CESSNA PILOTS ASSOCIATION

600 17th St, Ste 2800S
Denver, CO 80202

www.cessna.org

Cessna 182S 182T, T182T Skylane Systems & Procedures Course

08-08-2022

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Cessna 182S
182T, T182T Skylane
Systems & Procedures Course

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Cessna 182S, 182T, T182T Systems & Procedures Course

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CESSNA PILOTS ASSOCIATION

Restart 182 Model History

The Cessna Pilots Association

600 17th St, Ste 2800S
Denver, CO 80202-5428
303-260-6479

www.cessna.org

Cessna Restart 182 Model History

1997 - 182S

Serial Numbers 18280004 thru 18280089
Base Price $200,700
Gross weight 3110 lbs. ramp/ 3100 lbs. Takeoff
Total Built - 85

Production resumes with the 182S. Serial numbers are no longer published by Cessna. Serial Numbers reported are Date of Manufacture of calendar year, not by model year.

1. Textron Lycoming fuel injected engine IO-540-AB1A5, 230 HP.
2. New seat and restraint system.
3. Corrosion proofing.
4. Dual vacuum system.
5. Annunciator panel.
6. Revised electrical system.
7. New cabin lighting.
8. New multi-level ventilation system.
9. Acoustic soundproofing.
10. Stainless steel control cables.
11. Additional fuel drainage points added.
12. Optional equipment wheel fairings, IFR GPS, two-axis autopilot

1998 - 182S

Serial Numbers 18280090 thru 18280453
Base Price $227,900
Gross weight 3110 lbs. ramp/ 3100 lbs. Takeoff
Total Built - 363

1999 - 182S

Serial Numbers 18280454 thru 18280660
Base Price $233,900
Gross weight 3110 lbs. ramp/ 3100 lbs. Takeoff
Total Built - 206

2000 - 182S

Serial Numbers 18280661 thru 18280944
Base Price $240,300
Gross weight 3110 lbs. ramp/ 3100 lbs. Takeoff
Total Built - 283

1. Millennium edition with special exterior and interior appointments

2001 - 182T & T182T

Serial Numbers 18280945 thru 18281079; T1828001 thru T1828113
Base Price Non-turbo $264,500; Turbo $304,100
Gross weight 3110 lbs. ramp non-Turbo; 3112 lbs. Turbo/ 3100 lbs. Takeoff
Total Built - 182T - 134; T182T - 112

1. Turbocharged version produced using Textron Lycoming TIO-540-AK1A 235 HP.
2. Redesigned wheel fairing.
3. Redesigned cowl to reduce engine cooling drag.
4. Smaller gear strut step.
5. Turbo version has standard 4 place oxygen system.
6. Turbo version gets unique serial numbers starting with “T”.
7. Turbo version has hot prop standard.
8. Redesigned sidewall and cushioned armrest
9. New overhead panels allow access without removing headliner
10. Floor mounted chart/cup holder console
11. Rosen visors standard
12. 12V power port for auxiliary equipment
13. Stainless steel cowl fasteners
14. External Power cover hinged

2002 - 182T & T182T

Serial Numbers 18281080 thru 18281182; T1828114 thru T1828185
Base Price Non-turbo $271,000; Turbo $312,200
Gross weight 3110 lbs. ramp non-Turbo; 3112 lbs. Turbo/ 3100 lbs. Takeoff
Total Built - 182T - 102; T182T - 71

2003 - 182T & T182T

Serial Numbers 18281183 thru 18281297; T1828186 thru T1828224
Base Price Non-turbo $297,500; Turbo $336,500
Gross weight 3110 lbs. ramp non-Turbo; 3112 lbs. Turbo/ 3100 lbs. Takeoff
Total Built - 182T - 114; T182T - 38

2004 - 182T & T182T

Serial Numbers 18281298 thru 18281503; T1828225 thru T1828357
Base Price Non-turbo $297,500; Turbo $322,500
Gross weight 3110 lbs. ramp non-Turbo; 3112 lbs. Turbo/ 3100 lbs. Takeoff
Total Built - 182T - 205; T182T - 132

1. Nav III package introduces the Garmin G1000.
2. Leather interior available at no additional charge.

2005 - 182T & T182T

Serial Numbers 18281504 thru 18281741; T1828358 thru T1828480
Base Price Non-turbo $287,300; Turbo $315,300
Gross weight 3110 lbs. ramp non-Turbo; 3112 lbs. Turbo/ 3100 lbs. Takeoff
Total Built - 182T - 237; T182T - 122

1. Optional AMSAFE aviation Inflatable Restraints
2. Wingtip design change
3. HID Landing lights
4. Garmin G1000 EFIS system standard

2006 - 182T & T182T

Serial Numbers 18281742 thru 18281875; T1828481 thru T1828668
Base Price Non-turbo $326,150; Turbo $355,050
Gross weight 3110 lbs. ramp non-Turbo; 3112 lbs. Turbo/ 3100 lbs. Takeoff
Total Built - 182T - 133; T182T - 187

2007 - 182T & T182T

Serial Numbers 18281876 to 18282145; T1828669 to T18208908
Base Price Non-turbo $349,500; Turbo $379,500
Gross weight 3110 lbs. ramp non-Turbo; 3112 lbs. Turbo/ 3100 lbs. Takeoff
Total Built - 182T - 269; T182T - 239

1. G1000 Standard Equipment
2. Options include:TAWS-B Terrain (Garmin), TAS Traffic (Bendix King KTA 870), ADF KR87 (Int'l only), DME KN63 (Int'l only), Artex C406-N 3 Frequency ELT (exchange int'l only), Air conditioning (Keith / 12,000 btuh / Engine Driven).

2008 - 182T & T182T

Serial Numbers 18282046 to 18282145; T18208807 to T18208908
Base Price Non-turbo $367,000; Turbo $379,500
Gross weight 3110 lbs. ramp non-Turbo; 3112 lbs. Turbo/ 3100 lbs. Takeoff
Total Built: 182T - 99; T182T - 101

1. G1000 Standard Equipment
2. Options remain the same.
3. 3 color options for paint schemes.

2009 - 182T & T182T

Serial Numbers 18282146 to 18282204; T18208909 to T18208993
Base Price Non-turbo $384,500; Turbo $418,000
Gross weight 3110 lbs. ramp non-Turbo; 3112 lbs. Turbo/ 3100 lbs. Takeoff
Total Built: 182T - 58; T182T - 84

1. G1000 Standard Equipment
2. Options remain the same.
3. All seats include Amsafe inflatable restraints

2010 - 182T & T182T

Serial Numbers 18282205 to 18282276; T1820994 to T18209019
Base Price 182T $390,300; T182T $424,300
Gross weight 3110 lbs. ramp non-Turbo; 3112 lbs. Turbo/ 3100 lbs. Takeoff
Total Built: 182T - 71; T182T - 75

1. G1000 Standard Equipment
2. Options Remain the Same
3. All Seats include Amsafe Restraints

2011 - 182T & T182T

Serial Numbers 18282277 to 18282311; T18209019 to T18209055
Base Price 182T $398,100; T182T $432,800
Total Built: 182T - 34; T182T - 36

2012 - 182T & T182T

Serial Numbers 18282312 to 18282358; T18209056 to T18209068
Base Price 182T $398,100; T182T 443,500
Total Built: 182T - 46; T182T - 12

2013 182T & T182T

Serial Numbers 18282359 to 18282368; T18209069 to T18209100
Cessna no longer offered the T182T after 2013. It was dropped in favor of the "soon to come" diesel J182T. As of August, 2015 it appears that Cessna has dropped the J182T project with no planes certified or delivered.

2015 182T

Serial Numbers 18282369 to 18282418
Base Price $450,000
Total Built: 49

2016 182T

Serial Numbers 18282419 - 18282467
Base Price $470,000
Total Built: 48

2017 182T

Serial Numbers 18283001 to 18283027
Base Price $470,000
Total Built: 26

2018 182T

Serial Numbers 18283030 - 18283060
Base Price $490,000
Total Built: 30

2019 - 182T
Serial Numbers 18283062 through 18283092
Base Price $515,000
Gross weight 3100 lbs
Total built - 30

2020- 182T
Serial Numbers 18283094 - 18283120
Gross weight 3100 lbs
Total Built - 26

2021 - 182T
Serial numbers 18283121 - 18283153
Gross weight 3100 lbs
Total Built - 32

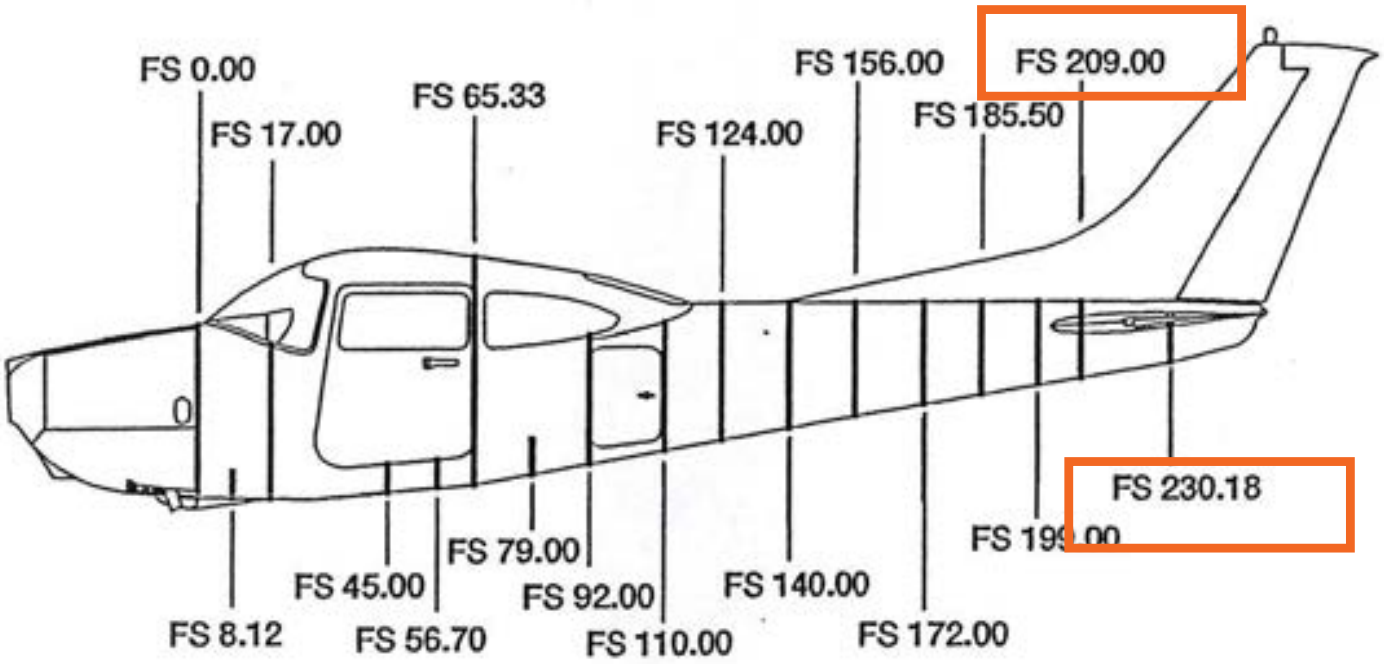
CESSNA PILOTS ASSOCIATION

182S, 182T, T182T Skylane

Airframe, Wings & Empennage

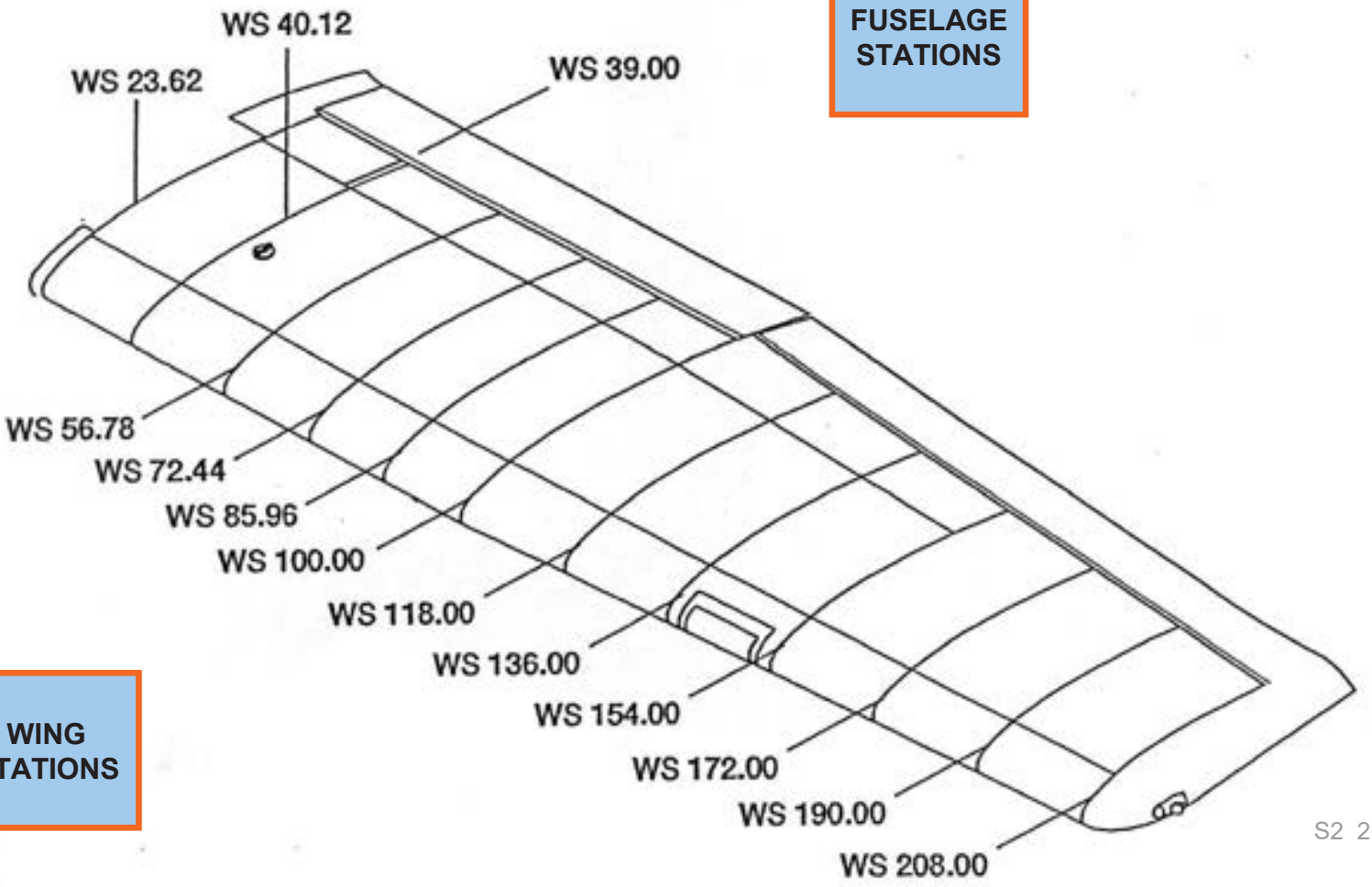
Section Two

Wing Reference Stations



209 & 230 BULKHEADS

FUSELAGE STATIONS



WING STATIONS

Jacking Details

1. **General**

   A. Normal jacking procedures involve lifting one main wheel at a time. This procedure is best accomplished using a floor jack in conjunction with the built-in jack pad (located directly below the step on each strut).

   CAUTION: JACKING BOTH WHEELS SIMULTANEOUSLY AT BUILT-IN JACK PADS IS NOT RECOMMENDED. WHEN USING BUILT-IN JACK PAD, FLEXIBILITY OF THE MAIN GEAR STRUT WILL CAUSE THE MAIN WHEEL TO SLIDE INBOARD AS THE WHEEL IS RAISED, TILTING THE JACK. IF THIS OCCURS, THE JACK MUST BE LOWERED FOR A SECOND OPERATION.

   B. When the airplane needs to be raised off the ground at all points, the following procedure should be used.

2. **Tools, Equipment and Materials**

   A. For a list of required tools, equipment and materials, refer to Lifting and Shoring - General.

3. **Jacking Procedure**

   A. Raise Airplane (Refer to Figure 201).
   (1) Place wing jacks and padded blocks under front spar, just outboard of wing strut. Ensure that padded block (1 inch X 4 inch X 4 inch with 0.25 inch rubber pad) is resting securely between spar and jack.
   (2) Raise wing jacks evenly until desired height is reached.

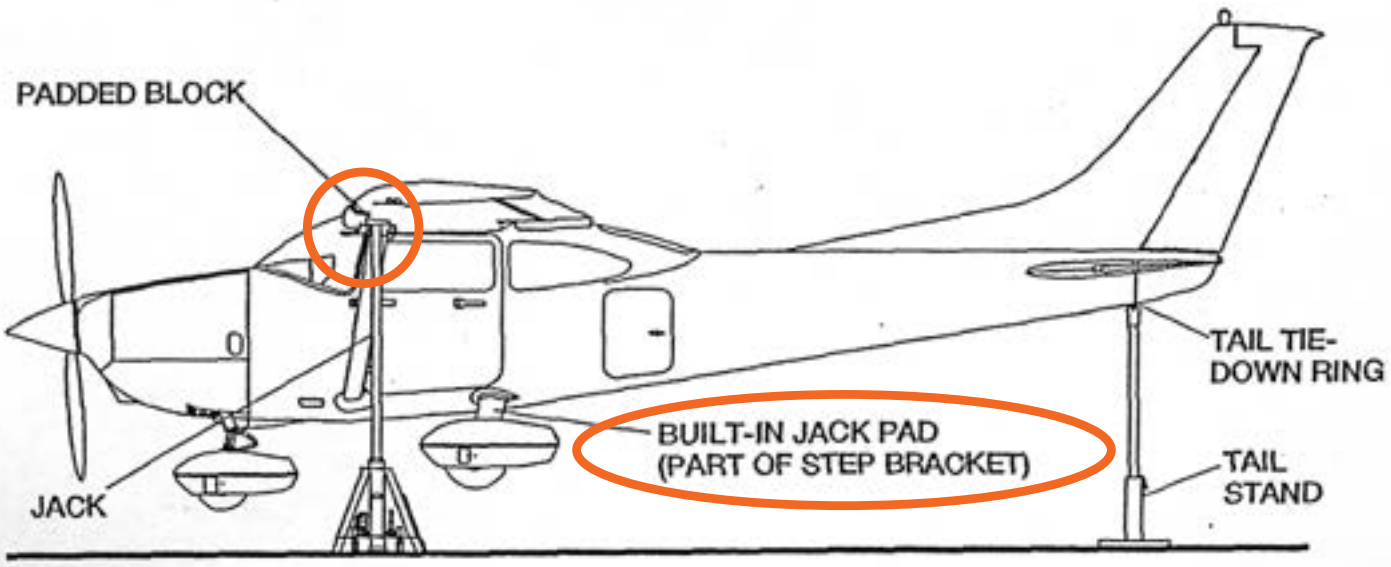
SNL05-1 WING JACK PAD INSTALL

   CAUTION: WHEN PLACED ON JACKS CENTERED UNDER THE WING FRONT SPAR, THE AIRPLANE IS SLIGHTLY TAIL HEAVY. TAIL STANDS MUST BE USED AND WEIGH ENOUGH TO KEEP THE TAIL DOWN UNDER ALL CONDITIONS. ADDITIONALLY, THE TAIL STAND MUST BE STRONG ENOUGH TO SUPPORT ANY WEIGHT WHICH MIGHT BE TRANSFERRED TO THE TAILCONE AREA DURING MAINTENANCE, CREATING A GREATER TAIL HEAVY CONDITION.

   (3) Carefully attach tail stand to tail tiedown ring.

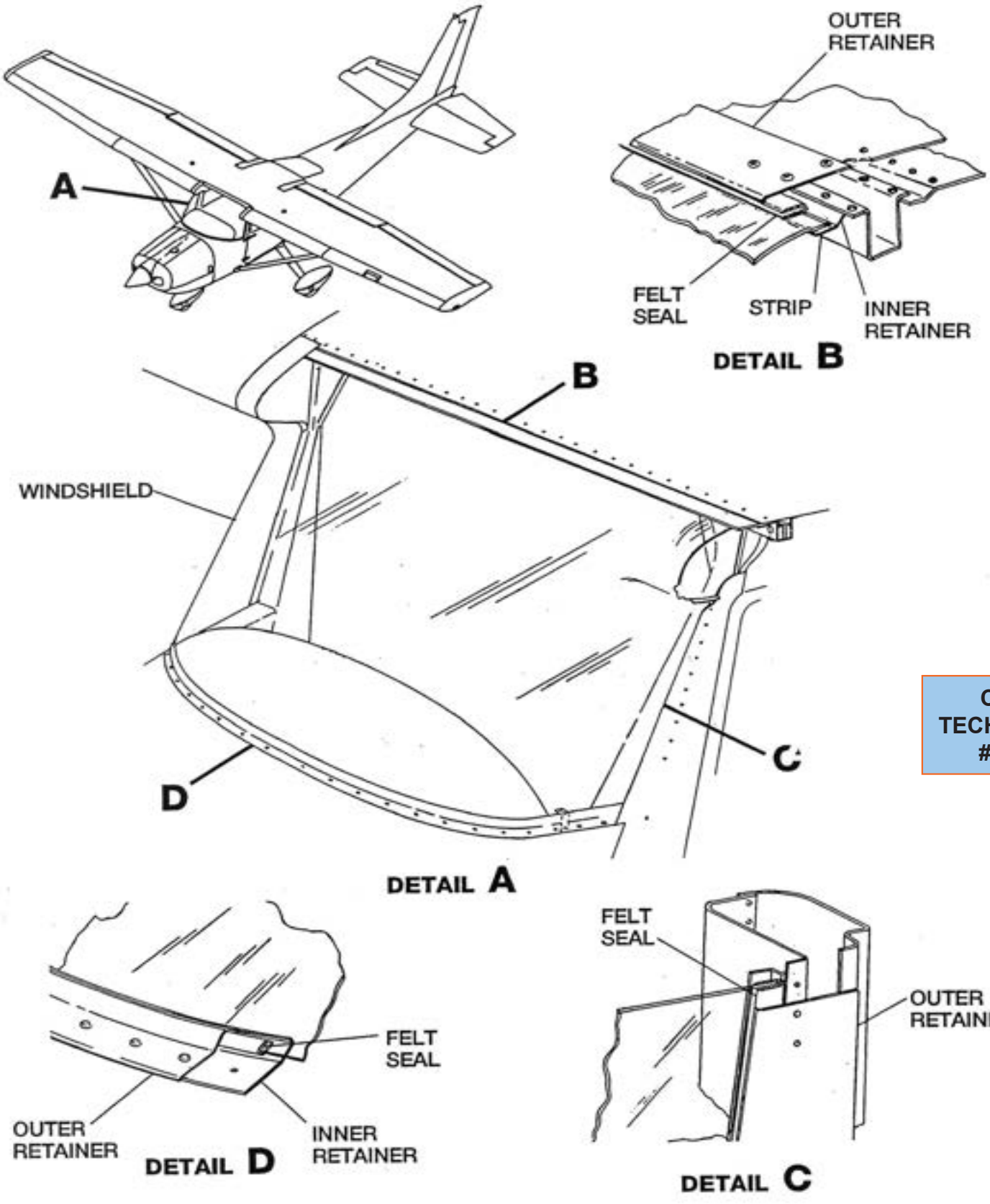
   B. Lower Airplane (Refer to Figure 201).
   (1) Detach tail stand from tail tiedown ring.
   (2) Slowly lower wing jacks simultaneously until main tires are resting on ground.
   (3) Remove wing jacks and pads from wing area.

CPA TECH NOTE #024



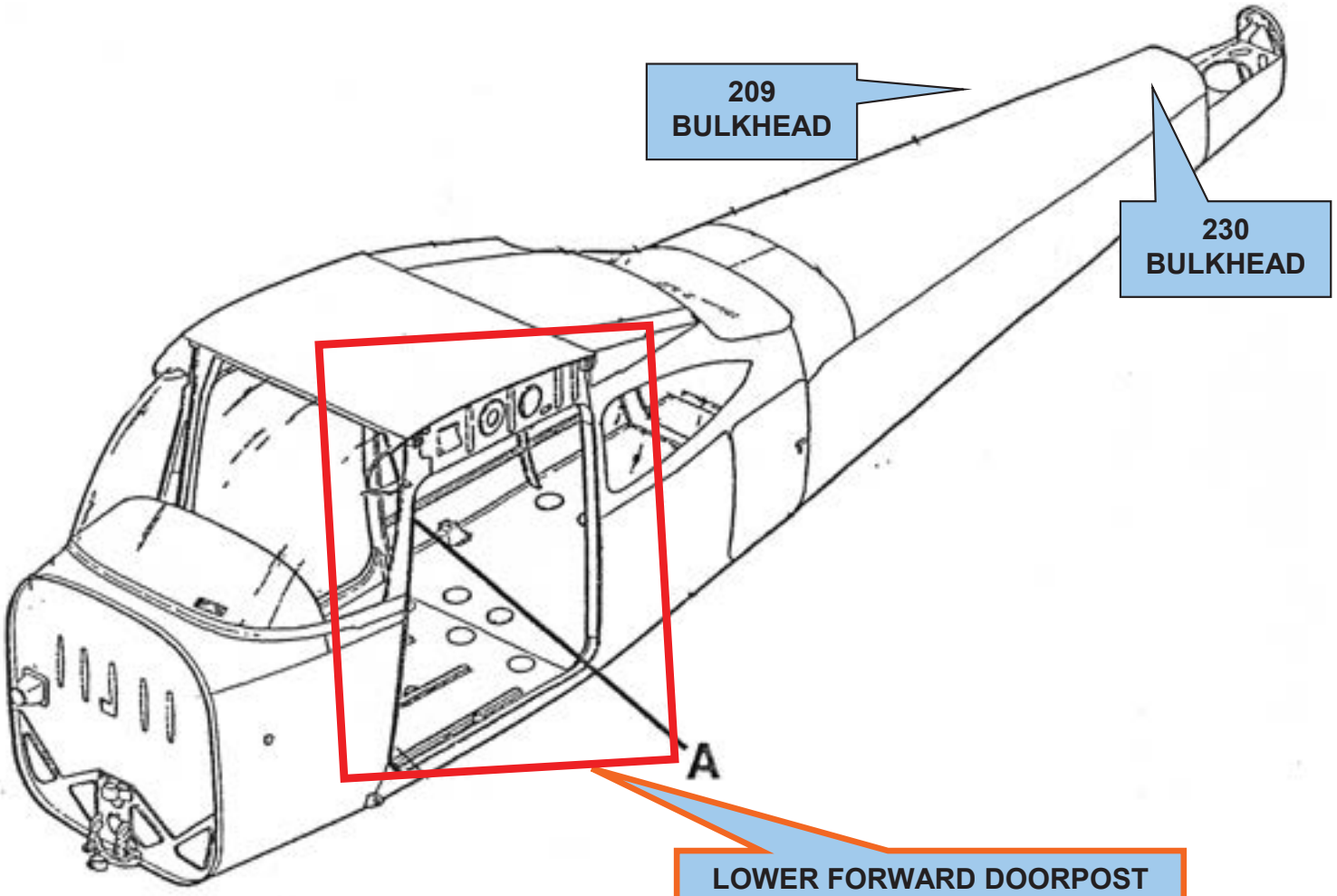
Windshield Installation

SNL 85-3R2 WINDSHIELD MAINTENANCE

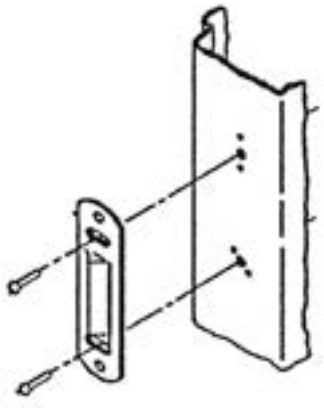


CPA TECH NOTE #036

Fuselage Assembly

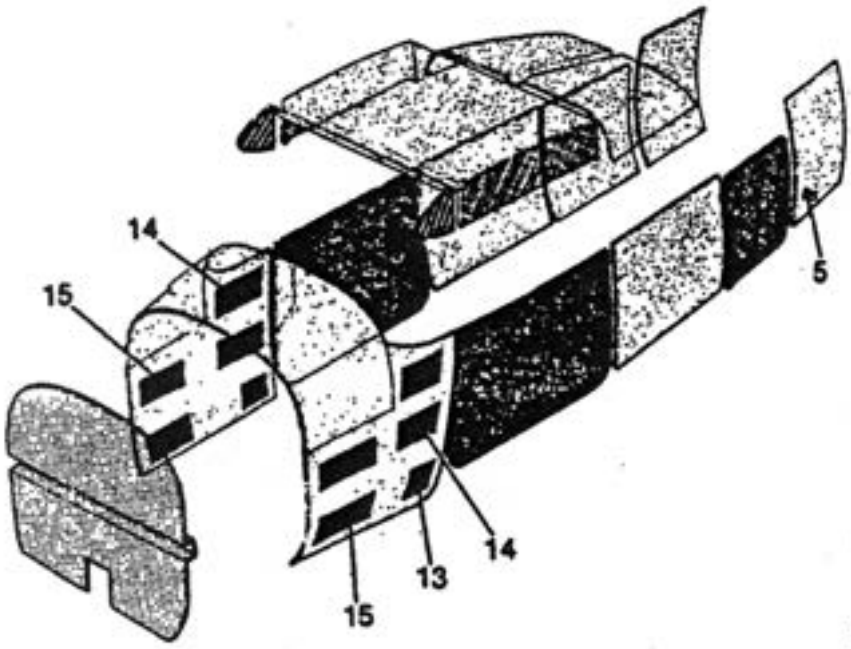


SB04-53-02R1
Lower Cowling
Shock Mounts



DETAIL A

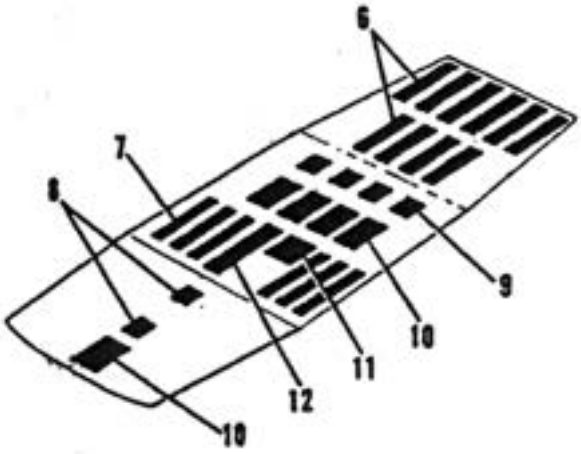
Legacy 182 Cabin Soundproofing



SNL93-3 CABIN CORROSION

SE73-38

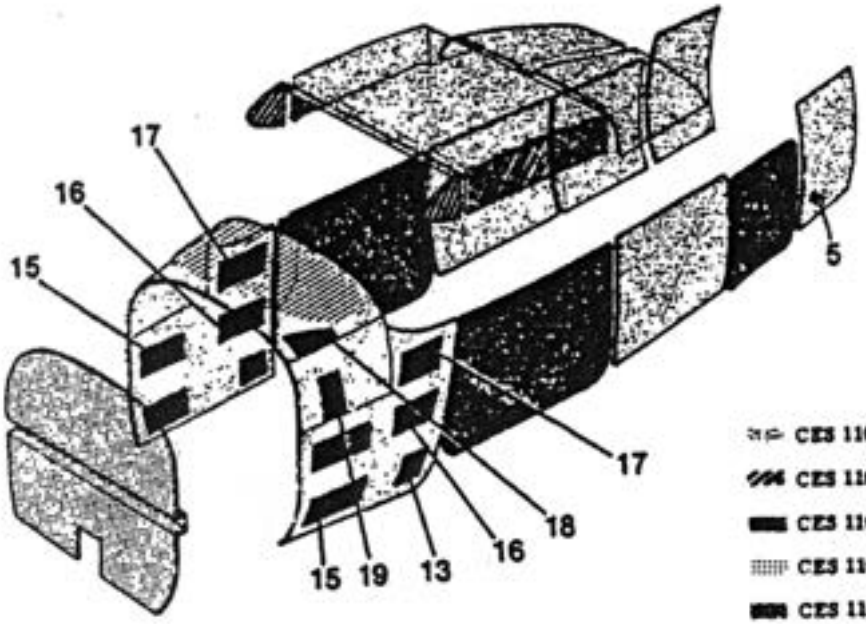
CORROSION PREVENTION



CORROSION UNDER SOUND DEADENING PANELS

SEL-51-01

Use Of Corrosion Inhibiting Compounds

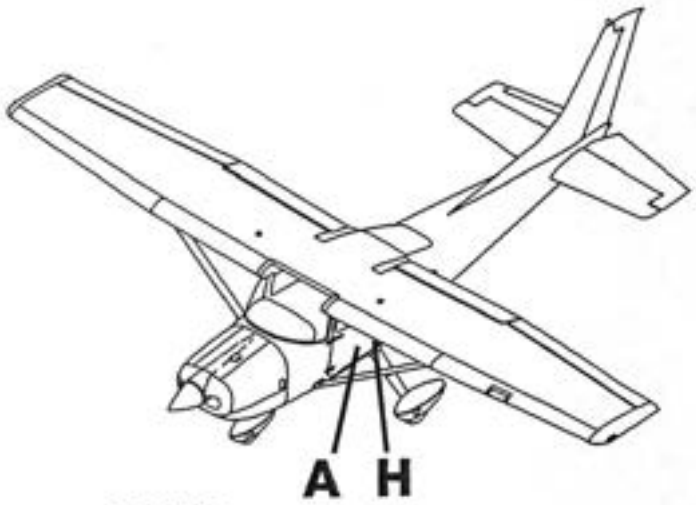


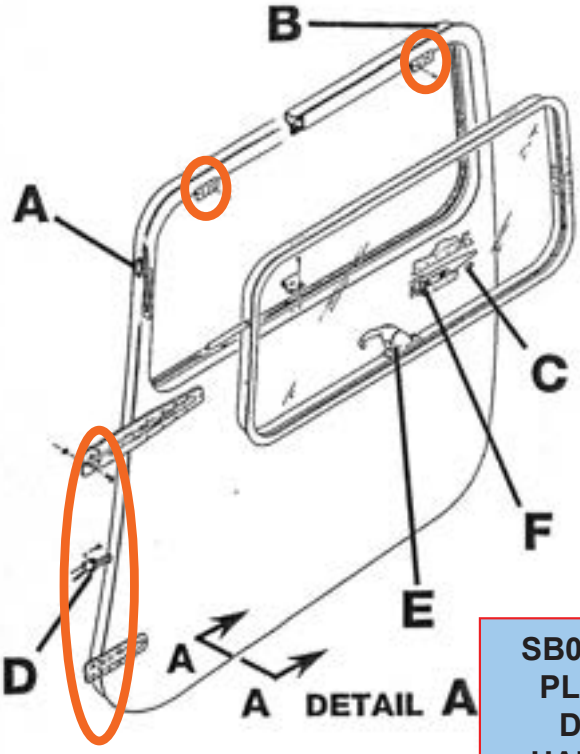
CES 1109 CLASS 1A Soundproofing - Fiberglass (See Parts Listings)
CES 1109 CLASS 1B Soundproofing - Fiberglass (See Parts Listings)
CES 1109 CLASS 1C Soundproofing - Fiberglass (See Parts Listings)
CES 1109 CLASS 1G Soundproofing - Fiberglass (See Parts Listings)
CES 1109 CLASS 1H Soundproofing - Fiberglass (See Parts Listings)
CES 1109 CLASS IV Dampening Compound (See Parts Listings)
Soundproofing - Embossed Soundfoam (See Parts Listings)

Cabin Door

DOOR HINGE ARTICLE IN 8/04 CPA Mag

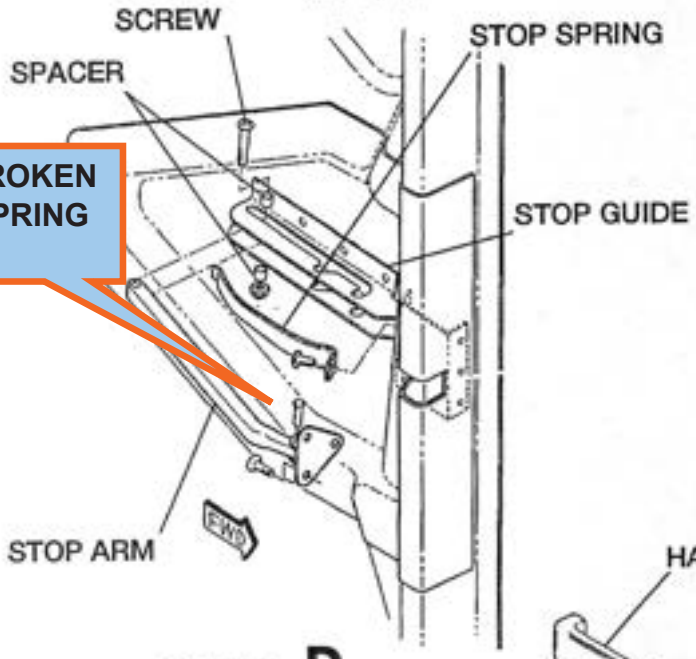
LUBE DOOR AND WINDOW HINGES

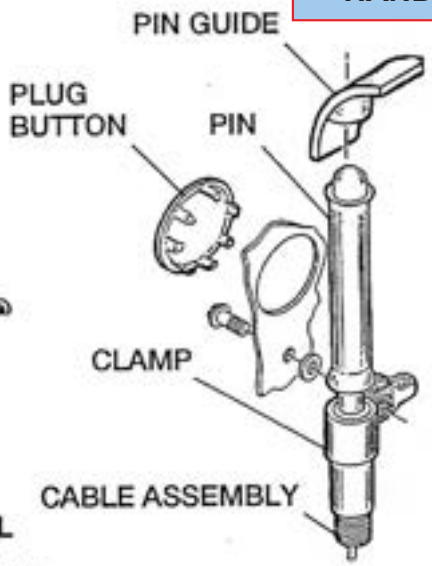


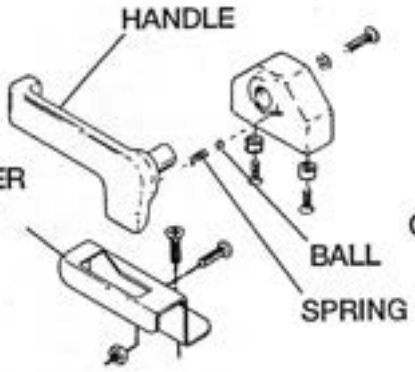


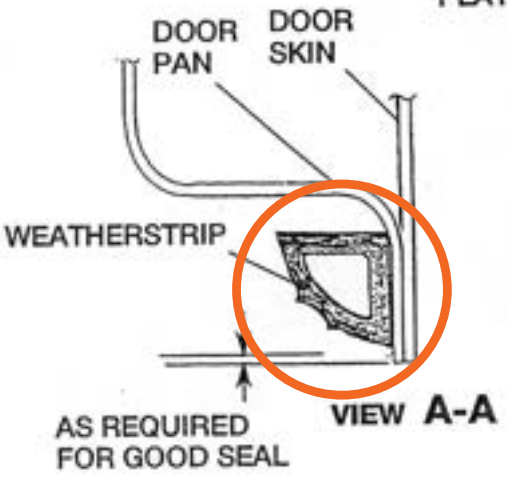
SB02-52-01 PLASTIC DOOR HANDLES

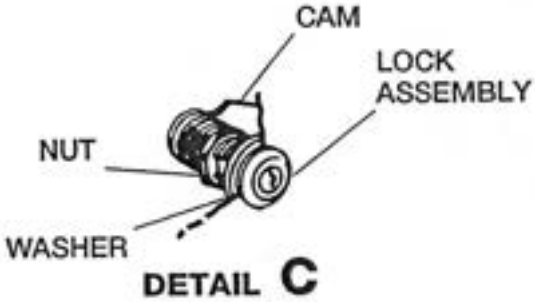
BROKEN SPRING







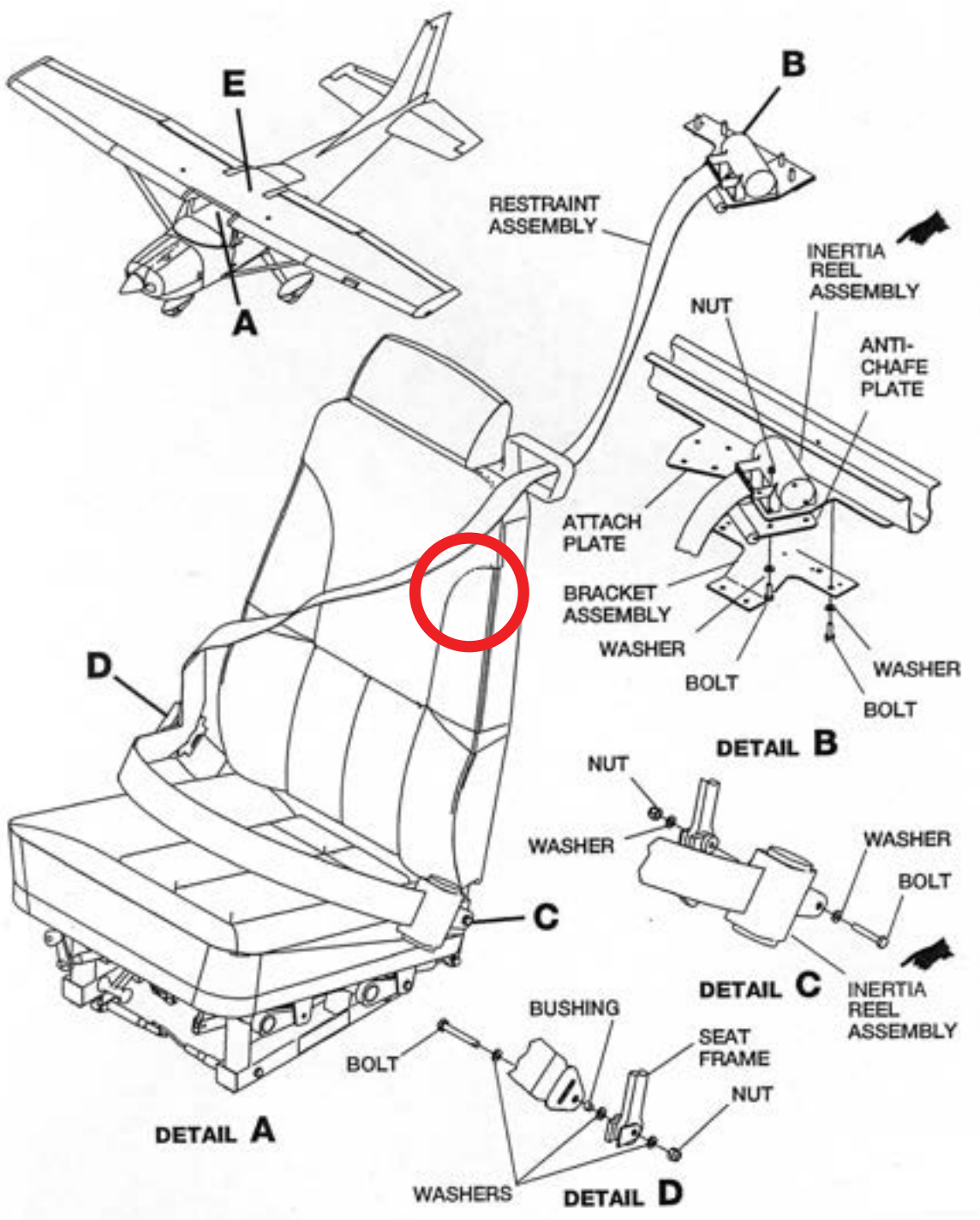




TECH NOTE# 015 DOOR LOCKS

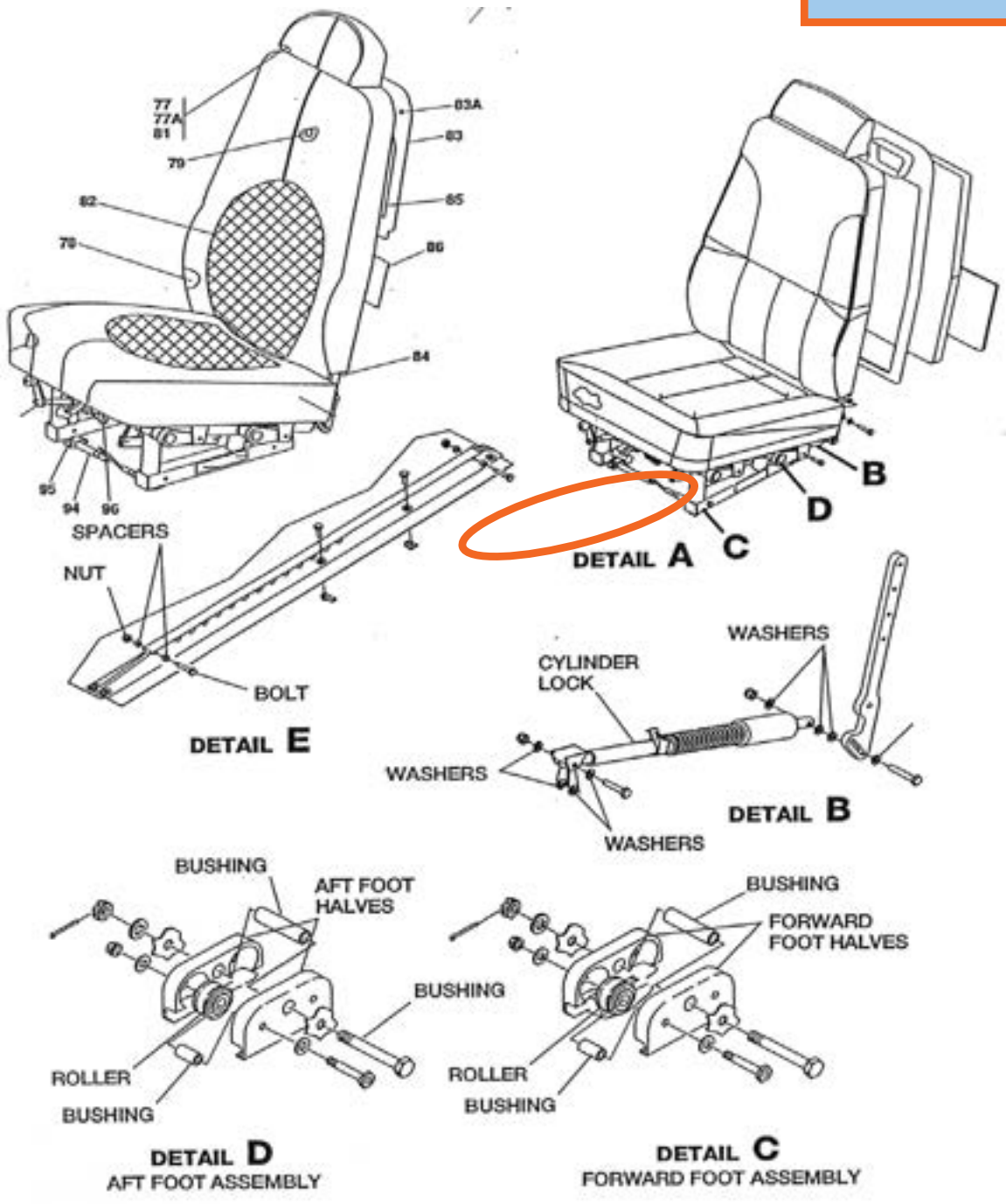
182S Seat Belt/Shoulder Harness Installation

SB02-25-01
Shoulder Harness Guide Removal

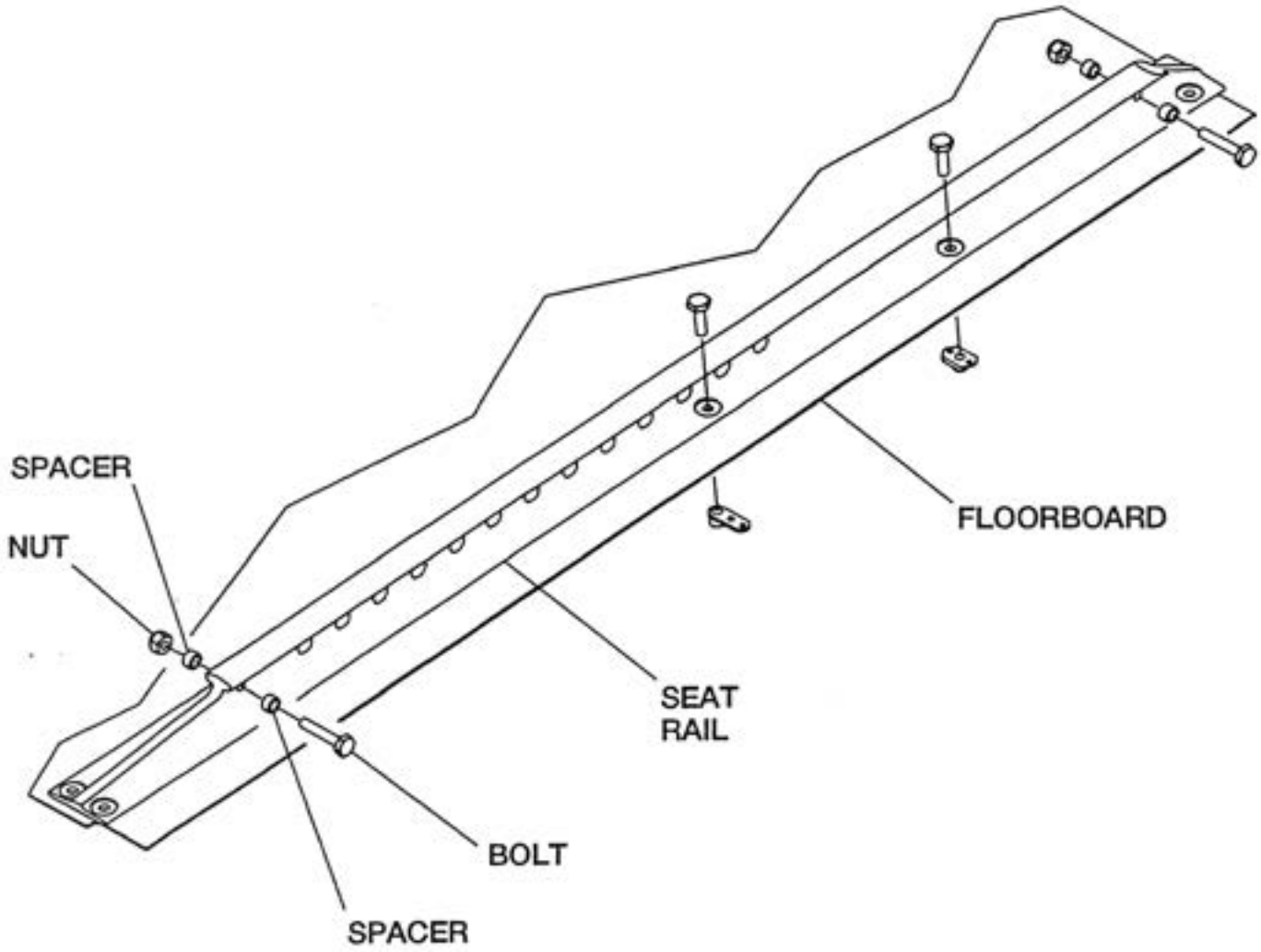


Seat Installation

AD2007-05-10
SB04-25-01R2
SB04-25-02
SB04-25-04
SB07-25-01
SB07-25-02
AD2008-05-09
SB07-25-11
SB09-25-R01
Crew Seat Cylinder and Base Insp



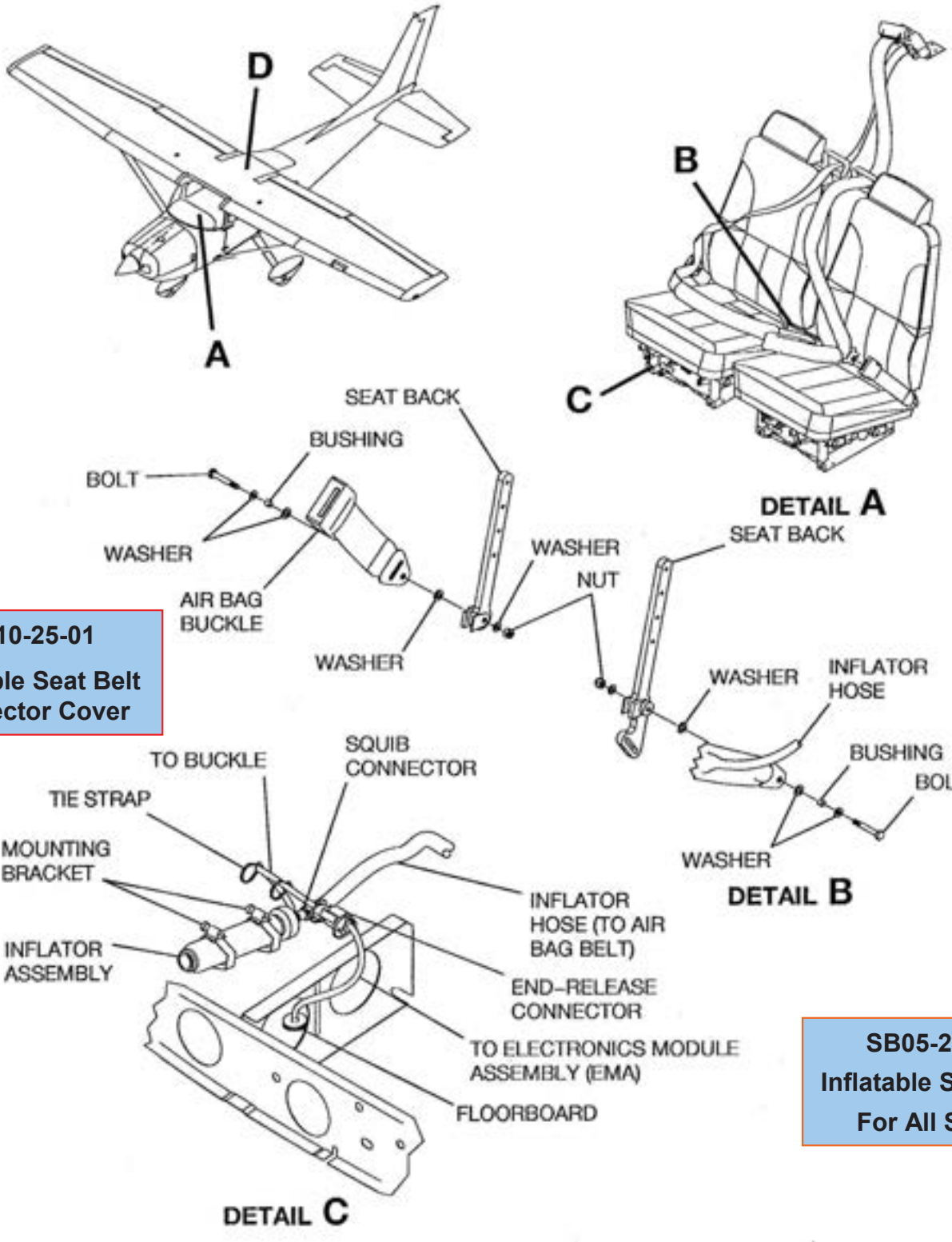
Seat Rail



WARNING: IT IS EXTREMELY IMPORTANT THAT PILOT'S SEAT STOPS ARE INSTALLED, SINCE ACCELERATION AND DECELERATION COULD POSSIBLY PERMIT SEAT TO BECOME DISENGAGED FROM SEAT RAILS AND CREATE A HAZARDOUS SITUATION, ESPECIALLY DURING TAKEOFF AND LANDING.

AMSAFE Inflatable Restraint System

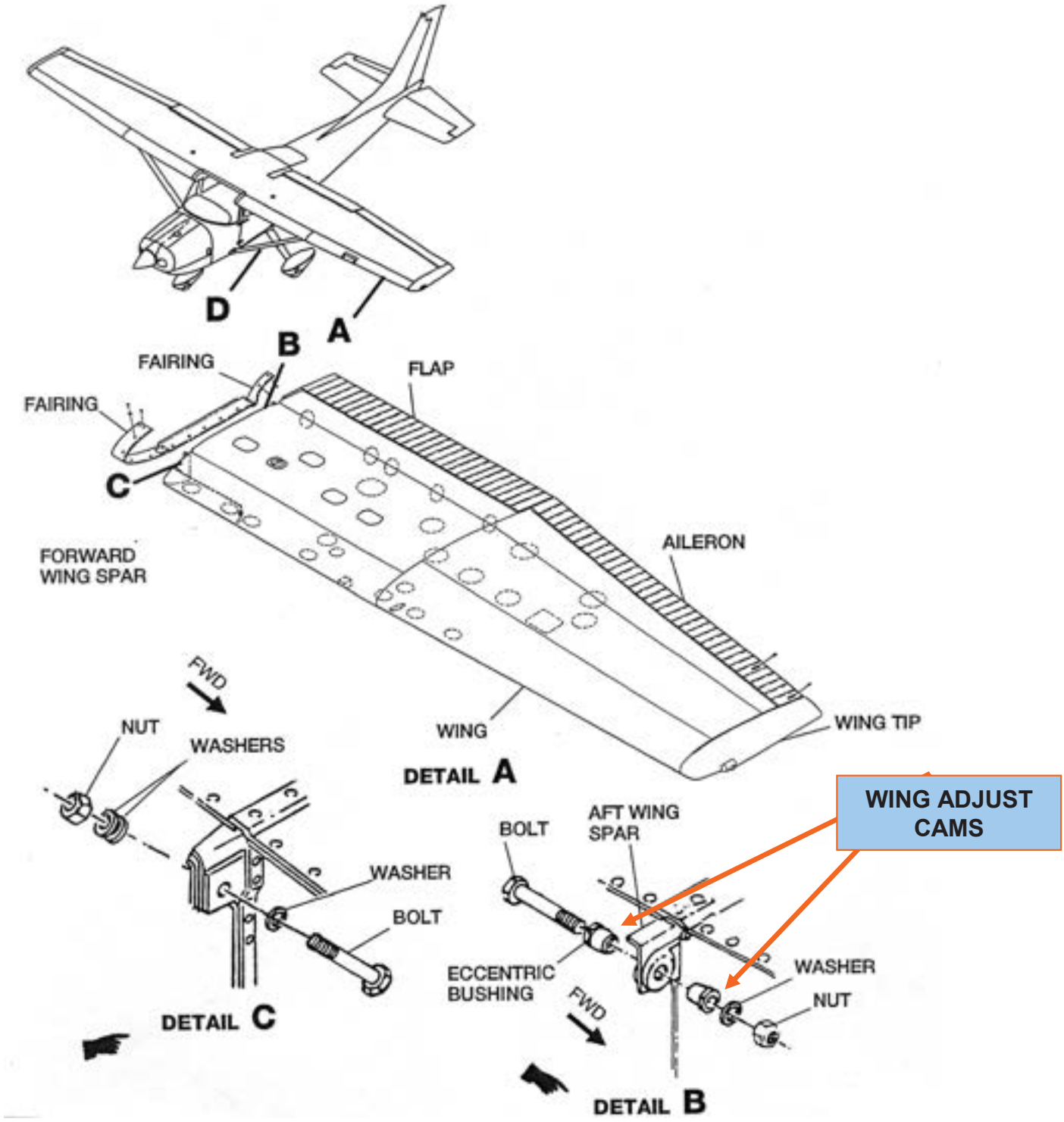
SB05-25-01
Inflatable Seat Belt Check Installation



SB10-25-01
Inflatable Seat Belt Connector Cover

SB05-25-02
Inflatable Seat Belt For All Seats

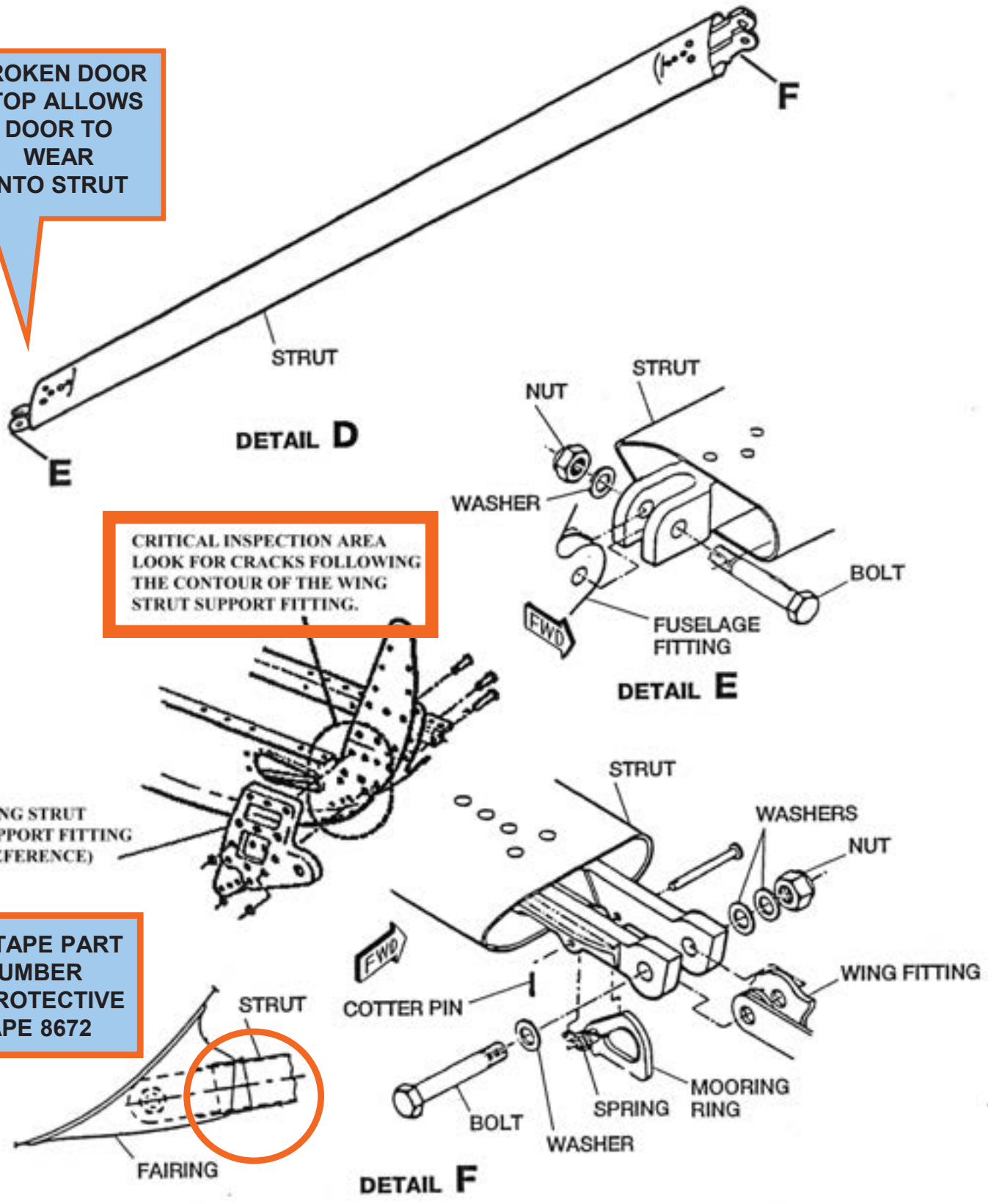
Wing Installation



Wing Strut Installation

WEAR LIMITS ON STRUT CALLED OUT IN OCT 2006 CPA MAG ARTICLE

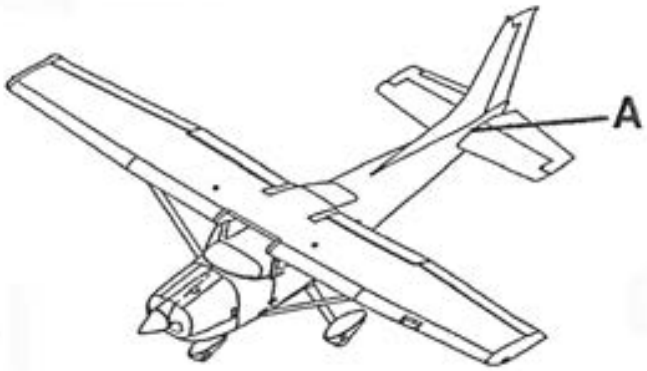
BROKEN DOOR STOP ALLOWS DOOR TO WEAR INTO STRUT



ALT TAPE PART NUMBER 3M PROTECTIVE TAPE 8672

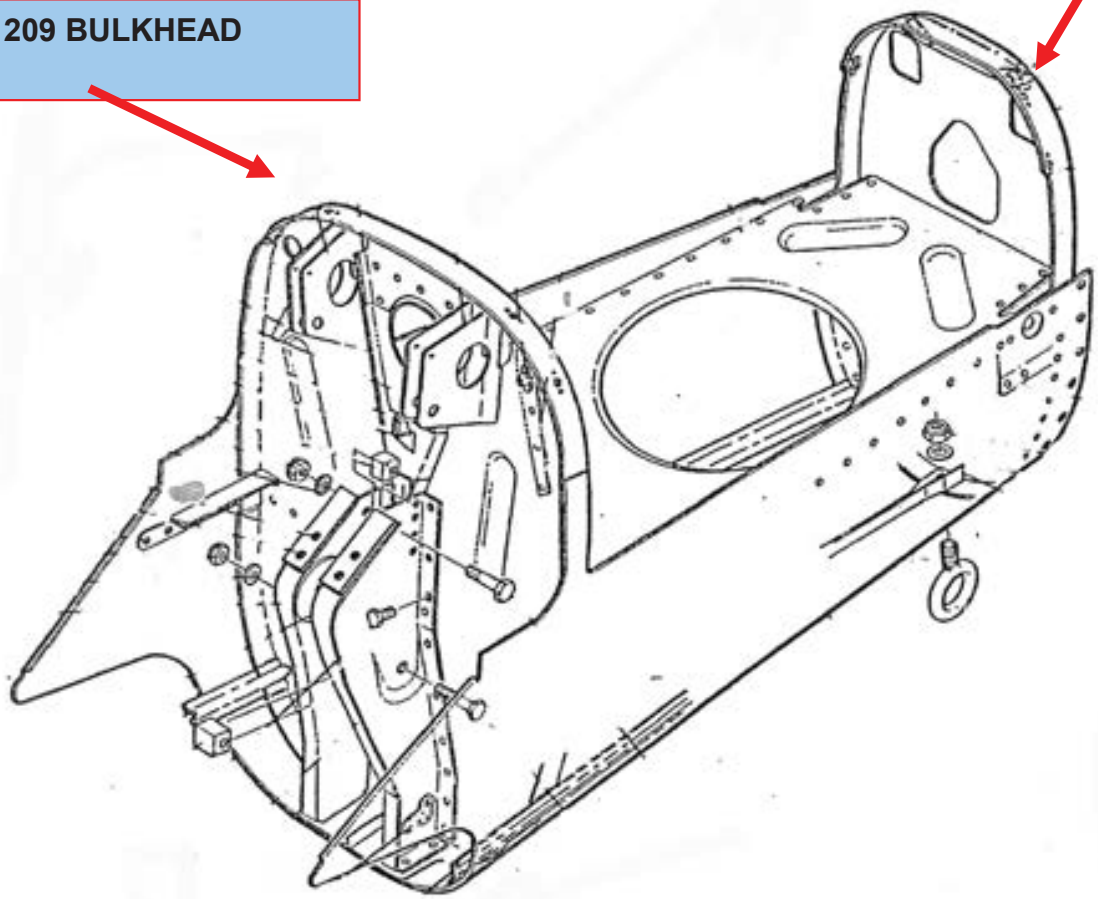
Tail Cone Structure

SB02-53-01 ADDS BALLAST WEIGHT TO 230 BULKHEAD 1-5 POUNDS CAN BE ADDED



230 BULKHEAD

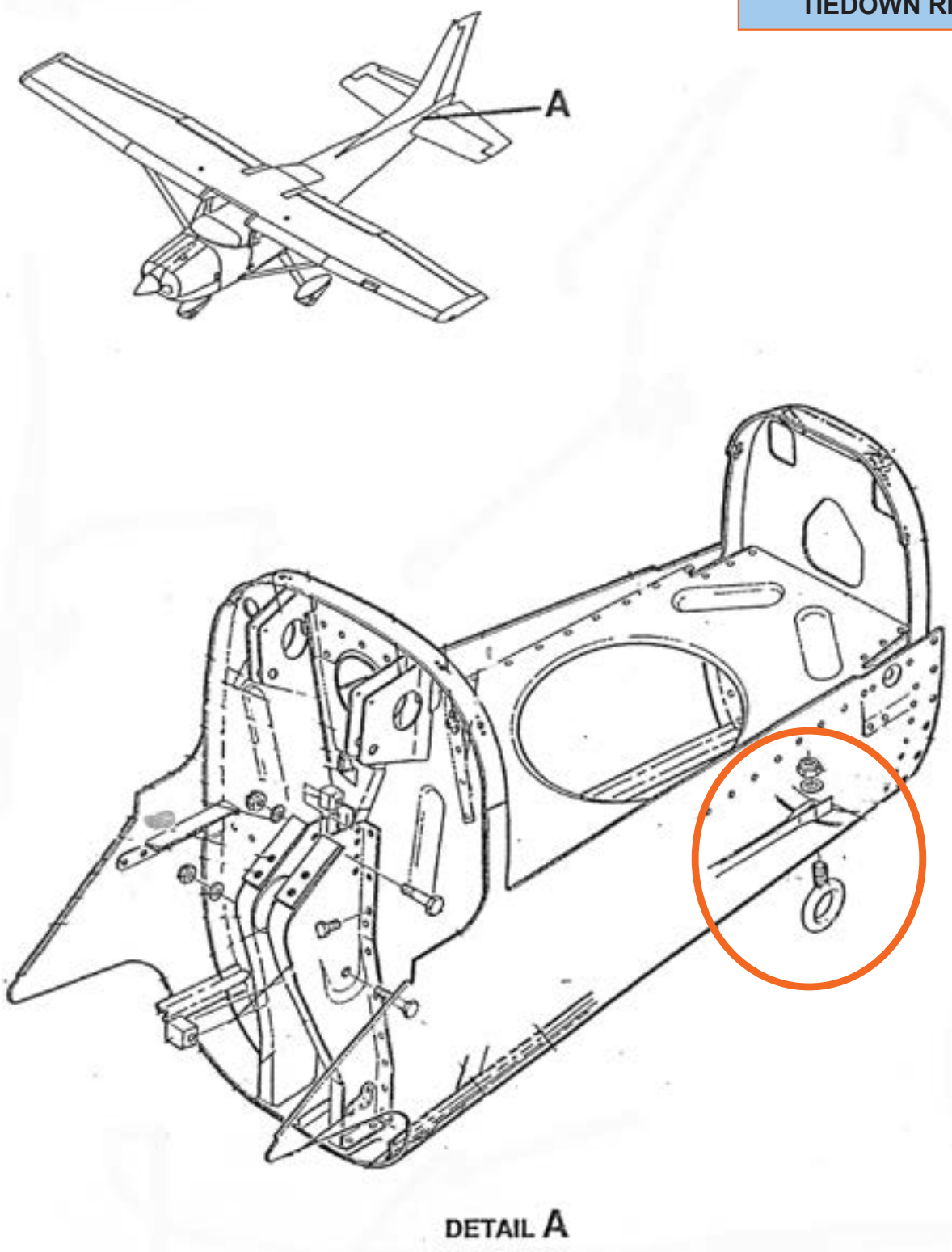
209 BULKHEAD



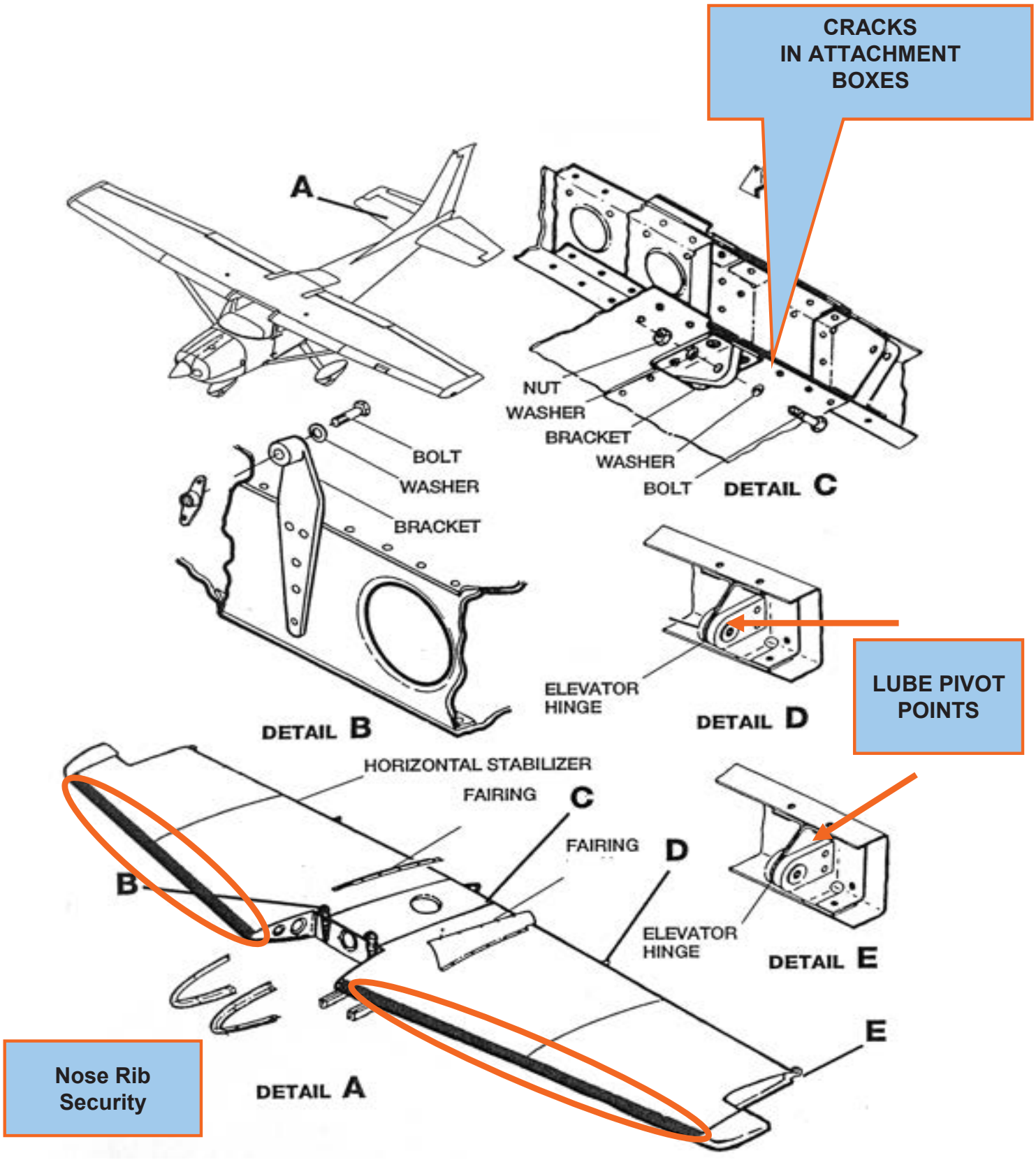
DETAIL A

Tail Cone Structure

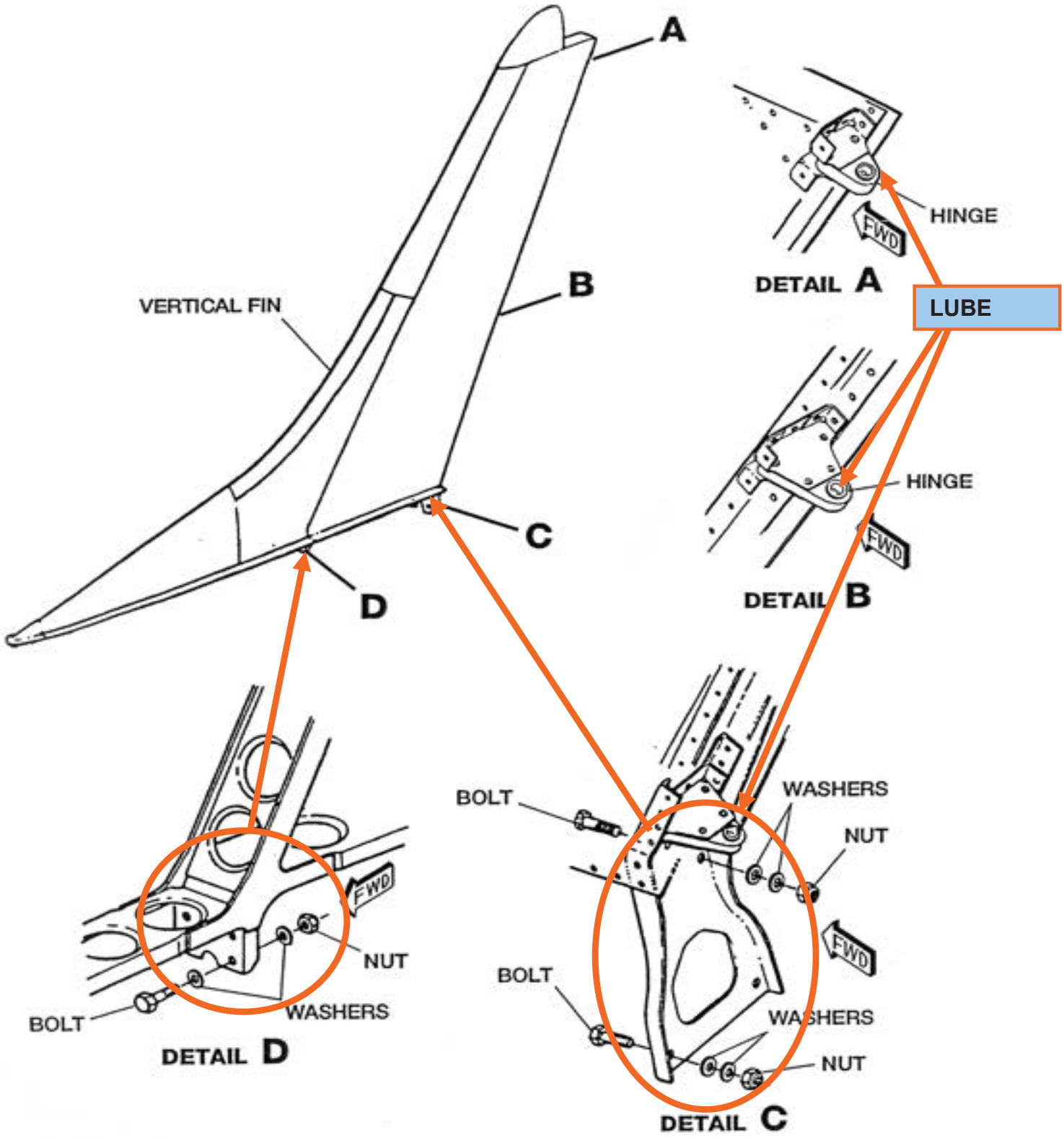
GLIDER TOW HOOK ATTACHES HERE NO PROBLEM WINCHING OFF THE TIEDOWN RING



Horizontal Stabilizer Installation



Vertical Stabilizer Installation




N510AR
QUESTIONS?

