solution. Each fitting or suspected leak area should be brushed with this soap solution and watched for evidence of bubbles formed by the escaping nitrogen.

If a leak is detected at an O-ring fitting, check to insure proper torque has been applied to the fitting. If the system continues to leak, evacuate the system of refrigerant and install a new O-ring. NOTE: be sure that the O-ring is lubricated with refrigerant oil prior to its installation.

A small amount of leakage (approximately one ounce per year) past the compressor shaft seal is normal. Most leak detectors are sensitive enough to show a leak a magnitude.

## Section 12-40-00 Fitting Torque Procedures

### 1. Fitting Torque Procedures and Torque Values

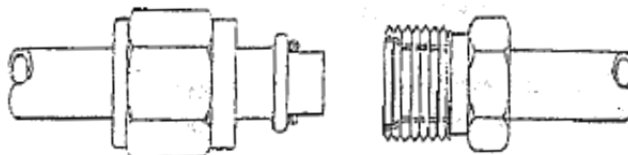


Figure 12 – 12: Insert O-Ring Fittings

- (1) Confirm there is no damage on fittings.
- (2) Apply a thin coating of refrigerant oil to O-ring and female side of fitting.
- (3) Slide B-nut back away from the end of the tube so the O-ring can be seen as the fitting is being slide together. Be careful not to pinch the O-ring during assembly.
- (4) Engage the male end into the female fitting being careful to maintain alignment.
- (5) The male flange should seat fully against the female fitting without the O-ring being pinched.
- (6) It is important to hold the fitting together while sliding the B-nut forward and engaging the threads. Tighten the B-nut by hand and torque per table 12-01. **DO NOT OVER TORQUE.**

Table 12-01 Fitting Torque Values

Fitting #	Torque Value in/lbs (Nm)
#6	30-35 (3.4-4.0)
#8	40-45 (4.6-5.1)
#10	50-55 (5.7-6.3)



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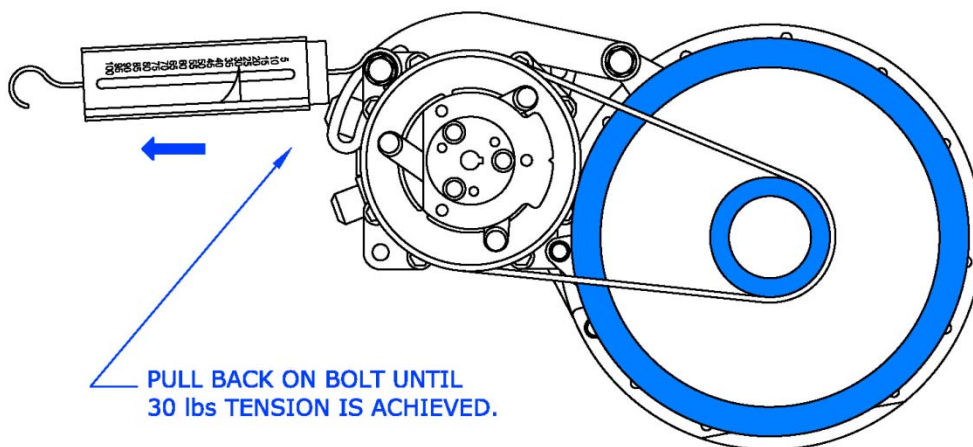
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## Section 12-50-00 Normal Operation Functional Test

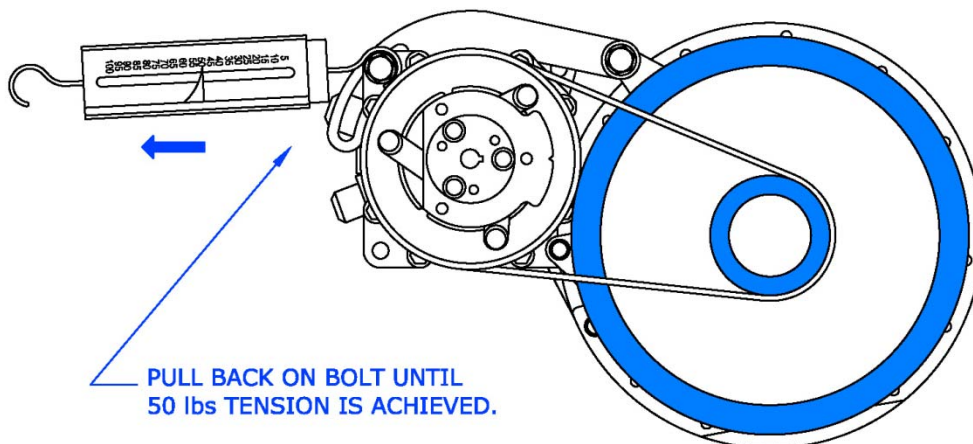
- a. With the aircraft engine operating, electrical system on and functioning normally, move the air conditioner control switch to the "FAN" position.
- b. Move the cockpit fan switch from "LOW" to "HIGH" speed and ensure that air output is present in all the forward air outlets. Repeat the test using the aft cabin fan speed selector switch for the aft cabin air outlets.
- c. Reposition the air conditioner control switch to the "A/C" position and repeat Step 2 above. Cool air should be supplied to the cockpit and cabin vents after a time delay of 4 to 8 seconds.
- d. Turn air conditioner switch to "OFF" or the center position. Entire system should shut down.

### Section 12-60-00 Belt Tension Procedure

With the compressor drive belt on the drive pulley and the compressor clutch pulley. Tighten bolts at the adjustment arm assuring the belt proper amount of tension. Tighten the lower forward mounting bolt. Use a pull scale to measure the tension. (Ref. figure 12-13). Recommended belt tension values if using a grooved belt is 30 lbs and if using a flat belt is 50 lbs.



060005 GROOVED BELT



060018-1 FLAT BELT

Figure 12 – 13



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## Section 12-70-00 Drive Belt Change Procedure

- a. Access the compressor installation (ref. Section 6-00-00 Dimensions and Access). For compressor information reference Section 21-00-00 Air Conditioning.
- b. Place a support on the transmission deck to support the engine drive while the shaft is disconnected for belt installation.
- c. Remove the cotter pins from the four pins holding the “Gimble Ring” at the Thomas coupling.
- d. Slide the “Gimble Ring” aft to gain access to the Thomas coupling.
- e. Remove the 6 bolts and Thomas coupling connecting the drive shaft and shift slightly aft.
- f. Install two (2) Compressor Drive belts.
- g. Reassemble the Thomas coupling.
- h. Secure 1 belt to the outside of the drive shaft cover for a spare and slip one through the housing and over the drive pulley.
- i. Install the “Gimble Ring” pins and cotter pins. Remove supports.
- j. Install the compressor drive belt on the drive pulley and the compressor clutch pulley. Tighten bolts at the adjustment arm assuring the belt proper amount of tension. (Ref. Section 12-60-00 Belt Tension Procedure). Tighten the lower forward mounting bolt.



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## Chapter 20

### Section 20-00-00 Standard Practices

This chapter contains maintenance information and procedures that are common standard practices. Information contained in this chapter is standard torque charts and application procedures, corrosion prevention, painting, mechanical fastener sealing, and dye penetrant inspection techniques.



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## Section 20-10-00 Torques Maintenance Practices

### 1. Torque Wrenches

#### a) Torque Wrench Accuracy


Torque wrenches must be of good quality and calibrated at least once a year. Any torque wrench that has been dropped or abused should be calibrated to ensure continued accuracy.

#### b) Application of Torque Wrench Loads


- (1) Be sure the bolt and nut and the surface they bear on are clean and dry, unless otherwise specified by the manufacturer.
- (2) Run the nut down to near contact with the washer or bearing surface and check the friction drag torque required to turn the nut. Add the friction drag torque to the desired torque to arrive at the "final torque" to be registered on the torque wrench indicator.
- (3) Whenever possible, apply the torque to the nut instead of the bolt. This will reduce rotation of the bolt in the hole and reduce wear.
- (4) Apply a smooth even pull when applying torque pressure.
- (5) If special adapters are used which will change the effective length of the torque wrench, the final torque indication or wrench setting must be adjusted accordingly. To determine the torque wrench setting or indication with adapter installed reference Figure 20-01.

**NOTE**


WHEN USING A TORQUE WRENCH ADAPTER WHICH CHANGES THE DISTANCE FROM THE TORQUE WRENCH DRIVE TO THE ADAPTER DRIVE, APPLY THE FOLLOWING FORMULAS TO OBTAIN THE CORRECTED TORQUE READING:



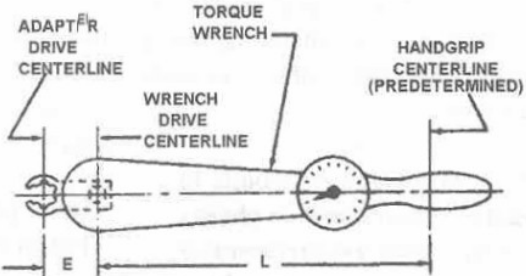
Short Open End Adapter



Set Screw Adapter



Hose Clamp Adapter



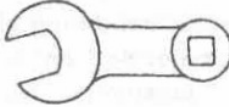
FORMULA  $\frac{T \times L}{L + E} = Y$

EXAMPLE: (WITH "E" AS PLUS DIMENSION)


T = 135 LB. IN.	Y = $\frac{135 \times 10}{10 + 1.5} = \frac{1350}{11.5} = 117.39$
Y = UNKNOWN	
L = 10.0 IN.	
E = 1.5 IN.	Y = 117 LB. IN.

**LEGEND**

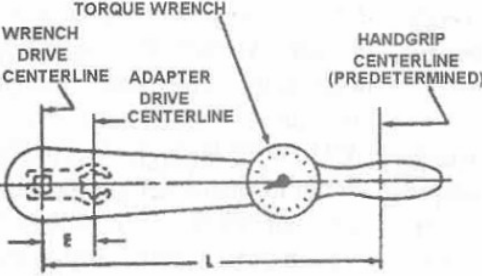
T = ACTUAL (DESIRED) TORQUE  
 Y = APPARENT (INDICATED) TORQUE  
 L = EFFECTIVE LENGTH LEVER  
 E = EFFECTIVE LENGTH OF EXTENSION



Open-End Wrench Adapter



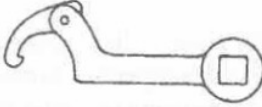
Flare Nut Wrench Adapter



FORMULA  $\frac{T \times L}{L - E} = Y$

EXAMPLE: (WITH "E" AS MINUS DIMENSION)

T = 135 LB. IN.	Y = $\frac{135 \times 10}{10 - 1.5} = \frac{1350}{8.5} = 158.82$
Y = UNKNOWN	
L = 10.0 IN.	
E = 1.5 IN.	Y = 159 LB. IN.



Spanner Wrench Adapter

Figure 20 - 1: Torque Wrenches and Adapters





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**2. Torque Values**

**Warning: Do not exceed maximum allowable torque value. Overstressing of fastener may result.**

Standard hardware torque values are given in the following Table 20 - 1 through Table 20 - 3. Table 20 - 1 gives recommended torque values for fine thread fasteners, shear and tension applications. Table 20 - 2 gives recommended torque values for coarse thread fasteners, shear and tension applications. Table 20 - 3 gives recommended torque values for Phillips-head screws.

**Table 20 - 1: Recommended Torque Values for Fine-Thread Fasteners**

Thread Size Fractional (decimal)	Shear		Tension	
	Recommended in-lb (N-m)	Maximum in-lb (N-m)	Recommended in-lb (N-m)	Maximum in-lb (N-m)
8-36 (0.1640-36)	7-9 (0.79-1.02)	12 (1.36)	12-15 (1.36-1.69)	20 (2.26)
10-32 (0.1900-32)	12-15 (1.36-1.69)	25 (2.82)	20-25 (2.25-2.82)	40 (4.51)
1/4-28 (0.2500-28)	30-40 (3.38-4.51)	60 (6.77)	50-70 (5.64-7.90)	100 (11.29)
5/16-24 (0.3125-24)	60-85 (6.77-9.60)	140 (15.81)	100-140 (11.29-15.81)	225 (25.41)
3/8-24 (0.3750-24)	95-110 (10.73-12.42)	240 (27.11)	160-190 (18.07-21.46)	390 (44.05)
7/16-20 (0.4375-20)	270-300 (30.49-33.88)	500 (56.48)	450-500 (50.83-56.48)	840 (94.88)
1/2-20 (0.5000-20)	290-410 (32.75-46.31)	660 (74.55)	480-690 (54.22-77.94)	1,100 (124.25)
9/16-18 (0.5625-18)	480-600 (54.22-67.77)	960 (108.44)	800-1,000 (90.36-112.96)	1,600 (180.73)
5/8-18 (0.6250-18)	660-780 (74.55-88.10)	1,400 (158.14)	1,100-1,300 (124.25-146.84)	2,400 (271.10)
3/4-16 (0.7500-16)	1,300-1,500 (146.84-169.44)	3,000 (338.88)	2,300-2,500 (259.80-282.40)	5,000 (564.80)
7/8-14 (0.8750-14)	1,500-1,800 (169.44-203.32)	4,200 (474.43)	2,500-3,000 (282.40-338.88)	7,000 (790.72)
1-12 (1.0000-12)	2,200-3,300 (248.51-372.76)	6,000 (677.76)	3,700-5,500 (417.95-621.28)	10,000 (1129.6)
1-1/8-12 (1.1250-12)	3,000-4,200 (338.88-474.43)	9,000 (1016.6)	5,000-7,000 (564.80-790.72)	15,000 (1694.4)
1-1/4-12 (1.2500-12)	5,400-6,600 (609.98-745.53)	15,000 (1694.4)	9,000-11,000 (1016.6-1242.6)	25,000 (2824.0)



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**Table 20 - 2: Recommended Torque Values for Coarse-Thread Fasteners**

Thread Size Fractional (decimal)	Shear		Tension	
	Recommended in-lb (N-m)	Maximum in-lb (N-m)	Recommended in-lb (N-m)	Maximum in-lb (N-m)
8-32 (0.1640-32)	7-9 (0.79-1.02)	12 (1.36)	12-15 (1.36-1.69)	20 (2.26)
10-24 (0.1900-24)	12-15 (1.36-1.69)	21 (2.37)	20-25 (2.25-2.82)	35 (3.95)
1/4-20 (0.2500-20)	25-30 (2.82-3.38)	45 (5.08)	40-50 (4.51-5.64)	75 (8.47)
5/16-18 (0.3125-18)	48-55 (5.42-6.21)	100 (11.29)	80-90 (9.03-10.16)	160 (18.07)
3/8-16 (0.3750-16)	95-100 (10.73-11.29)	170 (19.20)	160-185 (18.07-20.89)	275 (31.06)
7/16-14 (0.4375-14)	140-155 (15.81-17.50)	280 (31.62)	235-255 (26.54-28.8)	475 (53.65)
1/2-13 (0.5000-13)	240-290 (27.11-32.75)	520 (58.73)	400-480 (45.18-54.22)	880 (99.40)
9/16-12 (0.5625-12)	300-420 (33.88-47.44)	650 (73.42)	500-700 (56.48-79.07)	1,100 (124.25)
5/8-11 (0.6250-11)	420-540 (47.44-60.99)	900 (101.66)	700-900 (79.07-101.66)	1,500 (169.44)
3/4-10 (0.7500-10)	700-950 (79.07-107.31)	1,500 (169.44)	1,150-1,600 (129.90-180.73)	2,500 (282.40)
7/8-9 (0.8750-9)	1,300-1,800 (146.84-203.32)	2,700 (474.43)	2,200-3,000 (248.51-338.88)	4,600 (519.61)
1-8 (1.0000-8)	2,200-3,000 (248.51-338.88)	4,500 (508.32)	3,700-5,000 (417.95-564.80)	7,600 (858.49)
1-1/8-8 (1.1250-8)	3,300-4,000 (372.76-451.84)	7,200 (813.31)	5,500-6,500 (621.28-734.24)	12,000 (1355.5)
1-1/4-8 (1.2500-8)	4,000-5,000 (451.84-564.80)	10,000 (1129.6)	6,500-8,000 (734.24-903.68)	16,000 (1807.4 N m)

**Table 20 - 3: Recommended Torque Values for Phillips-Head Fasteners**

Thread Size Fractional (decimal)	Recommended in-lb (N-m)	Maximum in-lb (N-m)
8-32 (0.1640-32)	12-15 (1.36-1.69)	23 (2.59)
10-32 (0.1900-32)	20-25 (2.25-2.82)	35 (3.95)
1/4-28 (0.2500-28)	60-70 (6.77-7.90)	90 (10.16)
5/16-24 (0.3125-24)	110-125 (12.42-14.12)	150 (16.94)
3/8-24 (0.3750-24)	150-175 (16.94-19.76)	225 (25.41)
7/16-20 (0.4375-20)	230-280 (25.98-31.62)	450 (50.83)
1/2-20 (0.5000-20)	550-650 (62.12-73.42)	850 (96.01)
9/16-18 (0.5625-18)	750-900 (84.72-101.66)	1,200 (135.55)
5/8-18 (0.6250-18)	1,100-1,300 (124.25-146.84)	1,600 (180.73)



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## Section 20-30-00 Painting Maintenance Practices

The following procedures should be used to touch-up paint flaking, scratches, nicks, and gouges in system components.

**Warning: Cleaning solvents and epoxy primer are flammable. Cleaning solvents, epoxy primer, and alodine can cause burns and irritation when skin is contacted. Vapors are harmful and caustic to eyes; goggles must be worn for eye protection. Cleaning solvents and alodine are poisonous. Vapors are harmful to life or health; work should be performed with proper ventilation and / or respirators should be worn while working with cleaning solvents, epoxy primer and alodine.**

### 1. Paint Touch-Up of Small Areas

Use the following procedures to touch-up paint of small sanded areas and nicks, scratches, gouges, etc., that do not go through paint and primer to bare metal.

- a. Wipe surface clean with trichloroethane, MIL-T-81533, or equivalent cleaning solvent, and wipe dry immediately.
- b. Apply coat of epoxy polyimide primer, MIL-P-23377F or equivalent, to match original. Feather primer coating onto surrounding color coat. Allow primer to air dry for 30 minutes.
- c. Apply topcoat to match original finish.

## Section 20-40-00 Corrosion Control Maintenance Practices

### 1. Corrosion Control

The system components are fabricated primarily of steel and aluminum, and should be inspected regularly for any signs of corrosion. The following procedures should be used for removing corrosion and treating affected areas.

### 2. Corrosion Removal

Remove corrosion by either chemical or mechanical means.

#### a) Paint Removal, Chemical

**Caution: Do not use chemical paint stripper on composite materials. Chemical paint strippers can cause composite components to de-bond and / or lose adhesion of the epoxy matrix.**

- (1) Mask all non-metallic surfaces in area to be stripped as well as areas where solution may get entrapped.

**Warning: Paint stripper can cause burns and irritation when it contacts skin; proper gloves should be worn. Vapors are harmful and caustic to eyes; goggles must be worn for eye protection. Paint stripper is poisonous. Vapors are harmful to life or health; work should be performed with proper ventilation and / or respirators should be worn while working with paint stripper.**

- (2) Using a fiber brush, apply sufficient paint stripper (Turco 5873) to cover area of removal.

**Note:** If paint stripper evaporates quickly or works slowly, cover area with plastic sheet.

- (3) Allow paint remover to remain on surface for a time sufficient to cause wrinkling and lifting of paint (about 10-30 minutes).
- (4) Using non-metallic scraper or abrasive pads (3M Scotchbrite 63) scrub area to further loosen paint.
- (5) Reapply paint stripper (Turco 5873) as necessary in areas where paint remains tightly adherent.
- (6) Wash and scrub surface with demineralized water and alkaline cleaner to neutralize paint stripper.

(7) Remove masking materials and any residual paint or stripper

(8) Rinse with demineralized water.

b) Paint Removal, Mechanical

**Caution: Do not sand into or expose composite fibers. Do not remove more material than necessary. Do not use aluminum oxide abrasive materials on epoxy/graphite materials.**

Use abrasive flap wheel, abrasive disk, abrasive paper, or plastic media blast to remove paint.

c) Corrosion Removal

**Note:** Aircraft shall be electrically grounded during corrosion removal operations. When removing exterior corrosion from electronic boxes, the unit case shall be electrically grounded during the complete operation.

(1) Corrosion shall be removed by the mildest method possible.

(a) Hand scrub with dry non-metallic brush/pad (3M pad).

(b) Use abrasive cloth (Aluminum oxide 240 grit). Caution: Do not use on epoxy/graphite materials.

(c) Use 320-grit sandpaper.

(d) Glass bead blast.

(e) Use 240-grit abrasive wheel.

**Note:** On high-strength steel, do not use power tools other than a flap brush or mandrel with abrasive material; overheating and notching may occur.

(2) Ensure all active corrosion and corrosion products have been removed.

(3) Using 320-grit sandpaper, blend edges of paint (if applicable) surrounding repair area to create a smooth transition. Vacuum the area thoroughly to remove all contaminants.

(4) Apply aluminum surface treatment if applicable. (Ref. Section 4 of 20-40-00, Aluminum Alloy Surface Touch-Up Treatment).



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(5) Touch-up primer and paint to match original.

### 3. Mechanical Defects (Nicks, Scratches, Gouges, Etc.)

- a) Section 20-30-00 Painting Maintenance Practices).
- b) If damage is through the paint surface, prepare area for paint touch-up using the following methods.

**Note:** On high-strength steel, do not use power tools other than a flap brush or mandrel with abrasive material; overheating and notching may occur.

- (1) Remove defect using flap wheel, abrasive disk, abrasive paper, or plastic media blast.
- (2) Using 320-grit sandpaper, blend edges of paint surrounding repair area to create a smooth transition.
- (3) Apply aluminum surface treatment if applicable. (Ref. Section 4 of 20-40-00, Aluminum Alloy Surface Touch-Up Treatment).
- (4) Touch-up primer and paint to match original.

### 4. Aluminum Alloy Surface Touch-Up Treatment

**Note:** If there is any question as to whether or not the protective coating is removed, surface treatment shall be applied.

**Warning: Alodine and solvents can cause burns and irritation when it contacts skin; proper gloves should be worn. Vapors are harmful and caustic to eyes; goggles must be worn for eye protection. Alodine is poisonous. Vapors are harmful to life or health; work should be performed with proper ventilation and / or respirators should be worn while working with solvents and alodine. Solvent cleaners are flammable.**

- a) Scuff surface using 3M Scotchbrite 63 cellulose/nylon scouring pad.
- b) Wipe exposed surface with isopropyl alcohol or aliphatic naphtha. Allow area to air dry for 10 minutes. Do not touch or otherwise contaminate surface after solvent wipe.



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- c) Apply Alodine 1200 or equivalent with cotton swab, non-metallic brush, or by dipping. Maintain moist surface for 1-3 minutes with repeated application. Surface will become amber or brown in color.
- d) Irrigate surface with demineralized or distilled water to remove surface treatment chemical. Allow to air dry for approximately 1 hour.
- e) If there is any surface without color change, repeat procedure.
- f) Apply paint touch-up as required (Ref Section 20-30-00 Painting Maintenance Practices).

