17-3857

Maintenance Manual and Instructions for Continued Airworthiness for

Aerocet Models 6650 Twin Amphibian and 6750 Twin Seaplane Floats Installed on a Quest Kodiak 100 Airplane

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FAA ACTION
Seattle Aircraft Certification Office
☐Approve ☐EASA CS ☐JARs
☐Reject ☐CARs ☒CFRs
☐Acknowledge ☐Concur ☒Accept
TSO/Project #s SA1306SE-A
Comments: AEG CONCURRENCE ON 7/12/17, ACCOMPANIED BY FAA FORM 8110-3 BY M. HAMLEY
Branch # Concurrence Date
FAA Staff Spec. Phone Date
NG x6430 7/13/17
for SACO Manager Phone Date
Marsh x6440 7/14/17
Action Stamp # AS/120S/17/918

This ICA must be followed when Aerocet 6650 and 6750 Floats that are installed in accordance with Supplemental Type Certificate (STC) No. SA02452SE.

The information contained in this document supplements or supersedes the basic manuals only in those areas listed herein. For limitations, procedures, and performance information not contained in this manual, consult the basic aircraft ICA or maintenance manual.

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REVISION RECORD

REV	DATE	DESCRIPTION	PAGES	BY
0	02/11/2015	Initial Release	All	
1	10/02/2015	Formatting consistency – improvements (not revision-marked)	All	RB
		MS20426… was MS203426	18	
		Merged Inst. Drawing. List – with §15	71	
		"Recommended Service Schedule" was "Continued Airworthiness Schedule	80	
		Changed Hyd. Fluid level to 25 hr. limit from 50 hr.	84	
		Added §13.5 Post Float Installation Checklist	86-91	
		Removed "Electric Hydraulic Pump w/Hardware" from W & B 14.1.1	96	
		Updated Installation Drawing Listing	97	
		Added "Other Documentation & -JPN Placard Listings	98	
2	6/27/2017	Complete Revision to include 6750 Seaplane Formatting is updated, including figure numbering. (Formatting not change-marked). Sections introduced to address additional information: §§3, 10, 11, & 12. Added Model 6750 Twin Seaplane Floats throughout the document as applicable. Added model applicability to section labels. (unmarked change) Where Aerocet Drawings were referenced, changed to reference IPC numbers to clarify. Added more NOTES, WARNINGS & CAUTIONS.	All	
		§1 Introduction. Corrected compartment count from 6 to 9. Added Aerocet replacement pump-out plugs. §1.5, added digital copy option.	14 14 26	R. Bell 6/27/17
		§2 Airworthiness Limitations §2.2.3: Added 6750 floats.	27	
		§3 NEW section with greatly expanded information regarding float hulls.	29-38	
		§4 Added 4.2, General Practices, Nose Gear Assembly. Added introduced splash guard removal and installation information. Added 4.7 Added reference to CMM, A-10036. Added §4.12 Cathodic Protection of the Nose Gear.	39 41 46 45 46 51	

REV	DATE	DESCRIPTION	PAGES	BY
		§5 Added 5.1 General Practices; Standardized axle nut procedure (§5.2.7) similar verbiage to nose wheel; Brake disk information in Note was citing only the Cleveland CMM (§5.3.5); Added Lower Main Gear Removal and Installation. (§5.4) Added Cathodic Protection for Float Main Landing Gear. (§5.5)	53 54 55 55-56 57	
		§6 Added information regarding the use of flexible hydraulic lines (§6.2).	67-68	
		§7 Water Rudders: Added Cathodic Protection (§ 7.1).	72	
		§8 Electrical: New introductory paragraph, expanding and explaining electrical beyond just the gear advisory. Added §8.1, Gear Indication explanation; §8.3, Weight on Water System.	73 75	
		§9 Spot Mirror Assembly: 6650 only.	76	
		§10 NEW Section: Coloration Limitations 6650 and 6750.	77	
		§11 NEW Section: Anodic Systems	79-81	
		§12 NEW Lightning Strike Protection	83-89	
		§13 Recommended Processes, Products and Inspection Checklists: Expanded Cleaning section; Added bathing section; Expanded Metal Hardware (§13.4) Added Anodic Systems (§13.7). Added Flotation Foam (§13.8).	91-93 96-102 103 103	
		§14 Troubleshooting "To Excessive Drift…" added Rigging has fallen out of adjustment/Check alignment… To Rudder Pedal Feels "Stiff", added Check for misalignments, debris and dock lines.	105	

REV	DATE	DESCRIPTION	PAGES	BY
		§15 Installation, Added Removal and Conversion Information; Added info regarding rolling the floats with gear extended, Caution and Warnings. Re-organized Float Handling, Jacking and Towing. Added 6750 information. Added and expanded strut installations. Added and expanded trunnion installation. Added and expanded tie rod installation. Added and expanded water rudder installation. Added basic boarding step information. Repeated spot mirror information (as part of installation) Added Hull Anode Installation information. Added cross reference to Post-Installation Inspection. Added Float Removal Procedures (§15.9)	 109-110 111-114 112-113 116-117 118-119 120-122 123-131 132 132 132 132 132-136	
		§16 Strut and Composite Repair Manual: Added tie rod repair instructions. Added MLG Repair Bushings (§16.2).	 137 139-140	
		§17 Recommended Service Schedule, General Practices and Product Listings for Service: Added "Conduct wash-downs…" Added Tie rods, Inspect for notches or dents. Added Anodes and Flotation Foam Added to Seal around the Nose Gear Box, "Spray Corrosion Inhibitor on metal component of seal." Added Ardrox AV30 and AquaShield to Product Listings (§17.8.7). Added Salt-Away to product listings. Added Zep Aviation II soap. Added PRC-DeSoto CA 1000.	 143 145 145 146 156	
		§18 Weight and Balance: Differentiated 6650 Amphibian which uses float landing gear, while the 6750 Seaplane has none. Added 6750 Seaplane information, including weight and balance using the spreaders, and float keels. Added §18.4 Optional Float Equipment.	 157 158-160 160	
		§19 Support and Documentation. Added 66-12070. Added §19.2 Installation Drawings, 6750 Twin Seaplane Floats. Added 66-11050-JPN for anticipated Japanese version of 66-11050 placard.	 161 162 163	
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1.0 INTRODUCTION

Thank you for choosing Aerocet Floats. This manual covers the installation and maintenance of the 6650 Twin Amphibian floats as well as Model 6750 Twin Seaplane floats installed on the Quest KODIAK 100 airplane. This manual includes a list of the drawings for installation, trouble shooting, inspection time intervals, hoisting, jacking, recommended lubricants and cleaners, and best practices for maintenance especially in saltwater. An Illustrated Parts Catalog is also provided.

1.1 Warnings, Cautions, Notes

It is vitally important to follow all safety standards listed by Aerocet, Inc. and its suppliers while maintaining Model 6650 Amphibian, or 6750 Seaplane Floats. Specific safety standards will be illustrated through the use of WARNINGS, CAUTIONS, and NOTES, which are defined as follows:

WARNING
An operating procedure, technique, or maintenance practice which may result in personal injury or death if not carefully followed.

CAUTION
An operating procedure, technique, or maintenance practice which may result in damage to equipment if not carefully followed.

NOTE
An operating procedure, technique, or maintenance condition which is considered essential or beneficial to emphasize if not carefully followed.

1.2 General Description

Provision is made on the airplane for fitting a twin float installation, complete with retractable, cable-operated water rudders. The complete float unit, comprising floats, main landing gear, nose landing gear, landing gear retraction system, water rudders, spreader bars, struts and fittings, streamline wires, and rudder control systems may be fitted to the airplane in place of the main wheel and nose wheel units.