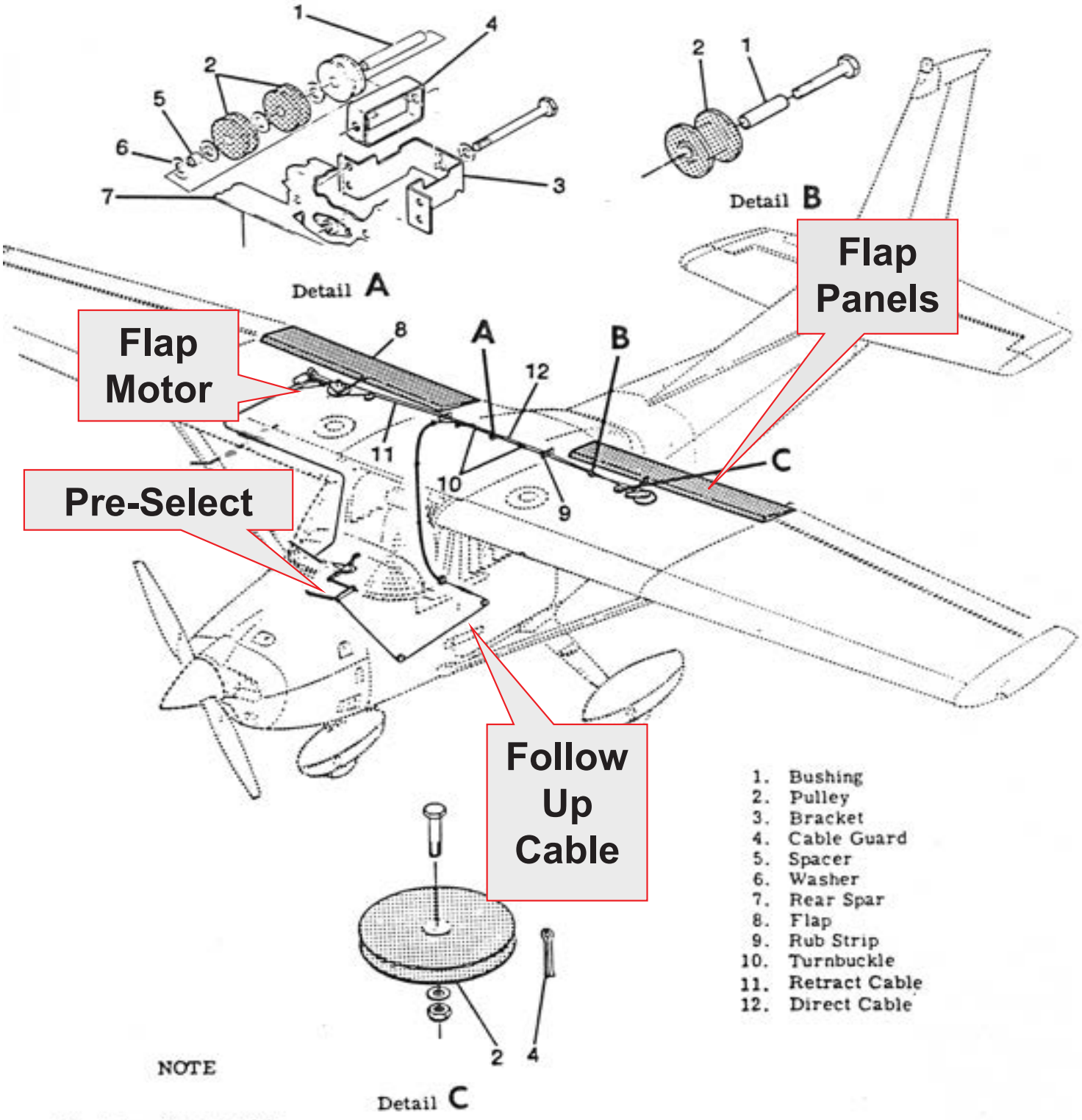
CESSNA PILOTS ASSOCIATION

182S, 182T, T182T Skylane

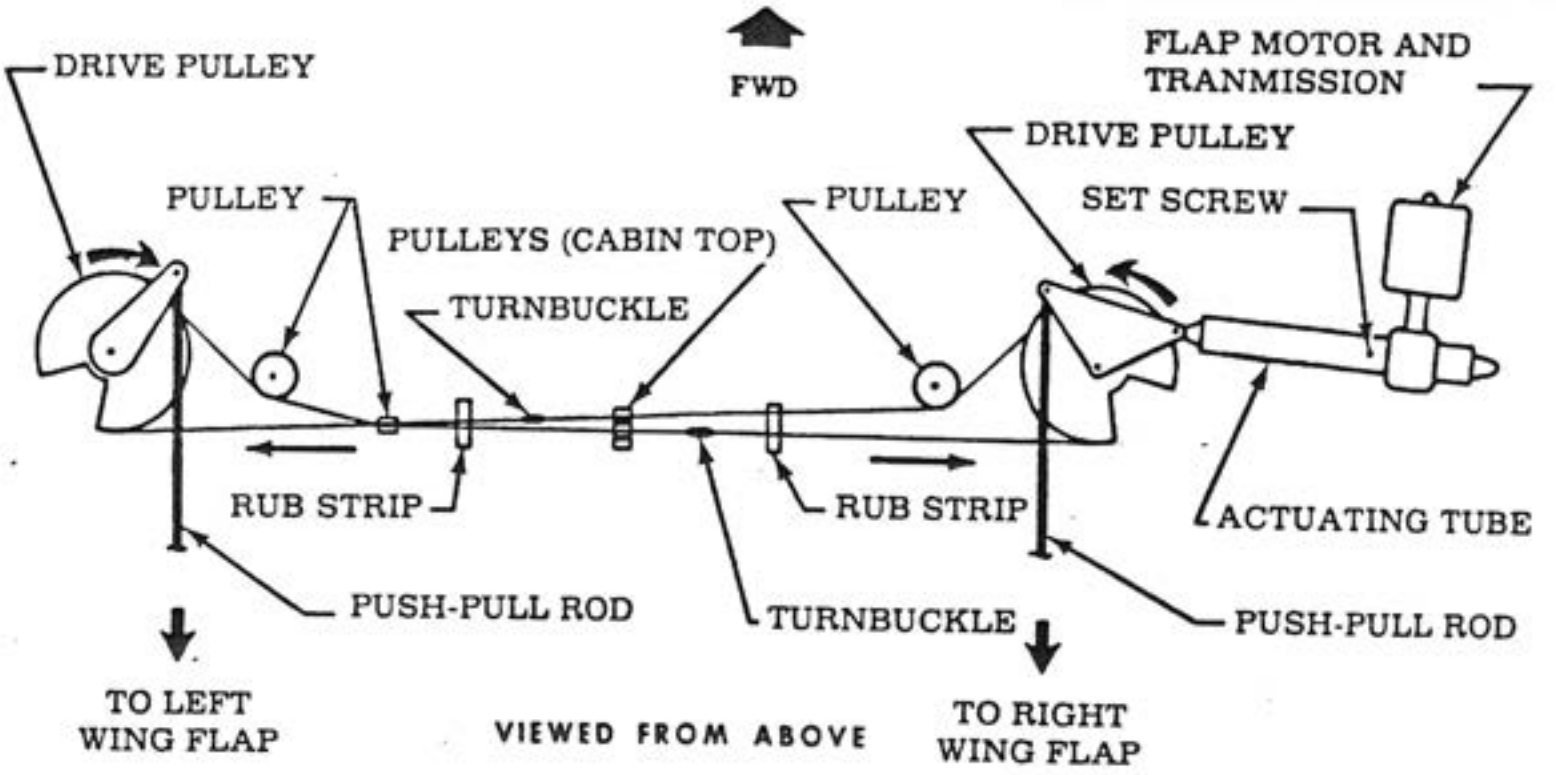
Flight Controls

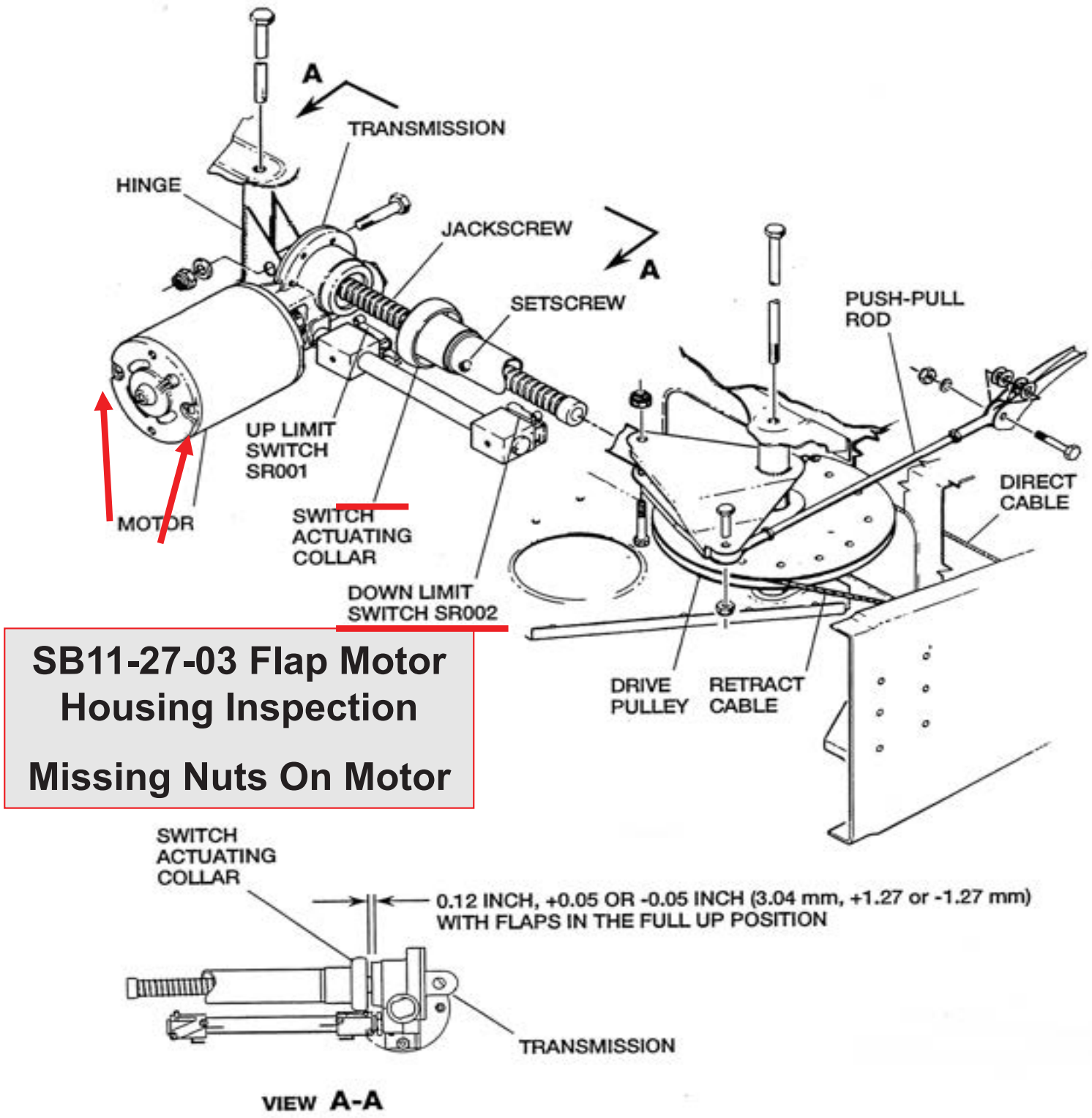
Section Three

Wing Flap Control System



Flap System Schematic

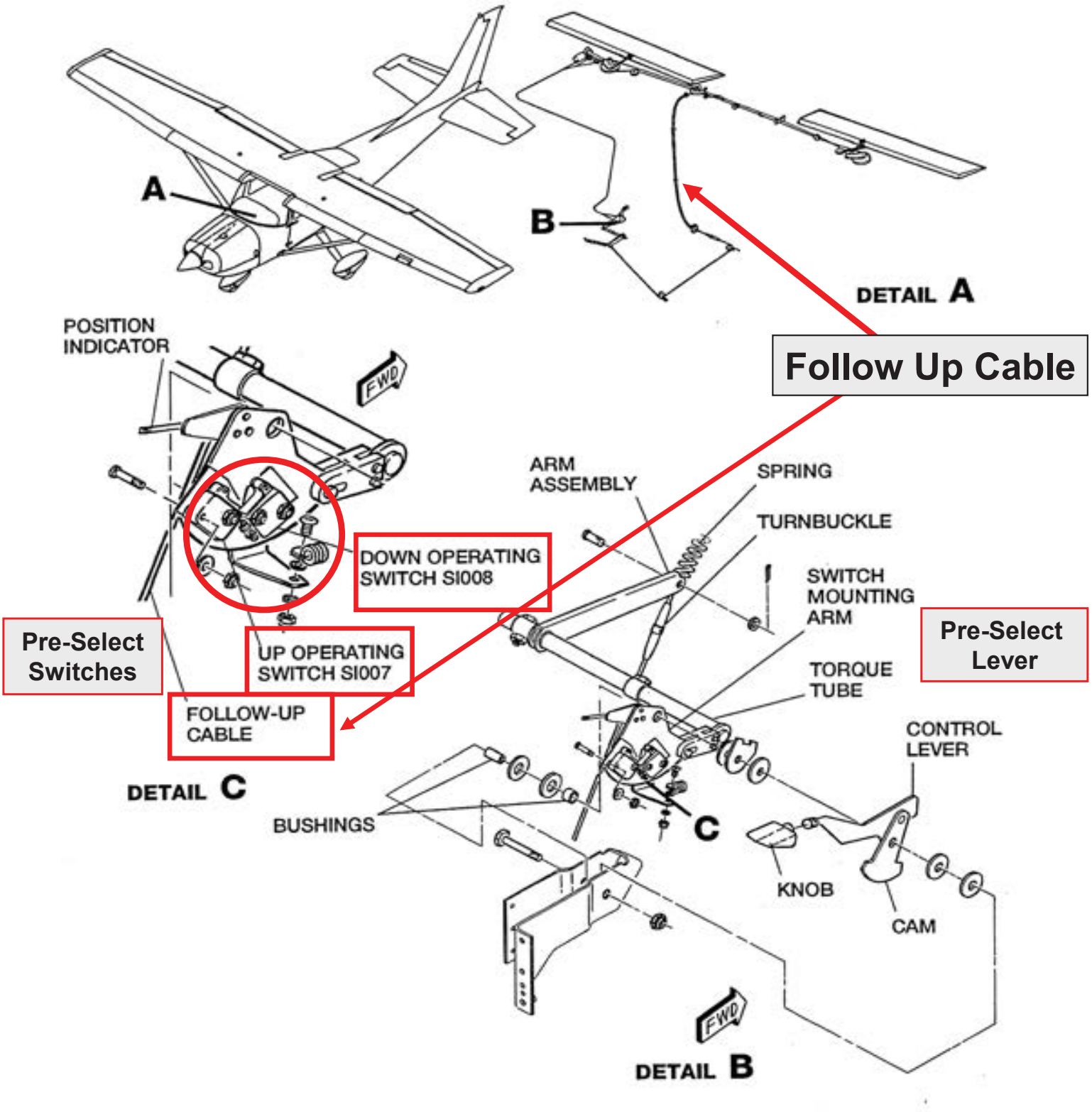




SB11-27-03 Flap Motor Housing Inspection

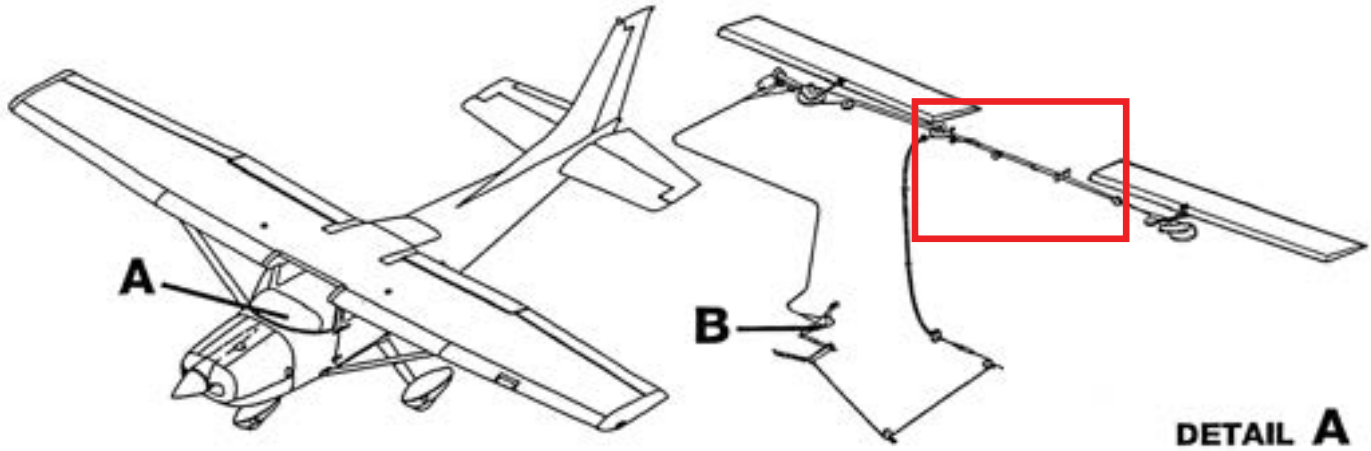
Missing Nuts On Motor

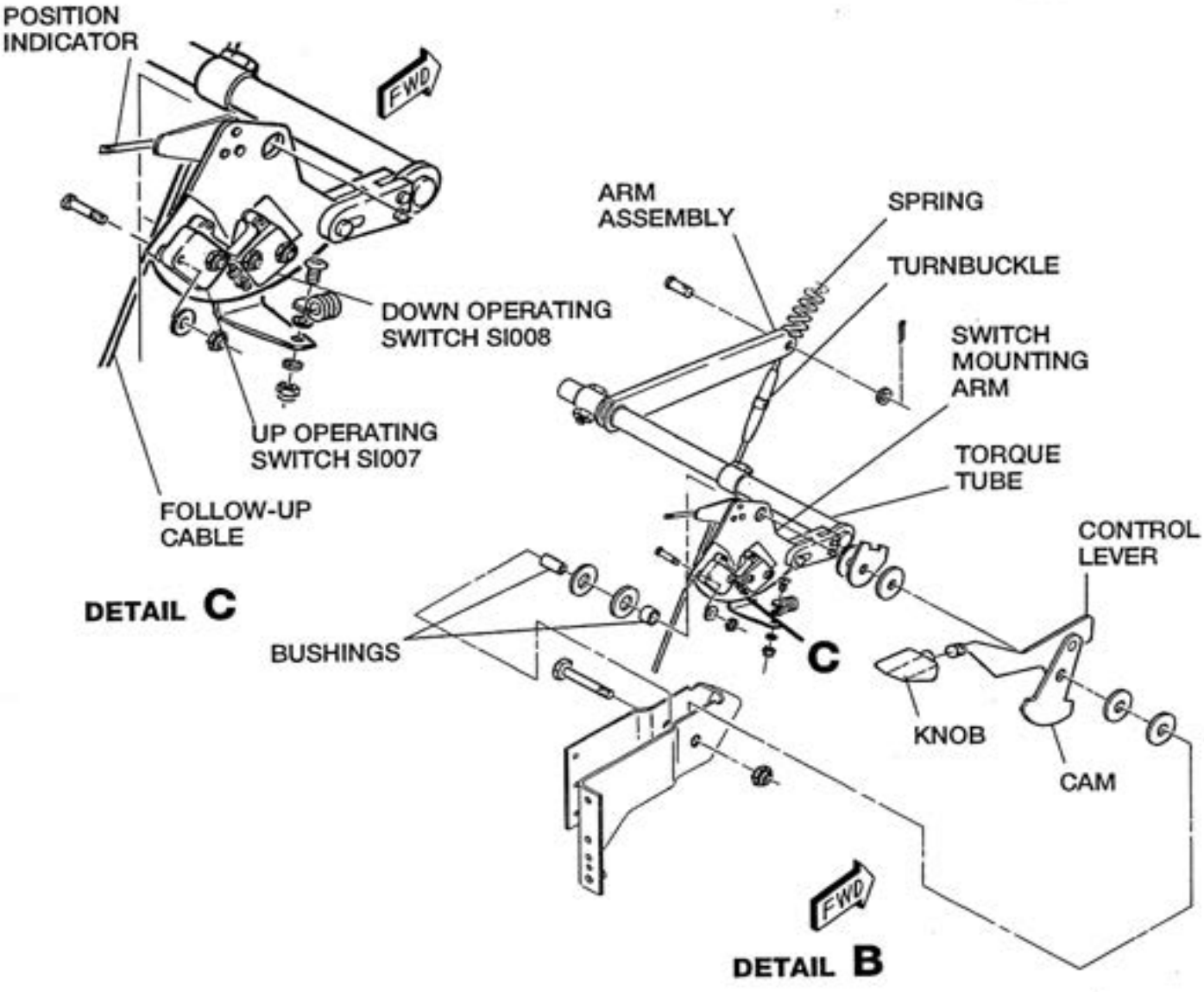
Flap Lever & Follow-up System



Flap Lever & Follow-up System

Aileron and Flap Cables Pass Through Cabin



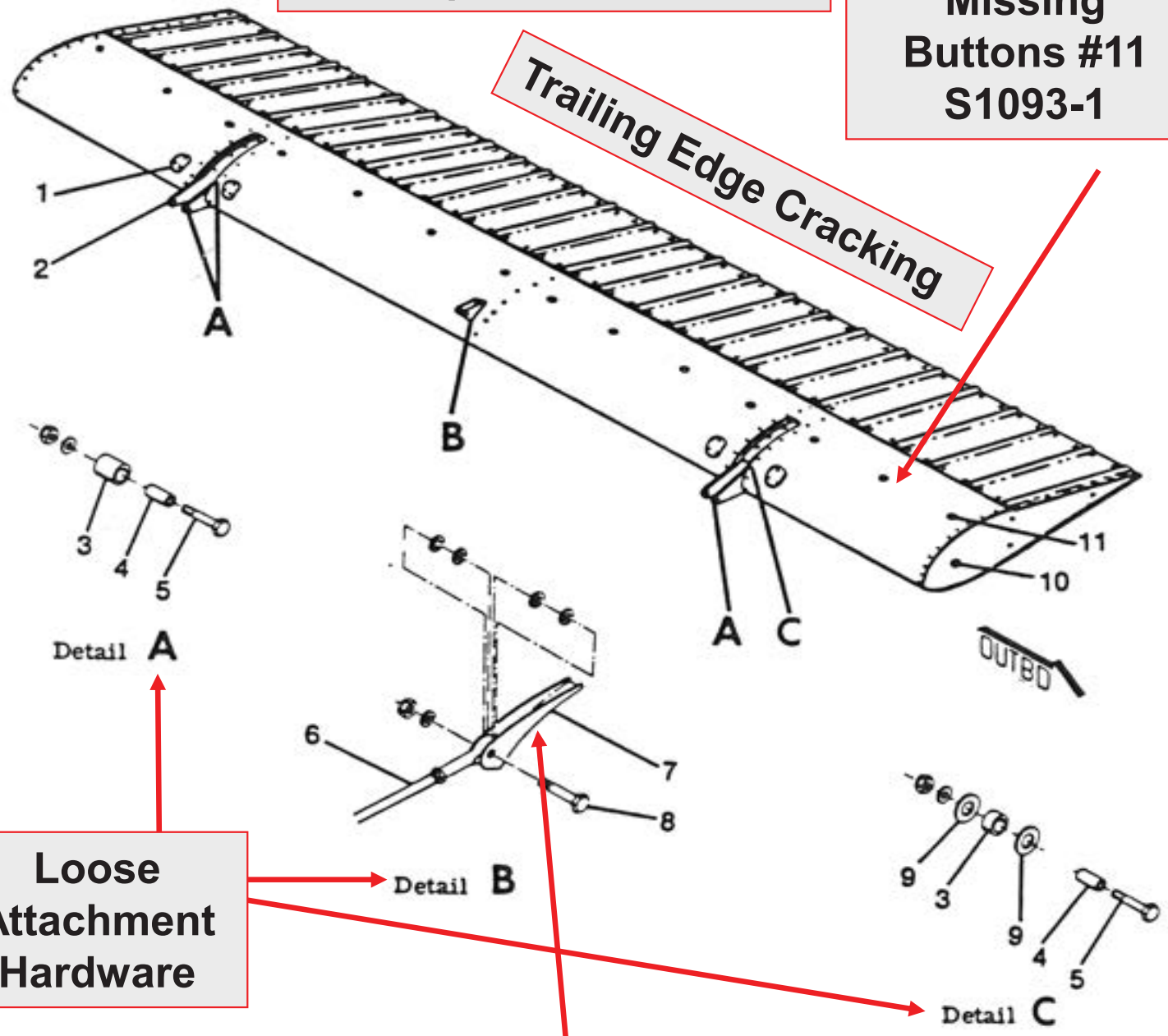


Flap Installation

Pre-Flight Inspection Items

Missing Buttons #11 S1093-1

Trailing Edge Cracking

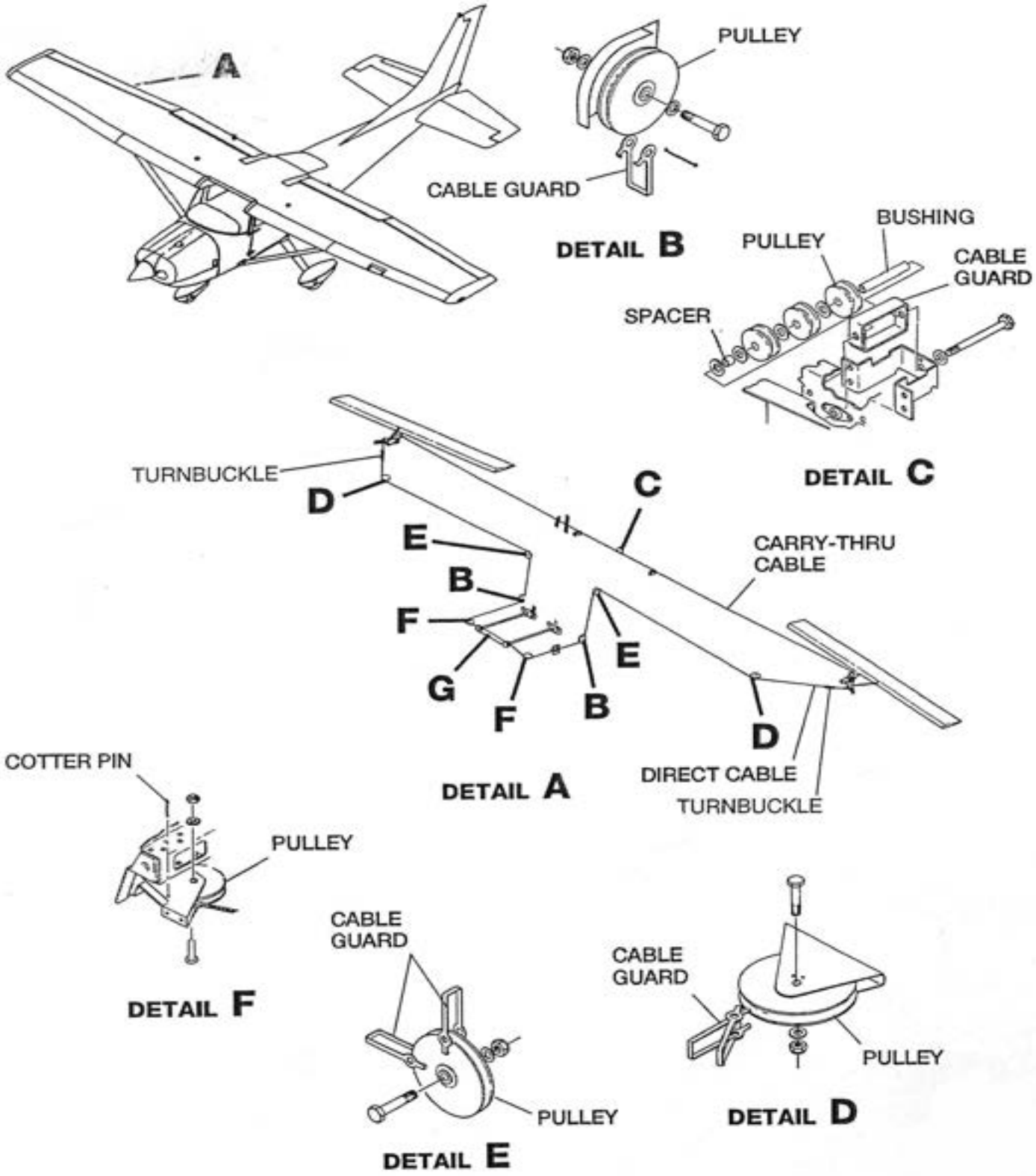


Loose Attachment Hardware

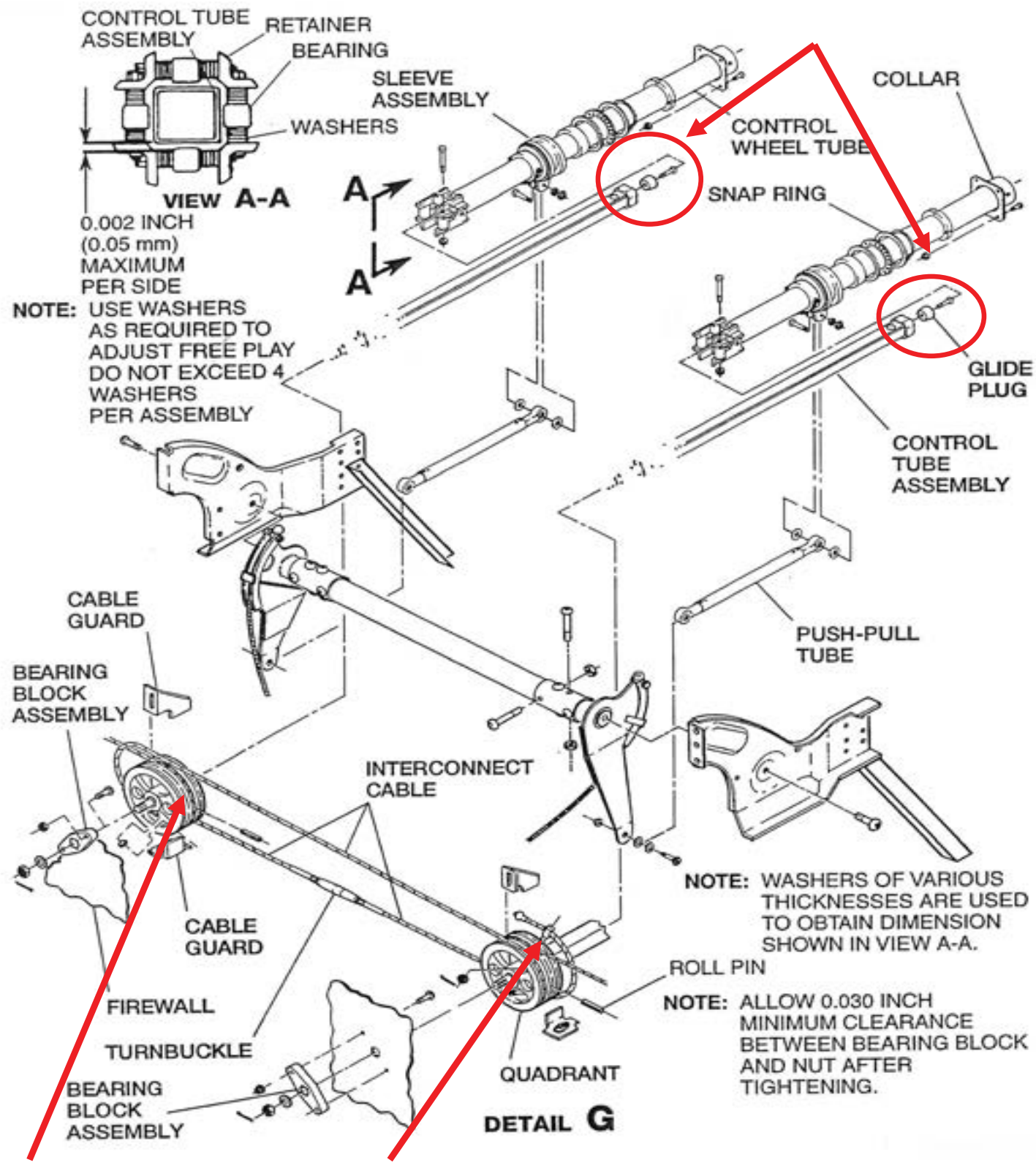
SB03-27-02 Bracket Attachment Screws

1. Cover Plate
2. Flap Support
3. Roller Assembly
4. Bushing
5. Bolt
6. Push-Pull Rod
7. Flap Bracket
8. Bolt
9. Spacer
10. Plug Button
11. Nylon Plug Button

Aileron Control System



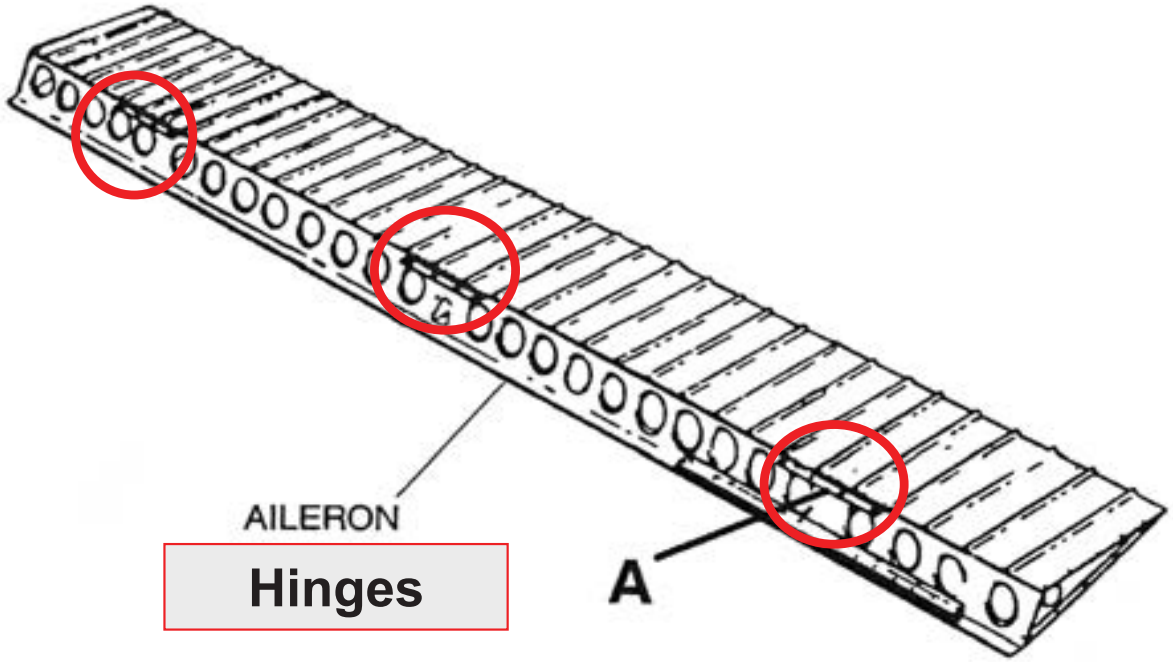
SEB-27-01-R02 Glide Attach Screw



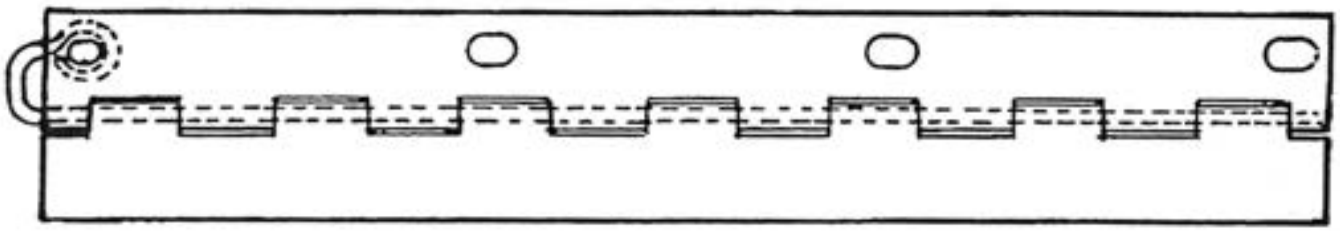
SB00-27-02R1 Cable Quadrant Inspection

Aileron Control Surface

Pre-Flight Inspection Items



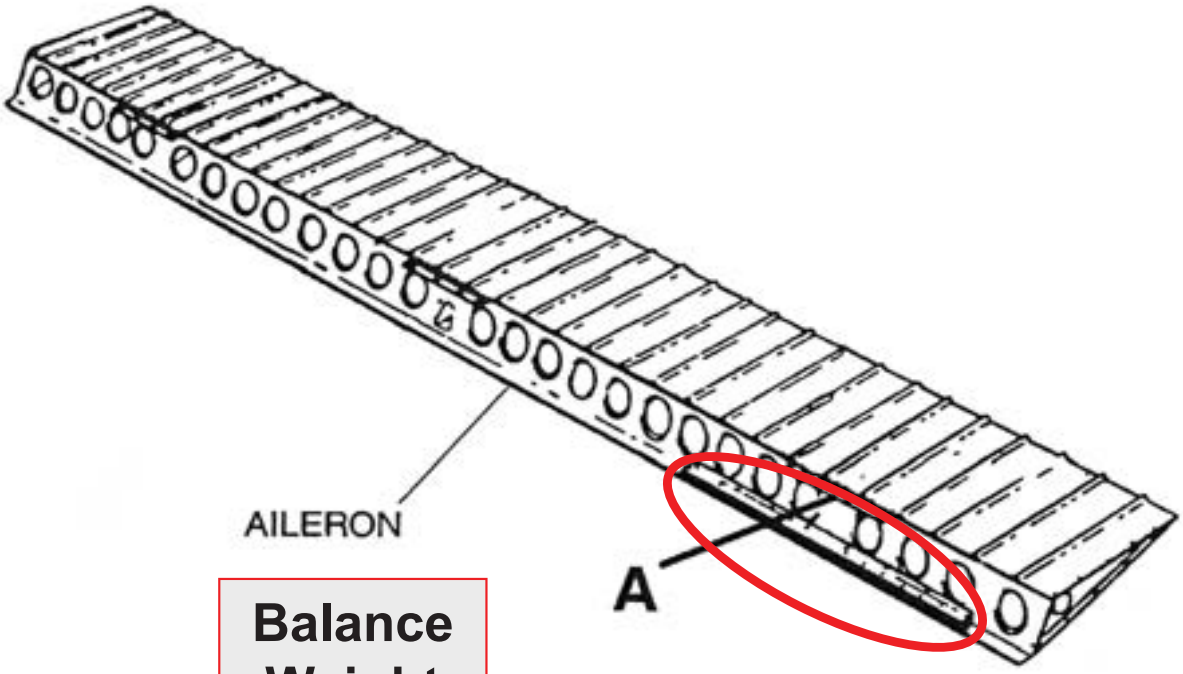
Hinges



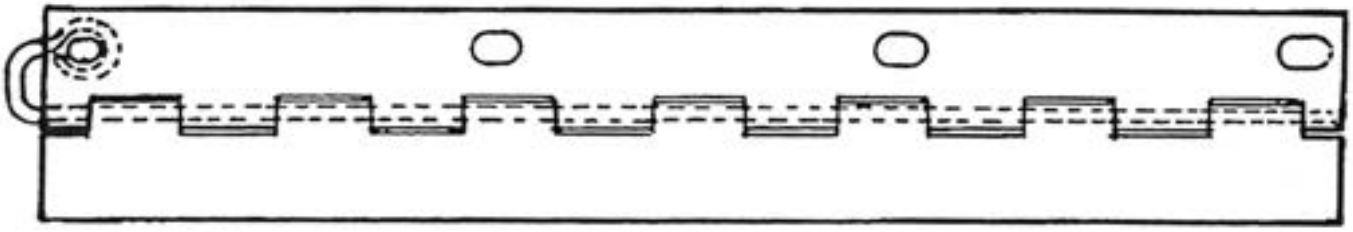
DETAIL **A**
AILERON HINGE

Aileron Control Surface

Pre-Flight Inspection Items



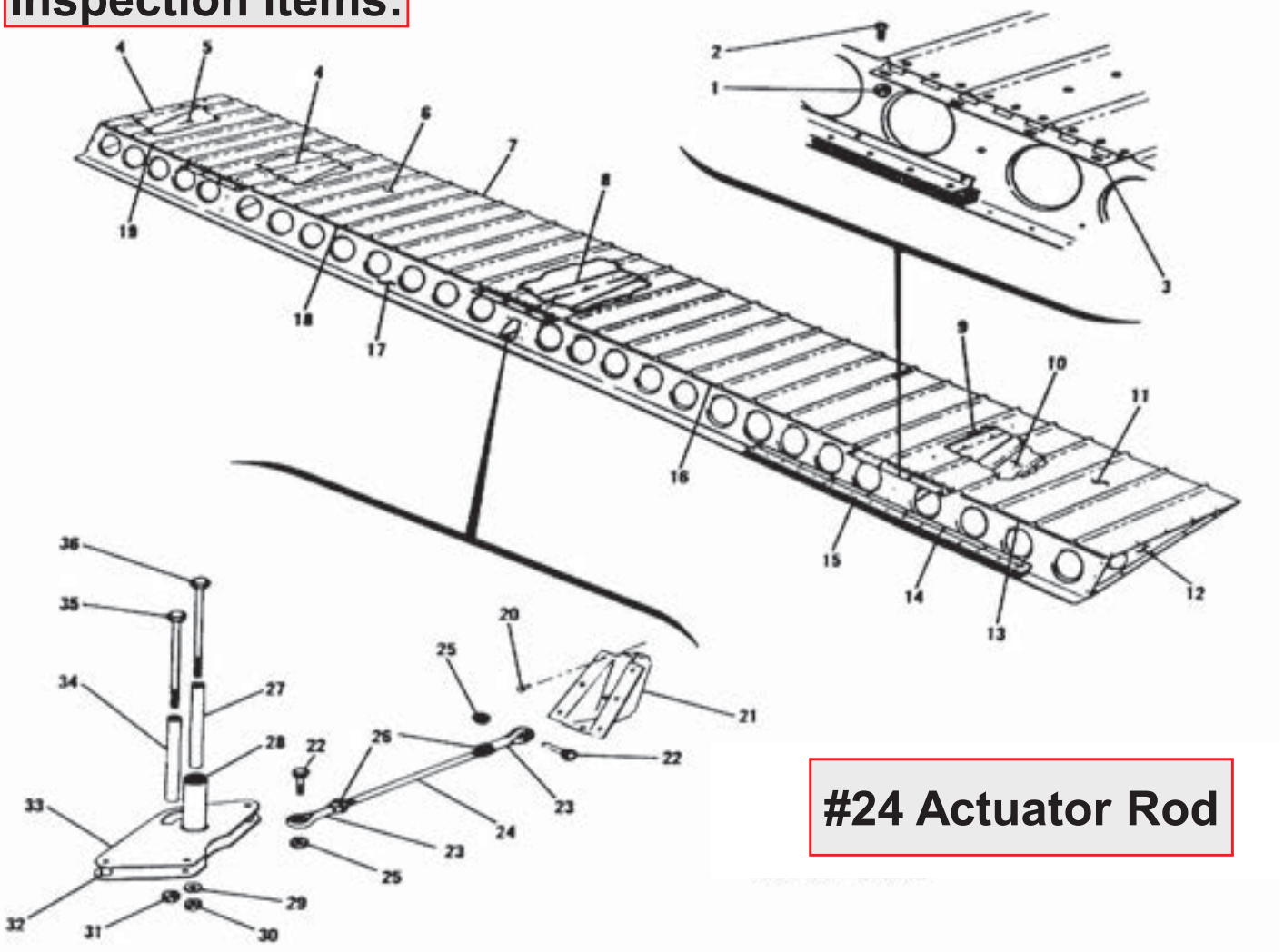
Balance Weight Rivets



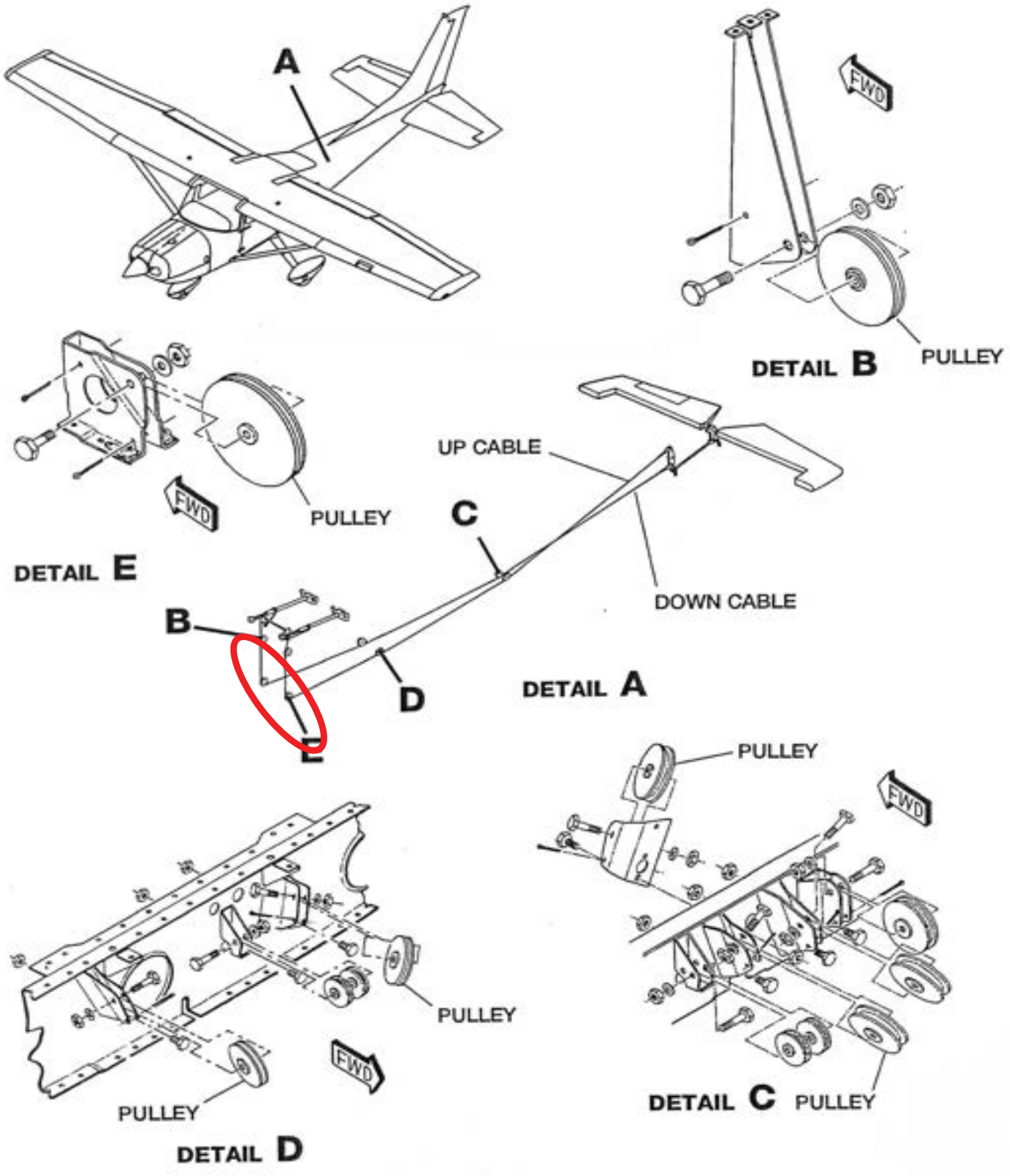
DETAIL A
AILERON HINGE

Aileron bellcrank

Pre-Flight Inspection items:



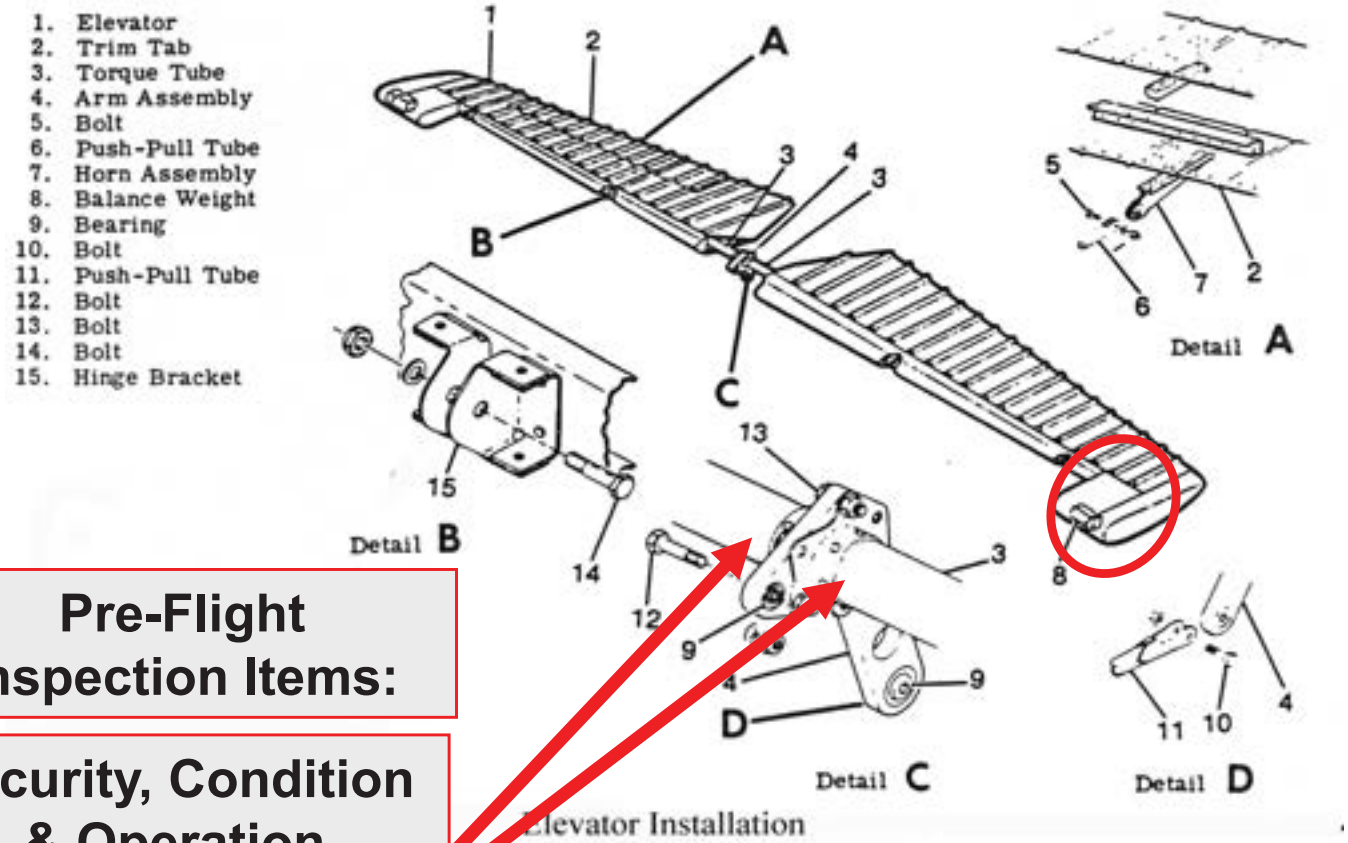
Elevator Control System



SB00-27-01R1
Pulley Bracket Alignment Insp

Elevator Bellcrank Installation

Elevator Trim Tab



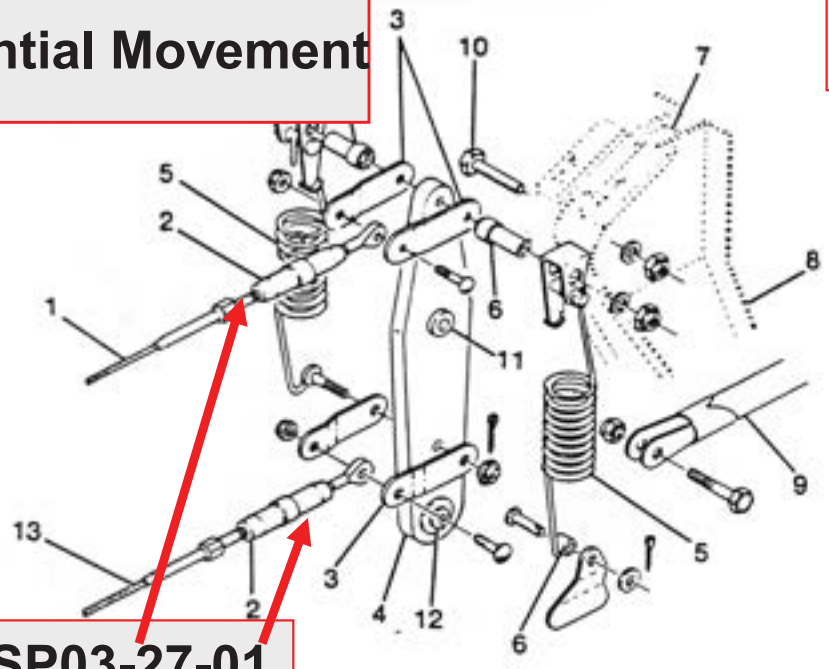
Pre-Flight Inspection Items:

Security, Condition & Operation

Differential Movement

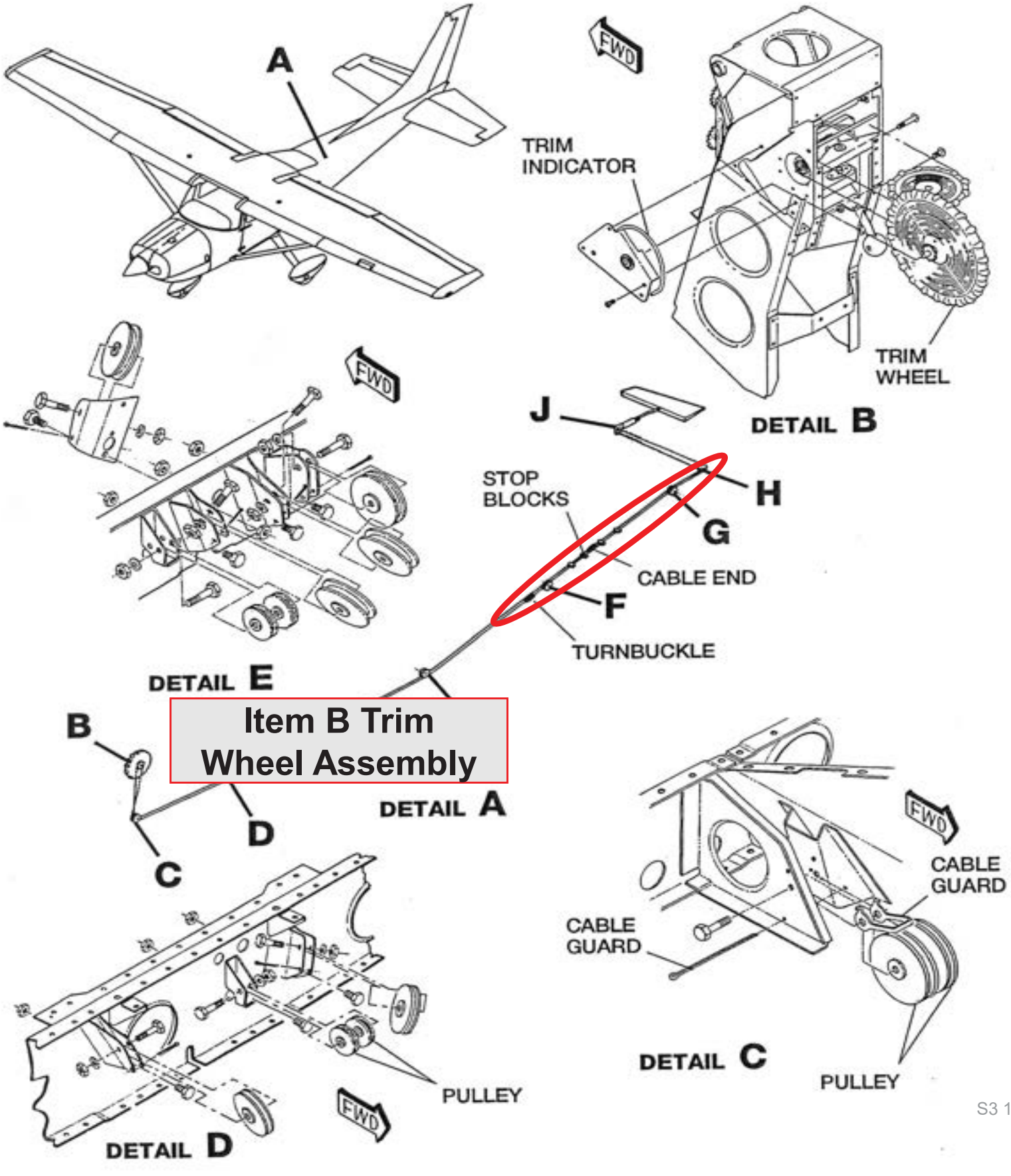
SB00-55-01 Elevator Rivet Inspection

SB04-27-01R1 Wrong Rivets Inside Elevator



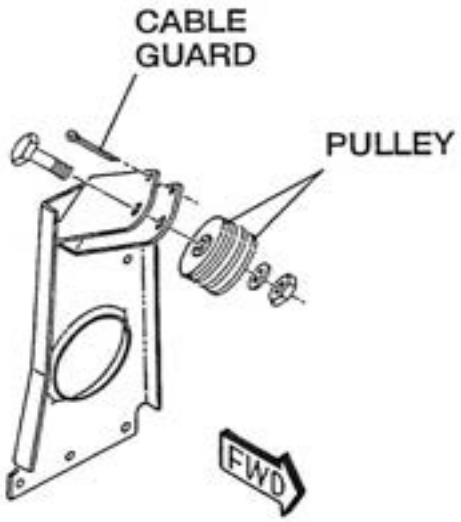
SSP03-27-01 Safety Wire Turnbuckles

Elevator Trim Tab Control System

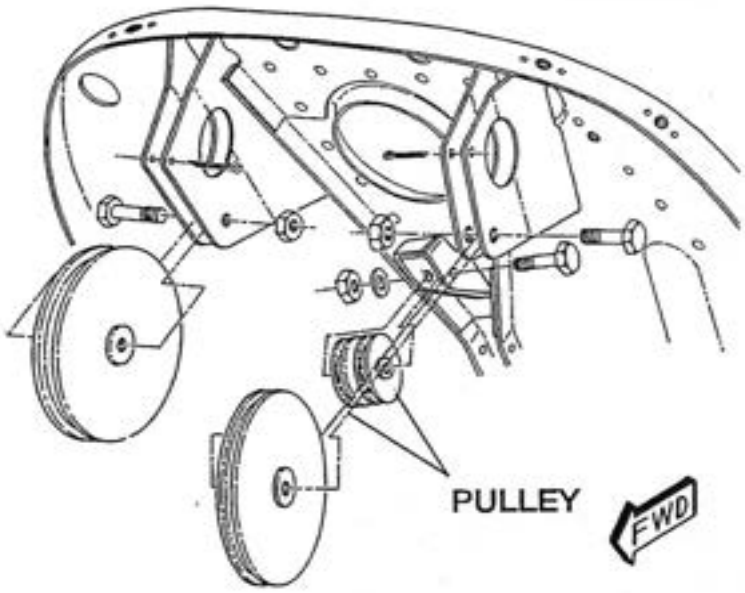


Elevator Trim Actuator Installation

F.S. 209 Bulkhead

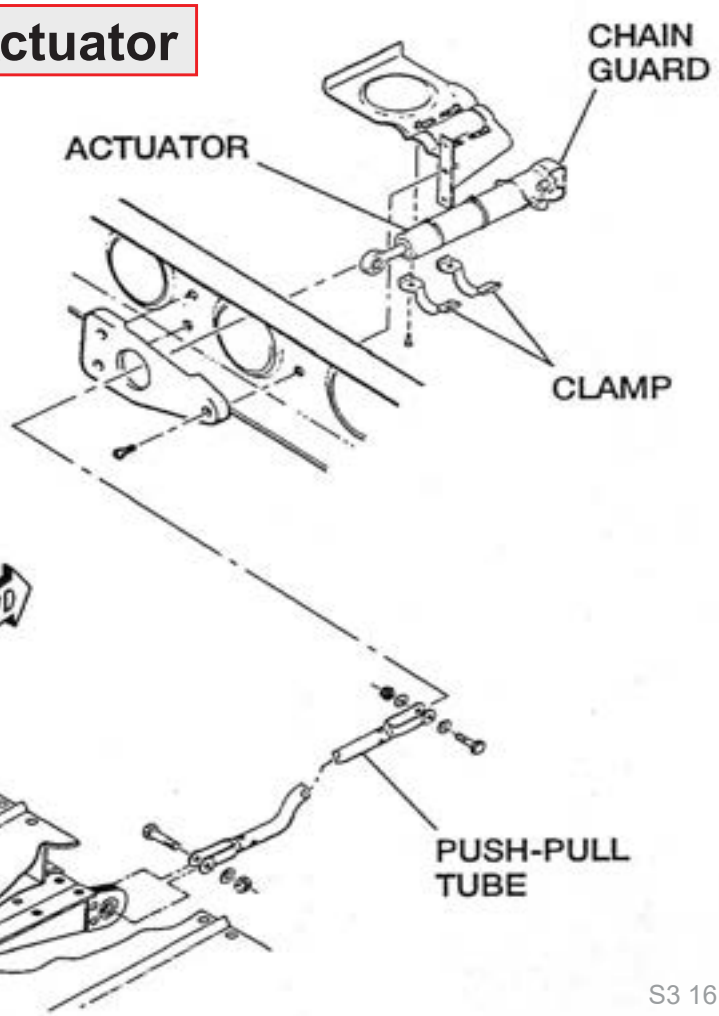


DETAIL F

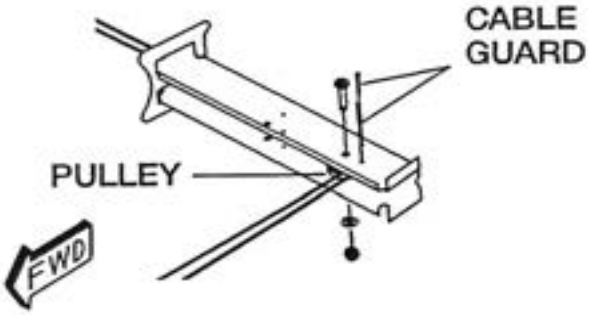


DETAIL G

Actuator

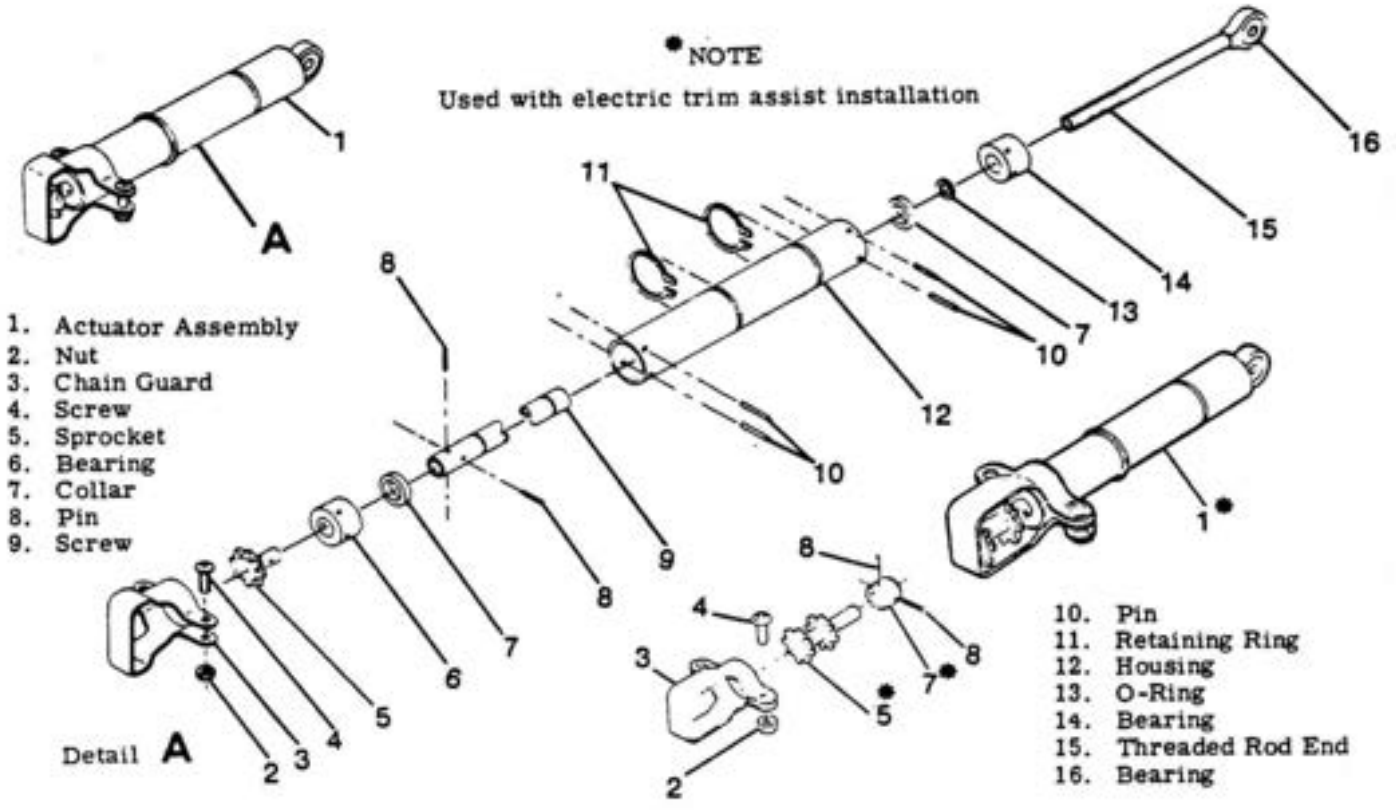


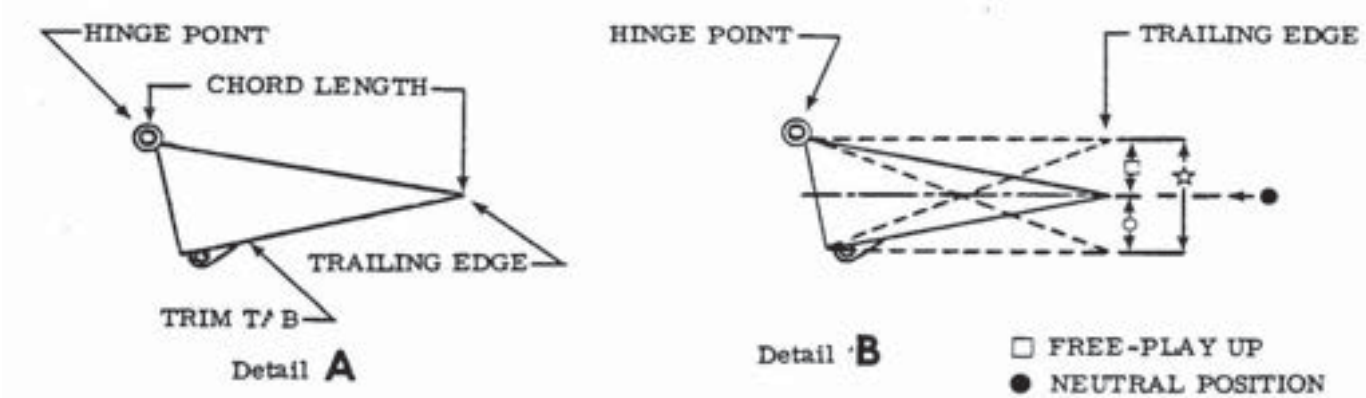
DETAIL J



DETAIL H

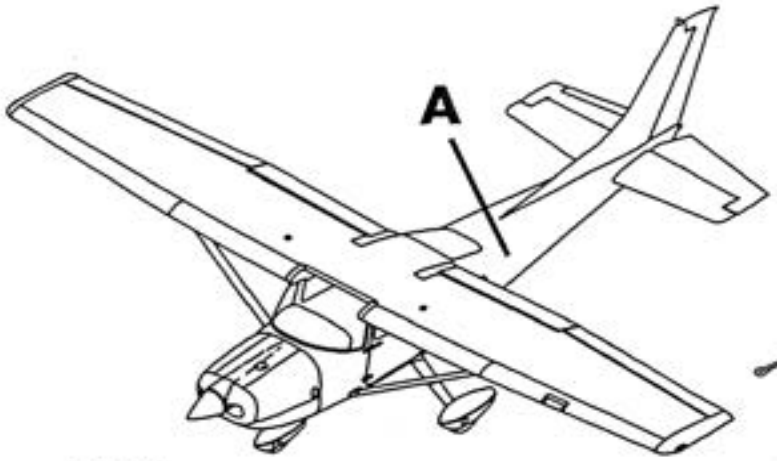
Trim Tab Free Play Inspection

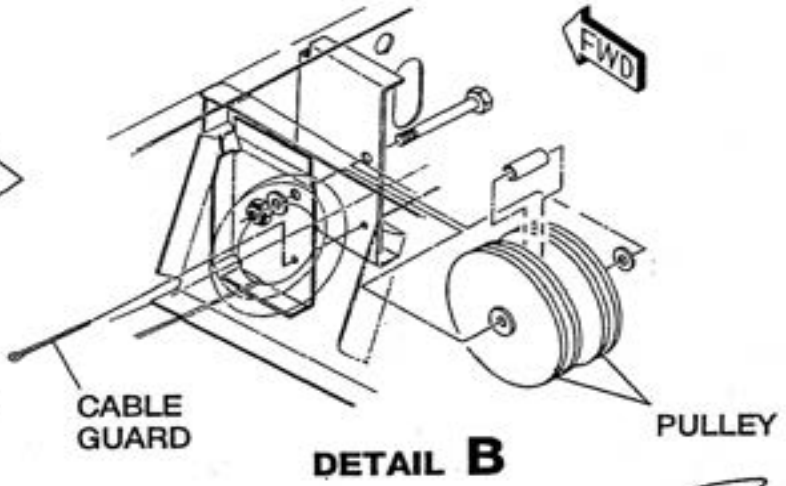




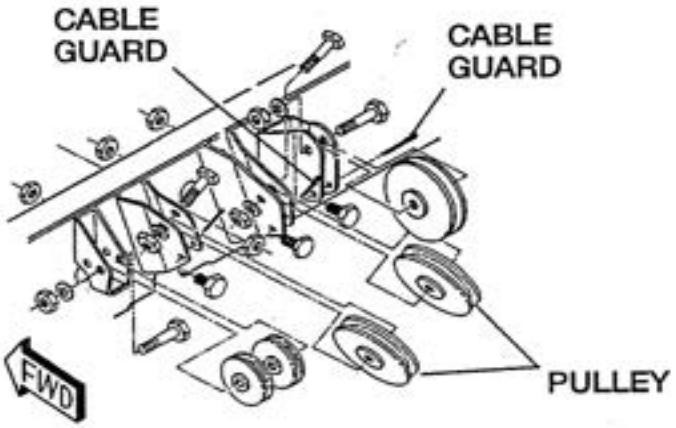
1. Measure chord length at extreme inboard end of trim tab as shown in detail A.
2. Mulitiply chord length by 0.025 to obtain maximum allowable free-play.
3. Measure free-play at same point on trim tab that chord length was measured.
4. Total free-play must not exceed maximum allowable. See detail B.

Rudder Control System

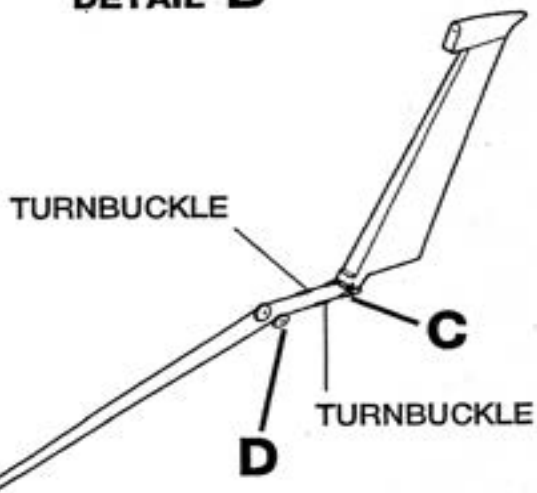




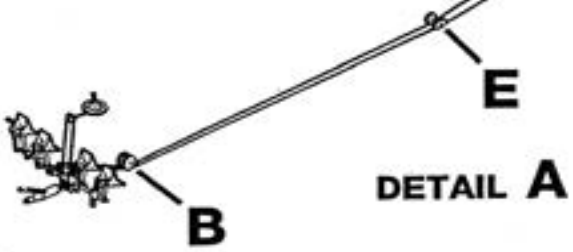
DETAIL B



DETAIL E

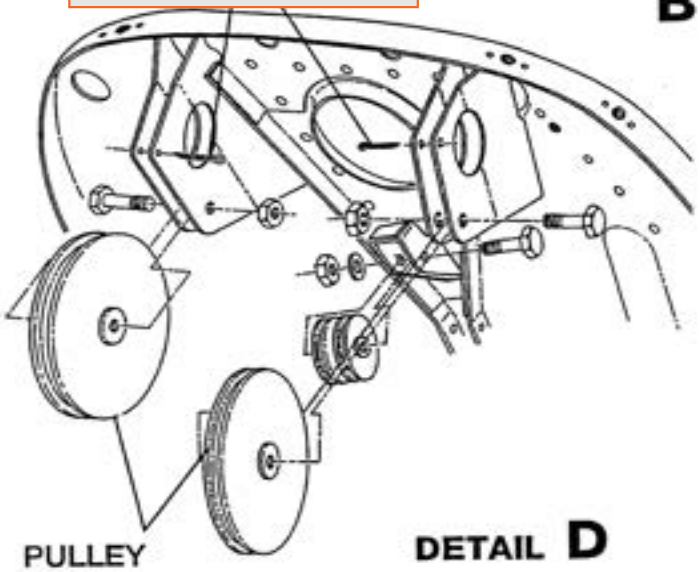


Rudder Pedal Installation

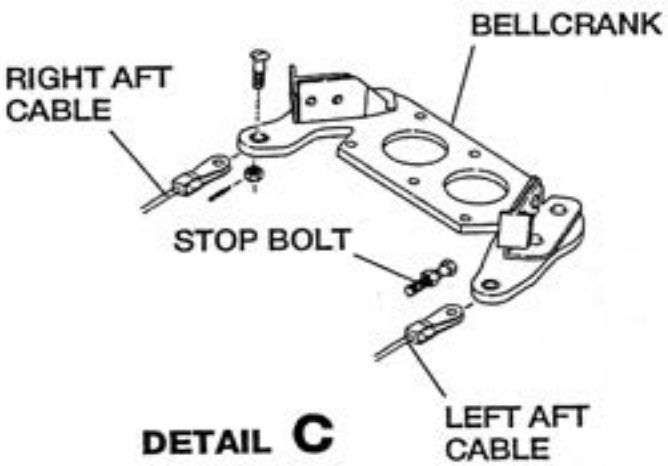


DETAIL A

Rudder Control Surface

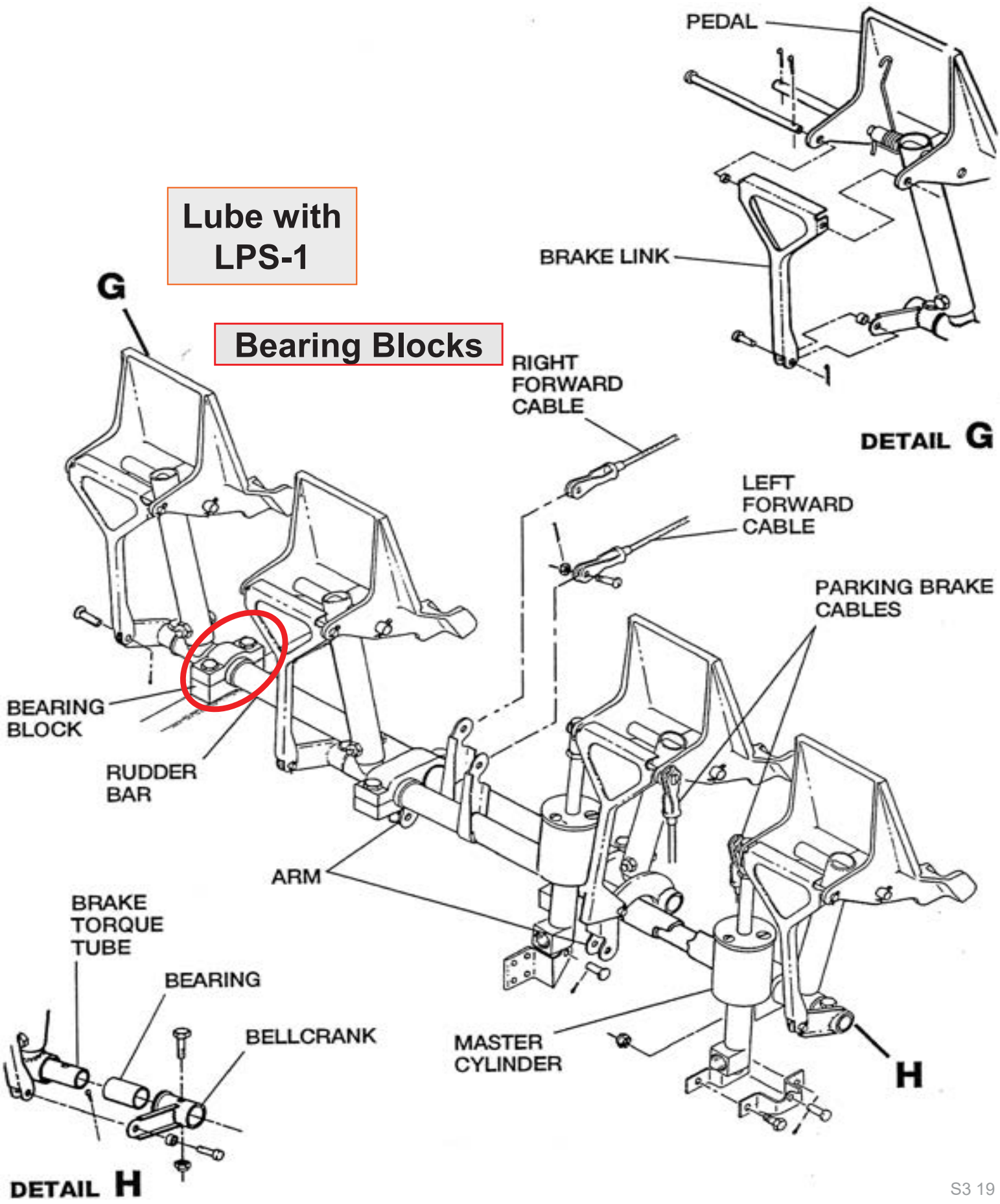


DETAIL D

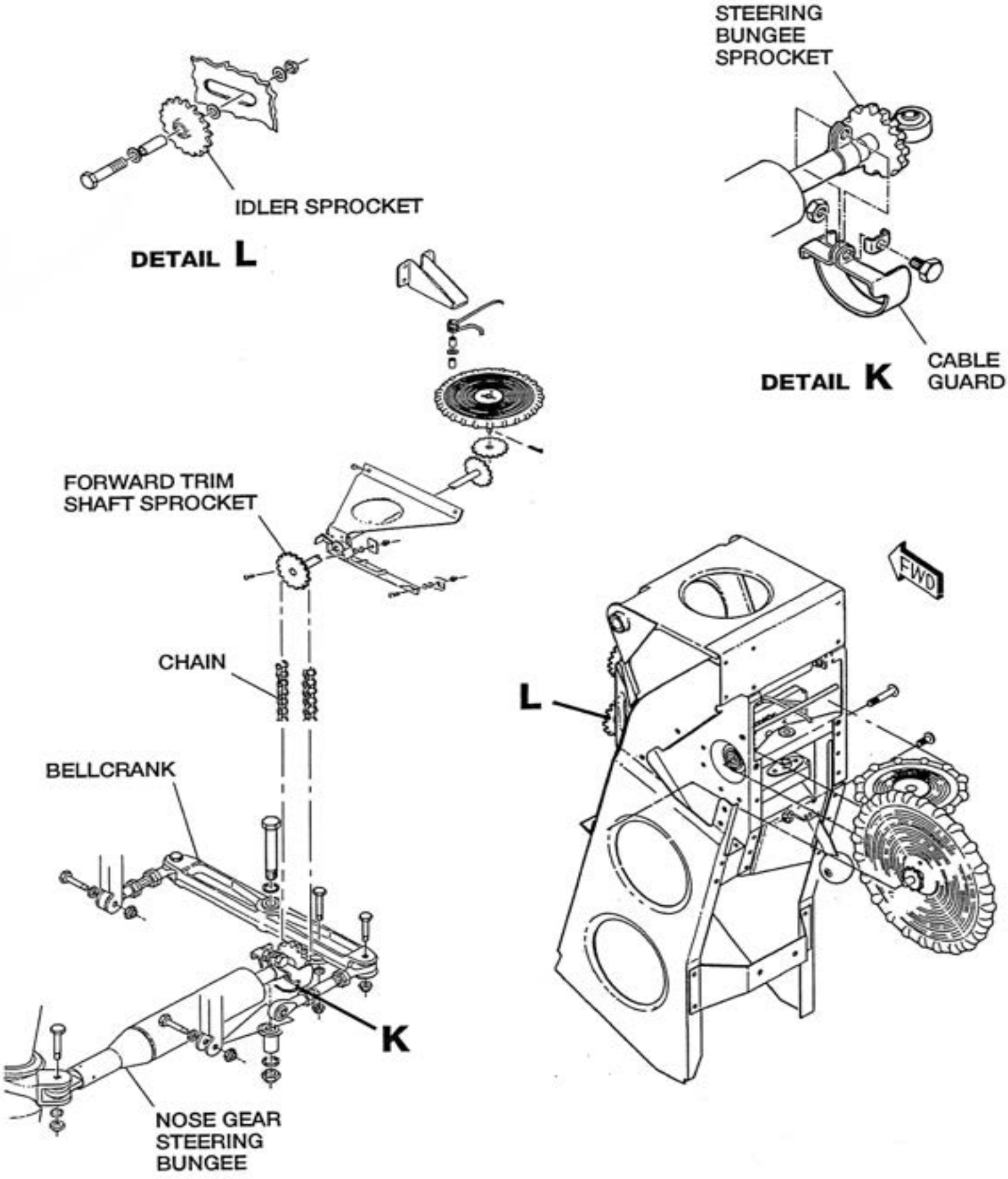


DETAIL C

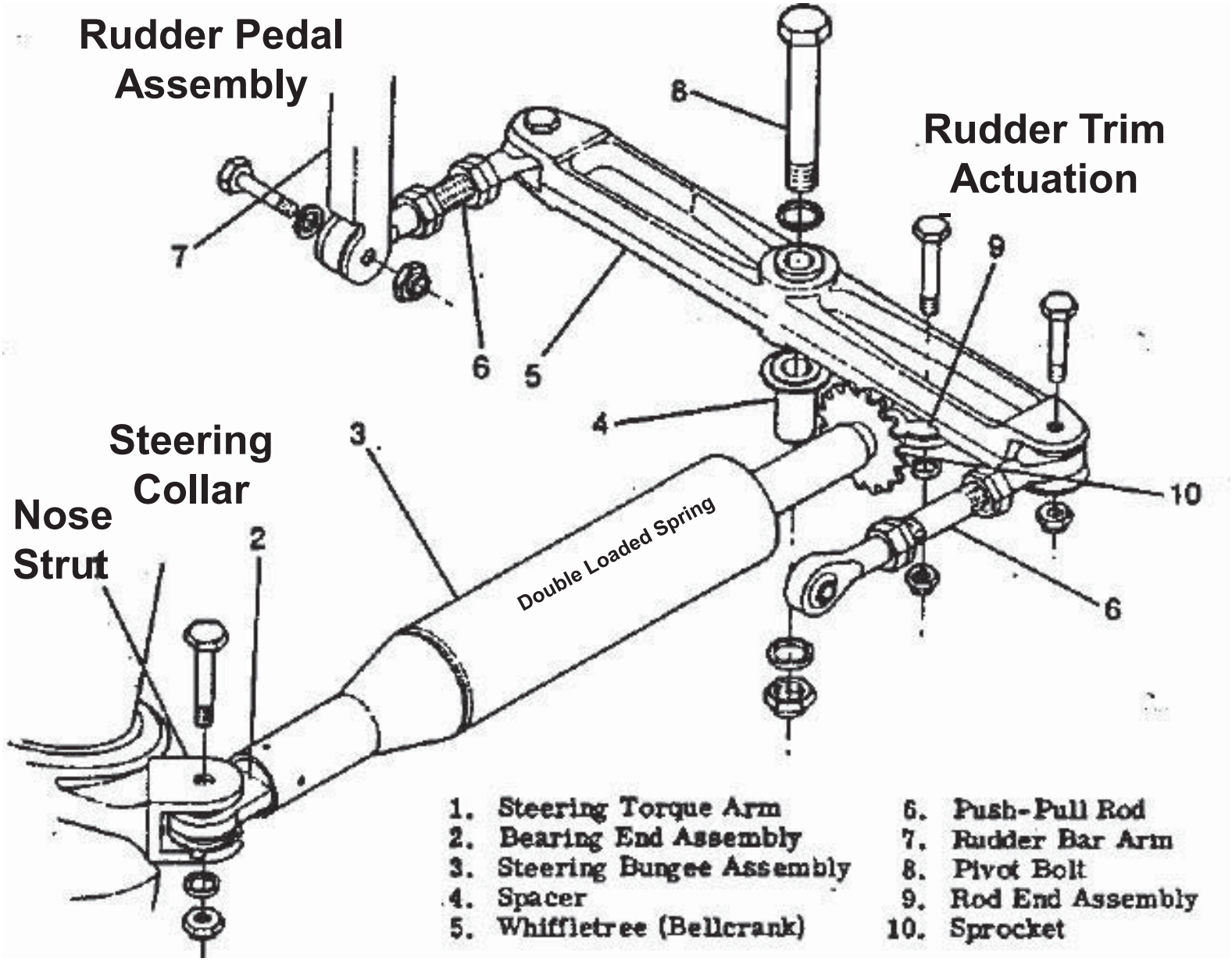
Rudder Pedal Installation



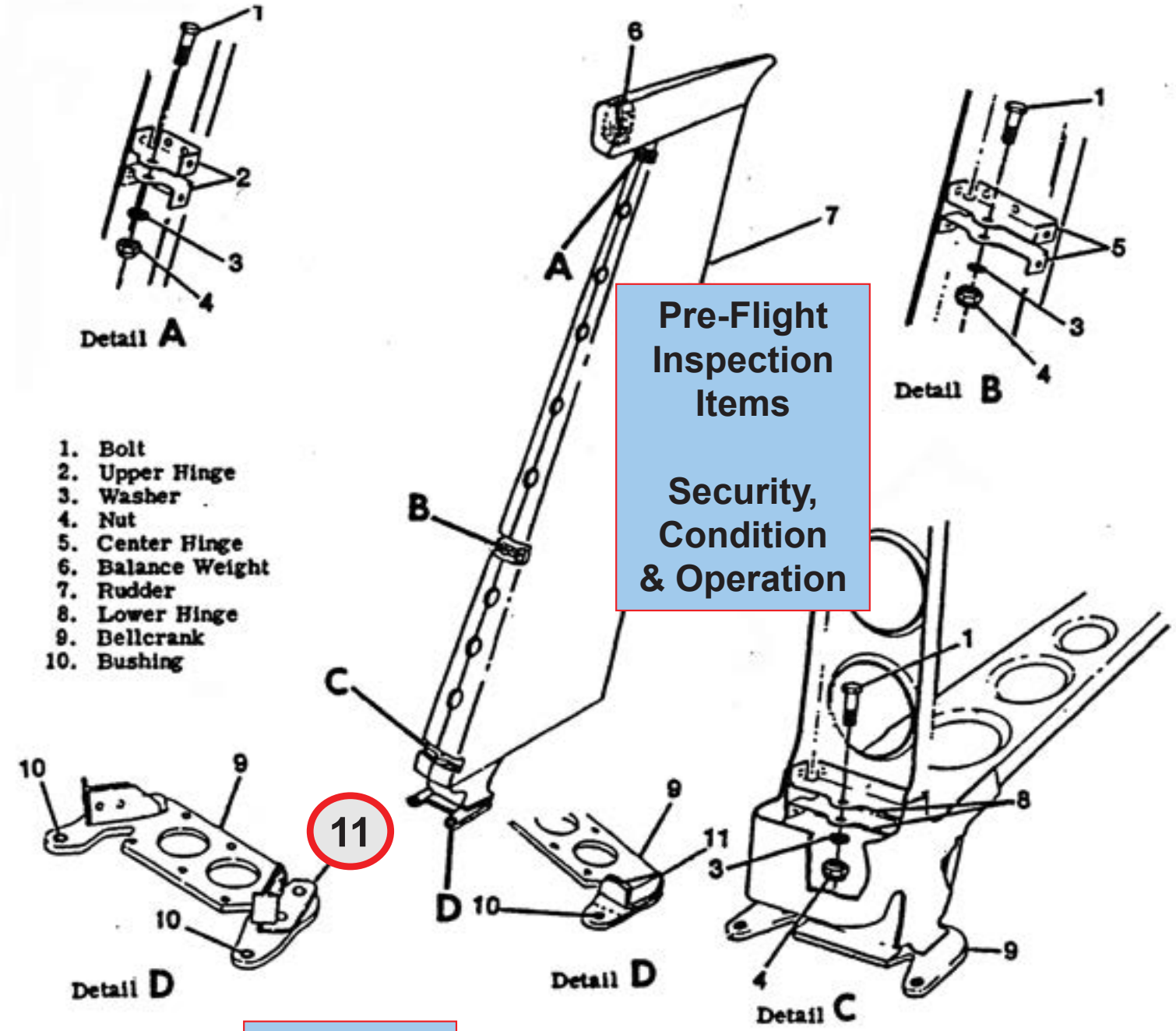
Rudder Trim Control Installation



Bungee Installation



Lube A, B & C with LPS-1



Pre-Flight Inspection Items

Security, Condition & Operation

#11 Rudder Stop

CESSNAPILOTS
ASSOCIATION

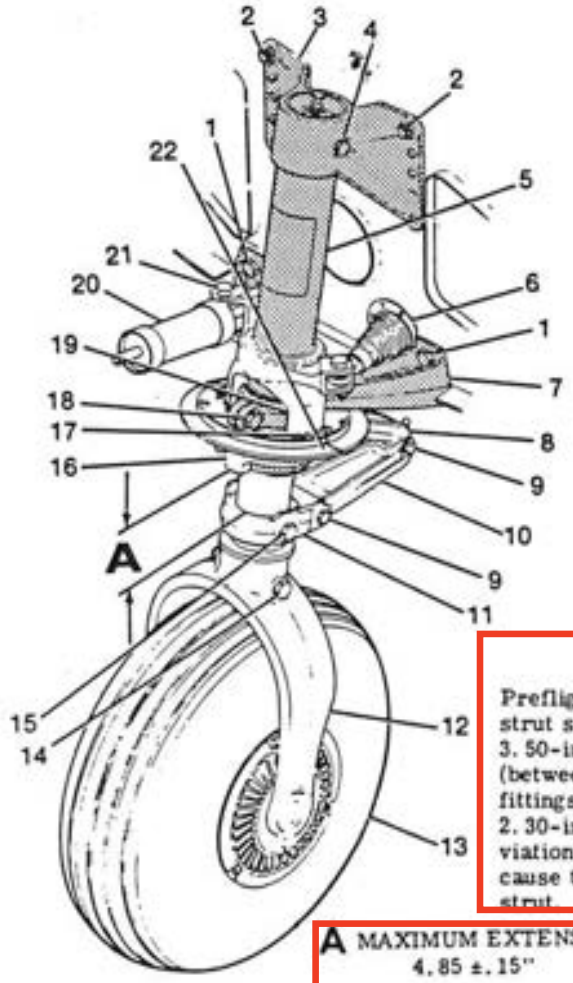
182S, 182T, T182T Skylane

Landing Gear

Section Four

Nose Gear Installation

Strut Extension



NOTE

Unshaded parts of the nose gear turn as the nose gear steering system is operated on the ground, but do not turn while airborne. As the lower strut extends, a centering block on the upper torque link contacts a flat spot on the bottom end of the upper strut, thus keeping the lower strut and wheel from turning.

NOTE

Preflight inspection of nose gear strut should reveal 1.75-inch to 3.50-inch of nose strut barrel (between torque link attachment fittings)showing (or approximately 2.30-inch after bouncing). Deviation from these dimensions are cause to check and service the strut.