## Section 20-50-00 Mechanical Fastener Sealing Methods

Remove existing cracked, chipped or broken existing sealing compound and thoroughly clean with solvent. Reseal using MIL-S-8802, sealing compound, mixing per manufacturer's instructions.

Seal mechanical fasteners as shown:

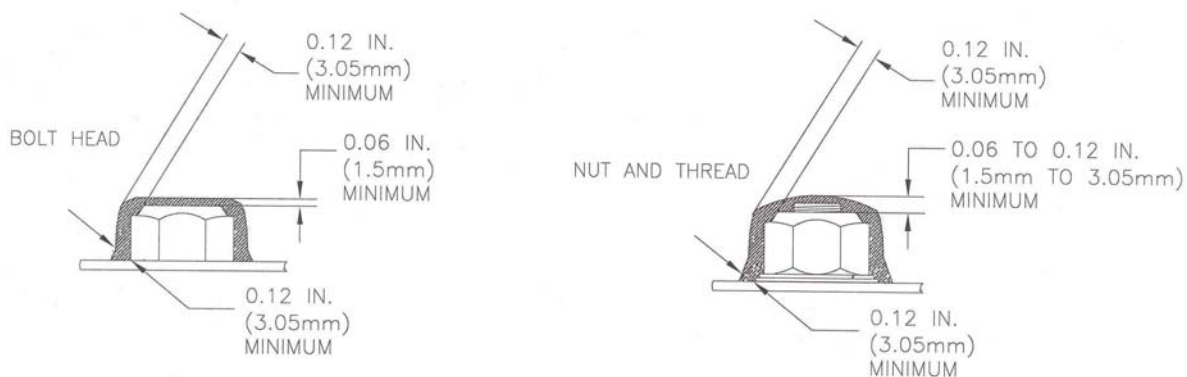


Figure 20 - 02: Mechanical Fastener Sealing



## Section 20-90-00 Dye-Penetrant Inspection Methods

**Warning: solvents can cause burns and irritation when it contacts skin; proper gloves should be worn. Vapors are harmful and caustic to eyes; goggles must be worn for eye protection. Vapors are harmful to life or health; work should be performed with proper ventilation and / or respirators should be worn while working with solvents. Solvent cleaners are flammable.**

Use the following steps to perform dye-penetrant inspection:

1. Using cleaning solvent trichloroethane, MIL-T-81533, clean area to be inspected.  
**Note:** Parts to be inspected must be dry and heated to at least 70° F (21.1° C), but not over 130° F (54.4° C).  
**Note:** Manufacturer's instructions on Dye-Penetrant Kit take precedence over the following instructions.
2. Apply penetrant from dye-penetrant kit (MIL-I-25135) by brushing, spraying, or by dipping. Allow to stand for a minimum of 2 minutes.
3. Remove excess penetrant with remover (available with dye-penetrant kit), or by cleaning with plain water. Allow part to dry.
4. Apply a light, even layer of developer from dye-penetrant kit by brushing, spraying, or by dipping. When dipping, avoid excess quantity.
5. Penetrant which has penetrated into cracks (or other openings) in the surface of the part will be drawn out by the developer, resulting in a bright red indication.
6. If part is serviceable or repairable, clean part free of penetrant and developer with trichloroethane (MIL-T-81533) cleaning solvent.

## Chapter 21

### Section 21-00-00 Air Conditioning

#### 1. Description and Operation

The Air Conditioning System Installation consists of a belt driven vapor cycle air-conditioning system using R-134a as the refrigerant. The air conditioning system provides for cabin comfort during all operations, both in the ground and in flight. During ground operations when the engines are running, cooling may be provided.

This system consists of 4 major components:

- **Condenser-** The condenser is located in one of two positions depending on kit part number (Ref. table 21.1). The aft mounted condenser (Ref. figure 21-01) is mounted in the tail boom mounted 5 in. above the baggage floor. The side mounted condenser is located in the right baggage compartment (Ref. figure 21-02). The EC-130 condenser is only located in the aft mounted configuration. The aft mounted condenser assembly has two blower motors, whereas the side mounted condenser assembly only has one blower motor.
- **Compressor-** The compressor is located aft and to the left side on main transmission deck. The belt is secured to the outside of the drive shaft, in all configurations. If designated by the kit part number (Ref. tables 21-01 & 21-02), either a smooth pulley compressor or a grooved double V-belt pulley compressor is installed.
- **Aft Evaporator-** The aft evaporator is located on the right hand upper transmission deck in all configurations.
- **Forward Evaporator-** In the AS-350 series, the forward evaporator is located on the cockpit floor forward of the pilots' controls. In the EC-130 kits, it is located forward of the pedestal and mounted to the pedestal.

Controls for the air conditioning system are located around or in the instrument panel, the specific location depending on the Kit number part as described in tables 21-01 and 21-02. All kits contain a Master Control Selector, which consists of a rocker type switch labeled, "A/C", "OFF" and "FAN." Selecting the "A/C" turns on the system's dual evaporator fans, compressor and condenser blower. The second rocker switch, also included with every kit, is for "HIGH," "MED" and "LOW" evaporator fan speed selection for the forward cockpit. An additional 2 position switch for the aft evaporator fan speed "HI/LOW" is present depending on the kit part numbers and the switch is located per that kit.



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Table 21-1 Air Condition System Installation Kit Part Number Description AS-350 Series

<b>AS-350 Series</b>	
<b>BASE KIT NUMBERS:</b>	
350-00-011-HP	Side Mounted Condenser (Ref Figure 21-01)
350-00-031-HP	Aft Mounted Condenser (Ref Figure 21-02)
<b>CUSTOM CONFIGURATIONS:</b>	
350-00-011-HP-01* 350-00-031-HP-01*	AEC Basic Configuration (Ref Figure 21-03)
350-00-011-HP-11* 350-00-031-HP-11*	Corporate Configuration (Ref Figure 21-04)
350-00-011-HP-21* 350-00-031-HP-21*	EMS 1 Configuration (Ref Figure 21-05)
350-00-011-HP-22* 350-00-031-HP-22*	EMS 2 Configuration (Ref Figure 21-06)
350-00-011-HP-31* 350-00-031-HP-31*	ECL Tour 1 Configuration (Ref Figure 21-07)
350-00-011-HP-32* 350-00-031-HP-32*	ECL Tour 2 Configuration (Ref Figure 21-08)
350-00-011-HP-41* 350-00-031-HP-41*	Law Enforcement Configuration (Ref Figure 21-09)
* the addition of s to the end of the part number denotes a smooth pulley compressor	

Table 21-2 Air Condition System Installation Kit Part Number Description AS-350 Series

<b>EC-130B4</b>	
<b>BASE KIT NUMBER:</b>	
130-00-031-HP*	Aft Mounted Condenser (Ref Figure 21-02)
<b>CUSTOM CONFIGURATIONS:</b>	
Corporate 1 Configuration (Ref Figure 21-10)	
Corporate 2 Configuration (Ref Figure 21-11)	
* the addition of s to the end of the part number denotes a smooth pulley compressor	

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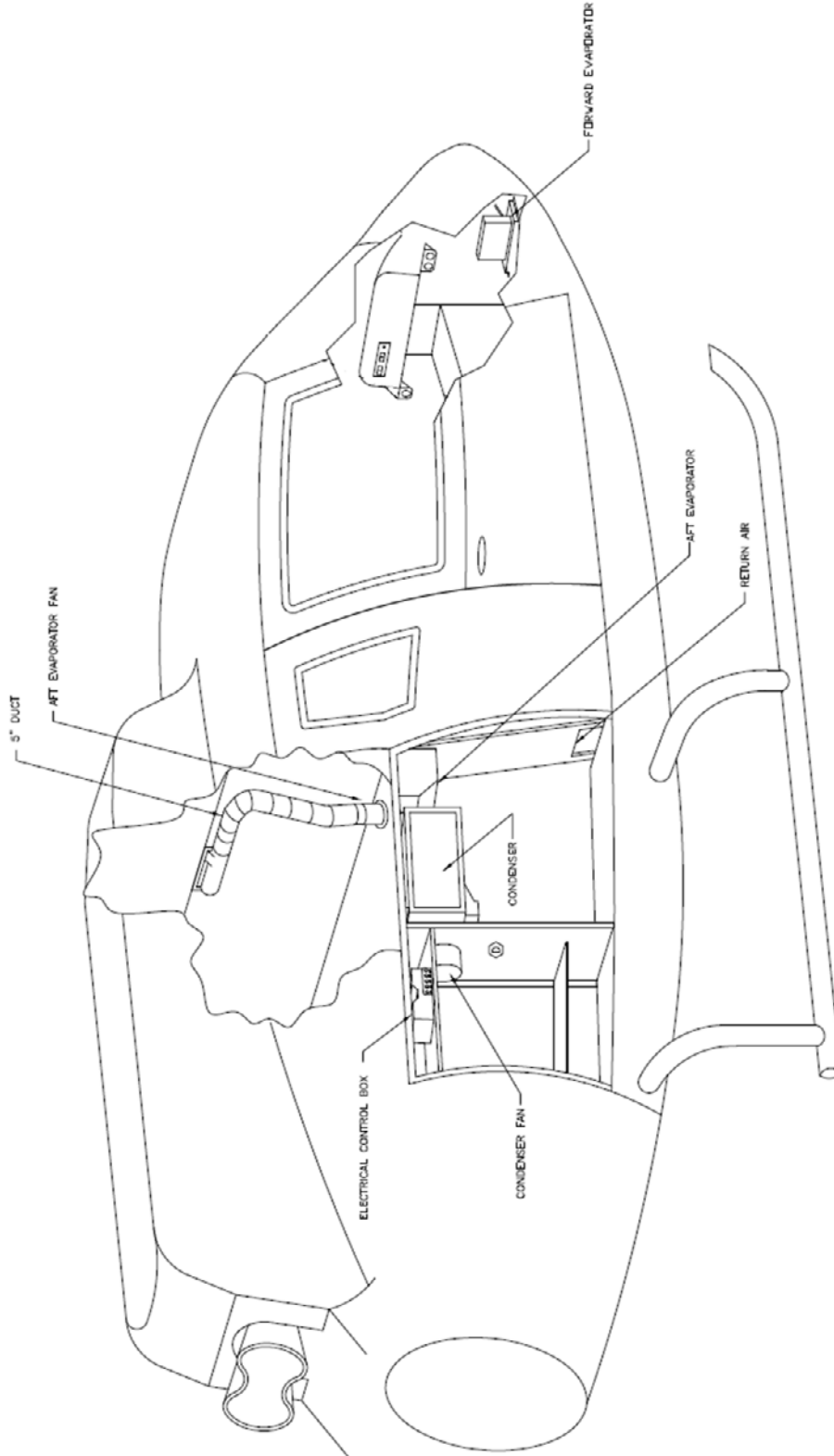


Figure 21-01: Equipment Locations for Air Conditioning System with the -011 Configuration (Side Mounted Condenser)

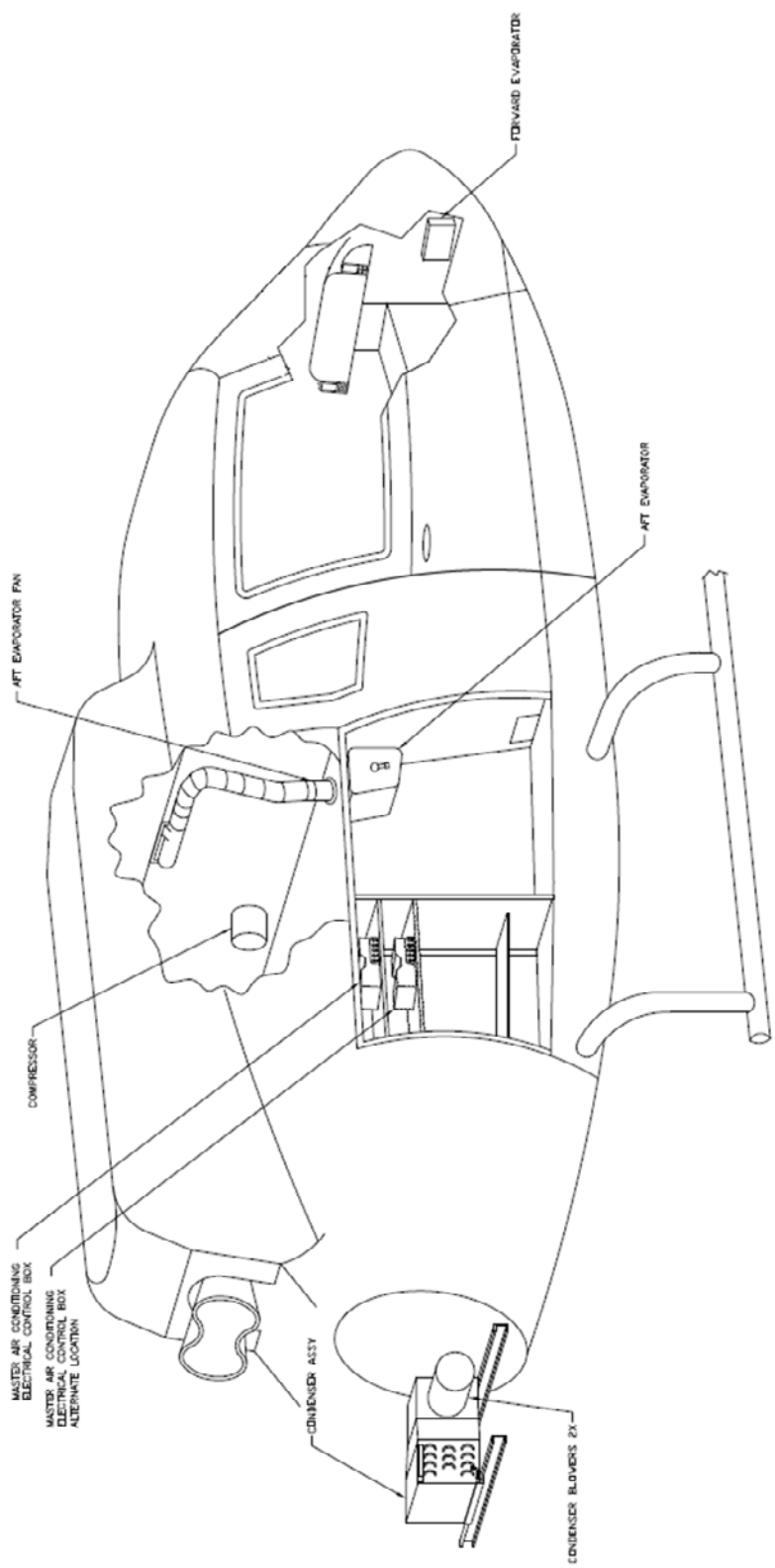


Figure 21-02: Equipment Locations for Air Conditioning System with the -031 Configuration (Aft Mounted Condenser)

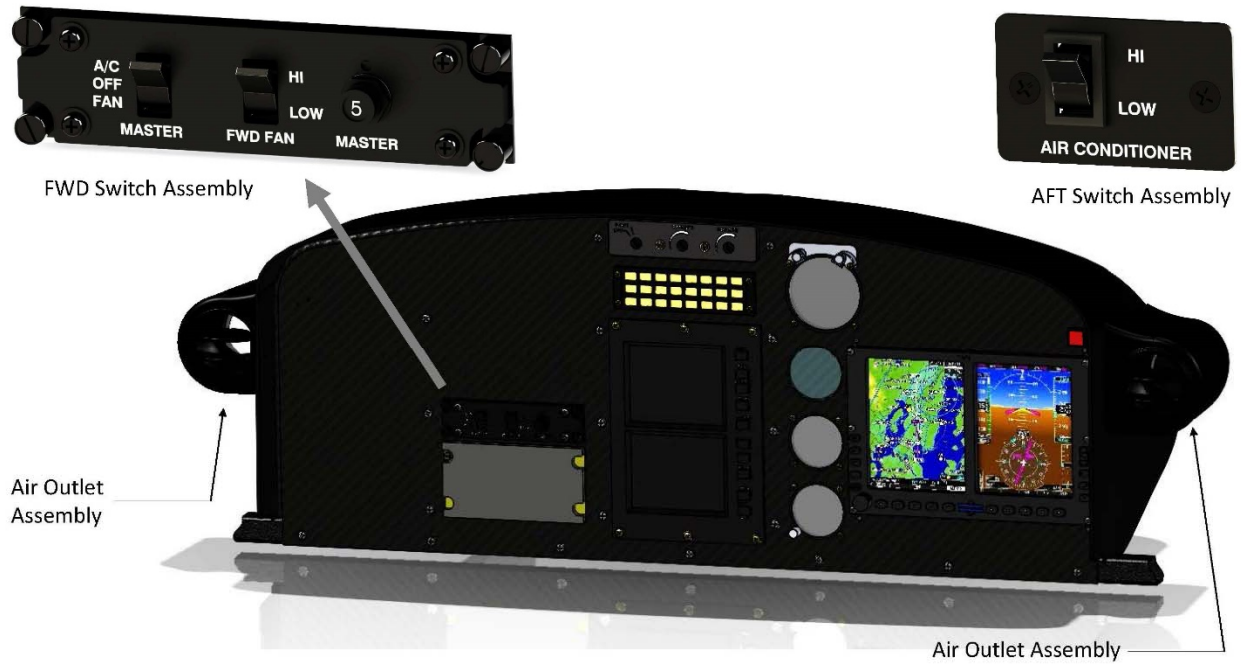


Figure 21 - 03: -01 AEC Basic Configuration

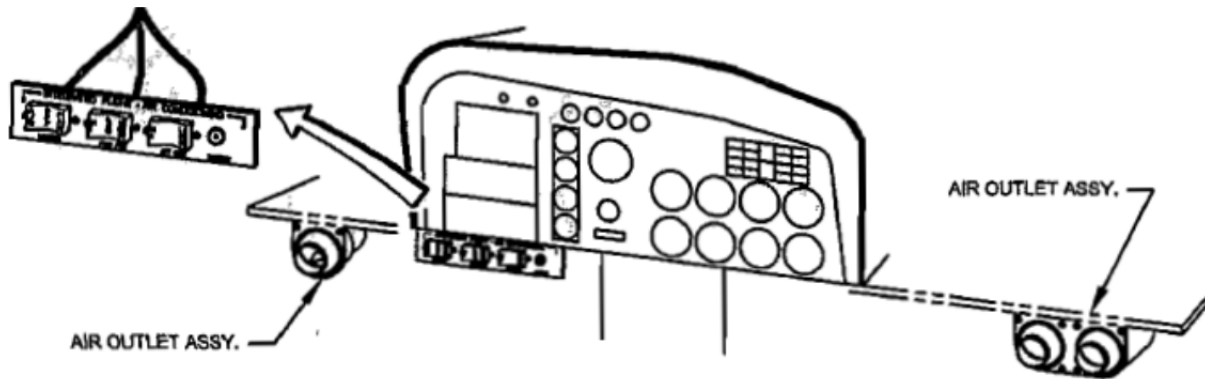


Figure 21 - 04: -31 ECL Tour 1 Configuration

## 2. Removal/ Installation Forward Evaporator

(Ref. figures 21-12 and 21-13)

### a) Removal

- 1) Access forward evaporator per Section 6-00-00 Dimensions and Access.
- 2) Connect refrigerant reclaimer to system in accordance with Section 21-00-00 and remove coolant from system. Comply with all Federal, State, and Local rules governing refrigerant handling.
- 3) Remove bolts securing evaporator.
- 4) Remove evaporator assembly.
- 5) Support evaporator while removing lines and other duct work.
- 6) Remove evaporator from aircraft.
- 7) Cap all open lines on unit and aircraft.
- 8) Disconnect electrical connections and remove evaporator fan.

### b) Installation

- 1) Reinstall fan in aircraft and connect electrical connections.
- 2) Position evaporator against fan assembly and loosely install with securing hardware. Secure mounting hardware.
- 3) Reinstall drain line.
- 4) Connect duct work.
- 5) Ensure refrigerant o-rings are installed and in good condition. Replace as necessary. Oil all o-rings and fittings with refrigerant oil of the same type listed on the compressor. Torque refrigerant lines: #6 11-13 ft/lbs.; #8 15-20 ft/lbs.; #10 21-27 ft/lbs.
- 6) After completing other system functions and maintenance, charge system in accordance with Section 12-10-00.
- 7) Check for leaks per section 12-30-00

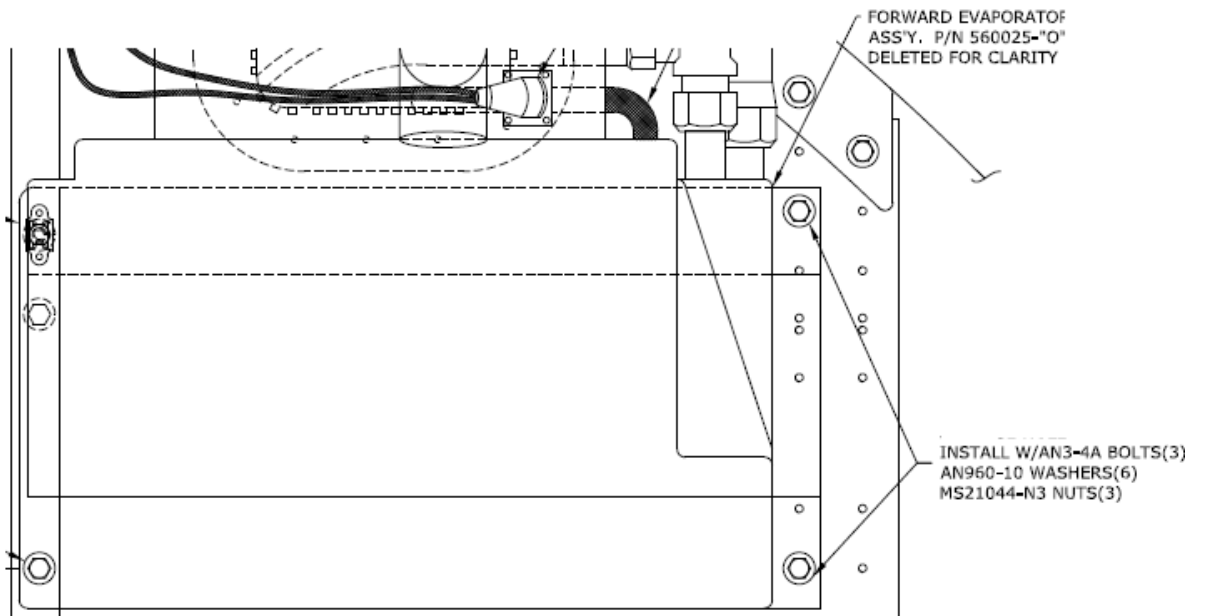


Figure 21 - 05: Forward Evaporator (AS-350)

FLUSH WITH PLATE, AND ATTACH WITH  
5X AN3-5A BOLT  
5X AN960-10 WASHER

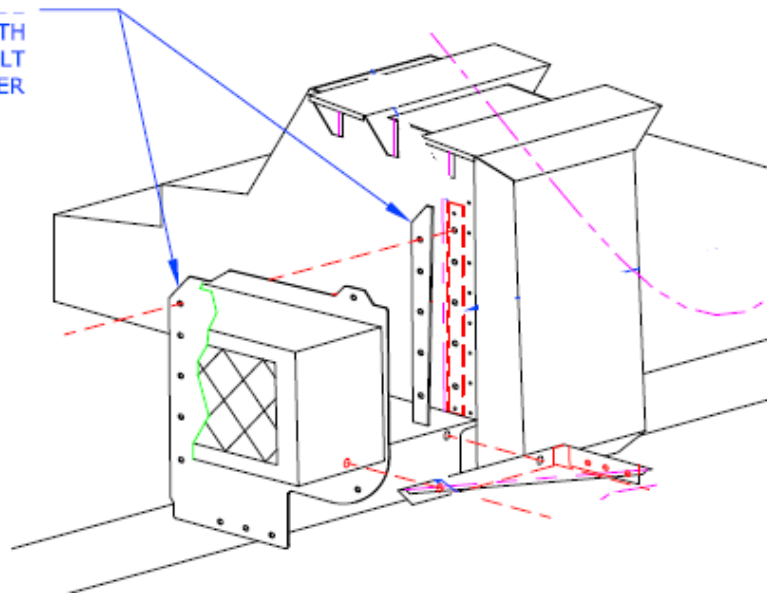


Figure 21 - 06: Forward Evaporator (EC-130)





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### 3. Removal/ Installation Aft Evaporator

(Ref Figure 21-14)

#### a) Removal

- 1) Access aft evaporator (Ref. Section 6-00-00 Dimensions and access) and remove electrical connections.
- 2) Reclaim refrigerant in system in accordance with Section 12-10-00, to remove coolant from system.
- 3) Support evaporator while removing lines and duct work.
- 4) Cap all open lines on unit and aircraft.