The Aerocet Model 6650 Twin Amphibious Floats and Model 6750 Twin Seaplane Floats are all-composite float hulls. The float hulls are separated by spreader bars that slide into the float assemblies. The float design uses a double fluted bottom contour from the step forward, and has a flat top deck design with built-in antiskid. Each float offers nine water-tight compartments for safety, three of which serve as large storage lockers. Access to these compartments is facilitated through fastened access panels on the deck, storage locker hatch covers, or through access panels in select bulkheads below deck. The floats incorporate pump locations into each compartment. These pump locations are used to remove any excess water present resulting from condensation, leakage from the access panel gaskets, bolts, pump-out plugs, or a damaged float hull. Replacement plugs are readily available from Aerocet.

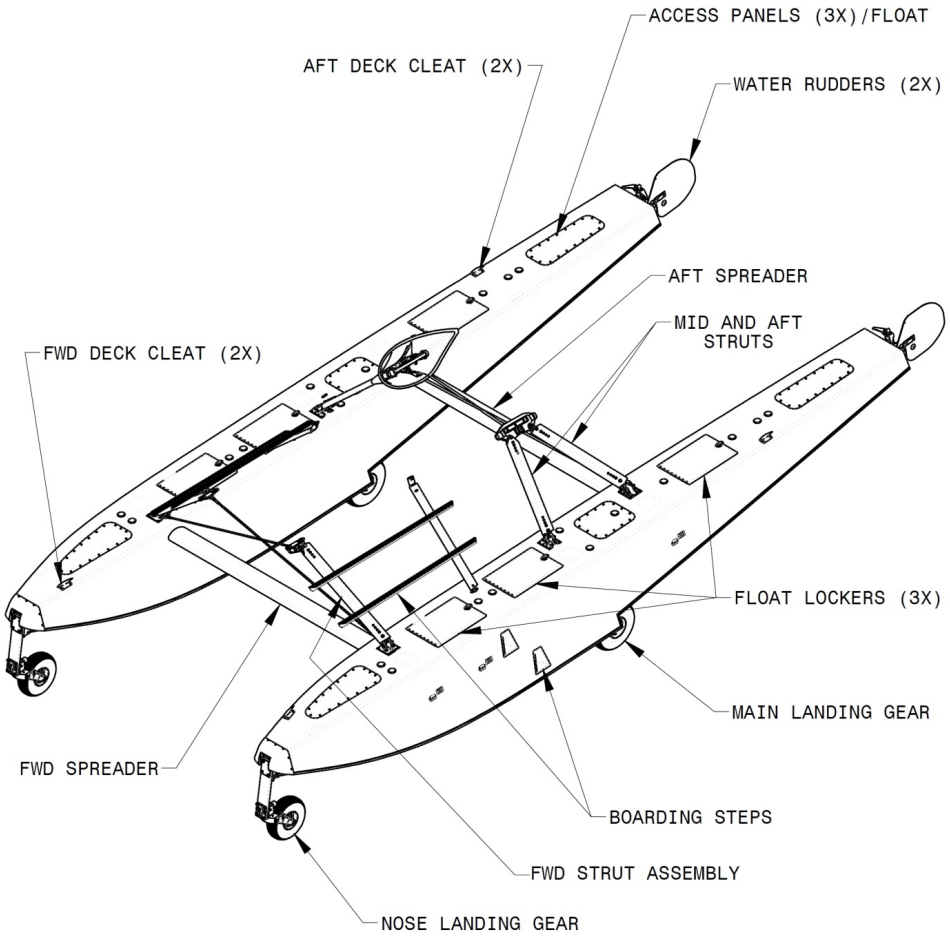

Figure 1-1: Overview of Basic Components of 6650 Float

Water rudders are mounted on the stern of each of the float types for water-taxi operations, and are connected to the rudder control pedals. The retraction system is controlled by a lever located on the pedestal.