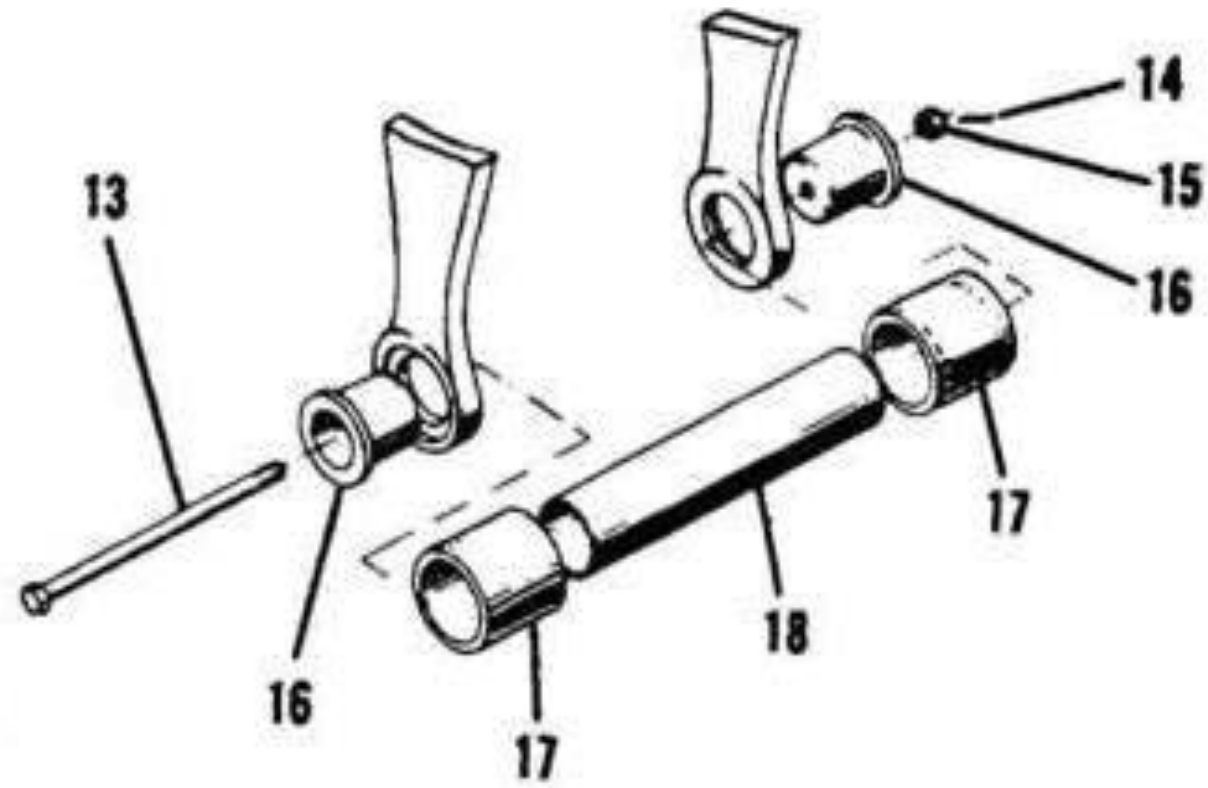
A MAXIMUM EXTENSION
4.85 ±.15"

1. Bolt
2. Bolt
3. Upper Forging
4. Bolt
5. Upper Strut
6. Steering Bungee
7. Lower Forging
8. Upper Torque Link
9. Bolt
10. Lower Torque Link
11. Torque Link Fitting
12. Nose Gear Fork
13. Wheel and Tire
14. Bolt
15. Bolt
16. Steering Collar
17. Screw
18. Bolt
19. Steering Torque Arm
20. Shimmy Dampener
21. Bolt
22. Closure Assembly

13. Bolt
14. Cotter Pin
15. Nut
16. Axle Bolt Bucket
17. Axle Spacer
18. Axle Tube

AXLE INSTALLATION

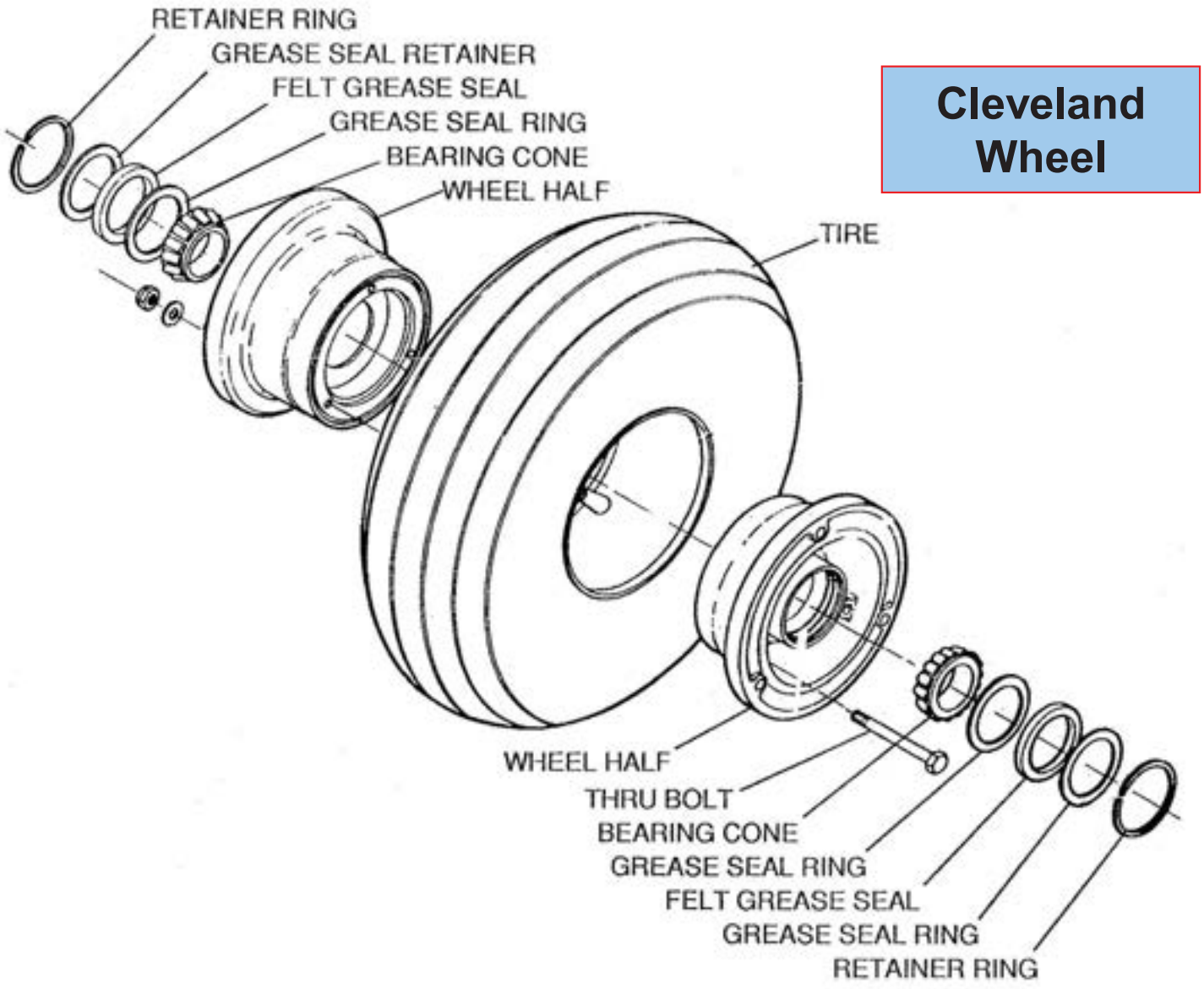
Axle Installation



13. Bolt
14. Cotter Pin
15. Nut
16. Axle Bolt Bucket
17. Axle Spacer
18. Axle Tube

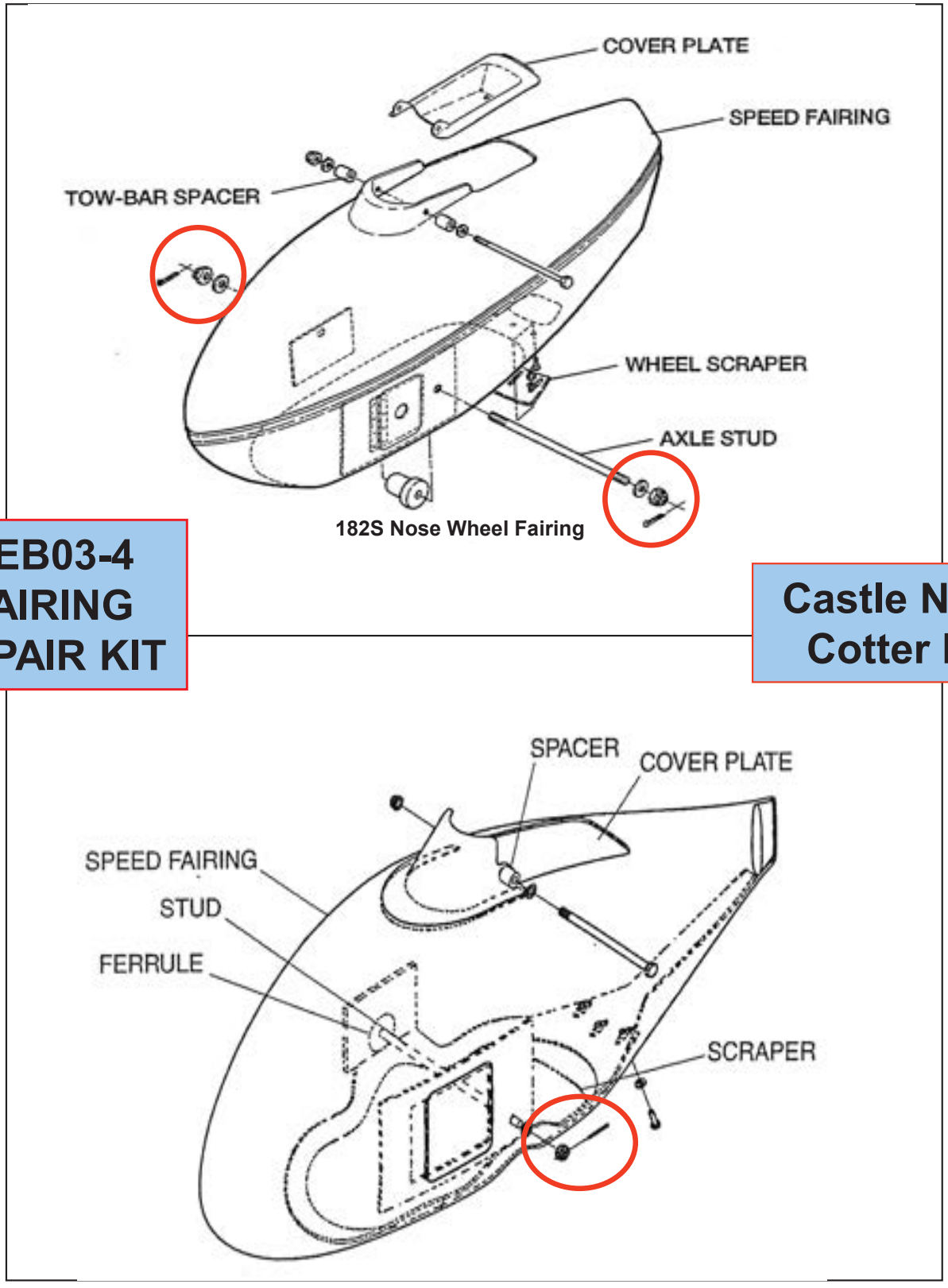
AXLE INSTALLATION

Nose Gear Wheel and Tire Assembly



Cleveland Wheel

182T Nose Wheel Fairing



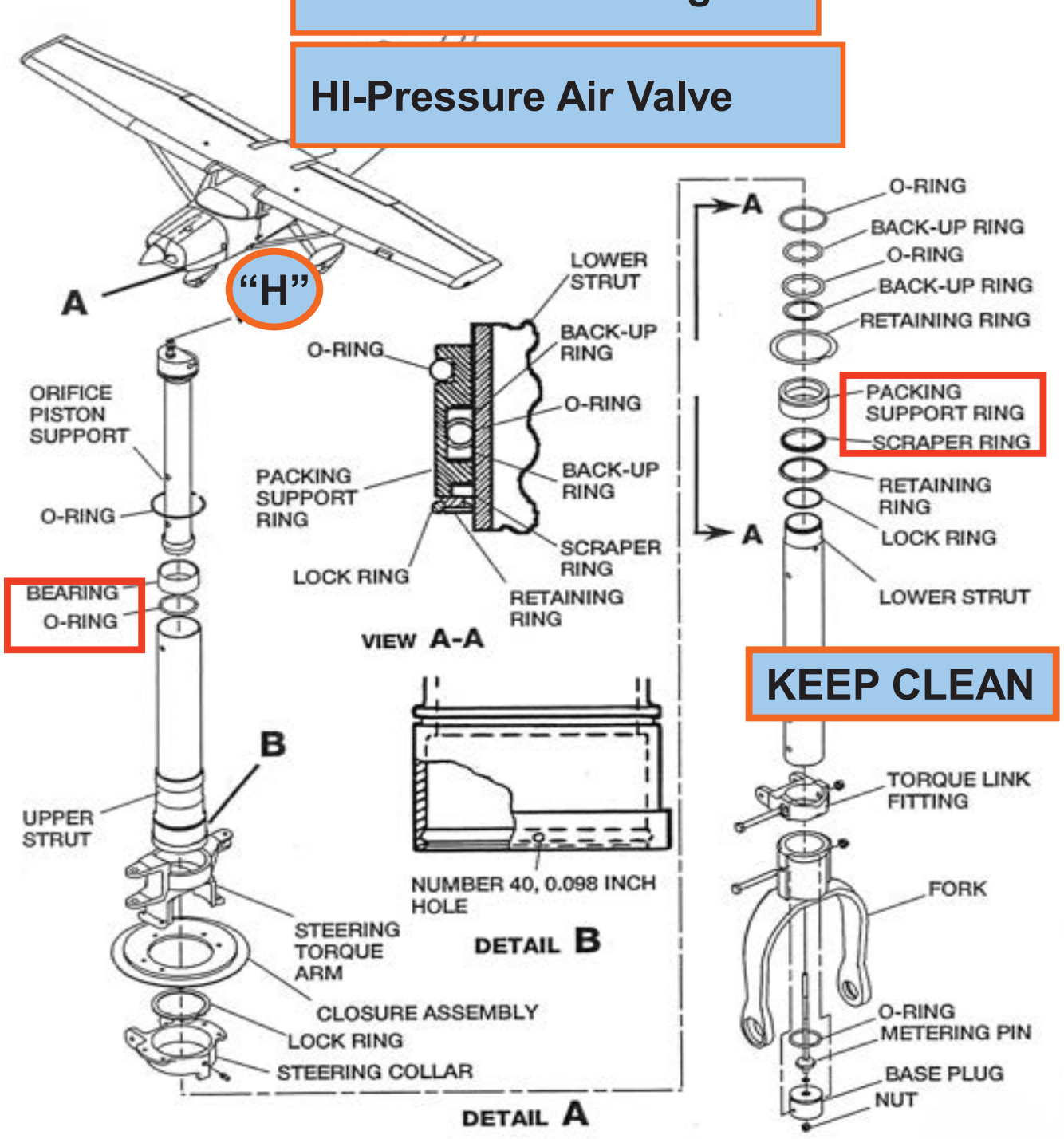
Nose Gear Shock Strut Assembly

Servicing the Nose Strut:

SK172-1F Seal Kit

MIL-H-5606 & Nitrogen

HI-Pressure Air Valve



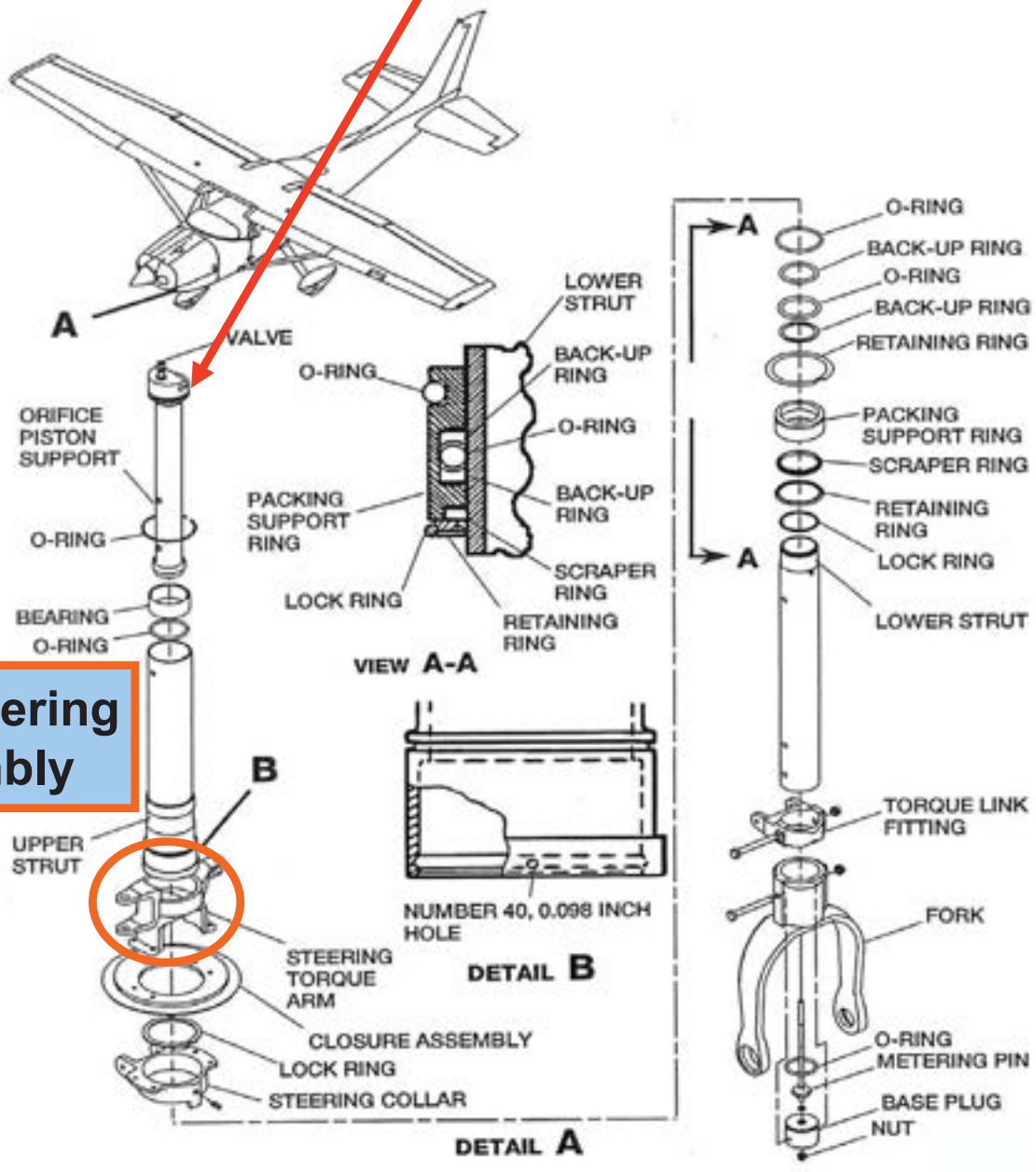
KEEP CLEAN

Evidence of External Hydraulic Fluid

Nose Gear Shock Strut Assembly

SEB-32-02 Strut Tube Replacement

Aluminum back to Steel-Orifice Piston Support



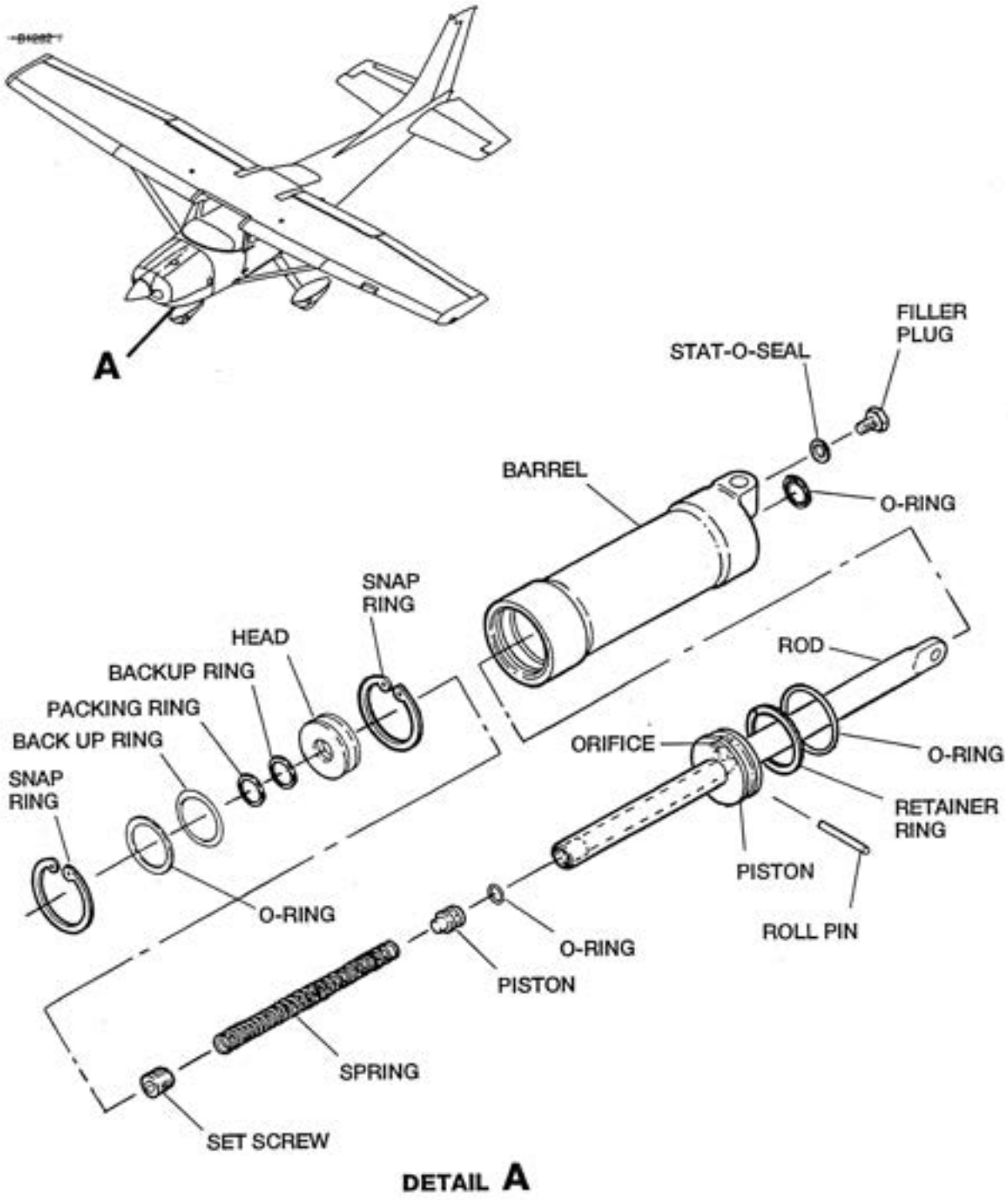
Cracks in Steering Arm Assembly

Shimmy Dampener

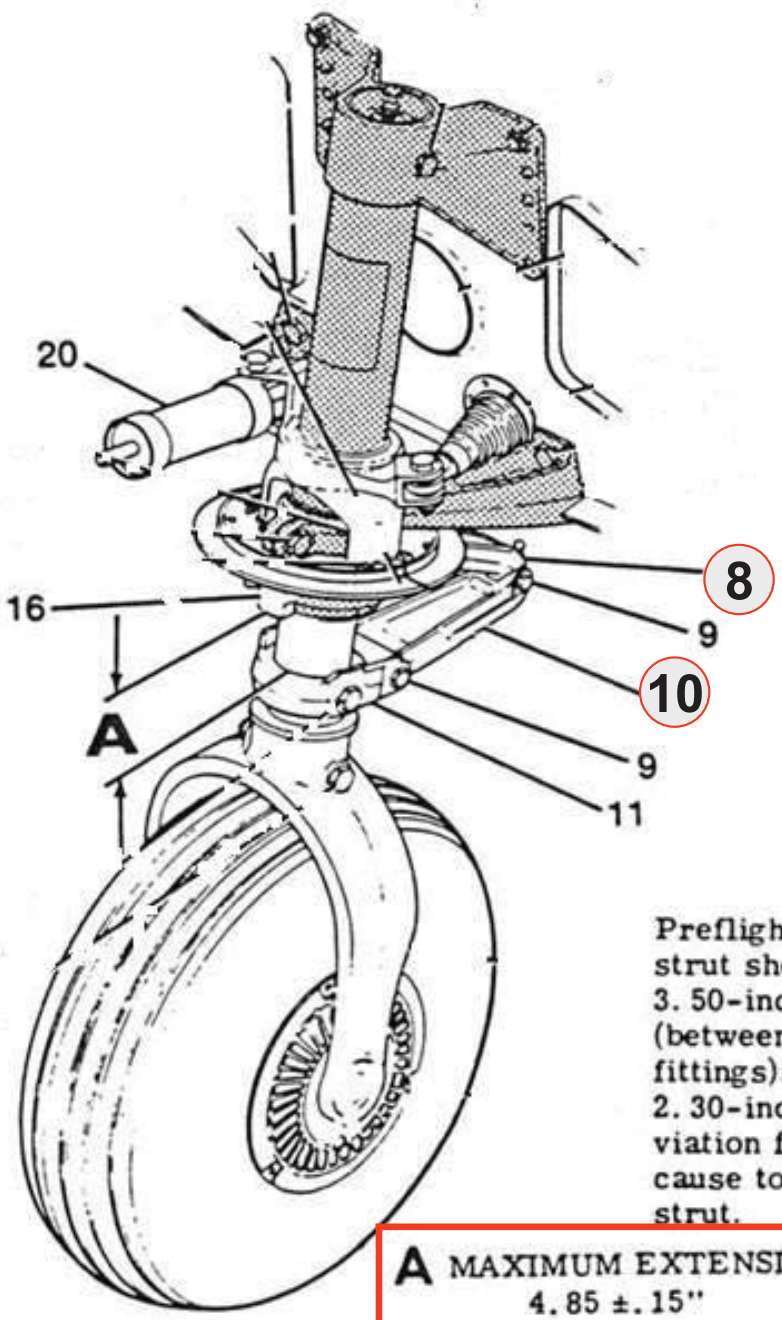
182S thru 182811997

182T thru T18208185

Use This Dampener As Original Equipment



Torque Links



8. Upper Torque Link
9. Bolt
10. Lower Torque Link
11. Torque Link Fitting

16. Steering Collar

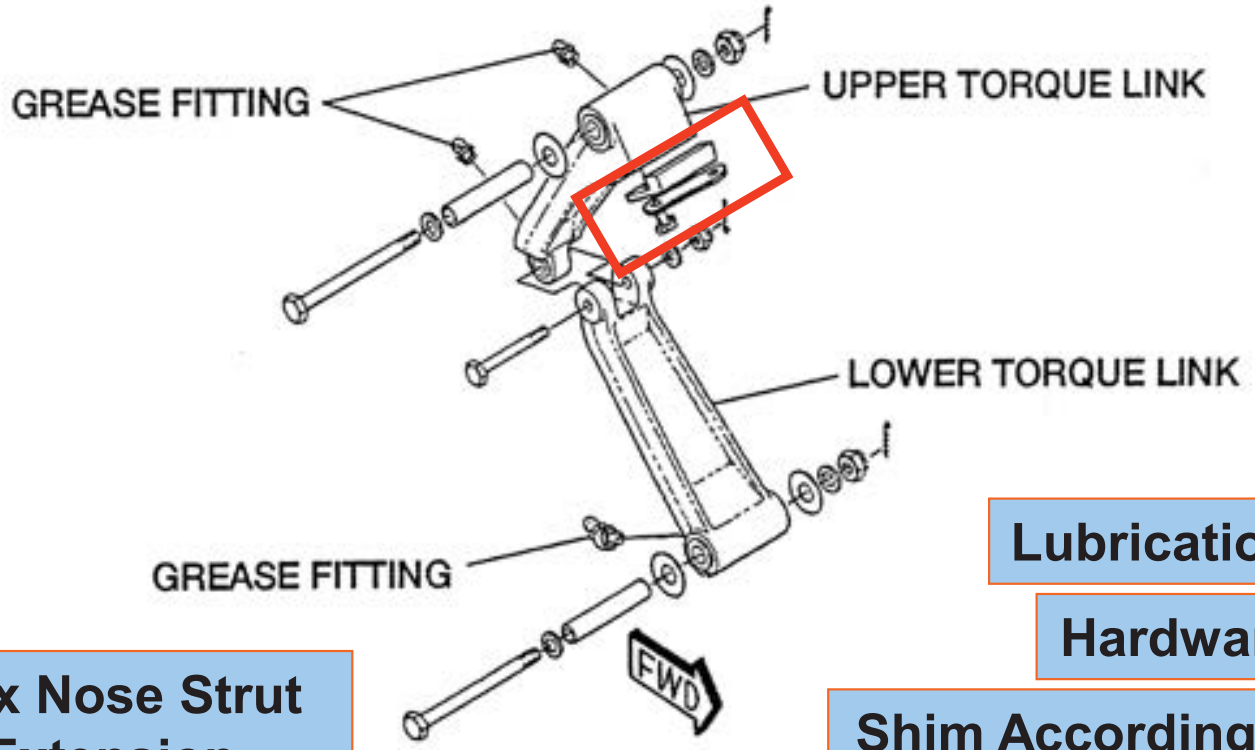
20. Shimmy Dampener

NOTE

Preflight inspection of nose gear strut should reveal 1.75-inch to 3.50-inch of nose strut barrel (between torque link attachment fittings) showing (or approximately 2.30-inch after bouncing). Deviation from these dimensions are cause to check and service the strut.

A MAXIMUM EXTENSION
4.85 ±.15"

Torque Links



Lubrication

Hardware

Shim Accordingly

Spacers & Bushings

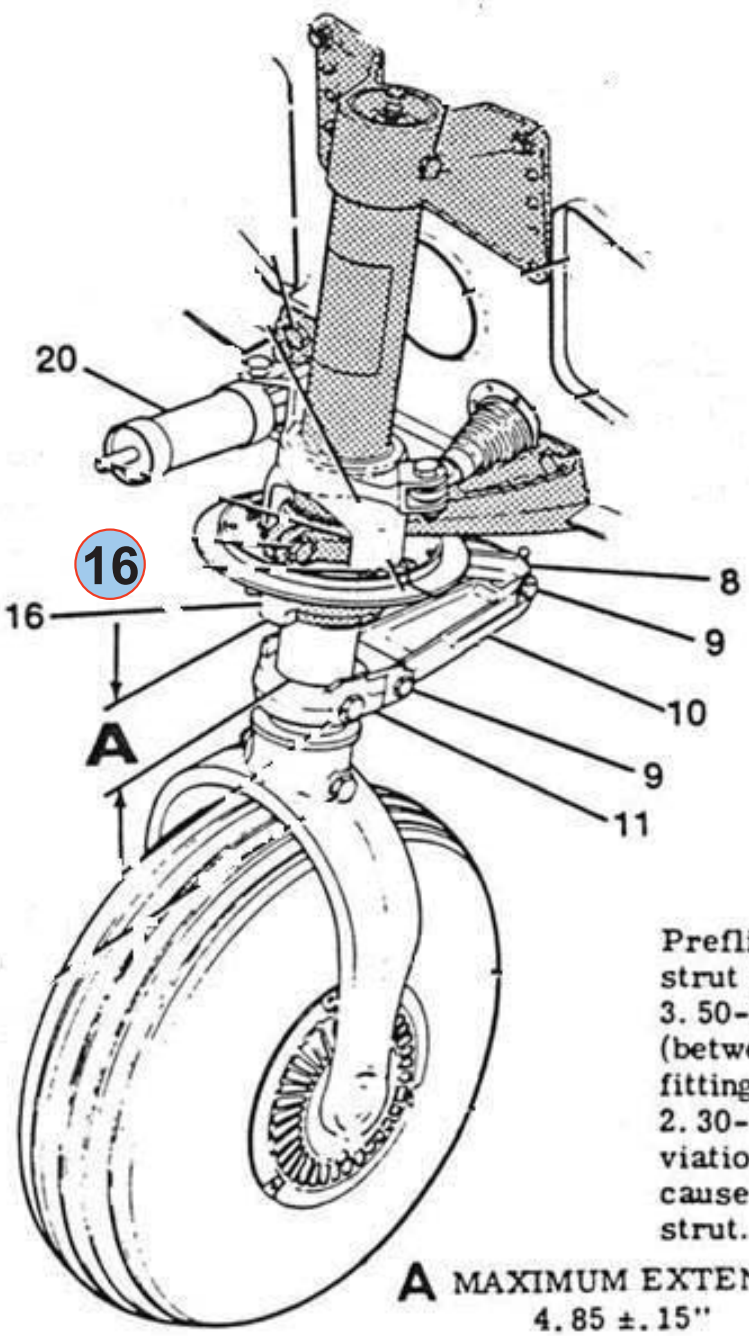
Max Nose Strut Extension

5 Inches

Shims Added

Turn Limits

Cracks in Steering Arm Assembly



8. Upper Torque Link
9. Bolt
10. Lower Torque Link
11. Torque Link Fitting
16. Steering Collar
20. Shimmy Dampener

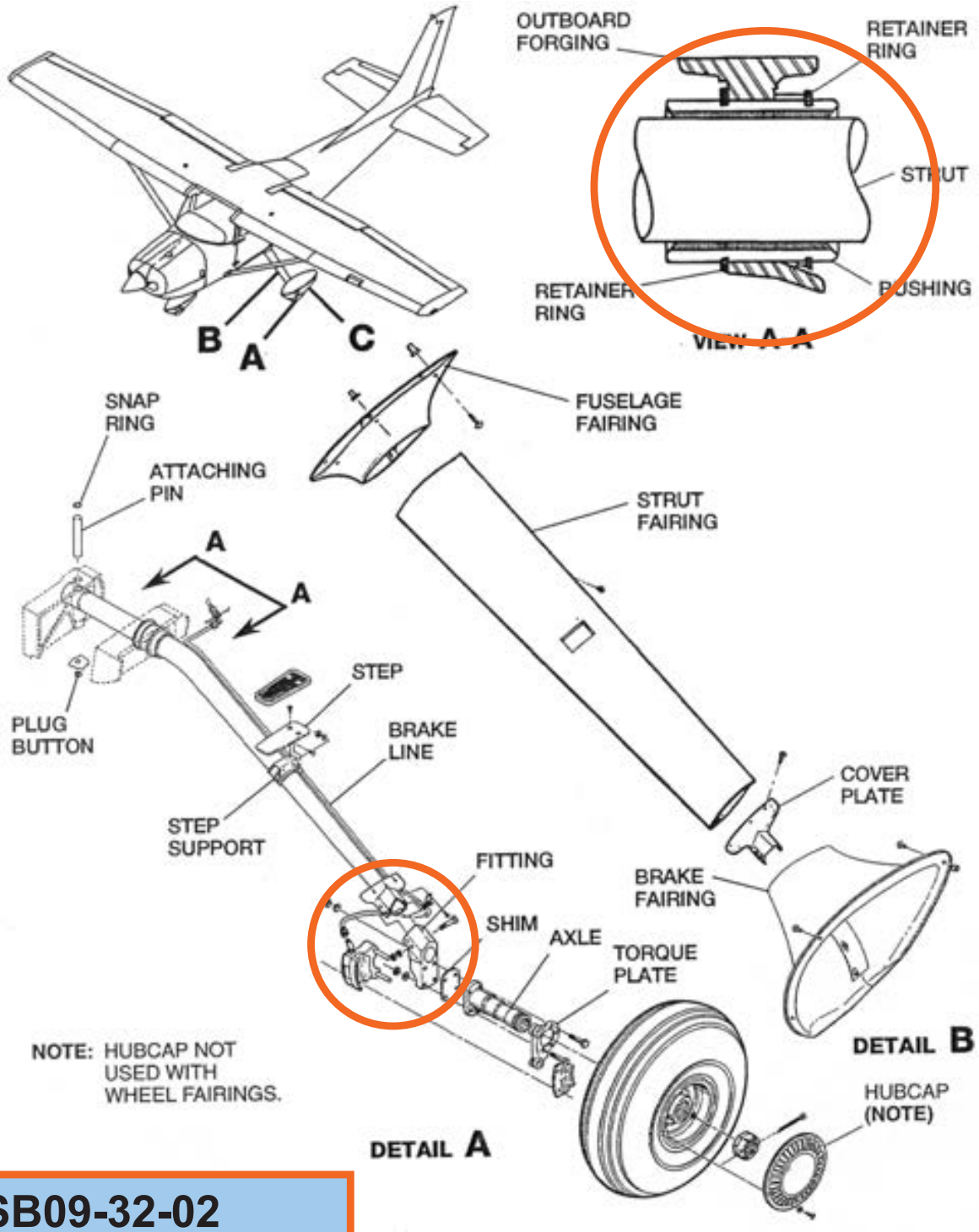
NOTE

Preflight inspection of nose gear strut should reveal 1.75-inch to 3.50-inch of nose strut barrel (between torque link attachment fittings) showing (or approximately 2.30-inch after bouncing). Deviation from these dimensions are cause to check and service the strut.

A MAXIMUM EXTENSION
4.85 ±.15"

Main Landing Gear Installation

During Annual Insp: Attachment into Fuselage

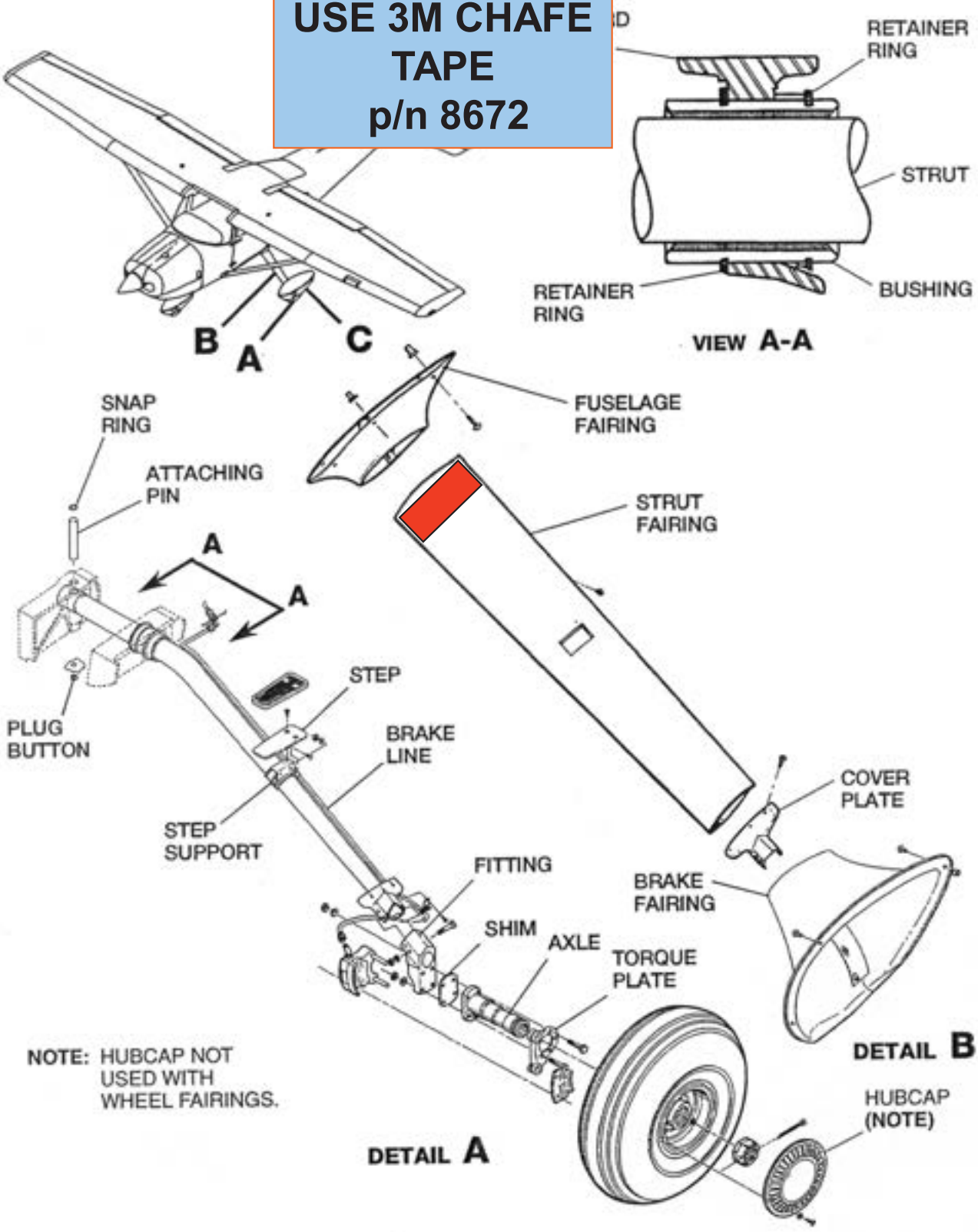


SB09-32-02
SEB-32-01
Brake line for Chafing

Main Landing Gear Installation

Strut Fairing

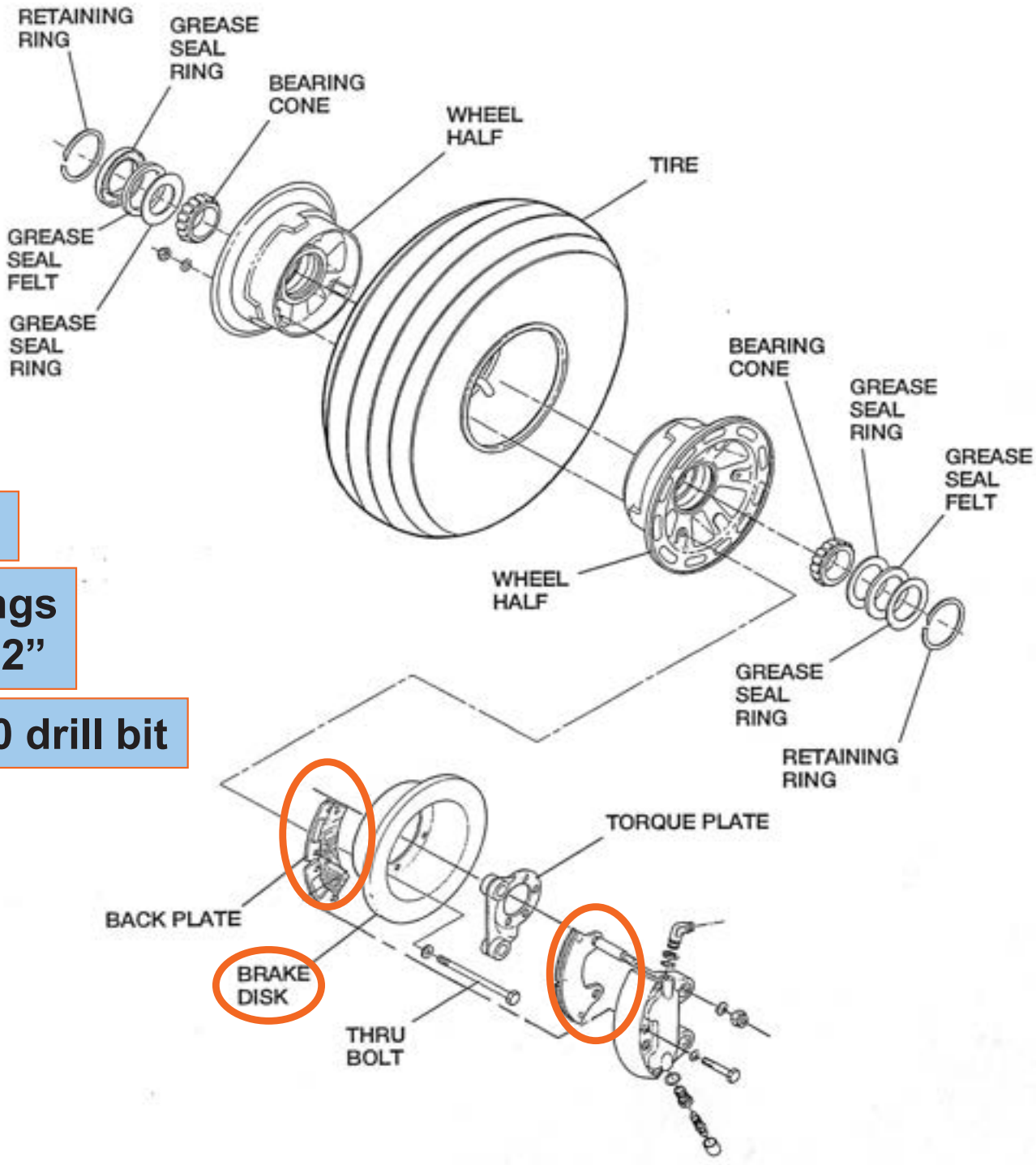
USE 3M CHAFE TAPE p/n 8672



Main Wheel Assembly

McCauley Wheel Shown

182T Use Cleveland Wheels

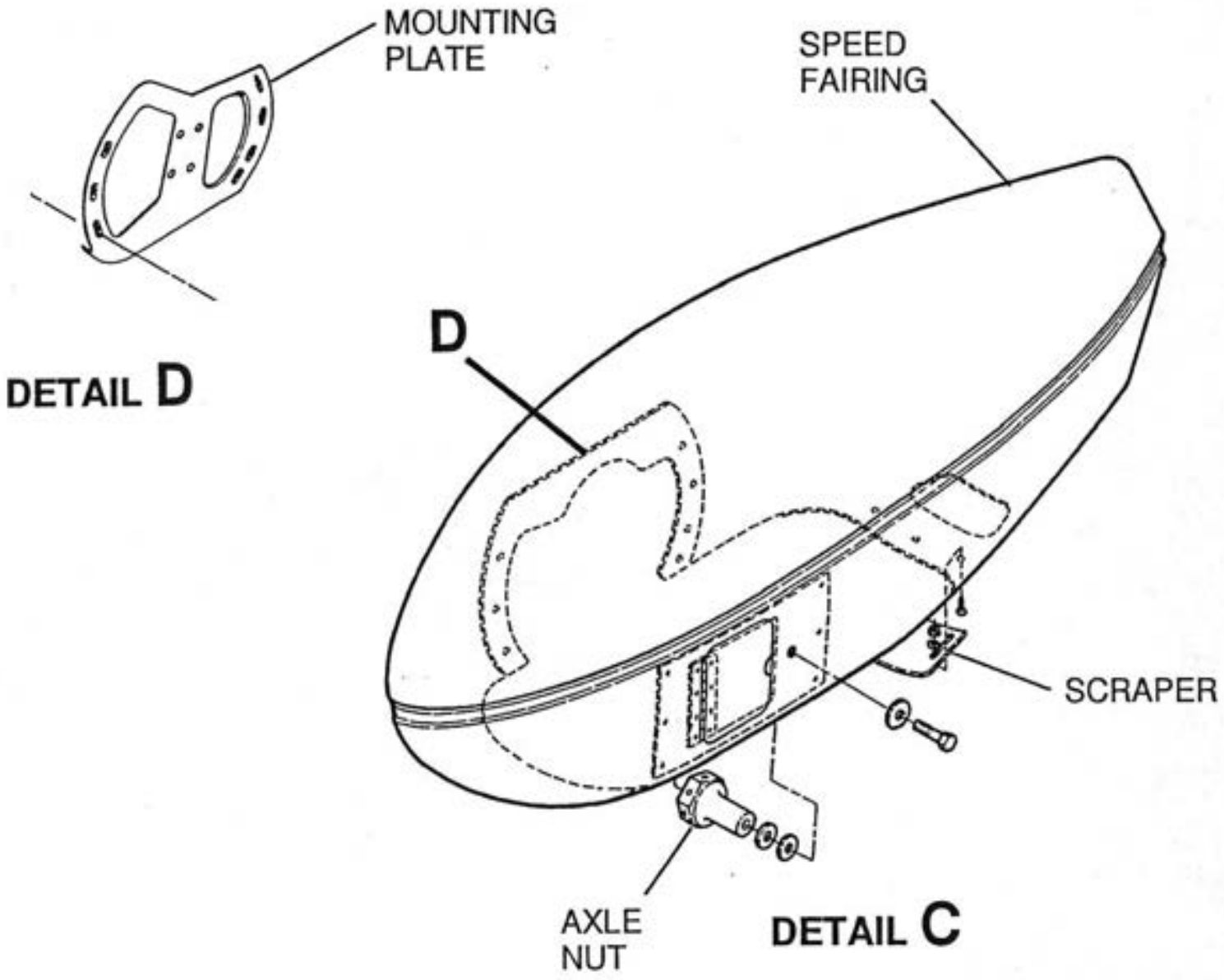


Disc

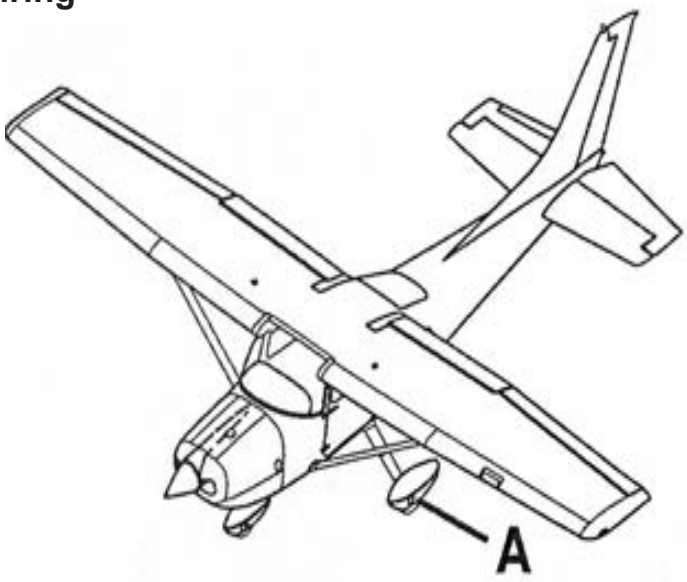
Linings > 3/32”

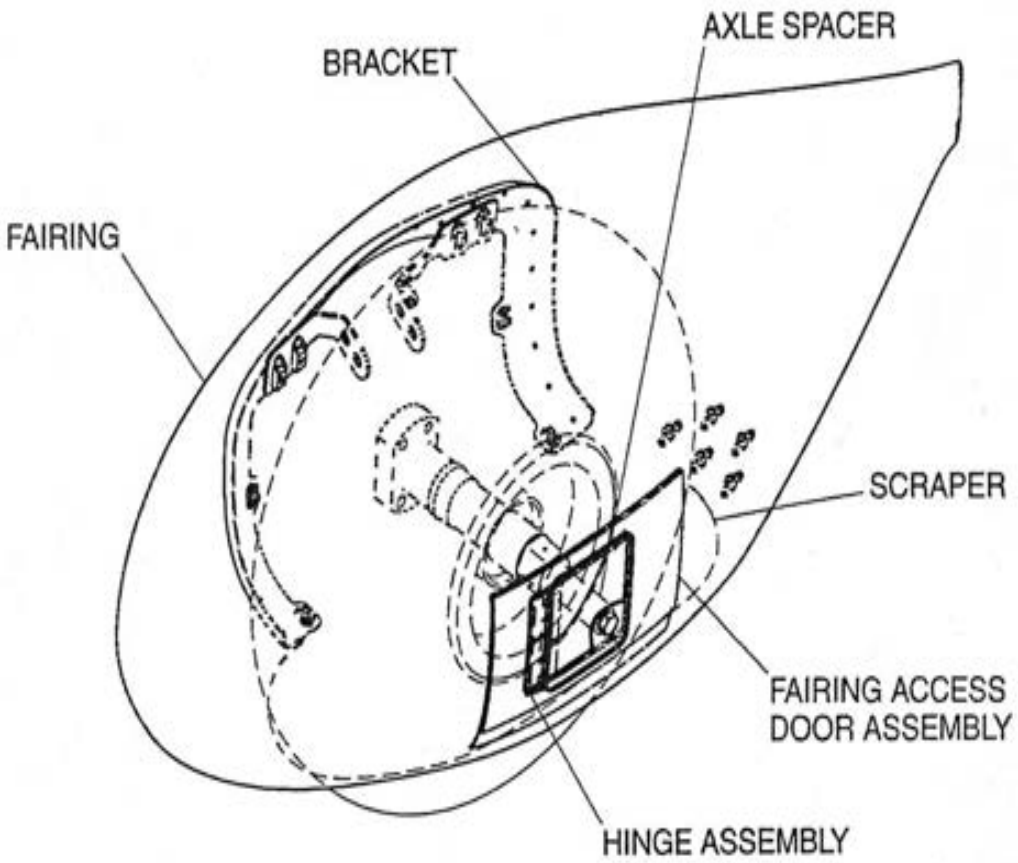
= #40 drill bit

182S Main Landing Gear Fairing



182T Main Landing Gear Fairing

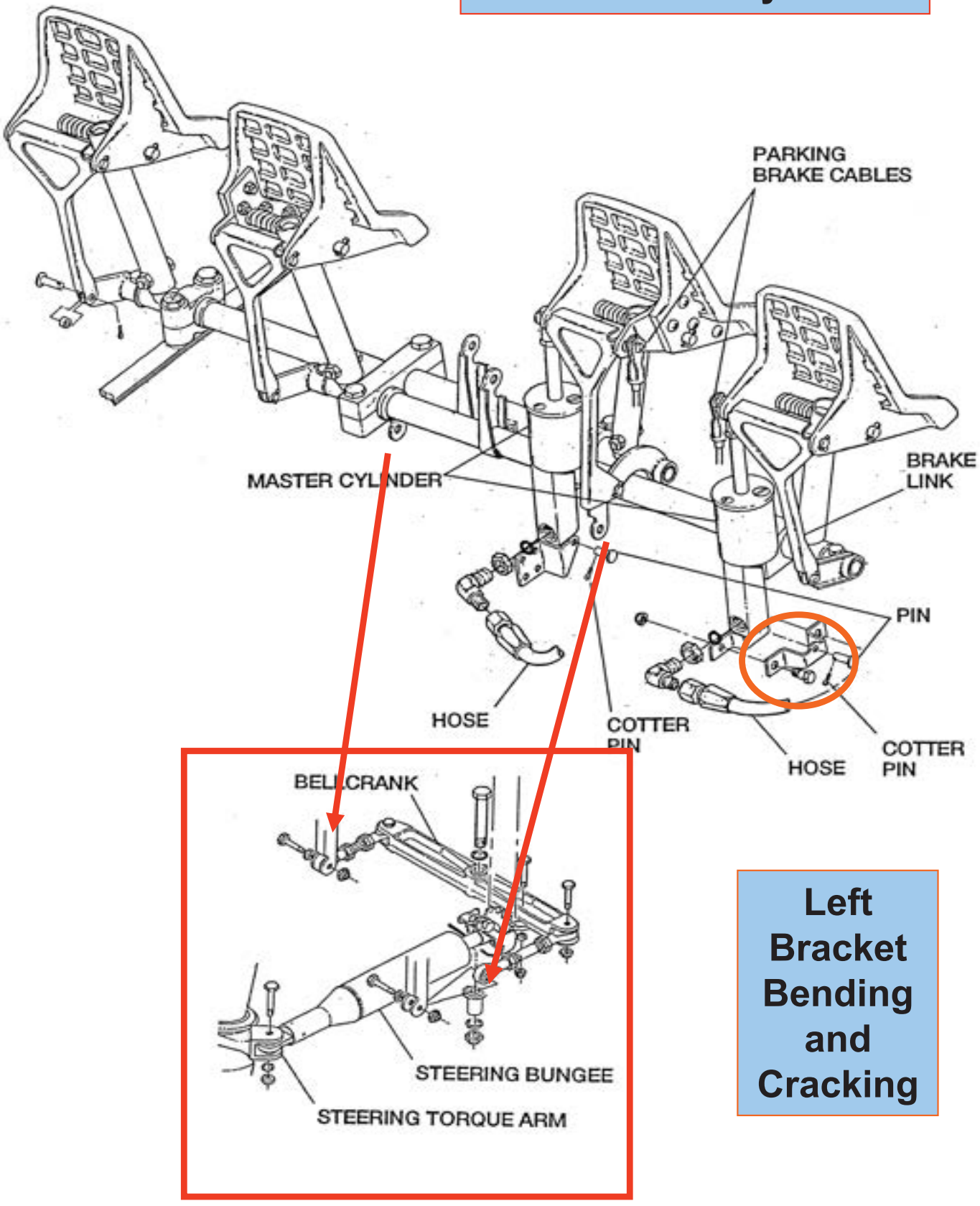




DETAIL A

Nose Wheel Steering
Brake Master Cylinder
Installation

Brake Master Cylinders



Left Bracket Bending and Cracking

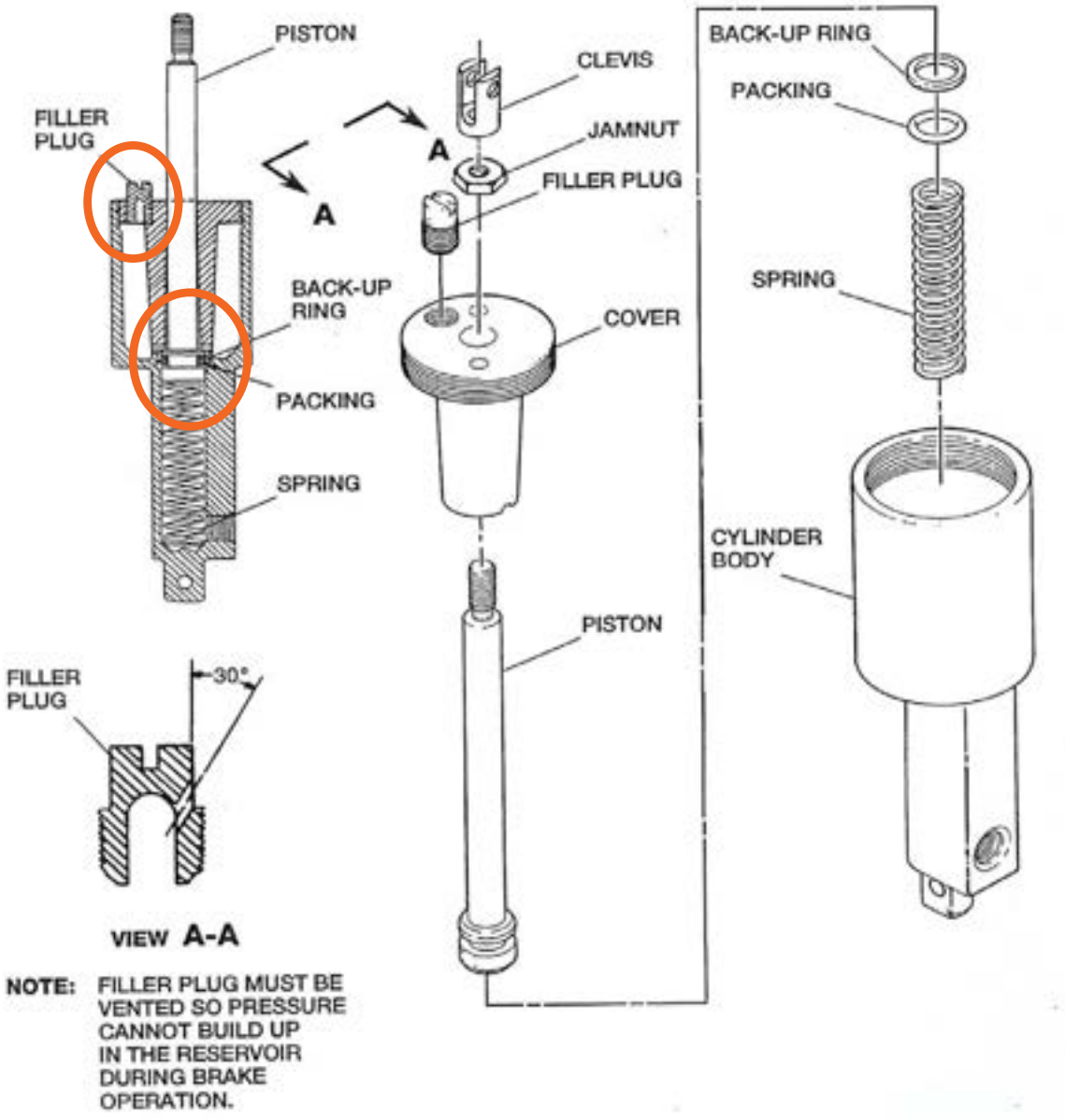
Brake Master Cylinder Assembly

Servicing the Brake Reservoir:

Vent Plug

Mil-Spec 5606

? Intermittent Braking?



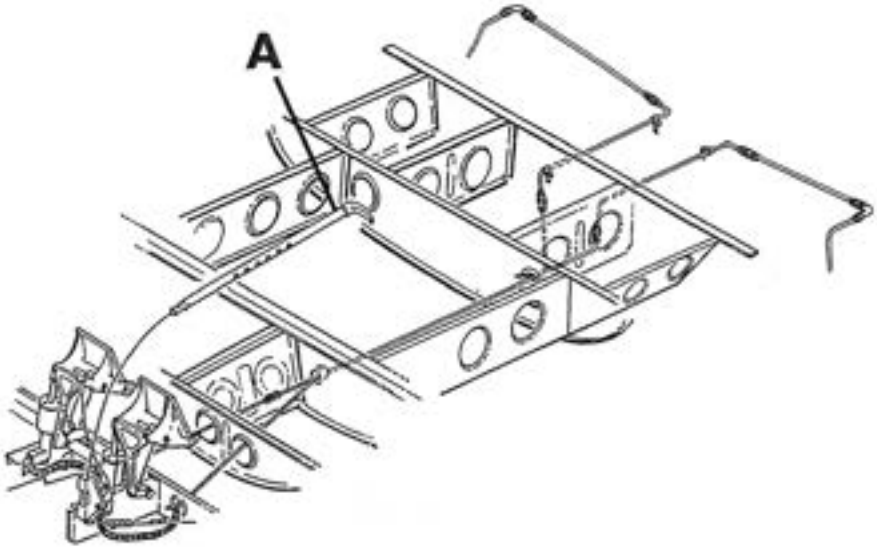
Parking Brake Installation

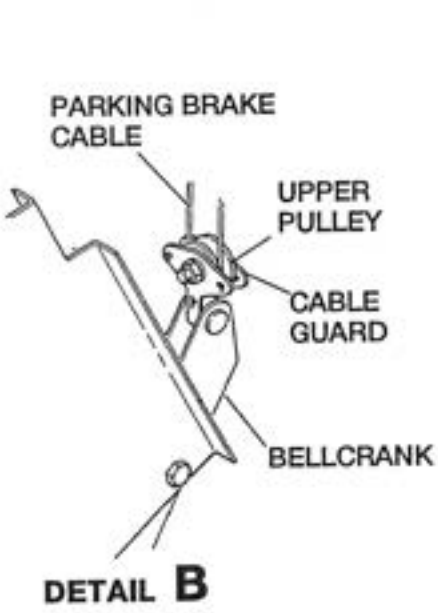
Cracks at Notches In Rod

Lock Spring

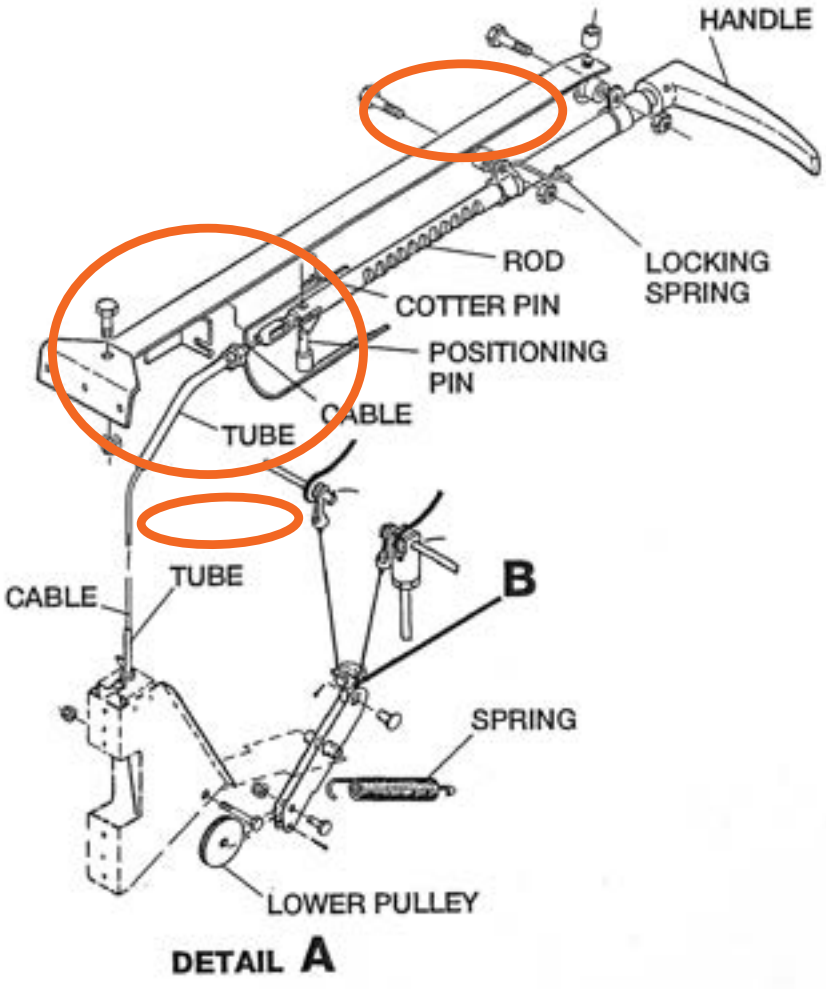
1/16” Cables

Return Spring Operation



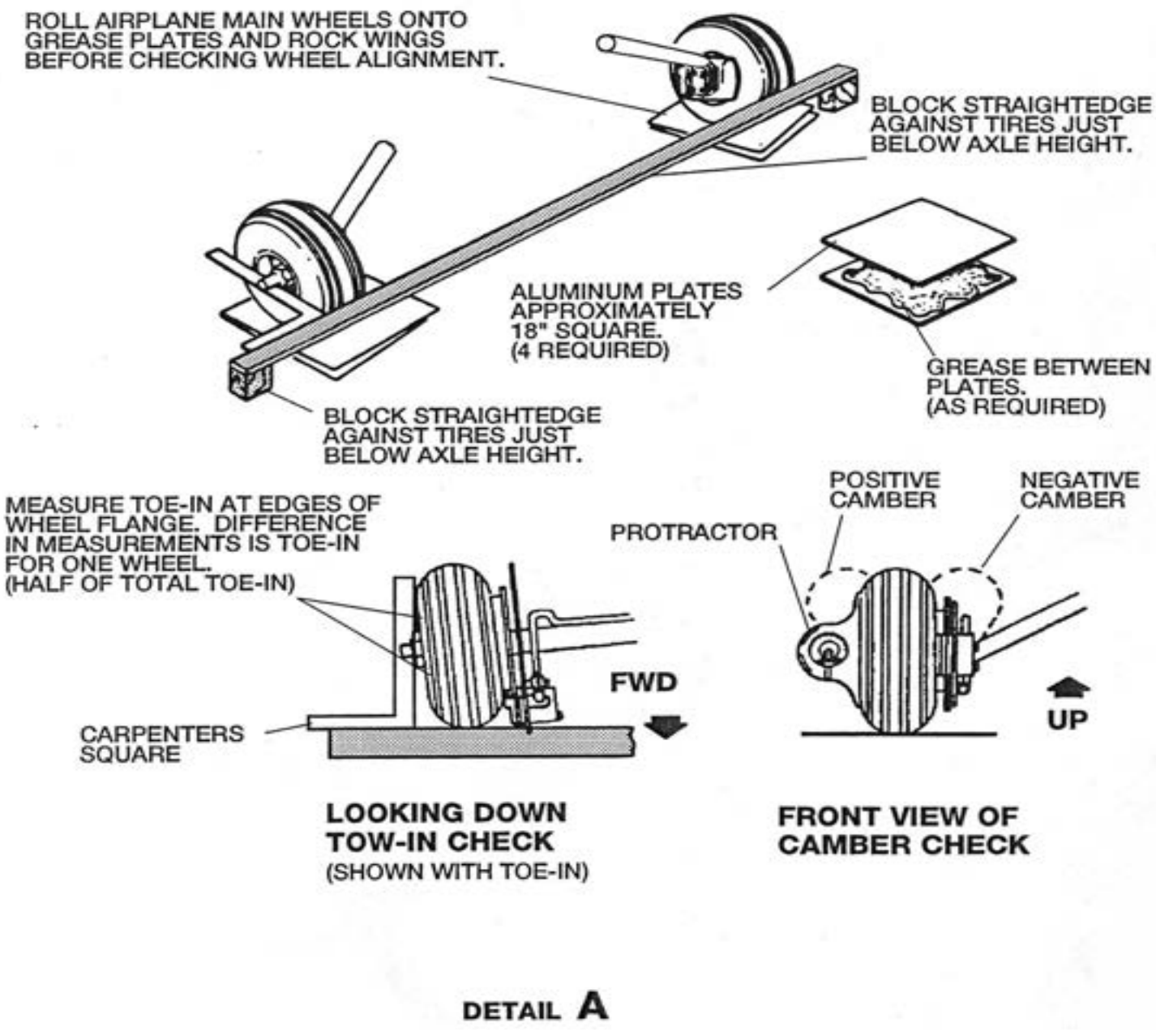


DETAIL B



DETAIL A

Main Wheel Alignment Check



DETAIL A

CESSNAPILOTS
ASSOCIATION

182S, 182T, T182T Skylane

Fuel Systems

Section Five

Cessna Service information

SSP08-28-01 Fuel Level Sensor Inspection dated 09/01/2008

Applies to 182T and T182T specific serial numbers but also has some nice to know information on the system.

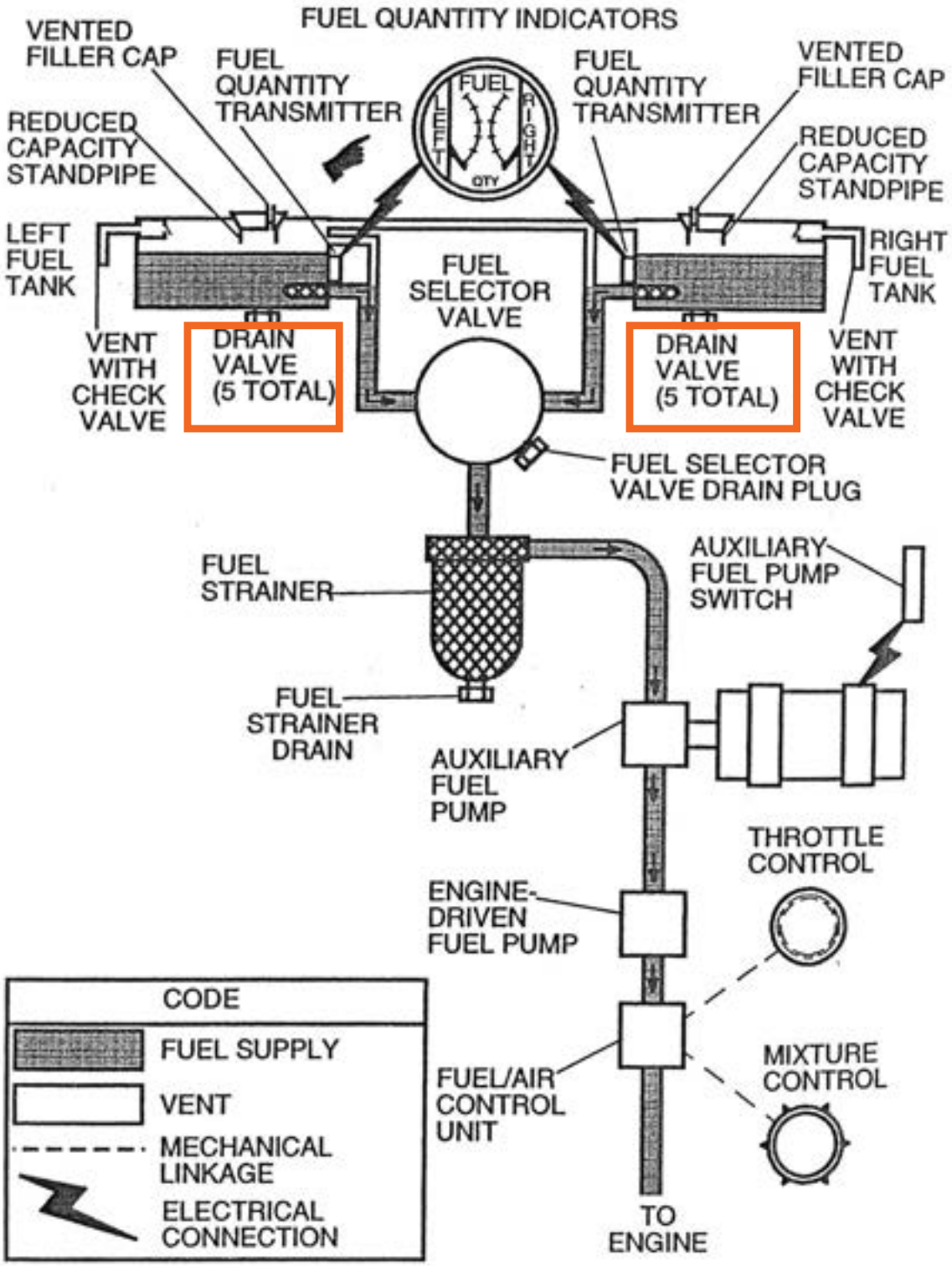
ICA-172-28-00001A dated 01/30/2009

Single Engine Restart Fuel Quantity Indication System ICA Supplement Revision

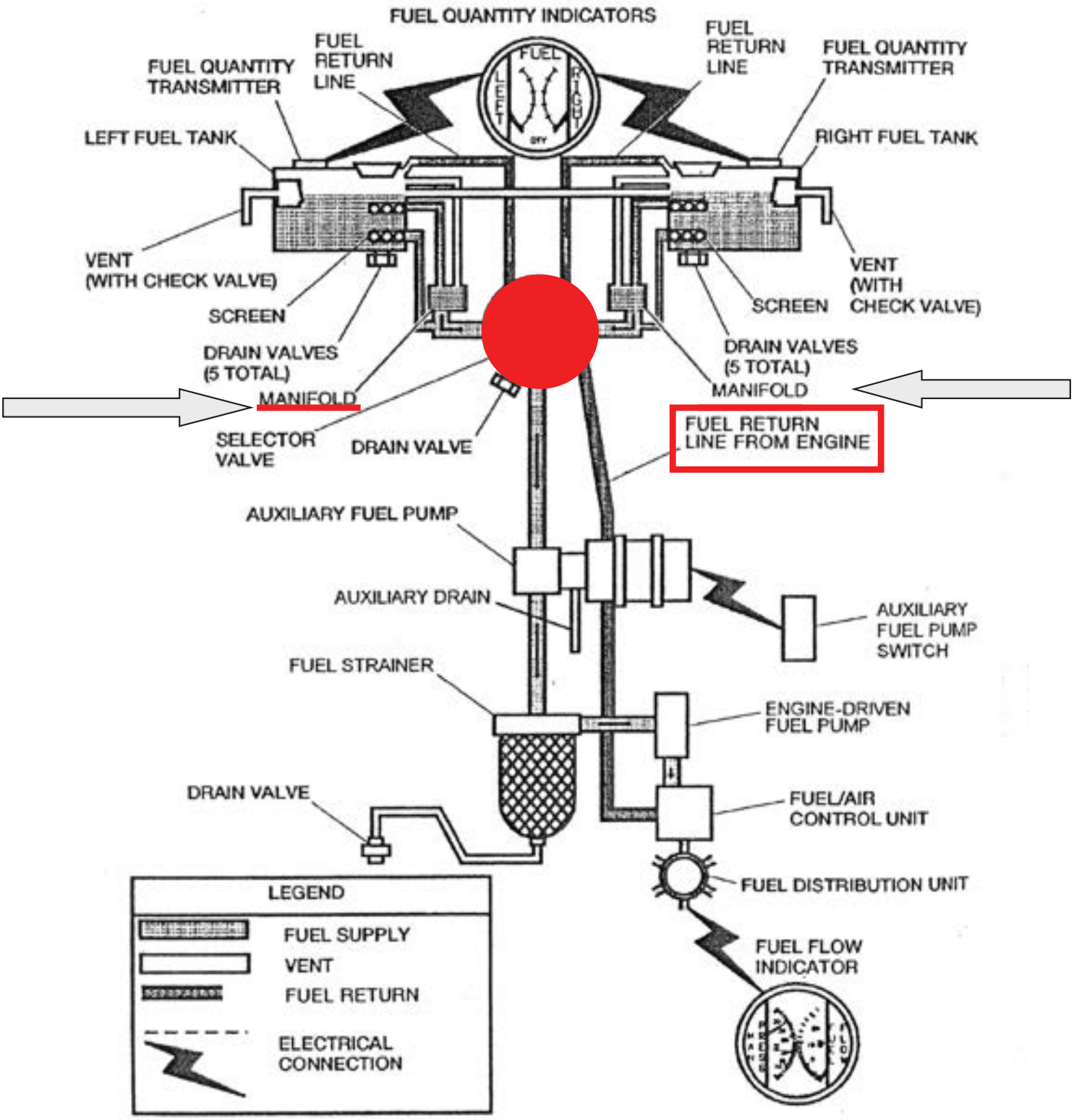
This ICA contains a lot of nice to know information and details testing of the varies systems used on the new production models

This service information is available from Cessna at their www.cessna/support .com web site. Article in the January 2012 CPA magazine details that web site.