#### b) Installation

- 1) Reinstall fan/evaporator and connect electrical connections.
- 2) Position evaporator and loosely install with securing hardware. Secure mounting hardware.
- 3) Reinstall drain line.
- 4) Connect duct work.
- 5) Ensure refrigerant o-rings are installed and in good condition. Replace as necessary. Oil all o-rings and fittings with refrigerant oil of the same type listed on the compressor. Torque refrigerant lines: #6 11-13 ft/lbs.; #8 15-20 ft/lbs.; #10 21-27 ft/lbs.
- 6) After completing other system functions and maintenance, charge system in accordance with Section 12-10-00.
- 7) Check for leaks per section 12-30-00.

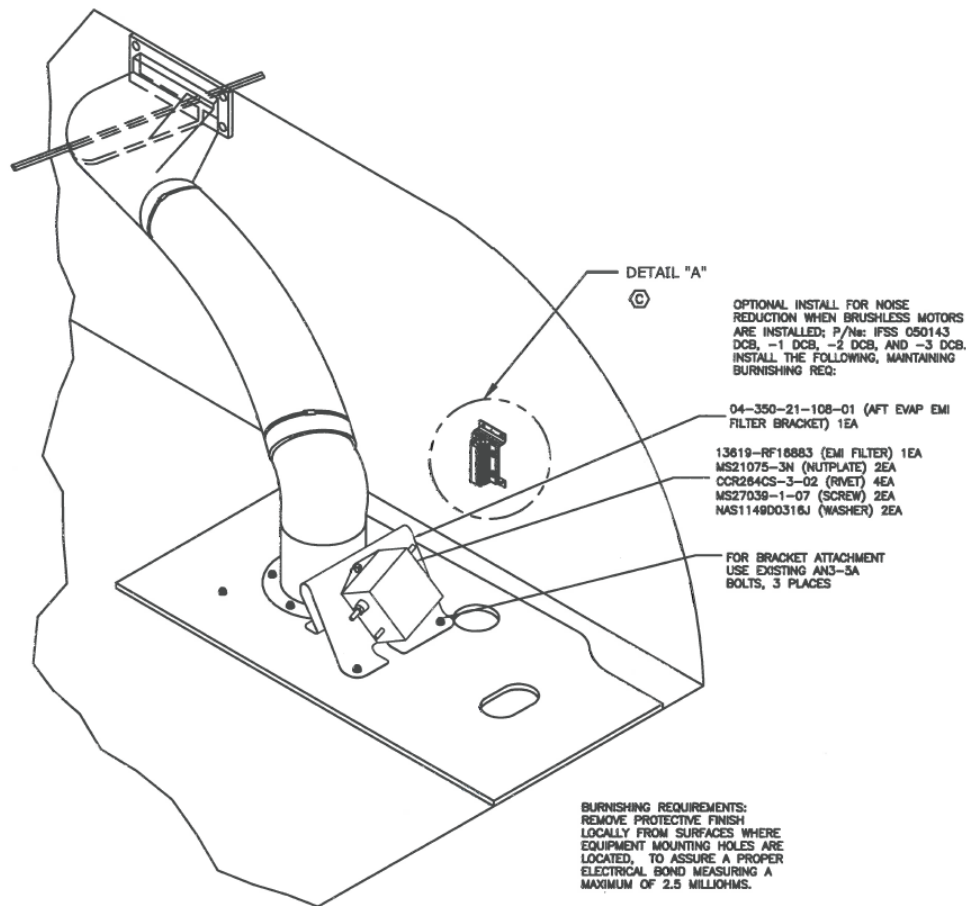


Figure 21 - 07: Aft Evaporator

4. Removal / Installation - Condenser

(Ref figures 21-08 and 21-09)

a) Removal

- 1) Access the condenser (Ref Section 6-00-00 Dimensions and Access)
- 2) Reclaim refrigerant in system in accordance with Section 12-10-00, to remove coolant from system.
- 3) Remove hardware securing condenser assembly. Disconnect blower wires and refrigerant hoses.
- 4) Remove condenser and cap all open lines on condenser and airframe.

b) Installation

- 1) Place condenser back in location.



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- 2) Loosely install all hardware securing condenser assembly. Tighten mounting hardware only after all other hardware is installed.
- 3) Remove protective caps from refrigerant lines. Inspect that o-rings are installed and in good condition. Oil all o-rings and fittings with refrigerant oil of the same type listed on the compressor.
- 4) Install refrigerant lines. Torque refrigerant lines as follows: #6 11-13 ft/lbs.; #8 15-20 ft/lbs.; #10 21-27 ft/lbs. Do not over tighten.
- 5) Charge system in accordance with Section 12-10-00

**BURNISHING REQUIREMENTS:**  
REMOVE PROTECTIVE FINISH LOCALLY FROM  
SURFACES WHERE EQUIPMENT MOUNTING HOLES  
ARE LOCATED, TO ASSURE A PROPER ELECTRICAL  
BOND MEASURING A MAXIMUM OF 2.5 MILLIOHMS.

OPTIONAL INSTALL FOR NOISE REDUCTION WHEN BRUSHLESS  
MOTORS ARE INSTALLED; P/Ns: IFSS 050143 DCB, -1 DCB,  
-2 DCB, AND -3 DCB.  
INSTALL THE FOLLOWING, MAINTAINING BURNISHING REQ:  
13619-RF16883 (EMI FILTER) 2EA  
MS27039-0807 (SCREW) 4EA  
NAS620-8L (WASHER) 4EA

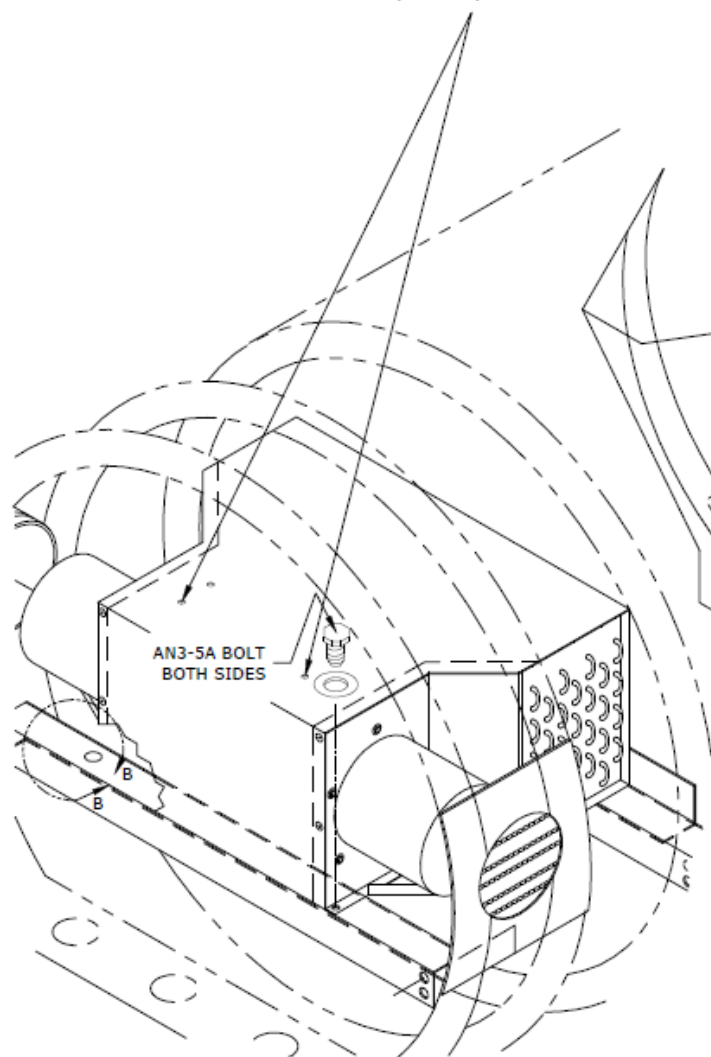


Figure 21 - 08: Aft Mounted Condenser (AS-350, EC-130)

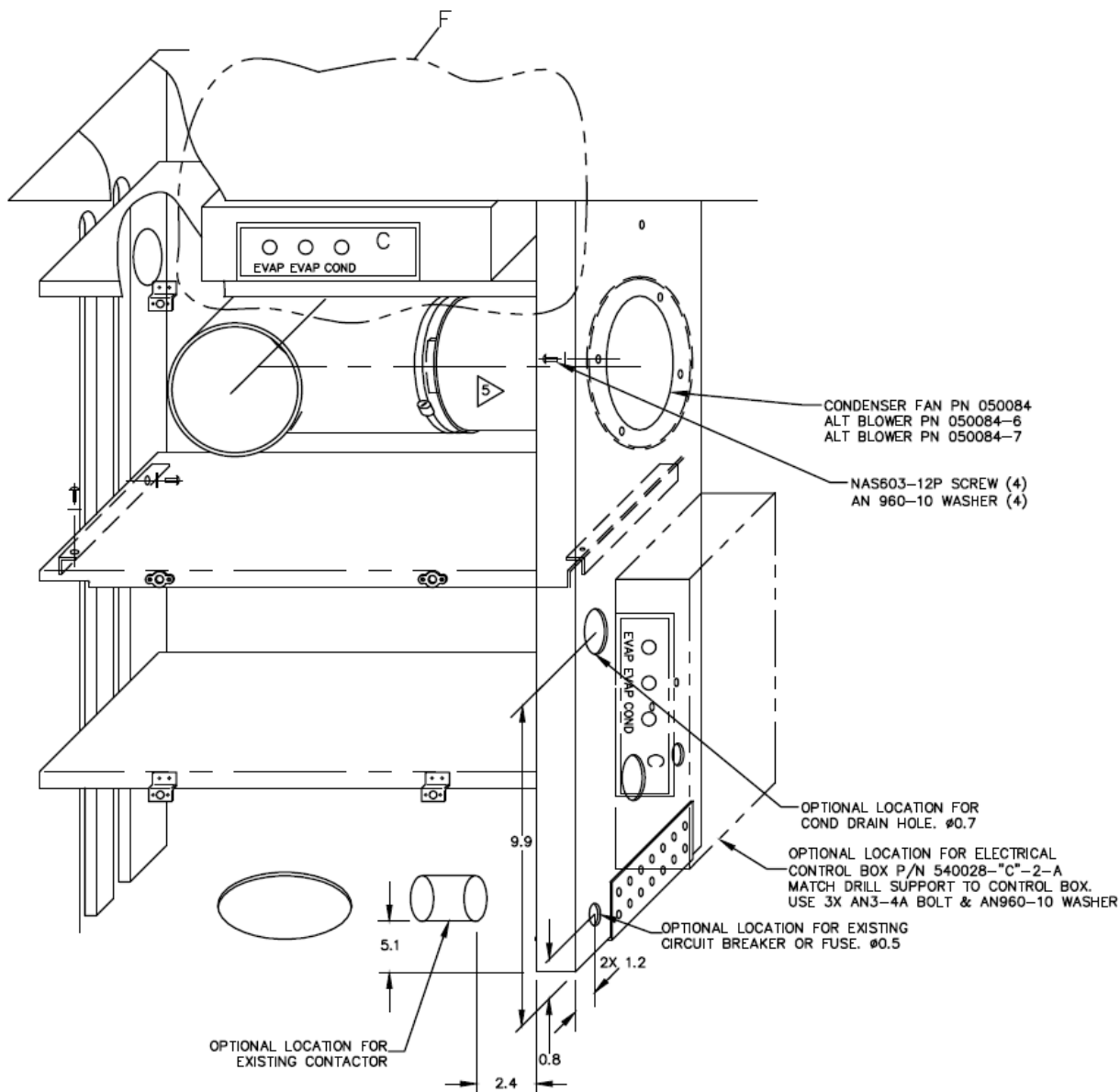


Figure 21 - 09: Side Mounted Condenser (AS-350)

5. Removal / Installation - Compressor

(Ref figure 21-10)

a) Removal

- 1) Access the compressor (Ref Section 6-00-00 Dimensions and Access)
- 2) Reclaim refrigerant in system in accordance with Section 12-10-00, to remove coolant from system.



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- 3) Remove refrigerant lines from compressor and install protective caps to protect from foreign material entering system and compressor.
- 4) Disconnect drive belt to compressor.
- 5) Remove bolts securing compressor to mount and remove compressor.

**b) Installation**

- 1) Install compressor loosely on support frame with attaching hardware.
- 2) Install drive belt.
- 3) Tighten compressor bolts allowing compressor to "Seek" its own natural position on the frame. Tighten compressor belt tensioning bolt to 50 lbs. belt tension for PN 060018-1 Flat Belt, or 30 lbs tension for PN 060005 Grooved Belt.
- 4) Tighten and safety all compressor mounting bolts.
- 5) Remove protective caps from refrigerant lines and compressor. Inspect the o-rings from installation and condition. Replace as necessary.
- 6) Oil all fittings and o-rings.
- 7) Install refrigerant lines.
- 8) Torque refrigerant lines: #6 11-13 ft/lbs.; #8 15-20 ft/lbs.; #10 21-27 ft/lbs. Do not over tighten.
- 9) Charge system in accordance with Section 12-00-00.
- 10) Install previously removed cowlings.

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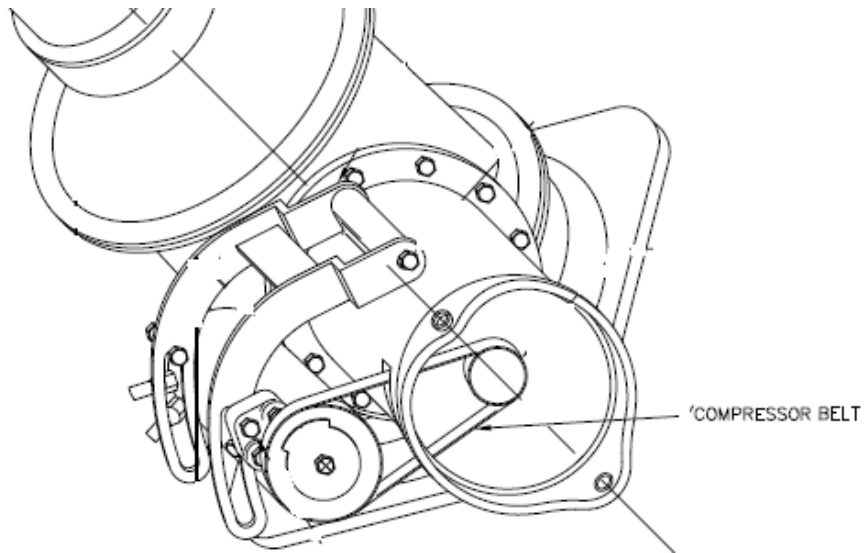


Figure 21 - 10: Compressor

6. Troubleshooting guide

Symptoms	Trouble	Cause	Correction
<ul style="list-style-type: none"> <li>-Insufficient cooling</li> <li>-Low-side pressure too low</li> <li>-High -side pressure too low</li> <li>-Air in ducts only slightly cool</li> </ul>	Low or partial refrigerant charge	Leak	Find and fix the leak. If there was a loss of oil, be sure to check to compressor oil level. Evacuate and recharge per section 12.10.00
<ul style="list-style-type: none"> <li>- Insufficient cooling during hottest part of the day or during extended flying.</li> <li>- Low-side pressure normal, though it may be too low or even a vacuum</li> <li>- High-side pressure normal, though it may be low-at the same time low side is low</li> <li>- Air in the ducts is usually cold, but becomes warm when pressure reading drop</li> </ul>	Excessive moisture in the system	The desiccant in the drier/receiver is saturated	Replace or rebuild the receiver/drier. Evacuate and recharge per section 12.10.00
<ul style="list-style-type: none"> <li>- Insufficient cooling</li> <li>- Low-side pressure normal, but does not drop when the clutch cycles</li> <li>- High-side pressure high</li> <li>- Air in ducts only slight cool</li> </ul>	Air in the System	Refrigerant contains non-condensable in the form of air moisture	Leak test, watch for bad compressor seals. Drain the system. Repair leaks as needed. Replace or rebuild the receiver-drier. Check the compressor oil. Evacuate and recharge per section 12.10.00.
<ul style="list-style-type: none"> <li>- No cooling</li> <li>- Low-side pressure too high</li> <li>- High-side pressure too high</li> <li>- Liquid line very hot</li> <li>- Air in ducts is warm</li> </ul>	Condenser malfunction or system overcharge	Condenser malfunction or system overcharge	Evacuate and recharge per section 12.10.00 or replace condenser.

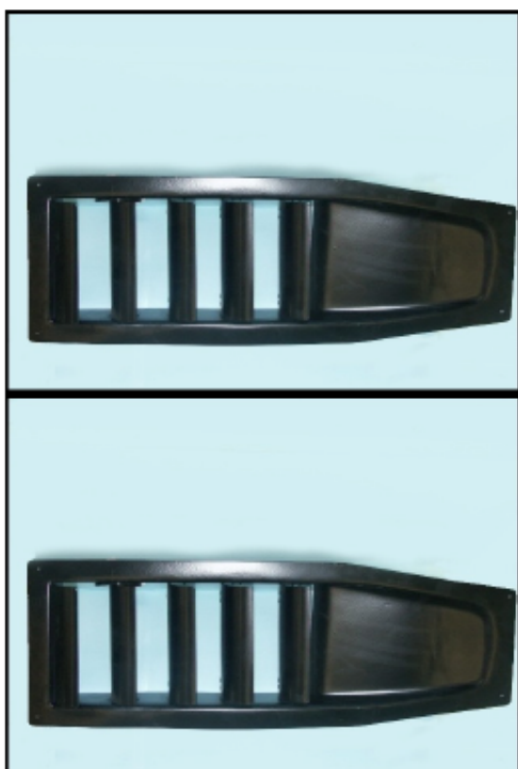


## Section 21-10-00 Illustrated Parts List

### 1. General

This section contains information on parts for the Air Conditioning System Installation, for use in ordering replacements if necessary.

## Air Outlets



**RSG PN: 520071-1**  
**Condenser Air Intake  
Assembly Low Profile  
(Sliding Door)**

AS350 

**RSG PN: 520071**  
**Condenser Air Intake  
Assembly  
(Hi Profile)**

AS350 

## Air Outlets



**RSG PN: 500001**  
**Left Side Air Outlet**

EC130 



**RSG PN: 500002**  
**Right Side Air Outlet**

EC130 



**RSG PN: 500008-1**  
**Louver Assembly**  
**Right Side**

AS350 



**RSG PN: 500010-1**  
**Louver Assembly**  
**Right Side**

AS350 

## Air Outlets



**RSG PN: 500011-1**  
**Louver Assembly Left  
Side**



**RSG PN: 500018**  
**Air Outlet Assembly  
Right Side**



**RSG PN: 500018-2**  
**Air Outlet Assembly  
Right Side**



**RSG PN: 510259**  
**Air Outlet Assembly**



## Air Outlets



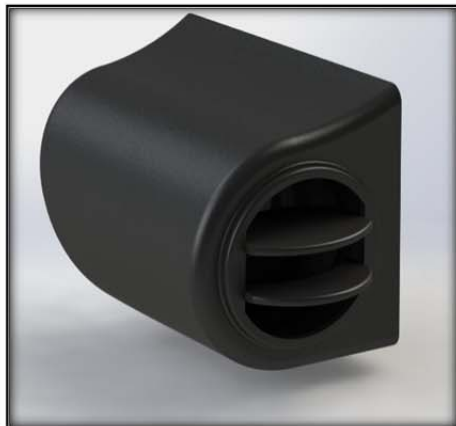
**RSG PN: 510259-1**  
**Louver Assembly**  
**Right Side, Lower**