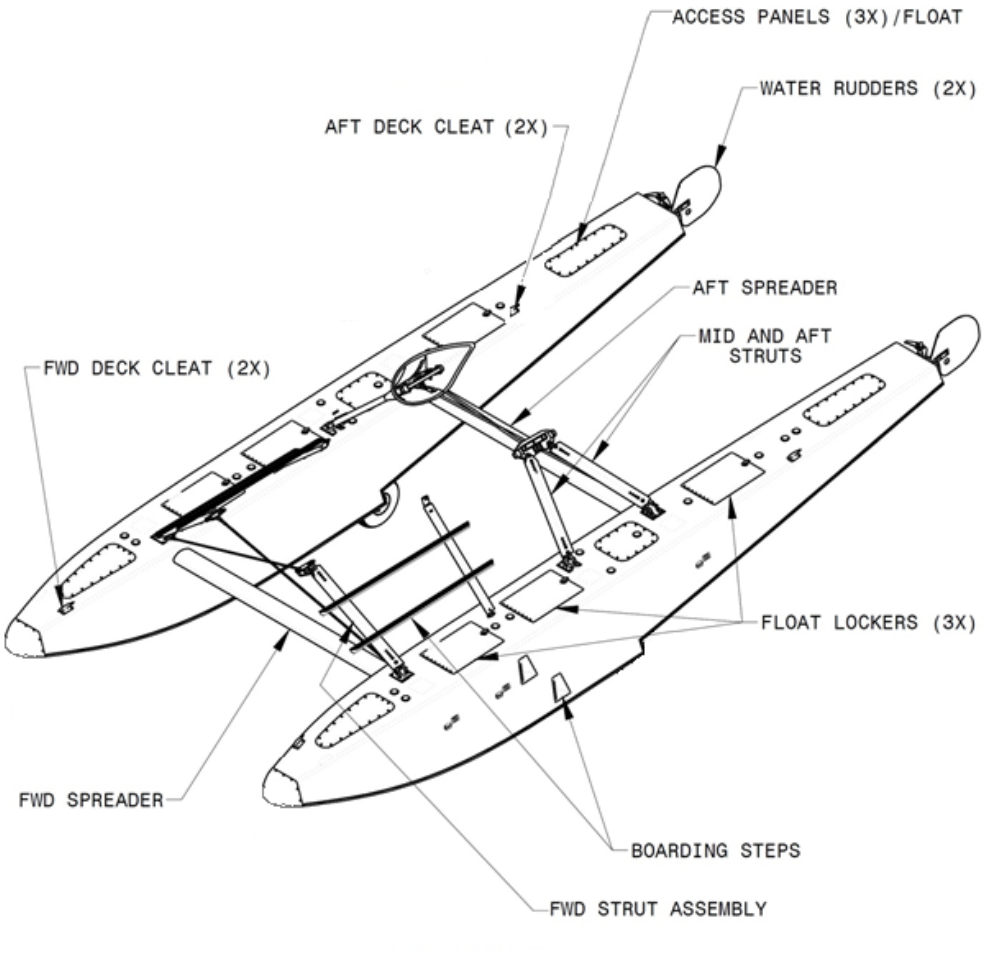

Figure 1-2: Overview of Basic Components of 6750 Floats

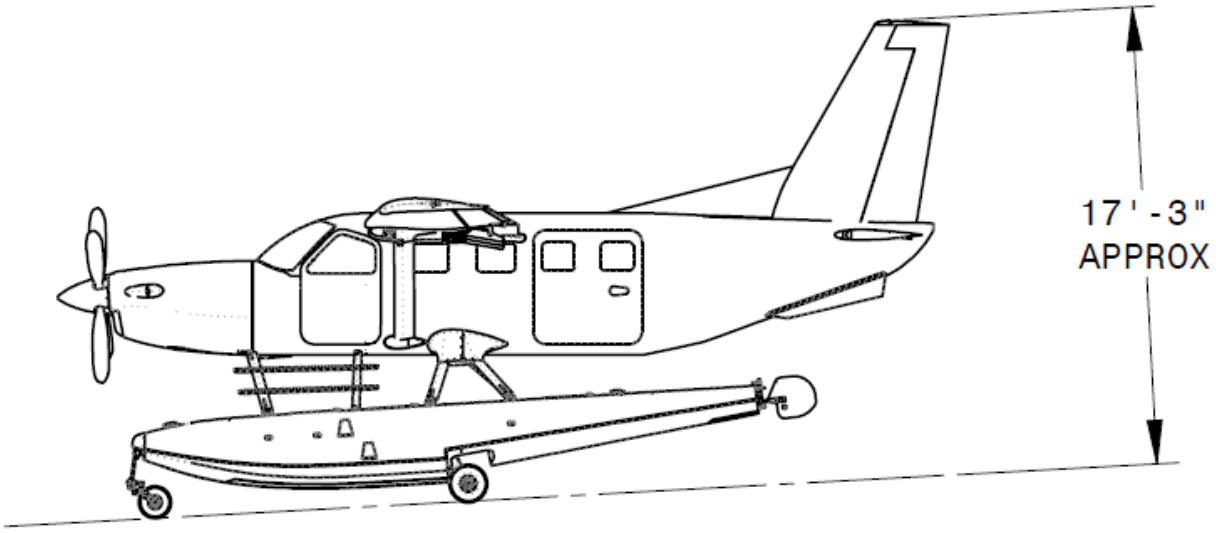

Figure 1-3: View of Model 6650 Floats on a Quest KODIAK 100

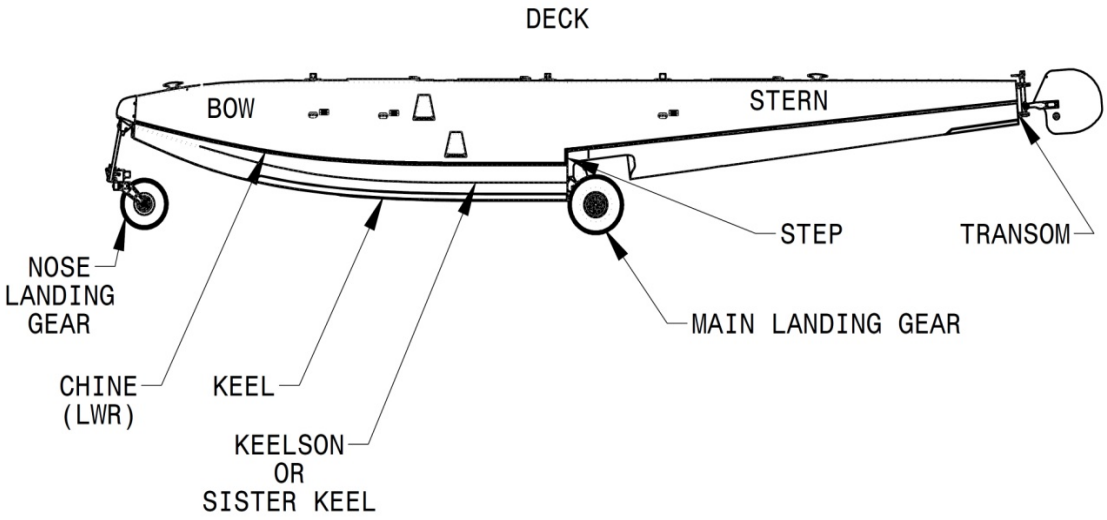

Figure 1-4: 6650 General Float Terms

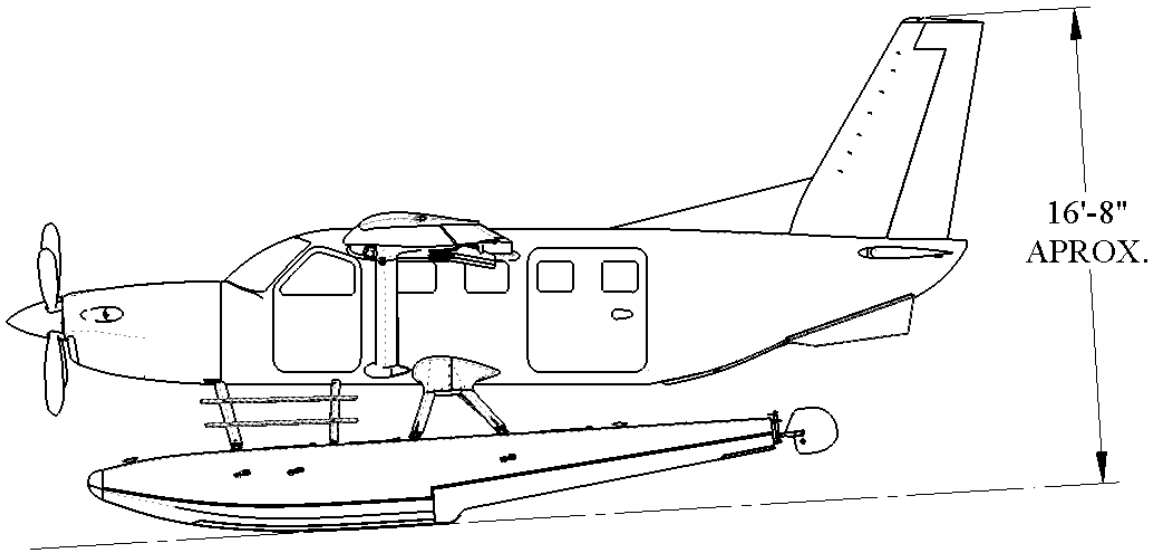

Figure 1-5: View of Model 6650 Floats on a Quest KODIAK 100

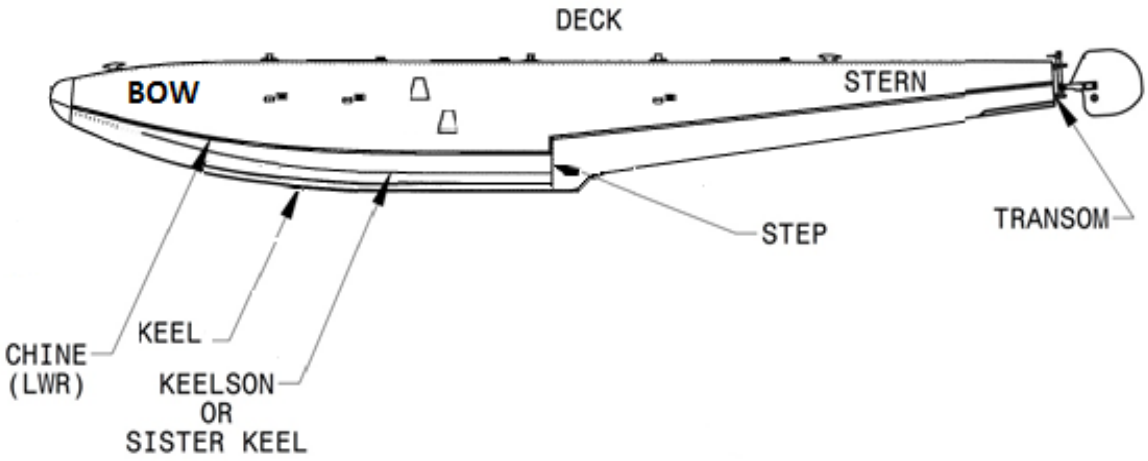

Figure 1-6: 6750 General Float Terms

Each float is attached to the airplane by front, mid, and aft struts. The upper end of the fore strut is attached to a fuselage fitting (66-12102). The upper ends of the mid and aft struts are bolted to the landing gear trunnion on the side of the fuselage. The upper end of the step strut is attached to the step attachment on the fuselage. At the lower end, all the struts are bolted to lugs on the float.