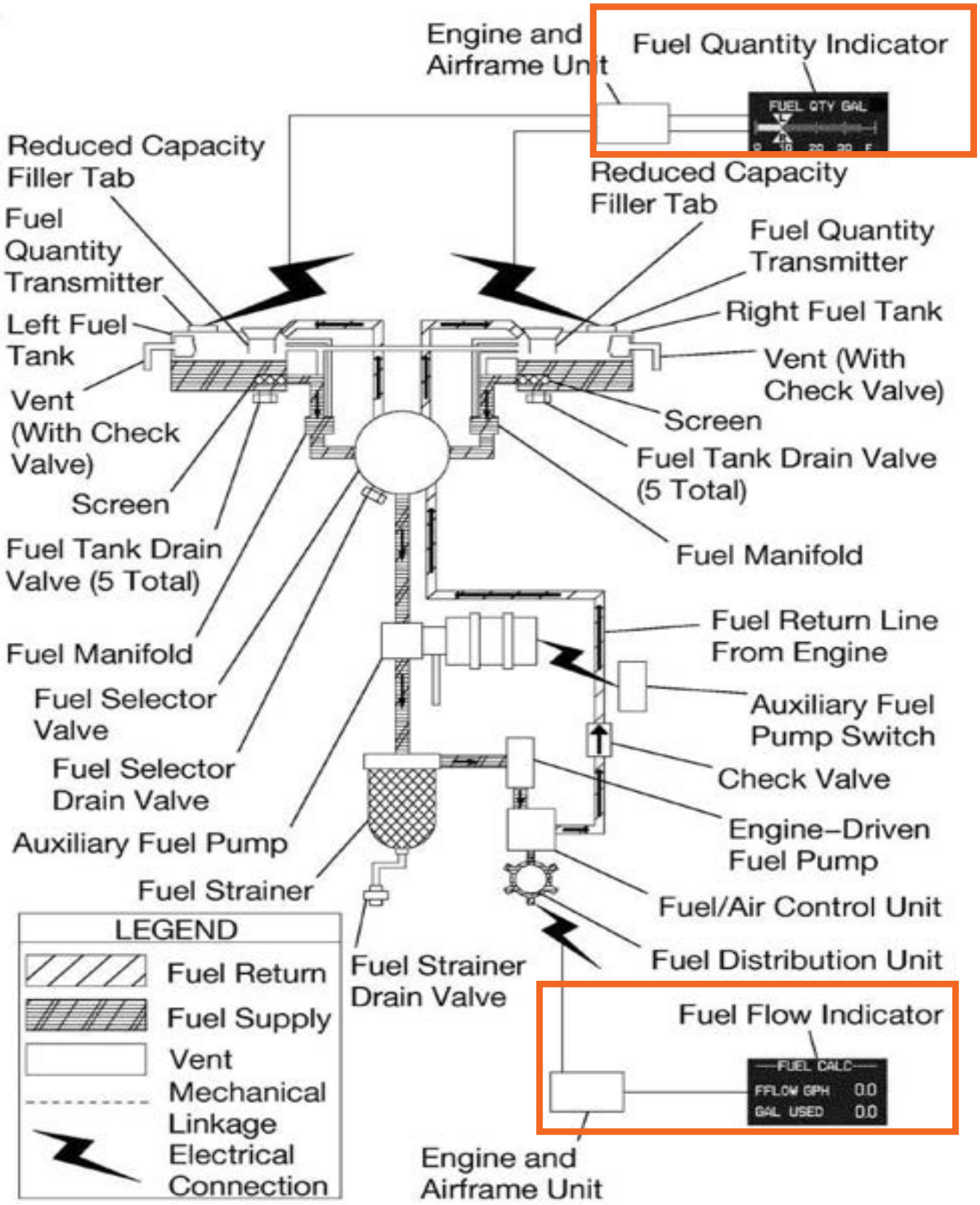
182S Fuel System



182T & T182T Fuel System



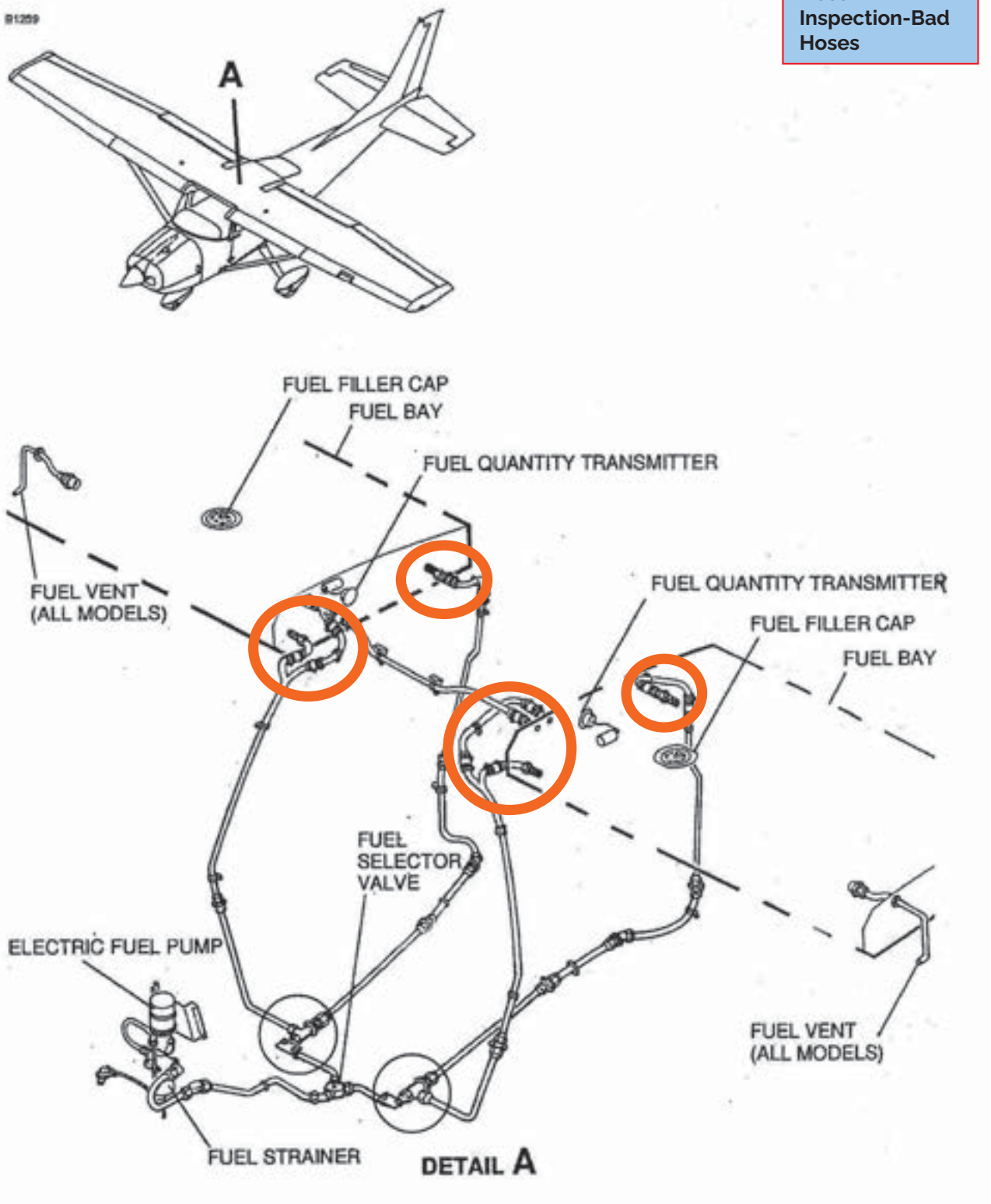
182T, T182T G1000
Fuel System



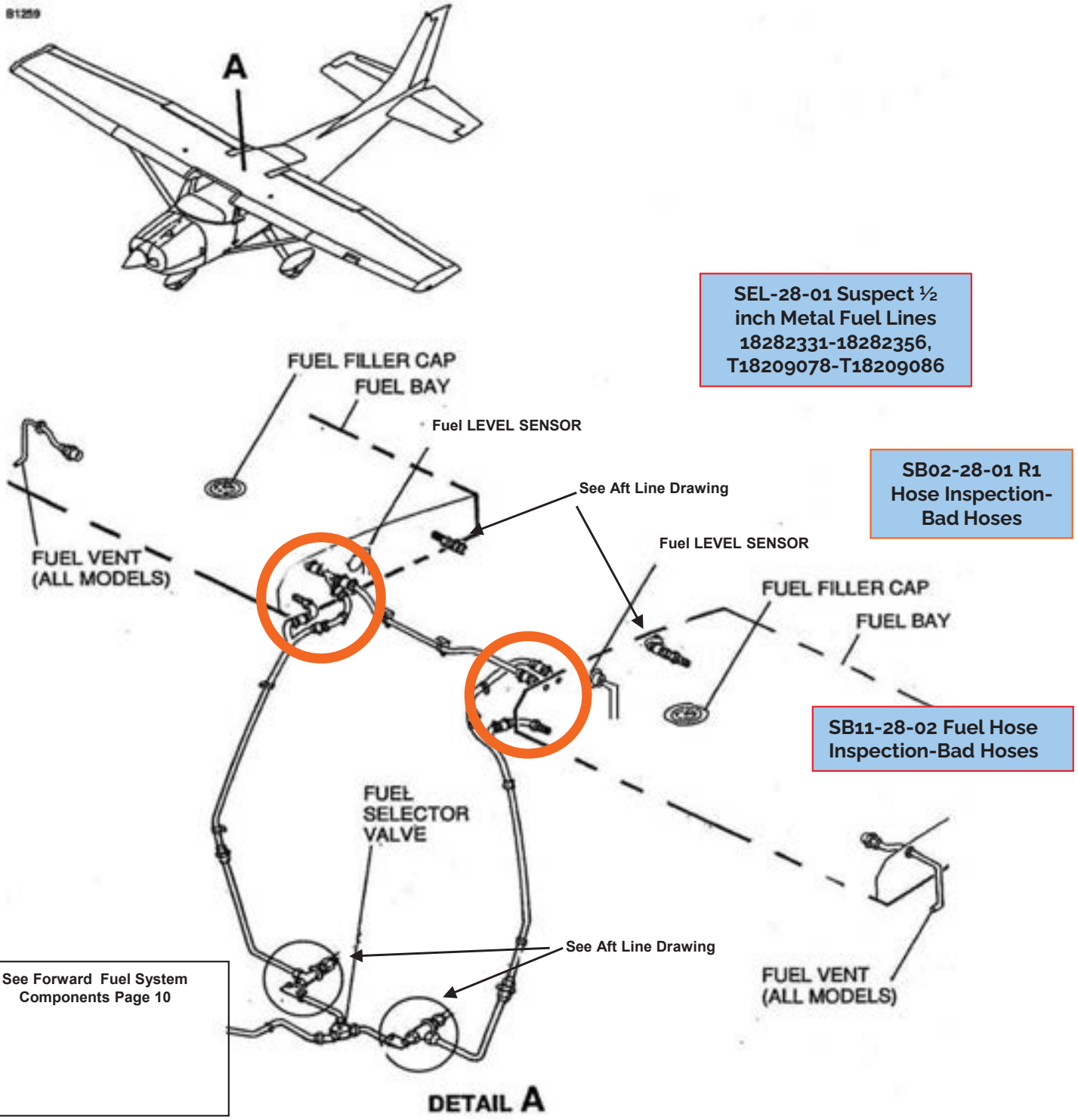
182S Fuel System Installation

SB02-28-01 R1 Hose Inspection-Bad Hoses

SB11-28-02 Fuel Hose Inspection-Bad Hoses



182T&T182T Forward Fuel Line Installation



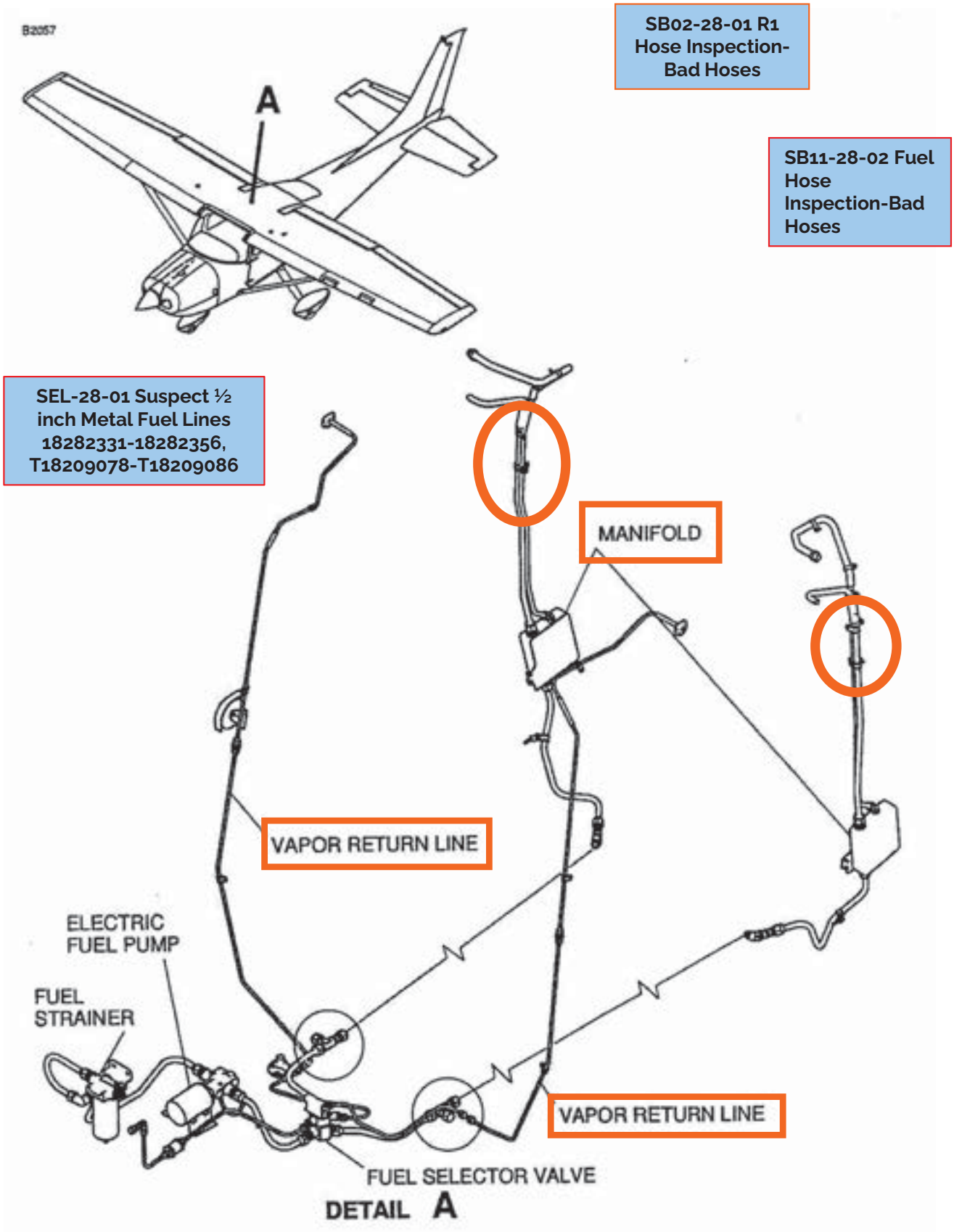
SEL-28-01 Suspect ½ inch Metal Fuel Lines 18282331-18282356, T18209078-T18209086

SB02-28-01 R1 Hose Inspection-Bad Hoses

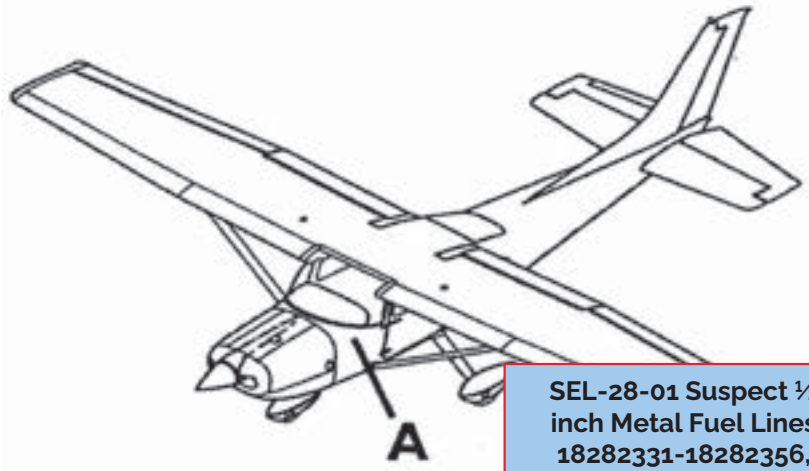
SB11-28-02 Fuel Hose Inspection-Bad Hoses

See Forward Fuel System Components Page 10

182T & T182T Aft Fuel line Installation

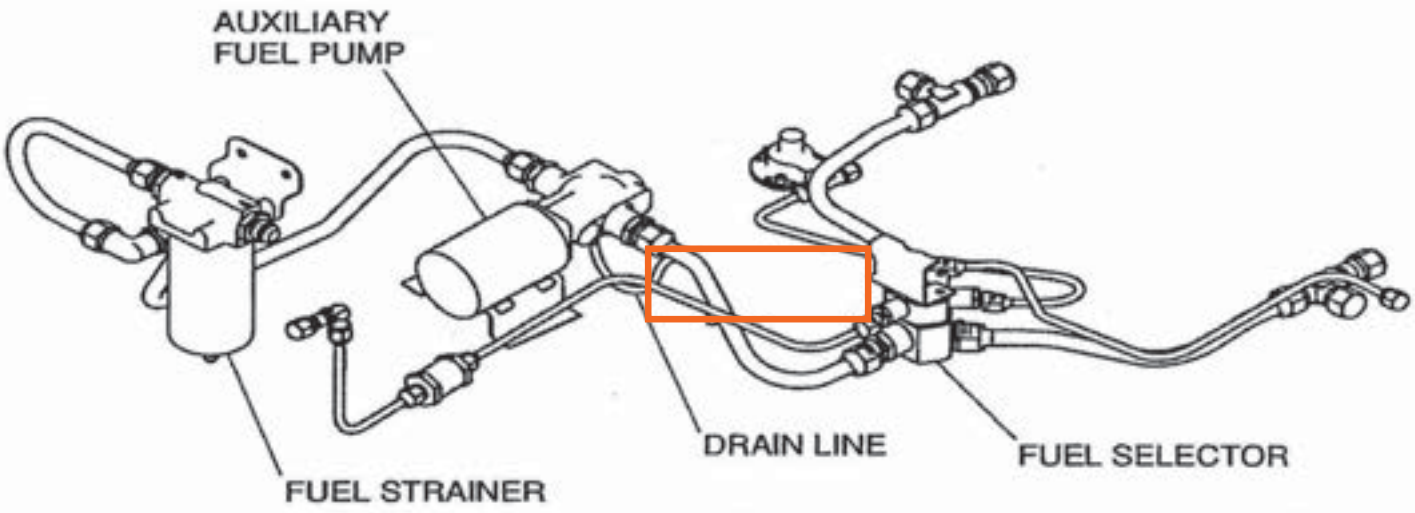


182T, T182T Forward Fuel System Components



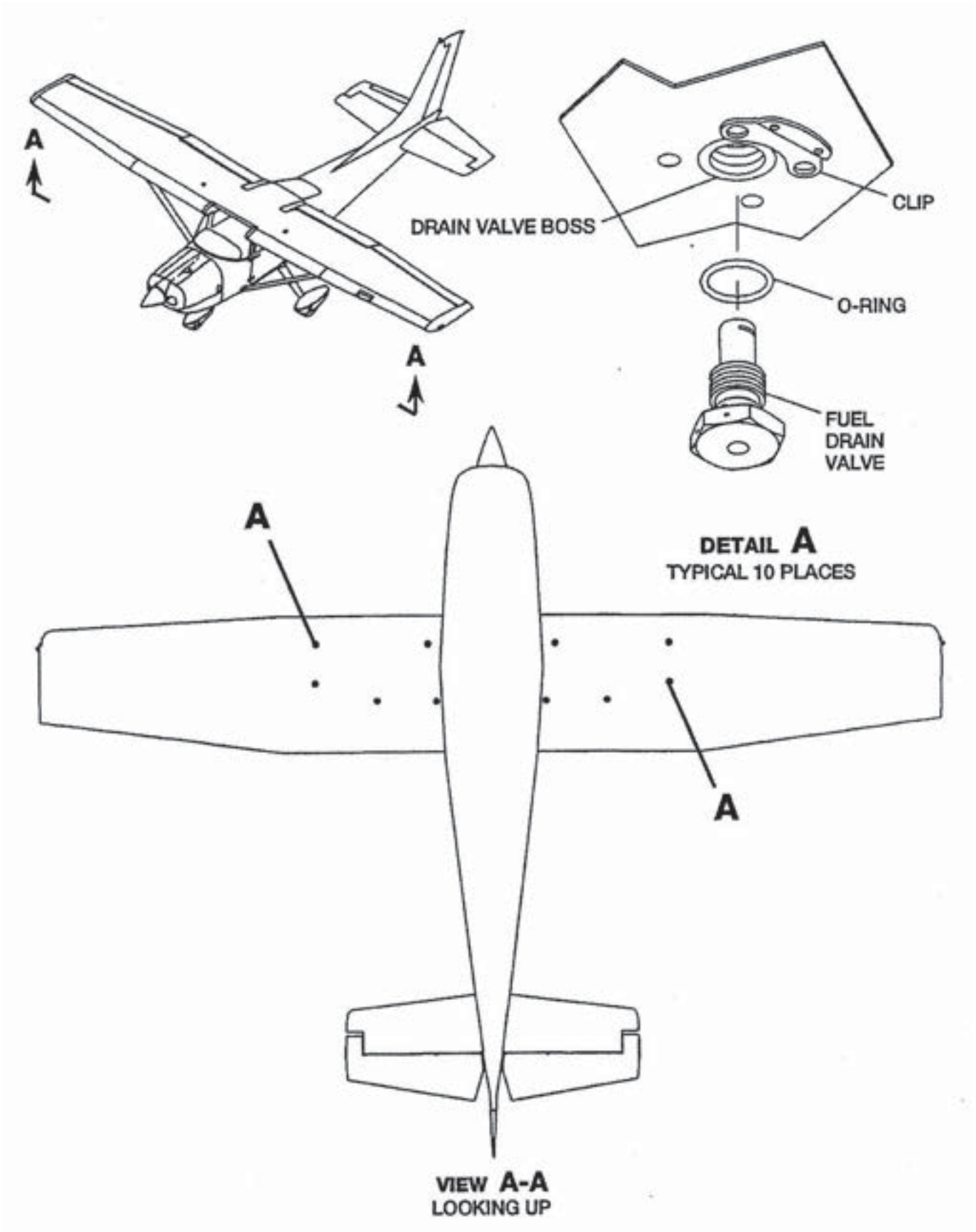
SEL-28-01 Suspect ½ inch Metal Fuel Lines 18282331-18282356, T18209078-T18209086

SEL-28-02 Belly Drain Fitting Inspection 18282350-18282360, T18209069-T18209086

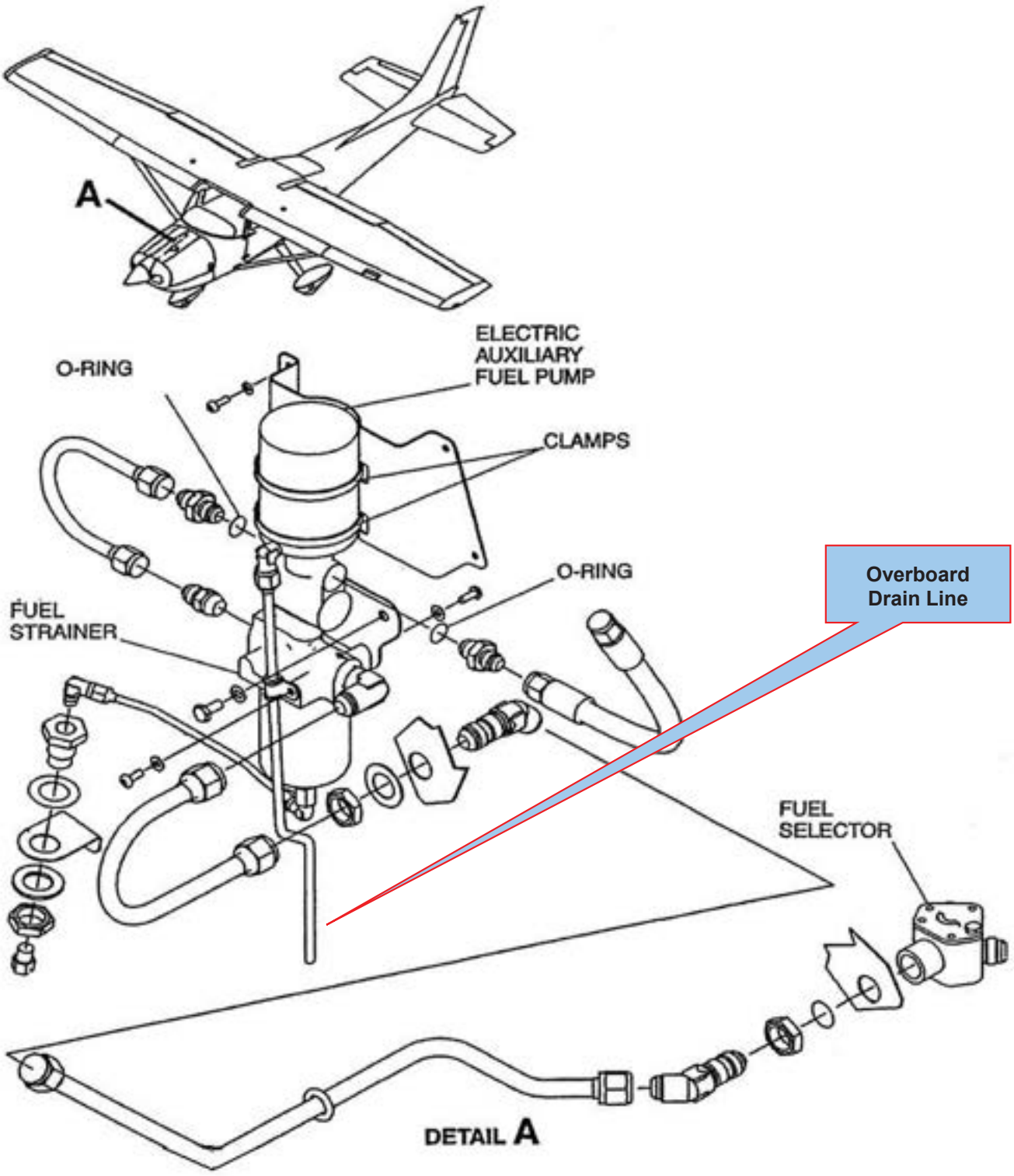


DETAIL A

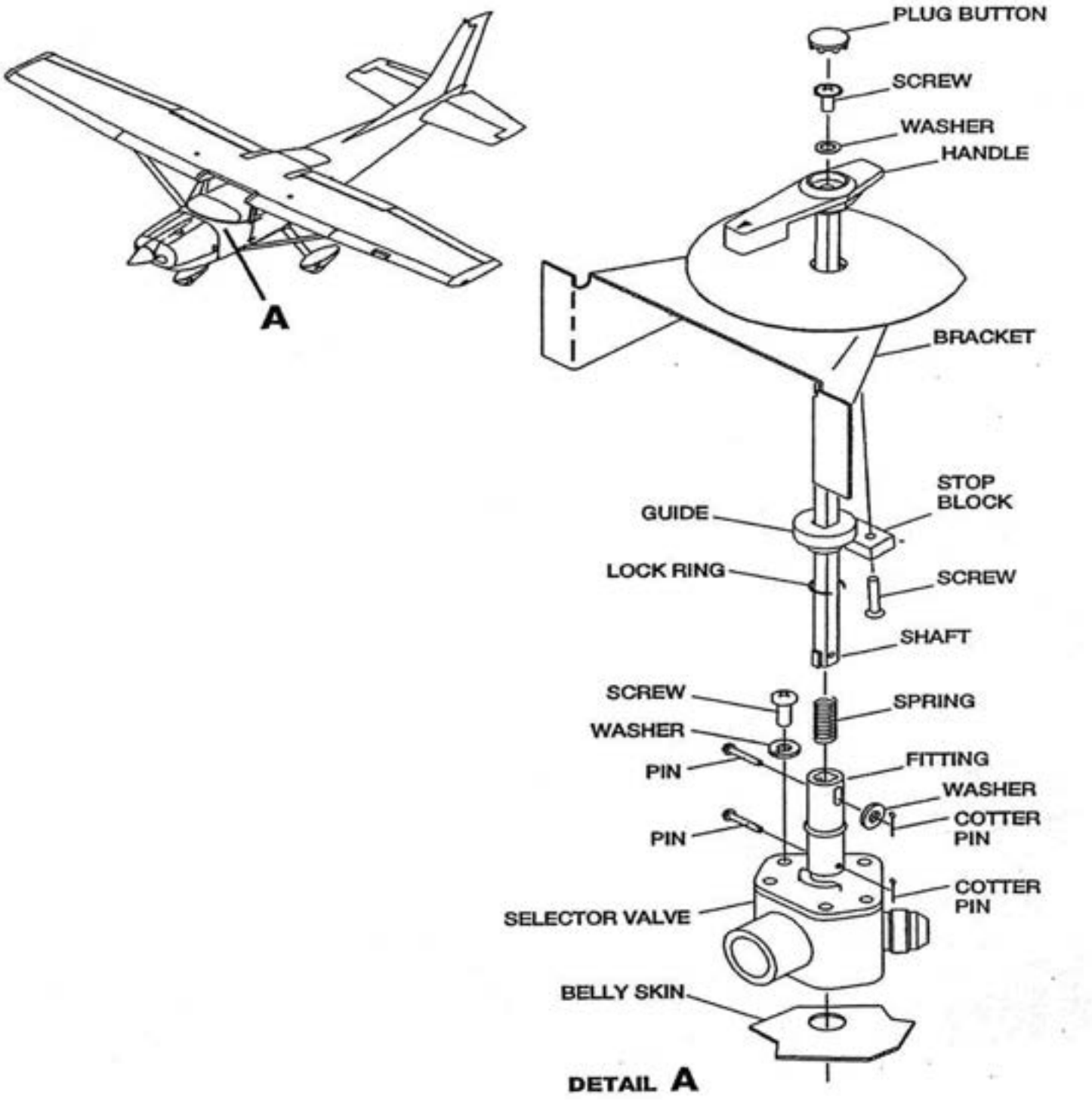
182S, 182T & T182T Fuel
Drain Valve Installation



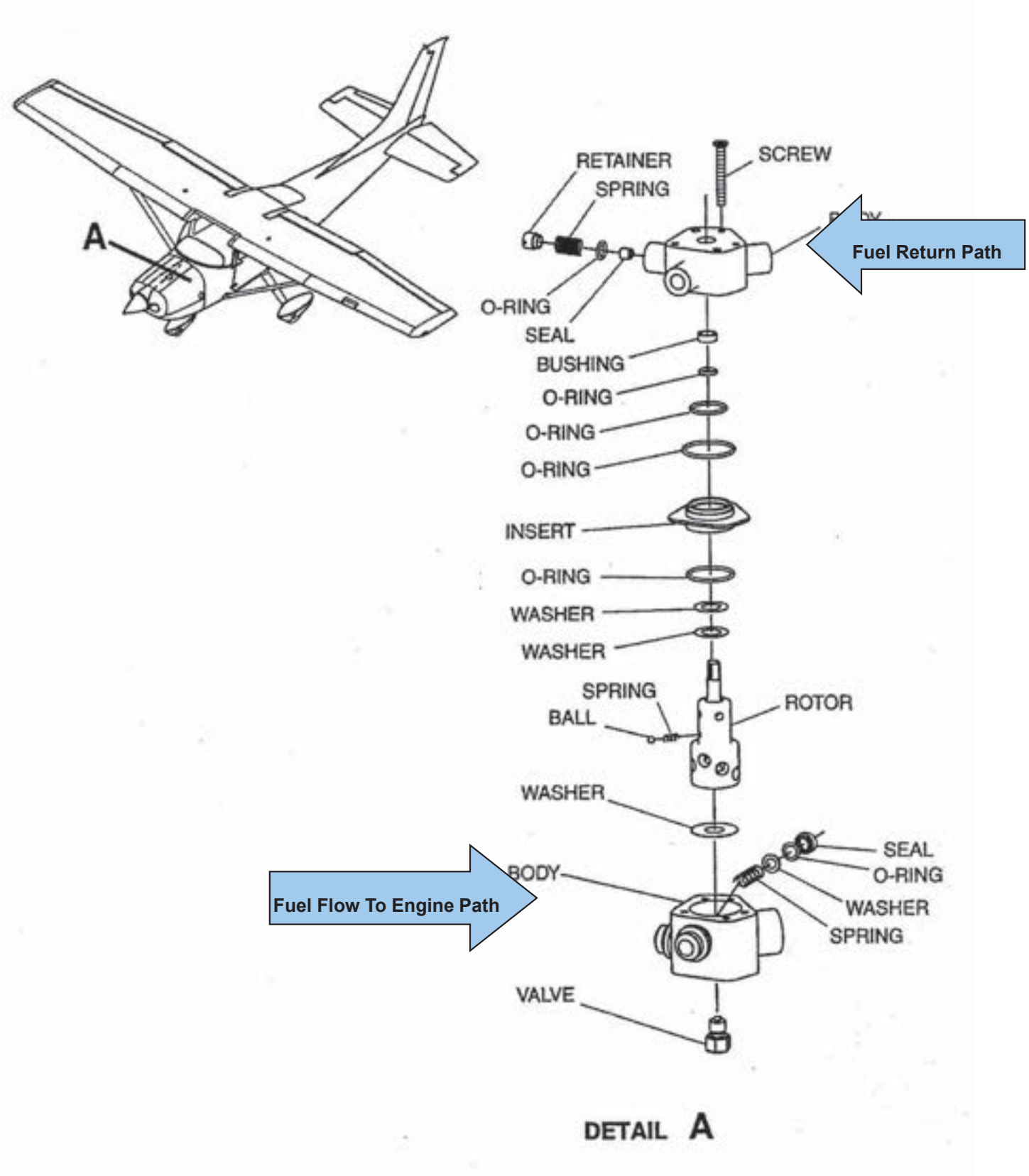
182S Electric Auxiliary Fuel Pump



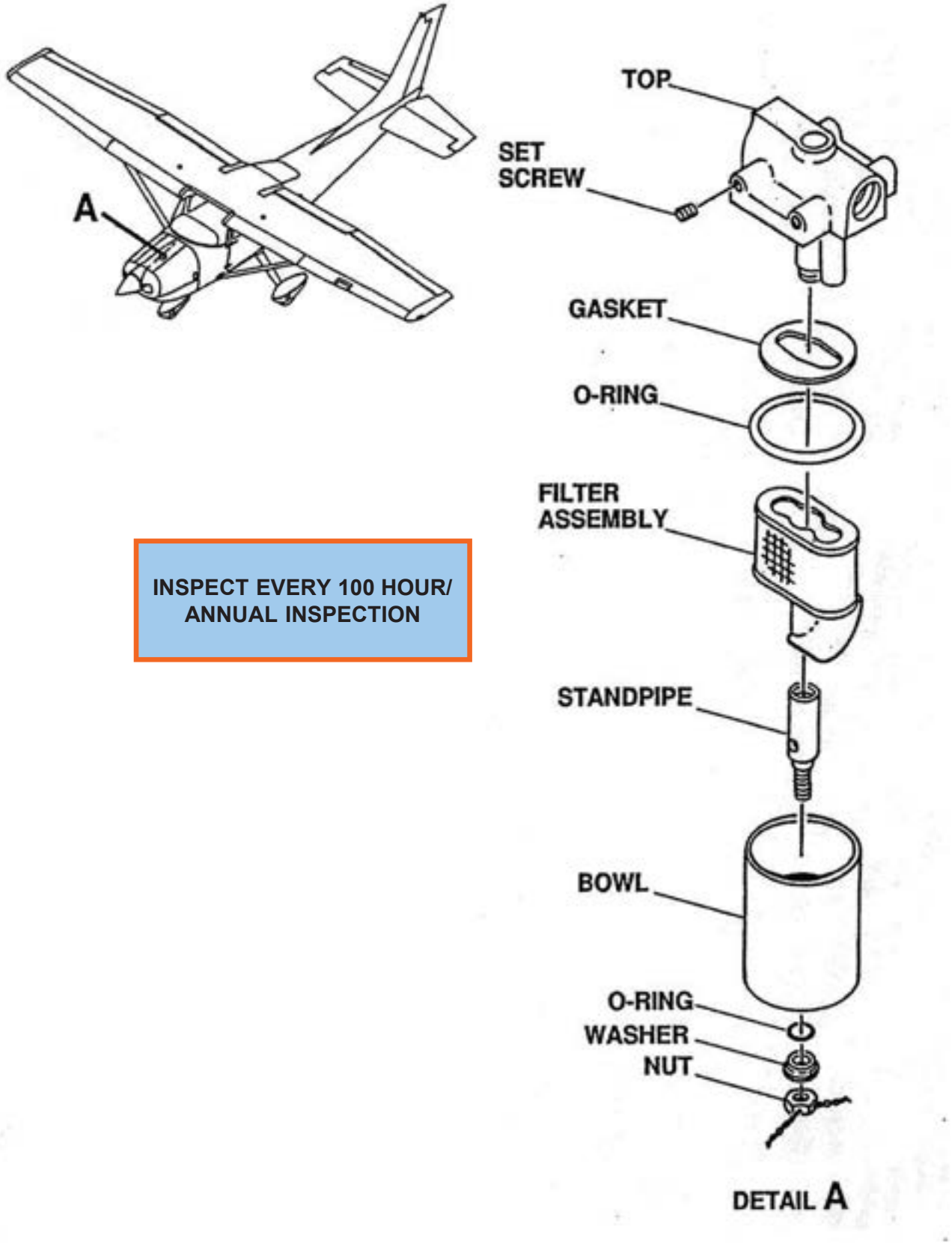
182S Fuel Selector Valve Installation



182T & T182T Fuel Selector Valve Installation

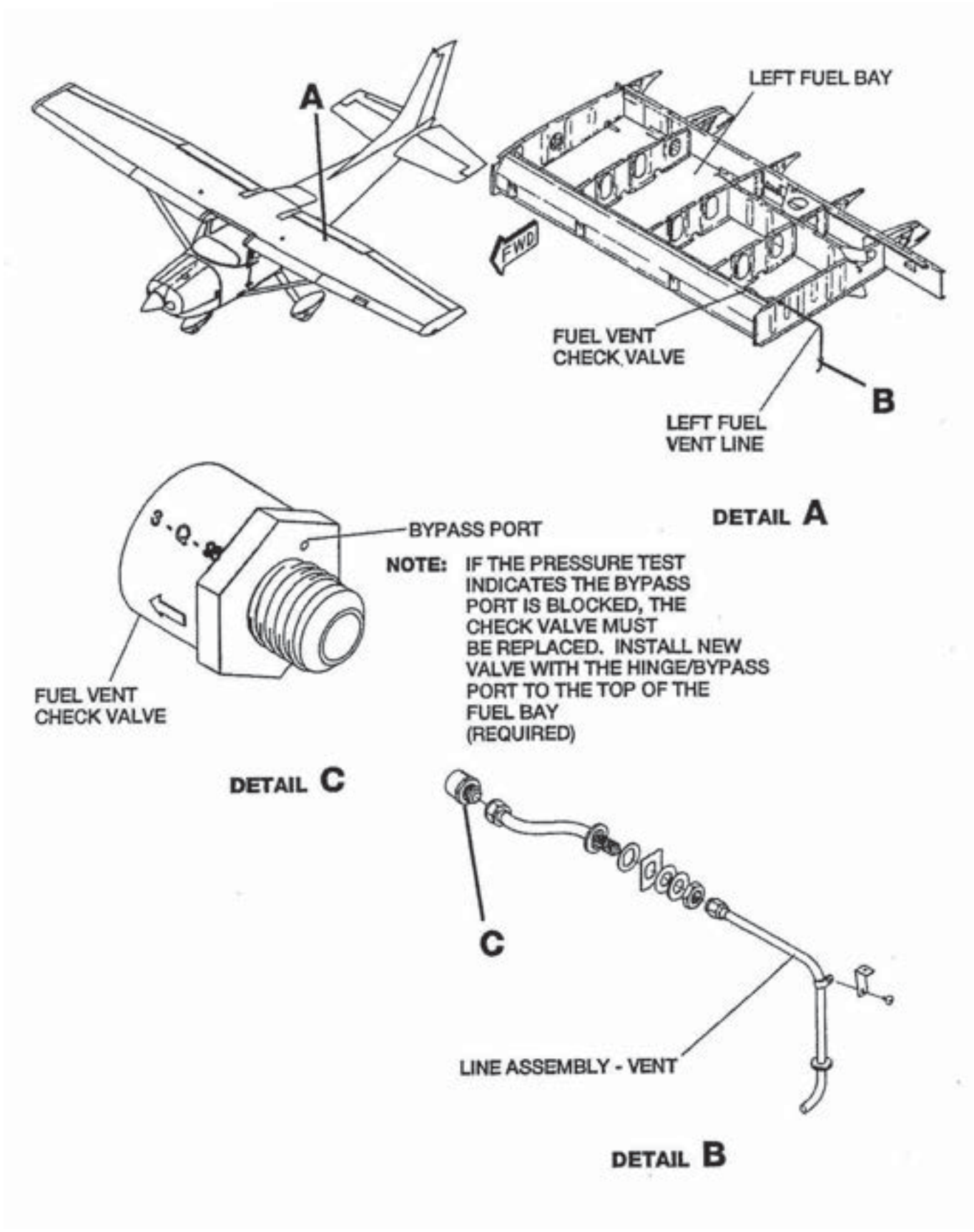


Fuel Strainer Assembly

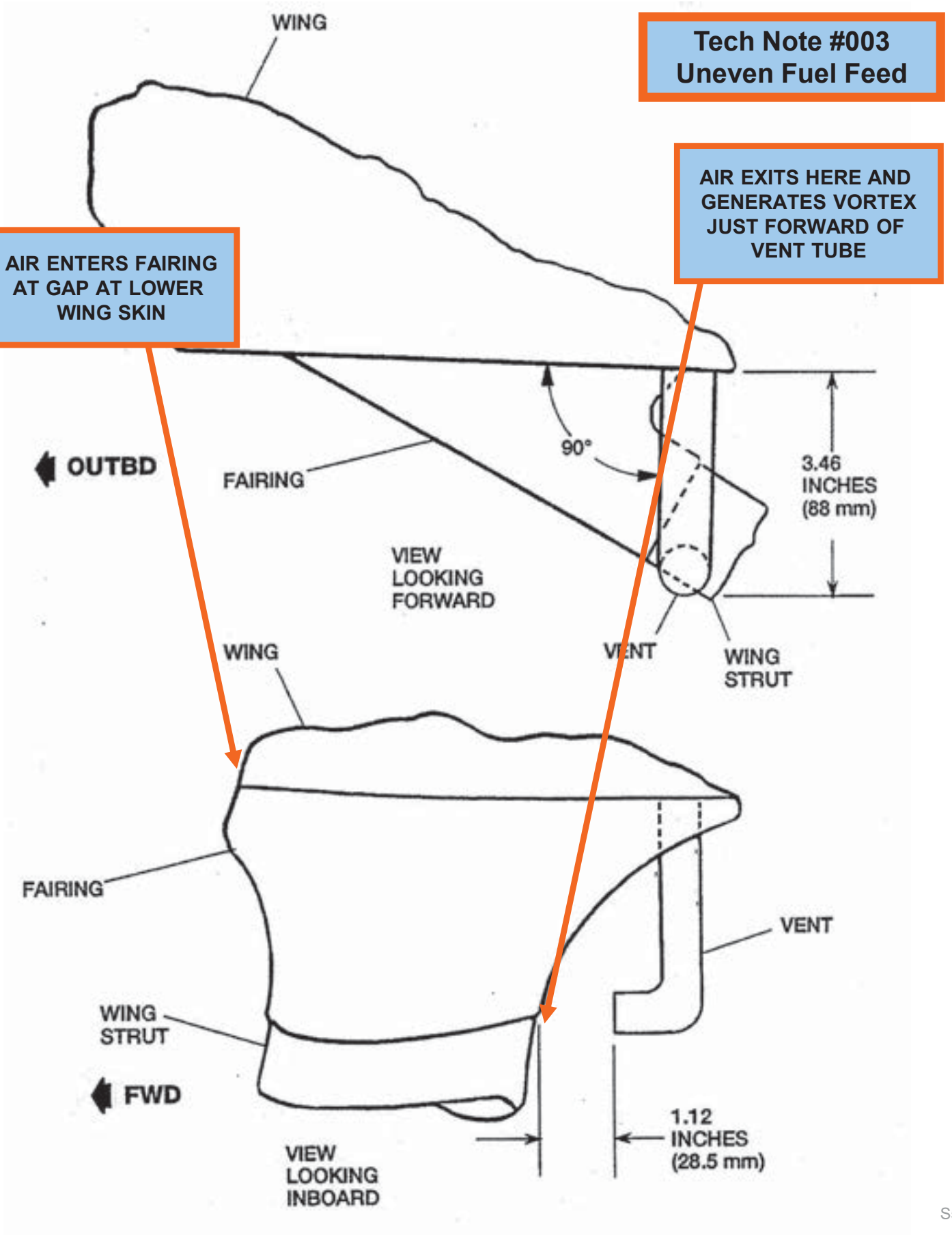


INSPECT EVERY 100 HOUR/ ANNUAL INSPECTION

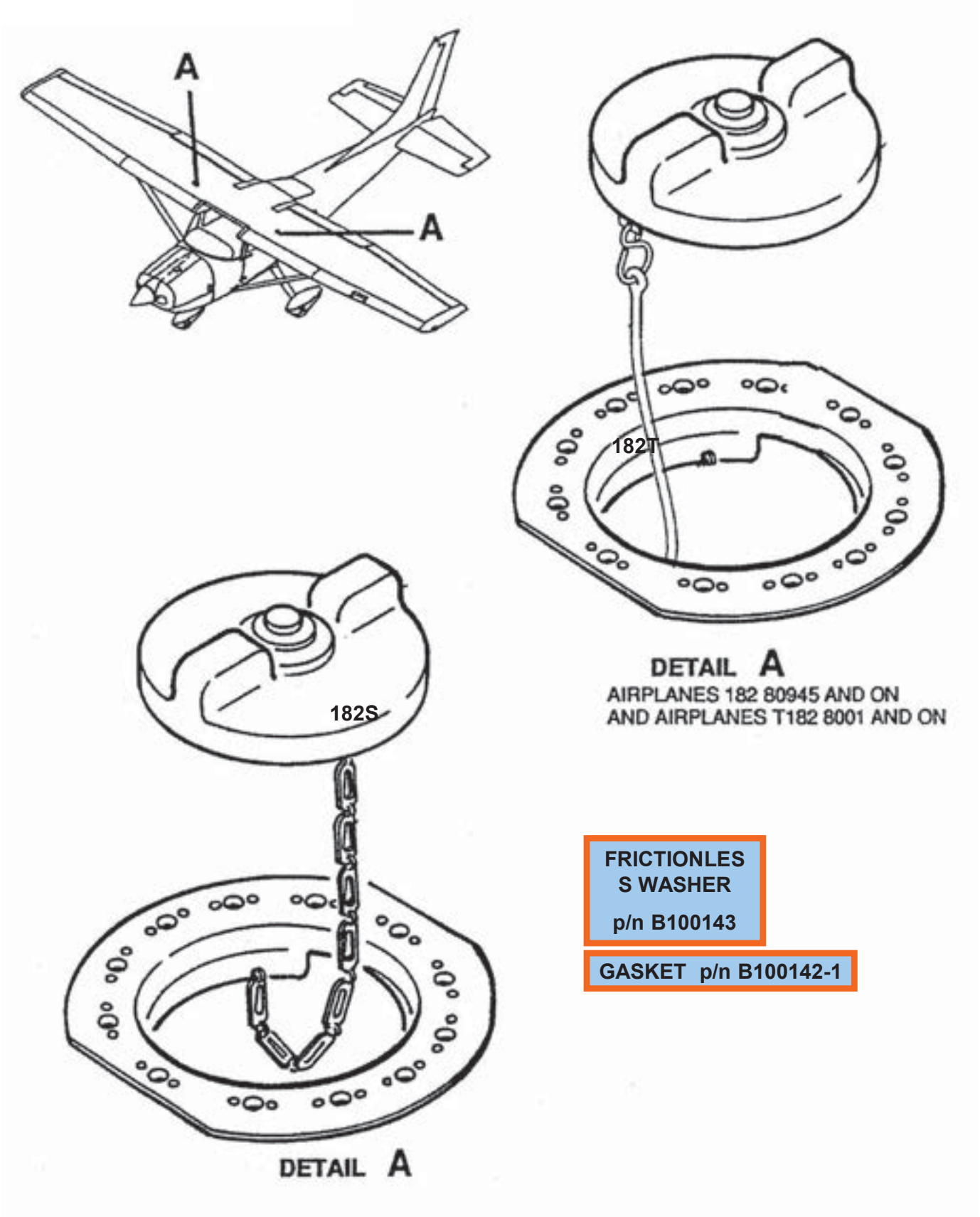
Wing Fuel Tank Vent Check Valve



Fuel Vent Location



182S & 182T Fuel Filler Cap

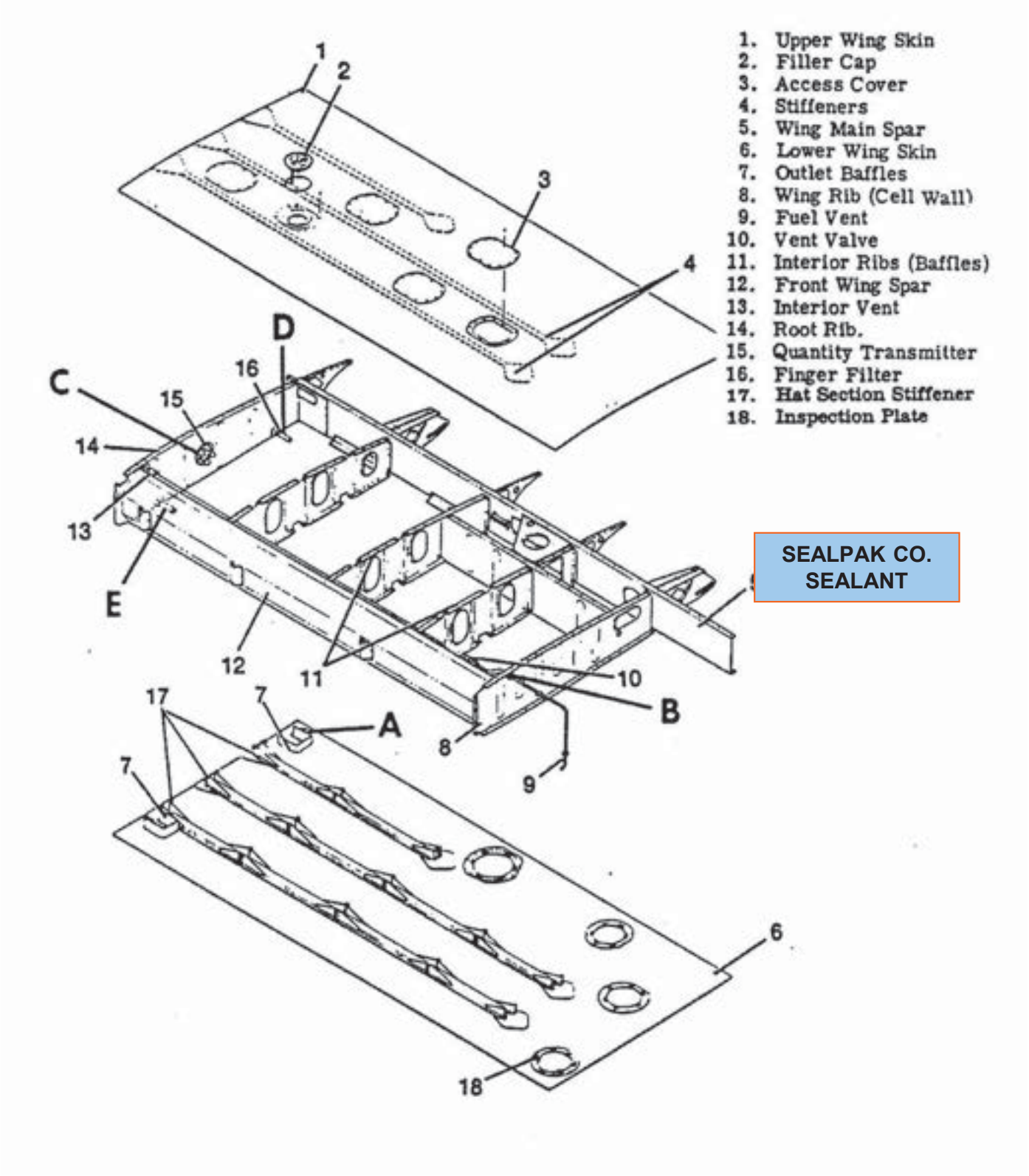


FRICTIONLES S WASHER

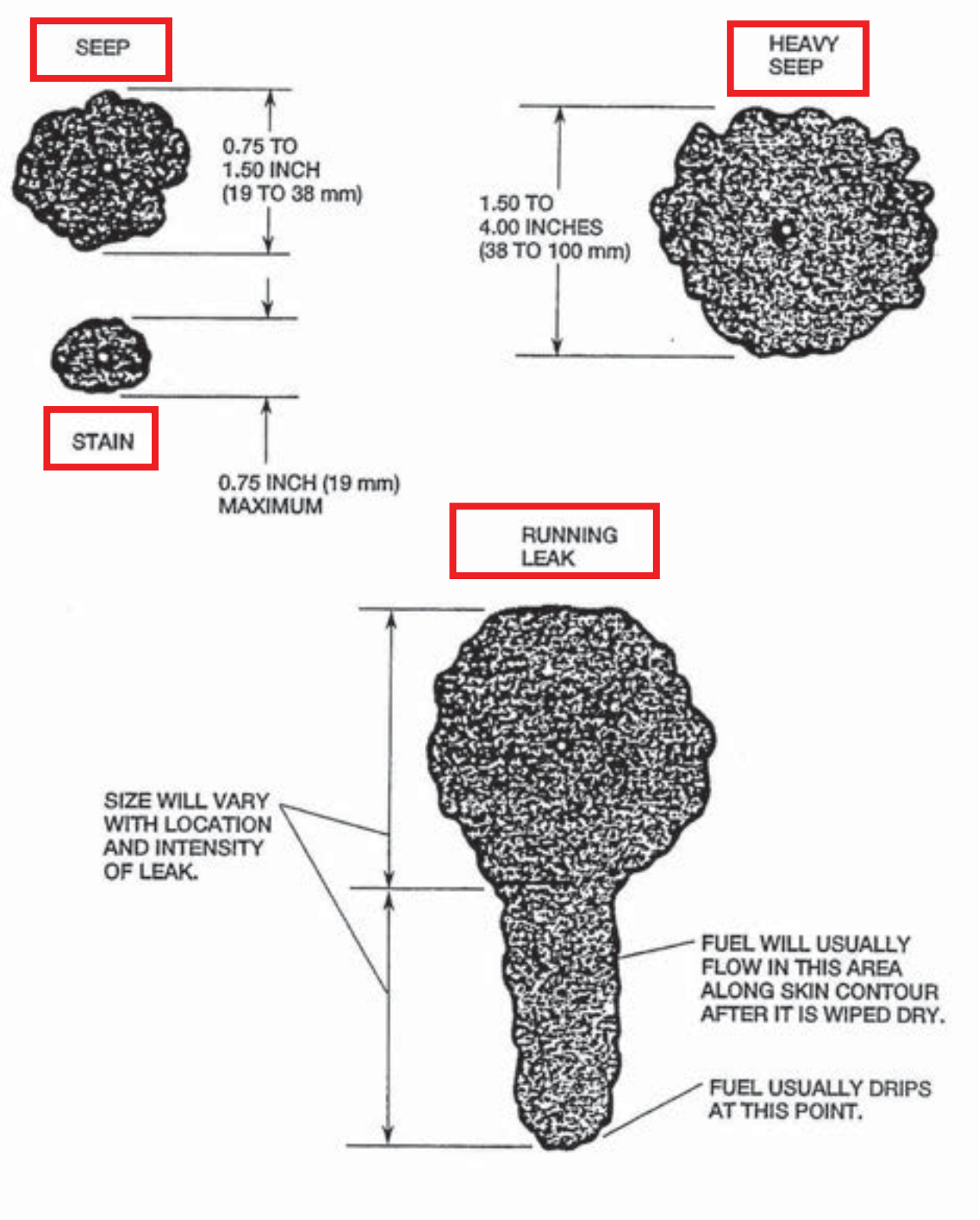
p/n B100143

GASKET p/n B100142-1

Integral Fuel Bay Components



Classification of Fuel Leaks



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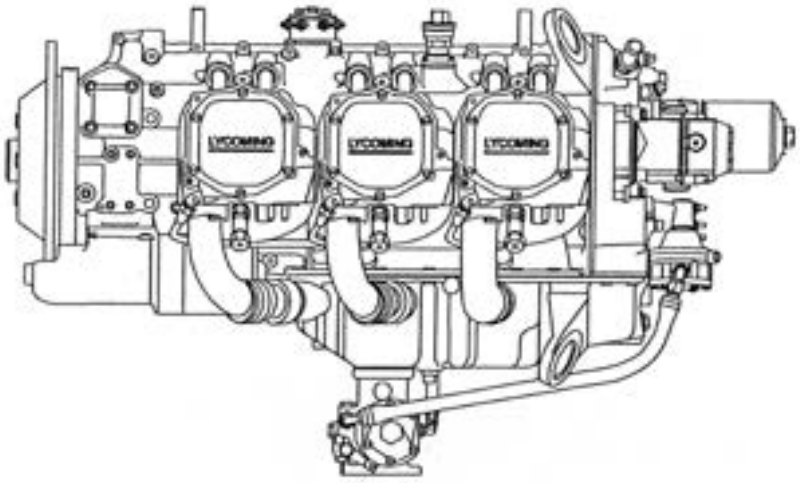
CESSNAPILOTS
ASSOCIATION

182S, 182T, T182T Skylane

Powerplant

Section Six

Lycoming IO-540 used in 182S and 182T



ENGINE - DESCRIPTION

Description and Operation

A. Textron Lycoming's IO-540 AB1A5 and TIO-540-AK1A are direct drive, six cylinder, fuel injected, horizontally opposed, air cooled engines. The cylinders, numbered from front to rear, are staggered to permit a separate throw on the crankshaft for each connecting rod. The right front cylinder is number 1 and the other cylinders on the right side of the engine are identified by odd numbers 3 and 5. The left front cylinder is number 2 and the other cylinders on the left side are identified as 4 and 6.

B. For a technical description of the engine, refer to Table 1.

C. For information beyond the scope of this chapter, refer to applicable engine manuals listed in Introduction - List of Manufacturers Technical Publications.

Table 1. IO-540-AB1A5 Technical Description

Rated Horsepower at 2400 RPM	230
Number of Cylinders	6 Horizontally Opposed
Displacement	541.5 Cubic Inches (8.875 l)
Bore	5.125
Stroke	4.375
Compression Ratio	8.5:1
Firing Order	1-4-5-2-3-6
Magnetos:	
Right Magneto	Slick Model No. 6351 (fires at 23° BTDC)
Left Magneto	Slick Model No. 6351 (fires at 23° BTDC)
Spark Plugs	18MM
Torque:	420 inch-pounds
Valve Rocker Clearance (hydraulic tappets collapsed)	0.028 to 0.060 inch
Fuel Injector	RSA-5AD1
Tachometer	Mechanical Drive
Oil Capacity	9.0 Quarts (8.52 l)
Oil Pressure	
Minimum Idling	20 PSI
Normal	50 to 90 PSI
Maximum	115 PSI
Oil Temperature	
Normal	100 to 245°F (38 to 118°C)
Maximum	245°F (118°C)
Dry Weight - with accessories	382 Lbs

Lycoming TIO-540
used in T182T

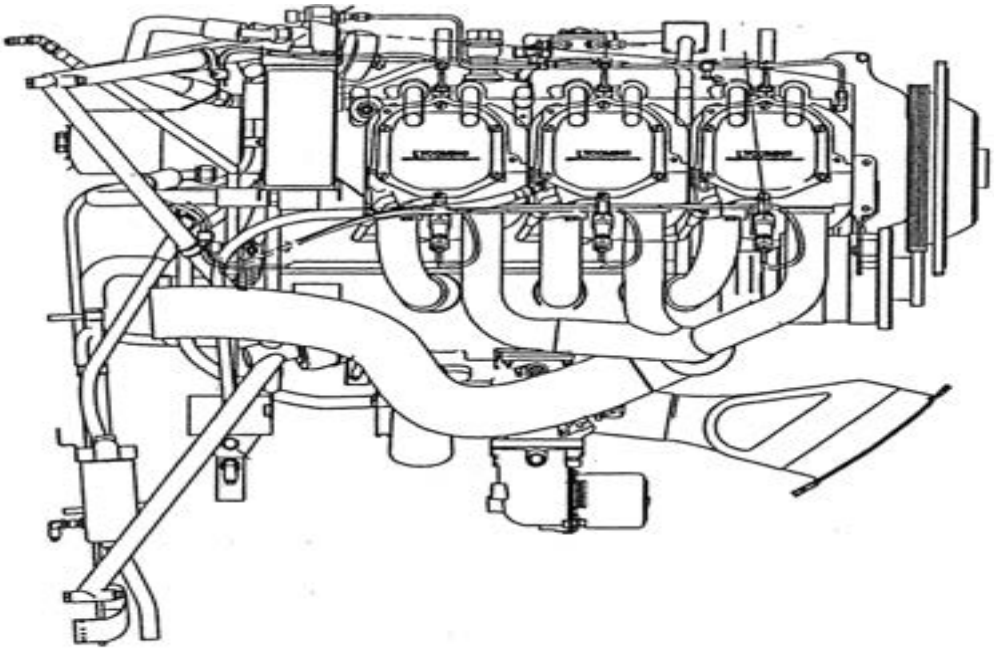


Table 2. TIO-540-AK1A Technical Description

Rated Horsepower at 2400 RPM	235
Number of Cylinders	6 Horizontally Opposed
Displacement	541.5 Cubic Inches (8.875 l)
Bore	5.125
Stroke	4.375
Compression Ratio	8.0:1
Firing Order	1-4-5-2-3-6
Magnetos:	
Right Magneto	Slick Model No. 6361 (fires at 20° BTDC)
Left Magneto	Slick Model No. 6361 (fires at 20° BTDC)
Spark Plugs	18MM
Torque:	420 Inch-pounds
Valve Rocker Clearance (hydraulic tappets collapsed)	0.028 to 0.080 inch
Fuel Injector	RSA-5AD1
Tachometer	Mechanical Drive
Oil Capacity	9.0 Quarts (8.52 l)
Oil Pressure	
Minimum Idling	20 PSI
Normal	50 to 90 PSI
Maximum	115 PSI
Oil Temperature	
Normal	100 to 245°F (38 to 118°C)
Maximum	245°F (118°C)
Dry Weight - with accessories	472 Lbs

BREAKDOWN OF ENGINE MODEL NUMBERS

IO-540 AB1A5

TIO-540 AK1A

T– TURBOCHARGED

I– FUEL INJECTED

O – OPPOSED ENGINE NOT A RADIAL ENGINE

540- CUBIC INCHES DISPLACEMENT

X-POWER SECTION AND RATING

X- NOSE SECTION

X-ACCESSORY SECTION

X- COUNTERWEIGHT APPLICATION

LYCOMING
652 Oliver Street
Williamsport, PA. 17701 U.S.A.

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www.lycoming.com

SERVICE INSTRUCTION

DATE: February 24, 2014

Service Instruction No. 1009AW
(Supersedes Service Instruction No. 1009AV)
Engineering Aspects are
FAA Approved

SUBJECT: Recommended Time Between Overhaul Periods

MODELS AFFECTED: All Lycoming Piston Aircraft Engines

NOTE

Incomplete review of all the information in this document can cause errors. Read the entire Service Instruction to make sure you have a complete understanding of the requirements.

This Service Instruction identifies the established Time Between Overhaul (TBO) for Lycoming piston aircraft engines that have **genuine Lycoming parts** only. The TBOs, herein, do not apply to Lycoming engine models that contain parts other than those supplied by Lycoming Engines.

The information in this revision of Service Instruction 1009 is approved as an Alternative Means of Compliance (AMOC) for compliance with AD-2012-19-01, paragraphs (f)(1)(i) and (f)(2)(i).

The TBOs take into account service experience, variations in operating conditions, and frequency of operation. **However, because of variations in the manner in which engines are operated and maintained, Lycoming Engines cannot give assurance that any individual operator will achieve the TBOs identified herein.**

Continuous service assumes that the aircraft will not be out of service for more than 30 consecutive days. If the aircraft is to be out of service for more than 30 consecutive days, refer to the latest revision of Service Letter L180.

Engine deterioration in the form of corrosion (rust) and the drying out and hardening of composition materials such as gaskets, seals, flexible hoses and fuel pump diaphragms can occur if an engine is out of service for an extended period of time. Due to the loss of a protective oil film after an extended period of inactivity, abnormal wear on soft metal bearing surfaces can occur during engine start. Therefore, all engines that do not accumulate the hourly period of TBO specified in this publication are recommended to be overhauled in the twelfth year.

Table 1 identifies the TBOs for Lycoming engine models used in fixed wing aircraft. Table 2 contains the TBOs for Lycoming engine models used on rotary wing aircraft.

LYCOMING

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SERVICE INSTRUCTION

DATE: February 26, 2016

Service Instruction No. 1009AY
(Supersedes Service Instruction No. 1009AW)
Engineering Aspects are
FAA Approved

SUBJECT: Required Time Between Overhaul (TBO) Schedule

MODELS AFFECTED: Lycoming engines that meet defined criteria herein

REASON FOR REVISION: Row for O-540-F1B5 (Robinson Helicopter only) in Table 2, revised to Note 11; Note 11 updated; TBO prerequisites

NOTICE: Incomplete review of all the information in this document can cause errors. Read the entire Service Instruction to make sure you have a complete understanding of the requirements.

This Service Instruction identifies the required Time Between Overhaul (TBO) for certified Lycoming engine models maintained and compliant with all applicable Lycoming Service Bulletins and FAA Airworthiness Directives.

The TBOs stated in this Service Instruction do not apply to engines that:

a) Do not conform to the original engine model type certificate configuration.

b) Have been assembled, repaired or overhauled with FAA-PMA parts, where the FAA-PMA parts have not been approved for use by Lycoming. Consult the applicable FAA-PMA instructions and FAA Airworthiness Directives for the FAA-PMA components.

c) Have been maintained or overhauled using methods other than Lycoming approved procedures.

The information in this revision of Service Instruction No. SI-1009 is approved by the FAA as an Alternative Method of Compliance (AMOC) for compliance with AD-2012-19-01, paragraphs (f)(1)(i) and (f)(2)(i).

The TBOs take into account service experience, variations in operating conditions, and frequency of operation. **However, because of variations in the manner in which engines are operated and maintained, Lycoming Engines cannot give assurance that any individual operator will achieve the TBOs identified herein.**

Continuous service assumes that the aircraft will not be out of service for more than 30 consecutive days. If the aircraft is to be out of service for more than 30 consecutive days, refer to the latest revision of Service Letter L180.

General Aviation Manufacturers Association

ISSUED			REVISED			PAGE NO.	REVISION
MO	DAY	YEAR	MO	DAY	YEAR	1 of 8	AY
05	27	60	02	26	16		

Engine deterioration in the form of corrosion (rust) and the drying out and hardening of composition materials such as gaskets, seals, flexible hoses and fuel pump diaphragms can occur if an engine is out of service for an extended period of time. Due to the loss of a protective oil film after an extended period of inactivity, abnormal wear on soft metal bearing surfaces can occur during engine start. Therefore, all engines that do not accumulate the hourly period of TBO specified in this publication are recommended to be overhauled in the twelfth year.

Table 1 identifies the TBOs for Lycoming engine models used in fixed wing aircraft. Table 2 contains the TBOs for Lycoming engine models used on rotary wing aircraft.

NOTICE: The recommended TBOs identified in Tables 1 and 2 do not apply to engines used for crop dusting or other aircraft used for chemical application. The TBO for engines in these applications is a maximum of 1500 hours, or at recommended TBO, whichever is lower.

Engine accessories and propellers could require overhaul prior to engine overhaul. Complete the overhaul of these components in accordance with the accessory manufacturer's recommendation.

Reliability and average service life cannot be predicted when an engine has undergone any modification not approved by Lycoming Engines. The TBOs shown in Tables 1 and 2 are recommendations for engines as manufactured, without considering any modifications that could alter the life of the engine. Refer to notes shown after Tables 1 and 2 and identified by number in Tables 1 and 2 for additional specific details.

Table 1
Fixed Wing Aircraft
Recommended Time Between Overhaul Periods

Engine Models	See Note	Hours
O-235 Series (except -F, -G, -J)	12	2400
O-235-F, -G, -J	13	2000
O-290-D	--------	2000
O-290-D2	--------	1500
O-320 Series (except O-320-H)	1,10,11	2000
O-320-H	11	2000
IO-320-A, -E	1,10,11	2000
IO-320-B, -D, -F	4,6,10,11	2000
IO-320-C	2,4,10,11	1800
AIO-320 (160 HP)	6	1600
AEIO-320 Series	6	1600
O-340 Series	1	2000
O-360 Series (except O-360-E, -J2A)	1,4,10,11	2000
O-360-E	4,11	2000
IO-360-L2A	11	2000
IO-360-A, -C, -D, -J (200 HP)	4,5,6,10,11	2000
IO-360-B, -E, -F, -M (180 HP)	1,4,10,11	2000
TO-360-C,-F; TIO-360-C	3,11	1800
TO-360-E (180 HP)	3,4,11	1800
AIO-360 (200 HP)	6	1400

NOTES #2, #10, #11

Table 1 (Cont.)
Fixed Wing Aircraft
Recommended Time Between Overhaul Periods

Engine Models	See Note	Hours
TIO-360-A Series	3,11	1200
AEIO-360 Series (180 HP)	6	1600
AEIO-360 Series (200 HP)	6	1400
IO-390-A	11	2000
AEIO-390-A	6	1400
O-435; GO-435	--------	1200
GO, GSO-480; IGSO-480	1	1400
O-540-A, -B, -E4A5	1,10	2000
O-540-E4B5, -E4C5	1,11	2000
O-540-G, -H, -J	10,11	2000
O-540-L3C5D	2,11	2000
IO-540-A, -B (290 HP)	1,10,11	1400
IO-540-AG1A5	--------	1800
IO-540-C	1,10, 11	2000
IO-540-D	1,10	2000
IO-540-E, -G, -P	1,10,11	1600
IO-540-S, -AA	2,10	1800
IO-540-J, -R	2,10	1800
IO-540-J4A5	10	2000
IO-540-AB1A5, -AC1A5, -AF1A5	11	2000
IO-540-K, -L, -M, -N, -T, -V, -W	10,11	2000
AEIO-540 Series	6	1400
IGO & IGSO-540 Series	--------	1200
TIO-540-V, -W, -AE	3,4,11	2000
TIO-540-C, -AA, -AB, -AF, -AG, -AH, -AJ, -AK	3,4,7,11	2000
TIO-540-A, -F, -J, -N, -R, -S, -U	3,4,11,14	1800
TIO-541-A (320 HP)	3	1300
TIO-541-E (380 HP)	3,9	1600
TIGO-541 (425 HP)	3	1200
IO-580-B1A	11	2000
AEIO-580-B1A	6	1400
IO-720 Series	11	1800

NOTES #2, #10, #11

Table 2
Rotary Wing Aircraft
Recommended Time Between Overhaul Periods

Engine Models	See Note	Hours
O-320-A2C, -B2C	11	2000
O-320-B2C (Robinson Helicopter only)	15	2200
HO-360-C1A	11	2000
O-360-C2B,-C2D; HO-360 (except –C1A); HIO-360-B	--------	1500
O-360-J2A	11	2000
O-360-J2A (Robinson Helicopter only)	15	2200
HIO-360-A, -C, -D, -E, -F Series	--------	1500
HIO-360-G1A	11	2000
VO-360-A Series	--------	600
VO-360-B; IVO-360	--------	1000
VO-435-A Series	--------	1200
VO-435-B Series	--------	1200
TVO-435 Series	3	1000
O-540-F1B5	11	2000
O-540-F1B5 (Robinson Helicopter only)	11, 15	2200
IO-540-AE1A5	11	2000
IO-540-AE1A5 (Robinson Helicopter only)	15	2200
VO-540 Series	8	1200
IVO-540 Series	--------	600
TVO, TIVO-540 Series	3,8	1200

NOTES

1. Only engines built with 1/2 in. (12.7 mm) dia. exhaust valve stems. Engines of this series with 7/16 in. (11.1 mm) dia. exhaust valves must not exceed 1200 hours between overhauls regardless of the type of operation. New and rebuilt engines built with 1/2 in. (12.7 mm) dia. exhaust valve stems are identified, respectively, by serial numbers and date in the latest revision of Service Instruction No. 1136.
2. These engines are designed to incorporate exhaust turbocharging.
3. Turbochargers could require removal, prior to engine overhaul, for carbon removal and repair.
4. Engines with reverse rotation have same overhaul times as corresponding normal rotation engines.
5. 1200 HOURS: Engines that do not have large main bearing dowels must not be operated more than 1200 hours between overhauls.

   1400 HOURS: Engines that have large main bearing dowels can be operated to 1400 hours between overhauls. These include engines with serial numbers L-7100-51A and up, and L-101-67A and up; engines which are in compliance with the latest revision of Service Bulletin No. 326; and remanufactured engines shipped after January 26, 1970.

ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR			
05	27	60	02	26	16	4 of 8	AY	S.L. 1009

2000 HOURS: Engines that have large main bearing dowels and redesigned camshafts can be operated to 2000 hours between overhauls. These include engines with serial numbers L-9762-51A and up; IO-360-C1E6 engines with serial numbers L-9723-51A and up; LIO-360-C1E6 engines with serial numbers L-524-67A and up; engines that are in compliance with the latest revision of Service Bulletin No. 326 and Service Instruction No. 1263. Rebuilt engines shipped after October 1, 1972, can be operated to 2000 hours between overhauls except those with serial numbers L-2349-51A and L-7852-51A which do not have the redesigned camshaft and must not exceed 1400 hours of operating time between overhauls.

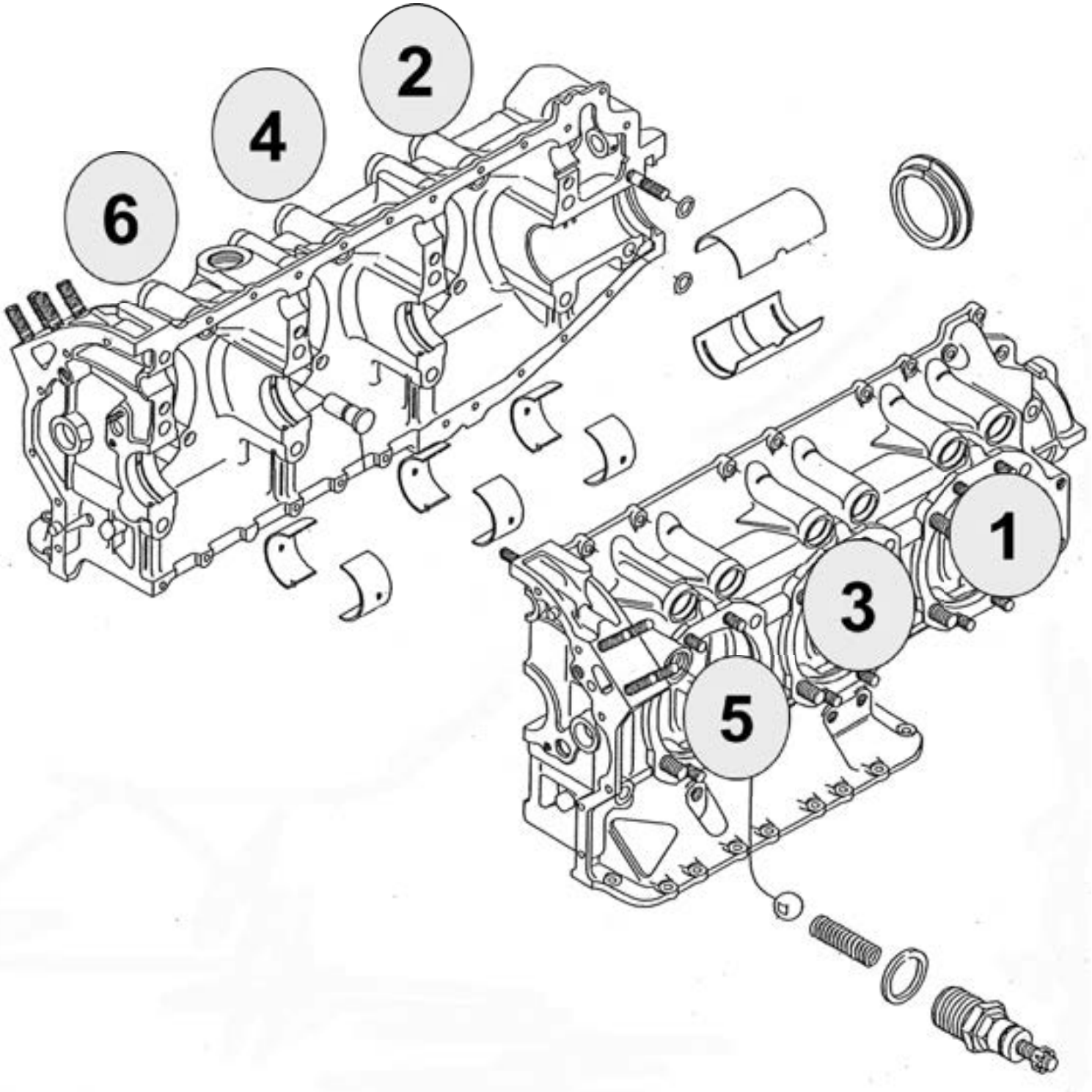
NOTES #10, #11

6. The reliability and service life of engines can be detrimentally affected if they are repeatedly operated at alternating high and low power applications which cause extreme changes in cylinder temperatures. Flight maneuvers which cause engine overspeed also contribute to abnormal wear characteristics that tend to shorten engine life. These factors must be considered to establish TBO of aerobatic engines; therefore it is the responsibility of the operator to determine the percentage of time the engine is used for aerobatics and establish his own TBO. The maximum recommended is the time specified in this instruction.

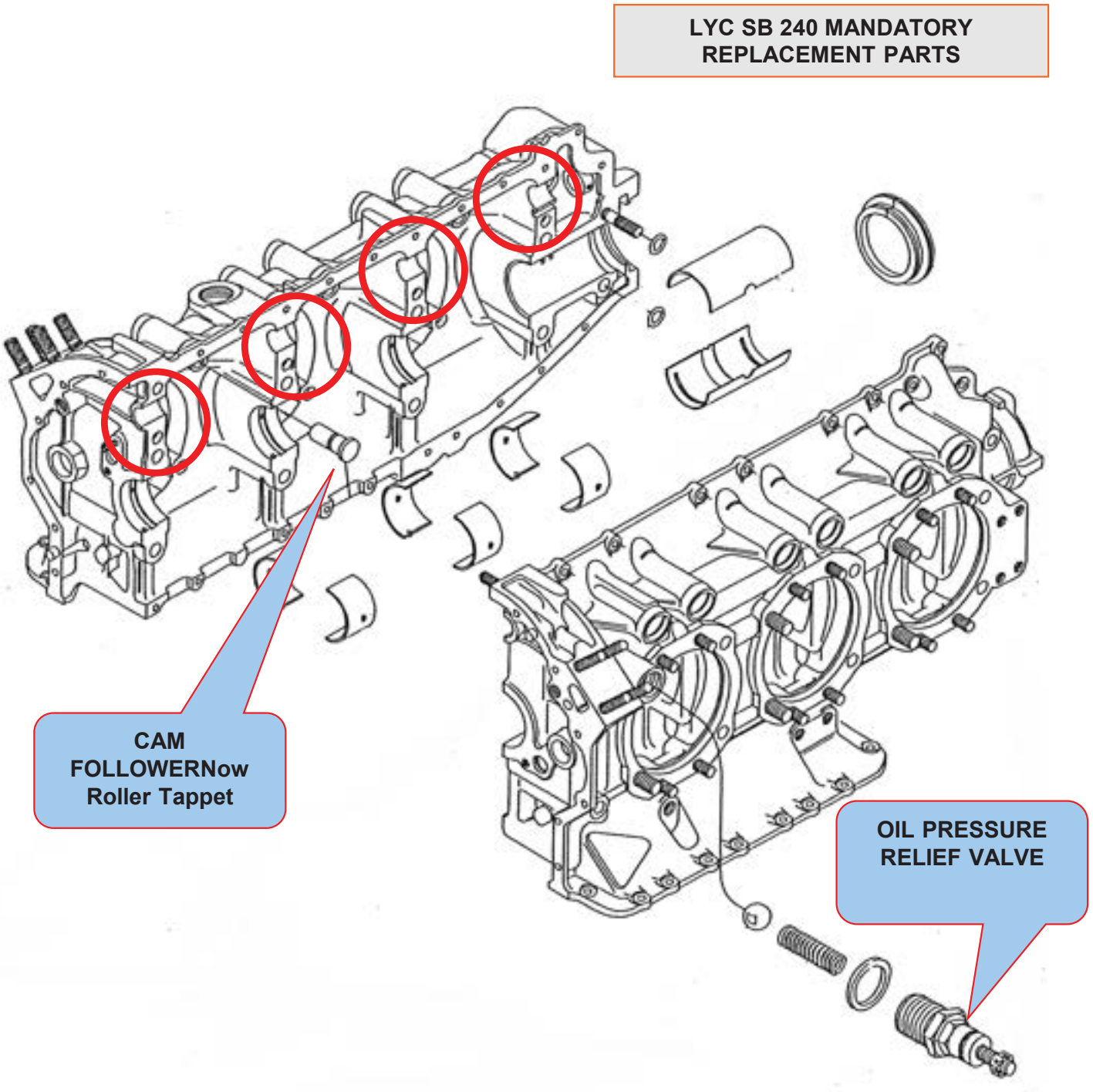
TBO EXTENSION

7. TIO-540-C Series engines with serial numbers L-1754-61 and up, TIO-540-C Series engines that were rebuilt or overhauled at Lycoming Engines, Williamsport, PA after March 1, 1971, and TIO-540-C series engines that have been modified to incorporate large main bearing dowels as described in the latest revision of Service Instruction No. 1225 can be operated to 2000 hours. Engines that do not incorporate this modification must not exceed 1500 hours between overhauls.
8. VO, TVO and TIVO-540 engines built with P/N 77450 connecting rods as described in the latest revision of Service Bulletin No. 371 can be continued in service to 1200 hours. Engines that do not incorporate this new connecting rod are restricted to 1000 hours for VO-540 models and 900 hours for TVO and TIVO-540. See the latest revision of Service Bulletin No. 371 for improved connecting rod assembly.
9. TIO-541-E series engines with serial numbers L-804-59 and up, rebuilt engines shipped after March 1, 1976, and all engines that incorporate the improved crankcases and cylinder assemblies described in the latest revision to Service Bulletin Nos. 334 and 353 can be operated for 1600 hours before overhaul. Engines not in compliance with these requirements are limited to 1200 hours recommended time between overhaul.
10. Some engines in the field have been altered to incorporate an inverted oil system in order to perform aerobatic maneuvers. Whenever this modification is done to an engine, the TBO of the engine must be determined in the same manner listed for AEIO engines of the same model series.
11. If an engine is being used in "frequent" type service and accumulates 40 hours or more per month, and has been so operated consistently since being placed in service, add 200 hours to TBO time. (Engines identified in AD-2012-19-01 are not eligible for this TBO extension.)
12. To qualify for the 2400 hour TBO, high-compression, O-235's must have the increased strength pistons (P/N LW-18729). See the latest revision of Service Letter No. L213.
13. The high-compression O-235-F, -G and -J series do not have the increased-strength pistons (P/N LW-18729); therefore, they do not qualify for the 2400 hour TBO.
14. TIO-540-A series engines with serial numbers L-1880-61 and up, TIO-540-A series engines that were rebuilt or overhauled at Lycoming Engines, Williamsport, PA after March 1, 1971, and TIO-540-A series engines that have been modified to incorporate large main bearing dowels as described in the latest revision of Service Instruction No. 1225 can be operated to 1800 hours. Engines that do not incorporate this modification must not exceed 1500 hours between overhauls.
15. Only engines built to specifications intended for and installed in Robinson Helicopter applications are approved for 2200 hour TBO.

IO 540 Crankcase Assembly



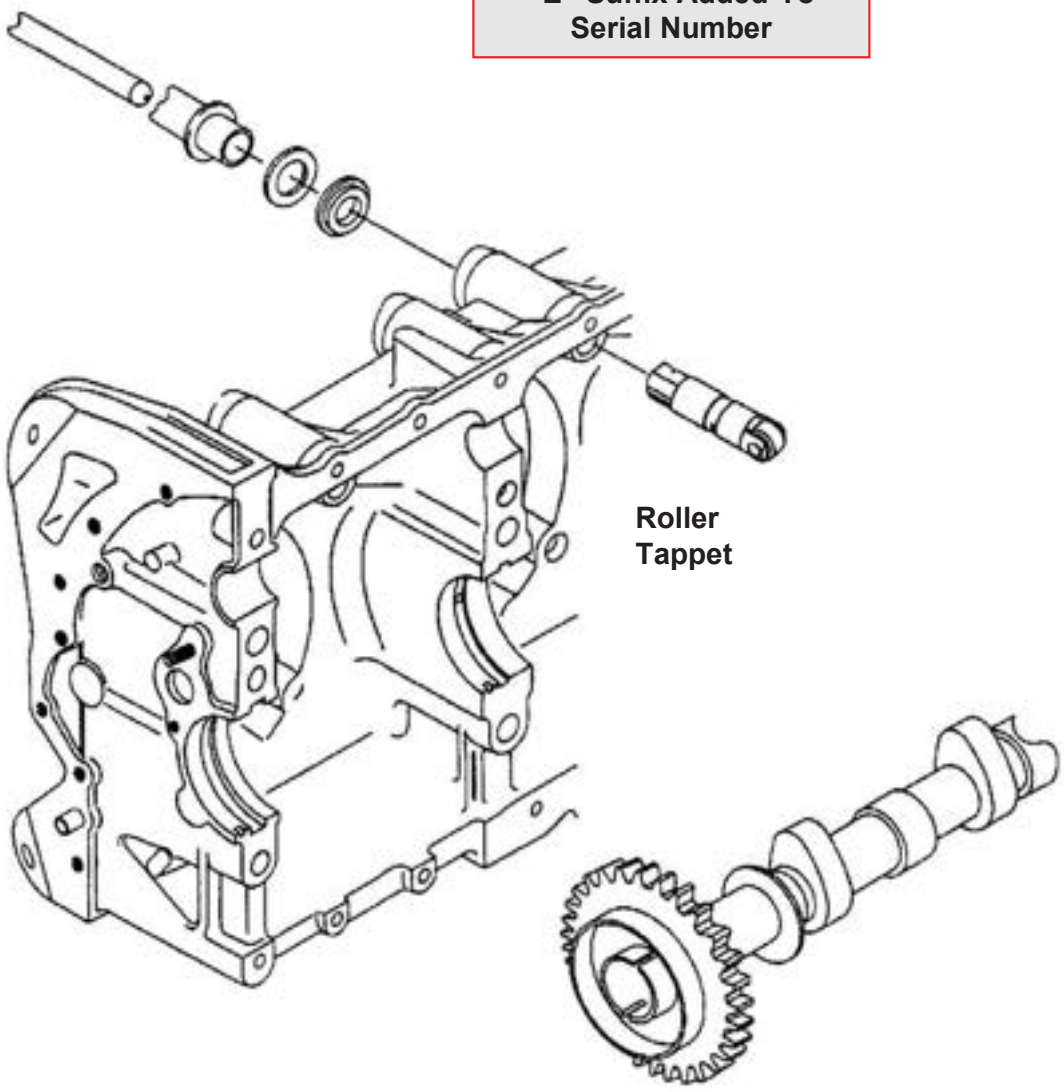
IO 540 Crankcase Assembly



Roller Tappets

SI1514A Roller Tappets

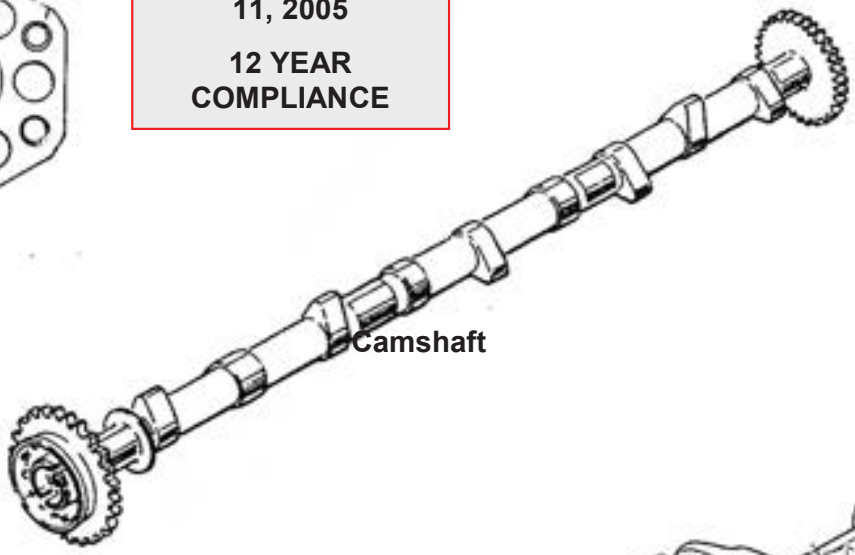
"E" Suffix Added To Serial Number



Crankshaft & Camshaft

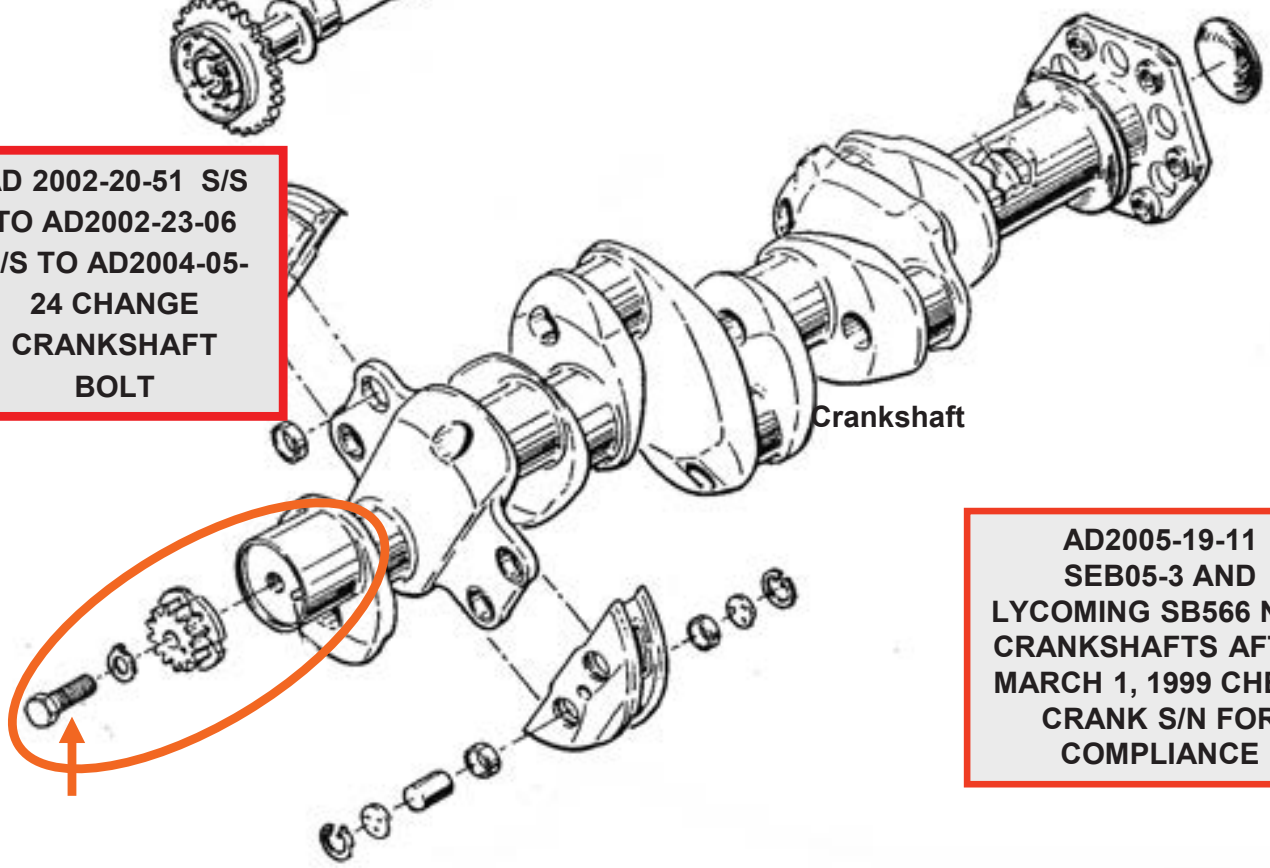
AD2012-19-01 SS AD2006-20-09 LYC MSB569A REPLACE CRANKS MARCH 1,1997 TO JULY 11, 2005

12 YEAR COMPLIANCE



Camshaft

AD 2002-20-51 S/S TO AD2002-23-06 S/S TO AD2004-05-24 CHANGE CRANKSHAFT BOLT



Crankshaft

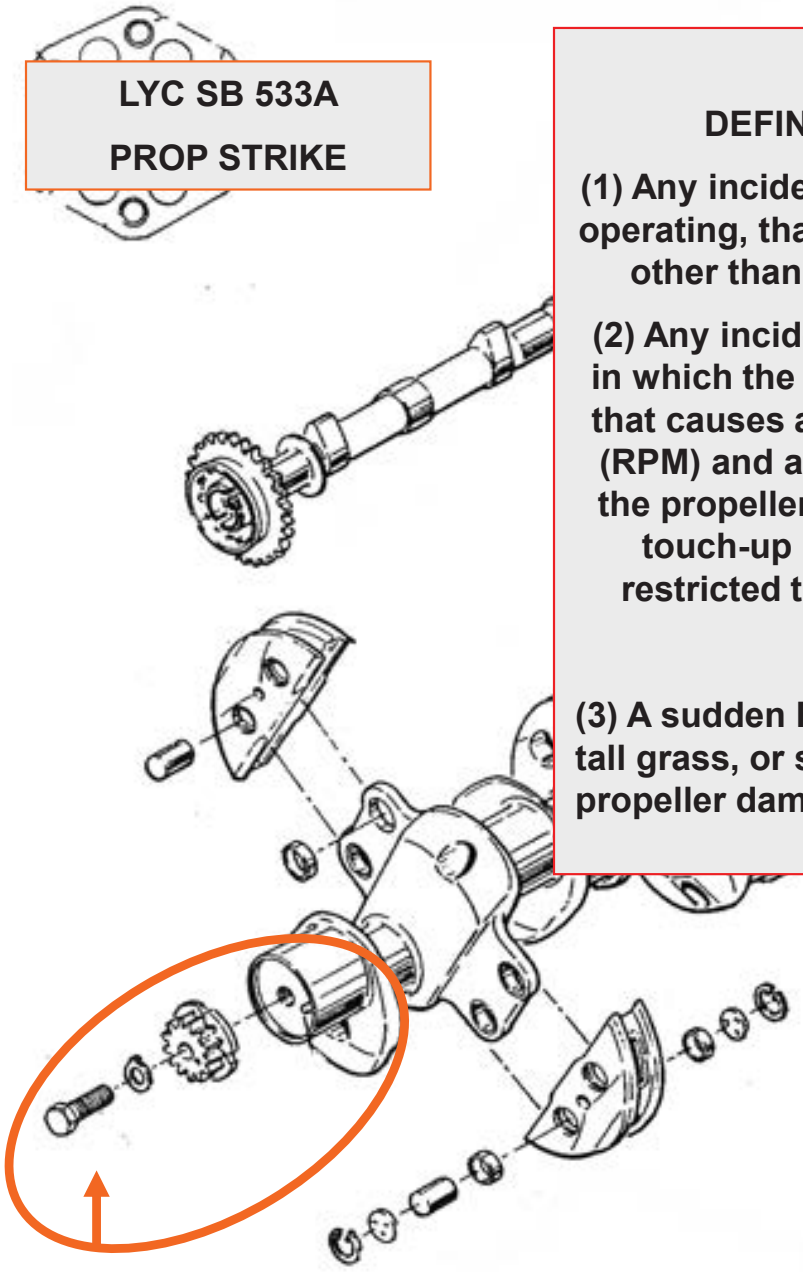
AD2005-19-11 SEB05-3 AND LYCOMING SB566 NEW CRANKSHAFTS AFTER MARCH 1, 1999 CHECK CRANK S/N FOR COMPLIANCE

AD2004-10-14 S/S TO 2004-10-14 C1

DEFINITION OF PROP STRIKE

LYC SB 533A

PROP STRIKE



AD2004-10-14

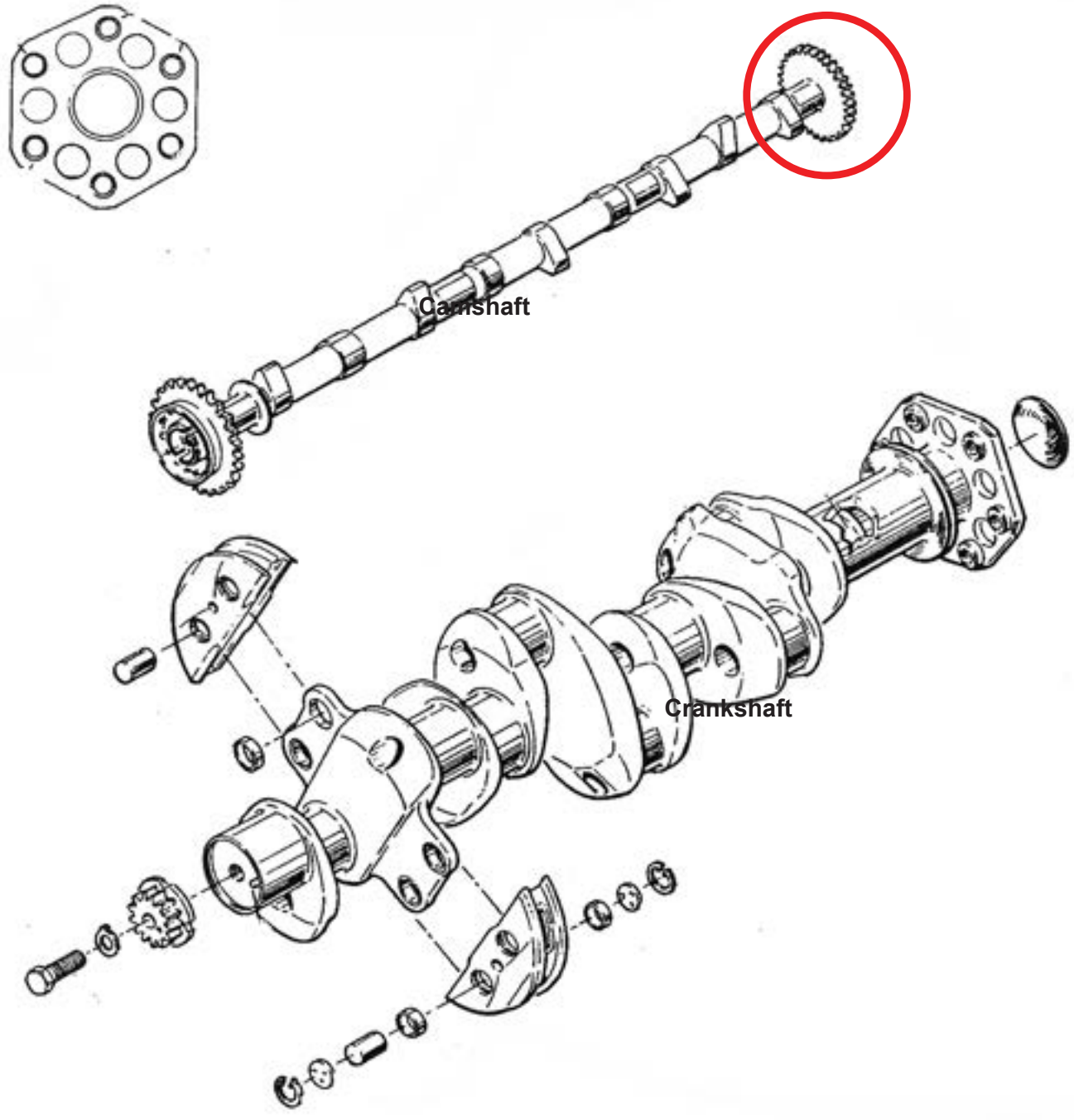
DEFINITION OF PROP STRIKE

(1) Any incident, whether or not the engine is operating, that requires repair to the propeller other than minor dressing of the blades

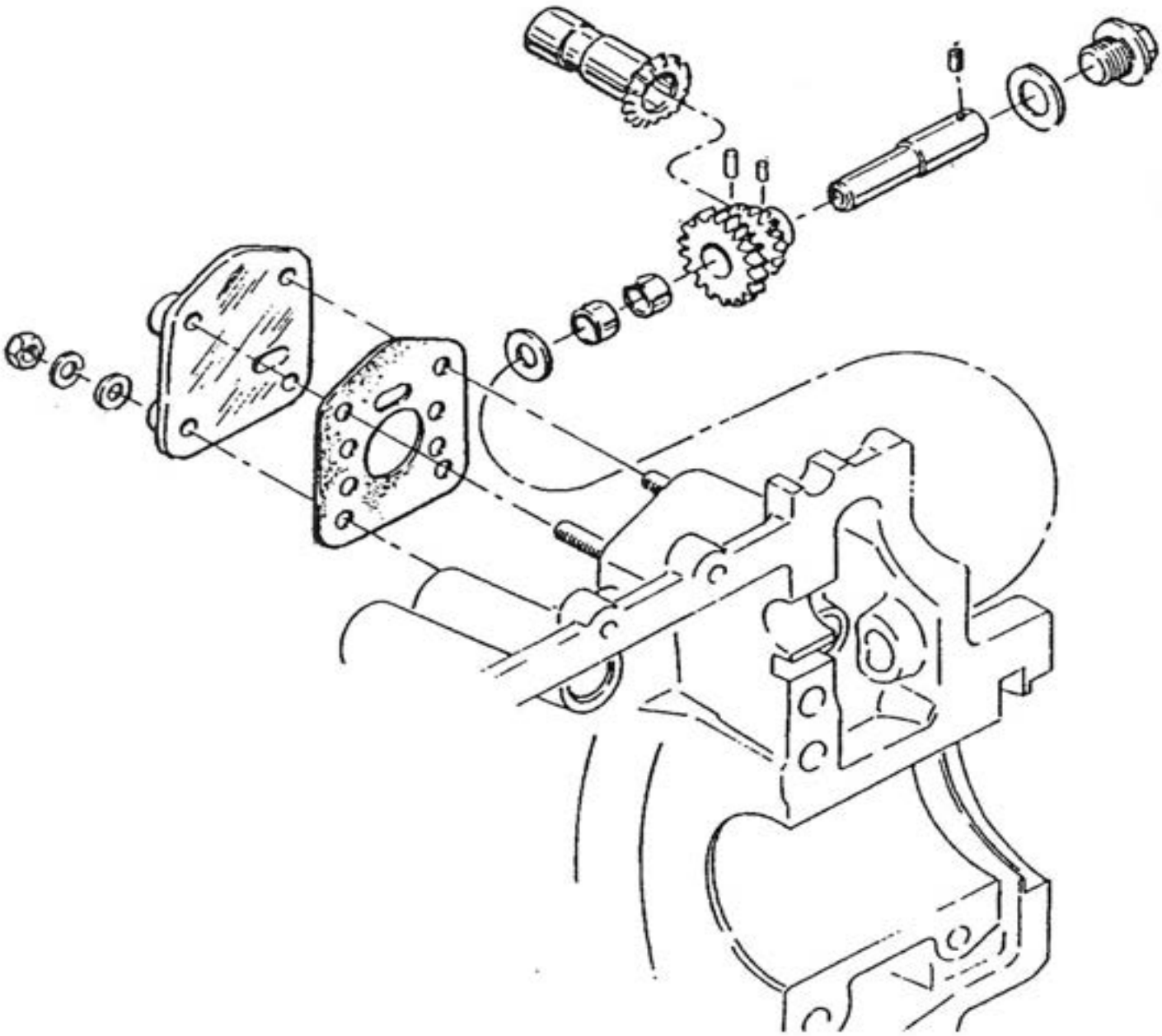
(2) Any incident during the engine operation in which the propeller impacts a solid object that causes a drop in revolutions per minute (RPM) and also requires structural repair of the propeller (incidents requiring only paint touch-up are not included). This is not restricted to propeller strikes against the ground.