AS350 



**RSG PN: 510259-2**  
**Air Outlet Assembly**

AS350 



**RSG PN: 520156HP-01**  
**Air Outlet L.H.**

AS350 



**RSG PN: 520157HP-01**  
**Air Outlet R.H.**

AS350 

## Blower Motors



**RSG PN: 050143**  
**5" Vane Axial Blower  
Assembly**



**RSG PN: 050084**  
**Fan, Vane Axial 7", 24  
VDC (Dynamic)**



**RSG PN: 050084-6**  
**7" Vane Axial Blower  
Assembly (Enviro)**



**RSG PN: 610000**  
**7" Blower Assembly  
DC Brushless**



## Blower Motors



**RSG PN: 630000**  
**7" Blower Assembly  
(Ampflow)**

AS350 

EC130 



**RSG PN: 640000**  
**7" Blower Assembly  
(Ampflow)**

AS350 

EC130 



**RSG PN: 050052-1**  
**Blower Motor,  
Modified Right Half**

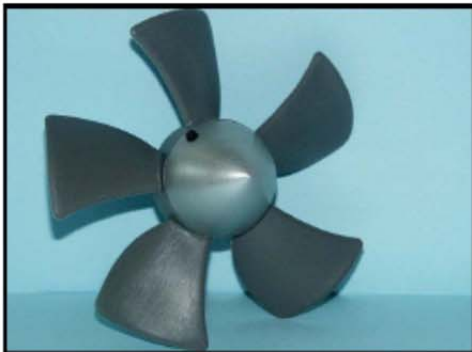
AS350 



**RSG PN: 490017-1**  
**Aft Evaporator Fan  
Assembly**

AS350 

## Blower Motor Parts



**RSG PN: 580000**  
**5" Hub & Propeller  
Assembly**



**RSG PN: 250371**  
**5" Propeller**



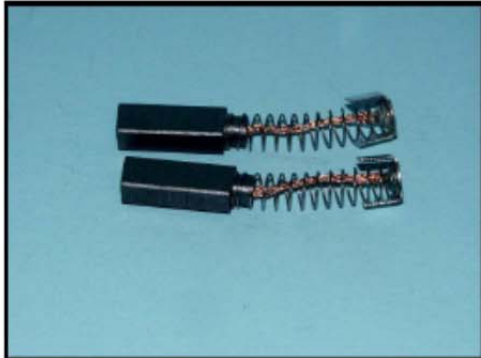
**RSG PN: 261176**  
**Fan Blade Hub**



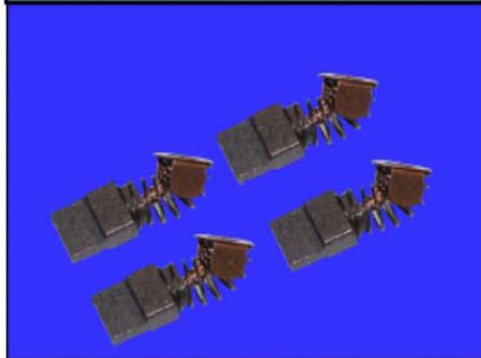
**RSG PN: 040004-8**  
**Fan Wheel CW**



## Blower Motor Parts



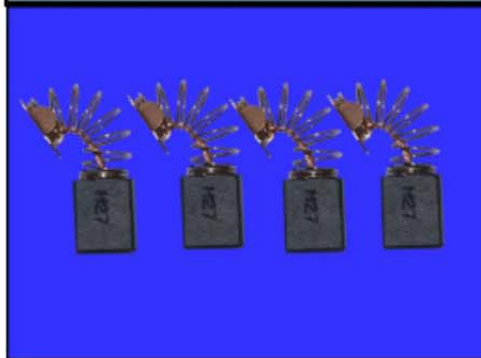
**RSG PN: 050031**  
**5" Motor Brushes**



**RSG PN: 610000-8**  
**7" Motor Brushes  
(Ampflow)**



**RSG PN: 050038**  
**7" Motor Brushes  
(Enviro)**



**RSG PN: A20420**  
**7" Motor Brushes  
(Dynamic)**





## Blower Motor Parts



**RSG PN: 050032**  
**5" Motor Brush Caps**

AS350 

EC130 



**RSG PN: 0941101-1-5**  
**5" Motor Armature**

AS350 

## Compressor and Parts



**RSG PN: 590008**  
**Compressor  
Assembly**

AS350 



**RSG PN: 590008-1**  
**Compressor  
Assembly**

AS350 

EC130 



**RSG PN: 010015**  
**Face Plate**  
(A3G/A2Y/1BQ/005 prefix stamped  
on face of rim)  $\phi$ .501 shaft

AS350 

EC130 

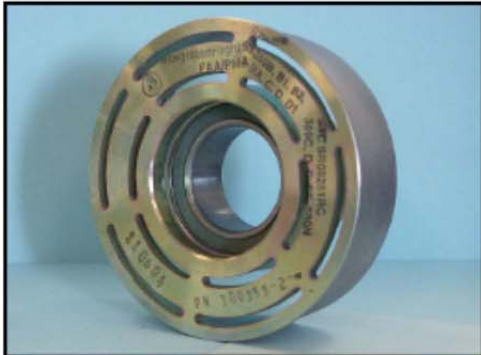


**RSG PN: 010013**  
**Face Plate**  
(A6H prefix stamped on face of rim  
keyed-  $\phi$ .430 shaft)

AS350 

EC130 

## Compressor and Parts



**RSG PN: 300355-2**

**Pulley**

**AS350**



**RSG PN: 300396**

**Pulley**

**AS350**



**EC130**



**RSG PN: 010011**

**Bearing**

**AS350**



**EC130**



**RSG PN: 050033**

**Coil, 24 VDC**

**AS350**



**EC130**



## Compressor and Parts



### Shim and Nut Kit

(keyed-  $\emptyset$ .430 shaft)

Nut Fits All Shaft Sizes

AS350 

EC130 



### RSG PN: 060005

24.3" 4 Groove  
Serpentine Belt

EC130 



### RSG PN: 060006

25.3" 5 Groove  
Serpentine Belt

EC130 



### RSG PN: 060018 25-1/4"

### RSG PN: 060018-1 25"

Flat Belt

AS350 

EC130 

## Compressor Bracket/Parts



### RSG PN: 350-11-031-02 Compressor Bracket Kit

AS350 

EC130 



### RSG PN: 04-130-21-101-01 Compressor Mount Bracket

AS350 

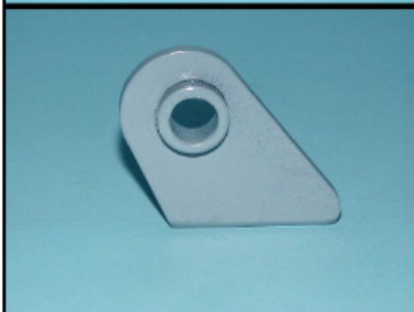
EC130 



### RSG PN: 530100 Strap, Housing Mod Assembly

AS350 

EC130 



### RSG PN: 530100-1 Strap, Housing Mod Assembly

AS350 

EC130 

## Compressor Bracket/Parts



**RSG PN: 300363-2**  
**Compressor Shim, Upper**  
**(Alt: 261155 not shown)**

AS350 

EC130 

**RSG PN: 300067-1**  
**Compressor Standoff**

AS350 

EC130 

**RSG PN: 300067**  
**Compressor Standoff**

AS350 

EC130 

**RSG PN: 261007**  
**Bushings, SD507**

AS350 

EC130 

## Compressor Bracket/Parts



**RSG PN: 261008**  
**Bushings, SD507**

**AS350** 

**EC130** 

**RSG PN: 300095**  
**Compressor Pin**

**AS350** 

**EC130** 

## Condenser/Evaporator



**RSG PN: 090002-O**  
**Expansion Valve**

AS350 

EC130 



**RSG PN: 090016-5**  
**Receiver/Drier**

AS350 

EC130 



**RSG PN: 550003-O**  
**Aft Condenser  
Assembly**

EC130 



**RSG PN: 550007-1**  
**Side Condenser  
Assembly**

AS350 



## Condenser/Evaporator



**RSG PN: 550022**  
**Aft Condenser  
Assembly**

**AS350** 



**RSG PN: 560004**  
**Fwd Evaporator  
Assembly**

**EC130** 



**RSG PN: 560010-O-5**  
**Aft Evaporator  
Assembly**

**AS350** 



**RSG PN: 560016-O-1**  
**Aft Evaporator  
Assembly**

**EC130** 

## Condenser/Evaporator



**RSG PN: 560025-O**  
**Fwd Evaporator  
Assembly**

**AS350** 

## Electrical Parts



**RSG PN: 540009**  
**Electrical Box  
Assembly**

EC130 



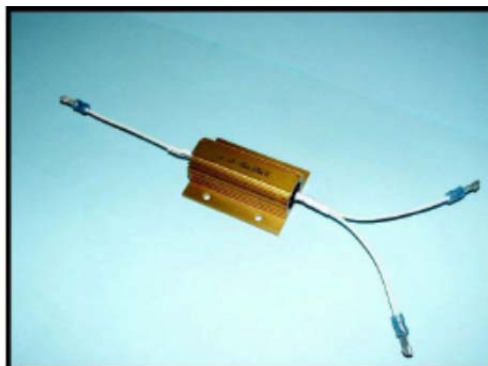
**RSG PN: 540028-C-1-A**  
**RSG PN: 540028-C-2-A**  
**Electrical Box  
Assembly**

AS350 



**RSG PN: 540011**  
**Instrument Panel  
Switch**

EC130 



**RSG PN: 540020**  
**Resistor Assembly**

EC130 

## Electrical Parts



**RSG PN: 540044-5**  
**Instrument Panel  
Switch**

AS350 



**RSG PN: 540044-8**  
**Instrument Panel  
Switch**

AS350 



**RSG PN: 540044-9**  
**5 amp Breaker  
Assembly**

AS350 

EC130 



**RSG PN: 540089**  
**Aft Evaporator Switch  
Assembly**

AS350 

## Electrical Parts



**RSG PN: 050000**  
**Switch with Button**

**AS350** 

**EC130** 



**RSG PN: 050001**  
**Switch without Button**

**AS350** 

**EC130** 



**RSG PN: 050006**  
**Switch without Button**

**AS350** 



**RSG PN: 050006-1**  
**Switch with Button**

**AS350** 

## Electrical Parts



**RSG PN: 050006-2**  
**Switch with Button**

AS350 

EC130 



**RSG PN: 050006-3**  
**Switch without Button**

AS350 

EC130 



**RSG PN: 050007-1**  
**Button**

AS350 

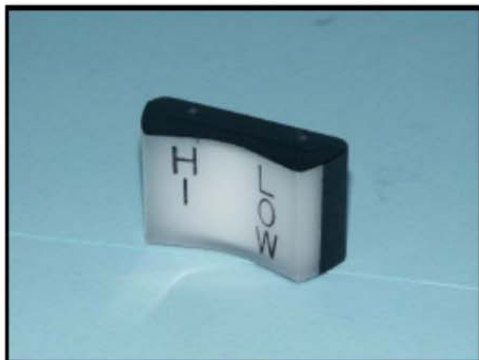
EC130 



**RSG PN: 050007-3**  
**Button**

AS350 

## Electrical Parts



**RSG PN: 050007-4**  
**Button**

AS350 

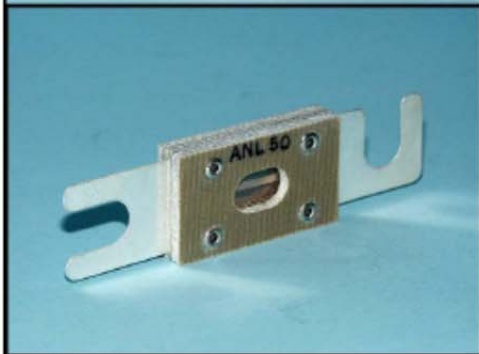
EC130 



**RSG PN: 050008**  
**Relay**

AS350 

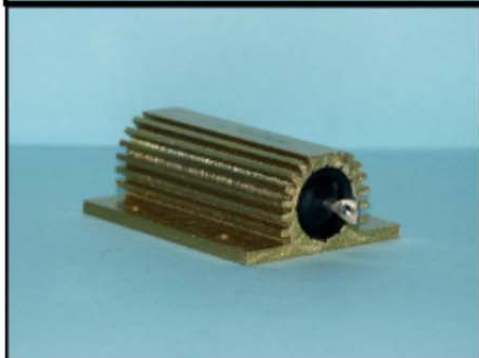
EC130 



**RSG PN: 050015-2**  
**50 Amp Limiter**

AS350 

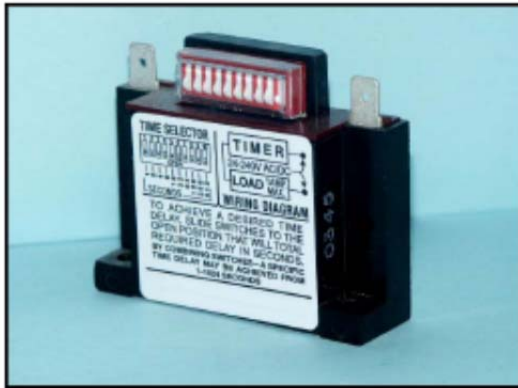
EC130 



**RSG PN: 050024**  
**Resistor**

AS350 

## Electrical Parts



**RSG PN: 050026**

**Timer**

**AS350** 

**EC130** 



**RSG PN: 050107**

**Low Pressure Switch**

**AS350** 

**EC130** 



**RSG PN: 090004**

**High Pressure Switch**

**AS350** 

**EC130** 



## Electrical Parts



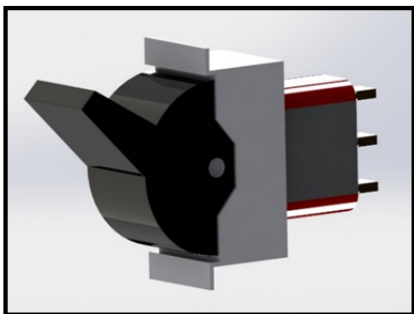
**RSG PN: 540044-8-02**  
**Instrument Panel  
Switch Assy.**

AS350 



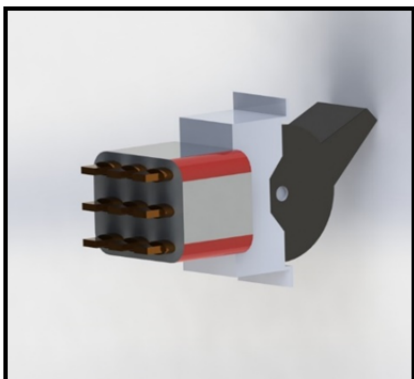
**RSG PN: 540089-02**  
**Aft Switch Assy.**

AS350 



**RSG PN: 7303J21ZQI22**  
**Switch, 3PDT, 3 POS.**

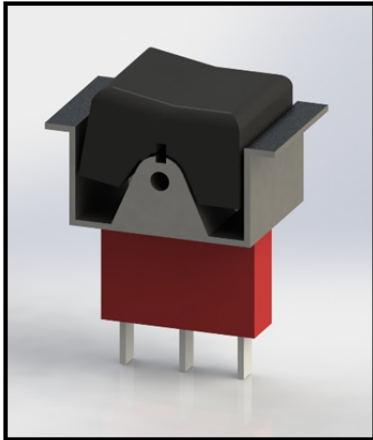
AS350 



**RSG PN: 7301J21ZGE22**  
**Switch, 3PDT, 3 POS.**

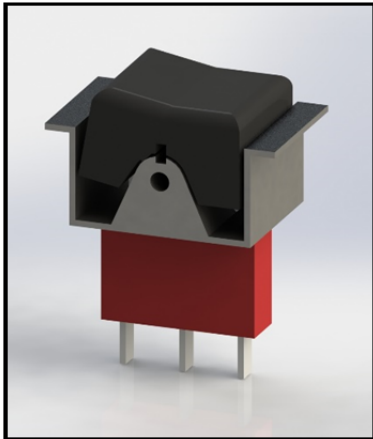
AS350 

## Electrical Parts



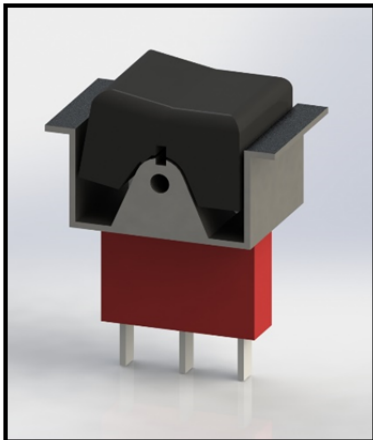
**RSG PN: 7301J11ZQE22**  
**Switch, SPST, 2 POS.**

**AS350** 



**RSG PN: 7101J51ZQE22**  
**Switch, SPST, 2 POS.**

**EC130** 



**RSG PN: 7203J51ZQE22**  
**Switch, DPDT, 2 POS.**

**EC130** 

## EC130 Hoses



**RSG PN: 570103**  
**High Pressure Hose #6  
Assembly**



**RSG PN: 570104**  
**Condenser to  
Receiver/Drier Hose #6  
Assembly**



**RSG PN: 570105**  
**Return Hose #10  
Assembly**



**RSG PN: 570070-O-A**  
**Hose Assembly #8  
Compressor Discharge**



## AS350 Hoses Aft Mount Condenser



**RSG PN: 570067-O-A**  
**Hose Assembly #6**  
**Condenser to Drier**

**AS350** 



**RSG PN: 570070-O-A**  
**Hose Assembly #8**  
**Compressor Discharge**

**AS350** 



**RSG PN: 570072-O-A**  
**Hose Assembly #6 Fwd**  
**Evaporator to Receiver/Drier**

**AS350** 



**RSG PN: 570087-O-A**  
**Hose Assy. Fwd Evaporator**  
**to Aft Evaporator to**  
**Condenser**

**AS350** 

## AS350 Hoses Side Mount Condenser



**RSG PN: 570020-O-A**  
**Hose Assembly #6**  
**Condenser to Drier**

AS350 



**RSG PN: 570024-O-A**  
**Hose Assembly #8**  
**Compressor Discharge**

AS350 



**RSG PN: 570072-O-A**  
**Hose Assembly #6 Fwd**  
**Evaporator to Receiver/Drier**

AS350 

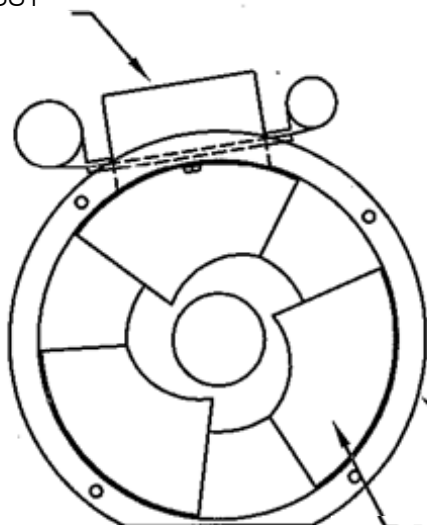


**RSG PN: 570087-O-A**  
**Hose Assembly Fwd**  
**Evaporator to Aft Evaporator**  
**to Compressor**

AS350 

## BRUSHLESS BLOWER MOTORS AND PARTS

RSG PN 540126-1 CONTROLLER  
ASSY



### **RSG PN: 050084-7-2** **7" DC Brushless Blower Assembly Short**

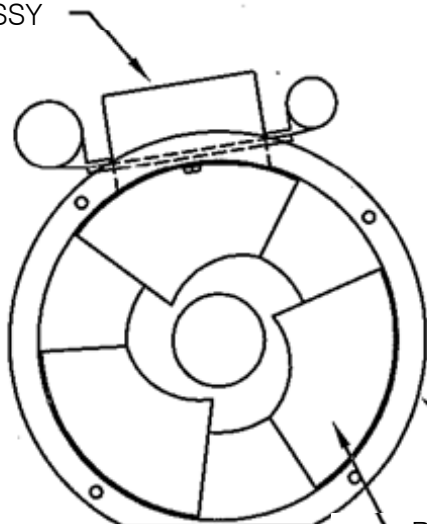
**AS350** 

**EC130** 

RSG PN 040020 7" BLOWER

RSG PN 040019 7" PROPELLER  
RSG PN 050176-1 7" PROPELLER HUB ASSY  
RSG PN 050193 7" DC BRUSHLESS MOTOR

RSG PN 540126-1 CONTROLLER  
ASSY



### **RSG PN: 050084-7-3** **7" DC Brushless Blower Assembly Long**

**AS350** 

**EC130** 

RSG PN 040021 7" BLOWER

RSG PN 040019 7" PROPELLER  
RSG PN 050176-1 7" PROPELLER HUB ASSY  
RSG PN 050193 7" DC BRUSHLESS MOTOR



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**LIST OF CONSUMABLE MATERIALS**

DESCRIPTION	P/N	VENDOR/SPECIFICATION
THREAD LOCK	242	LOCTITE
ADHESIVE	1300L	3M
Cleaning cloth, Low-Lint	--	Commercial
Mineral Spirits, Cleaning Solvent	--	MIL-PRF-680, TYP II OR ASTM-D235
Alodine	Alodine 1200	--
Alodine	Iridite 14-2	--
Paint Stripper	Turco 5873	--
Polyamide Paint Primer	--	--
Dye Penetrant Kit	--	--
Acetone	--	ASTM-D329
Isopropyl Alcohol	--	TT-I-735
Trichloroethane	--	MIL-T-81533
Nylon Scouring Pad	(3M) Scotchbrite 63	3M
240 Grit Sandpaper	--	Commercial
320 Grit Sandpaper	--	Commercial
240 Grit Aluminum Oxide Abrasive	--	Commercial
Cloth	--	Commercial
Sealant	--	MIL-S-8802
Adhesive transfer tape 950 (2")	70-0060-3057-4	3M
Refrigerant	R134a	--



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EC-130 B4

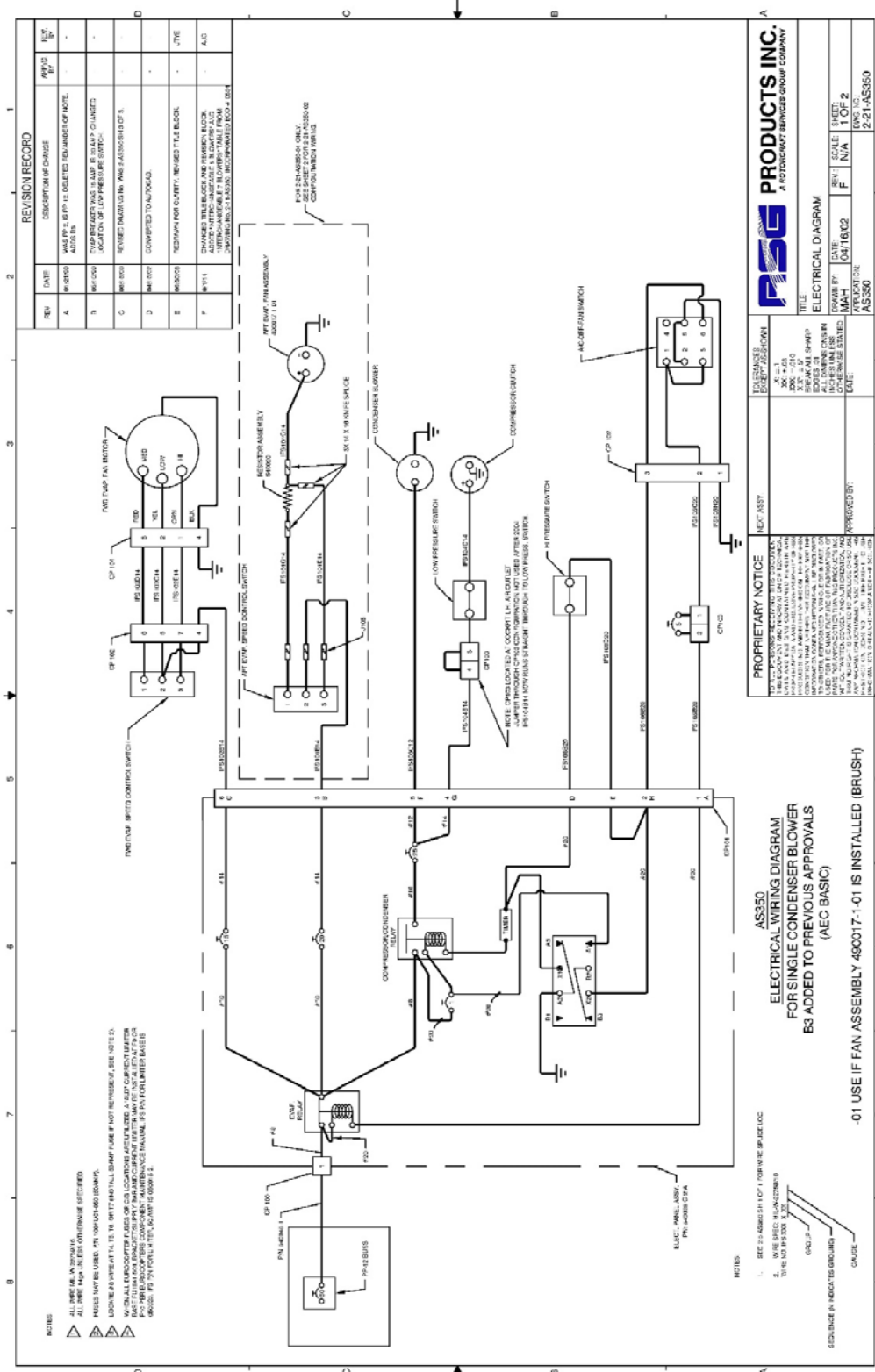
## Chapter 98

### Section 98-00-00 Wiring Diagrams and Plumbing Schematics

This section contains all applicable wiring diagrams and plumbing schematics.