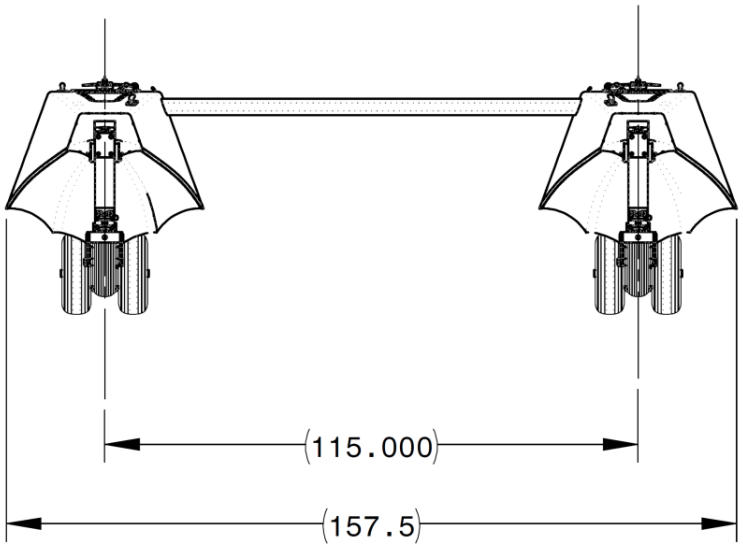

Figure 1-7: Front View of 6650 Floats and Rigging

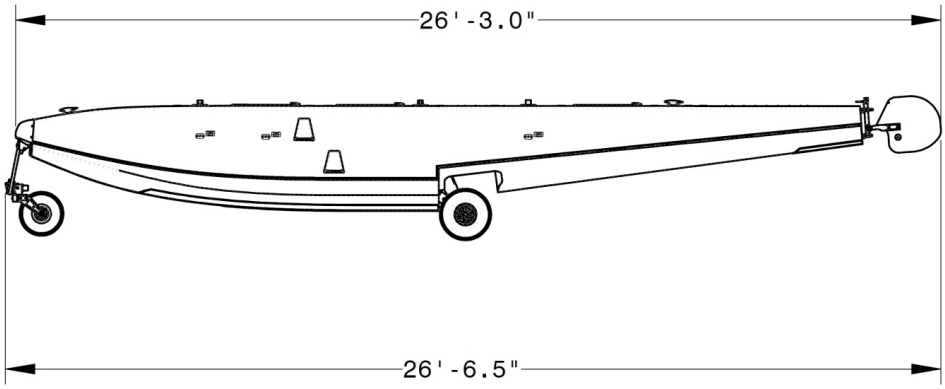

Figure 1-8: Model 6650 Float, Side View

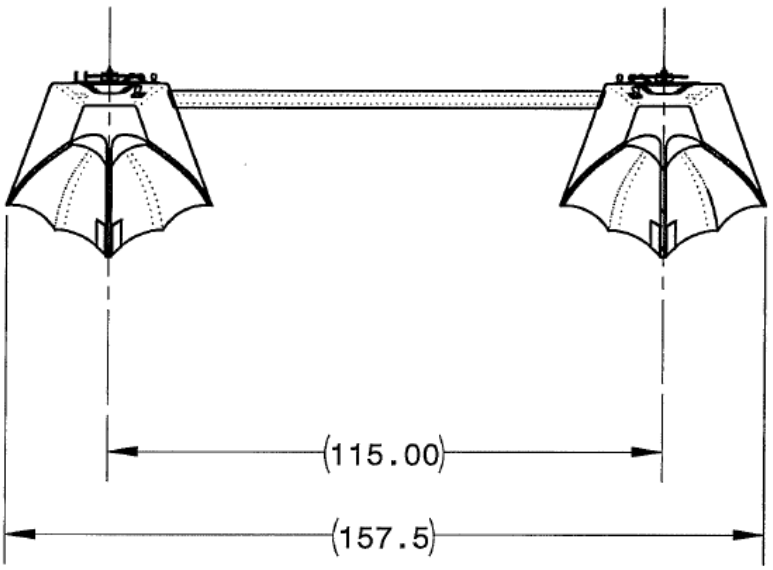

Figure 1-9: Front View of 6750 Floats and Rigging

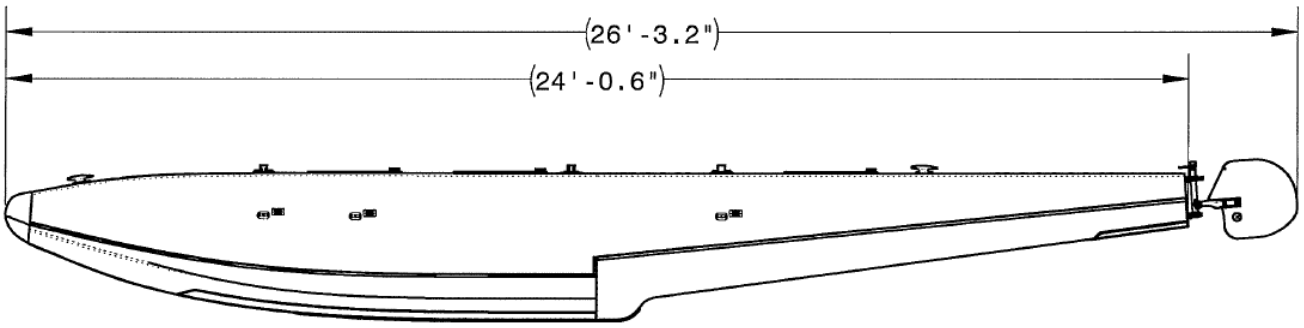

Figure 1-10: Model 6750 Float, Side View

1.3 How to Use This Supplemental Manual

Used in conjunction with the KODIAK 100 Airplane Maintenance Manual, Repair Manual, and Illustrated Parts Catalog for a KODIAK 100 airplane, this supplemental manual provides the operator with a source of information for installing, removing, repairing, and maintaining Aerocet Model 6650 Amphibious Twin Seaplane Floats on a KODIAK 100. Instructions in this supplemental manual replace specific, noted sections of the Quest manual.

This manual is organized as follows:

Appendix A, Illustrated Parts Catalog (IPC): (Bound Separately) Illustrations and parts lists of components used with the Aerocet Model 6650 Twin Amphibian Floats, or Model 6750 Twin Seaplane Floats on a Quest KODIAK 100 airplane.

Used in conjunction with the KODIAK 100 Airplane Maintenance Manual, Repair Manual, and Illustrated Parts Catalog for a KODIAK 100 airplane, this supplemental manual provides the operator with a source of information for installing, removing, repairing, and maintaining Aerocet Model 6650 Twin Amphibian, or 6750 Twin Seaplane Floats on a KODIAK 100. Instructions in this supplemental manual replace specific, noted sections of the Quest manual.

This manual is organized as follows:

1. Introduction
2. Airworthiness Limitations
3. Float Hull
4. Nose Gear
5. Main Landing Gear and Brakes
6. Hydraulics
7. Water Rudders
8. Electrical
9. Spot Mirrors
10. Coloration Limitations 6650 and 6750
11. Anodic Systems
12. Lightning Strike Protection (LSP)
13. Recommended Processes, Products, and Inspection Checklists
14. Troubleshooting
15. Installation, Removal and Conversion Information
16. Repairs Strut and Composite Repair Manual
17. Recommended Service Schedule, General Practices and Product Listings for Service
18. Weight and Balance
19. Support Documentation

1.4 Fastener Torque

1.4.1 Torque Value Conversion

a. To convert in.-lbs. to ft.-lb: Value (ft.-lb.) x 12 = Value (in-lb.)
b. To convert ft.-lbs. to in.-lb.: Value (ft.-lb.) x 0.0833 = Value (in-lb.)

1.4.2 Tooling Requirements

Calibrated torque wrench

Adapters that affect the length of the torque wrench will affect the required torque indication and must be calculated according to Section 1.4 Fastener Torque Values (Except where otherwise noted).

All hardware is to be free of dirt and grit. All dirty hardware shall be thoroughly cleaned, lubricated or protected by the various products suggested in this document. It is recommended that all stainless hardware be thoroughly lubricated with anti-seize lubricant of good quality to prevent galling upon assembly.