(3) A sudden RPM drop while impacting water, tall grass, or similar yielding medium, where propeller damage is not normally incurred.

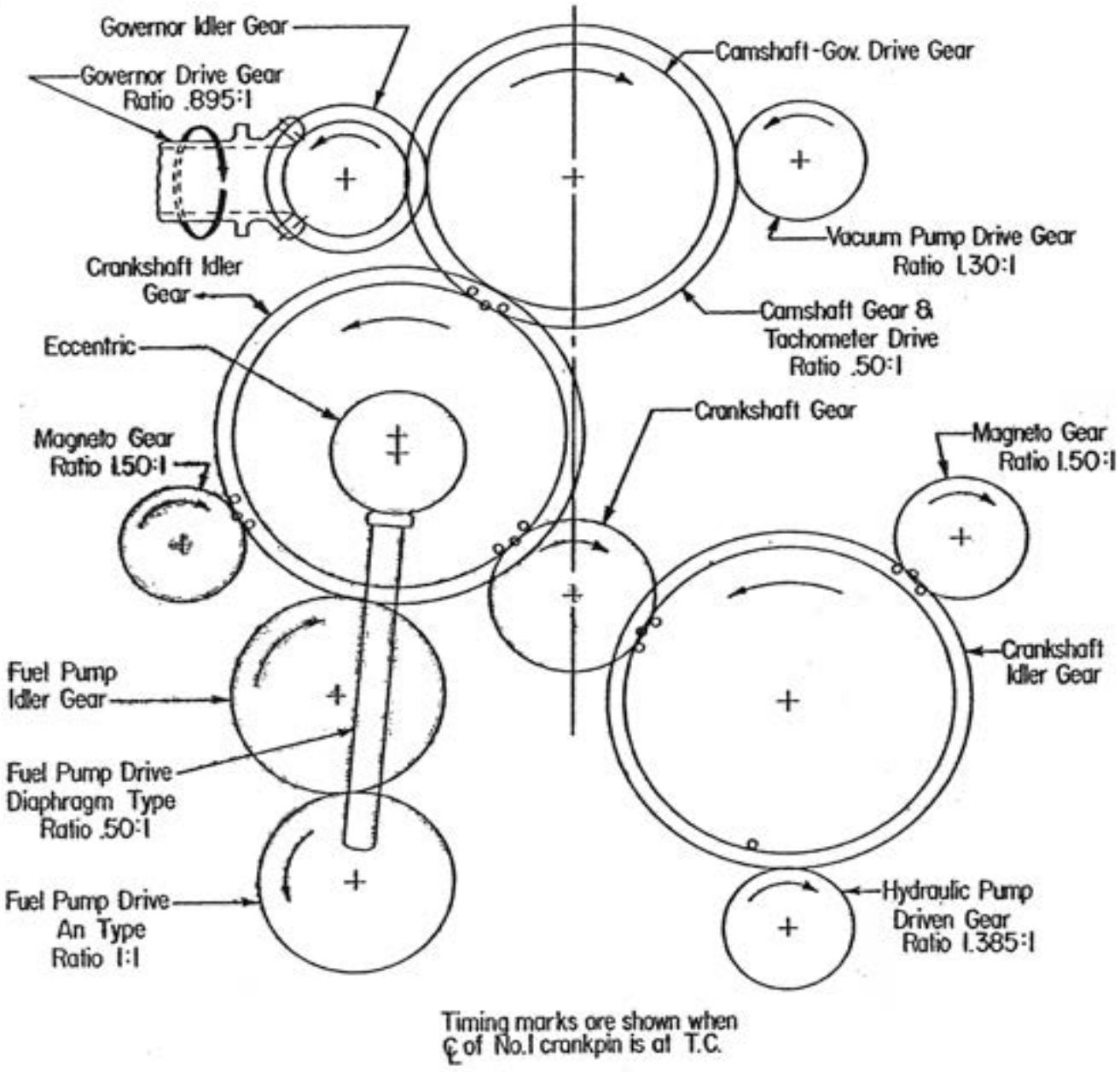
Crankshaft & Camshaft



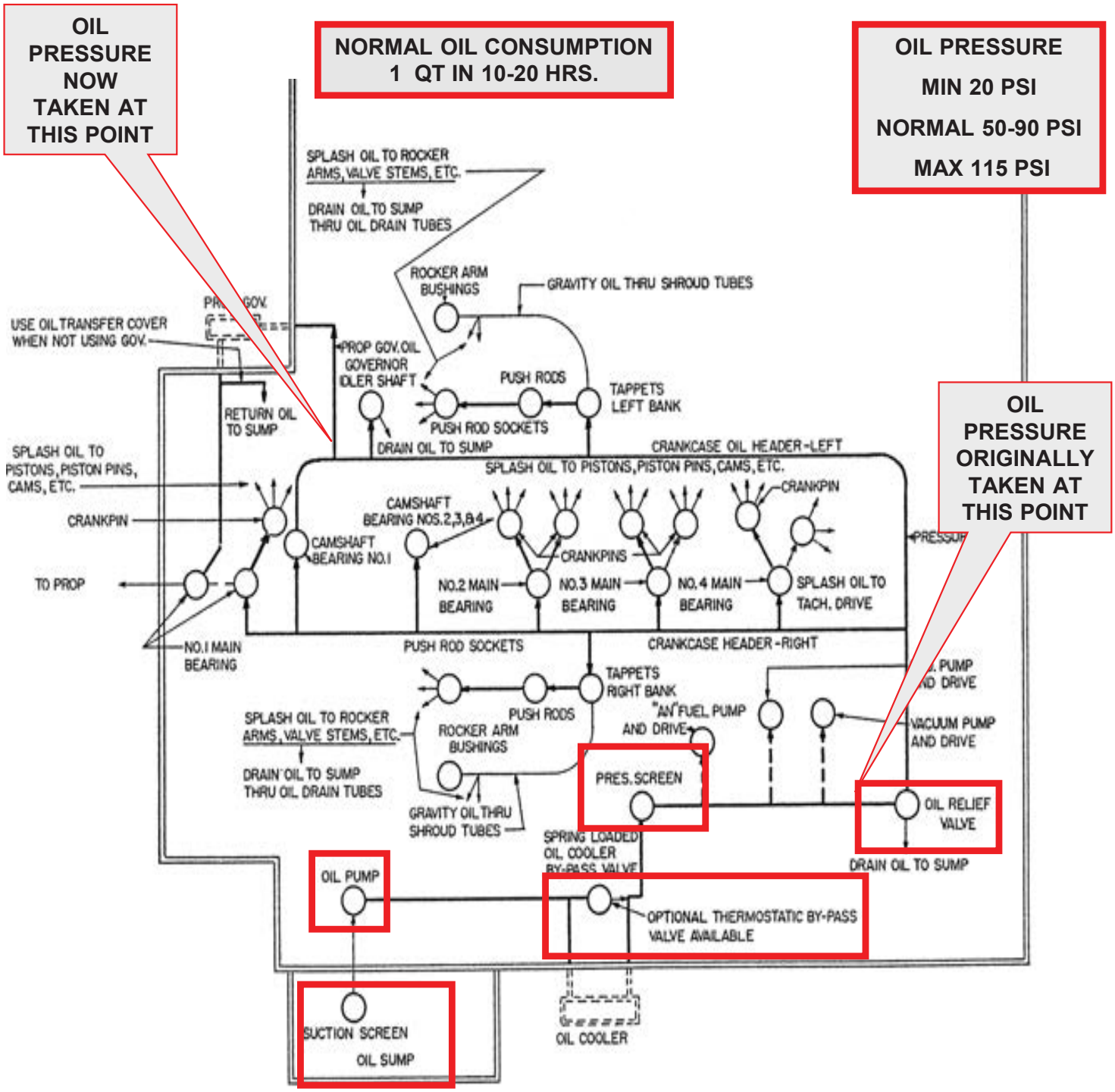
Prop Governor Drive



182S, 182T, T182T IO-540 Gear Train Diagram



Lubrication Schematic

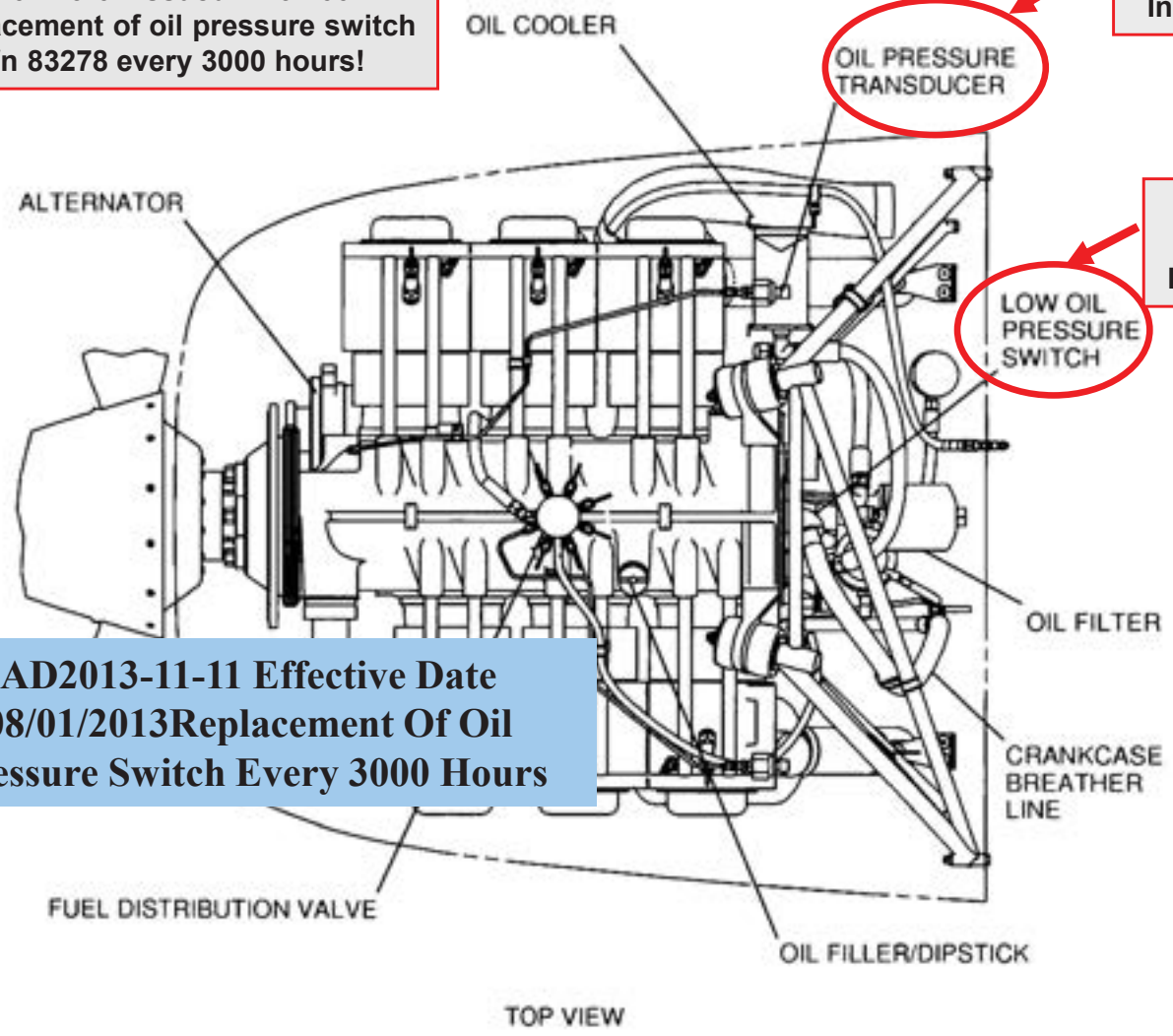


Oil Pressure Switch Replacement

Article In CPA Magazine Feb 2013

Numeric Gage Indication

SB07-79-01 issued 1/29/2007
Replacement of oil pressure switch p/n 83278 every 3000 hours!

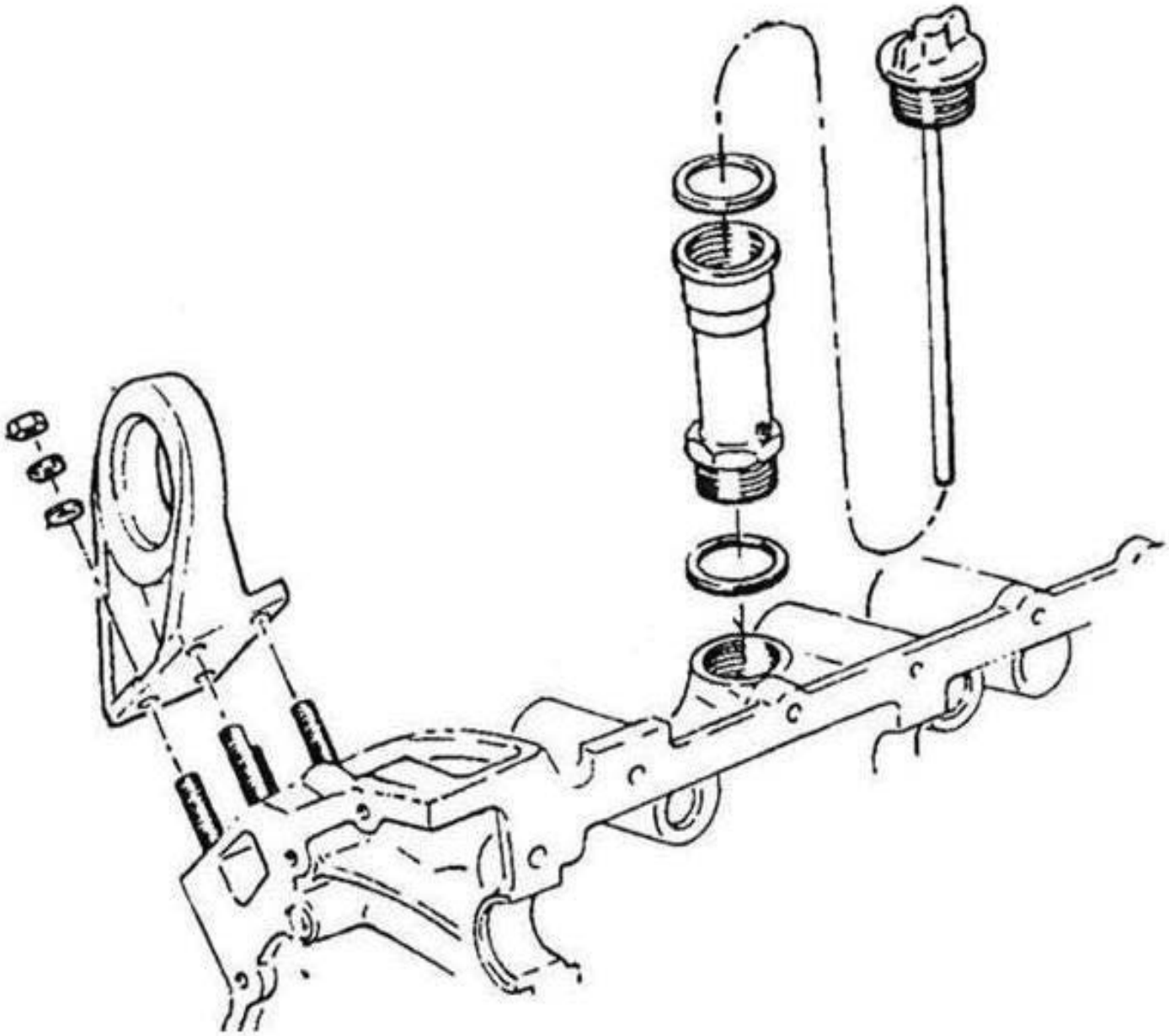


Warning Light Indication

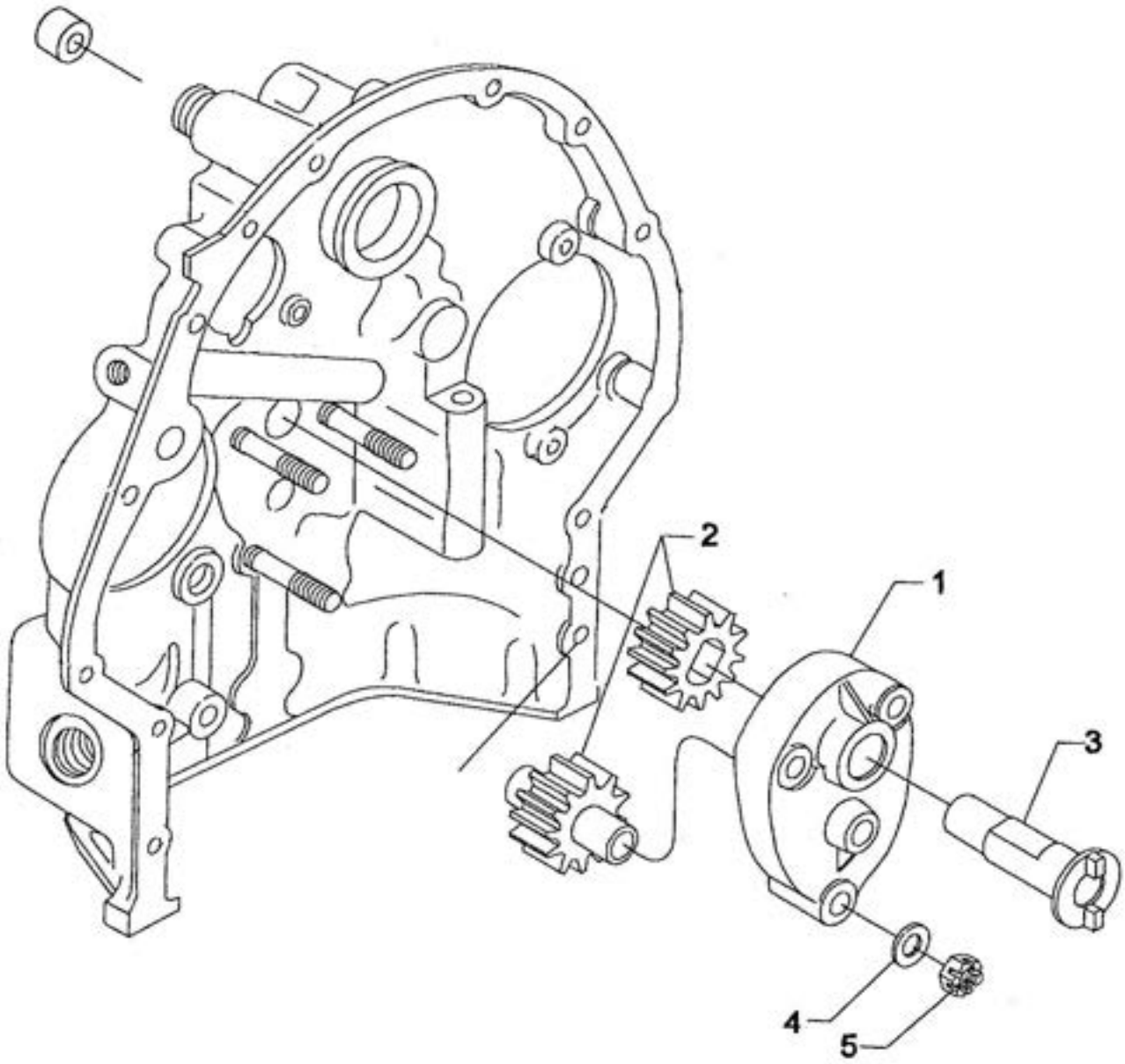
AD2013-11-11 Effective Date 08/01/2013Replacement Of Oil Pressure Switch Every 3000 Hours

SEL-05-03 issued 11/28/2012
Airworthiness Limitations added to Maintenance Manual –Chapter 4

Oil Level Gauge

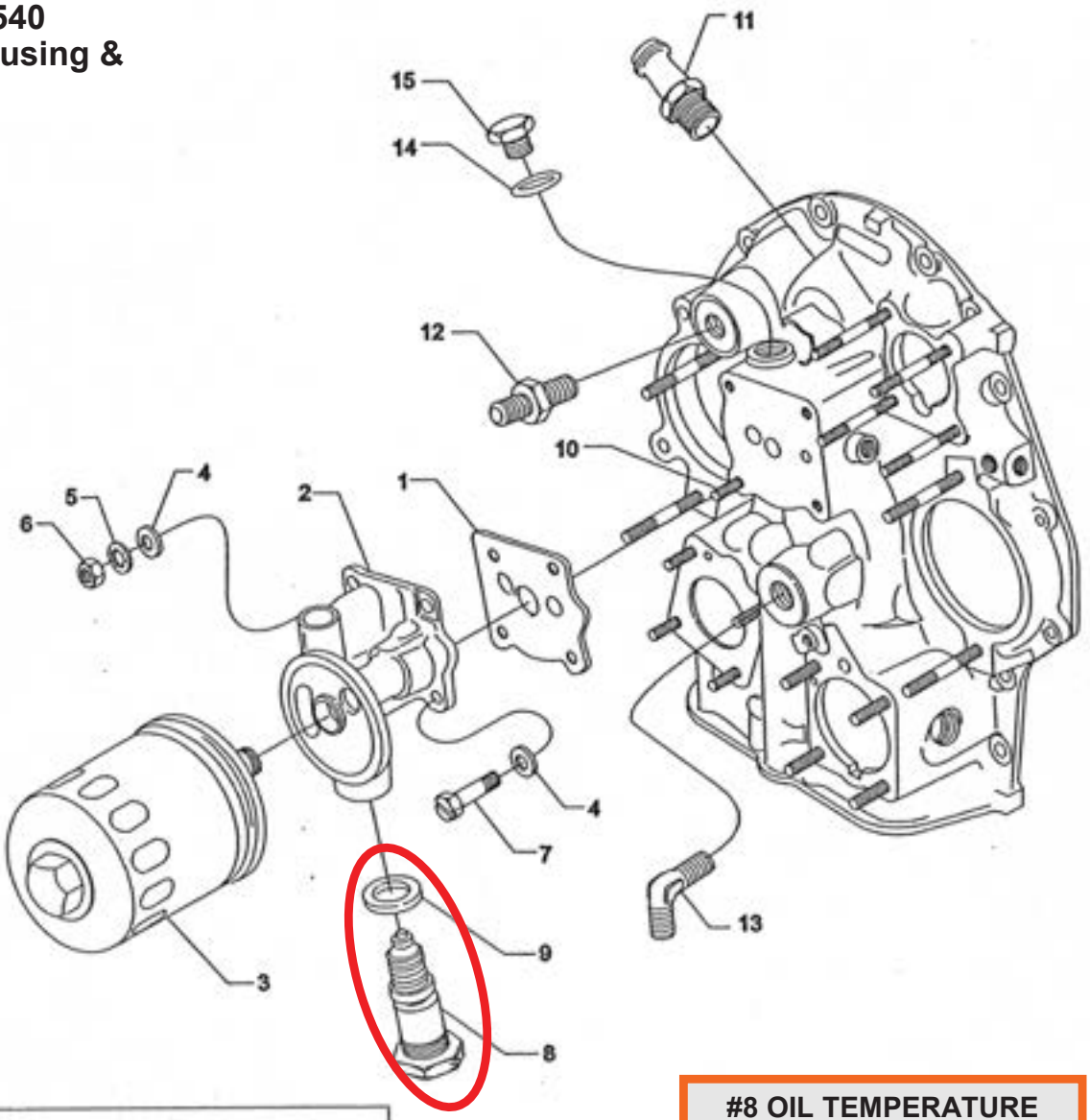


IO-540 Accessory
Housing Oil Pump



1	78531	BODY, Oil pump
2	05K19423-S*	OIL PUMP IMPELLER KIT
3	74641	SHAFT, Oil pump drive
4	STD-35	WASHER, 5/16 plain
5	STD-1420	NUT, 5/16-18 slotted

IO-540 & TIO-540
Accessory Housing & Related Parts



1	GASKET, Oil filter adapter
2	OIL FILTER BASE ASSEMBLY
3	OIL FILTER
4	WASHER, 1/4 plain
5	WASHER, 1/4 lock, internal teeth
6	NUT, 1/4-20 plain
7	SCREW, 1/4-20 x 1.00 long, hex. hd.
8	VALVE ASSY., Temp. control oil cooler
9	GASKET, Valve assembly
10	STUD, 1/4-20 x 1-1/4 long
11	FITTING, Breather
12	NIPPLE, -10 to –6 special
13	ELBOW, 45°, 3/8 NPT to 5/8 flared tube
14	GASKET, Annular, 5/8 I.D.
15	PLUG, Oil cooler bypass

#8 OIL TEMPERATURE CONTROL VALVE

Lycoming
SI 1014M

TEXTRON Lycoming
Reciprocating Engine Division/
Subsidiary of Textron Inc. 652
Oliver Street Williamsport, PA
17701 U.S.A.

SERVICE INSTRUCTION

DATE May 22,1995

Service Instruction No. 1014M
(Supersedes Service Instruction No. 1014L)
Engineering Aspects are
FAA Approved

SUBJECT: Lubricating Oil Recommendations

MODELS AFFECTED: All Textron Lycoming opposed series aircraft engines.

TIME OF COMPLIANCE: When preservation oil is removed after initial 25 hours, or when lubricating oil is changed or added.

Textron Lycoming Specification No. 301F approves for use lubricating oils which conform to both MIL-L-6082 or SAEJ1966 straight mineral type and MIL-L-22851 or SAEJ1899 ashless dispersant type lubricants for aircraft engines. Any brand name lubricating oil in accordance with these specifications is acceptable for use; proof of such conformity is the responsibility of the lubricating oil manufacturer.

PART I - LUBRICATING OIL RECOMMENDATIONS

Average Ambient Air Temperature (NOTE A)	MIL-L-6082 or SAEJ1966 Spec. Mineral Grades (NOTE B)	MIL-L-22851 or SAEJ1899 Spec. Ashless Dispersant Grades (NOTE C)
All Temperature	SAE60	SAE15W50 or SAE20W50
Above 80°F.	SAE50	SAE60
Above 60°F.	SAE40	SAE40 or SAE50
30°F. to 90°F.	SAE30	SAE40
0°F. to 70°F.	SAE20W50	SAE30, SAE40 or SAE20W40
0°F. to 90°F.	SAE20	SAE20W50 or SAE15W50
Below 10°F.		SAE30 or SAE20W30

A. AVERAGE TEMPERATURES - The ambient ground air temperatures listed in the chart are meant only as a guide. Actually a great deal of personal judgement must be used when selecting the seasonal grade of oil to put into the engines. For example, if an aircraft is to be flown into an area which is much warmer or colder, only personal judgement on the part of the operator can determine what grade oil to use. When oil inlet temperatures approach the maximum allowable during operation, it is a good indication that a higher viscosity oil should be considered.

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page 2

B. MINERAL GRADES - Included in this classification are aviation-grade, mineral lubricating oils. The SAE straight mineral grades, 20,30,40,50 and 60, shown in the chart, are the equivalent to Commercial Grades 55,65,80,100 and 120, and to Military Grades 1040,1065,1080,1100 and 1120 respectively. This classification also includes a multiviscosity 20W50 oil.

C. ASHLESS DISPERSANT GRADES - This classification contains additives, one of which has a viscosity stabilizing effect, which removes the tendency of the oil to thin out at high oil temperatures and thicken at low oil temperatures. The additives in these oils extend operating temperature range, improve cold engine starting and lubrication of the engine during the critical warm-up period, thus permitting flight through wider ranges of climatic changes without the necessity of changing oil. The ashless dispersant grades are recommended for aircraft engines subjected to wide variations of ambient temperature particularly the turbocharged series engines which requires oil to activate the various turbo controllers. The SAE Grades 30,40,50 and 60 shown on the chart are equivalent to grades of 65, 80,100 and 120 respectively. It must not be presumed however, that these oils will alleviate all of the problems encountered in extremely cold environments (below +10°F.). At these temperatures preheating of the engine and oil supply tank will be required regardless of the type of oil used.

PART II - OIL RECOMMENDATIONS FOR ENGINE OPERATION AND BREAK-IN

A. All turbocharged engines must be broken-in and operated with ashless dispersant oil only.

B. O-320-H; O/LO-360-E series engines may be operated using either straight mineral oil or ashless oil. However, if the engine is delivered with ashless dispersant oil, it must remain on ashless dispersant oil. The Textron Lycoming oil additive P/N LW-16702 must be added to the O-320-H and O/LO-360-E engines at airframe installation, and every 50 hours thereafter or at every oil change. This lubrication recommendation supersedes the lubrication recommendations in Service Instruction No. 1392.

NOTE

If it is determined that a FAA approved lubricating oil being used contains, in the proper amount, an oil additive equivalent to LW-16702, the provisions of this Service Instruction are met.

C. In all IGSO-480 and IGSO-540 series engines equipped with Simmonds fuel injection systems, it is allowable to use SAE50 or SAE60 grade lubricant providing the engine oil pressure does not exceed the limits set forth in the Operator's Manual.

D. All other engines must be operated on mineral oil during the first 50 hours of operation, or until oil consumption has stabilized. LW-16702 additive may be used. If an ashless dispersant oil is used in a new engine, or a newly overhauled engine, high oil consumption might possibly be experienced. The additives in some of these ashless dispersant oils may retard the break-in of the piston rings and cylinder walls. This condition can be avoided by the use of mineral oil until normal oil consumption is obtained, then change to the ashless dispersant oil. Mineral oil must also be used following the replacement of one or more cylinders or until the oil consumption has stabilized.

CAUTION

AIRCRAFT MANUFACTURERS MAY ADD APPROVED PRESERVATIVE LUBRICATING OIL TO PROTECT NEW ENGINES FROM RUST AND CORROSION AT THE TIME THE AIRCRAFT LEAVES THE FACTORY. THIS PRESERVATIVE OIL MUST BE REMOVED AT END OF THE FIRST 25 HOURS OF OPERATION. WHEN ADDING OIL DURING THE PERIOD PRESERVATIVE OIL IS IN THE ENGINE, USE ONLY AVIATION GRADE STRAIGHT MINERAL OIL OR ASHLESS DISPERSANT OIL, AS REQUIRED, OF THE VISCOSITY DESIRED.

PART III - RECOMMENDATIONS FOR CHANGING OIL

In engines that have been operating on straight mineral oil for several hundred hours, a change to ashless dispersant oil should be made with a degree of caution as the cleaning action of some ashless dispersant oils will tend to loosen sludge deposits and cause plugged oil passages. When an engine has been operating on straight mineral oil, and is known to be in excessively dirty condition, the switch to ashless dispersant oil should be deferred until after the engine is overhauled.

When changing from straight mineral oil to ashless dispersant oil, the following precautionary steps should be taken:

1. Do not add ashless dispersant oil to straight mineral oil. Drain the straight mineral oil from the engine and fill with ashless dispersant oil.

2. Do not operate the engine longer than five hours before the first oil change.

3. Check all oil filters and screens for evidence of sludge or plugging. Change oil every ten hours if sludge conditions are evident. Repeat 10 hour checks until clean screen is noted, then change oil at recommended time intervals.

CAUTION

THE TERMS "DETERGENT, ADDITIVE, COMPOUNDED" AND "ASHLESS DISPERSANT" USED HEREIN ARE INTENDED TO REFER TO A CLASS OF AVIATION ENGINE LUBRICATING OILS TO WHICH CERTAIN SUBSTANCES HAVE BEEN ADDED, AT THE REFINERY, TO IMPROVE THEM FOR AIRCRAFT USE. THESE TERMS DO NOT REFER TO SUCH MINERALS COMMONLY KNOWN AS "TOP CYLINDER LUBRICANT", "DOPES", "CARBON REMOVER" WHICH ARE SOMETIMES ADDED TO FUEL OR OIL. THESE PRODUCTS MAY CAUSE DAMAGE TO THE ENGINE (PISTONS, RING STICKING, ETC.) AND THEIR PRESENCE IN AN ENGINE WILL VOID THE OWNER'S WARRANTY. UNDER NO CIRCUMSTANCES SHOULD AUTOMOTIVE OIL BE USED. THE USE OF AUTOMOTIVE LUBRICANTS IN TEXTRON LYCOMING ENGINES IS NOT RECOMMENDED BECAUSE ITS USE COULD CAUSE ENGINE FAILURE.

NOTE: Revision "M" revises Part II, steps A. and B.

Lycoming
MSB 480E

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MANDATORY
SERVICE BULLETIN

DATE: April 13, 2005

Service Bulletin No. 480E
(Supersedes Service Bulletin No. 480D)

SUBJECT: I. Oil and Filter Change and Screen Cleaning
II. Oil Filter/Screen Content Inspection

MODELS AFFECTED: All Lycoming direct drive and TIGO-541 Piston engines.

TIME OF COMPLIANCE: As required by subject bulletin.

Lycoming recommends the following:

I. Oil and Filter Change and Screen Cleaning.

A. At 25 hours after the first replacement/screen cleaning – oil change, filter replacement or pressure screen cleaning and oil sump suction screen check for new, remanufactured or newly overhauled engines and for engines with any newly installed cylinders.

B. 25-Hour interval – oil change, pressure screen cleaning, and oil sump suction screen check for all engines employing a pressure screen system.

C. 50-Hour interval – oil change and oil filter replacement and suction screen check for all engines using full-flow filtration system (except for engine models TIO-540-AF1A and -AF1B, which require 25 hour interval changes).

D. A total of four (4) months maximum between changes for systems listed under "A", "B" and "C".

E. All turbocharged engines must be broken-in and operated with ashless dispersant oil. (Refer to latest revision of Service Instruction No. 1014.)

II. Oil Filter/Screen Content Inspection.

A. Using the following methods, check for premature or excessive engine component wear, indicated by the presence of metal particles, shavings, or flakes in the oil filter element or screens.

1. Oil Filter.

a. Using approved method (eg., for full-flow, spin-on filters, use Champion Tool CT-470 or Airwolf Cutter AFC-470), open the filter.

b. Check condition of the oil from the filter for signs of metal contamination.

c. Remove the paper element from the filter.

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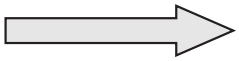
page 2

d. Carefully unfold the paper element and examine the material trapped in the filter.

2. Pressure Screen.

If engine employs a pressure screen system, check the screen for metal particles.



3. Oil Sump Suction Screen.

After draining oil, remove the suction screen from the oil sump and check for metal particles.

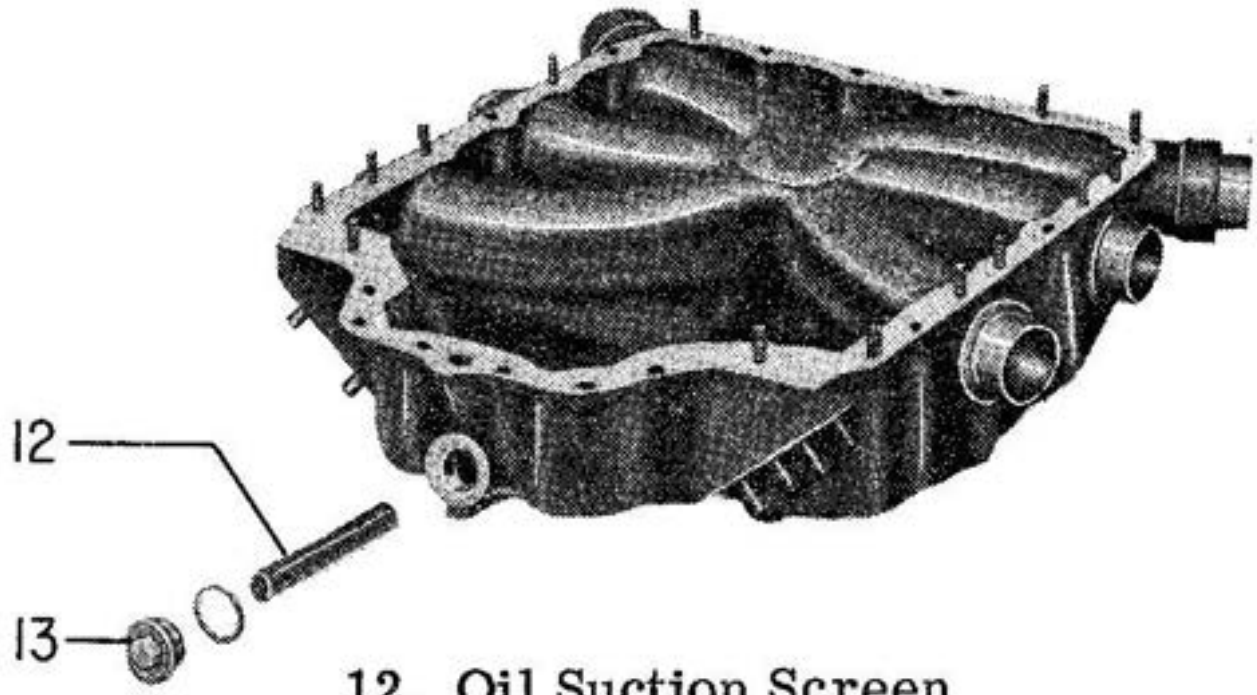
B. If examination of the used oil filter or pressure screen and the oil sump suction screen indicates abnormal metal content, additional service may be required to determine the source and possible need for corrective maintenance.

NOTE

Lycoming encourages the use of spectrograph oil analysis to monitor engine component wear rates. Refer to the latest revision of Service Letter No. L171.

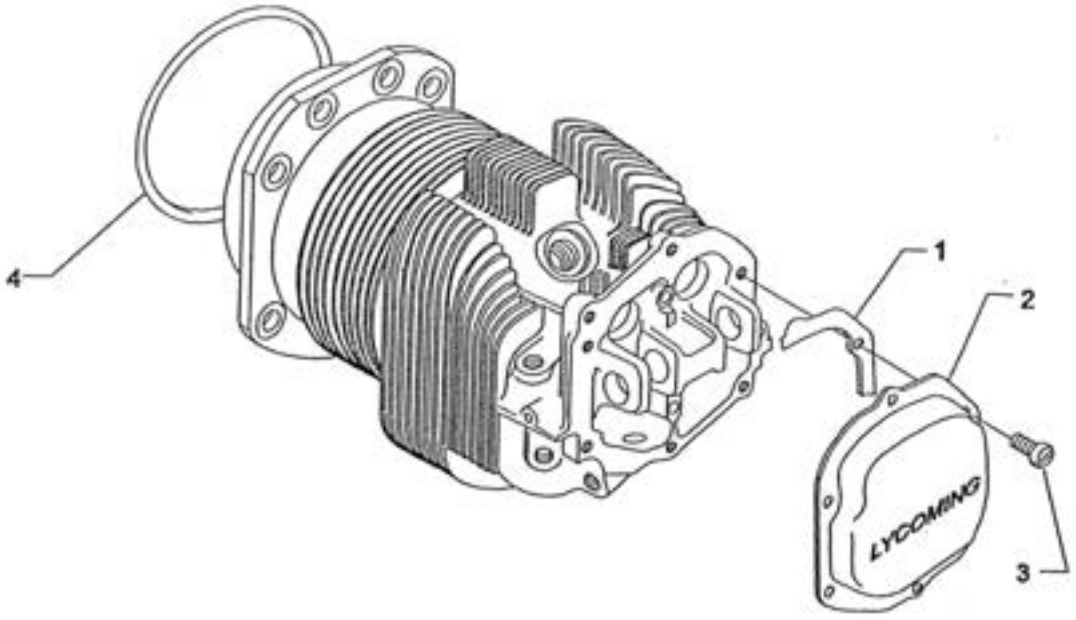
NOTE: Revision "E" deletes 10 hour requirements.

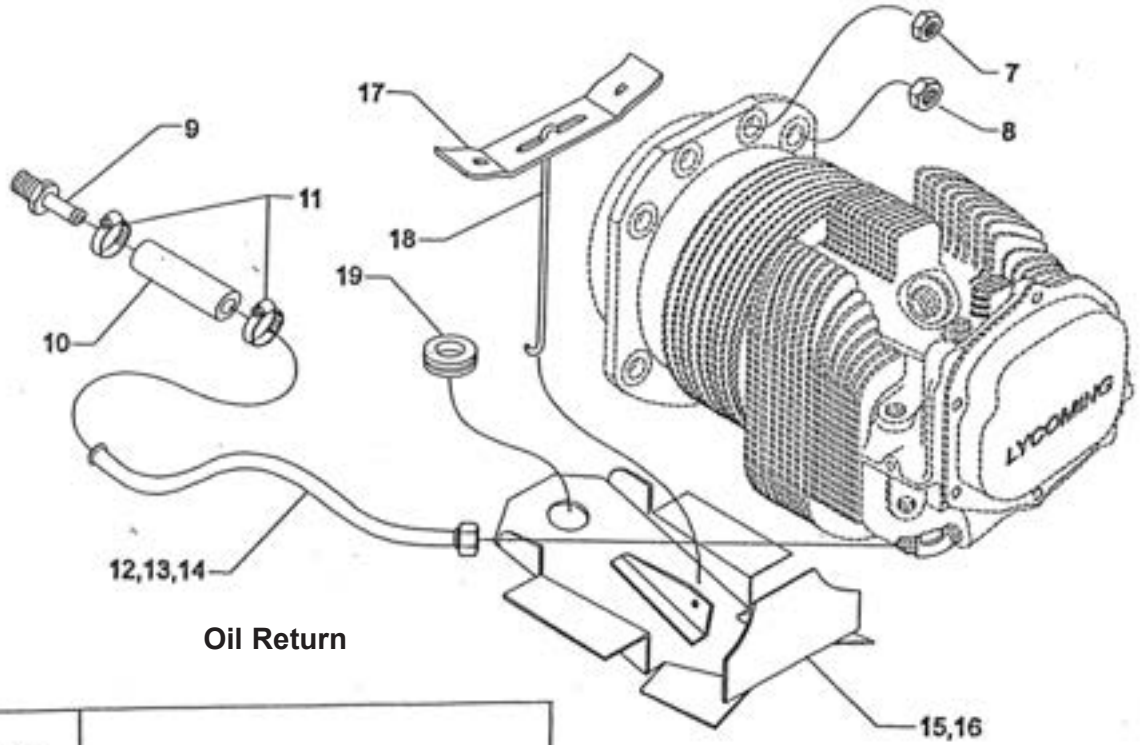
Suction screen location



12. Oil Suction Screen
13. Plug 1.00 - 20 x .62

Inter-Cylinder Baffling





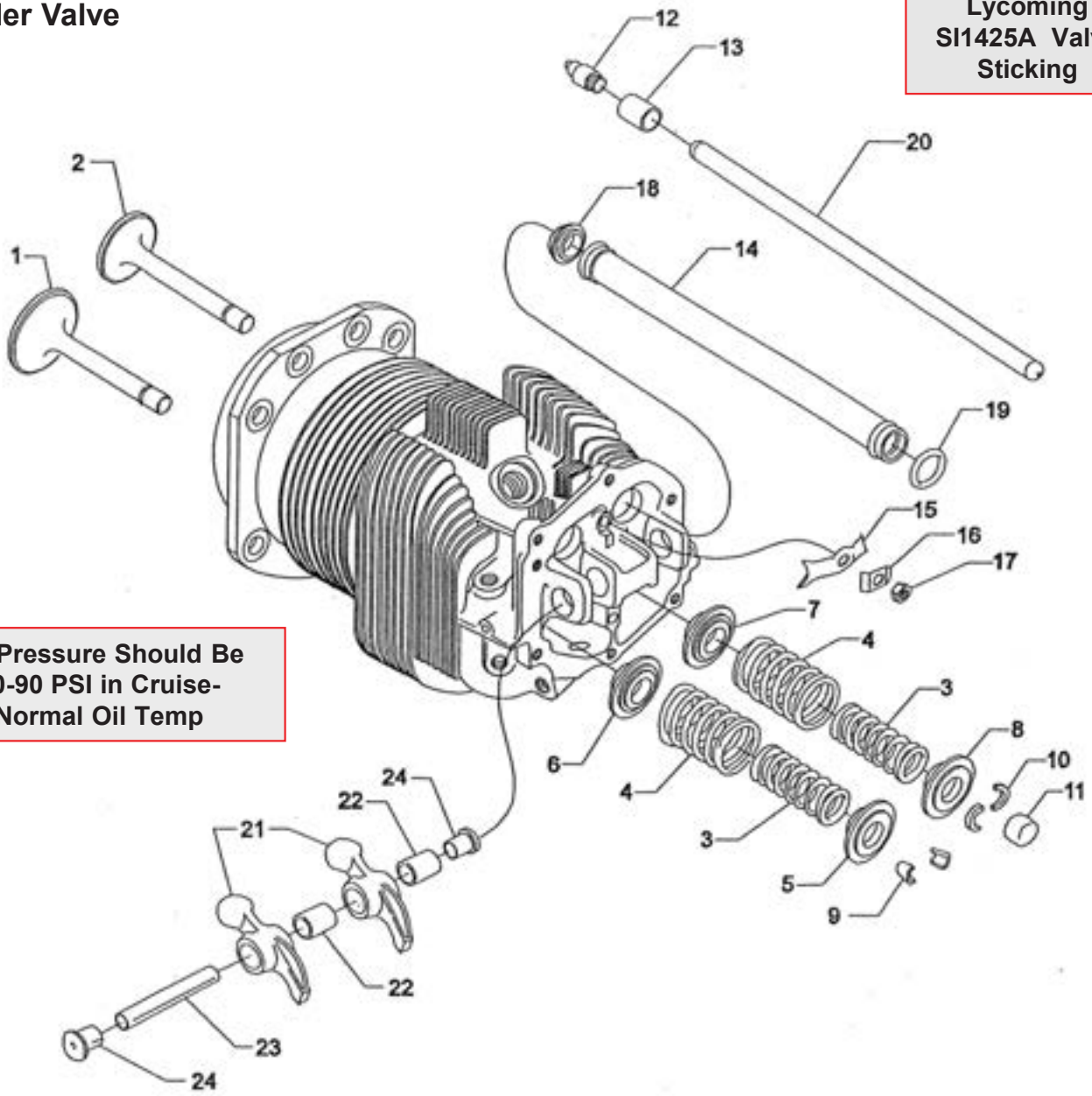
Oil Return

FIG REF.	DESCRIPTION
1	GASKET, Rocker box cover
2	COVER, Rocker box
3	SCREW, 1/4-20 x 5/8 long, pan. head
4	RING, Oil seal, 3/32 dia. section x 4-27/32 I.D.
5	SPACER, 33/64 I.D. x 7/8 O.D. x 1/8 thick
7	NUT, 3/8-24 plain
8	NUT, 1/2-20 plain
9	NIPPLE, Straight, 3/8 I.D. hose

10	HOSE, 3/8 I.D. x 2-1/2 long
11	CLAMP, Hose
12	TUBE ASSY., Cyl. head oil drain, cyl. no. 1
13	TUBE ASSY., Cyl. head oil drain, cyl. no. 2
14	TUBE ASSY., Cyl. head oil drain, cyls. no. 3,4,5,6
15	BAFFLE ASSY., Intercylinder
16	BAFFLE ASSY., Intercylinder
17	RETAINER, Intercylinder baffle
18	HOOK, Intercylinder baffle
19	GROMMET

Cylinder Valve Train

Lycoming SI1425A Valve Sticking



Oil Pressure Should Be 80-90 PSI in Cruise-Normal Oil Temp

FIG REF.	DESCRIPTION
1	VALVE, Intake
2	VALVE, Exhaust (rotator type)
3	SPRING, Valve, inner
4	SPRING, Valve, outer
5	SEAT, Valve spring, upper intake
6	SEAT, Valve spring, lower intake
7	SEAT, Valve spring, lower exhaust
8	SEAT, Valve spring, upper exhaust (rotator type)
9	KEY, Valve intake
10	KEY, Valve exhaust
11	CAP, Valve stem, exhaust (rotator type)
12	PLUNGER ASSY., Hydraulic tappet
13	SOCKET, Hydraulic tappet
14	SHROUD TUBE ASSY., Push rod
15	SPRING, Shroud tube
16	LOCKPLATE, Shroud tube
17	NUT, 1/4-20 plain
18	SEAL, Shroud tube
19	SEAL, Shroud tube
20	ROD ASSEMBLY, Push (A total of 12 required)
21	ROCKER ASSEMBLY, Valve
22	BUSHING, Valve rocker
23	SHAFT, Valve rocker
24	THRUST BUTTON, Rocker shaft

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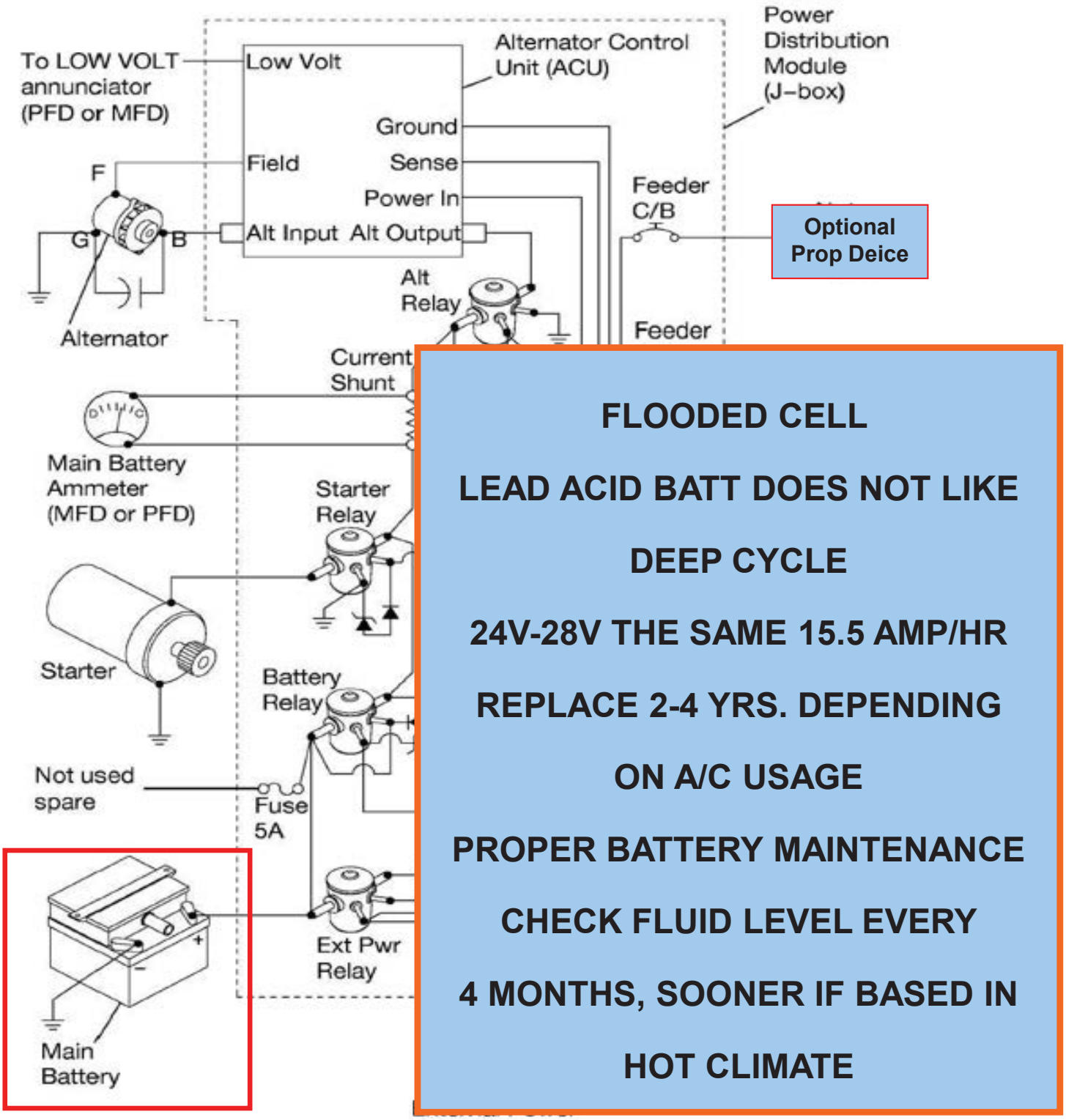
CESSNA PILOTS ASSOCIATION

182S, 182T, T182T Skylane

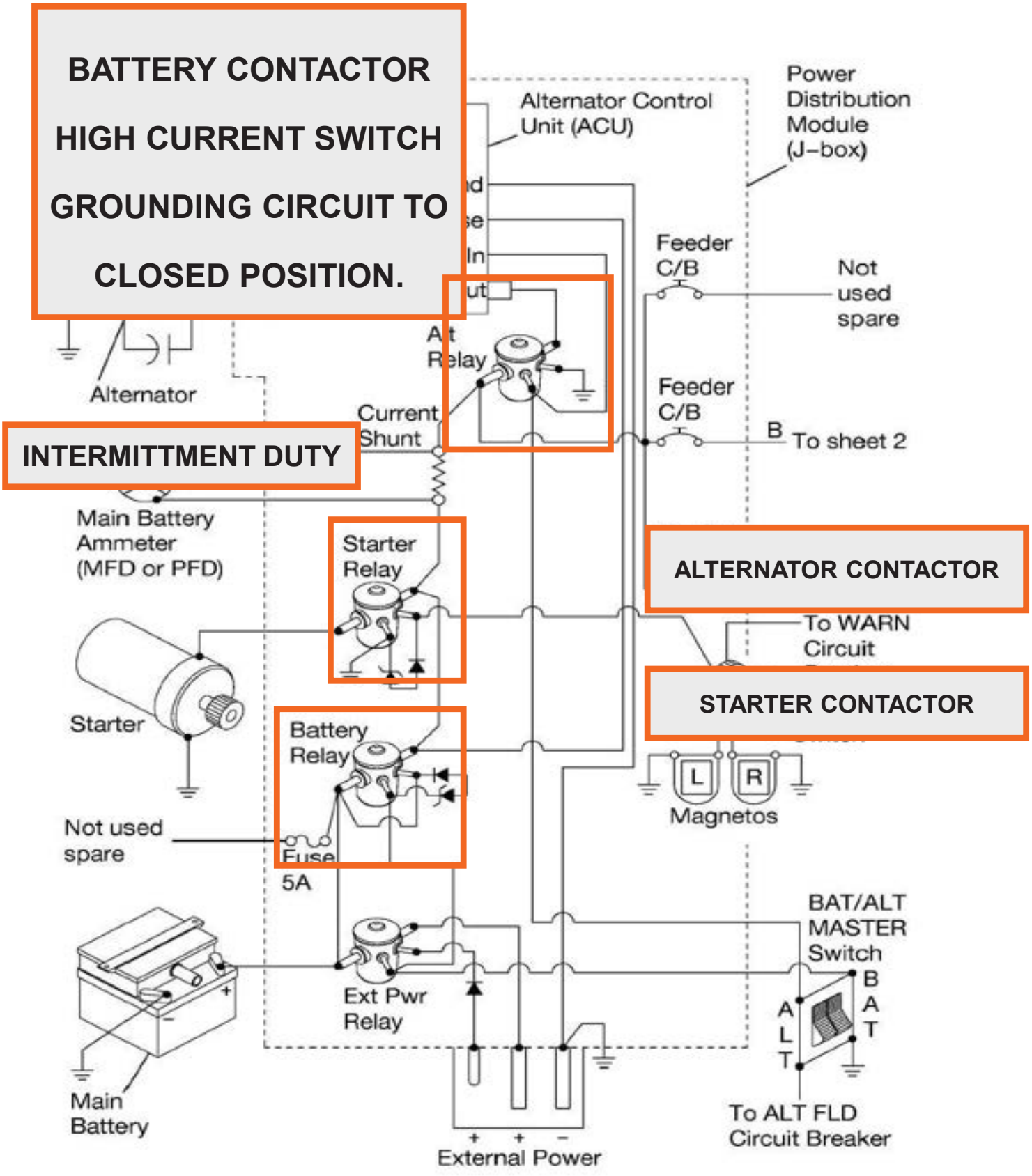
Electrical Systems

Section Seven

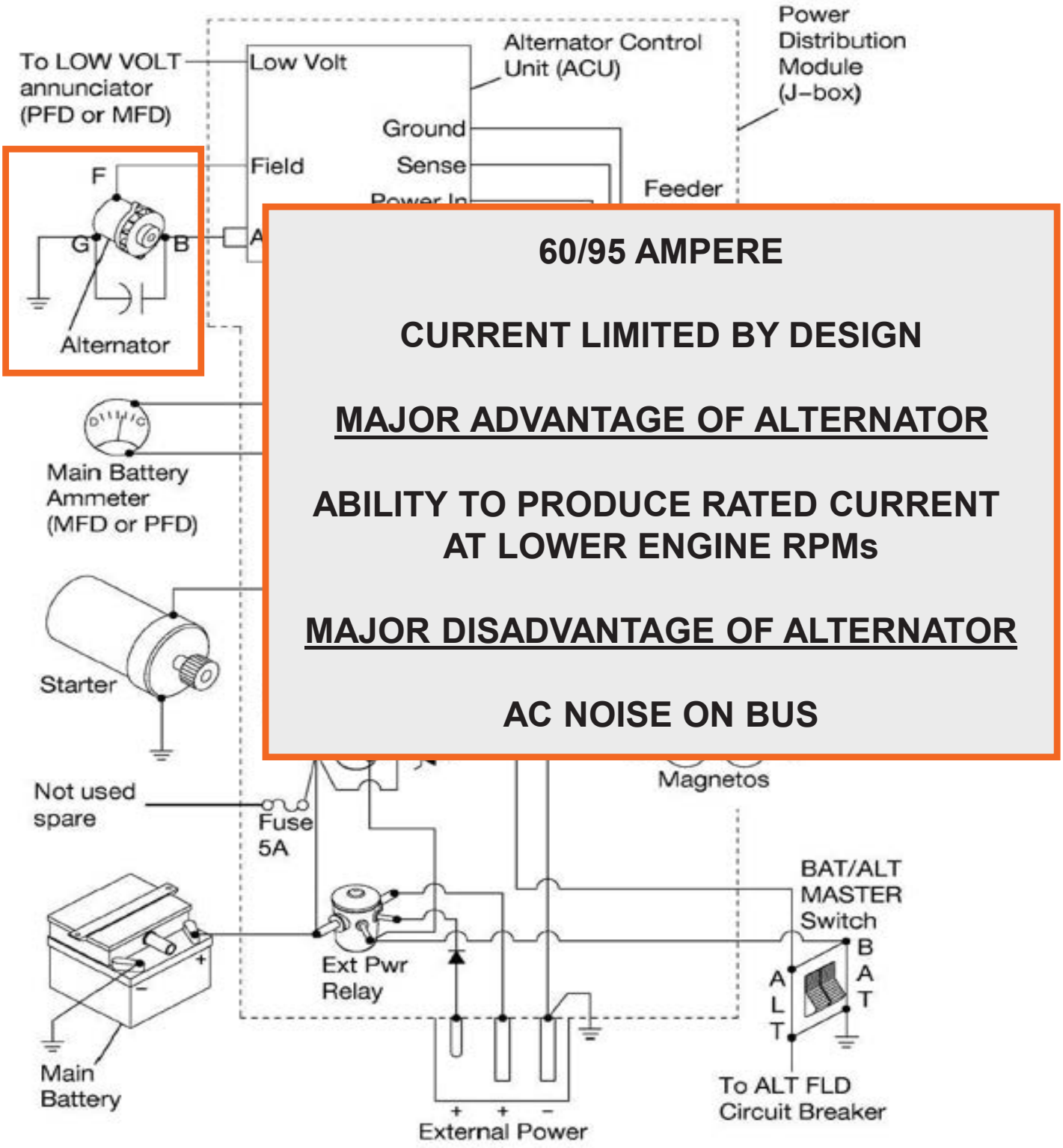
Electrical Schematic



Electrical Schematic

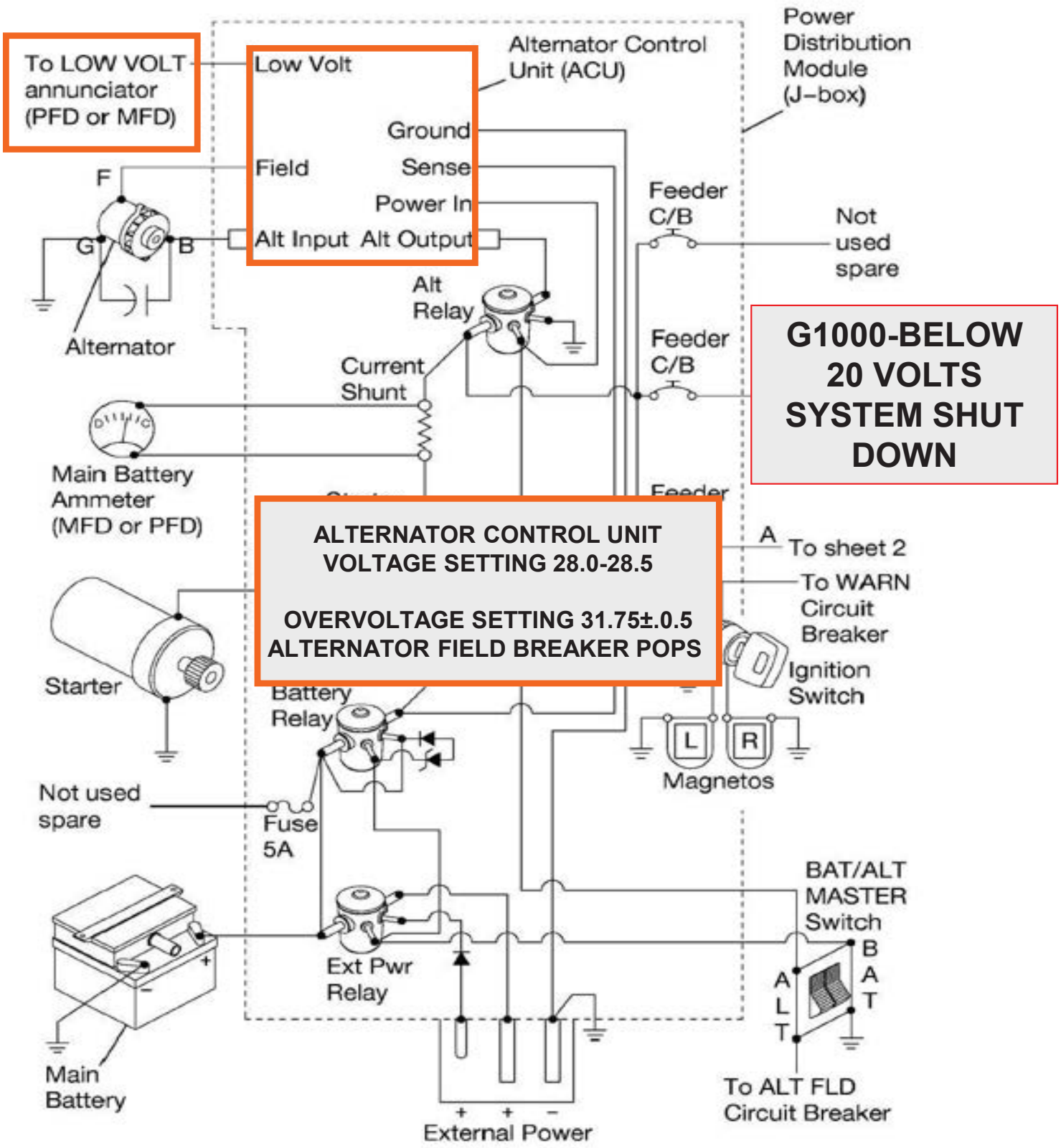


Electrical Schematic



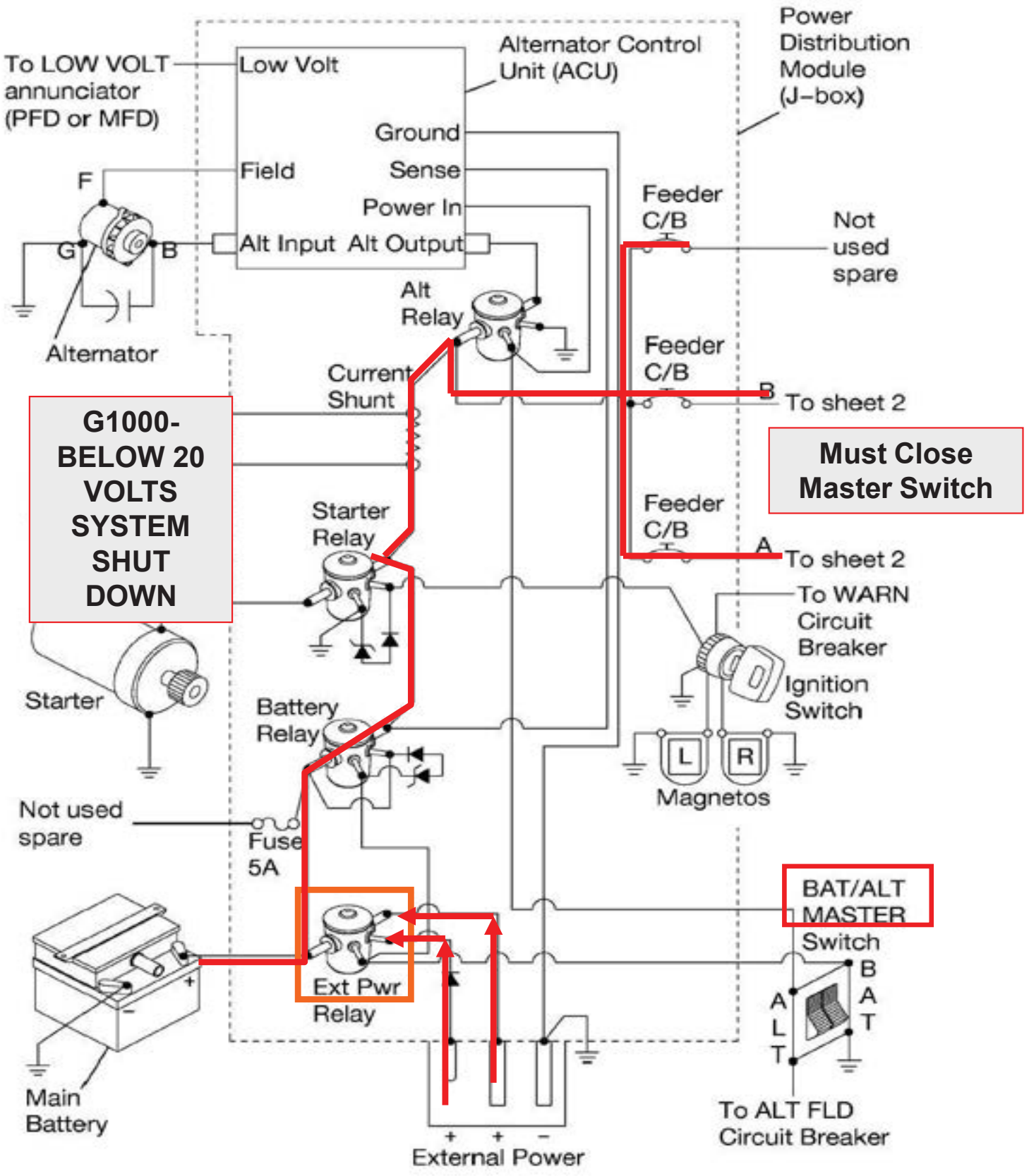
Electrical Schematic

WARNING ON 24.5 VOLTS



Electrical Schematic

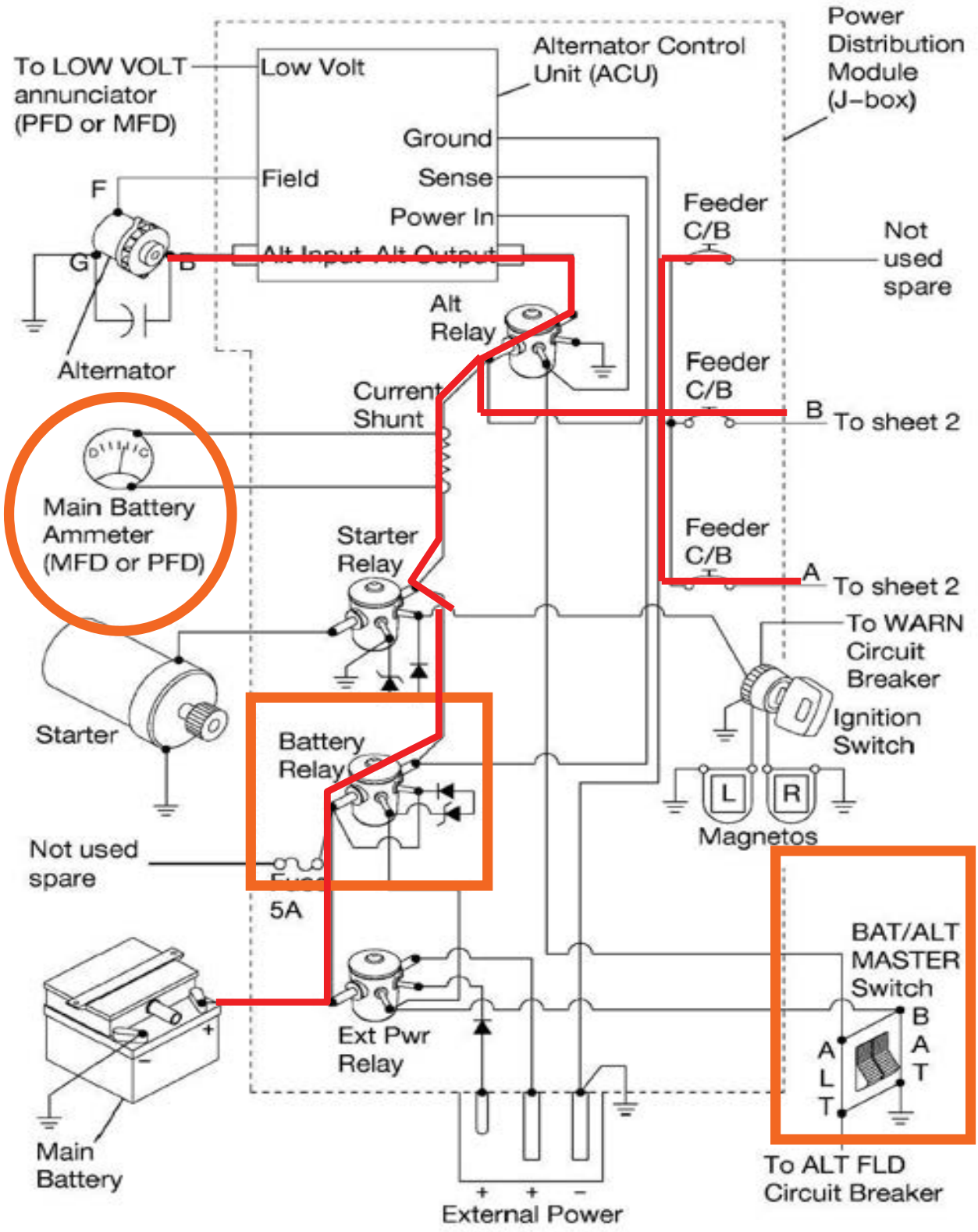
APU GPU Ground Service Contactor



Electrical Schematic

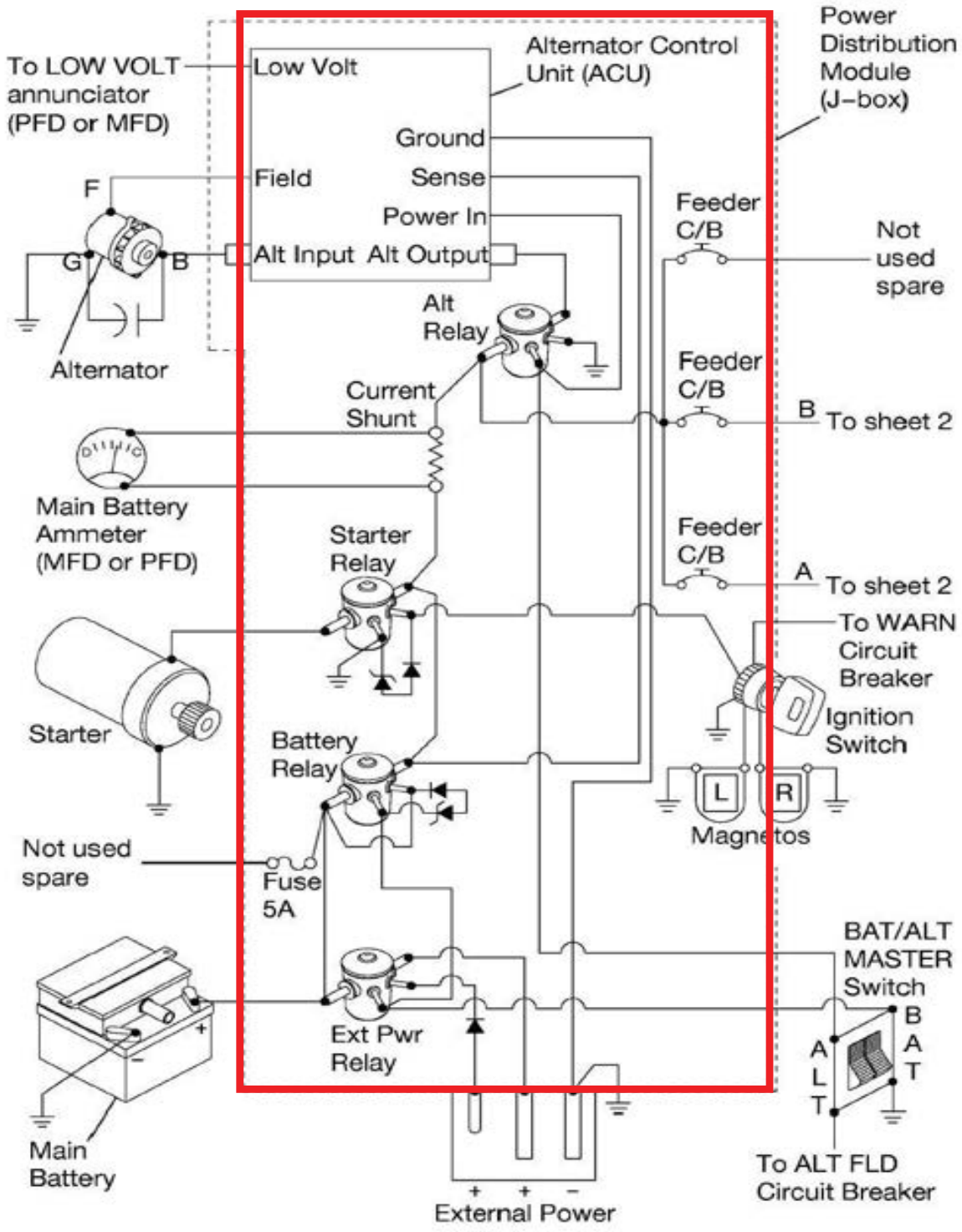
Master On

Alternator On



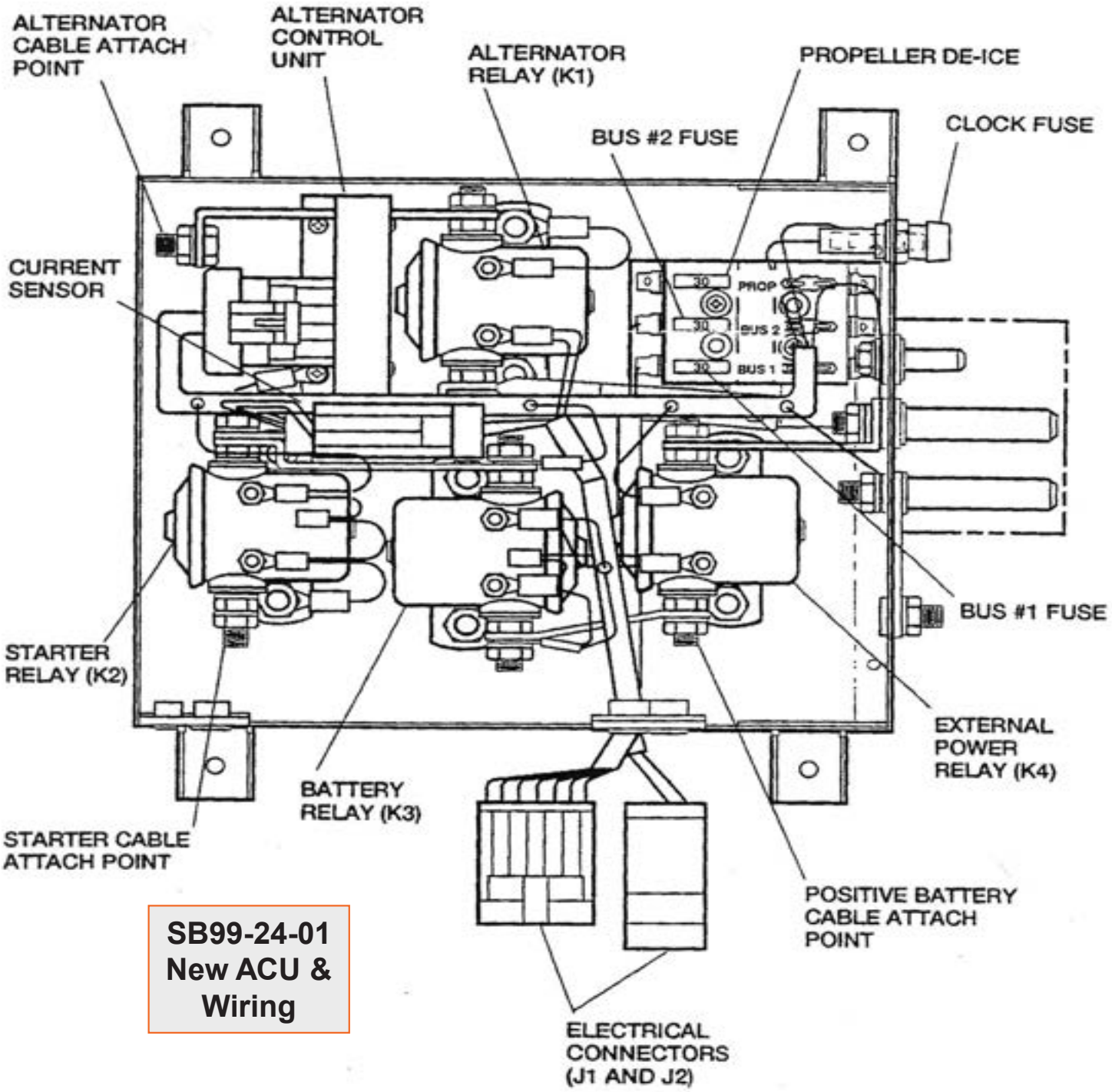
Electrical Schematic

Power Junction Box
J-BOX



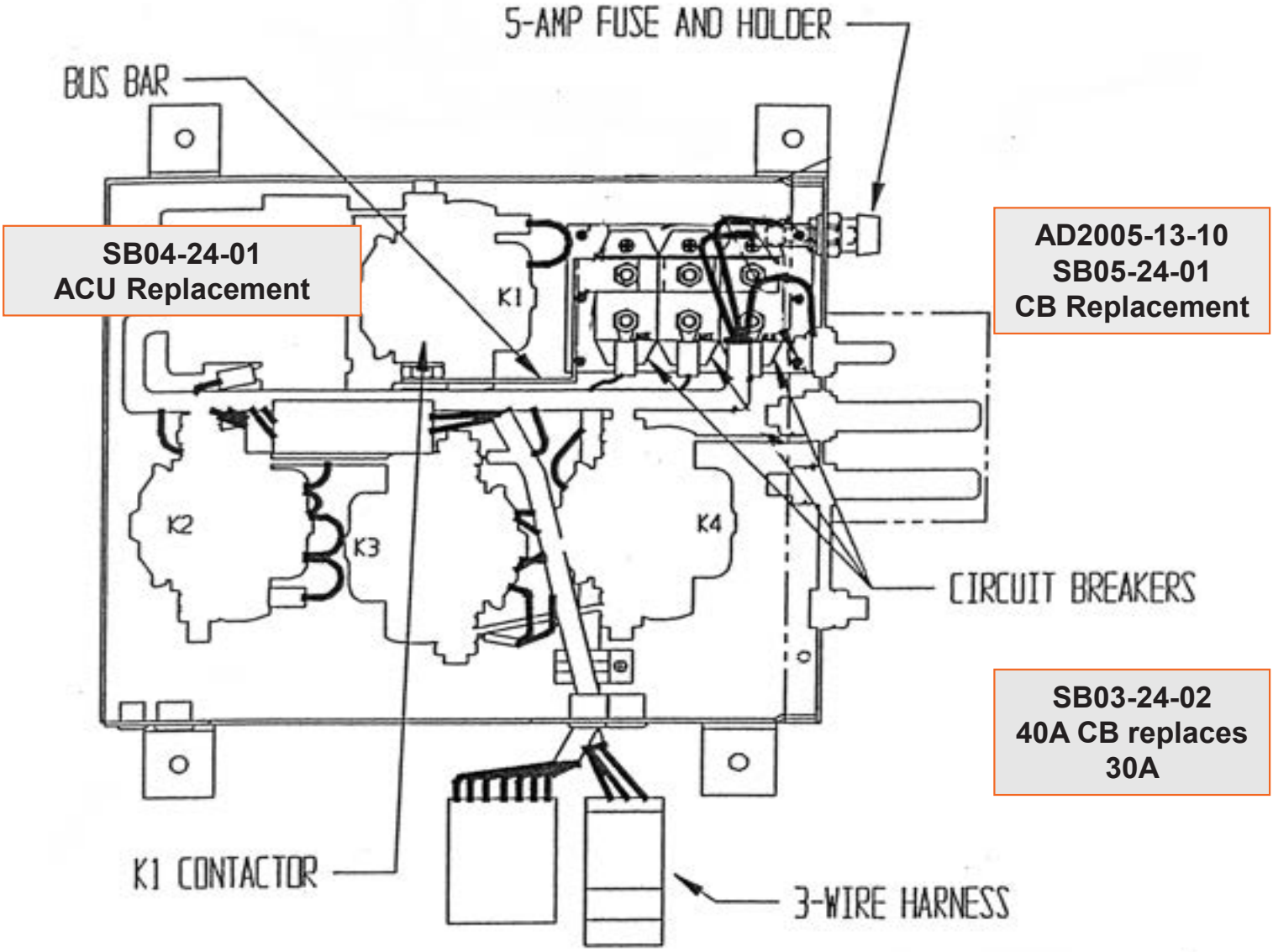
182S Power Junction Box Installation S/N 18280001 thru 18280675