TITLE: Air Conditioning System Installation Instructions For Continued Airworthiness for Airbus Helicopters AS-350 B, C, D, D1, B1, B2, B3, BA & EC-130 B4



REV	DATE	DESCRIPTION OF CHANGE	APP'D BY
A	REVISED	WAS PER 28VDC COILS TO BE CHANGED TO 28VDC	
B	REVISED	CHANGED WIRING DIAGRAM TO SHOW CHANGES TO WIRING	
C	REVISED	WAS PER 28VDC COILS TO BE CHANGED TO 28VDC	
D	REVISED	WAS PER 28VDC COILS TO BE CHANGED TO 28VDC	
E	REVISED	WAS PER 28VDC COILS TO BE CHANGED TO 28VDC	
F	REVISED	WAS PER 28VDC COILS TO BE CHANGED TO 28VDC	

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<b>REVISED</b> DATE: 04/18/02 DRAWN BY: MAH CHECKED BY: F SCALE: N/A SHEET: 1 OF 2 PART NO.: 2-21-AS350	<b>PROPRIETARY NOTICE</b> THIS DOCUMENT IS THE PROPERTY OF RSG PRODUCTS INC. AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF RSG PRODUCTS INC.

NOTES

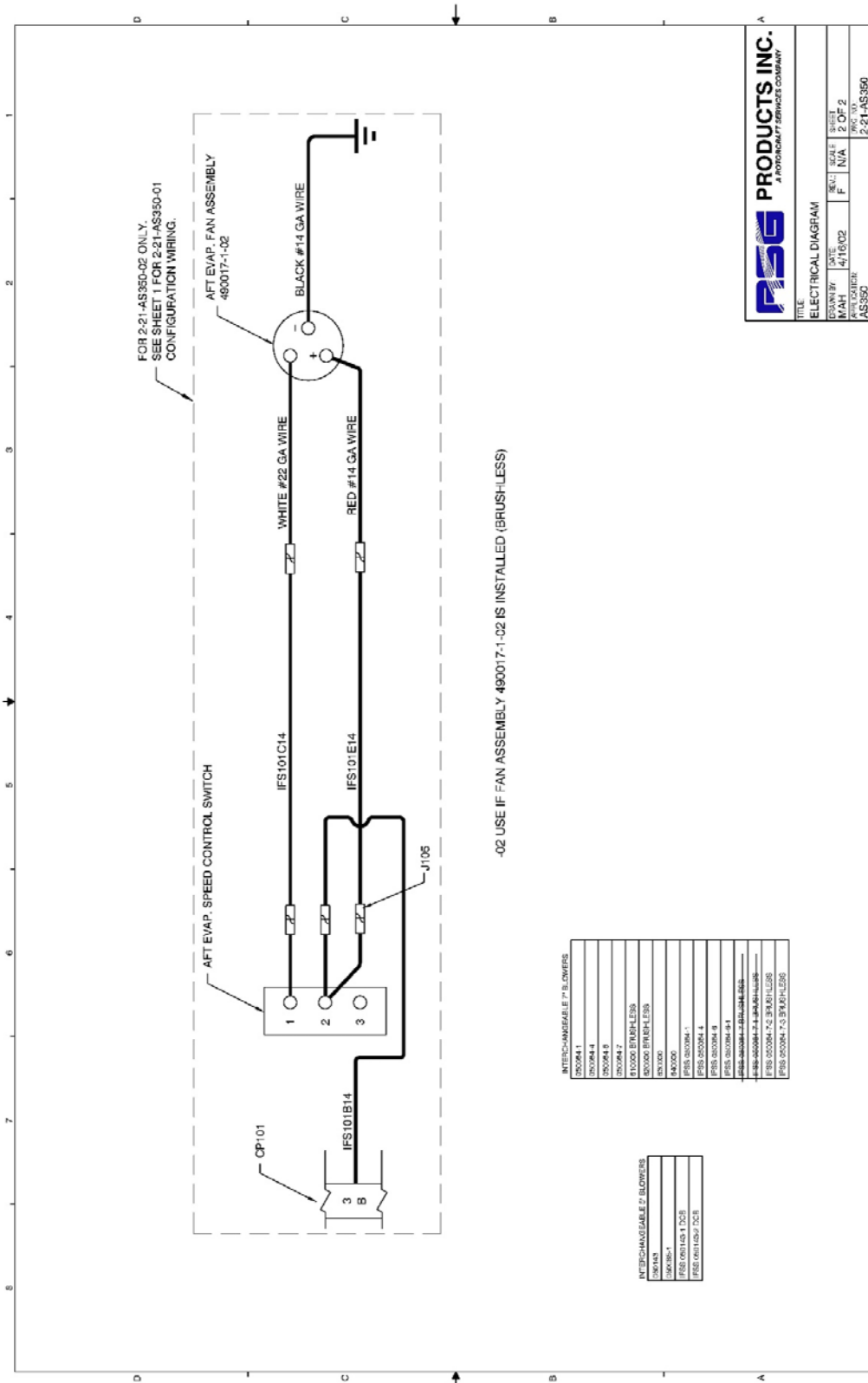
- SEE 2-AS350-1-CP-1 FOR WIRING DIAGRAM
- WIRE SPEC: MIL-STD-1750

SEQUENCE # INDICATES GROUND GAUGE

ASS350  
 ELECTRICAL WIRING DIAGRAM  
 FOR SINGLE CONDENSER BLOWER  
 B3 ADDED TO PREVIOUS APPROVALS  
 (AEC BASIC)

-01 USE IF FAN ASSEMBLY 490017-01 IS INSTALLED (BRUSH)

TITLE:  
Air Conditioning System Installation Instructions For Continued Airworthiness for Airbus Helicopters AS-350 B, C, D, D1, B1, B2, B3, BA & EC-130 B4

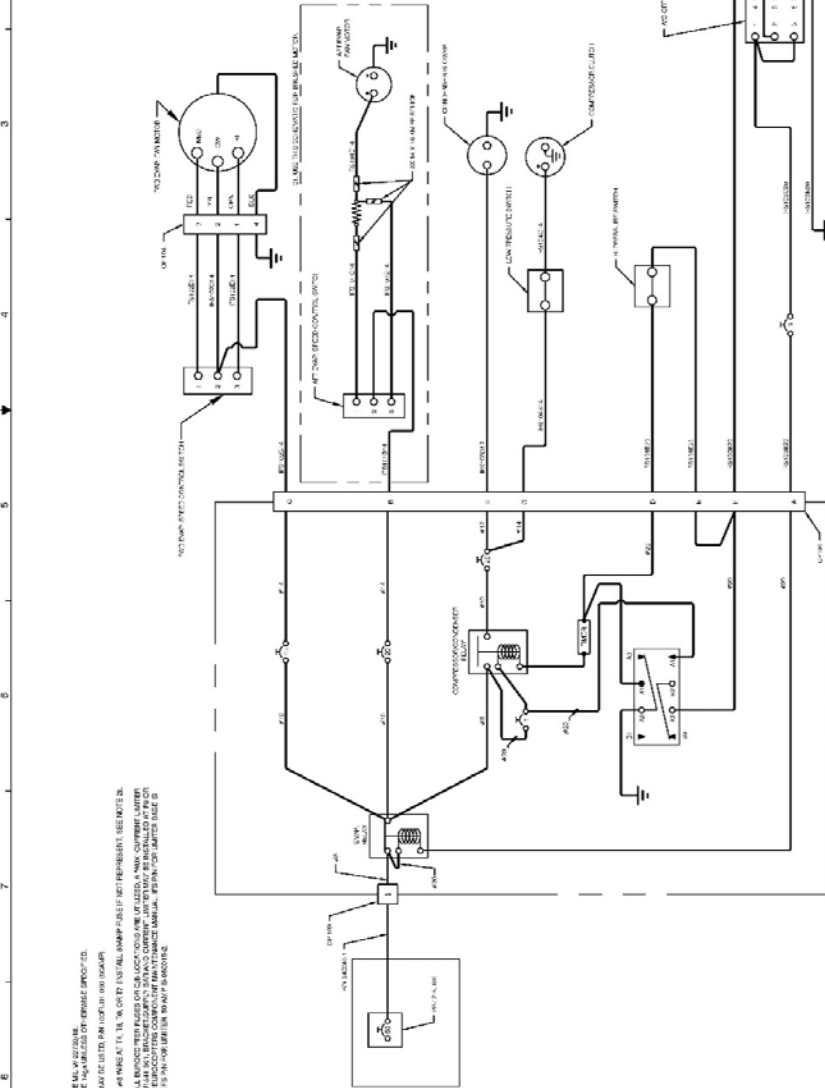


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A ROTORCRAFT SERVICES COMPANY

TITLE: ELECTRICAL DIAGRAM  
 COUNTY: MAH  
 DATE: 4/16/02  
 REV: F  
 SHEET: 2 OF 2  
 PART NUMBER: N/A  
 PART NO.: 2-21-AS350  
 ASSNO

TITLE: Air Conditioning System Installation Instructions For Continued Airworthiness for Airbus Helicopters AS-350 B, C, D, D1, B1, B2, B3, BA & EC-130 B4

REV	DATE	DESCRIPTION OF CHANGE	APPROVED BY
A	11/19/14	ISSUED FOR THE AIRCRAFT. CHANGE TO THE AIRCRAFT. CHANGE TO THE AIRCRAFT. CHANGE TO THE AIRCRAFT.	
B		REVISIONS TO THE AIRCRAFT.	
C		REVISIONS TO THE AIRCRAFT.	
D		REVISIONS TO THE AIRCRAFT.	
E	11/19/14	CHANGE THE AIRCRAFT. CHANGE TO THE AIRCRAFT. CHANGE TO THE AIRCRAFT.	



NOTES:

- 1. ALL WIRE SHALL BE 22 AWG.
- 2. ALL WIRE SHALL BE OF THE SAME TYPE AND SIZE.
- 3. FUSES SHALL BE OF THE SAME TYPE AND SIZE.
- 4. WIRE SHALL BE OF THE SAME TYPE AND SIZE.
- 5. WIRE SHALL BE OF THE SAME TYPE AND SIZE.
- 6. WIRE SHALL BE OF THE SAME TYPE AND SIZE.
- 7. WIRE SHALL BE OF THE SAME TYPE AND SIZE.
- 8. WIRE SHALL BE OF THE SAME TYPE AND SIZE.
- 9. WIRE SHALL BE OF THE SAME TYPE AND SIZE.
- 10. WIRE SHALL BE OF THE SAME TYPE AND SIZE.

REV	DATE	DESCRIPTION OF CHANGE	APPROVED BY
A	11/19/14	ISSUED FOR THE AIRCRAFT. CHANGE TO THE AIRCRAFT. CHANGE TO THE AIRCRAFT.	
B		REVISIONS TO THE AIRCRAFT.	
C		REVISIONS TO THE AIRCRAFT.	
D		REVISIONS TO THE AIRCRAFT.	
E	11/19/14	CHANGE THE AIRCRAFT. CHANGE TO THE AIRCRAFT. CHANGE TO THE AIRCRAFT.	

**ASG PRODUCTS INC.**  
A HONEYWELL AIRCRAFT AIRCRAFT COMPANY

**ELECTRICAL DIAGRAM**

DATE: 11/19/14  
DRAWN BY: MAH  
CHECKED BY: MAH  
APPROVED BY: MAH

SHEET 1 OF 2  
PROJECT: 2-29-AS350

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**AS350**  
**ELECTRICAL WIRING DIAGRAM**  
**ADD TO PREVIOUS APPROVALS**  
**ADD TO PREVIOUS APPROVALS**  
**(EUROCOPTER CANADA LTD TOUR OPERATOR VERSION)**  
**TOUR-1 VERSION**

NOTE:

- 1. WIRE SHALL BE OF THE SAME TYPE AND SIZE.
- 2. WIRE SHALL BE OF THE SAME TYPE AND SIZE.
- 3. WIRE SHALL BE OF THE SAME TYPE AND SIZE.
- 4. WIRE SHALL BE OF THE SAME TYPE AND SIZE.
- 5. WIRE SHALL BE OF THE SAME TYPE AND SIZE.
- 6. WIRE SHALL BE OF THE SAME TYPE AND SIZE.
- 7. WIRE SHALL BE OF THE SAME TYPE AND SIZE.
- 8. WIRE SHALL BE OF THE SAME TYPE AND SIZE.
- 9. WIRE SHALL BE OF THE SAME TYPE AND SIZE.
- 10. WIRE SHALL BE OF THE SAME TYPE AND SIZE.



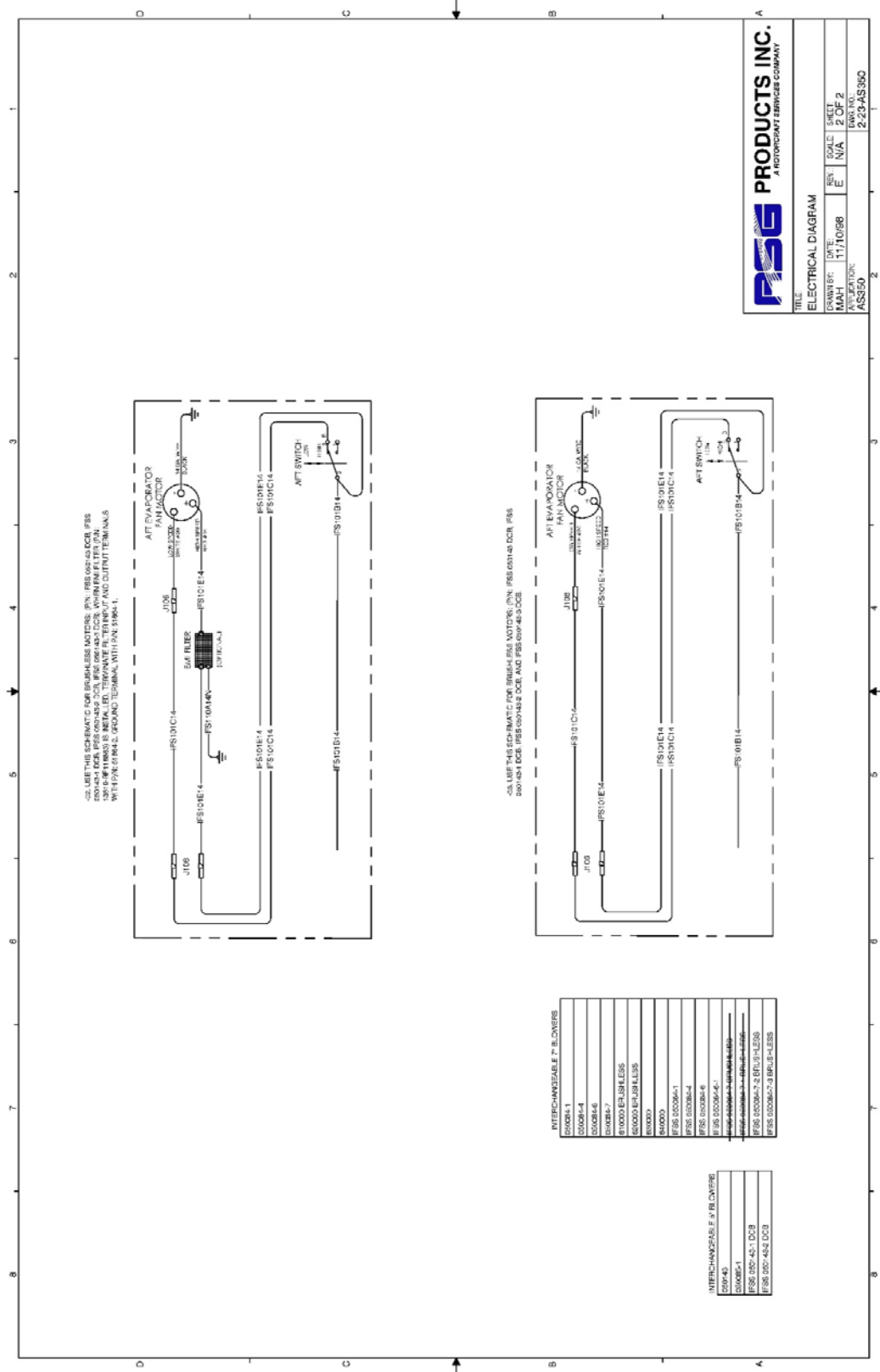
DATE:  
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Air Conditioning System Installation Instructions For Continued  
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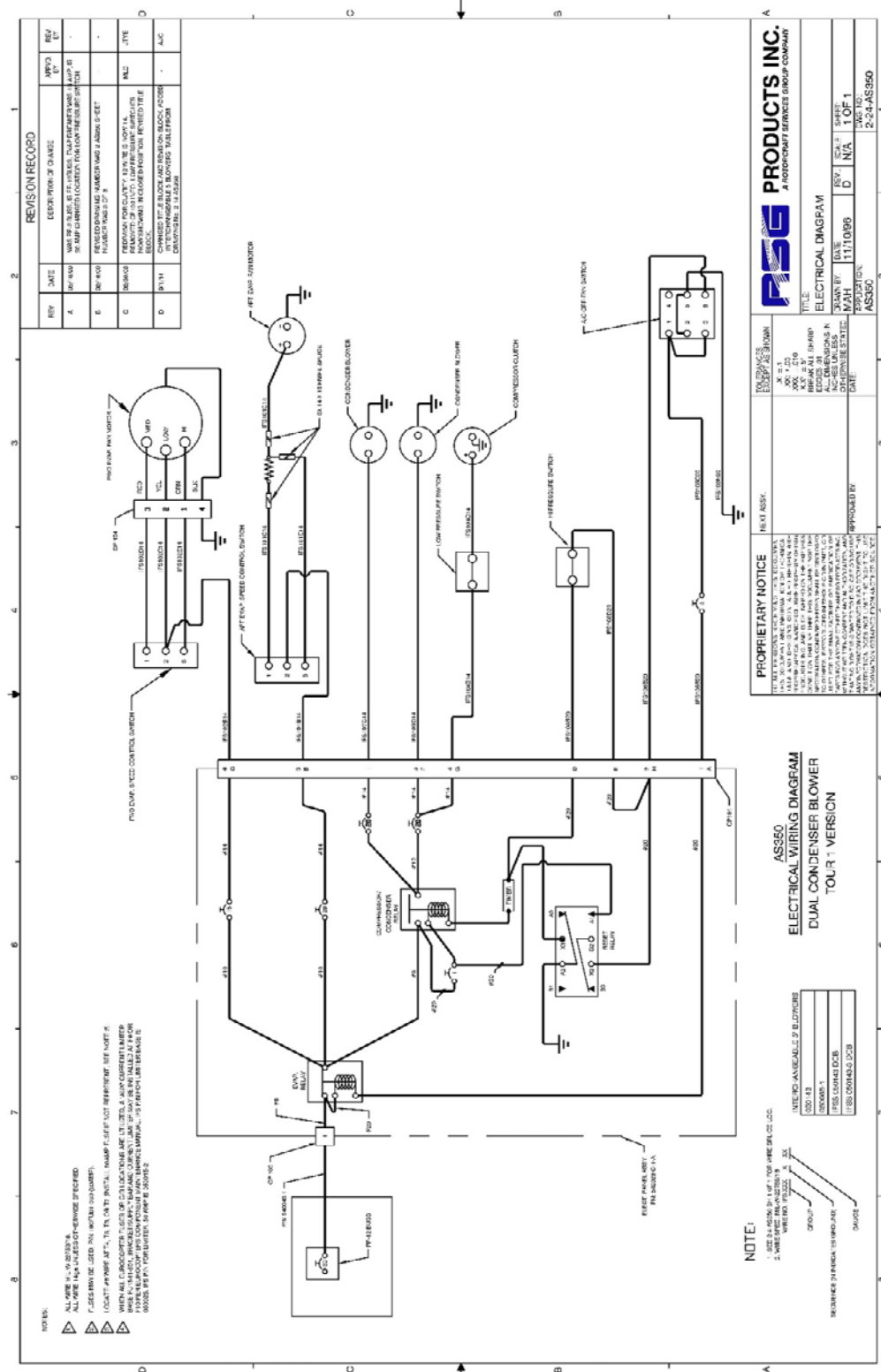


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TITLE: ELECTRICAL DIAGRAM

DATE:	REV:	DATE:	REV:	DATE:	REV:
11/10/98	E	N/A	N/A	2/01/02	2
MAH	MAH	MAH	MAH	MAH	MAH
ASS350	ASS350	2-23-AS350	2-23-AS350	2-23-AS350	2-23-AS350

TITLE: Air Conditioning System Installation Instructions For Continued Airworthiness for Airbus Helicopters AS-350 B, C, D, D1, B1, B2, B3, BA & EC-130 B4



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A HELICOPTER SERVICE GROUP COMPANY

**ELECTRICAL DIAGRAM**

DATE: 11/19/2014  
DRAWN BY: DINA  
SCALE: 1 OF 1  
REVISED BY: DINA  
APPROVED BY: DINA  
JOB NO.: 2-24-AS350

**AS350**  
**ELECTRICAL WIRING DIAGRAM**  
**DUAL CONDENSER BLOWER**  
**TOUR 1 VERSION**

**NOTE:**

- 1. SEE 2-4-2520 FOR WIRING OF THE AIR CONDITIONING SYSTEM.
- 2. WIRING IS TO BE INSTALLED IN ACCORDANCE WITH THE AIR CONDITIONING SYSTEM INSTALLATION INSTRUCTIONS.