1.4.3 Torque Procedure

Assure that hardware is clean and properly prepared for installation. Assemble nuts to bolts, measuring the tension required to turn the nut and add this to the required final torque. Where possible apply torque to the nut, and not to the fastener head. Apply a smooth, even pressure, stopping and re-torqueing if chattering or premature loading occurs. This may warrant disassembly and subsequent inspection for burrs or galling. Replace any damaged hardware.

Access panels should be torqued only to "hand tight". The fiberglass should exhibit only mild deformation. A portable hand drill could be used, provided that the clutch is set at a very low torque setting not risking damage to the plastic nut plates.

All other nuts shall be torqued per Section 1.4 Fastener Torque unless otherwise noted (i.e. - AN8 through bolts to hold the spreaders in are torqued only to 25 ft./lb.)

1.4.4 Fastener Torque Values

(Except where otherwise noted)

Table 1-1: Recommended Torque Values (Inches per Pound) from AC43.13-1B, Table 7-1

CAUTION THE FOLLOWING TORQUE VALUES ARE DERIVED FROM OIL FREE CADMIUM PLATED THREADS				
	TORQUE LIMITS RECOMMENDED FOR INSTALLATION (BOLTS LOADED PRIMARILY IN SHEAR)		MAXIMUM ALLOWABLE TIGHTENING TORQUE LIMTS	
Thread Size	Tension type nuts MS20365 and AN310 (40,000 psi in bolts)	Shear type nuts MS20364 and AN320 (24,000 psi in bolts)	Nuts MS20365 and AN310 (90,000 psi in bolts).	Nuts MS20364 and AN 320 (54,000 psi in bolts)
FINE THREAD SERIES				
8-36	12-15	7-9	20	12
10-32	20-25	12-15	40	25
1/4-28	50-70	30-40	100	60
5/16-24	100-140	60-85	225	140
3/8-24	160-190	95-110	390	240
7/16-20	450-500	270-300	840	500
1/2-20	480-690	290-410	1100	660
9/16-20	800-1000	480-600	1600	960
5/8-18	1100-1300	600-780	2400	1400
3/4-16	2300-2500	1300-1500	5000	3000
7/8-14	2500-3000	1500-1800	7000	4200
1-14	3700-5500	2200-3300*	10,000	6000
1-1/8-12	5000-7000	3000-4200*	15,000	9000
1-1/4-12	9000-11,000	5400-6600*	25,000	15,000

*Estimated Corresponding Values

Table 1-2: Minimum Prevailing Torque Values for Reused Self Locking Nuts
(from AC43.13-1B, Table 7-2)

FINE THREAD SERIES	
Thread Size	**Minimum Prevailing Torque**
7/16-20	8 Inch-pounds
½-20	10 Inch-pounds
9/16-18	13 Inch-pounds
5/8-18	18 Inch-pounds
¾-16	27 Inch-pounds
7/8-14	40 Inch-pounds
1-14	55 Inch-pounds
1-1/8-12	73 Inch-pounds
1-1/4-12	94 Inch-pounds
COURSE THREAD SERIES	
Thread Size	**Minimum Prevailing Torque**
7/16-14	8 Inch-pounds
1/2-13	10 Inch-pounds
9/16-12	14 Inch-pounds
5/8-11	20 Inch-pounds
3/4-10	27 Inch-pounds
7/8-9	40 Inch-pounds
1-8	51 Inch-pounds
1-1/8-8	68 Inch-pounds
1-1/4-8	88 Inch-pounds

Self-Locking Nuts:

Self-locking nuts, when re-used, must have at least the minimum prevailing torque listed in figure to the left. Nuts that are smaller than those listed in the table shall not be used if they can be run up by hand.

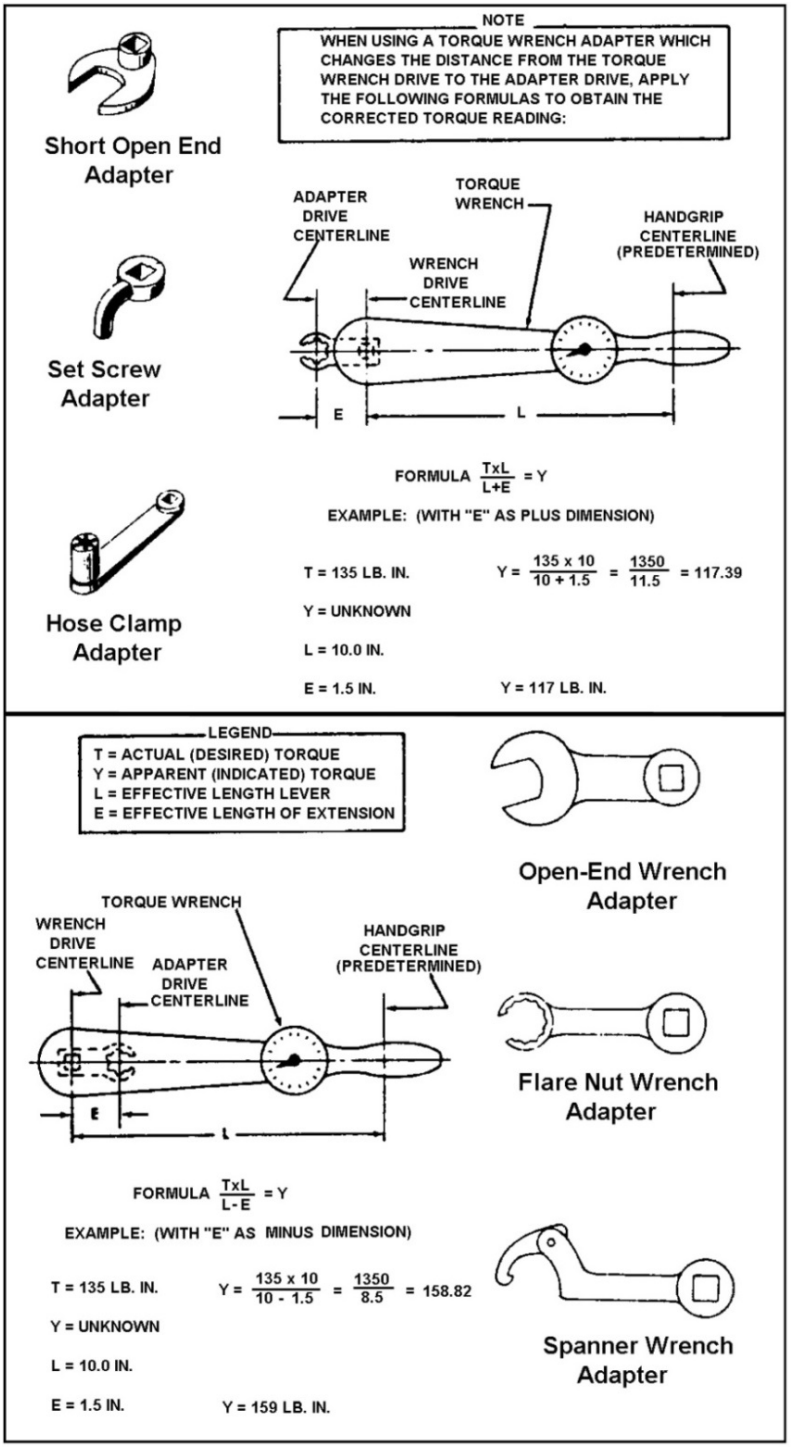

Figure 1-11: Torque Wrench with Various Adapters
(from AC43.13-1B, Figure 7-2)

1.4.5 Fastener Use and Discretion

1.4.5.1 Fastener Lengths

Rivets: Where replacement or repair of rivets is required, use rivets of proper specifications only, for instance, MS20426AD4-xxx. Lengths may be determined by measuring the thickness of the material(s) to be assembled and adding 1.5 X Diameter of the rivet to be used. Over-sized rivets may be substituted where holes have been drilled out.