SB00-24-01 Circuit Protection



SB99-24-01 New ACU & Wiring

182S Power Junction Box Starting with S/N 18280676



SB04-24-01
ACU Replacement

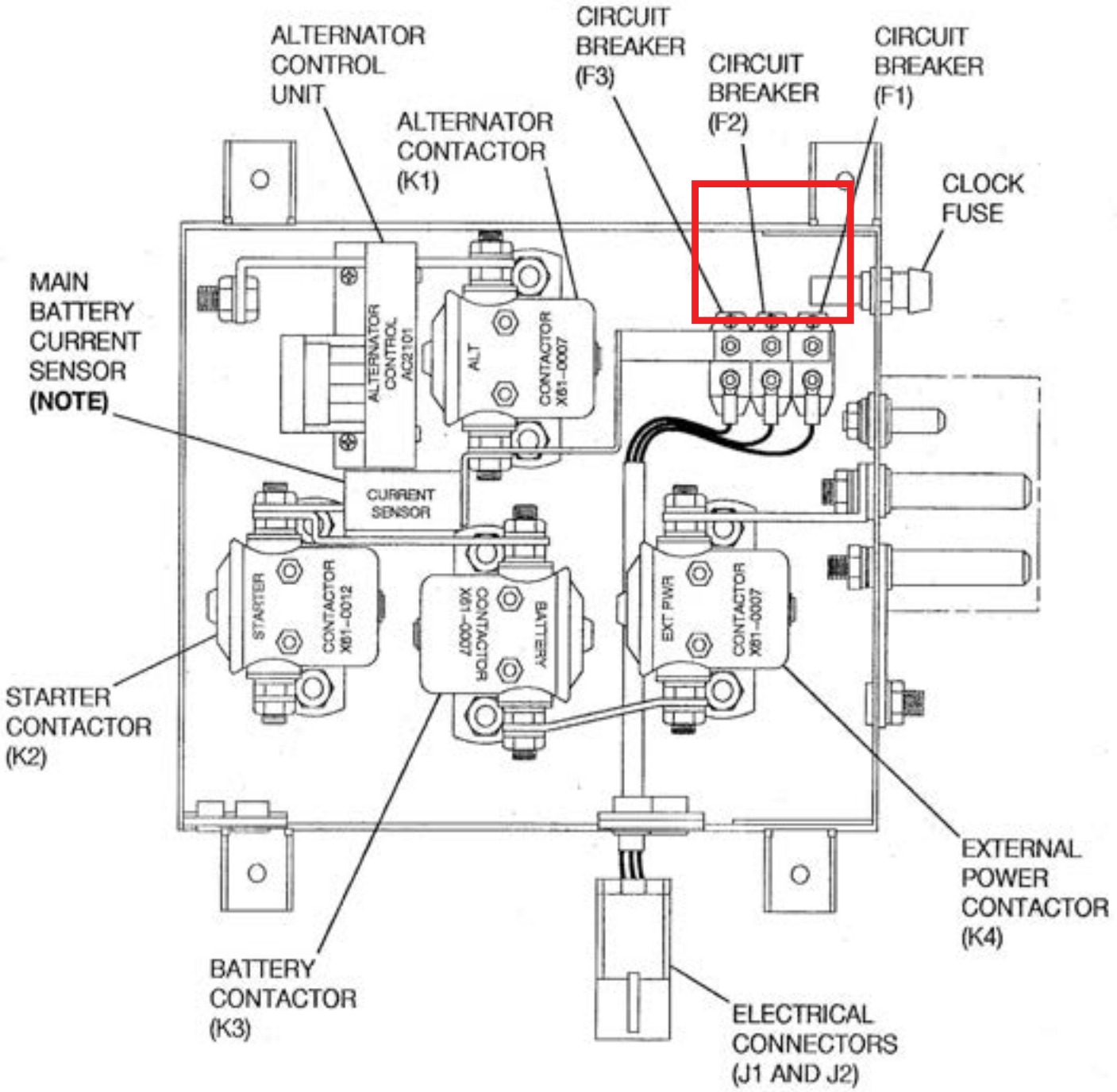
AD2005-13-10
SB05-24-01
CB Replacement

SB03-24-02
40A CB replaces 30A

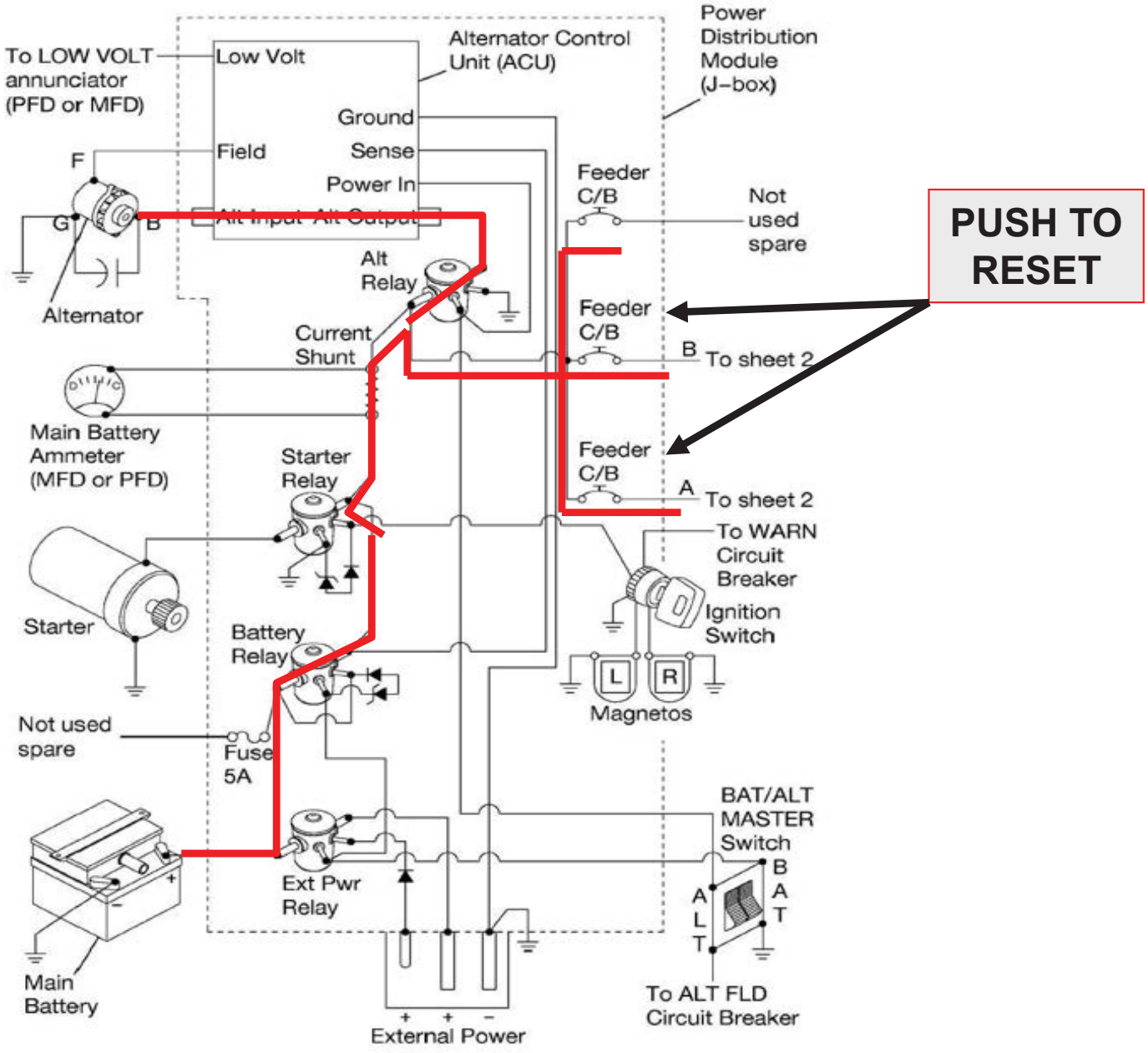
182T Power Junction Box

AD2005-13-10
SB05-24-01
CB Replacement

PUSH TO RESET

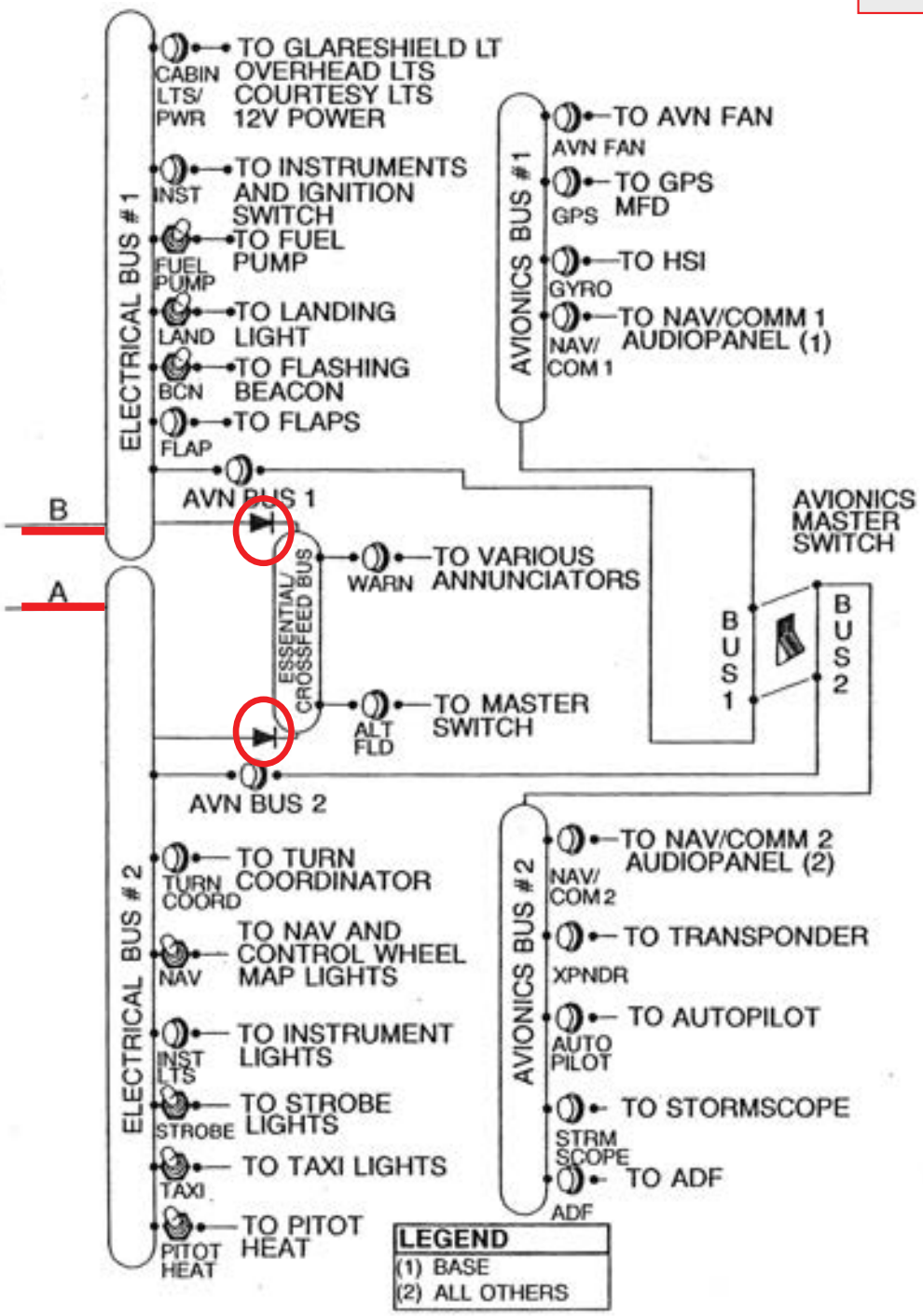


Electrical Schematic

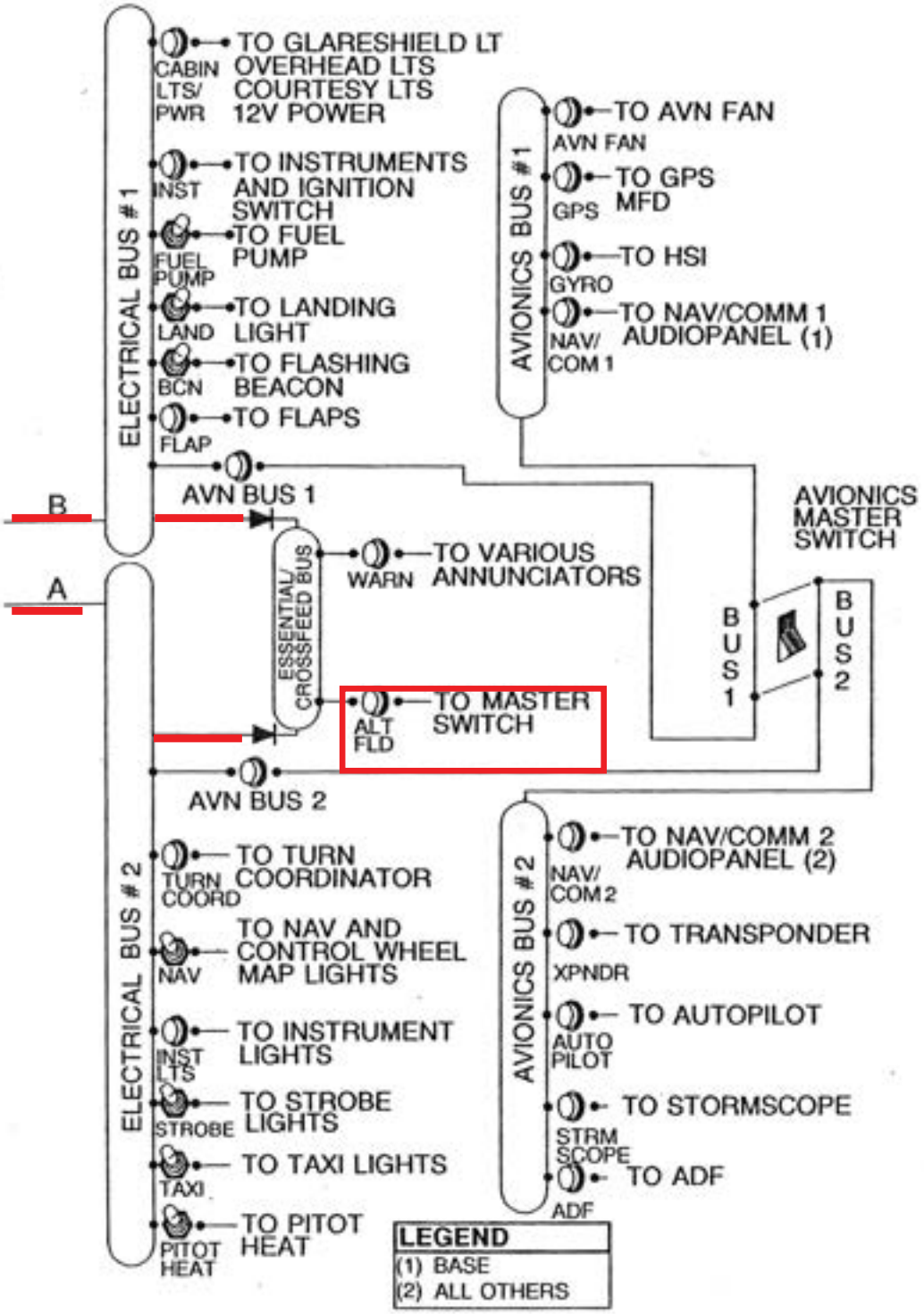


182S, Electrical Schematic

Only Allows Flow In One Direction With Arrow

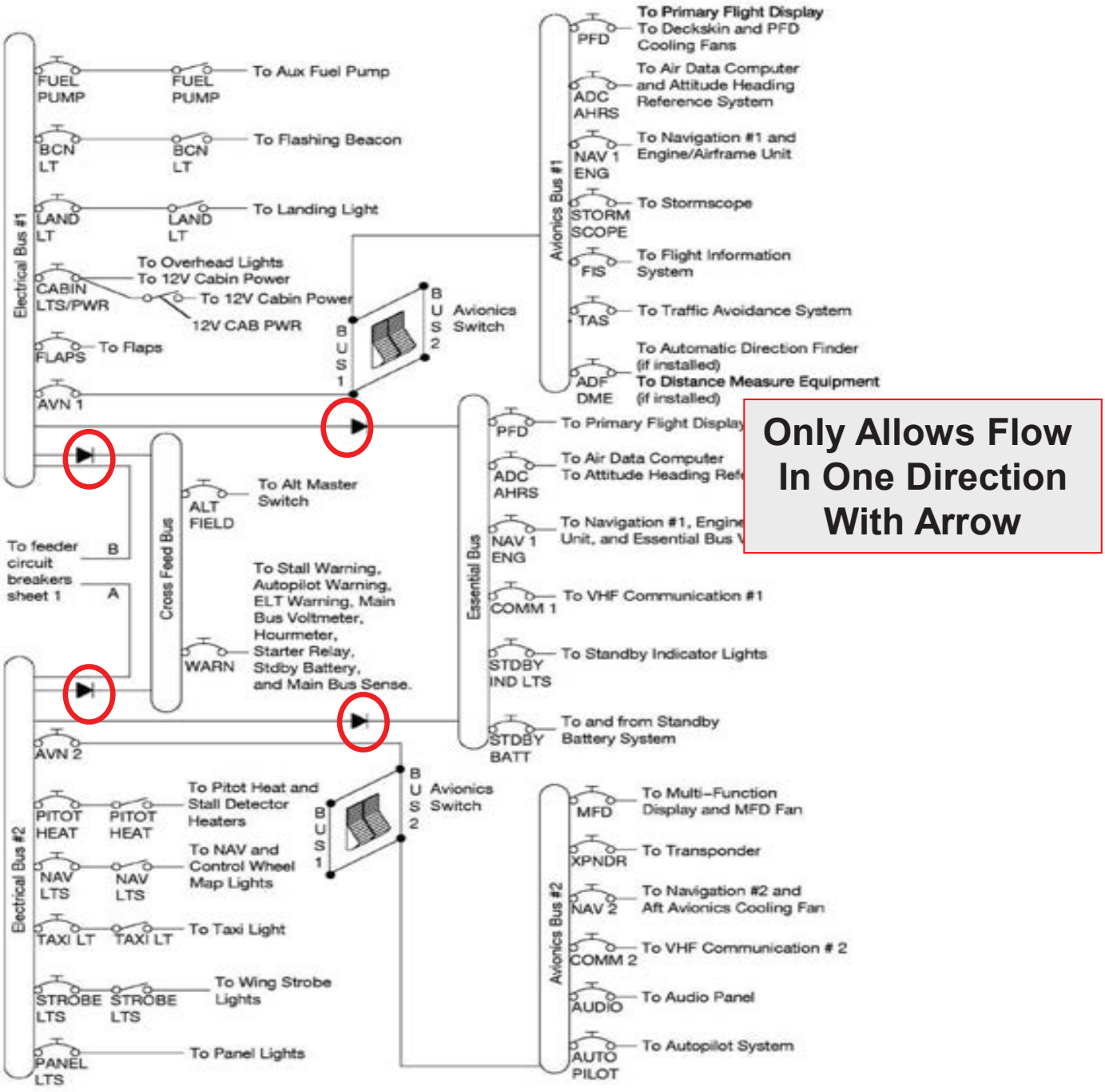


182S, Electrical Schematic



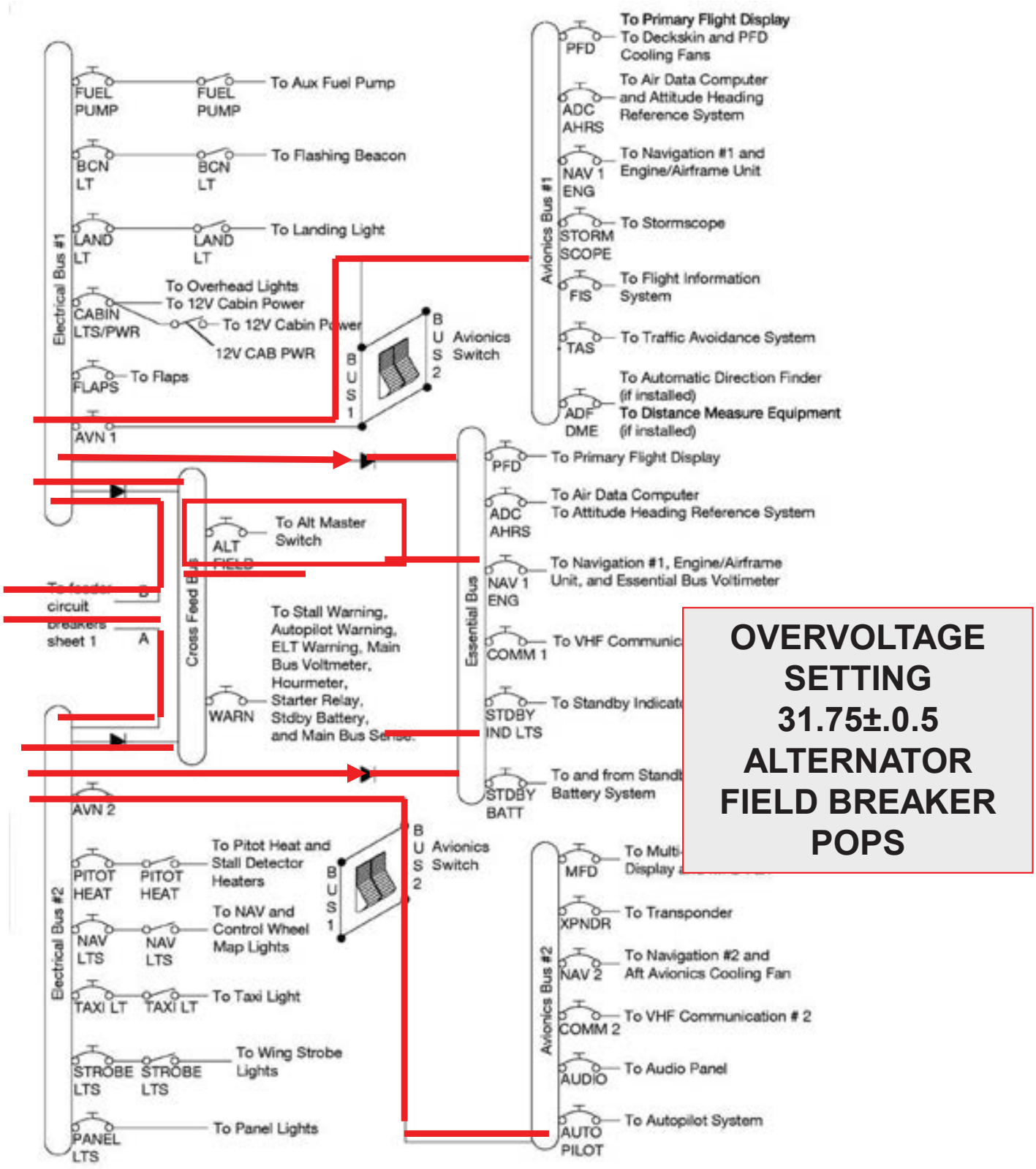
OVERVOLTAGE SETTING 31.75±.0.5 ALTERNATOR FIELD BREAKER POPS

G1000-182T Electrical Schematic



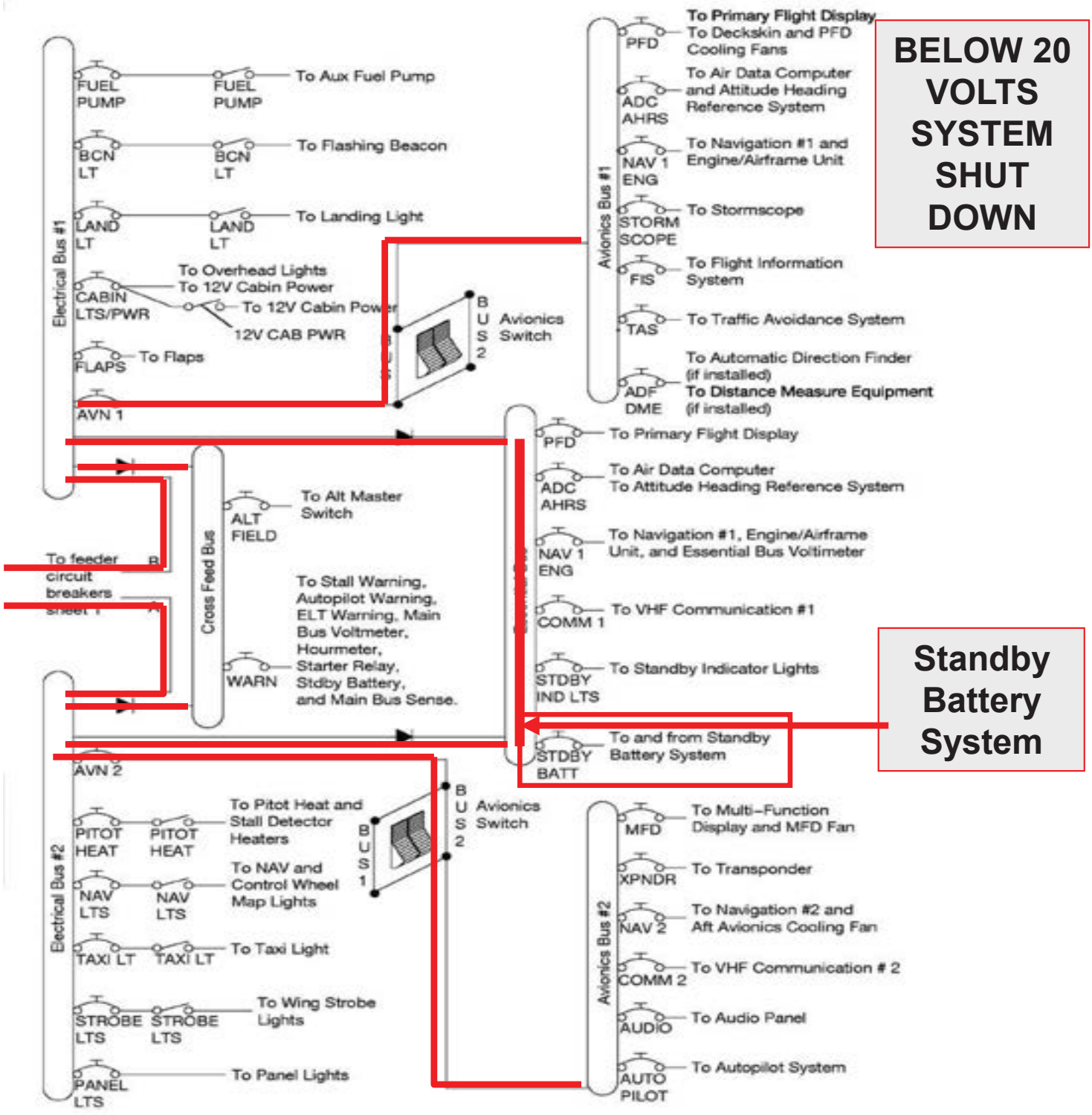
Only Allows Flow In One Direction With Arrow

G1000-182T Electrical Schematic



OVERVOLTAGE SETTING 31.75±.0.5 ALTERNATOR FIELD BREAKER POPS

G1000-182T Electrical Schematic

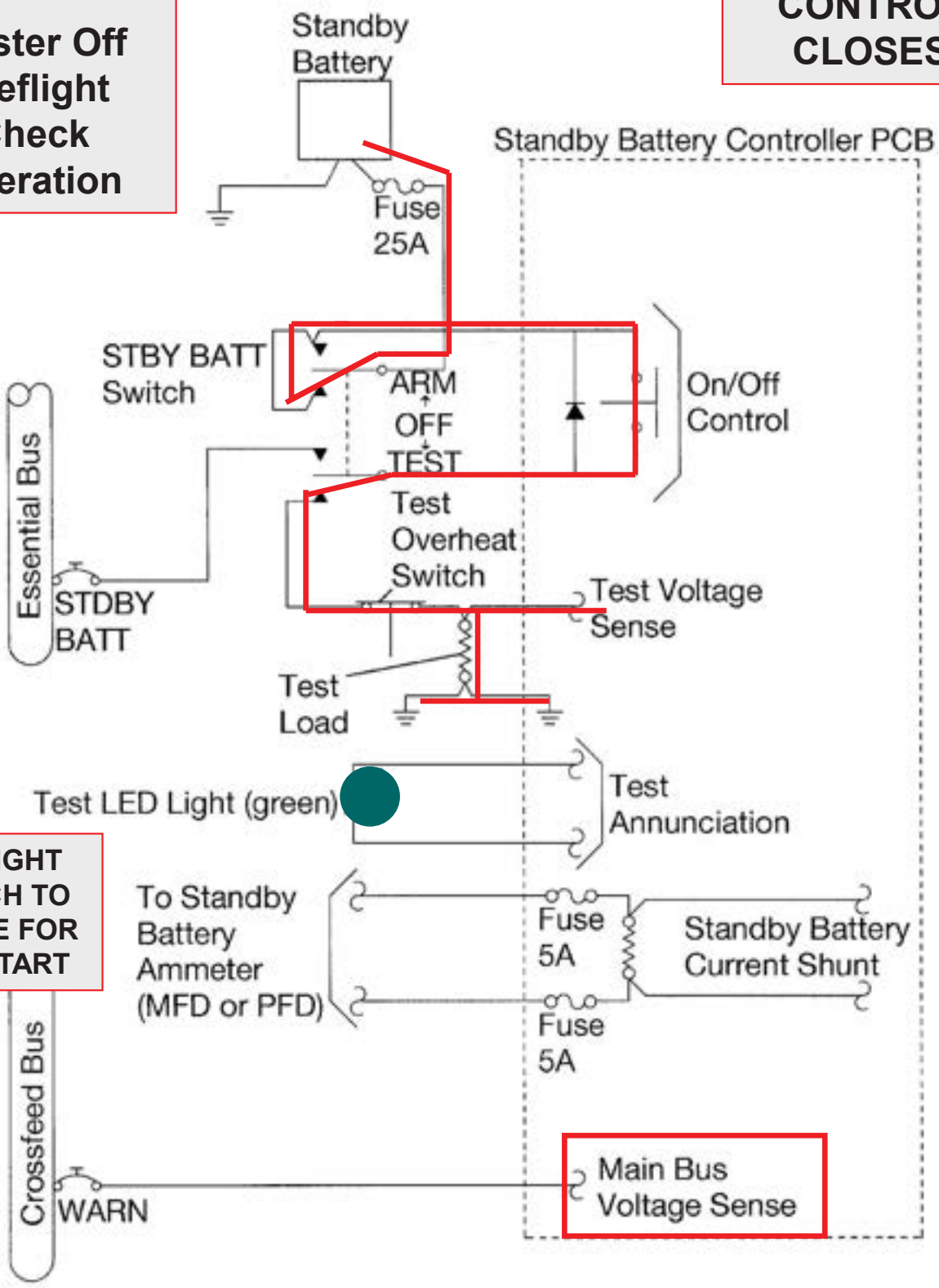


G1000- Standby Battery System

Test Mode

Master Off
Preflight
Check
Operation

LESS THAN ABOUT 20 VOLTS CONTROL CLOSES

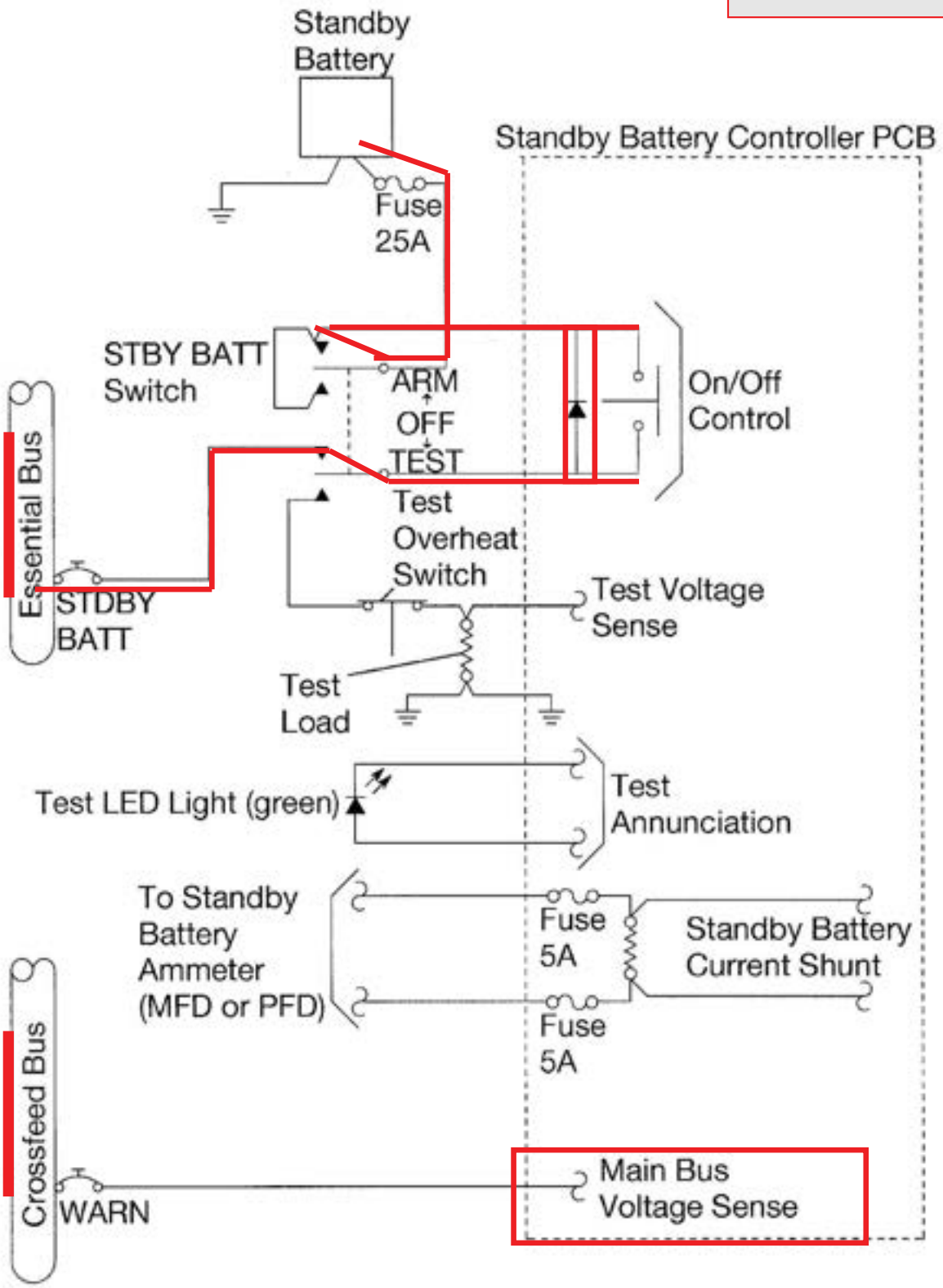


GREEN LIGHT ON SWITCH TO ARM MODE FOR ENGINE START

STANDBY BATTERY BEING CHARGED BY ALTERNATOR SYSTEM

Arm Mode

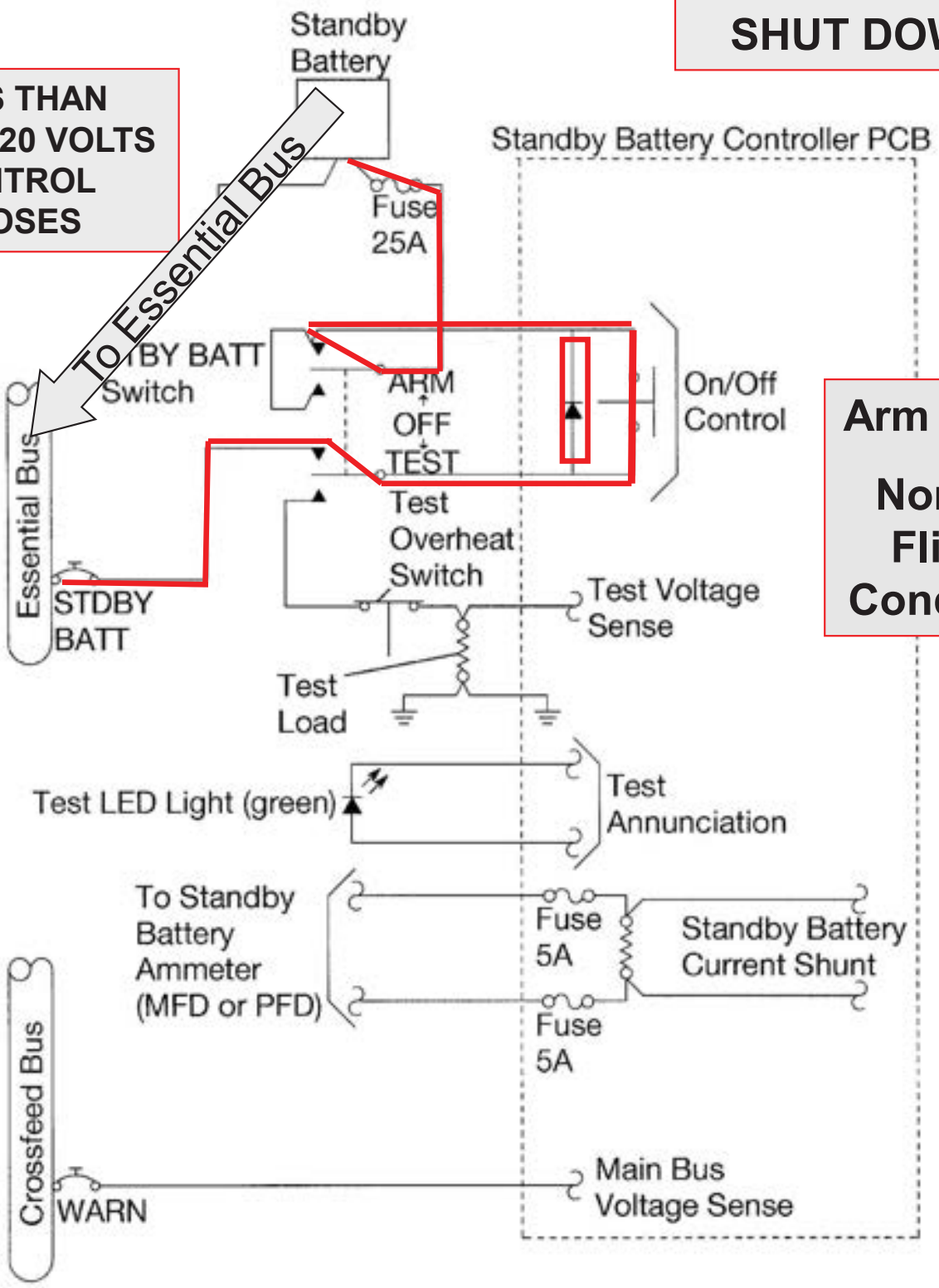
Normal Flight Condition



G1000-Standby Battery Circuit

BELOW 20 VOLTS SYSTEM SHUT DOWN

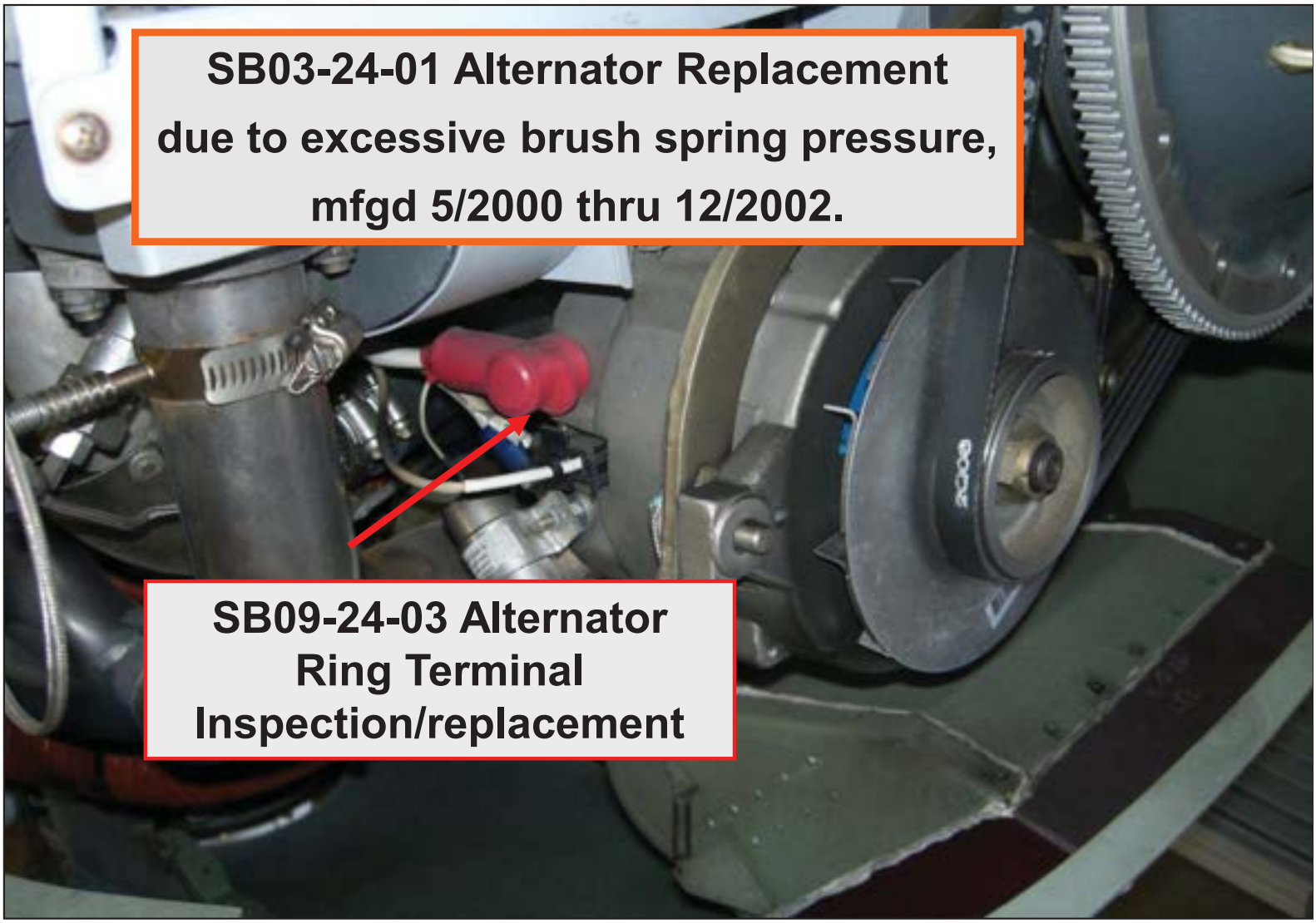
LESS THAN ABOUT 20 VOLTS CONTROL CLOSES



Arm Mode

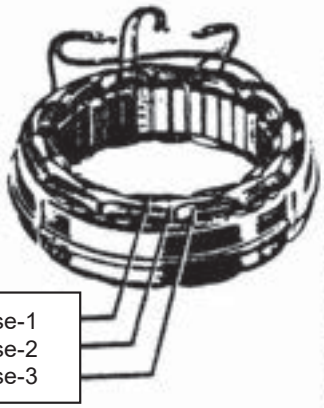
Normal Flight Condition

SB98-24-01 new alternator incorporating a new rotor designed to enhance alternator reliability.

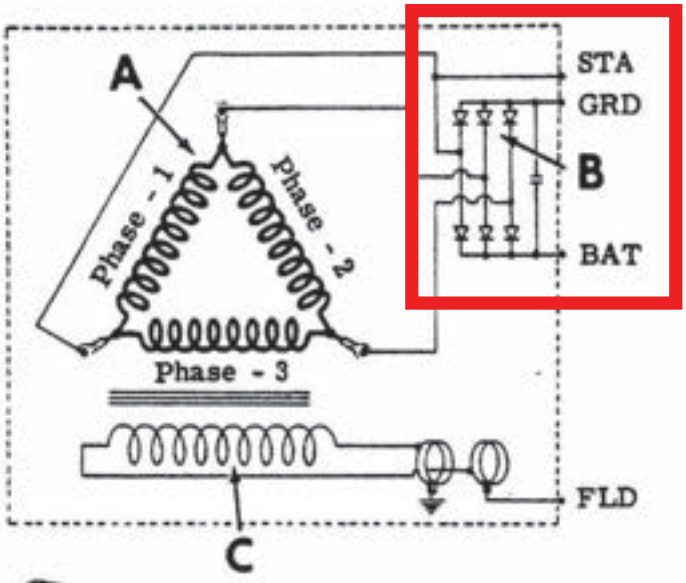


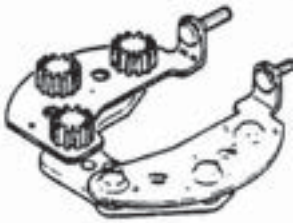
Alternator Component
Internal Relationship

Detail A
Stator

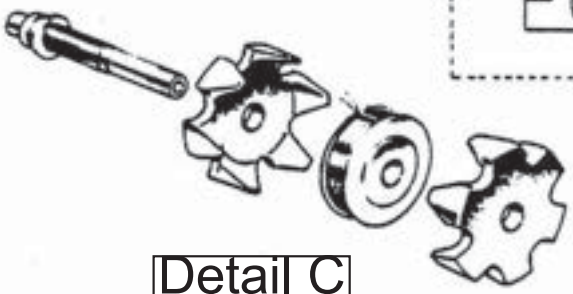


Phase-1
Phase-2
Phase-3



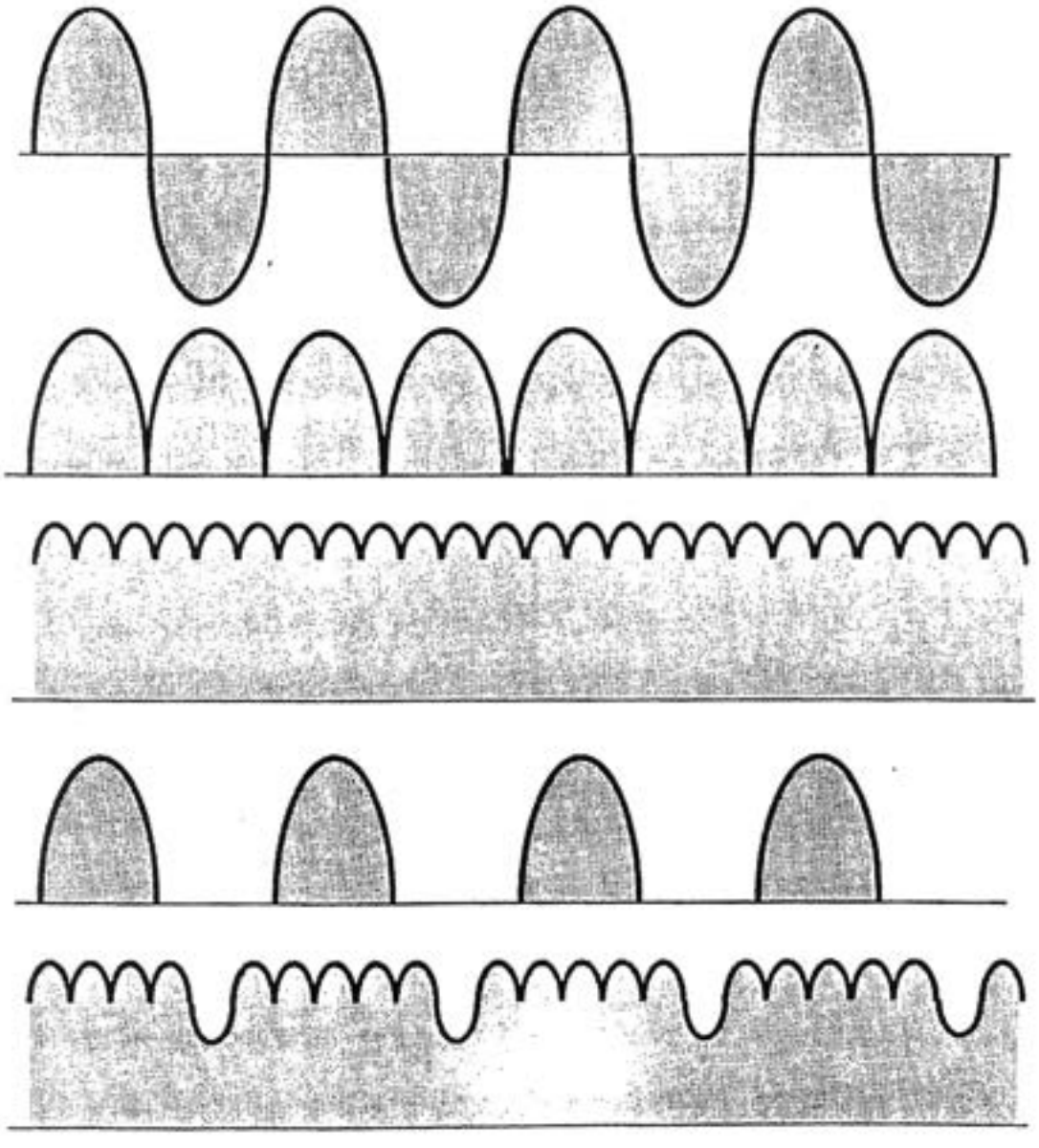


Detail B
Diodes



Detail C
Rotor

Alternator Output



One Winding

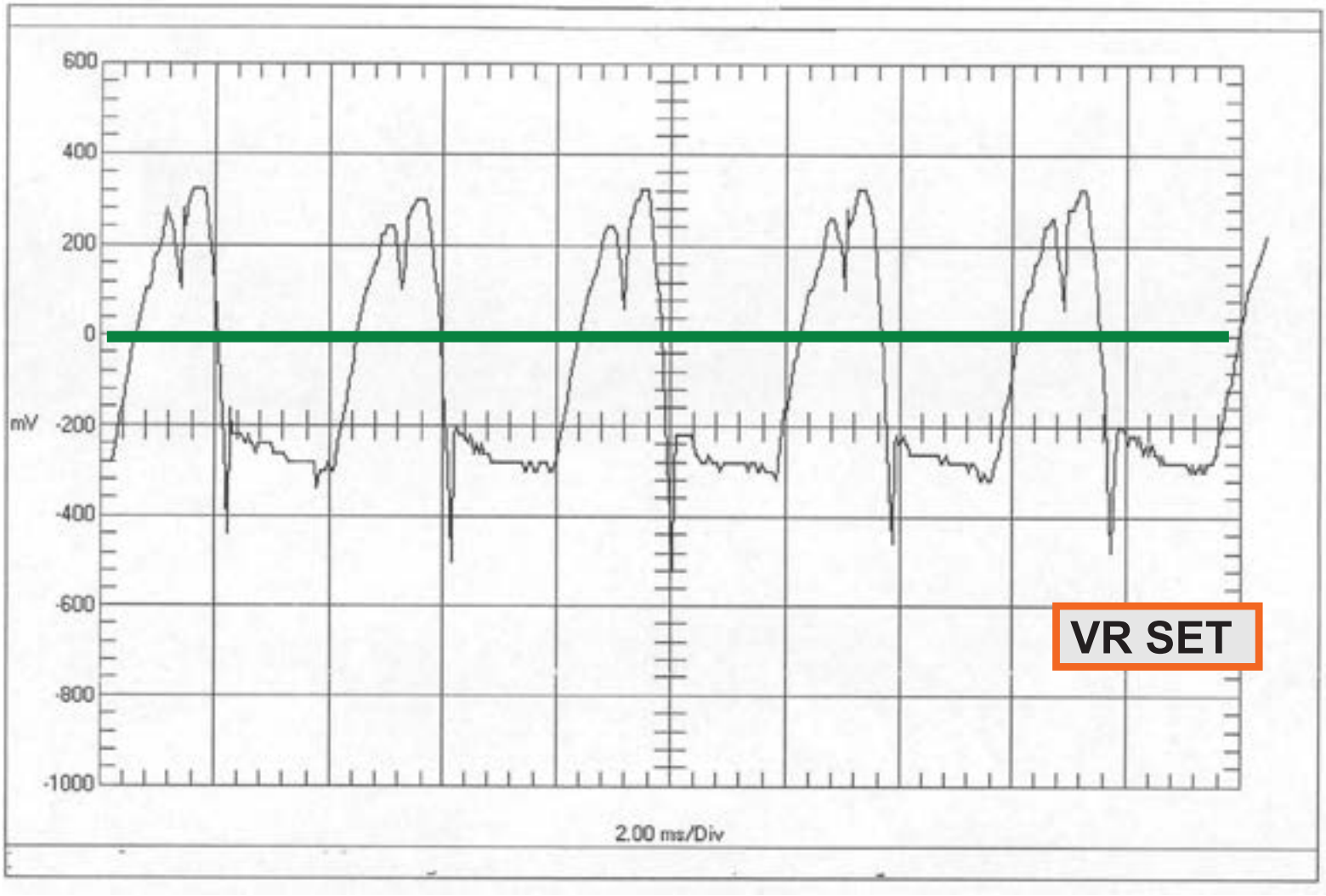
One Winding Rectified

Three Windings, Combined Output

One Winding, Open Diode

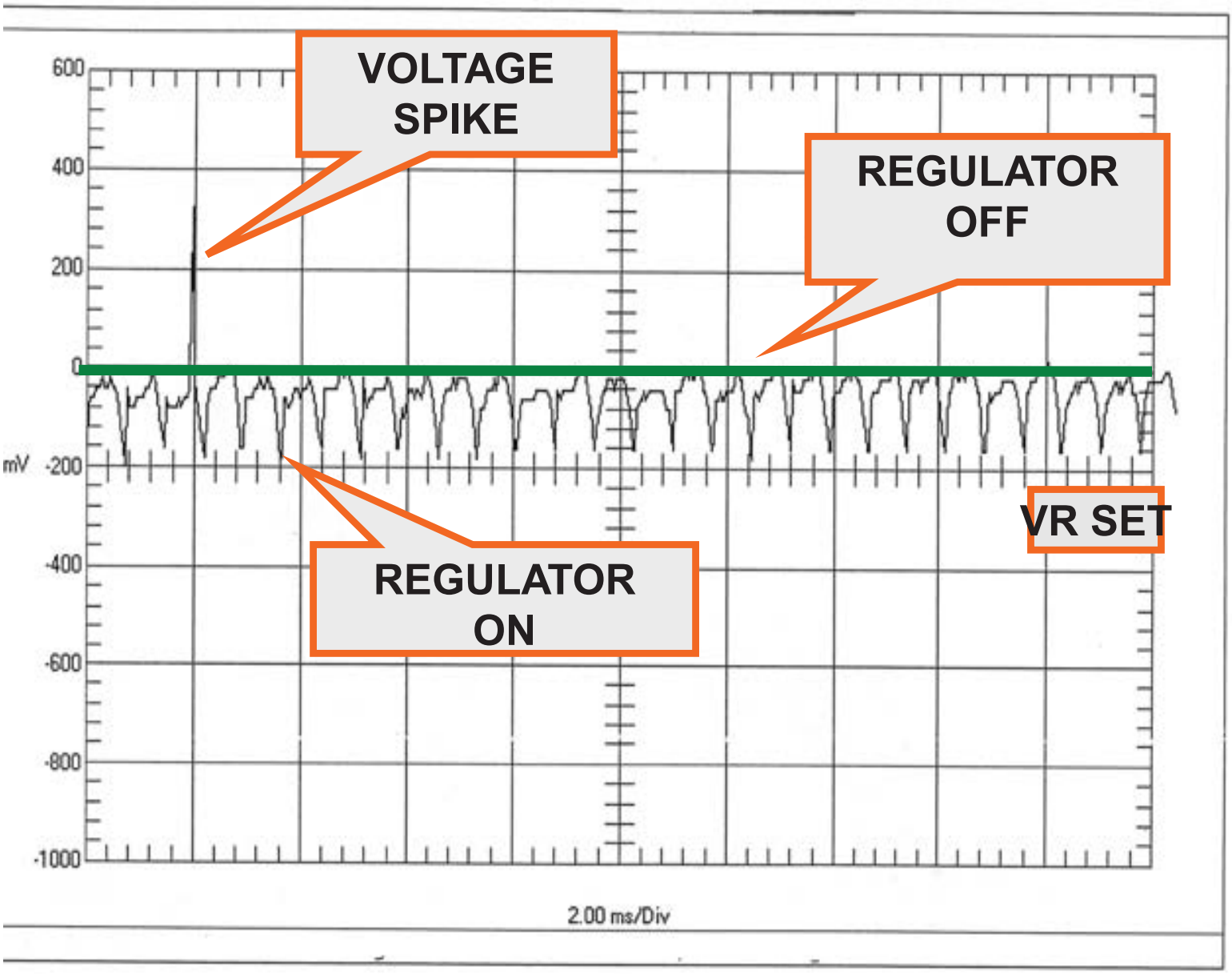
Combined Output, Shorted Diode

Alternator with Bad Diode



Normal Alternator Output

Tech Note
#050



182S, 182T, T182T
Electrical Load
Analysis -NOT G1000

Component	Draw at 24.0 VDC (In Amps)	Draw at 28.0 VDC (In Amps)
Master Switch ON	1.5	1.6
Master & Avionics ON	3.4	3.8
#1 Comm w/GS(Receive mode)	0.5	0.5
#1 Comm w/GS(Transmit mode)	2.4	2.4
#2 Comm w/o GS(Receive mode)	0.5	0.5
#2 Comm w/o GS(Transmit mode)	2.4	2.4
ADF Receiver	0.5	0.5
Annunciator (engine off)	0.1	0.1
Autopilot (1-Axis)	1.5	1.5
Autopilot (2-Axis)	2.5	2.5
Electric Elevator Trim	1.2	1.2
Beacon (50% duty cycle)	1.2	1.3
Courtesy Lights(left, right, aft cabin)	1.7	1.8
Flap Motor	1.1	1.2
Fuel Pump	2.1	2.1
Glareshield Light	0.9	0.9
GPS	1.0	1.0
Landing Light	8.0	8.8
Nav & Map Light	2.7	2.9
Panel Lights	1.0	1.1
Pedestal Light	0.1	0.1
Pitot Heat	5.3	6.2
Radio Lights	0.5	0.6
Left & Right Strobes (Peak Values)	3.8	3.8
Taxi Light	8.0	8.8
Transponder	1.0	1.2

Component	Draw at 24.0 VDC (Amperes)	Draw at 28.0 VDC (Amperes)
Landing Light (4596 Lamp)	7.65	8.93
Landing Light (4591 Lamp)	3.06	3.57
Landing Light (35 Watt HID)	1.65	1.41
Taxi Light (4587 Lamp)	7.65	8.93
Taxi Light (4626 Lamp)	4.59	5.36
Taxi Light (35 Watt HID)	1.65	1.41
Navigation Lights	2.65	3.1
Wing Anti-collision Lights (average value) (Qty. 2)	1.98	1.7
Beacon Light (peak value)	1.07	1.25
Under Wing Courtesy Lights (Qty. 2)	0.98	1.14
Pilot Overhead Light (1864 Lamp)	0.14	0.16
Pilot Overhead Light (LED Lamp)	0.02	0.02
Copilot Overhead Light (1864 Lamp)	0.14	0.16
Copilot Overhead Light (LED Lamp)	0.02	0.02
Passenger Overhead Light (1864 Lamp)	0.14	0.16
Passenger Overhead Light (LED Lamp)	0.02	0.02
Map Light	0.08	0.09
Instrument Light (2 and 3 inch round) (Each)	0.02	0.02
Oxygen Control/Gauge Light	0.02	0.02
Pedestal Lights (Qty. 2)	0.08	0.10
Flap Motor	2.06	2.4
Fuel Pump	2.74	3.2
Pitot Heat	3.33	3.89
Stall Warning Heat	1.46	1.7
Stall Warning Horn	0.4	0.35
Prop Heat	13.3	15.5
12V Cabin Power Converter (Peak 10A out)	6.33	5.42

Component	Draw at 24.0 VDC (Amperes)	Draw at 28.0 VDC (Amperes)
Hourmeter	0.01	0.02
Battery Relay Coil	0.29	0.33
Start Relay Coil	0.85	N/A
Alternator Relay Coil	0.29	0.33
Alternator Field and ACU Power (Maximum)	1.63	1.9
ACU Bus Sense	0.02	0.02
Start Motor	100	N/A
Autopilot Computer (KAP 140)	0.58	0.5
Pitch Servo & Clutch	0.58	0.5
Pitch Trim Servo & Clutch	0.58	0.5
Roll Servo & Clutch	0.53	0.45
Turn Coordinator	0.27	0.33
Stormscope (WX-500)	0.93	0.8
ADF Receiver (KR 87)	0.6	0.52

Component	Draw at 24 VDC (Amperes)	Draw at 28 VDC (Amperes)
Circuit Breaker Panel Light (LED)	0.06	0.07
Switch Panel Light (LED)	0.07	0.08
Avionics Panel Lights (MFD, PFD, A/P)	0.17	0.2
Throttle/Flap Panel Light (LED)	0.07	0.08
Standby Battery Main Volt Sense	0.001	0.001
Standby Battery Controller	0.007	0.008
Standby Battery Test	2	N/A
Main Bus Voltage Sense	0.001	0.001
Essential Bus Voltage Sense	0.001	0.001
Deck Skin Fan	0.28	0.33
PFD Fan	0.08	0.09
MFD Fan	0.08	0.09
#1 Comm (GIA 63) (Receive)	0.22	0.19
#1 Comm (GIA 63) (Transmit) (VSWR 3)	4.96	4.16
#2 Comm (GIA 63) (Receive)	0.22	0.19
#2 Comm (GIA 63) (Transmit) (VSWR 3)	4.96	4.16
#1 Nav (GIA 63)	0.94	0.8
#2 Nav (GIA 63)	0.94	0.8
PFD (GDU 1040)	1.46	1.25
MFD (GDU 1040)	1.46	1.25
AHRS (GRS 77)	0.29	0.25
Air Data Computer (GDC 74)	0.25	0.21
Engine/Airframe Unit (GEA 71)	0.2	0.17
Transponder (GTX 33)	1.17	1
Audio Panel (GMA 1347)	1.58	1.36
FIS (GDL 69A)	0.42	0.36
TAS (KTA 870)	1.34	1.15

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CESSNA PILOTS ASSOCIATION

182S, 182T,T182T Skylane

Propeller

Section Eight

Dynamic Balancing of Propeller

Cessna Pilots Association - Santa Maria, CA **Printed: Mon Aug 06 15:20:24 2007**

----- MICROBASE BALANCE HISTORY REPORT -----

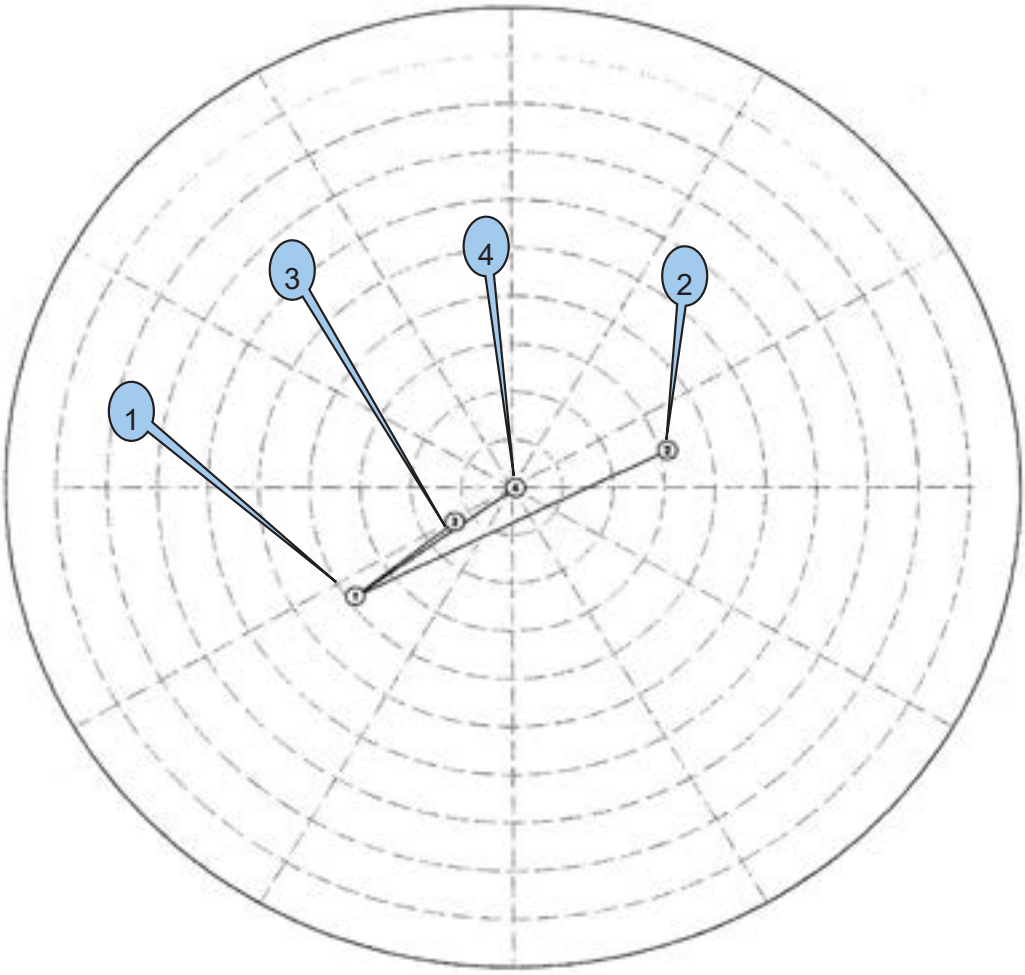
DATE: 05/08/2007 13:16:52 OPER: Michael Wilson

A/C: N2284X fwd Mdl: Cessna 337 S/N: 0184 Misc: Hrs: 1234.3
Cmp: McCauley Mdl: S/N: Misc: Hrs: 0.0

Group: PROP Task: PROP1

RUN	TYPE	RPM	VIB	LEVEL	PHASE	WT1	LOC1	WT2	LOC2	SENS	TACH
1	L	2008.2	0.384	IN/S	233.9	30.60	215.0	0.00	0.0	80.0	90.0
2	L R	1993.9	0.317	IN/S	75.9	17.00	225.0	0.00	0.0	44.5	81.2
3	L R	1999.2	0.135	IN/S	237.7	25.90	225.0	0.00	0.0	68.0	83.1
4	L	2046.0	0.007	IN/S	103.0	0.50	356.7	0.00	0.0	66.6	80.2

--- POLAR PLOT - 1.0 IN/S FS ---



--- OPERATOR COMMENTS ---

Performed Dynamic Balance of Front Prop and engine in accordane with McCauley Service Letter 1969-4D Dated July 20,2001. Dynamic track of prop check ok. Tach check ok.

N2284XFT.HST 05/08/2007 12:46:54

Printed By MicroBase Professional (2.01.1250) - Collected By MicroVib II (1.33.02.75) - S/N:1053 - Cal:04/13/2007

Vibration Levels

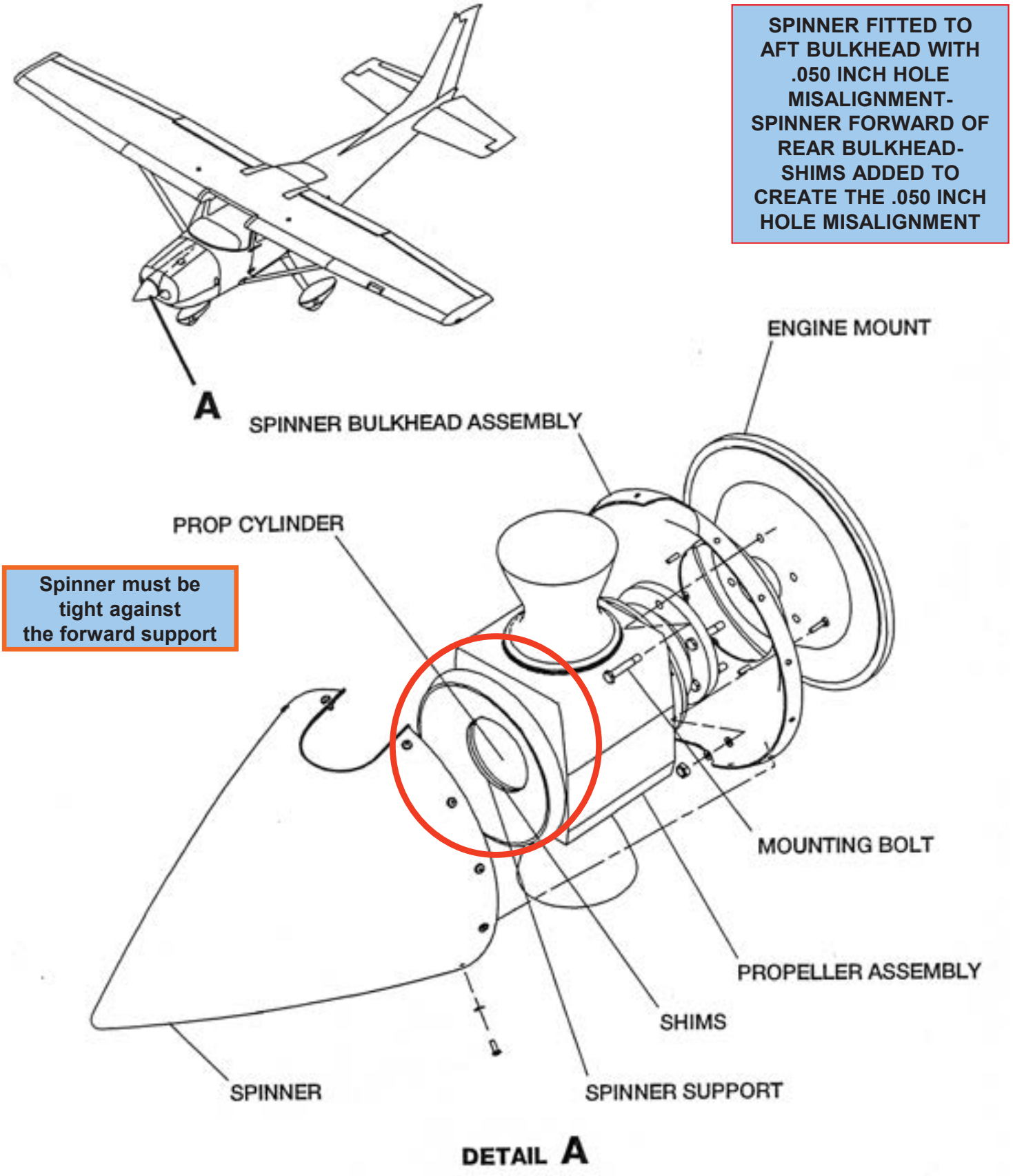
0.4 IPS to 0.8 IPS ROUGH

0.2 IPS to 0.4 IPS MODERATELY ROUGH

0.1 IPS to 0.2 IPS FAIR

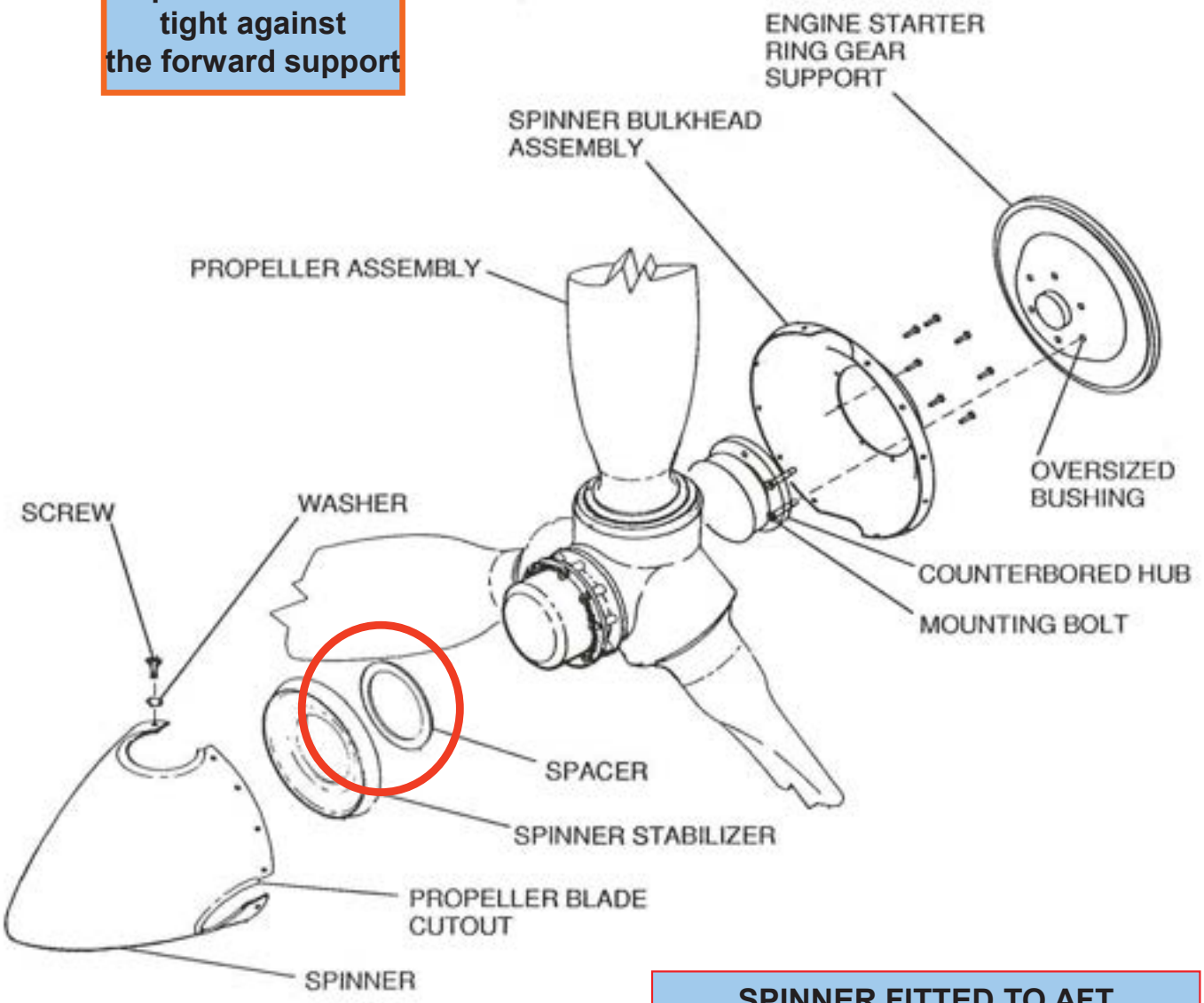
0.1 IPS and Below SMOOTH

Two-Blade Propeller and Spinner Installation



182S, 182T, T182T Three-Blade Propeller Installation

Spinner must be tight against the forward support



SPINNER FITTED TO AFT BULKHEAD WITH .050 INCH HOLE MISALIGNMENT- SPINNER FORWARD OF REAR BULKHEAD- SHIMS ADDED TO CREATE THE .050 INCH HOLE MISALIGNMENT

Field Inspection and Repair of Propeller Blades

Customer Information Letter November 25, 1991

To: FAA Approved Propeller Repair Stations, Aircraft Manufacturers and Owners/Operators

Subject: Field Inspection and Repair of Propeller Blades

Models Affected: All Propeller Models

This Service Letter is being written to help clarify what type of damage needs repaired and how the repair should be accomplished on McCauley aluminum propeller blades, when found during inspection. (Example: Pre-Flight, 100 hr and annual inspection)

The only repairs that a pilot or mechanic need to be concerned with are sharp "stress riser" type of damage. This type of damage is caused by stones or other small objects striking the propeller blade as it is rotating. Erosion caused by sand, dirt, water, etc. not creating sharp "stress riser" type damage DOES NOT NEED repaired in the filed.

The use of a "rasp file" is not recommended for field repairs. Rasp type files will remove more metal then necessary and may cause premature rejection of the blade at time of overhaul.

Special attention should be given to De-Ice boots during visual inspection. If boot damage has occurred, it may have penetrated the boot heating element and damaged the blade. If there is any indication of this, the boot must be removed and blade inspected.

CAUTION

Do not assume De-Ice boot is not damaged if heating normally.

Small object damage is normally found on the lead edge and face side of the propeller blade. Those propellers capable of reversing will have damage occur on the camber side at the outboard blade stations only. To better clarify how repairs should be accomplished we are supplying the following recommendation.

First: It is very important that sharp "stress riser" type damage be completely repaired. When filing of the damage is complete it may require dye check be preformed to verify that the "stress riser" has been completely removed.

Second: As important as it is to remove the damage completely, it is just as important that the repair go no further after the "stress riser" is gone. Unnecessary repairs will cause premature replacement of blades at overhaul.

Lead Edge Repair Procedure:

Remove metal at damaged area starting back from, and working toward the edge in such a way that the contour remains substantially the same. File strokes must run from blade shank to blade tip. Avoid abrupt changes in contour and blunt edges. The length of the blended area shall be equal to 10 times the depth of the nick (see figure on page 3). Use a suitable fine cut file and coarse grain emery cloth to remove page, then smoothly finish surface with fine grain emery cloth, crocus cloth, or 600 grit paper.

Face and Camber Repair Procedure:

Remove metal at damaged area using a hand held rotary grinder with 120 or less grit bob, or by hand using coarse grain emery cloth. Use of a file in this area is not recommended.

CAUTION:

Care must be taken to control a hand held grinder.

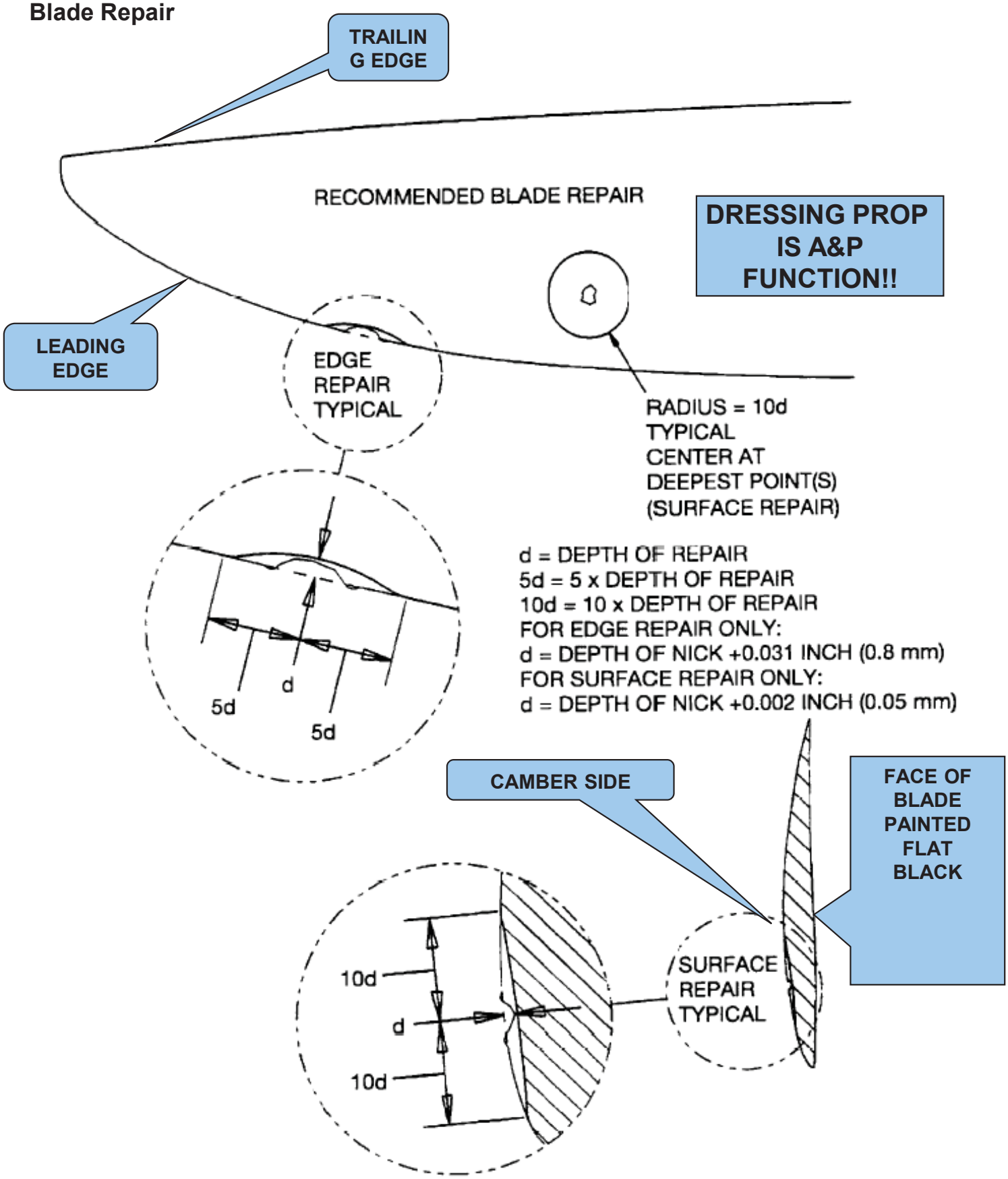
Grind with light pressure in a circular motion until damage is totally removed. The diameter of the repair shall be equal to 20 times the depth of the damage (see figure on page 3). Smoothly finish surface with fine grain emery cloth, crocus cloth, or 600 grit paper.