INTERCONNECTABLE BY BULB/COILS

1000-1-3

ISSUE CONTROL DCB

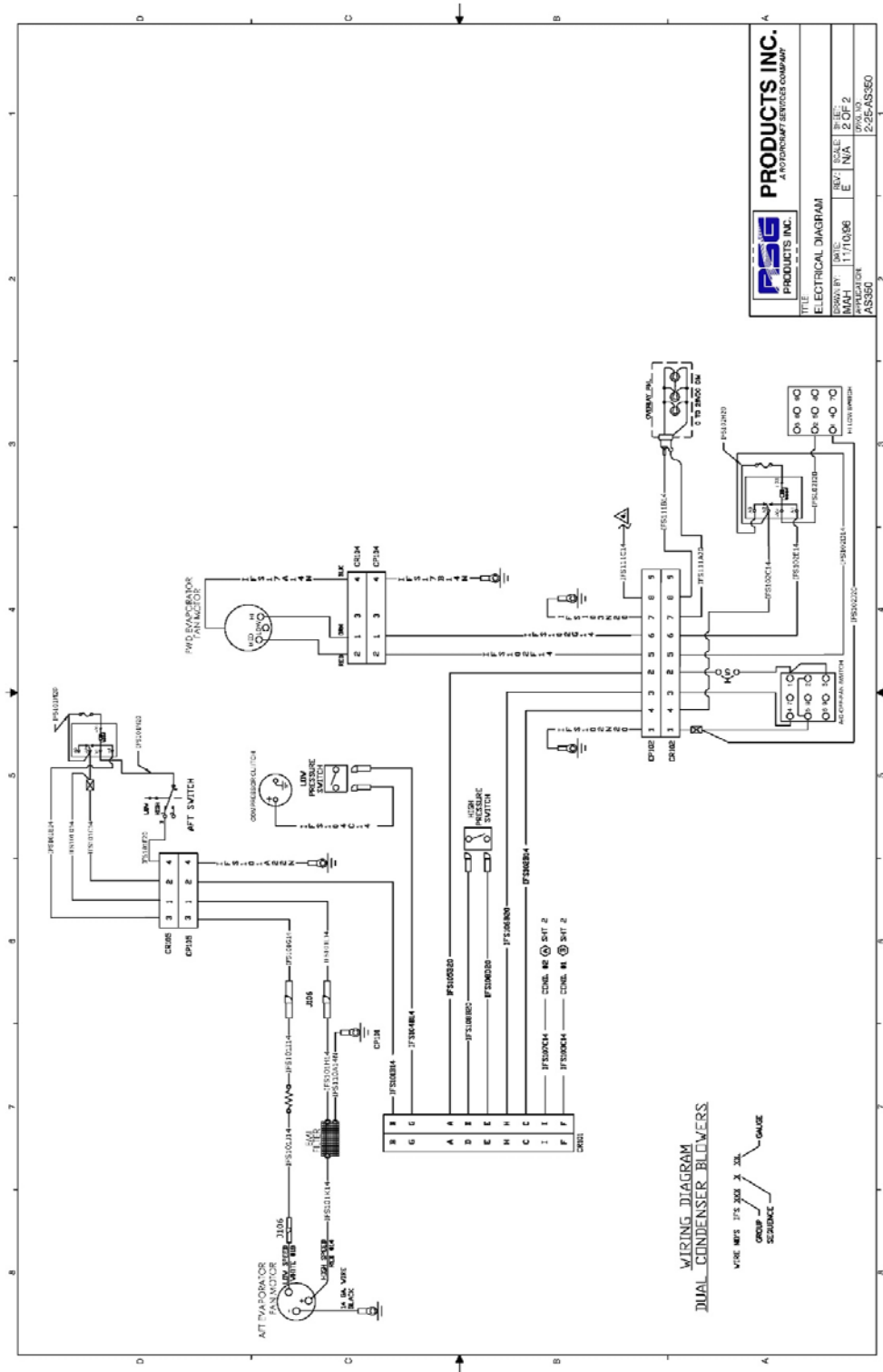
ISSUE CONTROL DCB

REVISIONS TO BE MADE TO THE ORIGINAL

DATE



TITLE:  
Air Conditioning System Installation Instructions For Continued  
Airworthiness for Airbus Helicopters AS-350 B, C, D, D1, B1, B2, B3, BA &  
EC-130 B4



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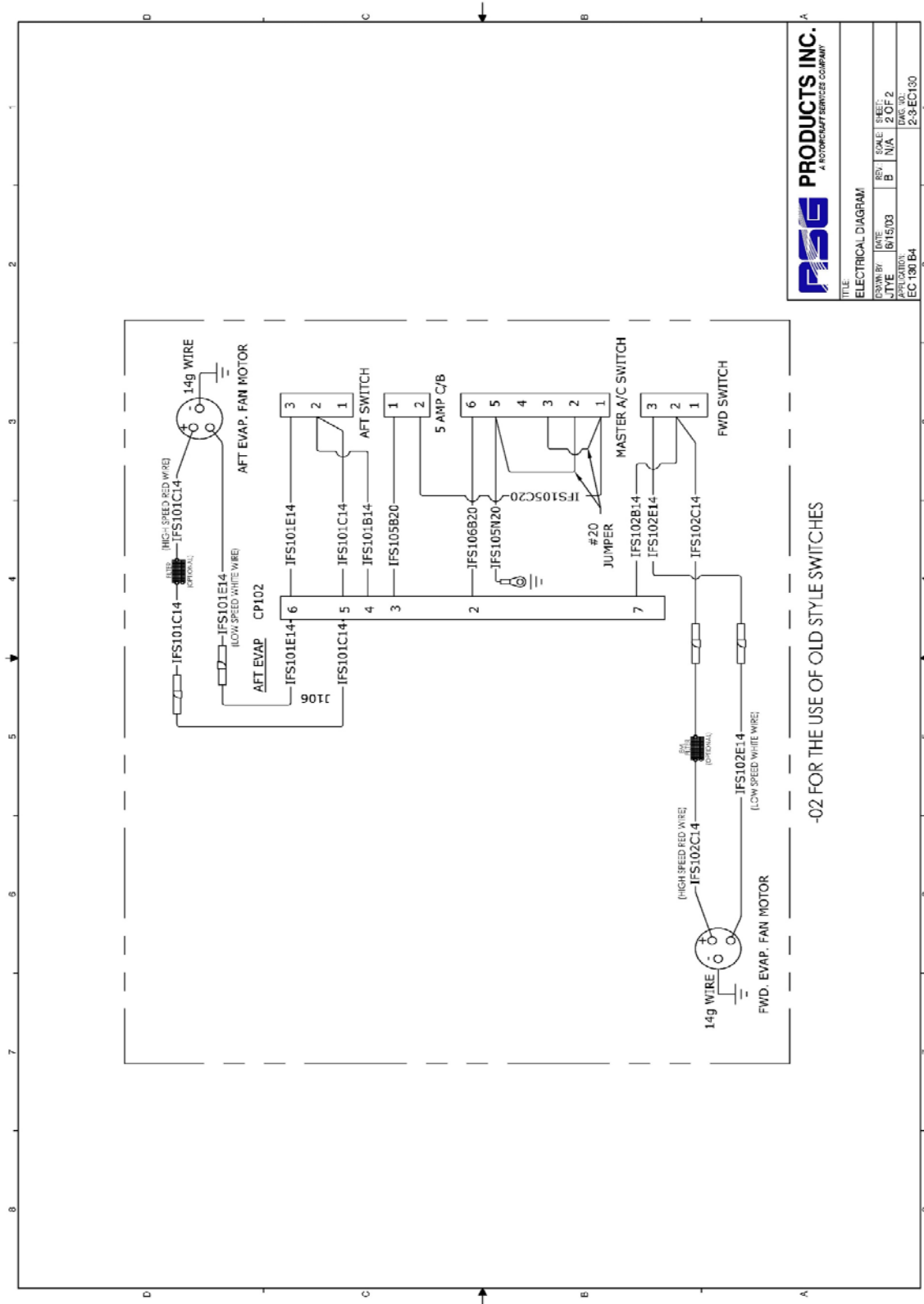
**PRODUCTS INC.**  
ELECTRICAL DIAGRAM

DESIGN BY: MAH  
DATE: 11/10/06  
SCALE: E  
REV: 2 OF 2  
APPPLICATOR: AS350  
DRAWING NO: 2-26-AS350





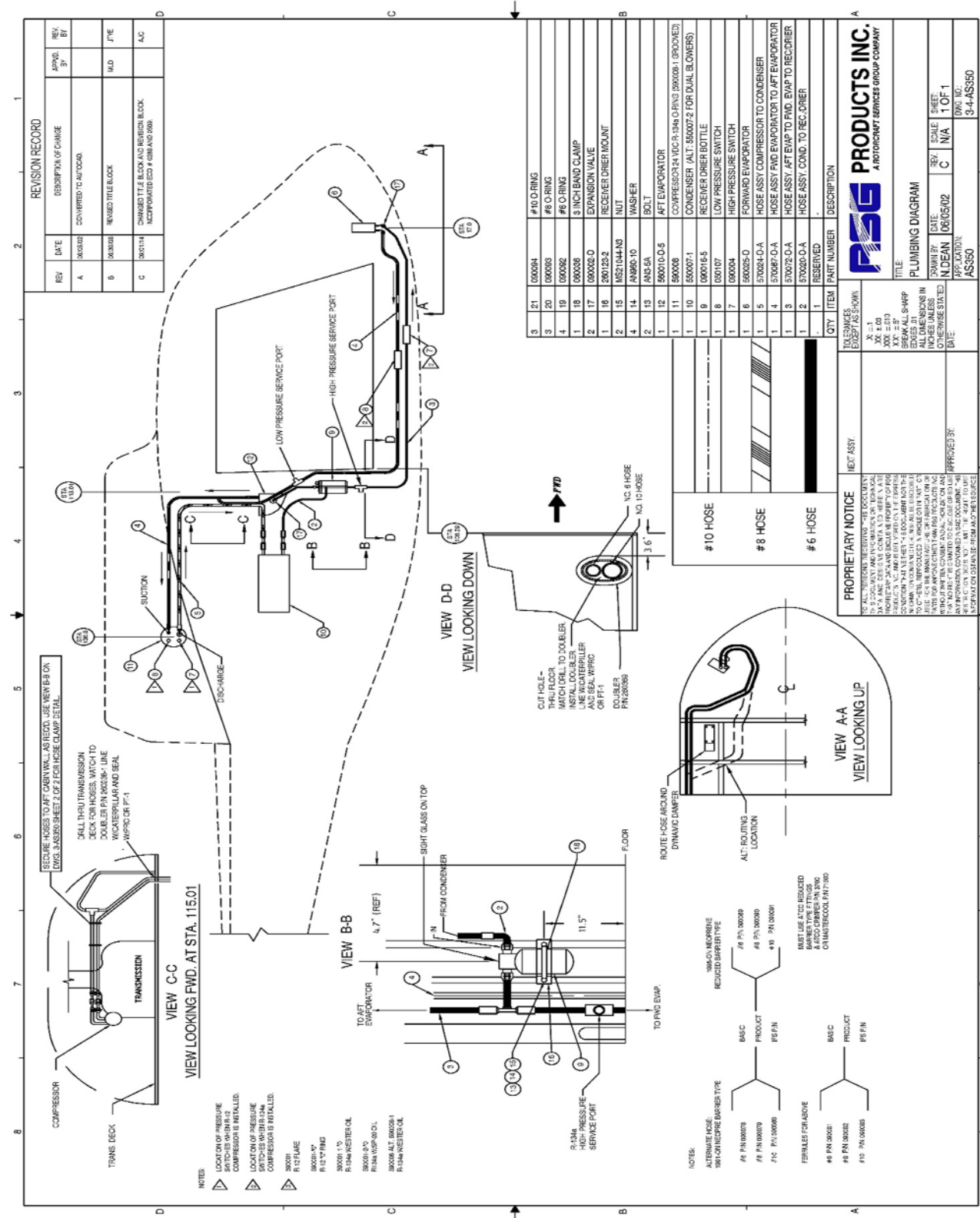
TITLE:  
Air Conditioning System Installation Instructions For Continued Airworthiness for Airbus Helicopters AS-350 B, C, D, D1, B1, B2, B3, BA & EC-130 B4



RSG PRODUCTS INC. A non-repairable technical contractor	
TITLE: ELECTRICAL DIAGRAM	
DESIGNED BY: DATE: 08/15/03	REV: SCALE: N/A
DRAWN BY: DATE: 08/15/03	SHEET: 2 OF 2
DATE: 11/19/14	REV: 001
EC-130 B4	

-02 FOR THE USE OF OLD STYLE SWITCHES

TITLE: Air Conditioning System Installation Instructions For Continued Airworthiness for Airbus Helicopters AS-350 B, C, D, D1, B1, B2, B3, BA & EC-130 B4

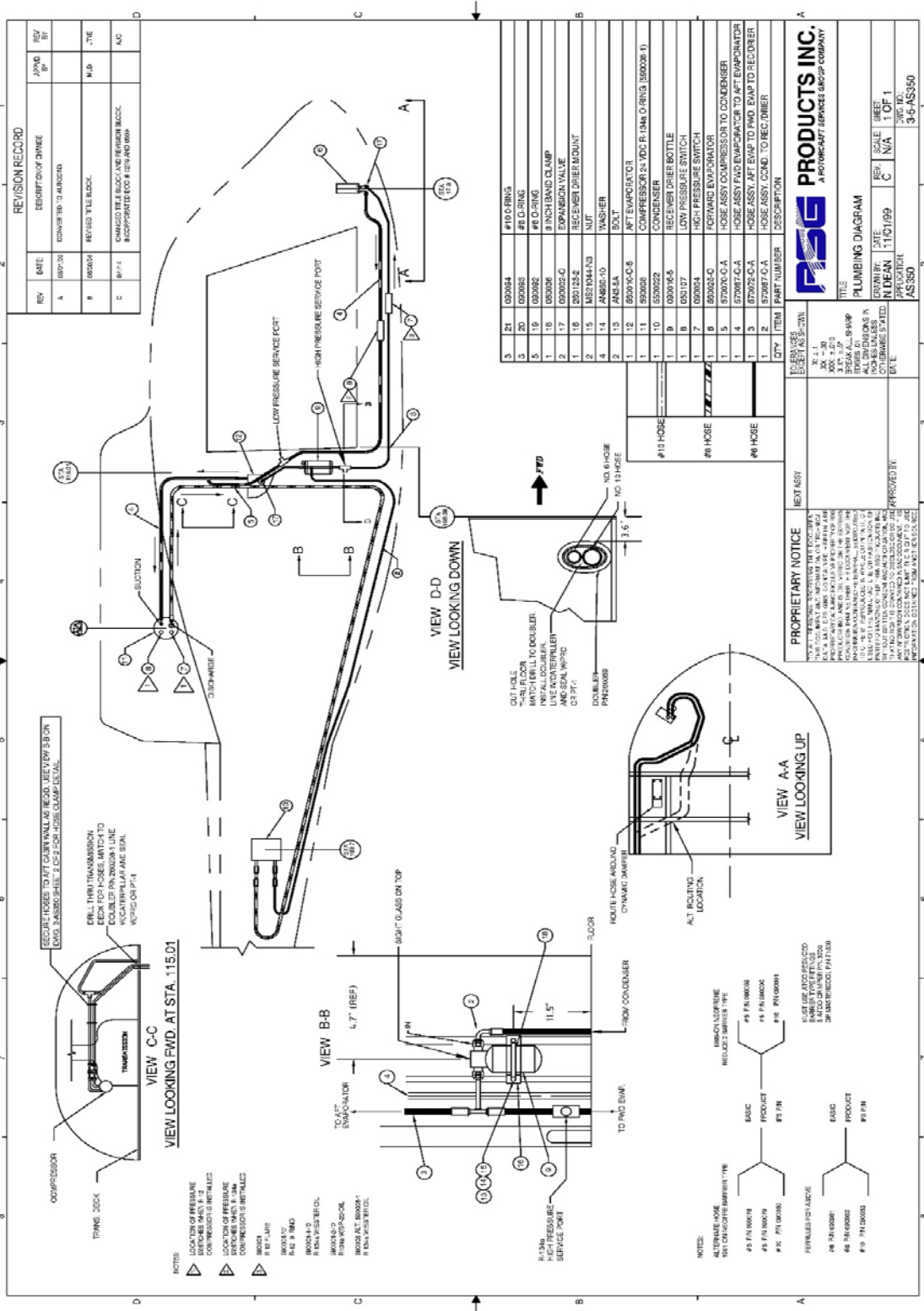


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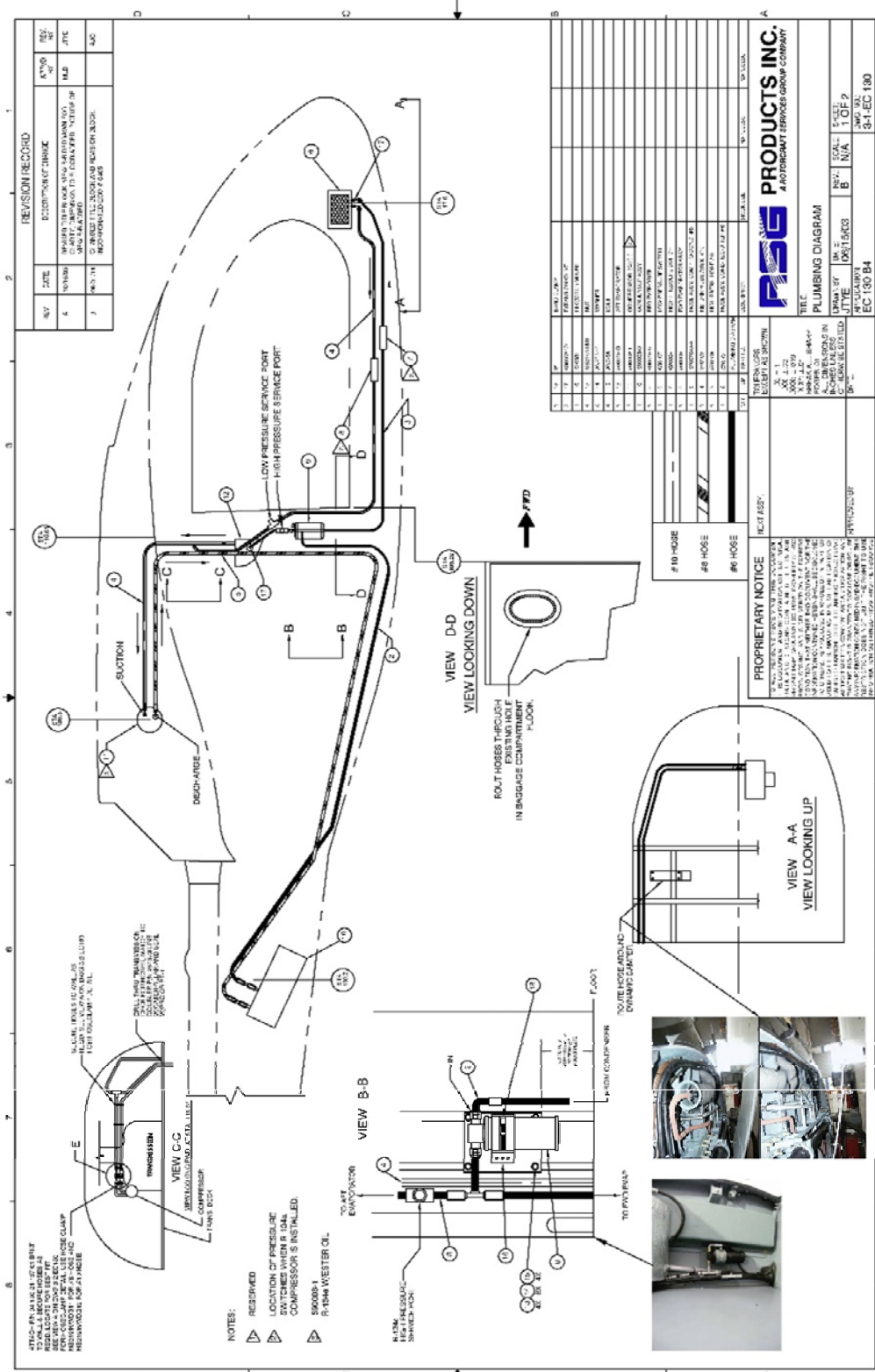
TITLE: PLUMBING DIAGRAM  
 DRAWN BY: J. DEAN  
 DATE: 06/05/02  
 CHECKED BY: C  
 SCALE: N/A  
 SHEET: 1 OF 1  
 FIG. NO.: 98-00-00  
 PART NO.: 3-4-ASS350

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TITLE: Air Conditioning System Installation Instructions For Continued Airworthiness for Airbus Helicopters AS-350 B, C, D, D1, B1, B2, B3, BA & EC-130 B4





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## APPENDIX A Weight and Balance

### PERTAINS TO KIT #350-00-011

ITEM	WEIGHT	ARM	MOMENT
Forward Evaporator Assembly	10.0	19.00	190.00
Forward Air Outlets	4.0	31.32	125.28
Aft Evaporator and Return Air	9.0	120.00	1080.90
Aft Evaporator Blower	6.0	120.85	725.10
Condenser Coil and Mount	20.0	133.80	2676.00
Condenser Blower and Mount	8.0	148.60	1188.80
Compressor and Mount	12.0	147.80	1773.60
Electrical Relay Panes	4.0	153.70	614.80
Refrigerant, Hoses and Fittings	6.0	76.90	461.40
<hr/>			
Sub Total: (Air Conditioner)	79.0	111.85	8835.88



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EC-130 B4

**PERTAINS TO KIT #350-00-031**

<b>ITEM</b>	<b>WEIGHT</b>	<b>ARM</b>	<b>MOMENT</b>
Forward Evaporator Assembly	10.00	19.00	190.00
Forward Air Outlets	4.00	31.32	125.28
Aft Evaporator and Return Air	9.00	120.00	1080.90
Aft Evaporator Blower	6.00	120.85	725.10
Condenser Assy. & Mount w/ Dual condenser blowers	28.20	201.80	5690.76
Compressor and Mount	15.00	147.80	2217.00
Electrical Relay Panes	4.0	153.70	614.80
Refrigerant, Hoses and Fittings	9.00	76.90	692.10
<hr/>			
Sub Total: (Air Conditioner)	85.20	133.05	11,335.94



DATE:  
11/19/2014

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EC-130 B4

**PERTAINS TO KIT # 130-00-031**

ITEM	WEIGHT	ARM	MOMENT
FWD. EVAP ASSY W/ MOTOR	12.0	24.0	288
FWD AIR OUTLETS (x2) W/ DUCTING	3.0	33.29	99.87
AFT EVAP W/ MOTOR & DUCTS	16.0	120.5	1928
CONDENSER ASSY W/ MOTOR & AIR DISCHARGE	33.0	223.3	7368.9
COMPRESSOR W/ MOUNTING KIT	14.0	147.8	2069.2
ELECTRICAL CONTROL BOX	4.0	153.7	614.8
REFRIGERANT HOSES	5.0	76.9	384.5
ELECTRICAL HARNESS	3.5	70.0	245
<b>INSTALLATION TOTALS</b>	<b>90.5</b>	<b>143.62</b>	<b>12998.27</b>

# Step 13

## Parts Break Down



# **MASTER PARTS LIST**

IN

**ALL AS350 SERIES**

FOR

**KIT # 350-00-011-HP**

**with**

**(SINGLE CONDENSER BLOWER)**

**"ESTER OIL EQUIPPED COMPRESSOR"**

**Model: SD-507**

**Revised:   June 1, 2015**  
**January 28, 2011**  
**November 4, 2009**  
**August 28, 2006**  
**February 1, 2002**  
**March 1, 2001**  
**August 6, 2001**