Bolts and screws shall have a minimum of one thread visible through the nuts upon final torque.

Washers may be rearranged if necessary to accommodate proper fit, up to two washers beneath the nut and one beneath the fastener head. Typically, Aerocet intends to put one thin washer beneath the fastener head and one thicker washer beneath the nut.

1.4.5.2 Fastener Reuse

Fasteners are to be inspected per Section 4 of this manual for condition. Such fasteners that are acceptable may be cleaned, re-lubricated and re-installed as determined. Self-locking nuts shall meet the minimum prevailing torque as listed in Figure 1.4.2, or shall be replaced. All external retaining rings on the main gear pivot pins should be replaced with new ones each time to assure proper retention.

1.5 Availability

One complete copy of this manual shall be provided with each new set of Aerocet Model 6650 and 6750 floats. Additional copies and minor revisions shall be available via email, U.S.P.S (Mail), UPS or FedEx by request. Fees and delivery charges may apply.

Digital copies may be available for download on www.aerocet.com.

Notification of any changes that require service for airworthiness shall be distributed to all applicable Aerocet float owners on record with Aerocet, Inc. In such a case, copies of the applicable, revised portions of this manual shall be provided.

Aerocet, Inc. maintains record of purchasers and/or owners collected at the time of purchase in order to comply with the above as well as to maintain a high standard of service. If you have moved since your original purchase, have purchased a used product, or otherwise have reason to believe that the contact information on file is incorrect, please provide the following information to Aerocet, Inc.: (Aerocet contact information is on the front of this document.)

Float Information:

Float Model _____

Float S/N (R/L) _____

Aircraft Information:

Aircraft Make/Model _____

Aircraft Registration _____

Aircraft S/N _____

Owner Information: (as applicable)

Previous Owner _____

Previous Address _____

Present Owner _____

Present Address _____

Present Phone Number _____

Present Email Address _____

2.0 AIRWORTHINESS LIMITATIONS

2.1 General

The Airworthiness Limitations Section is required per 14 CFR 23.1529. This includes mandatory replacement times for type certification, mandatory inspection times for type certification and inspection procedures for those approved mandatory times.

NOTE:
The Airworthiness Limitations section is FAA approved and specifies inspections and other maintenance required under §§43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

2.2 Description

1. Time Limited Items

   None

2. Required Inspection Intervals

   None

3. Schedule Maintenance

   Aerocet Model 6650 and 6750 floats recommended Inspection or Replacement Schedule Located in Section 17.0 Recommended Service Schedule, General Practices and Product Listings for Service.

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3.0 FLOAT HULLS

This section is intended to describe those portions of the floats that are an integral part of the float hulls.

3.1 Bumpers

The float bumpers, located on the prow of each float hull, are intended to absorb some of the impact of an impact with fixed structures, such as when docking. The bumpers on the amphibian are primarily aesthetic in nature, but may still provide some protection.

Reference IPC 65-12900 Amphibian

The 6650 Amphibian bumper is attached to the front of the hull on a molded offset using eleven stainless screws. Seal fasteners with Sika-Flex 292 or equivalent marine grade urethane adhesive during installation.

Reference IPC 65-11900 Seaplane

The 6750 Seaplane bumper is bonded to the front of the hull on the molded offset using 3M Scotch 4475 adhesive, or equivalent as listed in the IPC section for 65-21900 Bumper installation.

NOTE:
It is important to assure the presence of Ø1/8" vent hole thru bumper wall. This allows the bumper to breathe.

3.2 Access Panels

Reference IPC 65-17500 Amphibian
Reference IPC 65-21500 Seaplane

Access Panels are installed with stainless threaded fasteners, having Aerocet nut plates along flanges of panel insets along the float deck. See Figure 3-1. Nut plates are held in place with no. 4 stainless threaded fasteners, available from Aerocet.

Panels are sealed with hollow cord seal, which is located in molded insets, and glued with Loctite 414 Super Bonder, cyanoacrylate adhesive. Install with a drop or two of adhesive in approximately 3 in. intervals, in the seal inset. Bond the cut ends of the cord seal together as well.

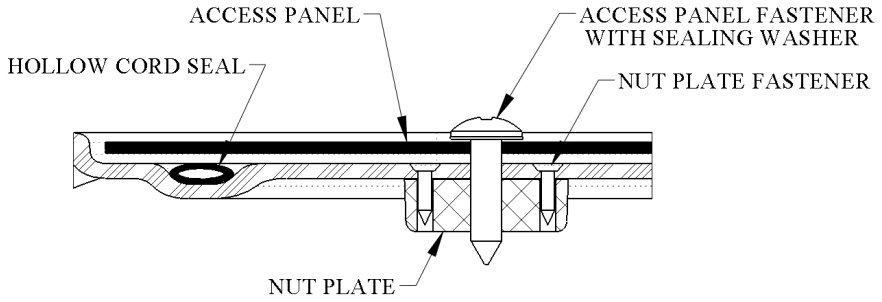


Figure 3-1: Typical Access Panel Installation

3.3 Lockers

Reference IPC 65-17520, 65-17510 for either Amphibian or Seaplane

There are three lockers in each float, (see Figure 3-2) each having weight allowances for up to 150 lb. of baggage. The underside of each door must have a placard describing the maximum weight allowance and the location in aircraft station location.