Prepare repaired area for touch up paint by wiping with a Keton dampened cloth. Apply, as required, polyurethane enamel paint per manufactures instructions to blend with original finish.

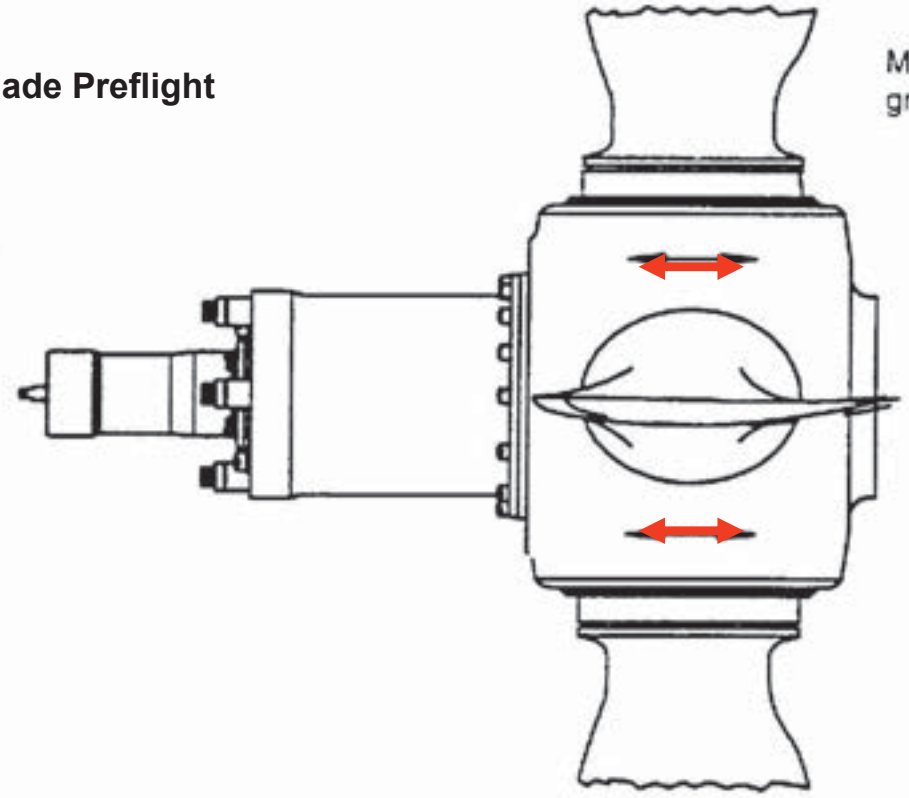
Turbine propellers should be re-checked for dynamic balance.

SNL93-9

Blade Repair

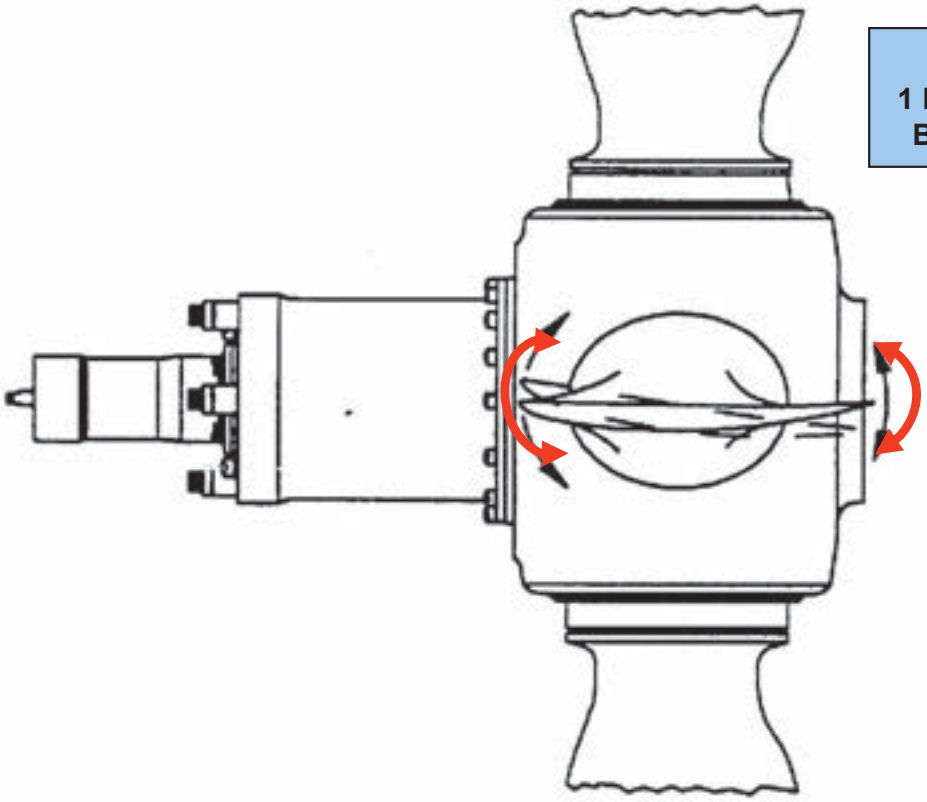


Blade Preflight



BLADE TRACKING
1/8 INCH MAX

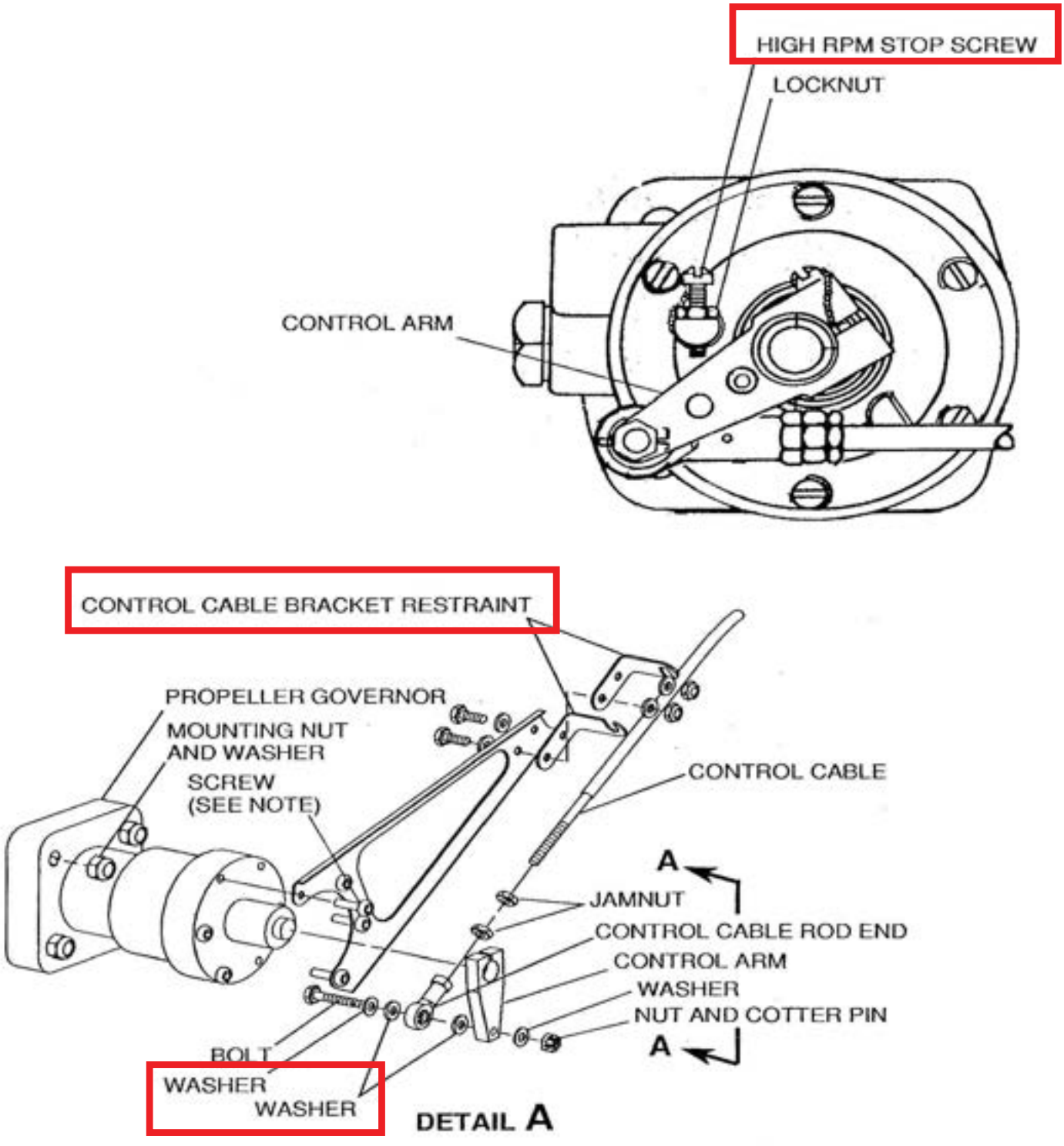
BLADE SHAKE- FOR AND AFT MOVEMENT



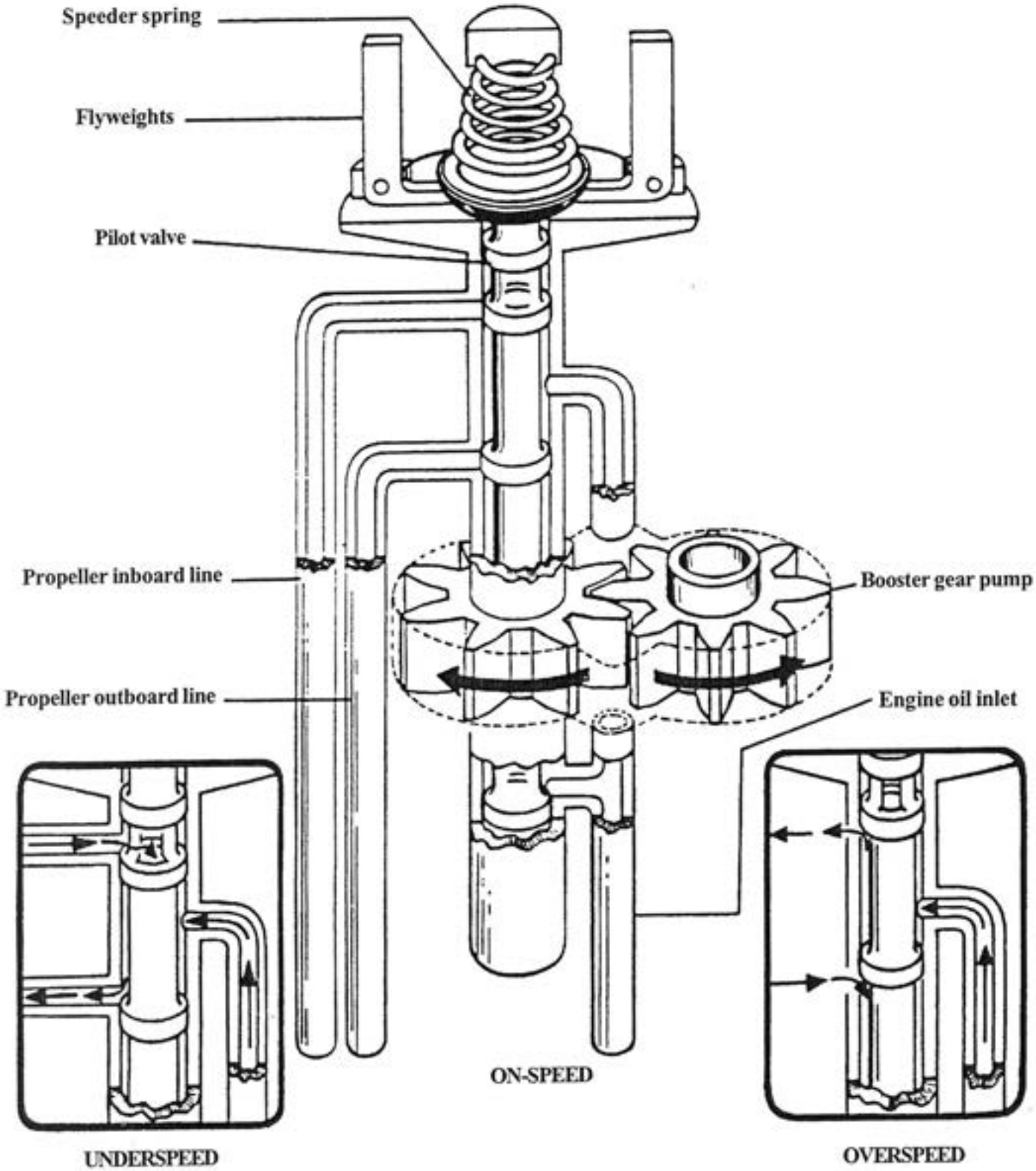
BLADE TWIST
1 DEGREE MAX DIFF
BETWEEN BLADES

BLADE TWIST- ROTATING MOVEMENT

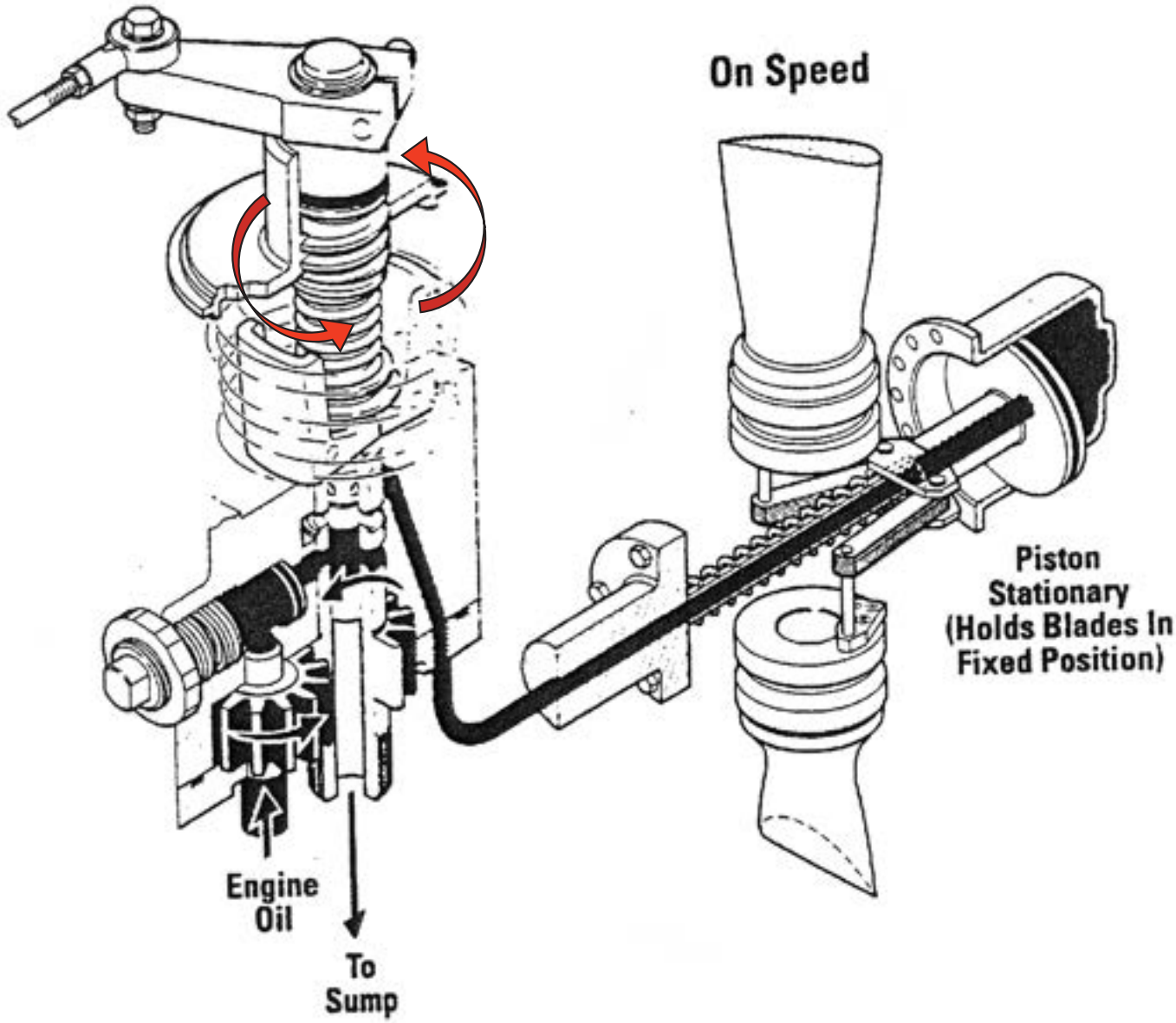
Propeller Governor
Control Installation



Propeller Governor

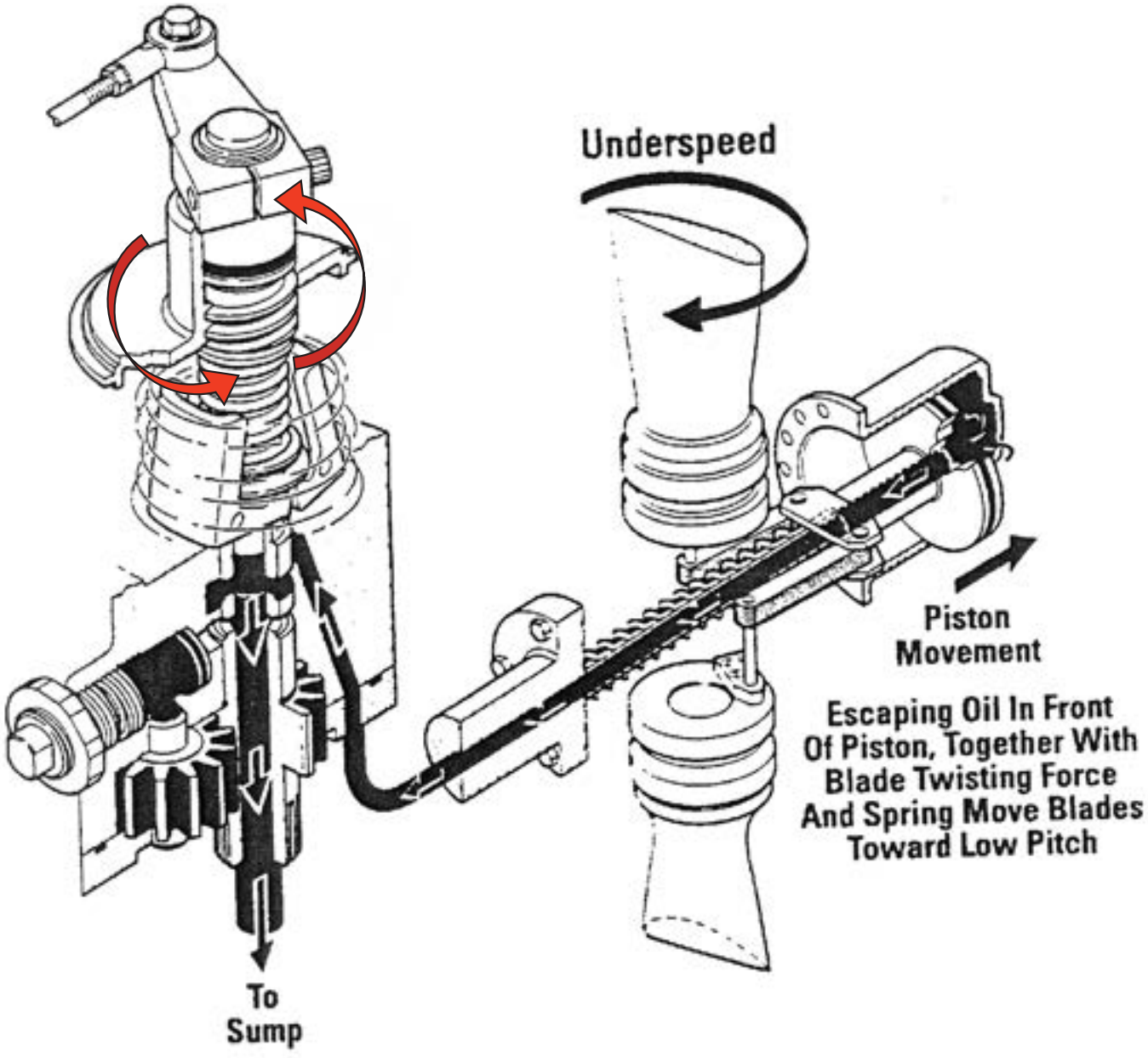


Flyweight Force and Speeder Spring Force are Equal

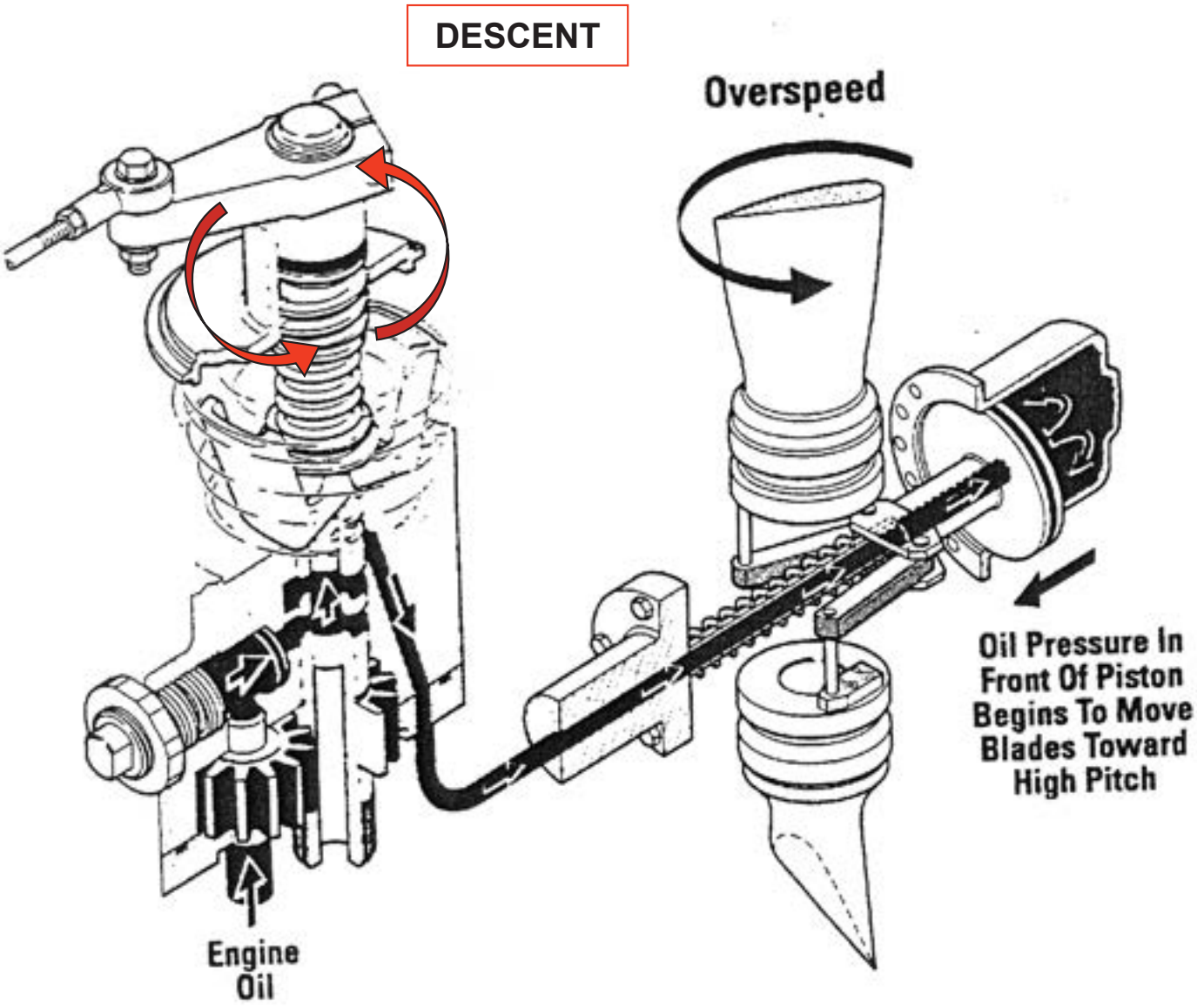


Flyweight Force less Than Speeder Spring Force

CLIMB



Flyweight Force Greater Than Speeder Spring Force



CESSNA PILOTS ASSOCIATION

182S, 182T, T182T Skylane

Powerplant Management

Section Nine

POWERPLANT MANAGEMENT

- AVOID STARTS
- LEAN AGGRESSIVELY
- THERMAL CYCLES
- HIGH M/P & LOW RPM

POWERPLANT MANAGEMENT

AVOID STARTS

COLD STARTS- LYC SI 1505 BELOW 10°F, CPA SAYS ANYTIME TEMPS ARE BELOW 40° F

PRE-HEAT SYSTEMS, TANIS, REIFF, E-Z-HEAT, 100-WATT LIGHT BULBS TECH NOTE 032

DO NOT KEEP PRE-HEATER PLUGGED IN ALL THE TIME IF TEMPERATURE SWINGS FROM FREEZING TO ABOVE FREEZING

DO NOT PULL PROP THRU IF NOT FLYING

DO NOT RUN ENGINE FOR 20 MINUTES AND NOT FLY THE AIRPLANE

ENGINE PRESERVATIVE OIL, AEROSHELL 2F AND PHILLIPS CORROSION PREVENTIVE OIL

POWERPLANT MANAGEMENT

LEAN AGGRESSIVELY

Lycoming Service Instruction SI1094D

NO LEAN ABOVE 75%

75% LEAN TO 50 DEGREES RICH OF PEAK

65% LEAN TO PEAK REGARDLESS OF ALTITUDE

MAX CHT 400°F- STOP BEFORE 500°F RED LINE

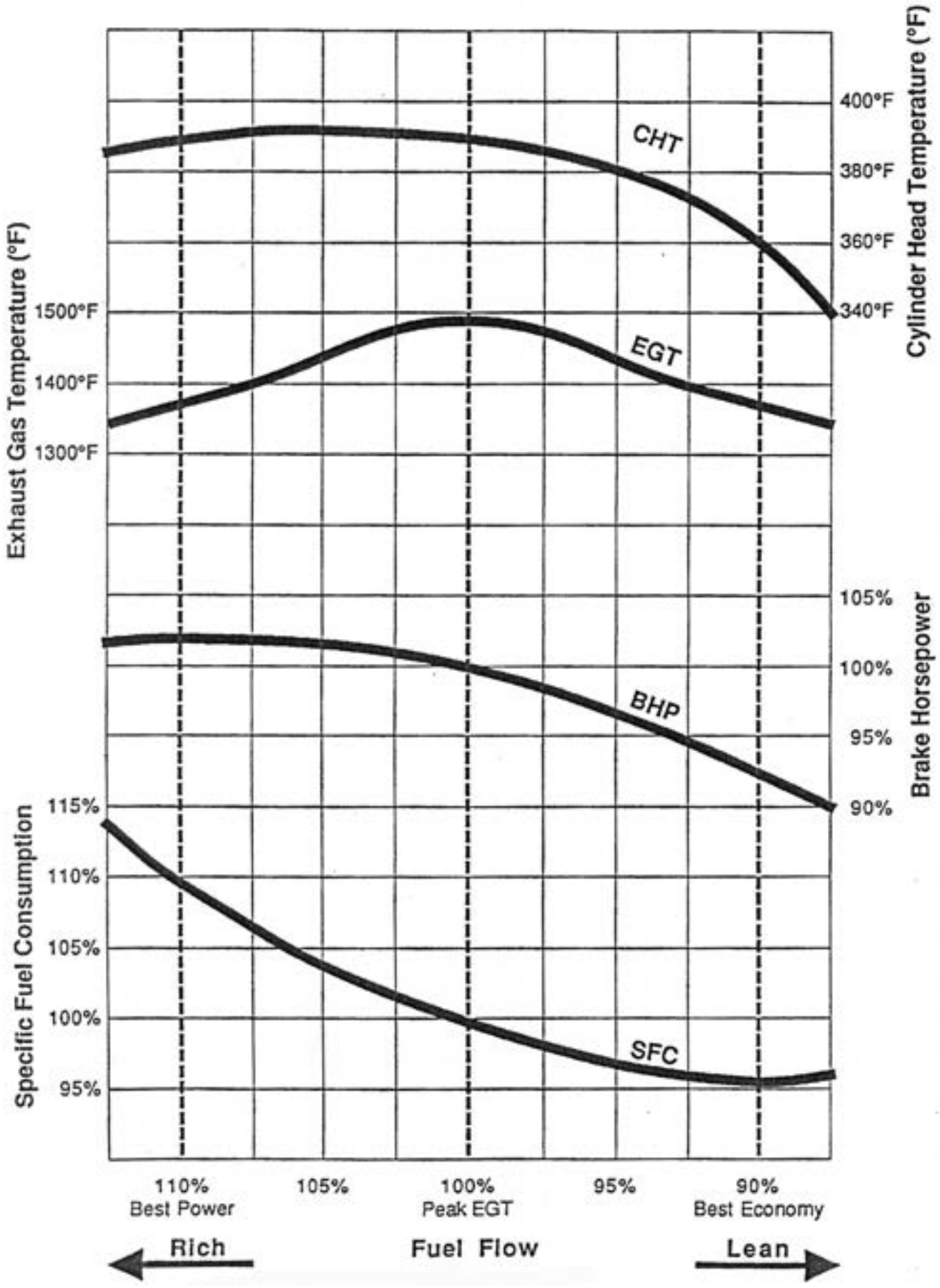
CHTS 350°F TO 380°F IN CRUISE

OT 180°F IN CRUISE

LEAN FOR ALL GROUND TAXI OPERATIONS

ENGINE MONITORS

Fuel Flow Relationship



POWERPLANT MANAGEMENT

THERMAL CYCLES

MINIMIZE HEAT UP AND COOL DOWN

NO PART THROTTLE TAKEOFFS

REDUCE POWER-- 2 INCHES 2 MINUTES

USE COWL FLAPS TO CONTROL CHTS

POWERPLANT MANAGEMENT

HIGH MP/LOW RPM

ANY POWER SETTING IN THE PERFORMANCE CHARTS IS AN APPROVED POWER SETTING

ACCURACY OF TACHOMETER AND MANIFOLD PRESSURE GAUGE

POWERPLANT MANAGEMENT

HIGH MP/LOW RPM

ANY POWER SETTING IN THE PERFORMANCE CHARTS IS AN APPROVED POWER SETTING

ACCURACY OF TACHOMETER AND MANIFOLD PRESSURE GAUGE

WHY OPERATE THE ENGINE OVERSQUARE?

BECAUSE THE ENGINE LIKES IT!!!!!

182S Cruise Performance

CRUISE PERFORMANCE
PRESSURE ALTITUDE 6000 FEET

CONDITIONS:

3100 Pounds
Recommended Lean Mixture
Cowl Flaps Closed

RPM	MP	20°C BELOW STANDARD TEMP -17°C			STANDARD TEMPERATURE 3°C			20°C ABOVE STANDARD TEMP 23°C		
		% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2400	23	79	135	13.2	76	136	12.7	73	137	12.3
	22	74	132	12.4	71	133	12.0	69	133	11.6
	21	69	129	11.7	67	128	11.3	64	129	10.9
	20	64	124	10.9	62	125	10.6	60	125	10.3
	19	60	120	10.3	57	120	10.0	55	120	9.7
2300	23	76	133	12.7	73	134	12.2	70	135	11.9
	22	71	130	12.0	68	130	11.6	66	131	11.2
	21	66	126	11.3	64	127	10.9	62	127	10.6
	20	62	122	10.6	60	122	10.3	58	123	10.0
	19	57	118	10.0	55	118	9.7	53	118	9.4
2200	23	73	131	12.2	70	132	11.8	68	132	11.4
	22	68	128	11.5	66	128	11.2	64	129	10.8
	21	64	124	10.9	62	124	10.6	60	124	10.3
	20	60	120	10.3	57	120	10.0	56	120	9.7
	19	55	116	9.7	53	116	9.4	52	115	9.1
2100	23	69	129	11.6	66	128	11.3	64	129	10.9
	22	65	125	11.0	63	125	10.7	60	125	10.4
	21	61	121	10.4	59	121	10.1	57	121	9.9
	20	57	117	9.9	55	117	9.6	53	117	9.3
	19	53	113	9.3	51	113	9.0	49	112	8.8
2000	23	65	125	11.1	63	126	10.8	61	126	10.5
	22	62	122	10.5	59	122	10.2	57	122	10.0
	21	58	118	10.0	56	118	9.7	54	118	9.4
	20	54	114	9.5	52	114	9.2	50	113	8.9
	19	50	110	8.9	48	109	8.7	47	108	8.4

Cruise Performance

182T Cruise Performance

CRUISE PERFORMANCE
PRESSURE ALTITUDE 6000 FEET

CONDITIONS:

3100 Pounds
Recommended Lean Mixture
Cowl Flaps Closed

NOTE: 1. Maximum cruise power is 80% MCP. Those powers above that value in the table are for interpolation purposes only.
2. For best economy, operate at peak EGT.

RPM	MP	20°C BELOW STANDARD TEMP -17°C			STANDARD TEMPERATURE 3°C			20°C ABOVE STANDARD TEMP 23°C		
		% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2400	23	82	142	14.2	79	143	13.6	76	144	13.2
	22	77	138	13.3	74	139	12.8	72	139	12.4
	21	72	135	12.5	69	135	12.1	67	135	11.7
	20	67	130	11.7	65	130	11.4	62	131	11.1
	19	62	126	11.0	60	126	10.7	58	125	10.4
2300	23	79	140	13.6	76	141	13.1	73	141	12.7
	22	74	136	12.8	71	137	12.4	69	137	12.0
	21	69	132	12.1	67	133	11.7	64	133	11.4
	20	65	128	11.4	62	128	11.0	60	128	10.7
	19	60	124	10.7	58	123	10.4	56	123	10.1
2200	23	76	137	13.1	73	138	12.6	70	138	12.3
	22	71	134	12.4	69	134	12.0	66	135	11.6
	21	67	130	11.7	64	130	11.3	62	130	11.0
	20	62	126	11.0	60	126	10.7	58	125	10.4
	19	58	121	10.4	56	121	10.1	54	120	9.9
2100	23	72	135	12.5	69	135	12.1	67	135	11.7
	22	68	131	11.8	65	131	11.5	63	131	11.1
	21	63	127	11.2	61	127	10.9	59	127	10.6
	20	59	123	10.6	57	122	10.3	55	122	10.0
	19	55	118	10.0	53	118	9.8	51	117	9.5
2000	23	68	131	11.9	66	132	11.5	63	132	11.2
	22	64	127	11.3	62	128	11.0	60	128	10.7
	21	60	124	10.7	58	123	10.4	56	123	10.2
	20	56	119	10.2	54	119	9.9	52	118	9.7
	19	52	115	9.6	50	114	9.4	48	113	9.1

Cruise Performance

T182T Cruise Performance

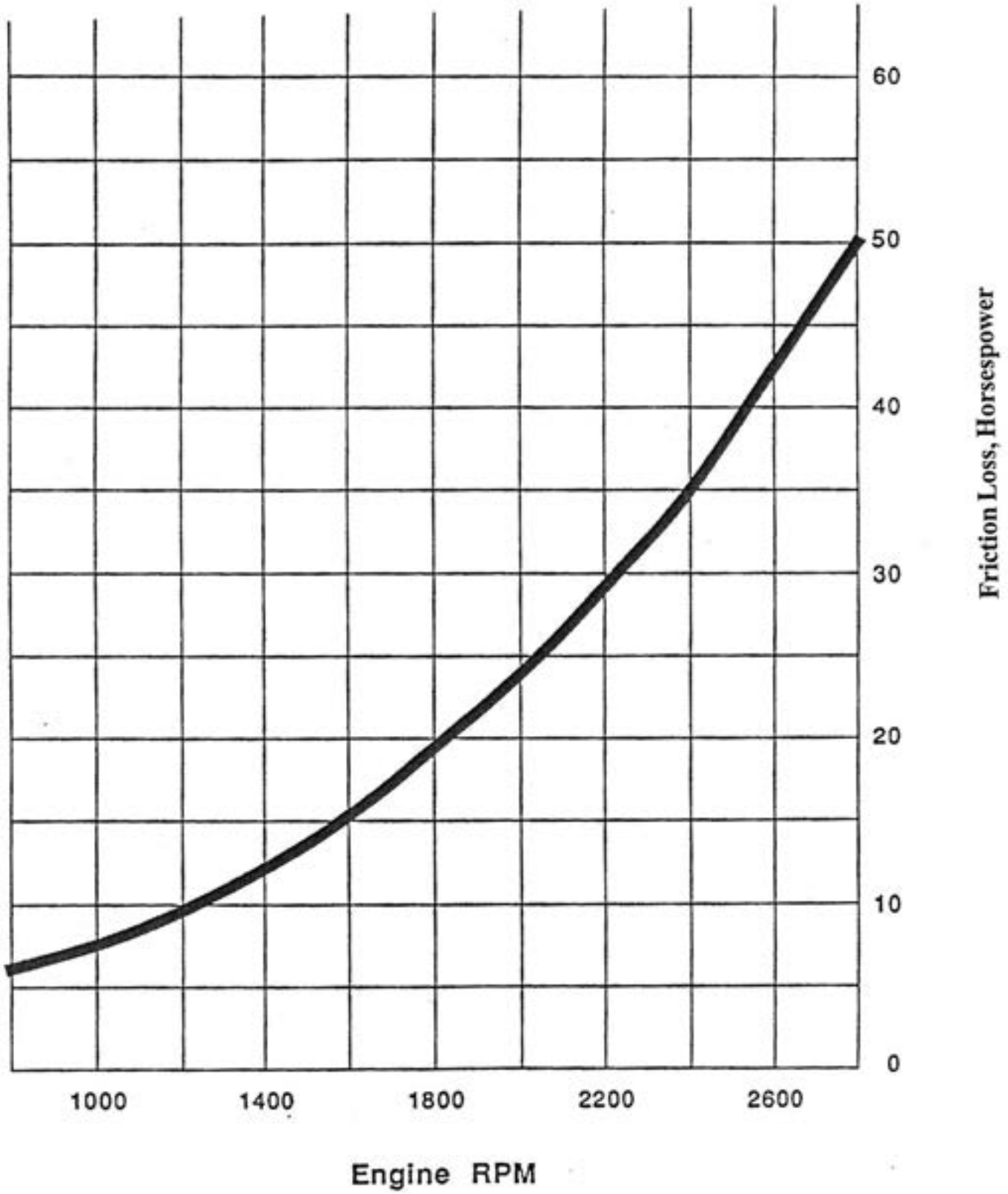
CRUISE PERFORMANCE
PRESSURE ALTITUDE 12,000 FEET

CONDITIONS:
3100 Pounds
Recommended Lean Mixture
Cowl Flaps Closed

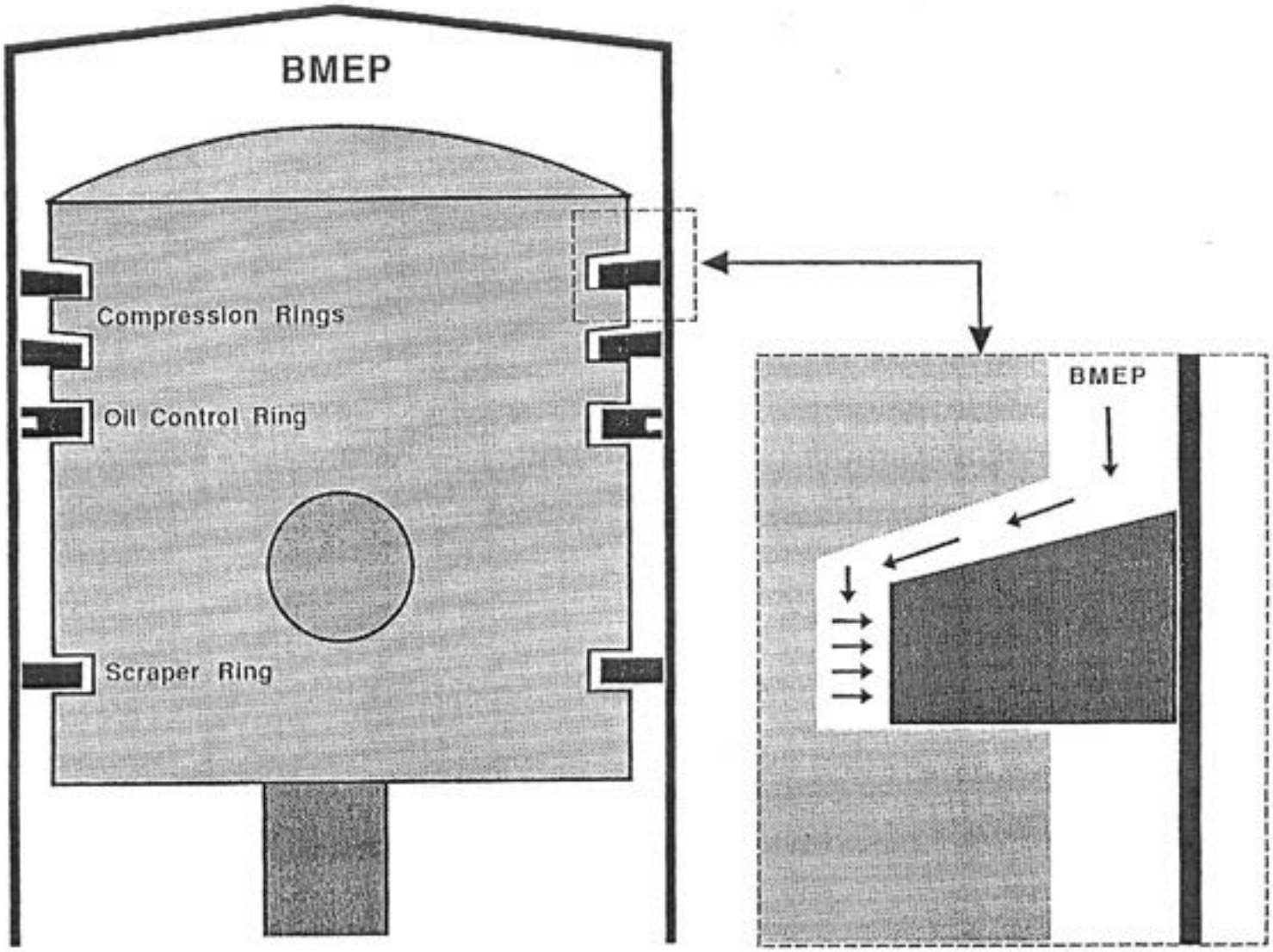
Note:
1. For best economy, operate at peak T.I.T
2. Power settings not approved for cruising are indicated by dashes.

RPM	MP	20°C BELOW STANDARD TEMP -29°C			STANDARD TEMPERATURE -9°C			20°C ABOVE STANDARD TEMP 11°C		
		% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2400	28	---	---	---	87	158	17.8	81	156	16.2
	26	85	153	17.3	80	152	15.9	75	151	14.6
	24	79	148	15.7	75	148	14.5	70	146	13.5
	22	73	143	14.0	69	142	13.1	65	140	12.3
	20	64	135	12.2	61	134	11.6	57	131	11.0
2300	28	---	---	---	85	156	16.4	80	155	15.2
	26	83	151	16.0	78	151	14.9	74	149	13.8
	24	77	146	14.6	73	145	13.6	68	144	12.7
	22	70	140	13.1	66	139	12.3	62	138	11.6
	20	62	133	11.6	59	131	11.0	55	128	10.5
2200	28	88	155	16.3	83	155	15.3	78	153	14.2
	26	81	150	14.8	76	149	13.9	72	147	13.1
	24	74	144	13.6	70	143	12.8	66	142	12.0
	22	67	138	12.3	64	137	11.6	60	134	11.0
	20	60	130	11.1	57	128	10.5	53	125	10.0
	18	54	122	10.1	50	119	9.6	47	115	9.1
2100	28	84	152	15.2	79	151	14.2	74	150	13.3
	26	77	146	13.8	72	145	13.0	68	144	12.2
	24	71	141	12.6	67	140	11.9	63	138	11.3
	22	64	134	11.5	60	133	10.9	57	130	10.4
	20	57	127	10.4	54	124	9.9	51	121	9.5
	18	50	118	9.5	48	114	9.0	45	110	8.6
2000	28	79	148	14.1	75	147	13.3	70	146	12.5
	26	73	143	12.9	69	142	12.2	65	140	11.5
	24	67	137	11.9	63	136	11.3	59	133	10.6
	22	60	131	10.9	57	129	10.3	54	126	9.8
	20	54	122	9.9	51	120	9.4	48	116	9.0
	18	47	113	8.9	45	109	8.5	42	104	8.1

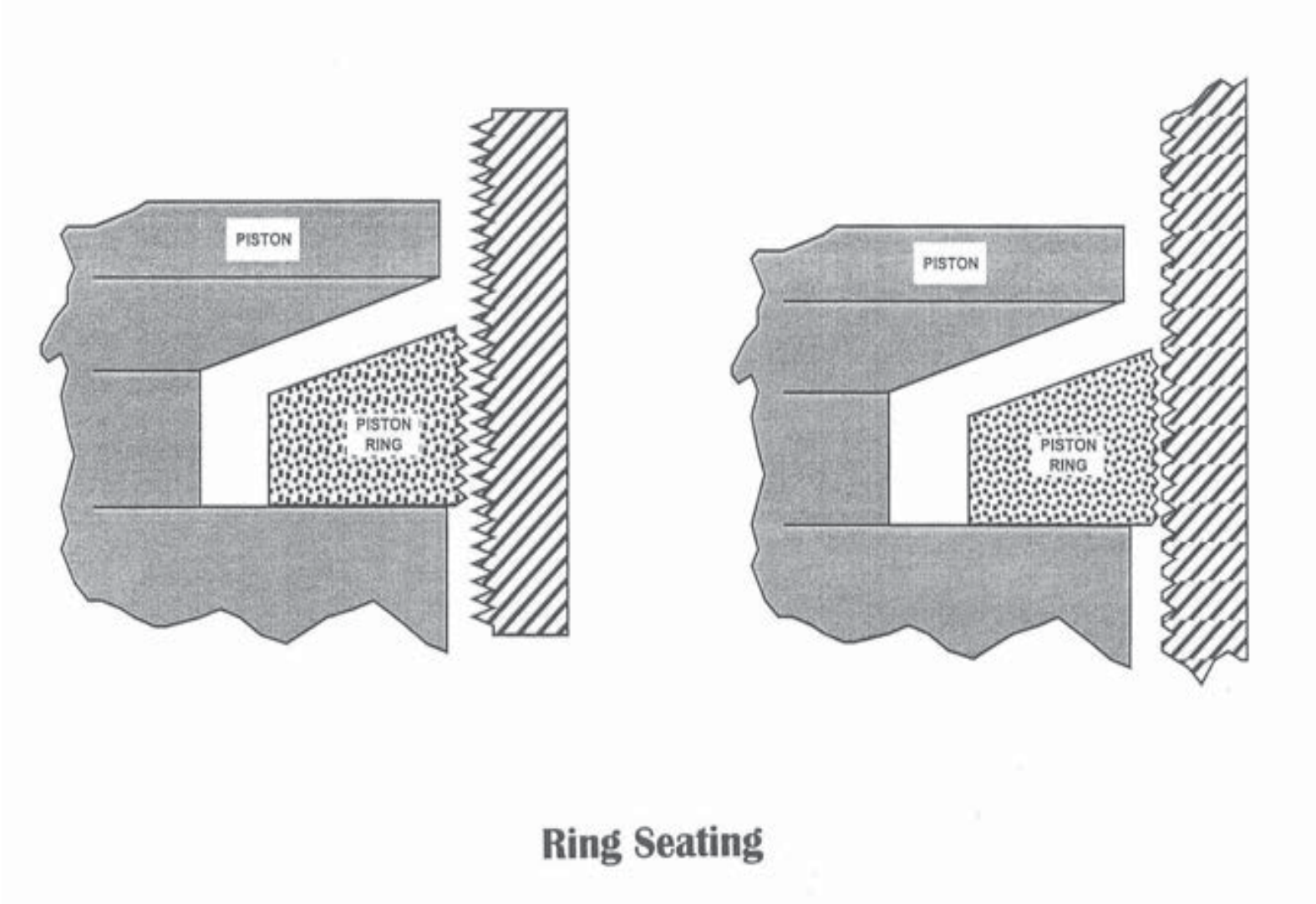
Friction Horsepower Loss



Brake Mean Effective Pressure



Ring Seating



Ring Seating

And The Most Important

FLY FREQUENTLY!

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CESSNA PILOTS ASSOCIATION

Paul New

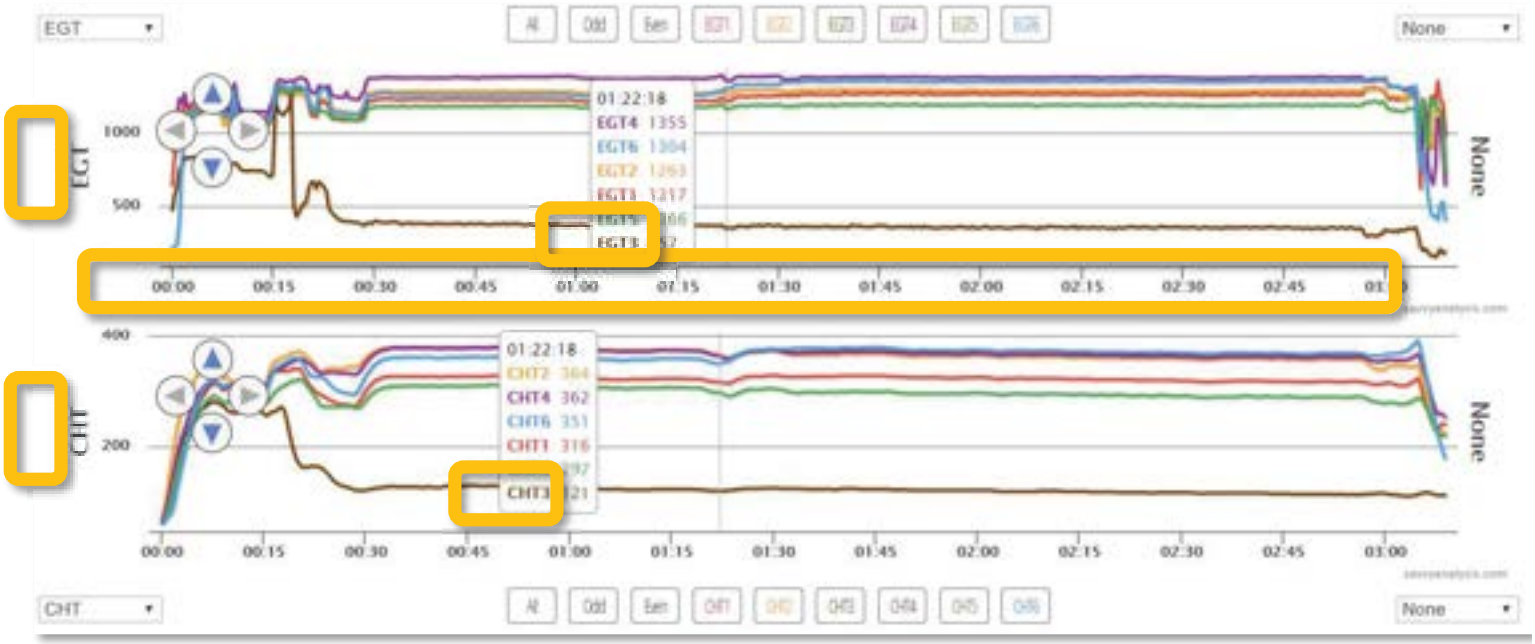
Tactical Data Analysis

Identifying a problem before it identifies you

Section Ten

Cause and Effect

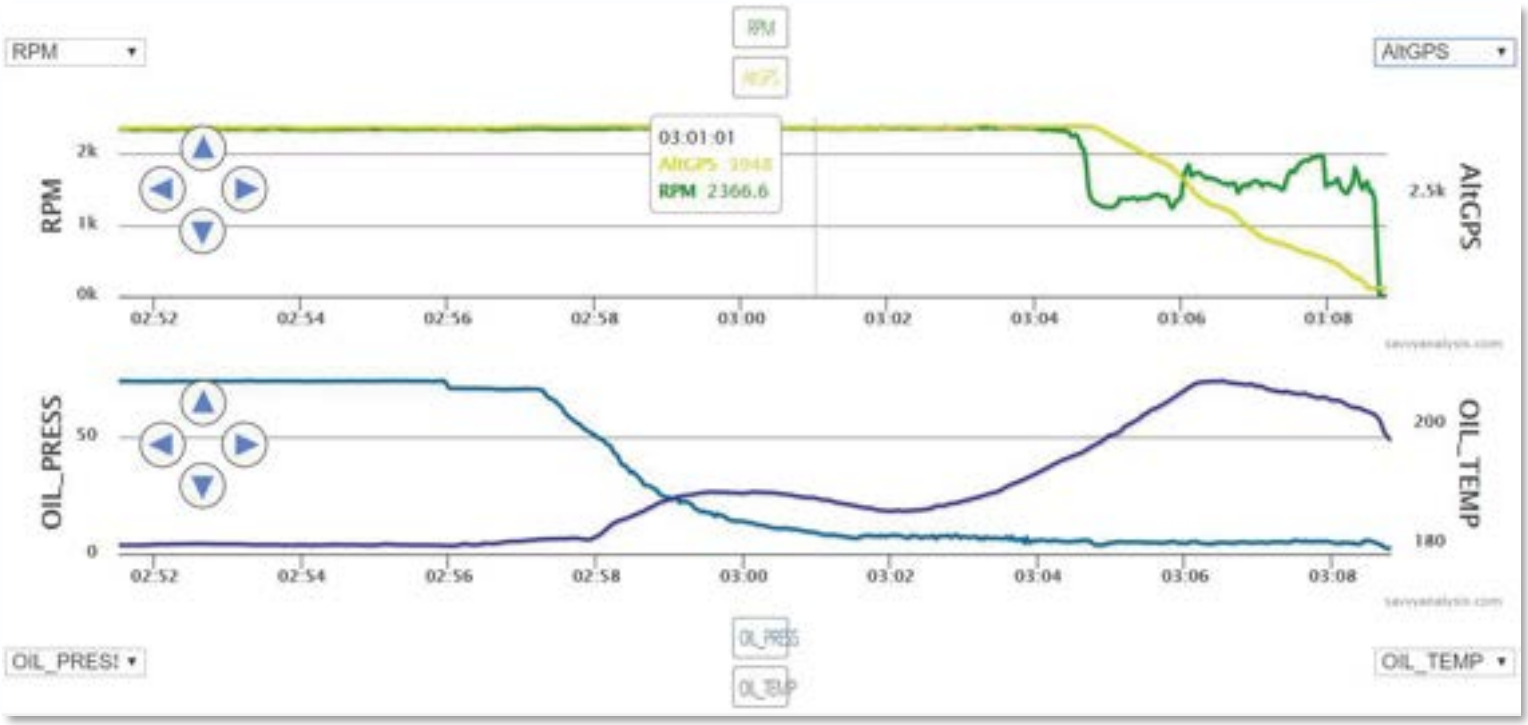
A True 182T Story



Catastrophic cast aluminum failure

An Inside Job


EGT
All
Odd
Even
None
EGT
1000
500
01:20:50
EGT4 1384
EGT2 1288
EGT6 1275
EGT1 1224
EGT5 1188
EGT3 368
None
00:00
00:15
00:30
00:45
01:00
01:15
01:30
01:45
02:00
02:15
02:30
02:45
03:00
OIL_PRESS
50
0
01:20:50
OIL_TEMP 185.7
OIL_PRESS 73.74
OIL_TEMP
OIL_PRESS
OIL_TEMP


RPM
AltGPS
03:01:01
AltGPS 1948
RPM 2366.6
2k
1k
0k
2.5k
02:52
02:54
02:56
02:58
03:00
03:02
03:04
03:06
03:08
OIL_PRESS
50
0
200
180
OIL_TEMP

Using Data in Real Time

- How/where to view and analyze data
- What's normal – establish baselines
- Understand what the various engine parameters are
- Distinguish indication issues from true failures
- Find correlations between indications

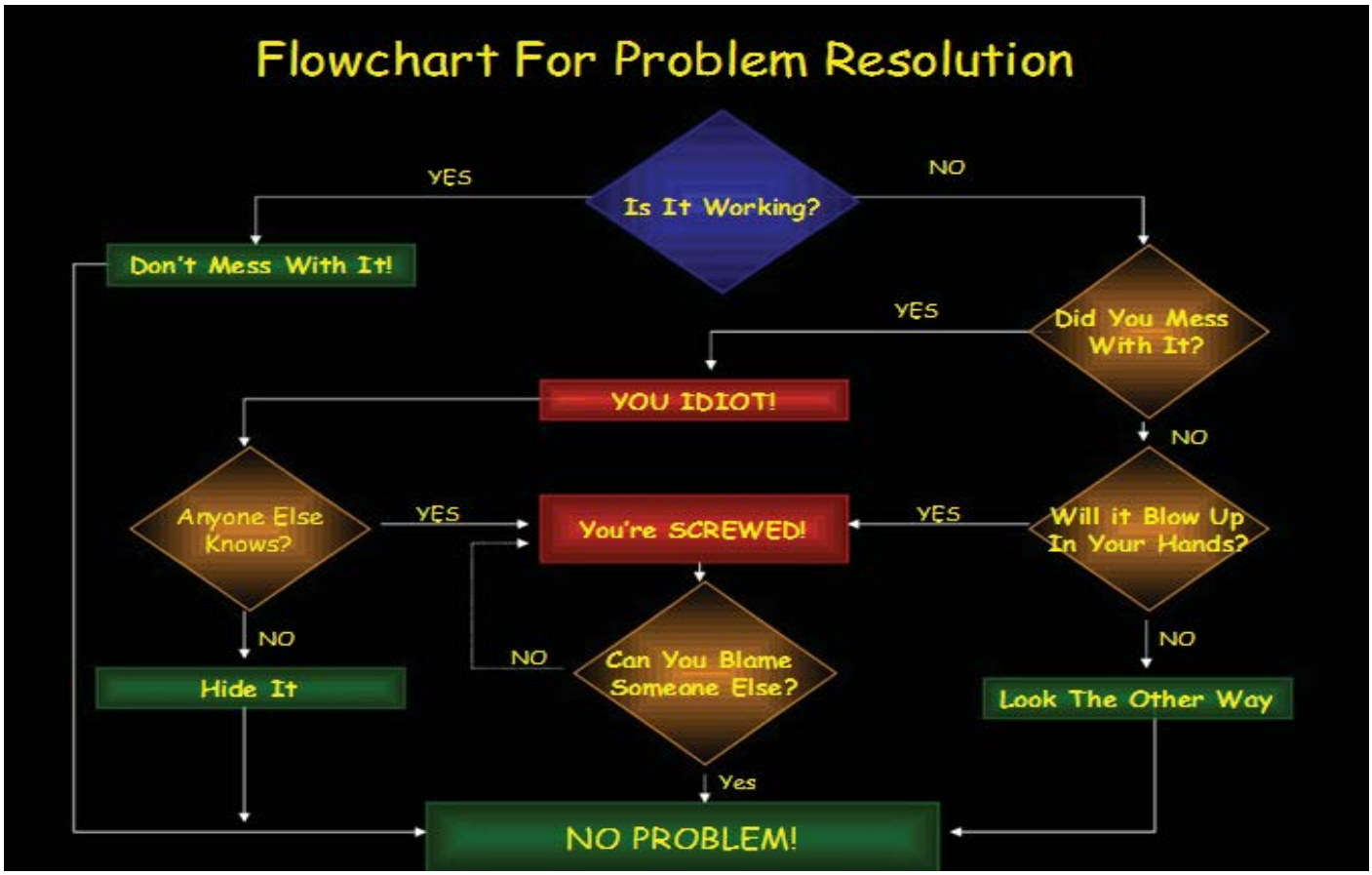
Data Acquisition

Data Acquisition

Data Acquisition

Savvy Analysis Free	www.savvyanalysis.com	free
Savvy Analysis Pro	www.savvyanalysis.com	$129
Cirrus Reports	www.cirrusreports.com	free
EGTrends	www.egtrends.com	$99
EZ Trends	www.jpinstruments.com	free

Whether you own, rent or borrow the airplane you fly, in-flight problem solving is your job.



Know Your Limitations

Max RPM? _____

Max MAP? _____

Max FF

TIT max and normals

CHT Max

Oil Temp Red line

Know Your Baselines

EGT at take off
TIT normals in flight
CHT in climb & cruise
Oil pressure at 180 degrees
Buss voltages


Calendar
SUNDAY
MONDAY
FRIDAY
SATURDAY
1
2
3
4
5
6
7
8
9
10
11
12
14
18
19
20
21
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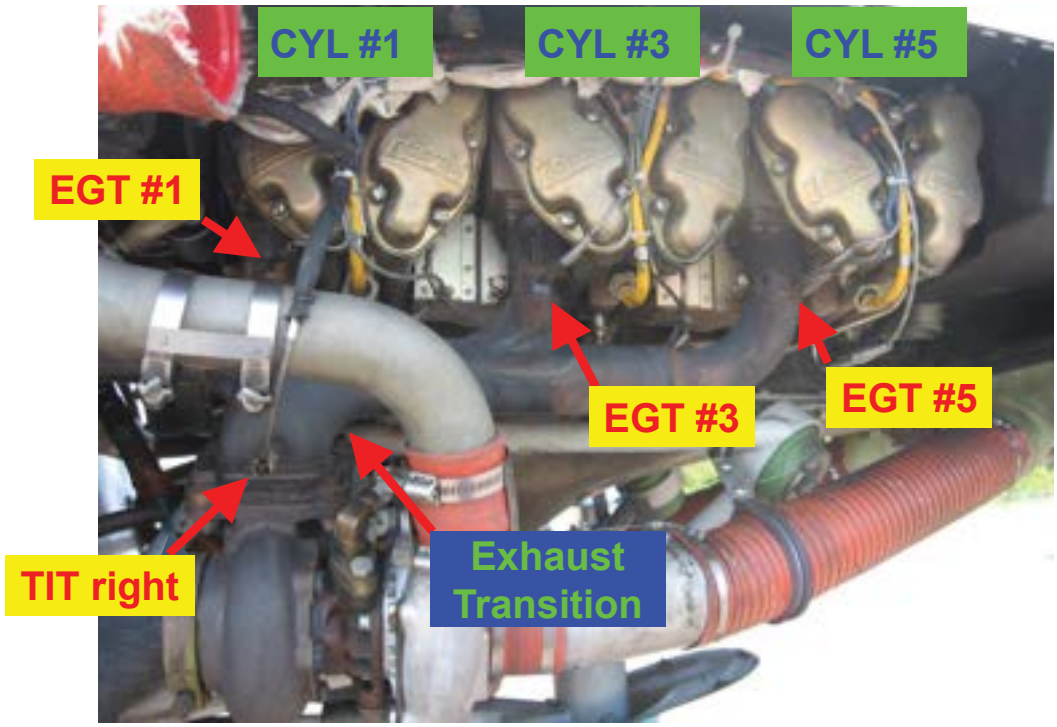
29
30
31

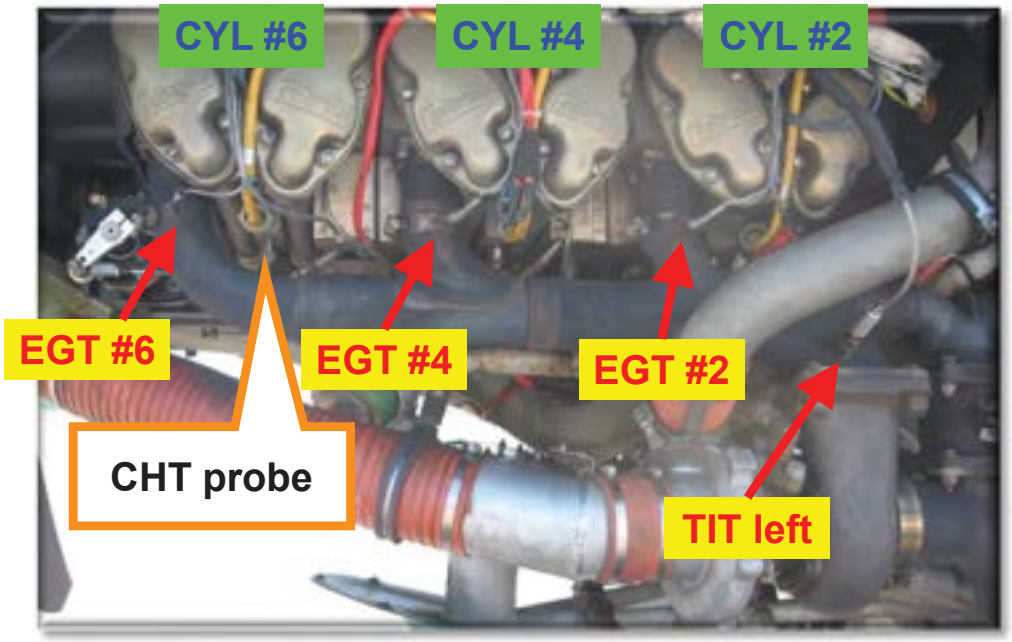

N628PT

Tires – just to make a point

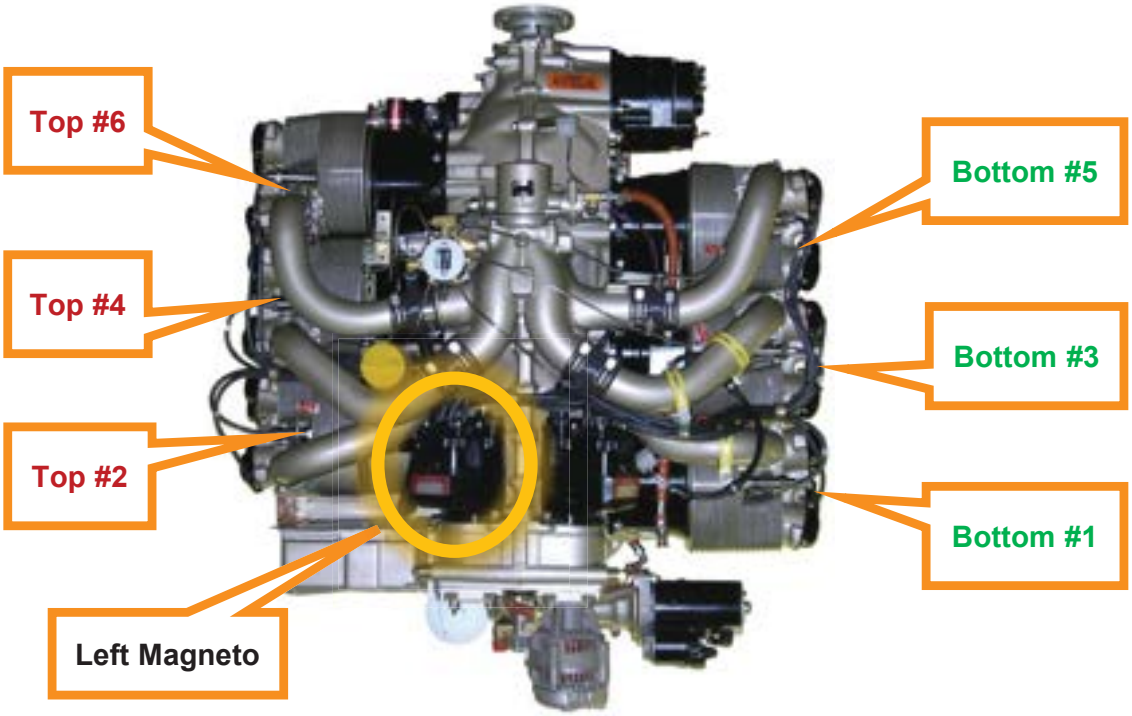
Cylinder Arrangement - right side



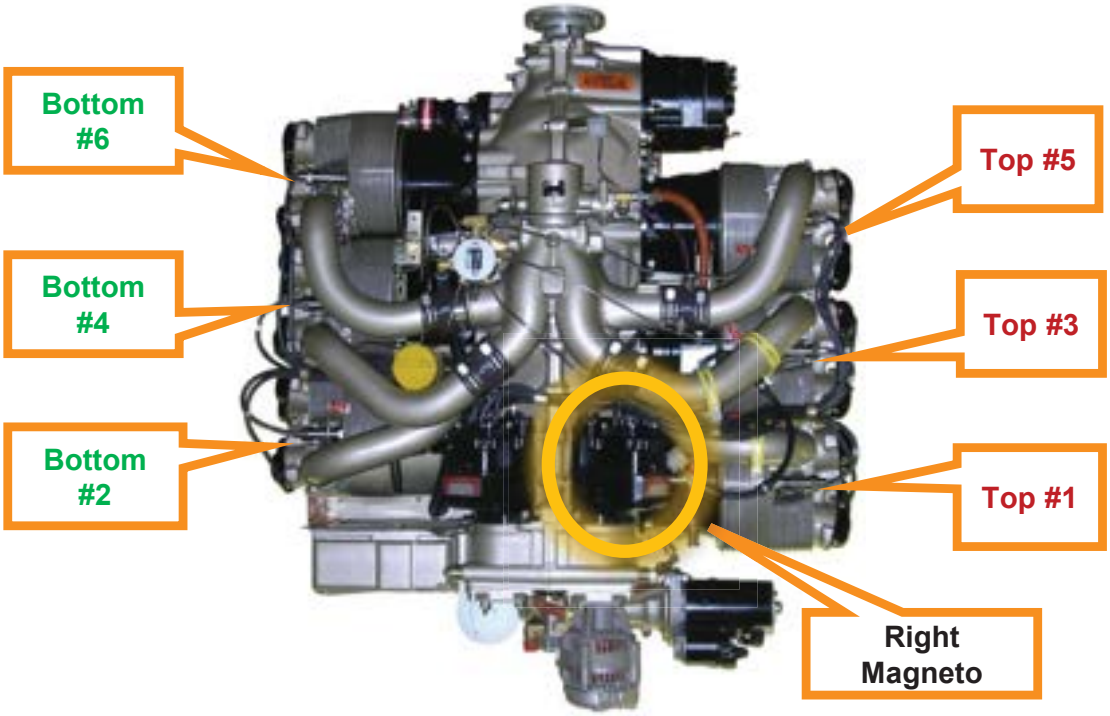
Cylinder Arrangement - left side



Ignition Configuration



Ignition Configuration



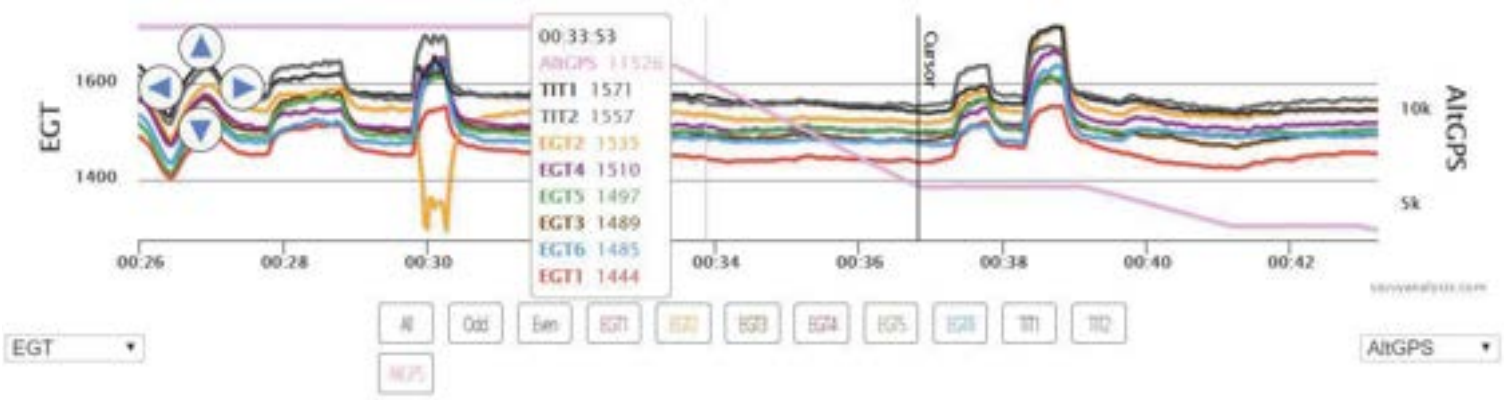
Magneto Impulse Coupling

NEVER
turn the propeller in it's operating direction.

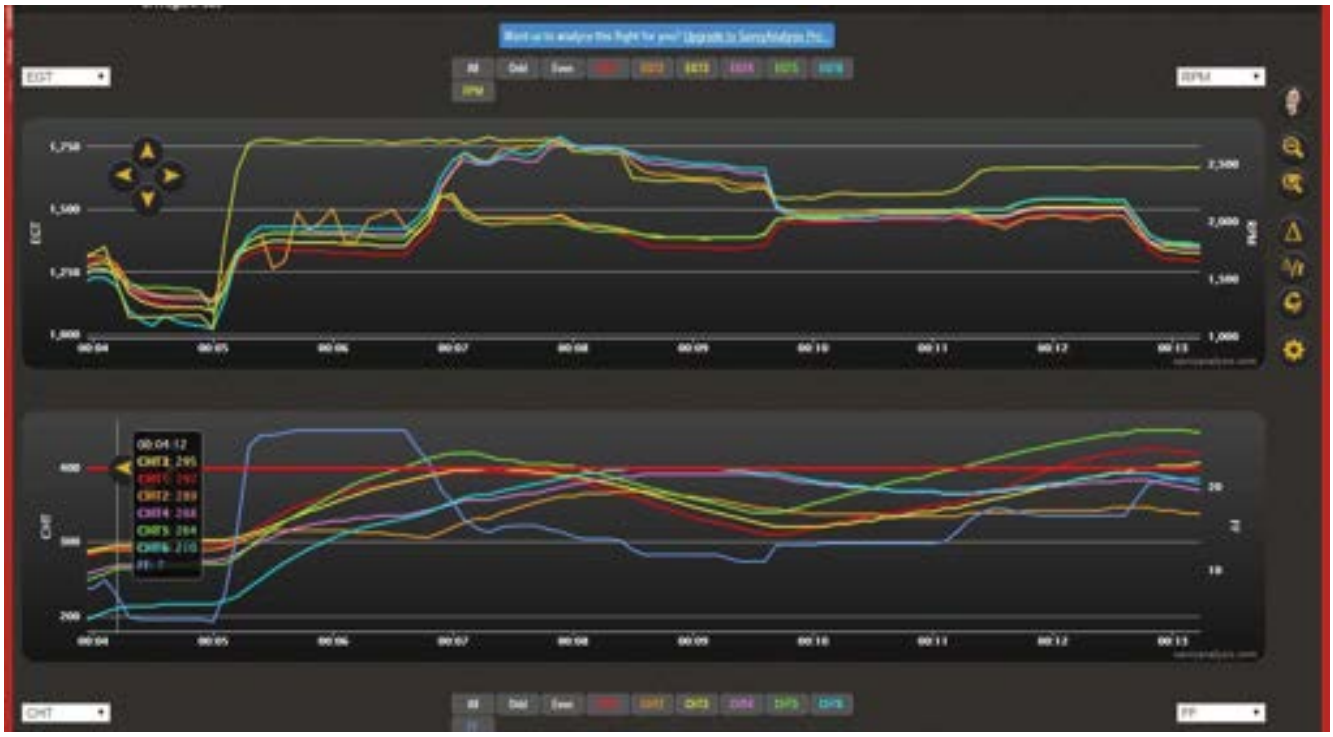
Ignition System

- System Ops Check
- RPM drop
- EGT rise on one spark plug

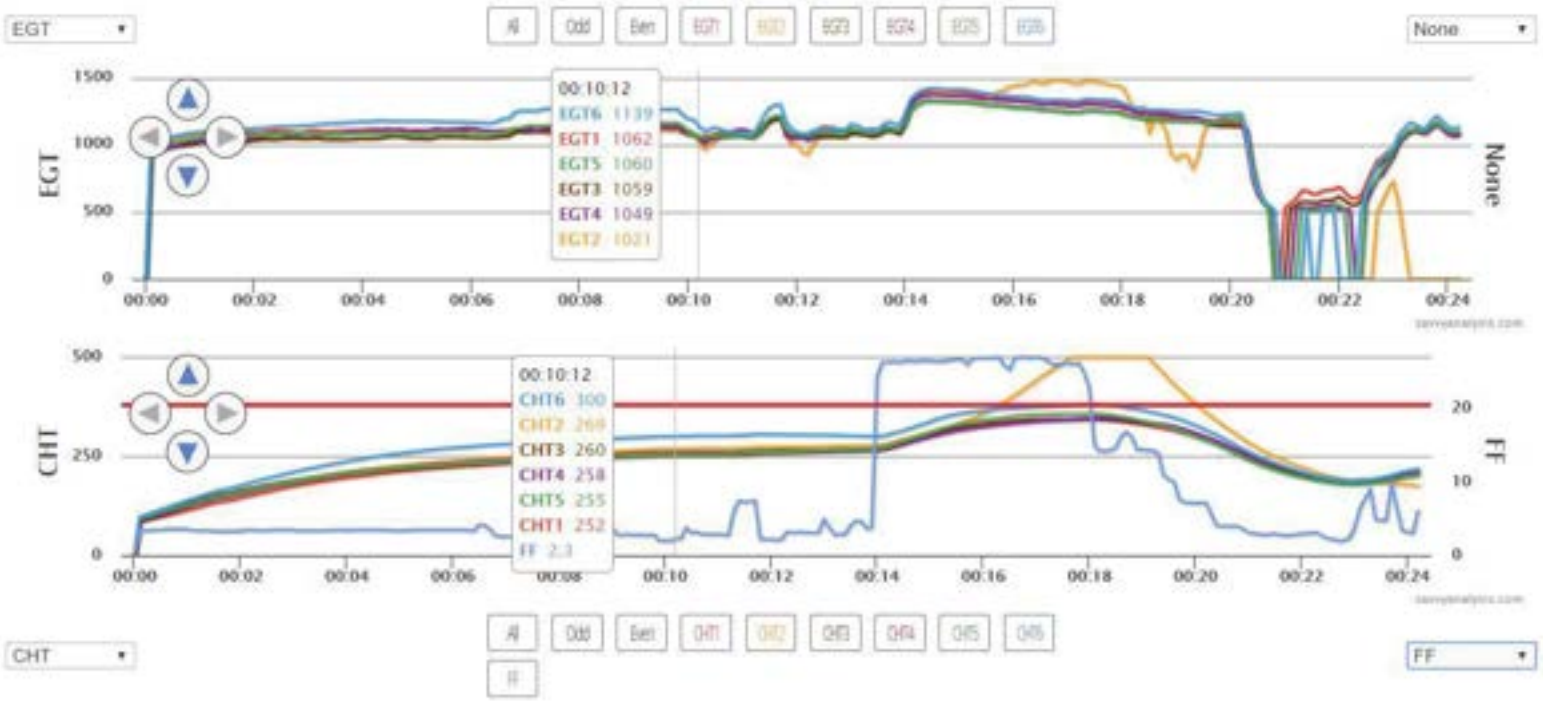
Ignition System



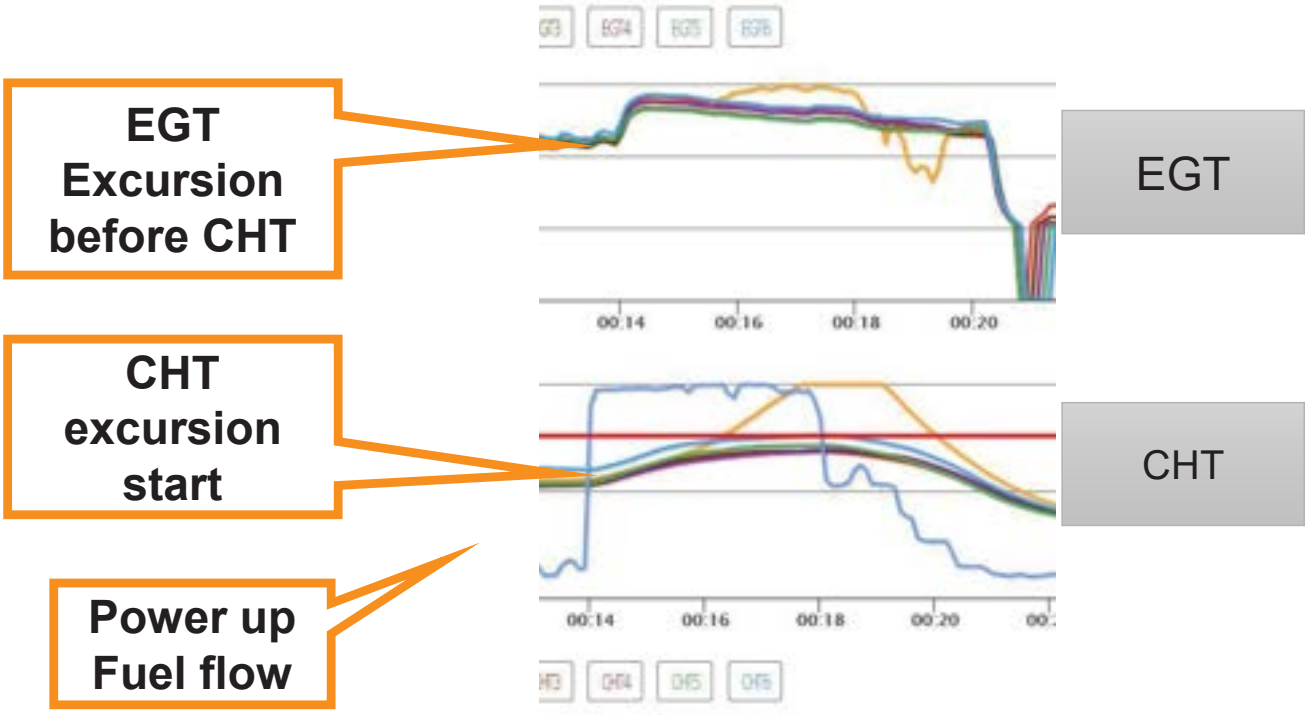
Pre-ignition - broken ceramic and more.



Destructive Detonation sample

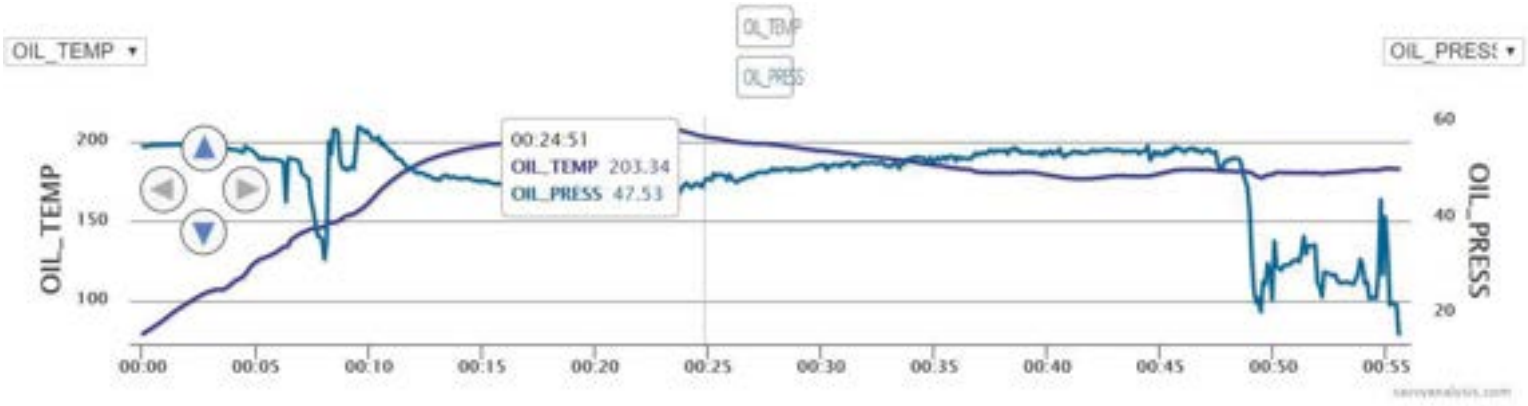


Destructive Detonation sample



Oil Pressure vs Oil Temp

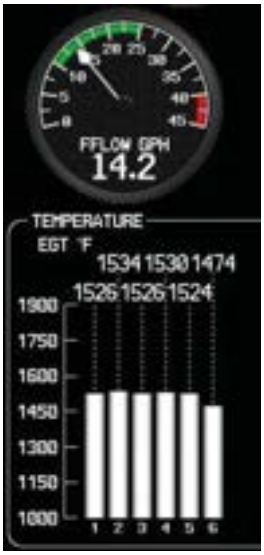
Oil Pressure vs Oil Temp



Typical oil pressure at 180 degrees F should be 55 p.s.i.