## MASTER PARTS LIST

AS350 SERIES

05/22/15

KIT #350-00-011HP

SINGLE CONDENSER BLOWER

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>PART #</u>
1.	<b>BELT - FLAT</b>	060018-1 060018 (Alt)
	<b>BELT - GROOVED</b>	060005
2.	<b>SD-507 COMPRESSOR ASSEMBLY</b> COMPLETE W/ FLAT PULLEY, 24 VDC COIL <b>(FOR USE WITH R-134a ONLY,</b> <b>"ESTER oil equipped)</b>	590008
	<b>SD-507 COMPRESSOR ASSEMBLY</b> COMPLETE W/ GROOVED PULLEY, 24 VDC COIL <b>(FOR USE WITH R-134a ONLY,</b> <b>"ESTER oil equipped)</b>	590008-1

### COMPRESSOR PARTS

FOR: SD-507 W/ 5.0" CLUTCH

3.	<b>BEARING (ONLY): SD-507</b> COMPRESSOR W/ 5.0" CLUTCH	010011
4.	<b>24 VDC COIL (GREEN WIRE)</b>	050033

**COMPRESSOR PARTS**

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>PART #</u>
5.	<b>PULLEY (FLAT)</b>	300355
	(Alt)	300355-2
	<b>PULLEY (GROOVED)</b>	300396
6.	<b>PULLEY FACE PLATE 5.0" (A6H)</b>	010013
7.	<b>PULLEY FACE PLATE 5.0" (A3G/A2Y)</b>	010015

**EVAPORATOR BLOWER PARTS**

8.	<b>5" VANE AXIAL BLOWER ASSY.</b> (SINGLE FLANGE W/NYLON BLADE) For: AFT EVAPORATOR BLOWER ASSY. P/N 490017-1	050143
9.	<b>MOTOR: 5" VANE AXIAL BLOWER</b>	050145
10.	<b>NYLON BLADE AND HUB ASSY.</b> FITS 5" VANE AXIAL BLOWER,	580000
11.	<b>BRUSHES (2 EACH)/MOTOR</b>	050031
12.	<b>MOTOR, FORWARD EVAPORATOR</b> 24VDC, single shaft, right hand	050052-1
13.	<b>WHEEL, FORWARD EVAPORATOR, fan,</b> metal, CC rotation, 5/16" bore	040004-8

**CONDENSER BLOWER PARTS**

14.	<b>7" DC BRUSHLESS BLOWER ASSY.</b> (Short Housing)	050084-7-2
15.	<b>7" DC BRUSHLESS BLOWER ASSY.</b> (Long Housing)	050084-7-3

RSG Products Inc.  
Parts Break Down – 350-00-011 Air Conditioning

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>PART #</u>
16.	<b>RECEIVER/DRIER 1991 &amp; ON – “O” RING TYPE</b>	090016-5
17.	<b>EXPANSION VALVE 1991 &amp; ON – FWD. AND AFT EVAP. “O” RING TYPE</b>	090002-“O”
18.	<b>HIGH PRESSURE SAFETY SWITCH (ALL YEARS)</b>	090004
19.	<b>LOW PRESSURE SAFETY SWITCH</b>	050107

# ***RSG Products Inc.***

## *Pressure Switch Identification*

*for all*

*vapor cycle air conditioning kits*

*using R-134a*

### **Low Pressure Switch: P/N 050107**

Leads are: **BLUE** in color

Mfg. P/N on switch: 20PS003MA022C007C

Opens: 7PSI Closes: 22 PSI

### **High Pressure Switch: P/N 090004**

Leads are: **BLACK** in color

Mfg. P/N on switch: 20PS002MB375K265K

Opens: 375 PSI Closes: 265 PSI

ALT. Mfg. P/N on switch: 20PS104MB350K250K

Opens: 350 PSI Closes: 250 PSI

P/N 090004 (Both Types)

## **Step 14**

# **Warranty/Repair**



## Standard Terms and Conditions of Sale

- 1. Terms of Payment:** Unless prior arrangements are made to establish credit terms RSG Products Inc., all sales are prepaid in full prior to shipment. Payment may be made via cash, check or electronic transfer to RSG Products Inc. prior to delivery.
- 2. Buyer's Deposit:** A 50% deposit is required to process an order for an air conditioning kit. The deposit is non-refundable and will be applied to the final price of the kit.
- 3. Taxes / Other Charges:** Prices of the specified products are exclusive of all city, state, federal and international taxes, duties, levies or charges of any kind, including, without limitation, taxes on manufacture, sales, receipts, gross income, occupation, use and similar taxes or other charges. Whenever applicable, any taxes or other charges shall be added to the invoice as a separate charge to be paid by Buyer.
- 4. Shipment and Packaging:** All products will be suitably packed, marked and shipped F.O.B. RSG Products Inc. Fort Worth Texas, in accordance with standard packaging procedures.
- 5. Delays:** RSG Products Inc. will not be liable for any delay in the performance of orders or contracts, or in the delivery or shipment of goods, or for any damages suffered by Buyer by reason of such delays.
- 6. Technical Advice:** RSG Products Inc. technical support staff is available for telephone consultation concerning the products it manufactures; however, RSG Products does not warrant or guarantee such advice.
- 7. Aircraft Variation:** Due to aircraft manufacturing variations, alterations and other factors, there are differences between aircraft of a certain make and model. Because of these variations, RSG Products Inc. does not guarantee that Buyer has purchased the correct product or that a specified product will fit the intended aircraft. Further, RSG Products does not guarantee the number of labor hours required to install its products.
- 8. Returns:** All sales are final unless a return is approved at the sole discretion of RSG Products Inc. If RSG Products Inc. does agree to accept a return, a twenty percent (20%) restocking fee will be charged. All items returned to RSG Products Inc. must be sent freight prepaid and must have a return material authorization (RMA) number clearly marked on the shipping container.
- 9. No Fault Found:** If items are sent to RSG Products Inc. for evaluation and no problem is found, or if Buyer elects not to make the required repairs, then Buyer shall be responsible for the payment of \$250 evaluation fee.
- 10. Certificate of Conformity:** RSG Products Inc. will provide a Certificate of Conformity with each product assuring that the product has been manufactured according to its approved design drawings. Any additional assurances or certifications shall be at the expense of Buyer and shall be added to the invoice as a separate charge to be paid by Buyer.
- 11. Failed Products:** Should any product prove defective, RSG Products Inc. will either replace the item or adjust the matter fairly and promptly, but under no circumstances shall RSG Products be liable for consequential or other damages, losses, or expenses in connections with or by reason of the use or liability to use products purchased for any purpose.
- 12. Patents:** Buyer shall hold RSG Products Inc. harmless from, and release and not make claim or suit against RSG Products because of any suits, claims, losses, or other liability made against, or suffered by, Buyer arising from any claim of, or infringement of, patent, copyright, trademark, or other proprietary right, at common law, or claim of unfair trade or of unfair competition, resulting from, or occasioned by Buyer's use, possession, sale, or delivery of the products sold to Buyer by RSG Products Inc.
- 13. Warranty Registration and Claims:** The terms RSG Products Inc. Limited Warranty is written on the Warranty Registration Card and published on the RSG Products Inc., website [www.integratedflightsys.com](http://www.integratedflightsys.com). The registration form must be completed and returned to RSG Products Inc. upon receipt of a product. The completed form may be faxed to +1 817 624 6601. Failure to complete the Warranty Registration Card may result in denial of a claim. In order to process a warranty claim, call RSG Products Inc. at +1 817-624 6600 or fax +1 817 624 6601. A Warranty Claim without a Return Material Authorization (RMA) Number will cause delays and a possible denial of the claim.



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## Warranty Terms

RSG Products Inc., warrants that each of its Air Conditioning Systems (the "Equipment") shall be free from defects in material and workmanship under normal use and service until one year after its date of sale if, and only if, installation, maintenance and operation of the Equipment is in accordance with the specifications and instructions provided by RSG Products Inc. and no substitute parts are installed in accordance with the specifications and instructions provided by RSG Products Inc. and no substitute parts are installed in the equipment without the prior written authorization from RSG Products Inc.. For the Equipment, the warranty period is 12 months or 1,000 hours, whichever comes first, from the date of sale. In the case of new spare parts, this warranty is further limited to a period of six (6) months from the date of sale. In the case of overhauled products, this warranty is further limited to a period of three (3) months from the date of sale. In the case of repaired products, this warranty is further limited to a period of thirty (30) days from the date of sale and applies only to the parts used for the repair. Any claims under this warranty shall be made to RSG Products Inc., 3900 Falcon Way West Hanger 16S, Fort Worth, Texas 76106, USA. Warranty is not valid unless the enclosed Registration Card is completed and returned to RSG Products Inc. prior to any claim. The Warranty Claim Form must be completed and returned with the Equipment. All claims shall be handled according to standard warranty repair procedures.

**Limitations & Exclusions.** This warranty shall not apply to any Equipment repaired or altered outside the Rotorcraft Services Inc. Service Department unless express prior written authorization is granted: nor shall this warranty apply to any Equipment that has been subjected to misuse or accident, as determined solely by Rotorcraft Services Inc. The sole responsibility and liability of RSG Products Inc. and your exclusive remedy under any claim arising out of, connected with, or resulting from this sale or the performance or breach or any condition of warranty there under, or from the manufacture, delivery, or use of the Equipment shall be the repair or replacement of defective equipment upon return of the defective equipment to RSG Products Inc. with transportation, customs and any applicable import duties prepaid and provided that an inspection by RSG Products Inc. discloses that the equipment is defective and covered by this warranty. RSG Products Inc. shall not be liable for any labor or other charges necessary to remove or reinstall the Equipment. In no event, whether as a result of a breach of contract, warranty, tort (including negligence) or otherwise, shall RSG Products Inc. be liable for any special, consequential, incidental or penal damages or expenses including but not limited to loss of profit, goodwill or revenues, loss of use of the Equipment or any associated equipment, damage to associated equipment, cost of capital, cost of substitute products, facilities or services, down time, or costs or claims of third parties for such damages or expenses.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES OR REMEDIES WHETHER WRITTEN, ORAL, IMPLIED OR STATUTORY, ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, COURSE OF DEALING OR USAGE OF TRADE ARE HEREBY EXPRESSLY DISCLAIMED AND EXCLUDED. Acceptance of the Equipment by you shall constitute your acknowledgement and acceptance of the terms, provisions, limitations and exclusions set forth herein. Such term, provisions, limitations and exclusions shall not be modified, deleted or supplemented. In a case where the purchaser has negotiated warranty terms by express written agreement with RSG Products Inc. as to certain equipment, the terms of that agreement shall supersede the warranty.



## WARRANTY REGISTRATION FORM

DATE: \_\_\_\_\_

CUSTOMER NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

PHONE NUMBER: (\_\_\_\_) \_\_\_\_\_ FAX NUMBER: (\_\_\_\_) \_\_\_\_\_

COMPONENT NAME: \_\_\_\_\_

PART NUMBER: \_\_\_\_\_ SERIAL NUMBER: \_\_\_\_\_

TYPE AIRCRAFT: \_\_\_\_\_ N#: \_\_\_\_\_ S/N: \_\_\_\_\_

AIR CONDITIONING INSTALLATION DATE: \_\_\_\_\_

AIR CON. INSTALLATION COMPANY: \_\_\_\_\_

DATE INSTALLED: \_\_\_\_\_ T.T AT INSTALLATION: \_\_\_\_\_

COPY OF T.T. LOG BOOK ENTRY OF A/C INSTALL SIGN OFF.

**This Form Must be received from the Owner of the Aircraft for the warranty to be active.**  
**Warranty period extends from Date of Purchase for a period of one year or 1000 hours**  
**Subject to the limitations identified in the attached Warranty Terms; effective 22 February**  
**2007**

**PLEASE REVIEW THE ATTACHED WARRANTY POLICY**  
**PRIOR TO SUBMITTING THIS REGISTRATION FORM.**



## WARRANTY CLAIM FORM

DATE: \_\_\_\_\_ RMA# \_\_\_\_\_

CUSTOMER NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

PHONE NUMBER:(\_\_\_\_) \_\_\_\_\_ FAX NUMBER:(\_\_\_\_) \_\_\_\_\_

COMPONENT NAME: \_\_\_\_\_

PART NUMBER: \_\_\_\_\_ SERIAL NUMBER: \_\_\_\_\_

TYPE AIRCRAFT: \_\_\_\_\_ N#: \_\_\_\_\_ S/N: \_\_\_\_\_

AIR CONDITIONING INSTALLATION DATE: \_\_\_\_\_

AIR CON. INSTALLATION COMPANY: \_\_\_\_\_

DATE INSTALLED: \_\_\_\_\_ T.T AT INSTALLATION: \_\_\_\_\_

DATE REMOVED: \_\_\_\_\_ T.T AT REMOVAL: \_\_\_\_\_

REASON FOR RETURNING COMPONENT: \_\_\_\_\_

### For Company use only

Date Received: \_\_\_\_\_

Warranty Accepted: \_\_\_ YES \_\_\_ NO

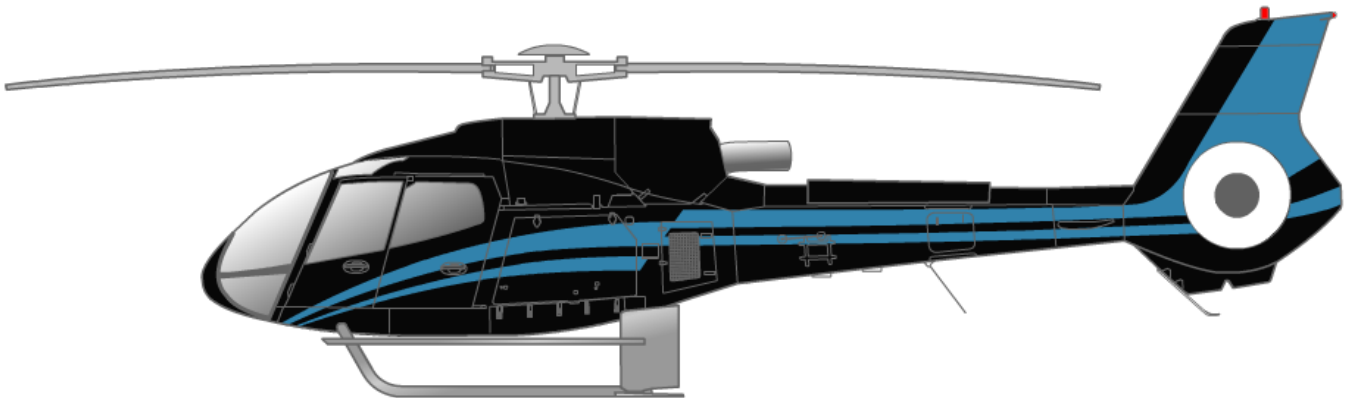
Disposition of component: \_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_

# Step 15

# Trouble Shooting Guide



## **Servicing and Trouble Shooting Guide**

**AS350 (Series) and EC130 B4**

**Air Conditioning System**

## **TROUBLESHOOTING YOUR AIR CONDITIONING SYSTEM**

The following consists of some basic information on Freon System Operation.

We should probably define “cold”. Actually, for our purpose, “cold” is a relative term. Your air conditioner should produce air (measured at the duct) that is:

- • 36° to 50° F at 70° ambient temperature.
- • 40° to 52° F at 80° ambient temperature.
- • 46° to 60° F at 90° ambient temperature.
- • 50° to 75° F at 100° ambient temperature.

### **An Empty System**

If the system is empty, the search for leaks should begin with a good visual check. Is it a fast leak or a slow leak? When was the system last charged? If it's a newly installed and filled system, then look for obvious leaks like a chaffed, punctured or ruptured hose, or a loose fitting. (See the recharge and leak testing section for hints on charging new systems.)

Freon leaks can be very tough to find. Freon is colorless, odorless, heavier than air, and it evaporates as soon as it hits the atmosphere. The only helpful thing about it is the fact that the oil carried with the refrigerant, so any sizable leak will leave a trail of oil at the offending hose or fitting. It will often just be a dark area, and the amount of oil might be slight. But if you find an air conditioning fitting with an oily residue and the area around it is dry, you've probably found your leak. A good electron detector can verify your visual diagnosis.

Because the system carries the oil in suspension with the refrigerant, any sizable leak will leak oil as well as refrigerant. Very slow leaks will usually only vent refrigerant and not oil, but a fast leak like a ruptured hose or a very loose fitting, will leak the refrigerant so fast that the oil is carried out of the system as well. If your system has suffered a major leak, be sure to check the oil level in the compressor before refilling the system.

## Troubleshooting

**Trouble:** **Low or partial refrigerant charge**

**Symptoms:**

- Insufficient cooling
- Low-side pressure too low
- High-side pressure too low
- Receiver/drier sight glass shows a stream of bubbles
- Air in ducts only slightly cool

**Cause:** The system is low on refrigerant, probably caused by a leak.

**Correction:** Find and fix the leak. If there was a loss of oil, be sure to check the compressor oil level. Evacuate and recharge.

## A System Full of Refrigerant

First, you should double-check all the obvious things (i.e. the compressor clutch, the belt tension, and the operation of the evaporator blower). Next, establish some baseline conditions for your testing: run aircraft, high blower and coldest thermostat setting, doors and windows closed, ambient temperature of 70° F or above.

Situations do occur where the system is full of refrigerant, yet the sight glass remains cloudy. The first thing to consider is whether the receiver/drier is installed backwards. Be sure the line from the condenser goes to the port marked “in” on the receiver/drier. The other condition that might give you a cloudy glass (on a full system) is a restriction in the liquid line from the condenser to the receiver/drier. On some new receiver/driers the filter screen could be pushed up so the bottom of the screen is blocking the liquid pickup tube. You will have to cut open the receiver-drier to confirm your diagnosis.

You should test next for a system that is overcharged. If the sight glass is clear, but the high- and low pressure gauge readings are high (300 or more on the high side, 50 or more on the low side), disconnect the compressor clutch. (Note that on HFC-134A systems, milky is the normal look for a correctly charged system.) The refrigerant should foam and then settle away from the glass in less than forty-five seconds. If the sight glass remains clear for more than forty-five seconds you have an overcharged condition and will have to remove Freon.

## **Trouble: Excessive moisture in the system**

### **Symptoms:**

- Insufficient cooling during hottest part of the day or during extended flying.
- Low-side pressure normal, though it may be too low or even a vacuum
- High-side pressure normal, though it may be low-at the same time low side is low
- Receiver-drier sight glass may show tiny bubbles  
(*Note:* This could be a tough call with HFC-134A since the sight glass is always milky).
- Air in the ducts is usually cold, but becomes warm when pressure reading drop

**Cause:** Excessive moisture in the system. The drying agent in the receiver-drier is saturated with moisture, which is released to the system when outside temperature increased. Moisture in the system collects and freezes on the expansion valve, stopping the flow or refrigerant.

**Correction:** Suck all the CFC-12 from the system. Replace or rebuild the receiver-drier. Evacuate and recharge.

## **Trouble: Air in the system**

### **Symptoms:**

- Insufficient cooling
- Low-side pressure normal, but does not drop when the clutch cycles
- High-side pressure high
- Receiver/drier sight glass shows occasional bubbles (Note again that with HFC-134A the sight glass should be milky when the system is fully charged.)
- Air in ducts only slight cool

**Cause:** Refrigerant contains non-condensable in the form of air and moisture.

**Correction:** Leak test, watch for bad compressor seals. Drain the system. Repair leaks as needed. Replace or rebuild the receiver-drier. Check the compressor oil. Evacuate and recharge.



**Trouble: Condenser malfunction or system overcharge**

**Symptoms:**

- No cooling
- Low-side pressure too high
- High-side pressure too high
- Receiver/drier sight glass may show occasional bubbles
- Liquid line very hot
- Air in ducts is warm

**Cause:** The condenser is not function properly because of high head pressure. System may be overcharged.

(*Note:* Technicians will have to be especially careful to avoid overcharging HFC-134A systems. Because the sight glass is hard to read and the volume given is slightly lower with HFC-134A).

## NOTE:

### Cloudy Sight Glass

A cloudy sight glass indicates a system that is only partially full of refrigerant (with a few exceptions). A perfectly clear sight glass (use a light to get a good look) means the system is either full or empty. Note, with HFC-134A the glass appears milky when properly charged, and may show occasional bubbles.

# AS350 Trouble Shooting Guide



1. System has no electrical power to air conditioner master control box:
  - A) Check 50 amp circuit breaker or fuse in aircraft electrical bus.
  
2. System has power but will not turn on:
  - A) Check 5 amp circuit breaker on switch assembly.
  - B) Check ground lead on cannon plug 102 wire IFS105N20.
  - C) Check evaporator fan relay in air conditioner master control box.
  
3. Forward evaporator fan will not turn on, but aft fan runs:
  - A) Check 20 amp circuit breaker in master electrical box.
  - B) Check ground wire from evaporator motor.
  - C) AS350 disconnect CP104 and check for power on pin 2. On AS350 or EC130 B4 by checking ground lead from master switch.
    - 1) If you have power, your motor is bad.
    - 2) If no power, disconnect CP101 cannon plug and check continuity from pin 6/c on CP101 to cannon plug CP104 pin 2. If no power, check cannon plugs and switch.
  - D) EC130 B4 check for power on wire IFS 101C14 at resistor assembly P/N 540020 if no power, trace through the fan switch for power.
  
4. Aft evaporator fan will not run, but forward evaporator runs:
  - A) Check 20 amp circuit breaker on master electrical box.
  - B) Check ground wire from fan.
  - C) Check Brushes.
  - D) AS350 check for power on wire IFS 101C14 at resistor assembly P/N 540020 or resistor P/N 050024-2 (parts are two way interchangeable).
    - 1) If you have power, your motor is bad.
    - 2) If no power trace through fan switch for power.
    - 3) If no power disconnect cannon plug CP101 and check continuity from pin 3/B of CP101 to wire IFS101C14 on resistor with fan switch on "Low".
  - E) EC130 B4 check for power on wire IFS 101C14 at resistor assembly P/N 540020.
    - 1) If you have power your motor is bad.
    - 2) If no power trace through fan switch for power.
    - 3) If no power disconnect cannon plug CP101 and check continuity from pin 3/B of CP101 to pin 4 of cannon plug 102.

# AS350 Trouble Shooting Guide



## 5. Condenser fan/fans do not operate:

- A) Check 20 amp circuit breaker.
- B) Check 1 amp circuit breaker.

- 1) If popped, reset.
  - a) Check brushes.
  - b) Check power.
  - c) Check ground.
  - d) Check fins for blockage in air condenser assembly.
- 2) Run air conditioning system.
  - a) Check pressures, If pressure is running higher than normal, then continue with b), ect...
  - b) System may be over-serviced.
  - c) System may be contaminated by improper Freon or a mix of Freon's.

- 1) **NOTE:** This has happened more than once. The service carts are great for servicing systems, but there is a danger in its misuse. Untrained operators or an individual who wants to service his car, truck, motor home or even his room A/C can pump down their system into your tank. It can have any number of different Freon's. It could also be contaminated by a failed compressor, dryer bottle, wrong oil or any number of things. This has happened to a company with brand new equipment just 3 weeks old. There were large warning signs on this service cart, designated HELICOPTER SERVICE ONLY. They had one for ground equipment. All of the mechanics were well trained except for the management, janitors and their family members of the company. It can happen to any operator.