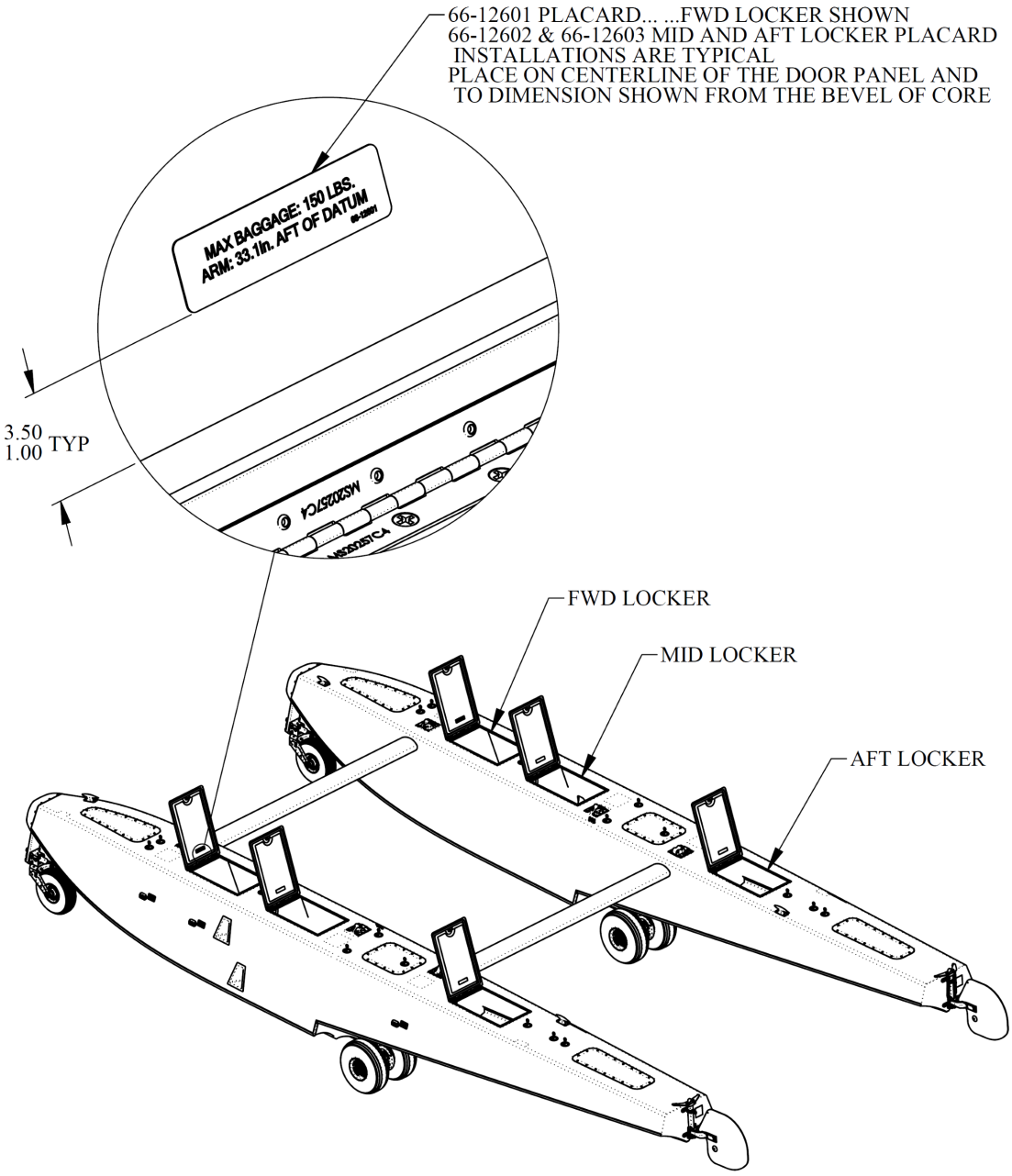


Figure 3-2: Lockers 6650

The locker latch (Figure 3-3) operates by turning counter-clockwise to open and clockwise until it reaches a detent to close.

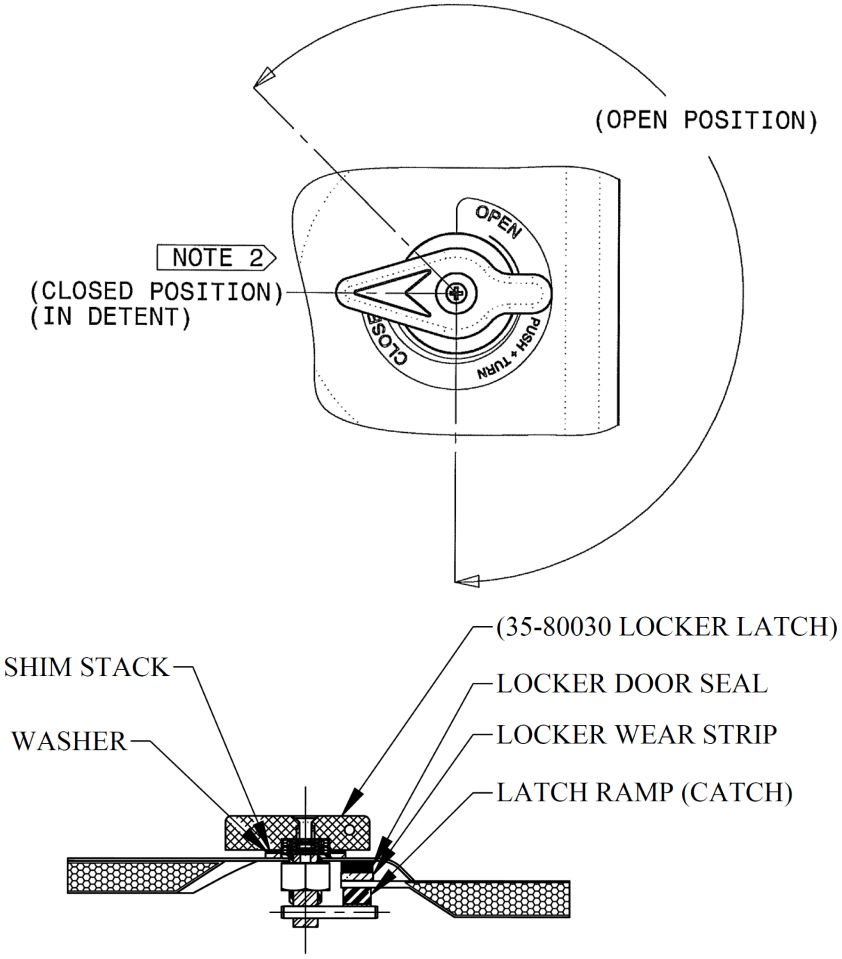


Figure 3-3: Locker Latch

Hinges on the forward edges allow the locker door to swing open to the forward side of the locker openings.

CAUTION:
Beware of objects that might be left on the float deck beneath the locker door when opening. Damage to the door or the hinge might result.

3.4 Latch Adjustments

1. With latch closed and door fully pressed against float deck (requires weight on the locker panel), measure the detent gap, assuring that the latch pin remains nested, yet releases by hand. (Figure 3-4) Measurement must be less than .06 in. Use the following methods as needed to assure proper adjustments.
2. To decrease the detent gap (increase tension on latch): Add NAS1149C1232 washers or 35-80038-Cxxx shimming washers.
3. To increase the detent gap (decreases tension on latch): Remove shim washers, or reduce panel bevel height by sanding up to a minimum of .310 in.
4. Grind latch ramp up to a minimum of .10 at flats, or .13 at detent groove.

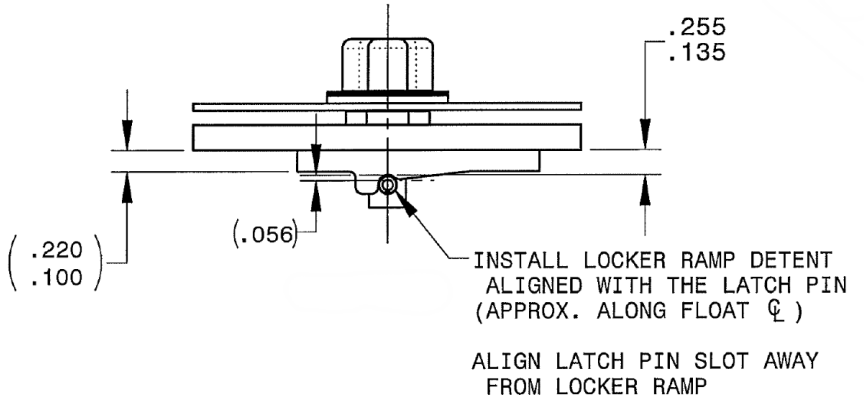


Figure 3-4: Latch Adjustments

3.5 Floor Boards

Reference IPC 65-17300 Amphibian
Reference IPC 65-21400 Seaplane

Floor boards are used in the locker bays to offer a platform on which to stow baggage. They are counted as baggage and considered separately in the aircraft weight and balance. When installed, the floor boards rest on bonded gussets, and/or on partial bulkheads if available. (Aft locker offers no partial bulkhead.)

Stowage of hard, heavy items is not suitable without use of floor boards to prevent damage to the float hull.

When equipped with optional hull anode, the aft locker bay floor boards are required equipment to prevent any possible damage to the anode installation.

Floor boards should be kept in good condition, no large breaks or delamination. Repair or replace as necessary.

3.6 Bulkheads

Reference IPC 65-17110 Amphibian (Figure 3-5)
Reference IPC 65-21110 Seaplane (Figure 3-6)

There are three versions of bulkheads used in the 6650 series floats, including, bulkheads, partial bulkheads and floatation bulkheads. These are not removable, but may be replaced in the event of a repair and with consultation with Aerocet, Inc.

Bulkheads and Floatation Bulkheads are used to meet FAA buoyancy requirements by creating separate compartments.

Partial bulkheads are used for structure only, and are purposely ported at the lowest points to enable water to pass through, and to reach the bilge pump tubing.

Access panels are added to floatation bulkheads where inspection and/or installation is necessary in compartments behind them.