Oil Pressure

Fuel Flow



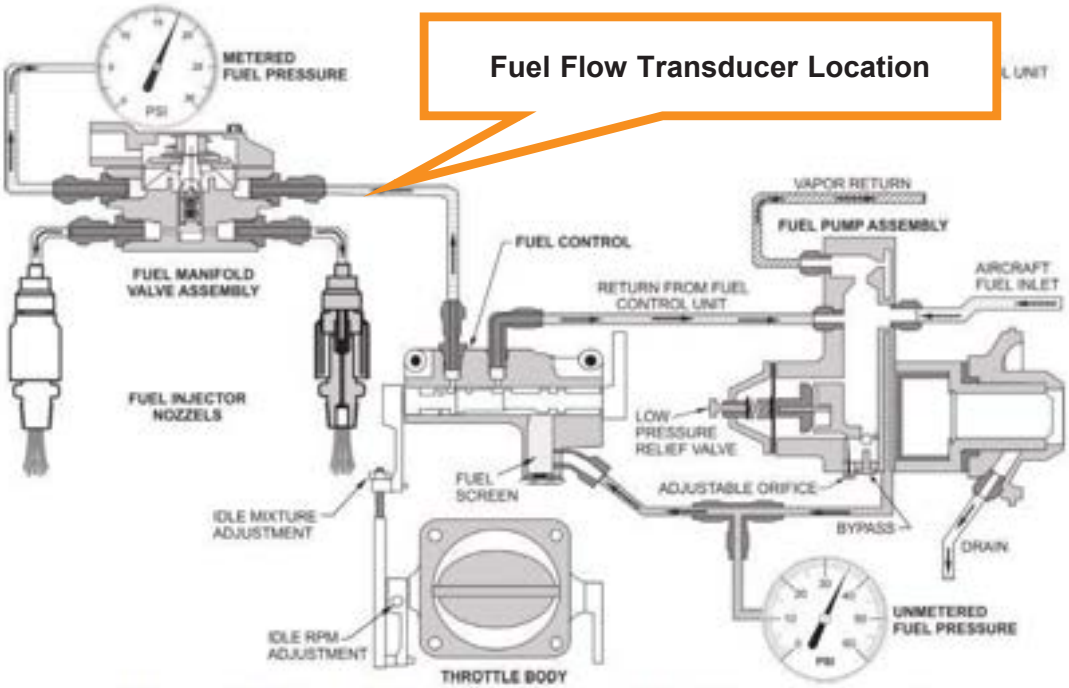
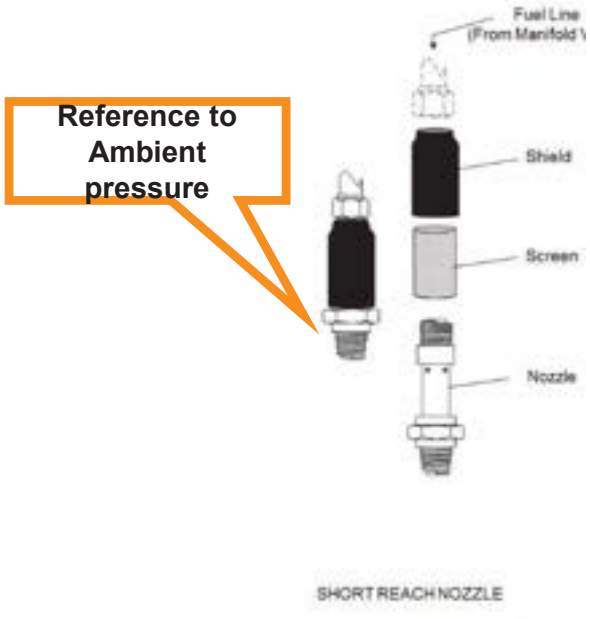
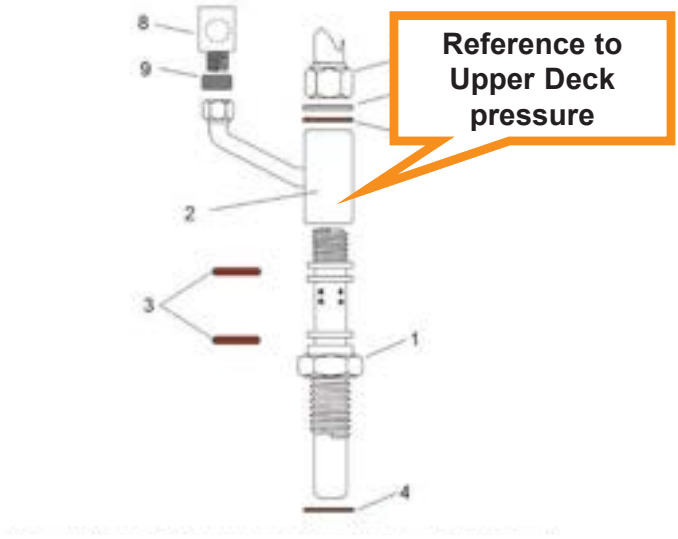


Figure 6-3. Typical Naturally Aspirated Fuel System Schematic
(with Fuel Control Unit)

Fuel Nozzles – dirt simple



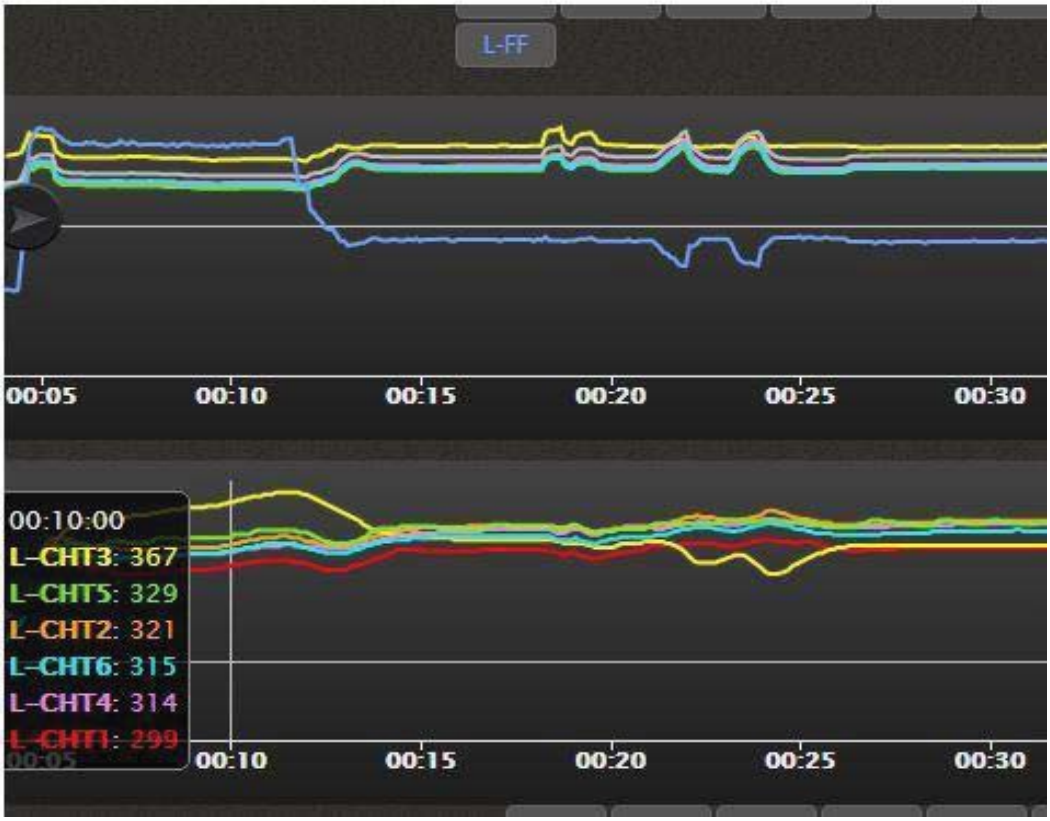
Naturally Aspirated



Turbocharged

High CHT

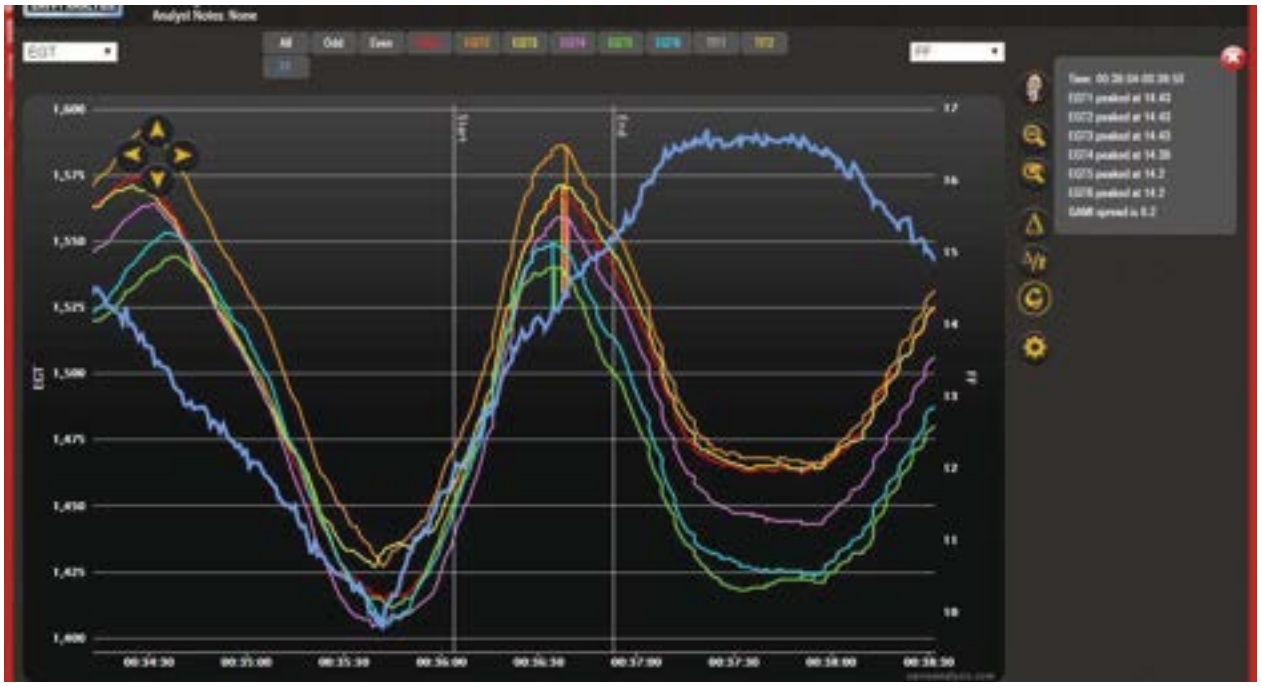
Take off #3 CHT is high but goes low in cruise. Note the EGT during the two extra leaning events. CHT is a good indicator of power.



Lean Test

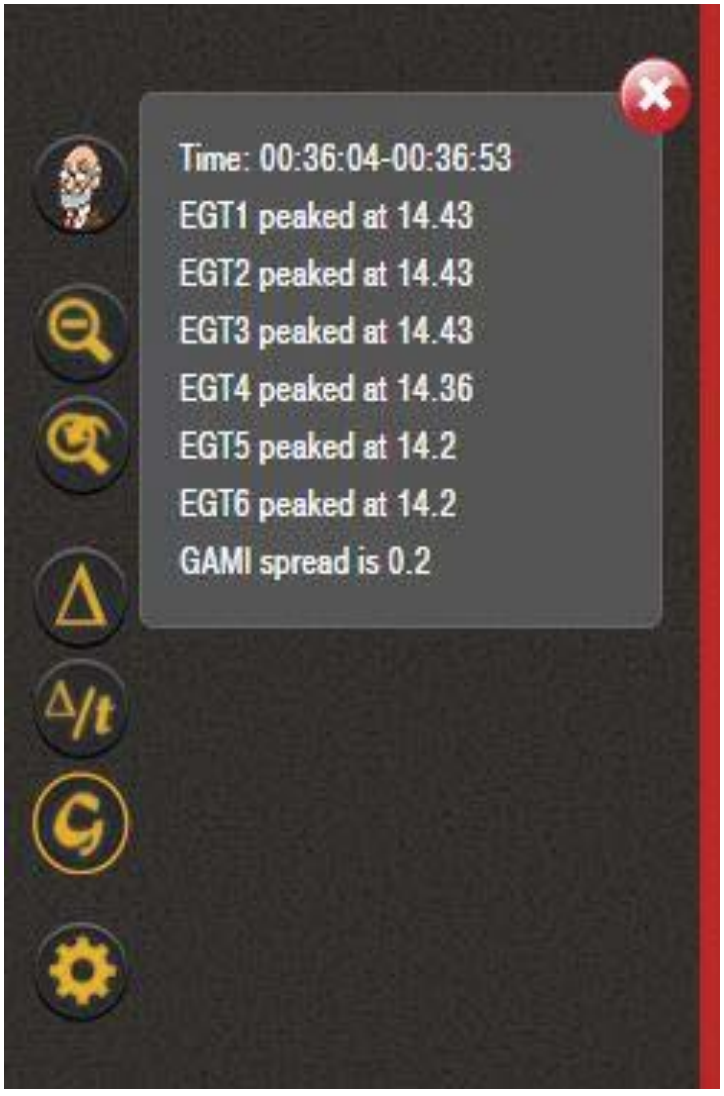
- www.gami.com for full procedure
- Exposes fuel injector imbalance and condition (should be used to determine maintenance action)
- Can help identify induction leaks
- Establishes base line for certain maintenance events (injector cleaning)

Lean Test - Detail



Lean Test

Up close view of Fuel Flow on each cylinder when it peaked. Your results may vary. :)



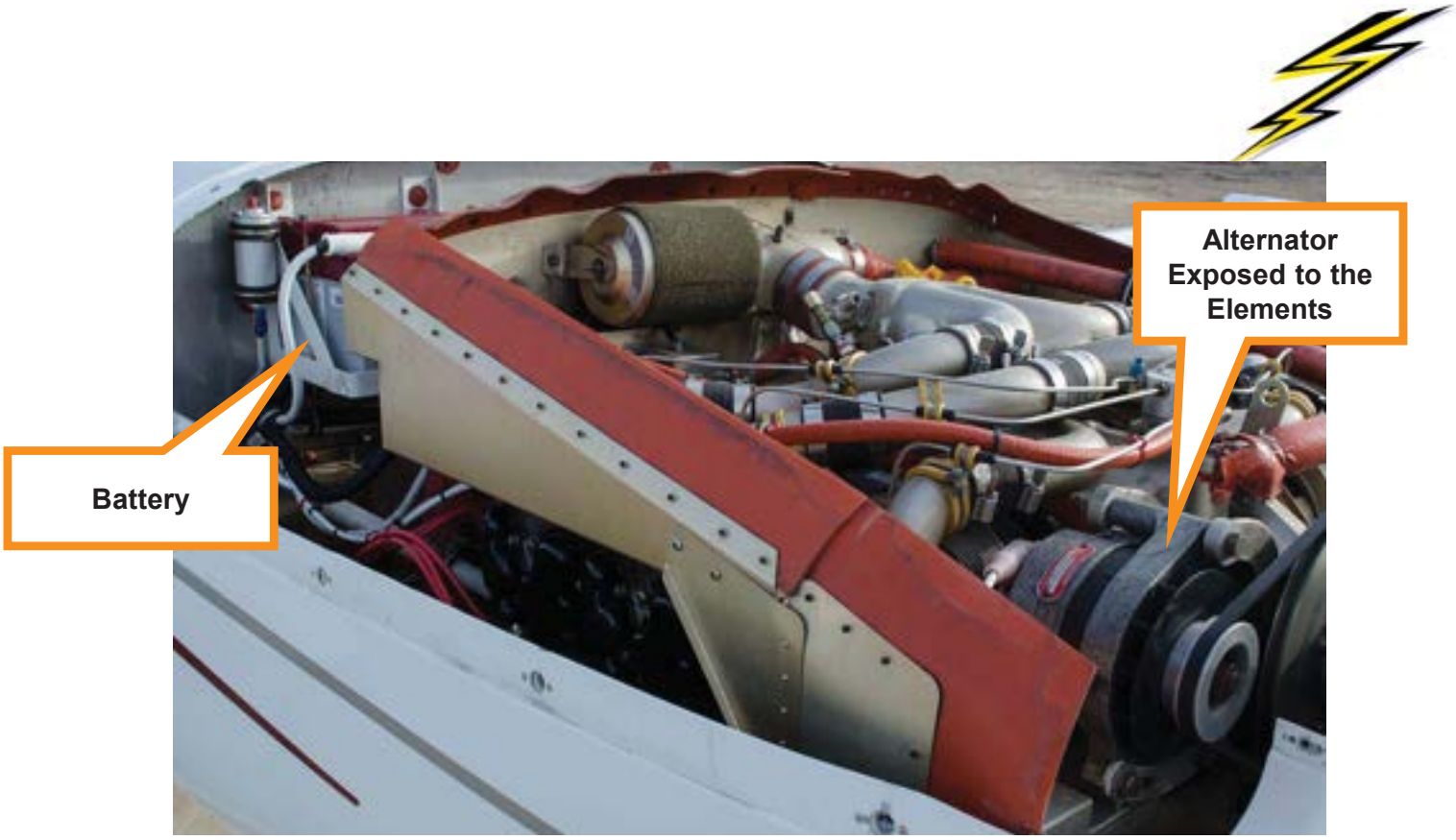
Don't
clean the fuel injector nozzles unless the data supports it.
Minimize MIF

Induction Leak Test

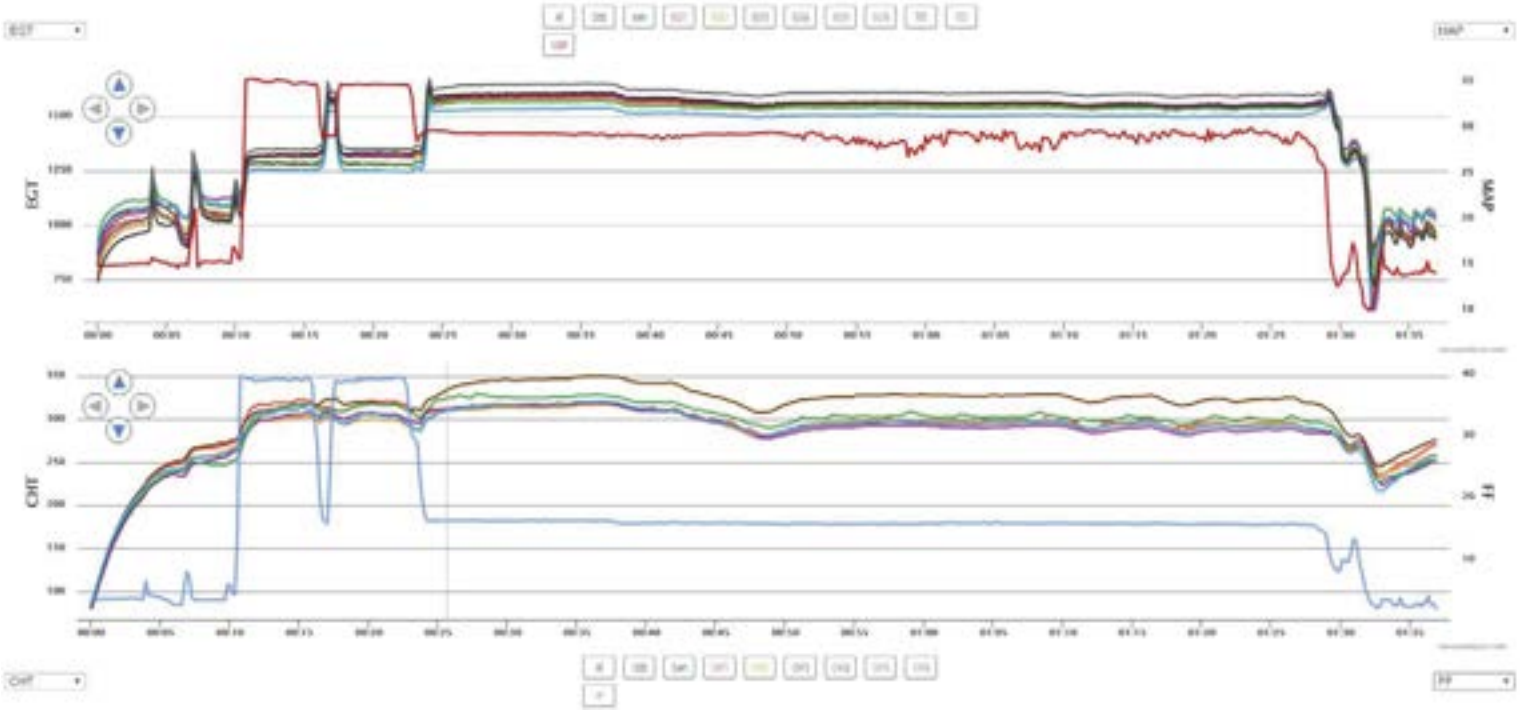
Cylinder	Rank (Hi to Lo)	29 inches/EGT Temp	22 inches/EGT Temp	New Rank (Hi to Lo	Temp Difference
5	1	1615	1571	3	-44
3	2	1612	1552	5	-60
1	3	1605	1576	2	-29
2	4	1583	1570	4	-13
	5	1577	1590	1	13
6	6	1556	1547	6	-9

NOTE: Test Conducted at 4,500 FT

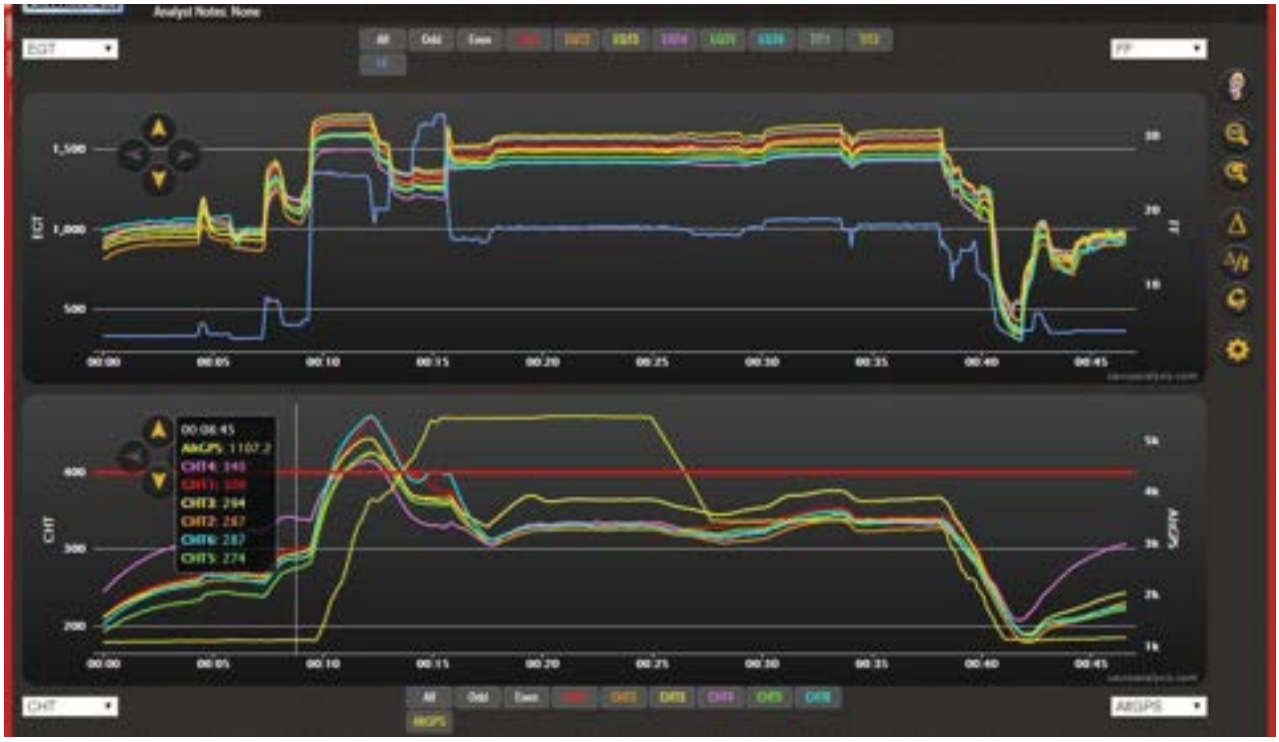
Amps vs Volts



Troubleshooting Exercise #1



Troubleshooting Exercise #2



Putting It Together

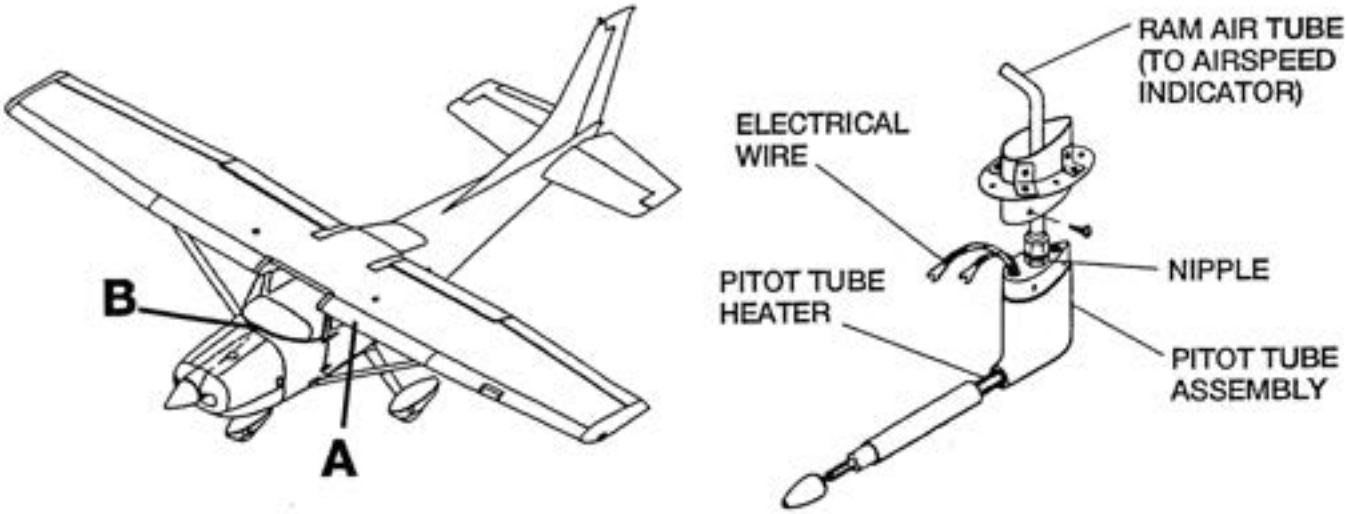
- Know your Baselines
- Watch for Baselines in all flight situations
- React to Changes based on actual data.
- Corroborate data to confirm actual issue vs just indication anomaly
- Save all flight data for possible review
- Results: Safer flights, reduced stress and confident decision making.

CESSNAPILOTS
ASSOCIATION

182S, 182T, T182T Skylane

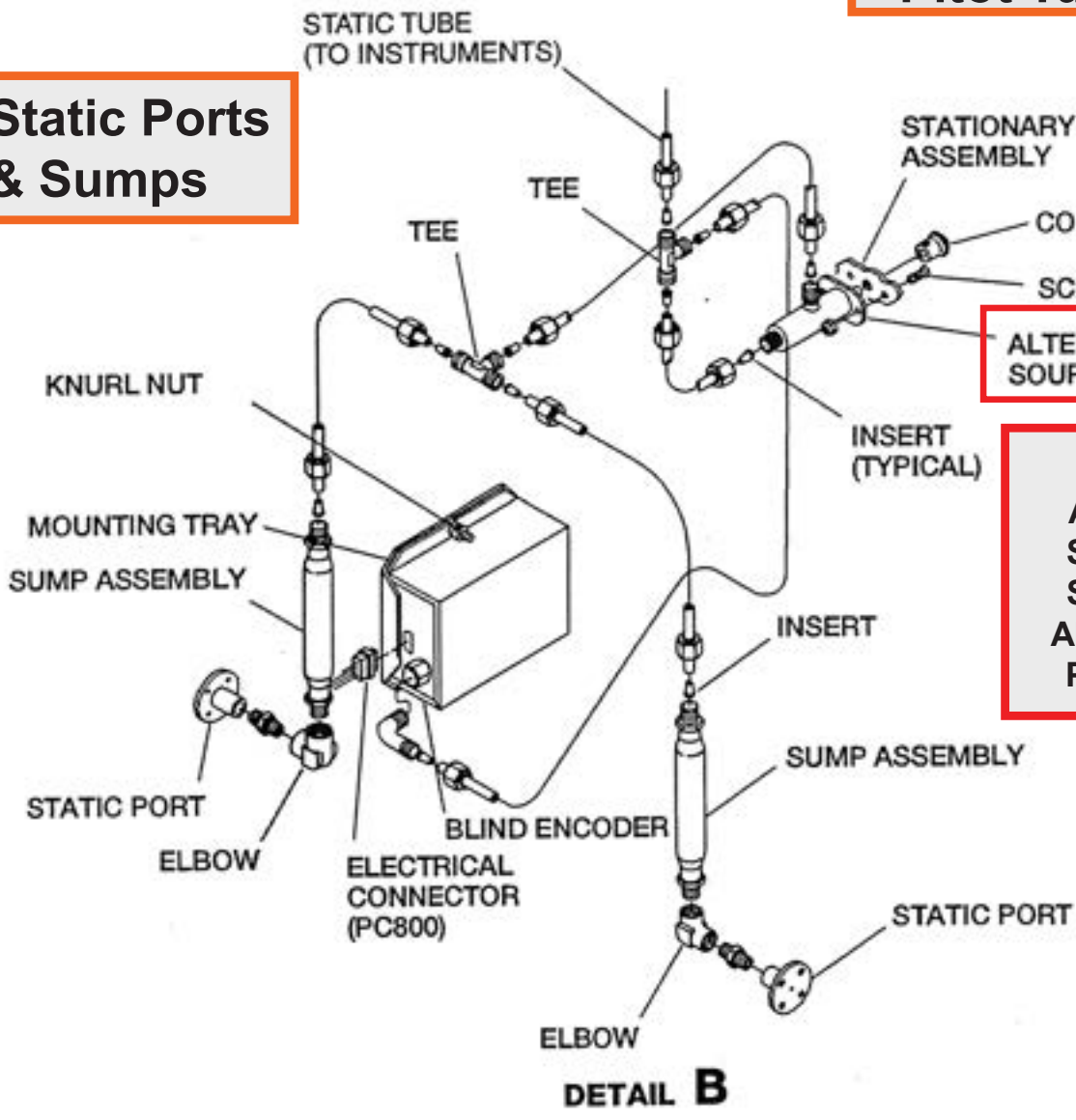
Utilities

Section Eleven



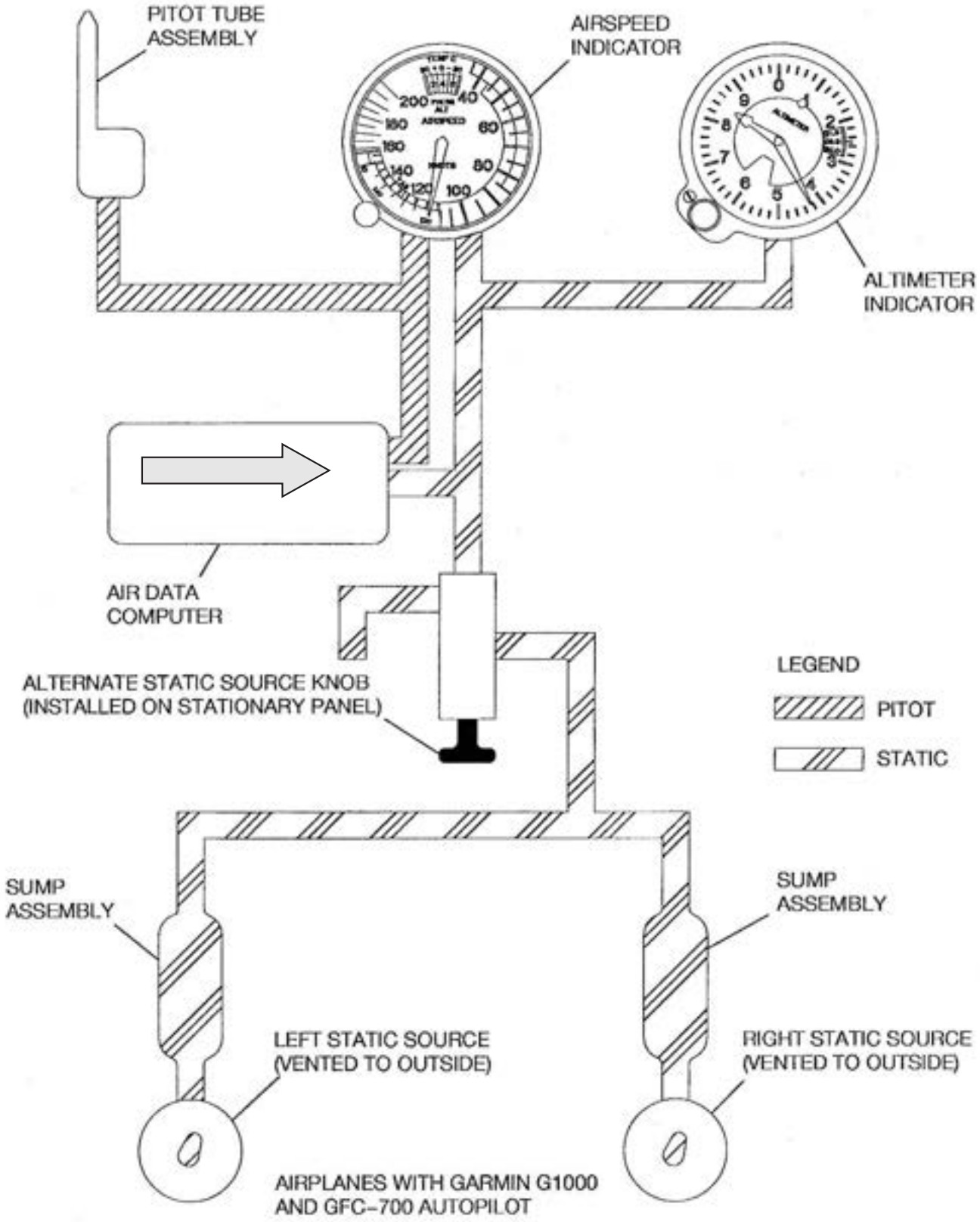
Pitot Tube

Static Ports & Sumps

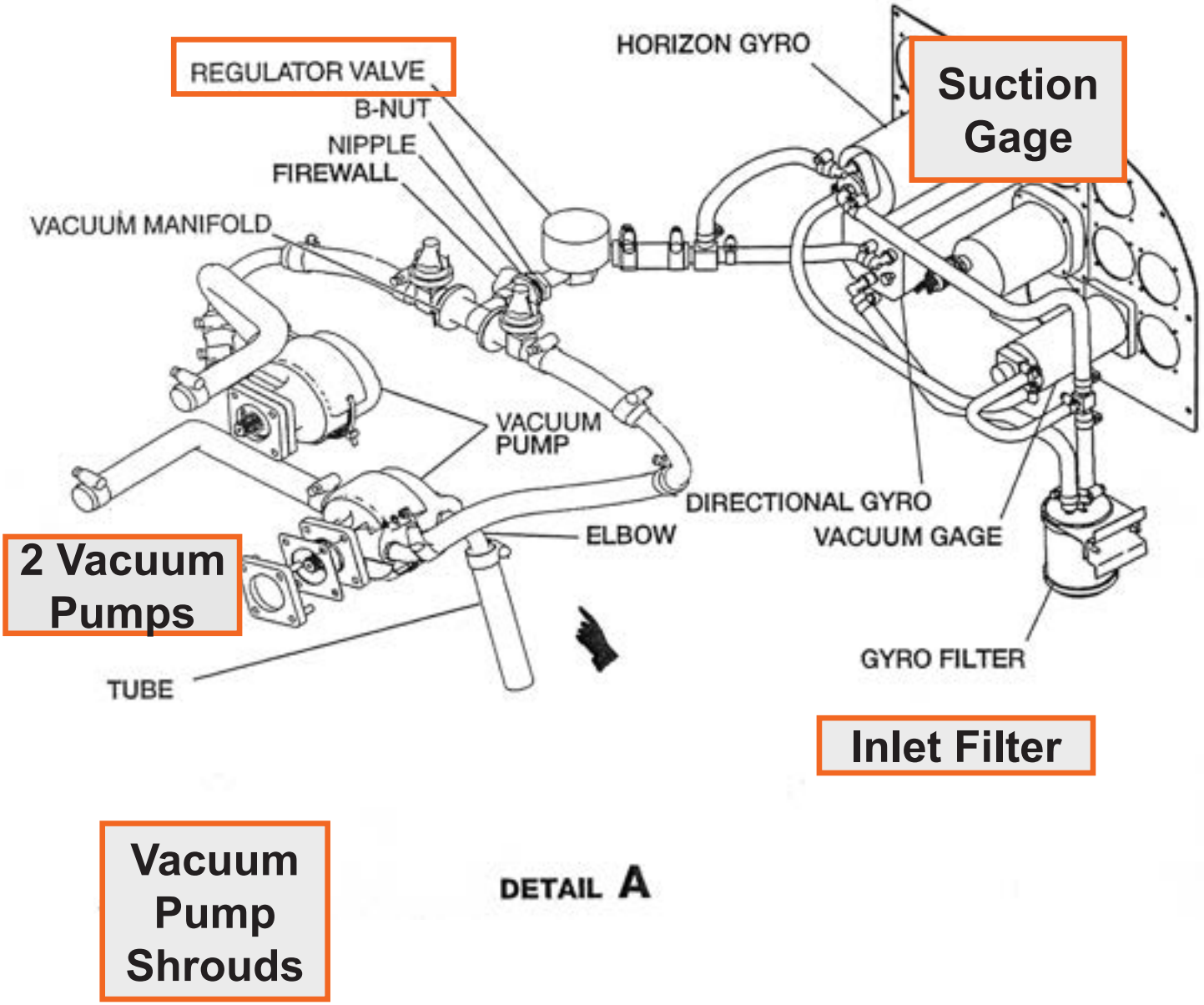


AD2008-10-2
AD2008-26-10
SB97-34-02R1
SB08-34-02R1
Alternate Static Port Blockage

Pitot and Static Installation
G1000 Installation



182S, 182T Vacuum System
NOT G1000

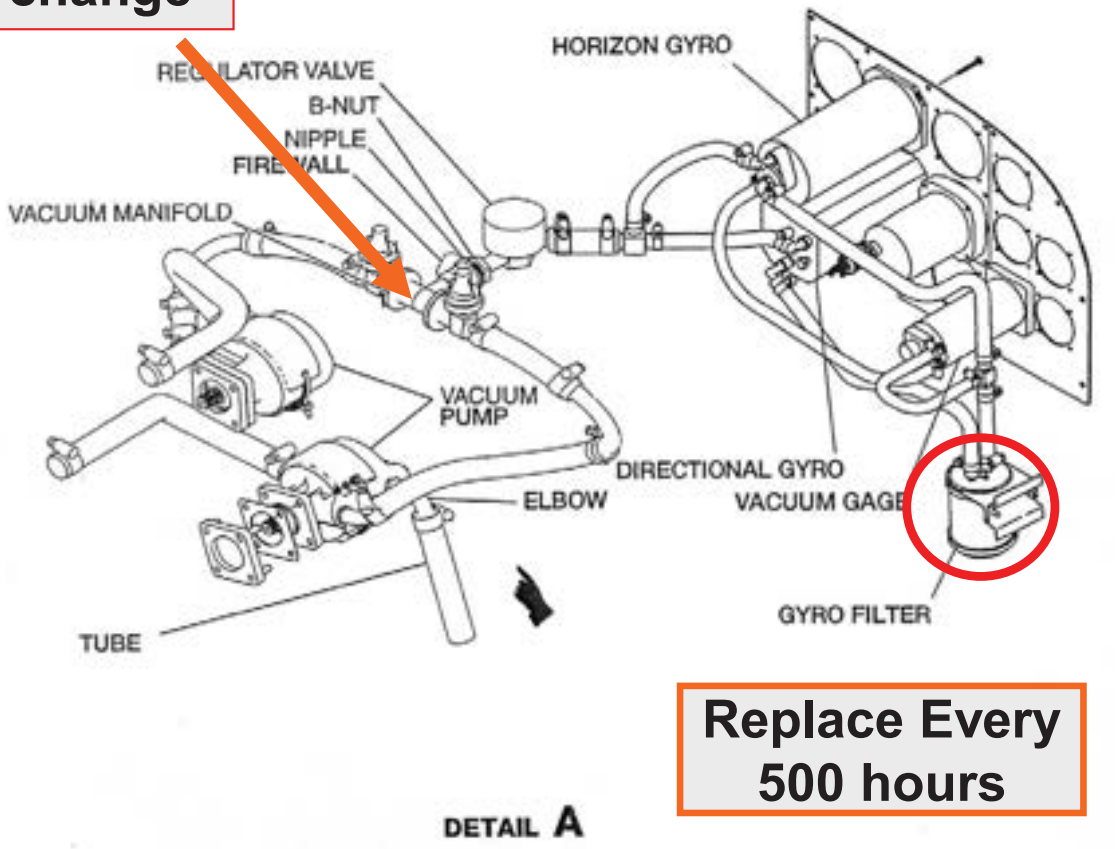


182S, 182T Vacuum System NOT G1000

Replace Regulator Filter Every 100 hours or Annual Inspections B3-5-1 Filter Part Number

Cessna SE82-8 Vacuum System Maintenance

SB02-37-04 10 yr change



DETAIL A

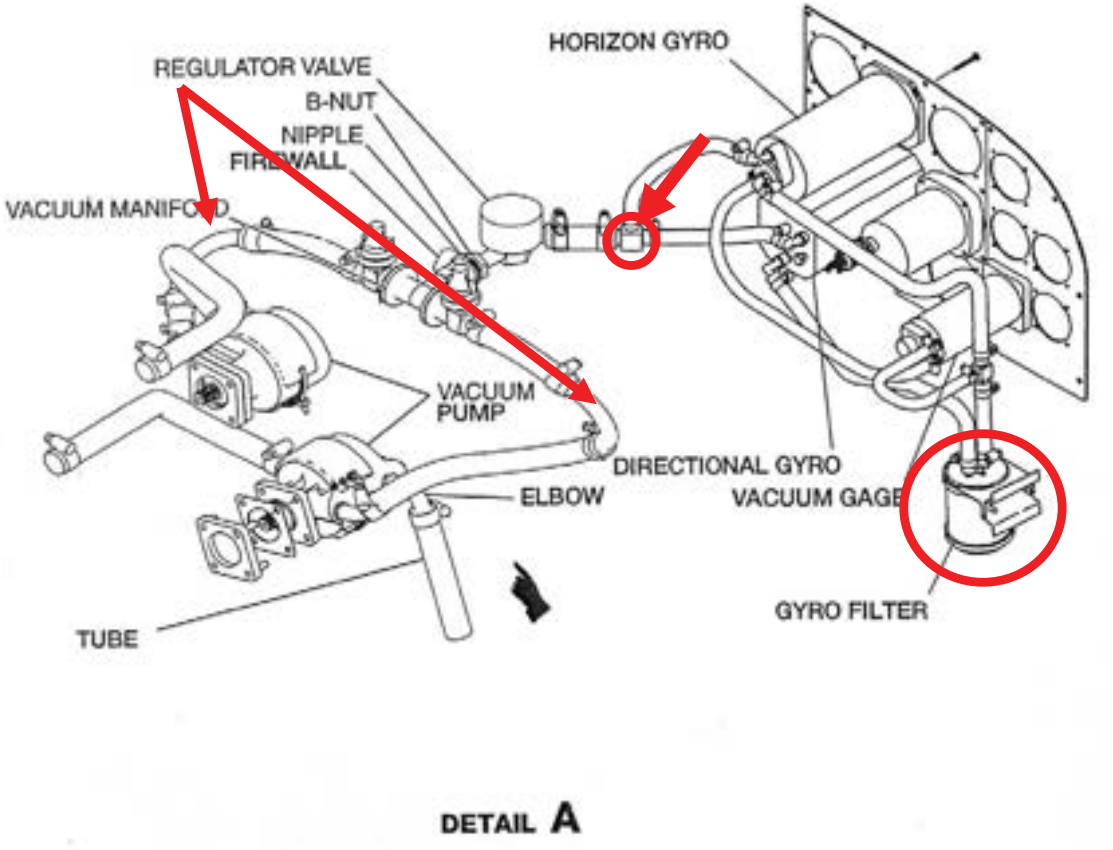
Replace Every 500 hours

Check Date Code Replace Hoses Every 10 Years

182S, 182T Vacuum System NOT G1000

SB99-37-01
Aluminum Elbows,
To avoid collapsing of hoses on 182S

SB02-37-01 182T, T182T
SB02-37-03 182S
Reducer Fitting inspection and replacement

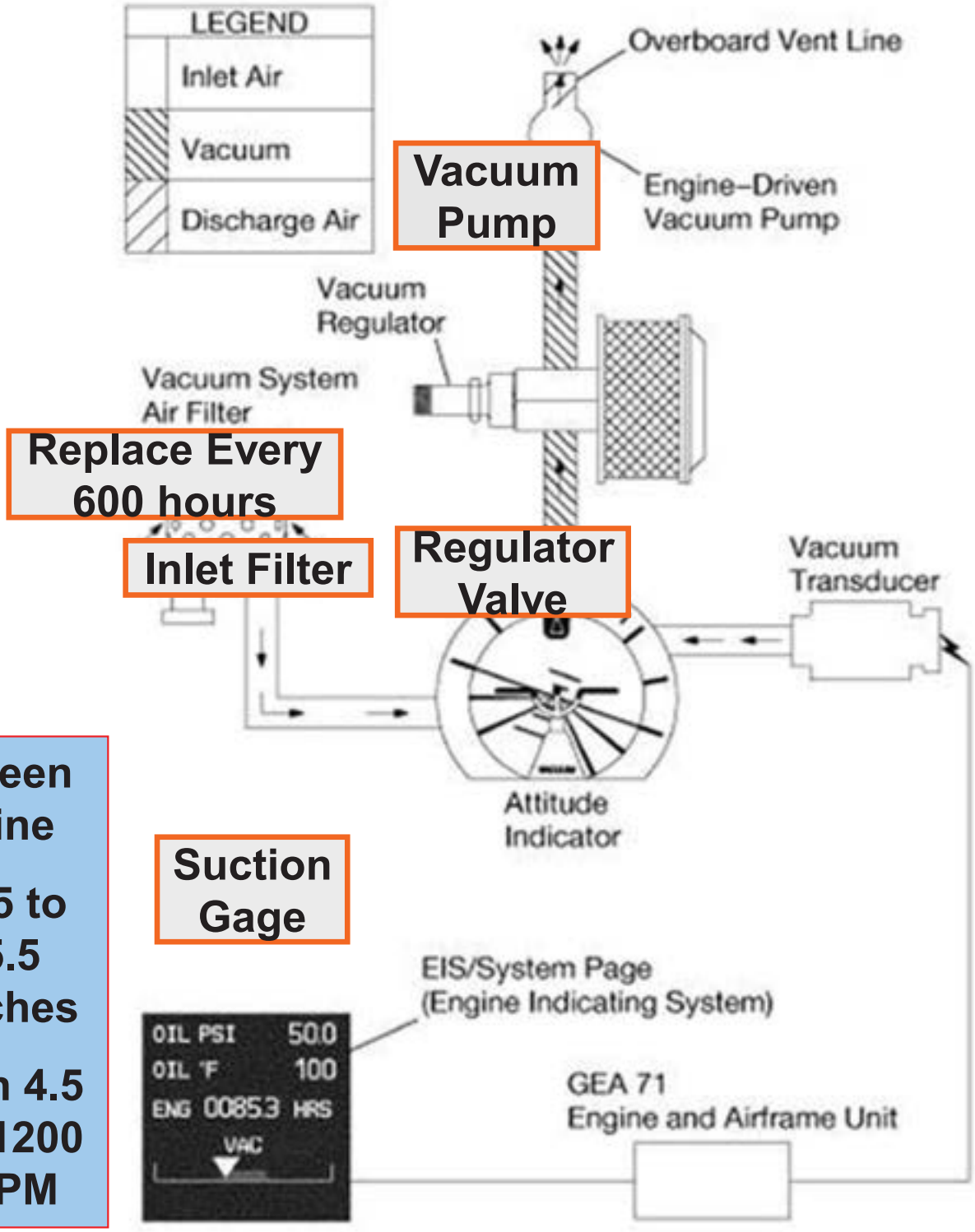


DETAIL A

SB00-37-01 Only 182S Mandatory Filter Replacement due to bad batch of D9-18-1 inlet filters.

System
Installation182T
G1000 Vacuum

Replace Regulator Filter Every 100 hours or Annual Inspections B3-5-1 Filter Part Number

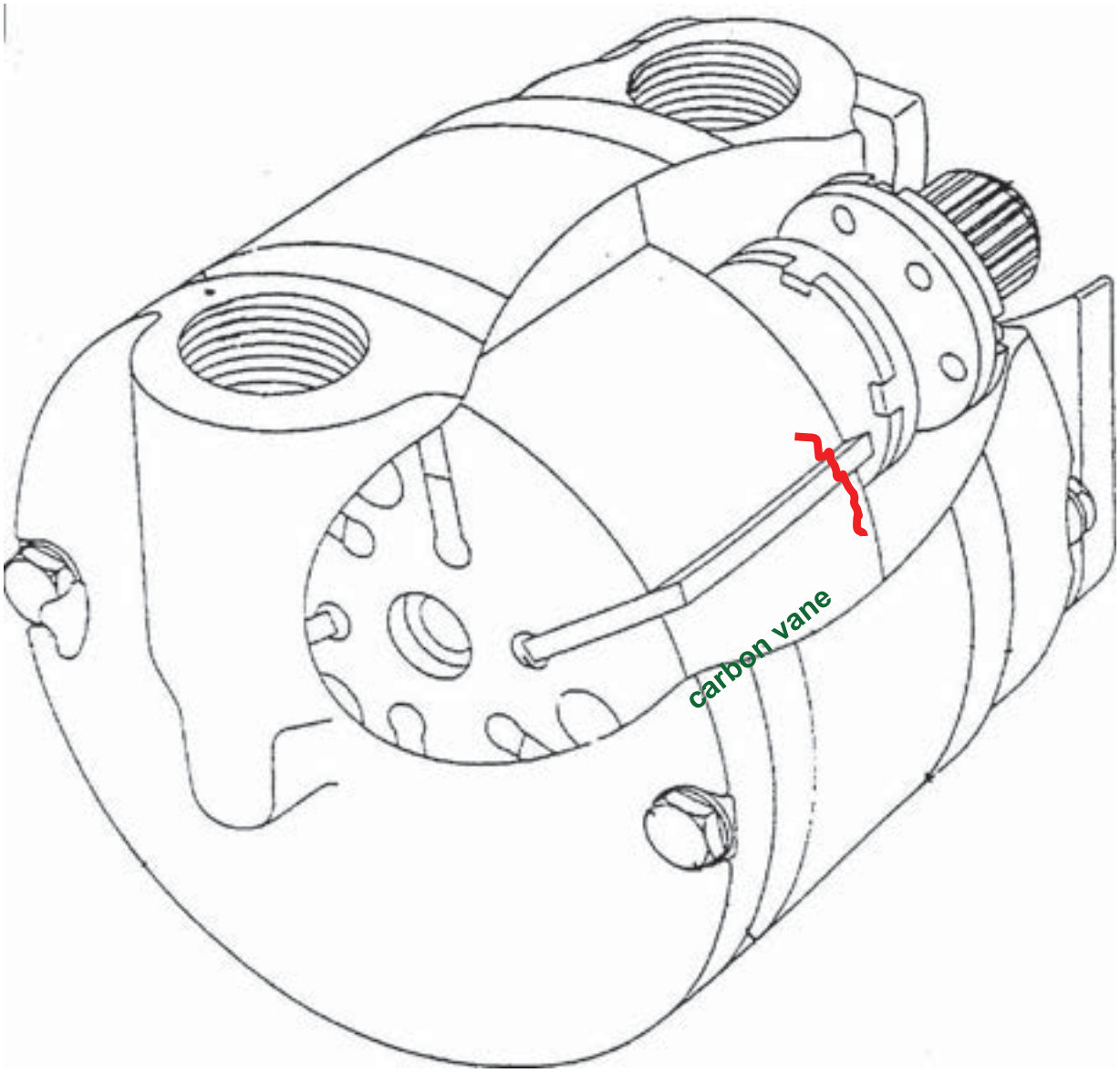


Green Line

4.5 to 5.5 inches

Min 4.5 at 1200 RPM

Dry Air Vacuum Pump



Myth of Moving the Propeller Backwards . . .

Cessna
A Textron Company

Service Newsletter

June 5, 2000

SNL00-8

TITLE

VACUUM PUMP GASKET INSTALLATION

TO

Cessna Distributors, Service Stations, Cessna Pilot Centers and applicable Owners of record.

MODELS AFFECTED

All Cessna model 172R, 172S, 182S, 206H and T206H series airplanes.

DISCUSSION

Reports have been received of the vacuum pump gaskets leaking when a cork gasket is installed in place of the Cessna recommended S3346-1 gasket. A cork gasket is supplied by Parker Hannifin Corporation, Airborne Division under their PMA approval with new pumps or 350 coupling kits.

The applicable Cessna Maintenance Manuals and Illustrated Parts Catalogs specify installation of a S3346-1 gasket. It is also important that specified torque values of 70 +/- 10 inch/lbs. be utilized. Tighten nuts evenly and progressively in a criss cross pattern.

To assist in achieving the proper torque values when torquing the vacuum pump nuts, a torque wrench adapter tool can be fabricated as shown in Figure 1.

It is recommended that if a vacuum pump or 350 coupling kit has been installed since the airplane was delivered from Cessna that steps are taken to ensure that the Cessna recommended S3346-1 gasket was properly installed.

NOTE: The information contained in this Cessna Service Newsletter shall be considered an amendment to the Cessna Manufacturer's Maintenance Manual.

MATERIAL

The following is available from Cessna Parts Distribution through an appropriate Cessna Service Station for the suggested list price shown.

Part Number	Description	Qty/Airplane	Price
S3346-1	Gasket	2 (If required)	$ 1.24 (PS) ea.

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE

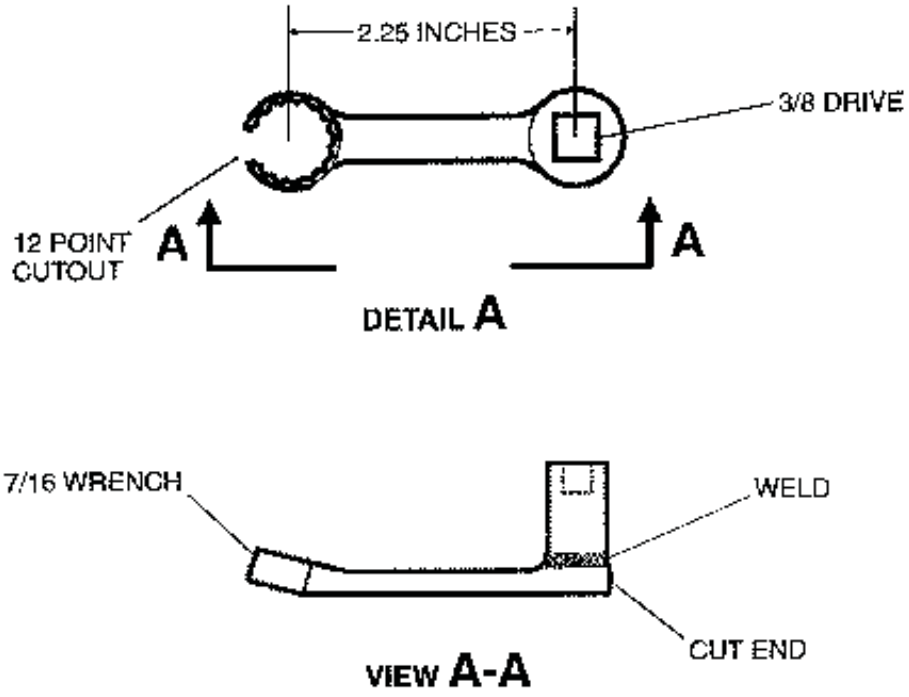
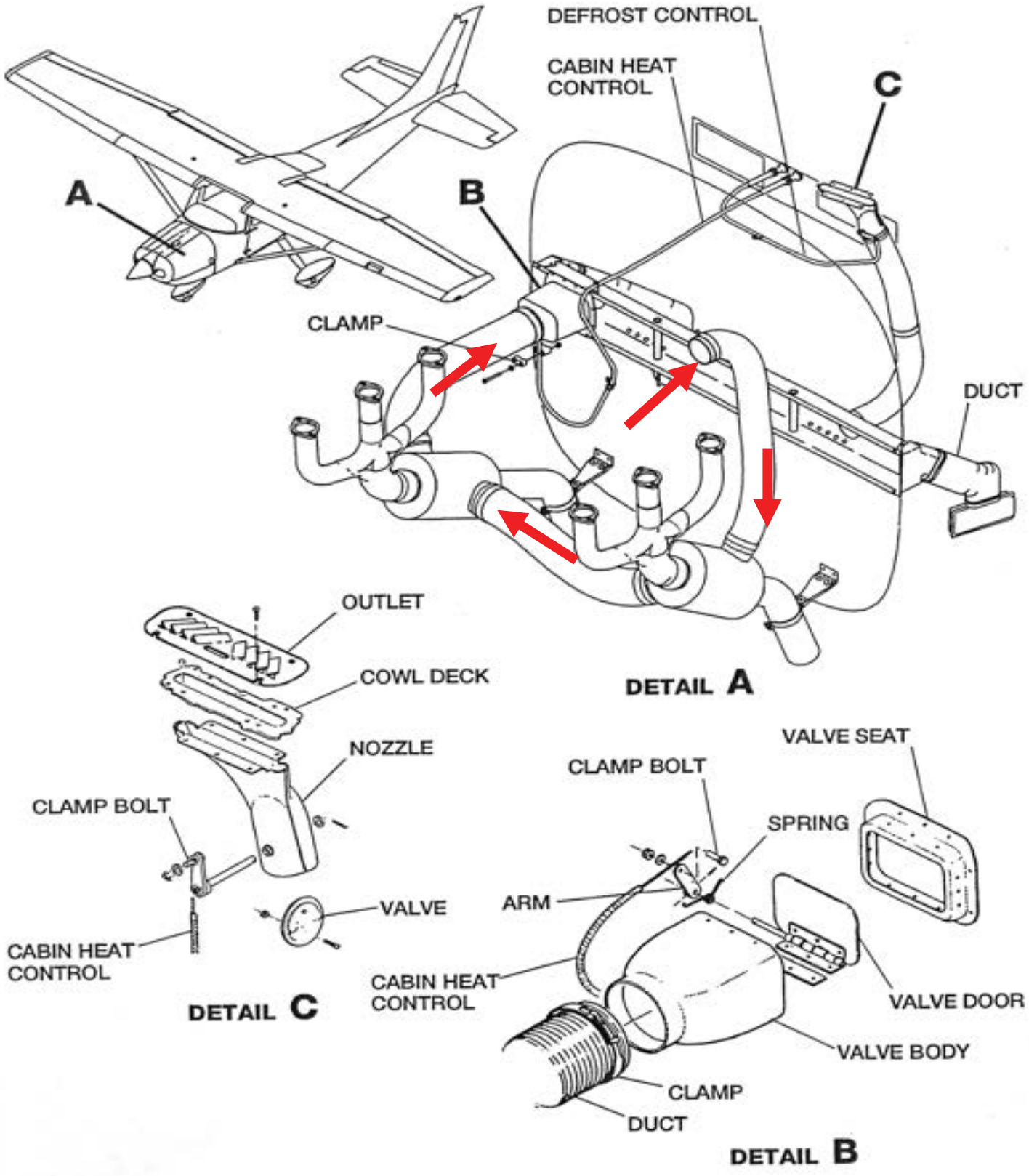


Figure 1. Vacuum Pump Torque Wrench Adapter

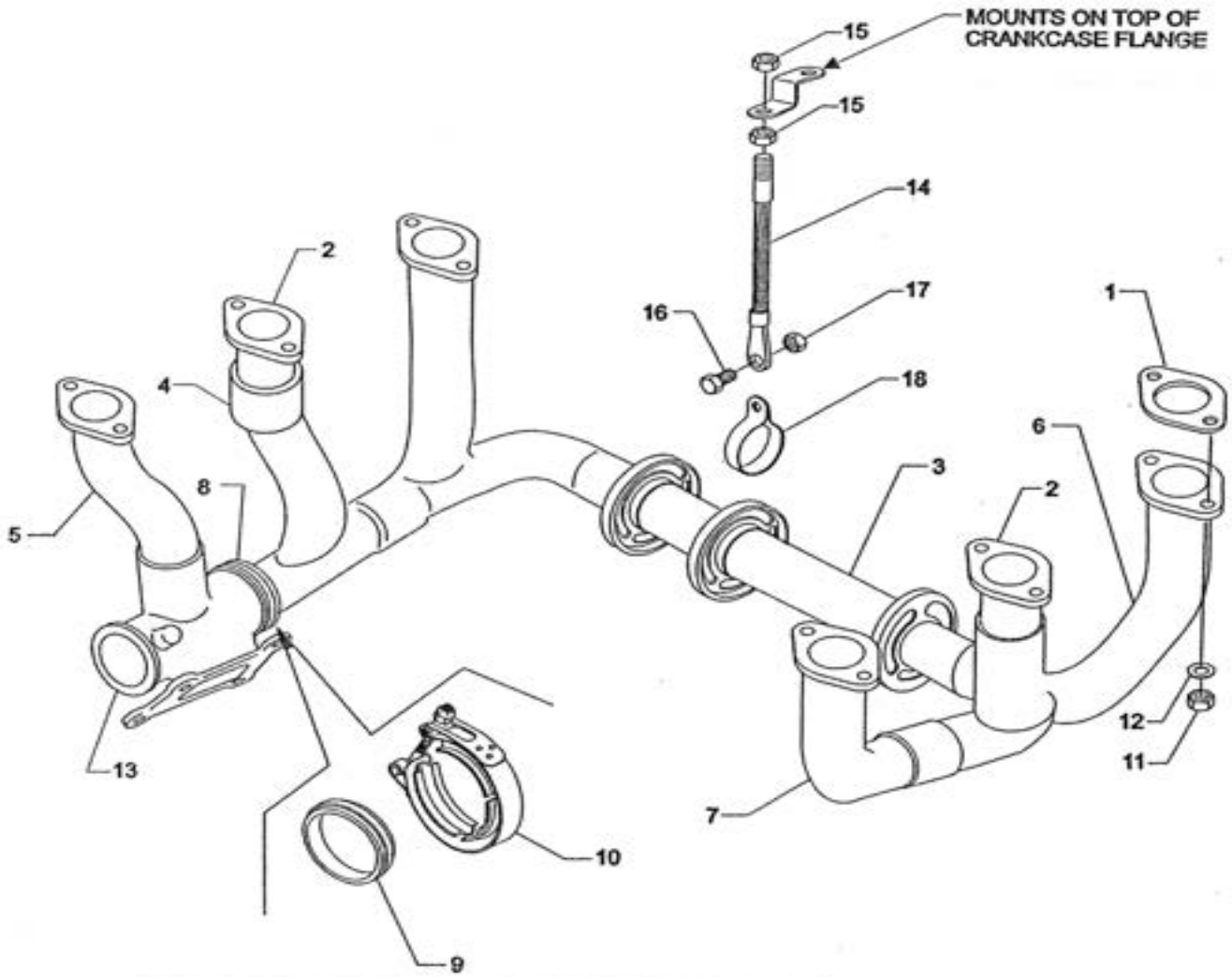
* * * * * * *

182S & 182T Cabin Heat and Defrost Systems

Airflow Path

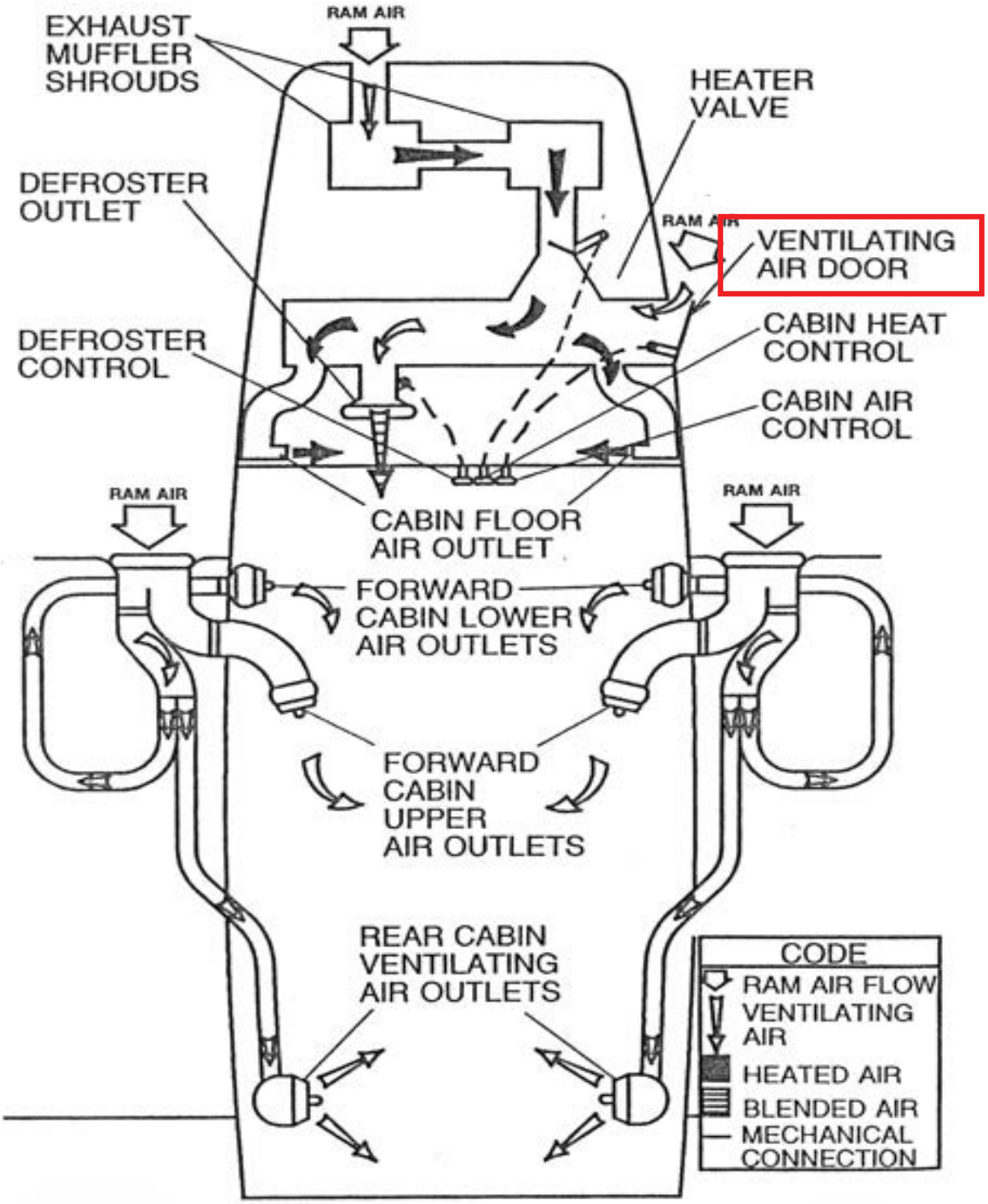


T182T Exhaust Pipes & Transition Assembly

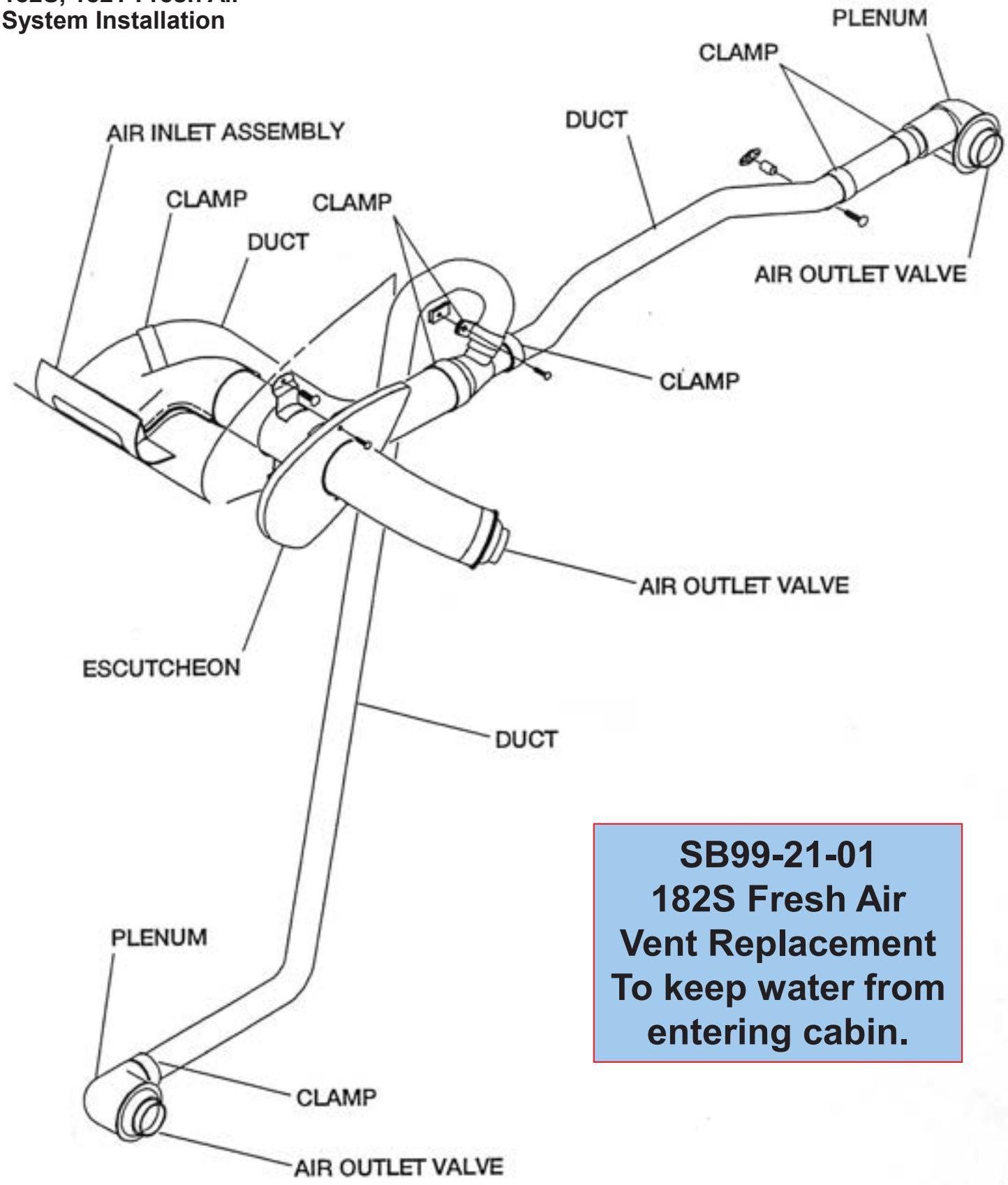


1	GASKET, Exhaust flange
2	ADAPTER, Exhaust pipe (cyl. nos. 3 & 4)
3	PIPE, Exhaust, cylinder no. 2
4	PIPE, Exhaust, cylinder no. 4
5	PIPE, Exhaust, cylinder no. 6
6	PIPE, Exhaust, cylinder nos. 1 & 3
7	PIPE, Exhaust, cylinder no. 5
8	FLANGE, Exhaust transition (slip joint)
9	GASKET, V-band coupling, 2.00 tube
10	COUPLING, V-band
11	LOCKNUT, 5/16-18 hex
12	WASHER, 5/16 plain
13	TRANSITION, Exhaust
14	CABLE, Exhaust manifold retaining
15	NUT, 1/4-20 plain
16	BOLT, 1/4-20 x 3/4 long, hex. hd.
17	NUT, 1/4-20 self-locking
18	CLAMP, Exhaust pipe

182S 182T Cabin Heating,
Ventilation & Defrost Systems



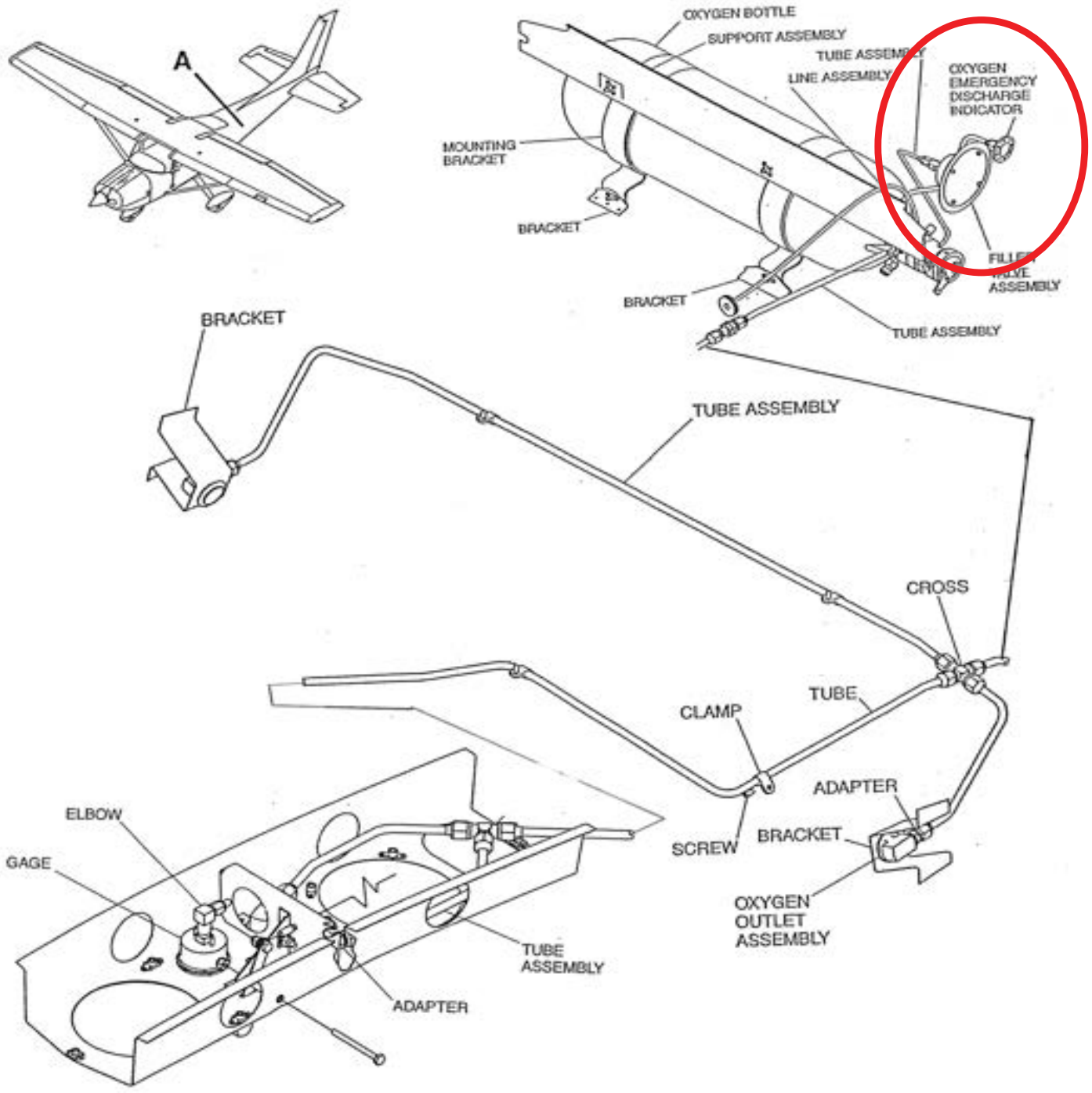
182S, 182T Fresh Air System Installation



SB99-21-01
182S Fresh Air Vent Replacement
To keep water from entering cabin.

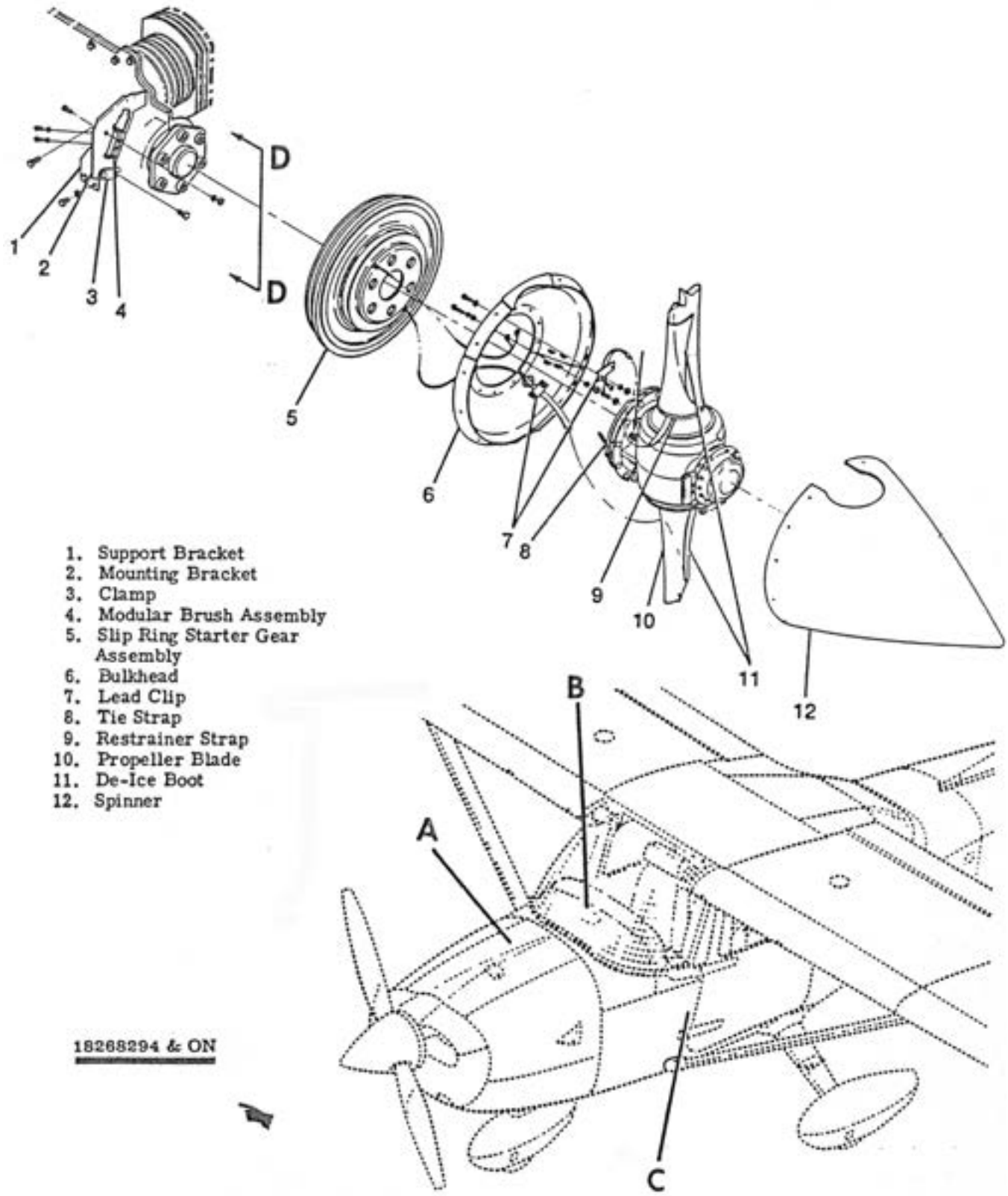
DETAIL B
RIGHT SIDE SHOWN
LEFT SIDE OPPOSITE

CPA Tech Note# 013
O2 Bottle specs & testing



T182T Bottles Now SP8162- 5 Year Test Cycle 15 Year Replacement

T182 Goodrich 2-Bladed Propeller De-Ice System



1. Support Bracket
2. Mounting Bracket
3. Clamp
4. Modular Brush Assembly
5. Slip Ring Starter Gear Assembly
6. Bulkhead
7. Lead Clip
8. Tie Strap
9. Restrainer Strap
10. Propeller Blade
11. De-Ice Boot
12. Spinner

18268294 & ON

CESSNA PILOTS ASSOCIATION

CPA Tech Notes Vendor List

08-08-2022

CESSNAPILOTS ASSOCIATION

600 17th St, Ste 2800S, Denver, CO 80202-5428
www.cessna.org

Handouts Rev. 57 (08/08/2022)

Tech Notes Available to CPA Members

Numbered Tech Notes

001 Nose Wheel Shimmy
002 Owner Performed Maintenance and Excerpts from FAR Part 43
003 Uneven Fuel Feed
004 Excessive Oil Discharge “Blaylock Drawings”
005 Seat Latching System Inspection and AD
006 Good & Bad News About Landing Lights
007 TBO & Beyond
008 Six “Tools” That Tell Engine Health
009 Items Most Overlooked During Inspection
010 Hot Starts
011 Vapor Lock Problems in 210 Series from ‘64 thru ‘81 Model Years
012 Troubleshooting the Turbo-System
013 Inspecting & Retiring Oxygen Bottles
014 Rigging — The Key To Speed
015 Door Locks A-Batch
016 337 Skymaster Fuel System
017 The Traveling Tool Kit
018 Compass Swinging
019 Tips on Tip Tanks (Twins)
020 Cessna 150/152 Engine Upgrades
021 What is Wrong With Lycoming’s O-320-H2AD (172N) Engine?
022 Alignment Procedures for 182 Main Landing Gear
023 Voltmeter or Ammeter? Maybe a Smart Volt Meter
024 Single Engine Cessnas & Their Jack Pads
025 Stabilator Maintenance for Cardinals & RGs
026 Landing Gear Retraction System on Twins
027 Twin Cessna Electromechanical Gear Retraction System
028 Nose Gear Spring Guide 172RG, R/TR182, 210, 337 Landing Gear
029 Strobe Lights for Single Engine Cessnas
030 Child Seats
031 Obtaining Manuals for Cessna Aircraft
032 Preheaters
033 Installing Spin-On Oil Filter Kits on Lycoming Engines
034 Determining Operating Costs
035 Proper Engine Break-In Procedures
036 Windshield Installation
037 A Guide to Changing Cessna Fuel Bladders
038 When Metal Let Us Down
039 Published Service Ceiling
040 Mandatory Service Bulletins: Are They Really Mandatory?
041 AD 96-09-10 (Oil Pump Gears) Clarification
042 Products to Clean Aircraft
043 Starting Sequence For Split Master/Alternator Switch Models
044 Putting Compressions In Context Revisited
045 Converting Air Conditioning System
046 Aircraft Engine Cylinder Color Code Identifier
047 Replacing Missing Data Plates
048 Single Engine 95 AMP Alternator Installation Tips
049 Avionics Master Switch
050 Alternator & Voltage Regulator
051 Owner-Produced Aircraft Parts
052 Landing Gear Hydraulic Hose Information
053 Finding Placards
054 Brakes on Retractable Singles
055 Heat Exchanger (Knisley)
056 Koroseal Lacing
057 Vacuum Pump Cork Gaskets
058 Strut Gut Job
059 Trim Tab Actuator Rebuild
060 Dealing with Damage to Wing Lift Struts
061 Repairing Brake Cylinder Assemblies
062 Turbocharger Check Valves
063 The TR182 Throttle and Waste Gate Control Assembly
064 Contactors - Critical But Often Neglected

172-T01 Powerflow Exhaust System In 172L
172-T02 172 Engine Upgrade
172-T03 172 High Oil Temperatures
180-T01 Engine Upgrade
182-T01 Lower Cowl Inspection on The 182
182-T02 Engine Upgrade
206-T01 Engine Upgrade
210-T01 Replacing Hydraulic Power Pack
210-T02 Smoking Rivets Can Be Detrimental to Your 210
337-T01 The Pressurized Skymaster
337-T02 Landing Gear Electro Hydraulic Powerpack
337-T04 Skymaster Alternator Drive Couplings

Model Histories

150/152 History
172 History
R172K History
172RG History
175 History
177 History
180 History
182 History
R/TR 182 History
185 History
205/206/207 History
210 History
P210 History
310 History
320 History
340 History
337 History

Sources For...

S-01 Powered Tow Bars
S-02 AD Notes
S-03 Fairings and Wing Tips
S-04 Carburetor Temperature Gauges
S-05 Shoulder Harnesses
S-06 Cockpit Organizers
S-07 Preheaters
S-08 Standby & Dual Vacuum Kits
S-09 STOL Kits & Vortex Generators
S-10 Floats, Skis and Tundra Tires

Other Available Tech Notes

Recommended Paint Shops
Salvage Yard List

Numbered Tech Notes, Model Histories and Sources For... are available to read or download on the members-only side of CPA’s web site: www.cessna.org

182R and Earlier
VENDOR CALL OUTS IN PRESENTATION

Cessna Propeller Aircraft Customer Support
316/517-5800

Pre-1976 Parts/Service Manuals
McCurtain Technologies
877/603-3578
www.mccurtaintg.com

Window Latches
Starter Adapters
NIAGARA AIR PARTS
800/565-4268
www.niagaraairparts.com

Oil Coolers
PACIFIC OIL COOLER
800/866-7335
www.oilcoolers.com

Oil Filter Adapter
F&M ENTERPRISES
888/317-5222
www.fm-enterprises.com

Airbox Repair and Reinforcement
DYNAMIC PROPELLER
509-546-0430
Engine Heat Shields

OREGON AIRCRAFT DESIGN
503/267-1486
www.oregonaircraftdesign.com

For Replacement Flap Indicator
VISUAL INSTRUMENTS
503/472-3350
www.visualinstruments.com

Flap Motor and Transmission Repair
Commercial Aircraft Products
316/942-7987

Flap Roller Kits,
Cowl Flap Cables
Rudder Pedal Repair
MCFARLANE AVIATION, INC.
800/544-8594
www.mcfarlaneaviation.com

Fuel Gauge Repair
INSTRUMENT REBUILD
360/683-6245

Stewart Warner Gauge Repair
AIRPARTS OF LOCKHAVEN
800/443-3117

Wet Wing Sealants
SEALPAK
316/942-6211
www.sealpackcoinc.com

Voltage Regulators
ZEFTRONICS
800/362-8985
www.zeftronics.com

Monarch Fuel Caps
HARTWIG FUEL CELLS
800/843-8033 or 204/668-3234
www.hartwig-fuelcell.com

Air Oil Separators
AIRWOLF FILTER CORP.
800/326-1534 or
440/632-5136
www.airwolf.com

Air Oil Separator
M-20 TURBOS, INC.
800/421-1316 or 561/995-9800
www.m-20turbos.com

Vents
SOROS
940/668-8470
www.ventube.com

Vents
Precise Flow
SPORTY'S
800/776-7897
www.sportys.com

CESSNA PILOTS ASSOCIATION

Thank you for attending and remember this is an FAA Approved Course

We hope you have enjoyed and learned more about your 182