## 6. Compressor clutch does not engage, but air conditioner fans work.

- A) Check clutch for power.

- 1) If power, clutch coil may be bad or air gap in clutch face may be too excessive.
- 2) If NO power check system for total Freon loss.
- 3) If system is serviced and still no Power and you have an optional temperature controller, you can bypass by jumping pins 3 and 4 on CP102 to check if faulty.

# AS350 Trouble Shooting Guide



## 7. System not cooling:

- A) Check that air condenser fan/fans are blowing.
- B) Check clutch engagement. Is clutch staying engaged or cycling? Check belt tension.
- C) Check to see if air condenser coil is free from debris and fins are clean and not rolled over blocking air flow.
- D) Check evaporator return air inlets, that they are not blocked and fins are clean and not rolled over blocking airflow.
- E) Put gauges on system. Run system and check pressures also measure Delta temperature from both evaporators. (Measure inlet temperature and outlet temperature to get Delta. This is a must, do not rely on just using your hand and guessing).
- F) Check sight glass.

(NOTE: There are several ways to service Freon systems:

- 1) Service system to a clear sight glass R12.  
**Note:** On 134a systems the sight glass appears milky when properly charged, though there may be occasional bubbles in the sight glass.
- 2) Service system by weight. If you have a service station or scale, you can add the proper amount by weight.

82° F or higher service with 2.0 lbs max Freon.

Below 82° F service with 2.5 lbs max Freon.

- 3) The optimum method for best performance is to use at least two mechanical thermometers and place them near the return air and the discharge air of each evaporator. R-134a can then be added or deleted as required, until the highest T.D. is noted per the paragraph below. At that time, the correct amount of refrigerant is installed. At any time the high pressure gauge reaches 280 psi, stop servicing. Do not exceed 3.0 lbs of refrigerant..
- 4) Service according to a standard pressure temperature chart.)

## 8. One evaporator is cooling, one is not.

- A) One expansion valve may be blocked from contamination.
- B) One expansion valve may be locked full open.  
(NOTE: The one valve that is full open is causing the problem. It may make it seem like the other valve is bad and not working.)
- C) One of the sensing bulbs on expansion valves may become loose from suction side of coil. Also check to see if sensing bulb is mounted to the correct evaporator tube. The bulb should be mounted at 9 or 3 o'clock position.
- D) Hose may be crimped, kinked or have a fitting bent over blocking flow.

## AS350 Trouble Shooting Guide



- E) (**NOTE:** The recommended fix is to pump down system. Change BOTH expansion valves and dryer bottle. Make sure to mount sensing bulb on suction side of coil and when possible at 9 or 3 o'clock position on tube. Re-service system.)

9. Compressor clutch failure:

- A) Low Freon in system. This causes the system to low pressure out through the low pressure switch. It will cycle the clutch on and off until it heats up causing the coil to overheat and fail, or heat up the bearing to the point the grease will liquefy and run out. This will add to the heat and help fail coil or bearing.
- B) Air gap on clutch may have changed.
- C) Coil may have weakened.
- D) Bearing may have failed, causing clutch to slip and fail coil.  
**NOTE:** If ongoing maintenance is not maintained on compressor clutch bearing as prescribed in IFS maintenance manual, bearing may fail.

10. Compressor failed:

- A) Loss of oil or insufficient oil.
- B) Low Freon in system, causing insufficient flow of oil lubricant.
- C) Contamination in system.
- D) Compressor bearing failed.
- E) Over servicing of system to the point of liquid lock.  
**(NOTE:** This has happened.)

11. Compressor belt failure:

- A) Low Freon in system. Cause: low pressure switch to cycle the clutch on and off excessively.
- B) Insufficient belt tension.
- C) Clutch bearing dragging or failing. This causes excessive belt slipping.
- D) Over service of system.
- E) Air gap excessive, causes clutch to slip heating pulley. This will stretch belt making it slip.

12. Air conditioner runs, but pops 1 amp circuit breaker:

- A) Check condenser fan or fans for operation.
- B) Check blockage of air flow in and out of condenser.
- C) Check coil to see if fins are clean or rolled over.
- D) Check for over service of Freon.
- E) Put gauges on and run system.
  - 1) Is system popping 1 amp circuit breaker at 350 or higher?
    - a. If not change high pressure switch.
- F) Check expansion valves and make sure sensing bulbs are mounted to suction lines.
  - 1) Measure Delta of both evaporators.
    - a. If Delta is over 32° F expansion valve may not be working. If expansion valve is not throttling it will dump too much Freon. This can add excessive heat to condenser and can also freeze up coil.
  - 2) If Delta is below 14° F. Change valves, they may be blocked internally.

## 13. Fresh air supply valve inoperable. EC130 B4 only

### A) If valve fails to open.

- 1) Check 2 ½ amp CB
- 2) Check for power at wire IFS 104V20
  - a. If power, check for power on wire IFS 104E20
    1. If no power motor/controller is bad
    2. If power trace back to source
  - b. If no power check continuity to Pin 1 on cannon plug CP101.
  - c. If no continuity check low pressure switch for ON.

### B) If valve fails to close

- 1) Check for power on wires at valve IFS 104V20 and IFS 104E20
  - a. If power, both motor /controller is bad.
  - b. If no power on wire IFS 104V20.
    - a. Check 2 ½ amp CB.
    - b. Check to see if low pressure switch is open.
    - c. Check continuity from valve wire IFS 104V20 to Pin 1 on cannon plug CP101.

### NOTE:

When running in “A/C” mode and you switch straight to “OFF” the Fresh Air Valve will stay in the closed position. You will need to switch to the “Fan” position to reset the Fresh Air valve to the open position.

## 14. Blower Motor Brush Inspection

- A) Ø 5.0” Blower motors have brushes 13/16” long. Brushes should be inspected every 200 hours. When brushes wear down to 5/16”, replace them.
- B) Ø 7.0” 2 Brush Blower motors have brushes 3/4” long. They should be inspected every 300 hours. These brushes should be replaced at 1/2” or less.
- C) Ø 7.0” 4 Brush Blower motors have brushes 9/16” long. They should be inspected every 300 hours. These brushes should be replaced at 5/16” or less.

## MANUFACTURERS NOTICE

THE BRUSHES IN THESE FAN MODELS ARE DESIGNED AND MANUFACTURED TO PROVIDE 500 HOURS OF SERVICE LIFE.

BRUSHES ARE A WEAR ITEM AND REQUIRE REGULAR INSPECTION AND MAINTENANCE! SINCE BRUSH LIFE VARIES GREATLY FOR EACH APPLICATION OR INSTALLATION, WE RECOMMEND INSPECTION AT REGULAR INTERVALS, SPECIFICALLY:

### IN ORDER TO KEEP YOUR WARRANTY IN EFFECT FOR THE FULL TERM OF THE WARRANTY

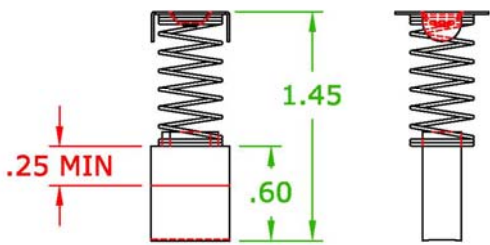
- A.) IFS PN: 050143 5" BLOWER MOTORS HAVE BRUSHES .75" LONG. BRUSHES MUST BE INSPECTED EVERY 200 HOURS AND REPLACED WHEN WEAR IS DOWN TO .30" OR LESS.
  - a. SEE CHART "C". BRUSH PN: 050031
- B.) IFS PN: 050084-6 7" - 2 BRUSH BLOWER MOTORS HAVE BRUSHES .90" LONG. BRUSHES MUST BE INSPECTED EVERY 300 HOURS AND REPLACED WHEN WEAR IS DOWN TO .40" OR LESS.
  - a. SEE CHART "D". BRUSH PN: 050038
- C.) IFS PN: 050084 7"- 4 BRUSH BLOWER MOTORS HAVE BRUSHES .60" LONG. BRUSHES MUST BE INSPECTED EVERY 300 HOURS AND REPLACED WHEN WEAR IS DOWN TO .25" OR LESS.
  - a. SEE CHART "A". BRUSH PN: 420A-20
- D.) IFS PN: 630000 7"- 4 BRUSH BLOWER MOTORS HAVE BRUSHES .53" LONG. BRUSHES MUST BE INSPECTED EVERY 300 HOURS AND REPLACED WHEN WEAR IS DOWN TO .25" OR LESS.
  - a. SEE CHART "B". BRUSH PN: 610000-8
- E.) IFS PN: 640000 7"- 4 BRUSH BLOWER MOTORS HAVE BRUSHES .53" LONG. BRUSHES MUST BE INSPECTED EVERY 300 HOURS AND REPLACED WHEN WEAR IS DOWN TO .25" OR LESS.
  - a. SEE CHART "B". BRUSH PN: 610000-8

## NOTICE



## A

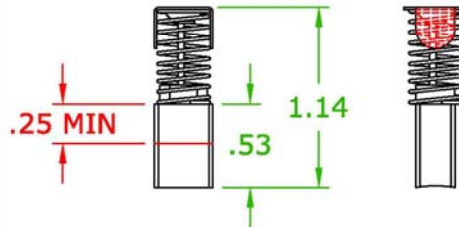
7" IFS MOTOR PN: 050084  
 FAN MODEL NO.: M6921N-9A)  
 (ALT: M6921N-9B)



"DYNAMIC" BRUSH 420A-20

## B

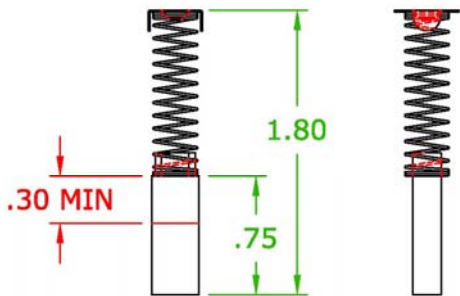
7" IFS MOTOR PN: 630000  
 7" IFS MOTOR PN: 640000



"AMPFLOW" BRUSH 610000-8

## C

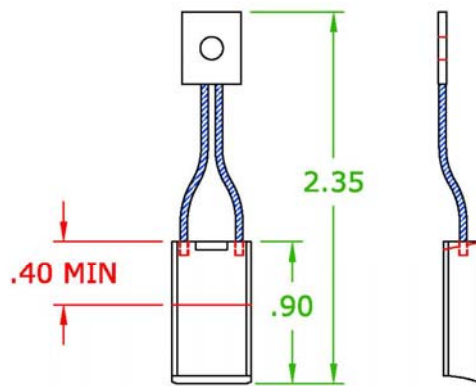
5" INCH IFS MOTOR PN: 050143



5" BRUSH 050031

## D

7" INCH IFS MOTOR PN: 050084-6

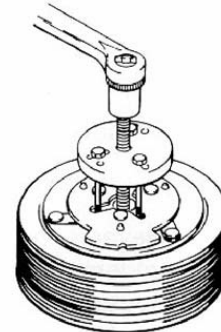
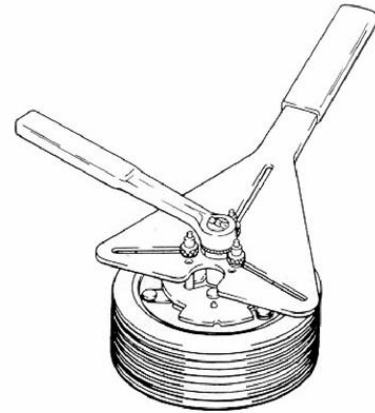


"ENVIRO" BRUSH 050038

## SERVICE OPERATIONS CLUTCH

### 14.1 Armature Assembly Removal

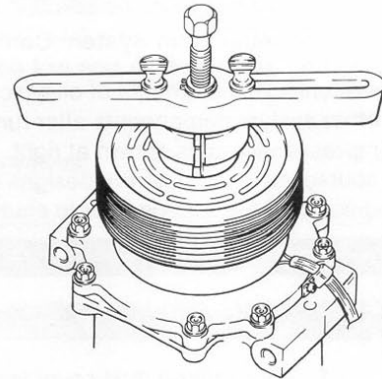
1. If armature dust cover is present, remove the 3 or 6 bolts holding it in place and remove cover. If auxiliary sheet metal pulley is present, remove the screws holding it in place. Then remove pulley.
2. Insert pins of armature plate spanner into threaded holes of armature assembly.
3. Hold armature assembly stationary while removing retaining nut with 3/4", 19mm, or 14mm socket wrench, as appropriate.
4. Remove armature assembly using puller. Thread 3 puller bolts into the threaded holes in the armature assembly. Turn center screw clockwise until armature assembly comes loose.
5. If shims are above shaft key, remove them now. If shims are below shaft key, the key and bearing dust cover (if present) must be removed before the shims can be removed.
6. Remove bearing dust cover (if present). Use caution to prevent distorting cover when removing it.
7. Remove shaft key by tapping loose with a flat blade screwdriver and hammer.
8. Remove shims. Use a pointed tool and a small screwdriver to prevent the shims from binding on the shaft.



## SERVICE OPERATIONS - CLUTCH

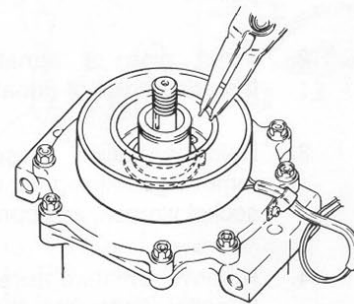
### 14.2. Rotor Assembly Removal

1. If bearing dust cover has not been removed, remove it now. See step 6 of Section 14.1, for Armature Assembly Removal.
2. If internal snap ring for bearing is visible above the bearing, remove it with internal snap ring pliers.
3. Remove rotor snap ring.
4. Remove shaft key.
5. Remove rotor pulley assembly:
  - Insert the lip of the jaws into the snap ring groove
  - Place rotor puller shaft protector (Puller set) over the exposed shaft.
  - Align thumb screws to puller jaws and finger tighten.
  - Turn puller center bolt clockwise using a socket wrench until rotor pulley is free.



### 14.3 Field Coil Assembly Removal

1. Loosen lead wire clamp screw with #2 Phillips screwdriver until wire(s) can be slipped out from under clamp.
2. Undo any wire connections on the compressor which would prevent removal of the field coil assembly.
3. Remove snap ring.
4. Remove the field coil assembly.

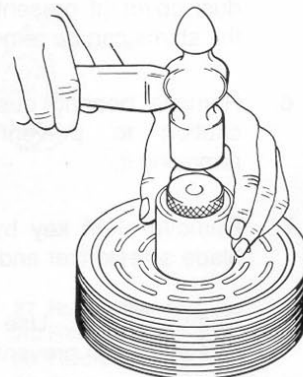


### 14.4 Field Coil Assembly Installation

Reverse the steps of Section 14.3. Protrusion on underside of coil ring must match hole in front housing to prevent movement and correctly locate lead wire(s).

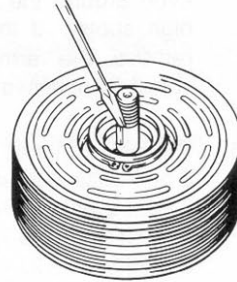
### 14.5 Rotor Assembly Installation

1. Place compressor on support stand, supported at rear end of compressor. If the compressor must be clamped in a vice, clamp only on the mounting ears, never on the body of the compressor.
2. Set rotor squarely over the front housing boss.
3. Place the rotor installer ring into the bearing bore. Ensure that the edge rests only on the inner race of the bearing, not on the seal, pulley, or outer race of the bearing.



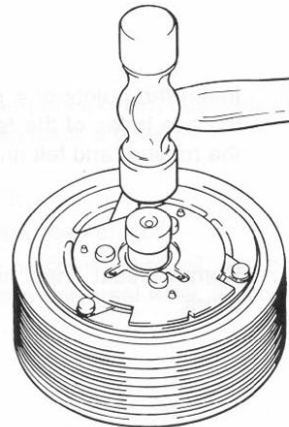
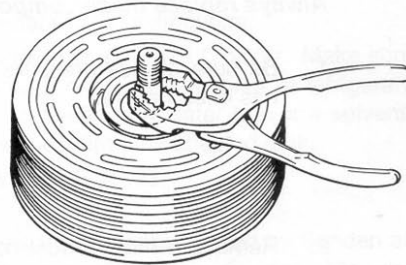
## SERVICE OPERATIONS - CLUTCH

4. Place the driver into the ring and drive the rotor down onto the front housing with a hammer or arbor press. Drive the rotor against the front housing step. A distinct change of sound can be heard when using a hammer to install the rotor.
5. Reinstall rotor bearing snap ring, if it has been removed, with internal snap ring pliers.
6. Reinstall rotor retaining snap ring with external snap ring pliers. If a bevel is present on the snap ring, it should face up (away from the body of the compressor).
7. Reinstall rotor bearing dust cover (if present) by gently tapping it into place.



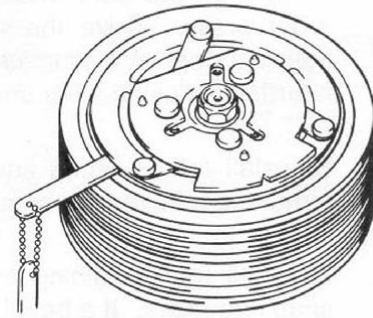
### 14.6 Armature Assembly Installation

1. Install shaft key with pliers.
2. Install clutch shims. NOTE: Clutch air gap is determined by shim thickness. When installing a clutch on a used compressor, try the original shims first. When installing a clutch on a compressor that has not had a clutch installed before, first try 0.04", 0.02", and 0.004" (1.0, 0.5, 0.1 mm) shims.
3. Align keyway in armature assembly to shaft key. Using driver and a hammer or arbor press, drive the armature assembly down over the shaft until it bottoms on the shims. A distinct sound change will be noted if driving with a hammer.
4. Replace retaining nut and torque to specification.  
**1/2-20:** 20-25 ft•lb (27-34 N•m, 270-350 kg•cm)  
**M8:** 11-15 ft•lb (15-21N•m, 150-210kg•cm)



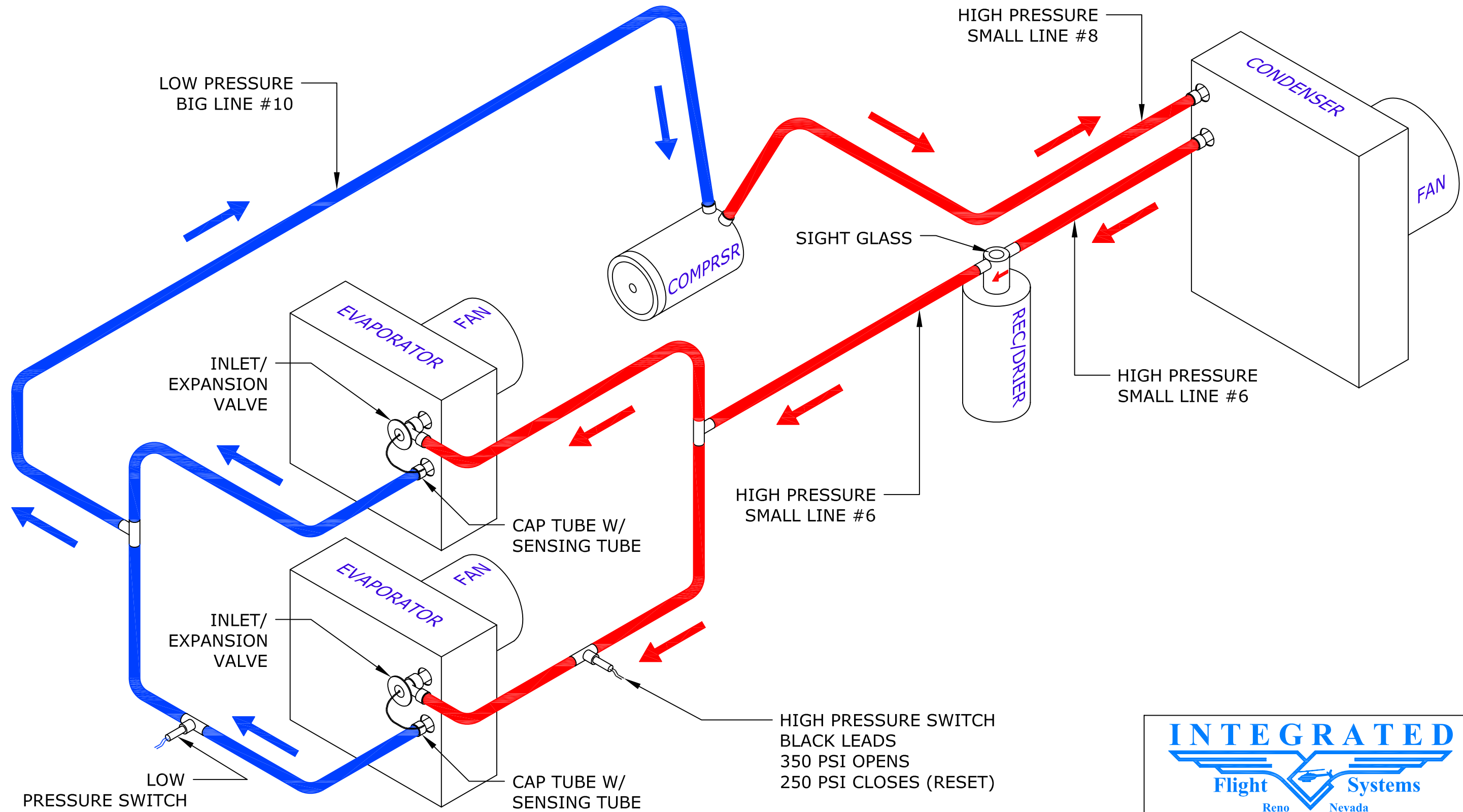
## SERVICE OPERATIONS - CLUTCH

5. Check air gap with a feeler gauge. Specification is 0.011" - 0.019" (0.3 - 0.5mm). If gap is not even around the clutch, gently tap down at the high spots. If the overall gap is out of spec., remove the armature assembly and change shims as necessary.
  
6. Replace armature dust cover (if used) and torque 3 or 6 bolts to specification below.  
3 - 1/4-20 bolts (SD-5): 2-4 ft•lb  
(2-5 N•m, 25-50 kgf•cm)  
6 - M5 bolts (SD-7): 5-8 ft•lb  
(7-11 N•m, 70-110 kgf•cm)



Note: Over torque of SD508/5H14 dust cover bolts will cause air gap to become out of spec.

REVISION RECORD				
DWG REV LTR	DATE	DESCRIPTION OF CHANGE	APPVD BY	REV BY



**INTEGRATED**  
Flight Systems  
Reno Nevada

**TITLE: SIMPLE AIR CONDITIONING SCHEMATIC**

DRAWN BY: JTJE	DATE: 04/10/06	REV: -	SCALE: NONE	SHEET: 1 OF 1
APPLICATION: N/A			DWG No. A/C SCHEMATIC	