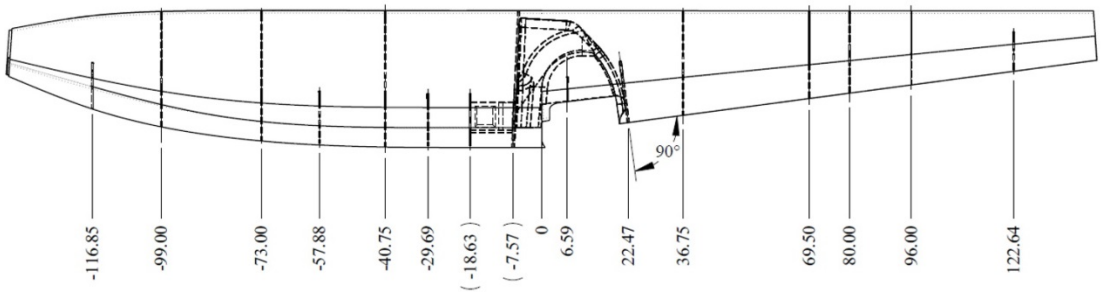


Figure 3-5: 6650 Amphibian Bulkheads Installation

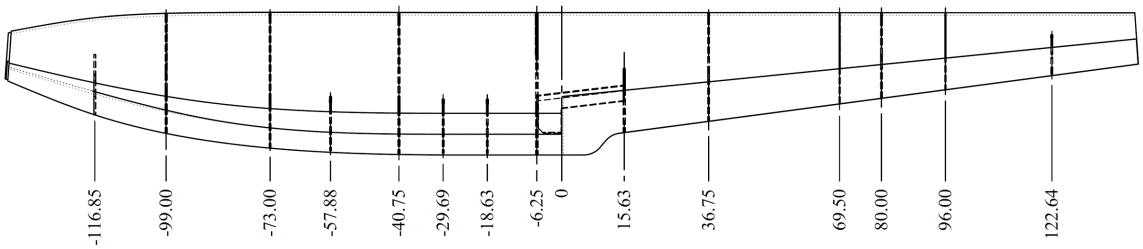


Figure 3-6: 6750 Seaplane Bulkheads Installation

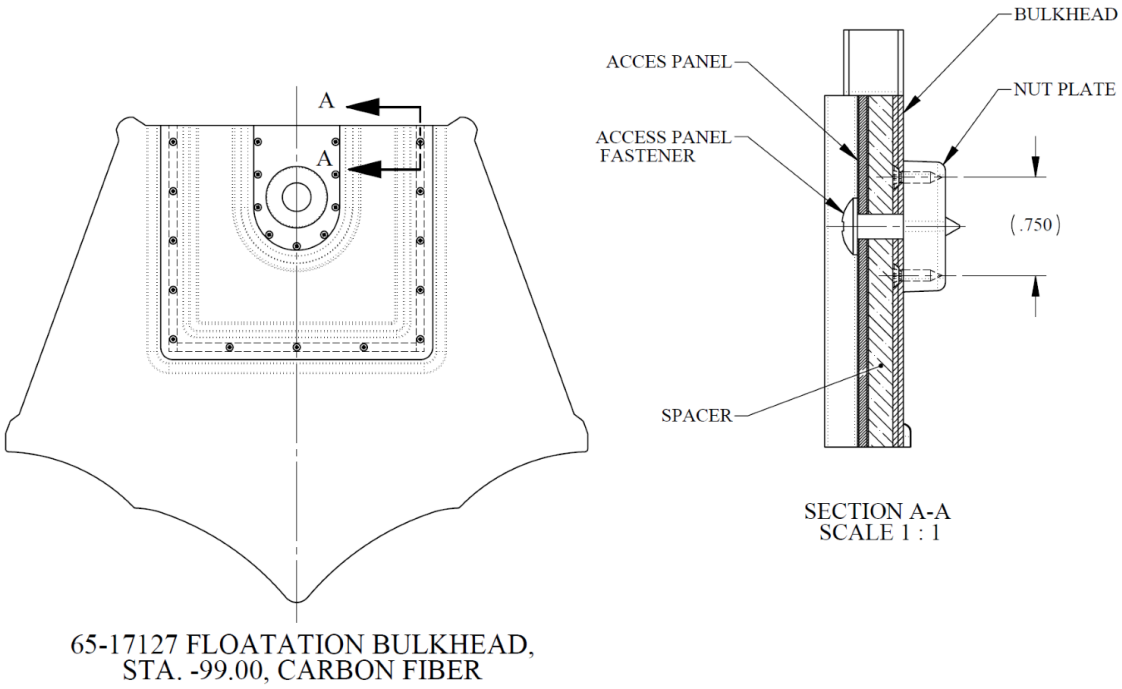


Figure 3-7: Floatation Bulkhead with Access Panel

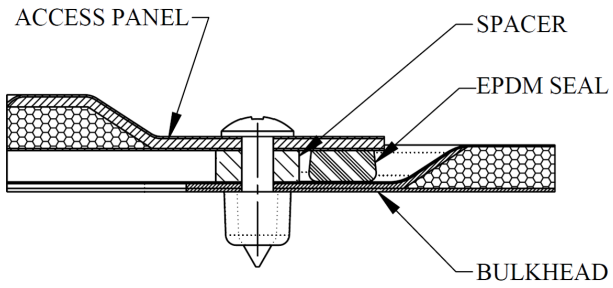


Figure 3-8: Floatation Bulkhead Access Panel Installation

Floatation Bulkheads are located at Float STA.'s -99.00 (ahead of the float step), 69.50 (aft of float step), & 99.00. See Figure 3-7 and Figure 3-8 above for typical installation of access panels.

3.7 Pump Outs

The pump outs, or bilge pumps (Figure 3-9) are a common design amongst many, if not all float types. There is a cup or a well at the float deck, to which is attached a tube that reaches the lower-most points of each float bay or areas that would trap water. The cup or well at the float deck is plugged with a stopper. Most, if not all common versions of these plugs will fit and work effectively, however, the Aerocet 6650 series floats have highly effective access panel seals which require venting.

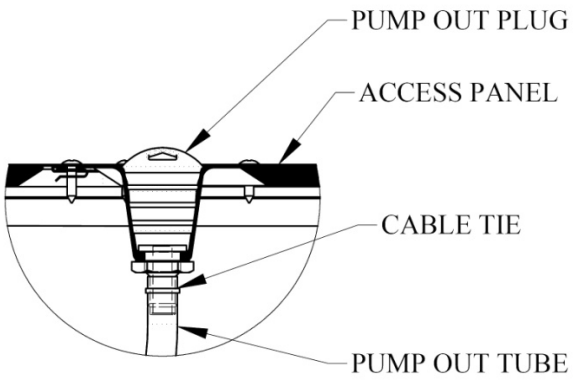


Figure 3-9: Typical Aerocet Pump-Out Installation

Aerocet has found that a plug that utilizes a lanyard does vent sufficiently, but others, not having any ability to breathe will either blow out at altitude or will suck into the cup on descent. In extreme cases, where the pressure differential is great enough, it may even exert undo forces on the float hull itself.

Caution
Assure that pump out plugs are vented to prevent loss or, in extreme cases, even damage to the float structures which are not designed for large, negative pressures.

Note:
Some Aerocet operators have found that ravens will steal the plugs having lanyards. In order to prevent loss to birds or other means, it may be helpful to tie the lanyard to one of the hatch screws nearby.

Aerocet has found that the best plugs are convex, preventing standing water from pooling over the vent and being drawn into the float bays as the floats breathe. Temperature changes, such as from heat to cold, day to night, do create pressure changes in the float bays. When there is standing water in seams and valleys, it can then be drawn through even well sealed joints.

Note:
Sources of standing water can be as simple as melting frost or dew dripping from the leading or trailing edges of the aircraft wings, as well as rain or left over water from the last water landing.

Aerocet has designed its own version with a lanyard, also useful across all Aerocet applications. (Reference Figure 3-10 below) It features the desirable lanyard with venting as well as the dome shape to minimize water pooling over the vent and entering the float.

Assure that any plugs you use (Figure 3-11) are vented, either having a lanyard, or having been vented by a drill in a similar fashion as shown below.

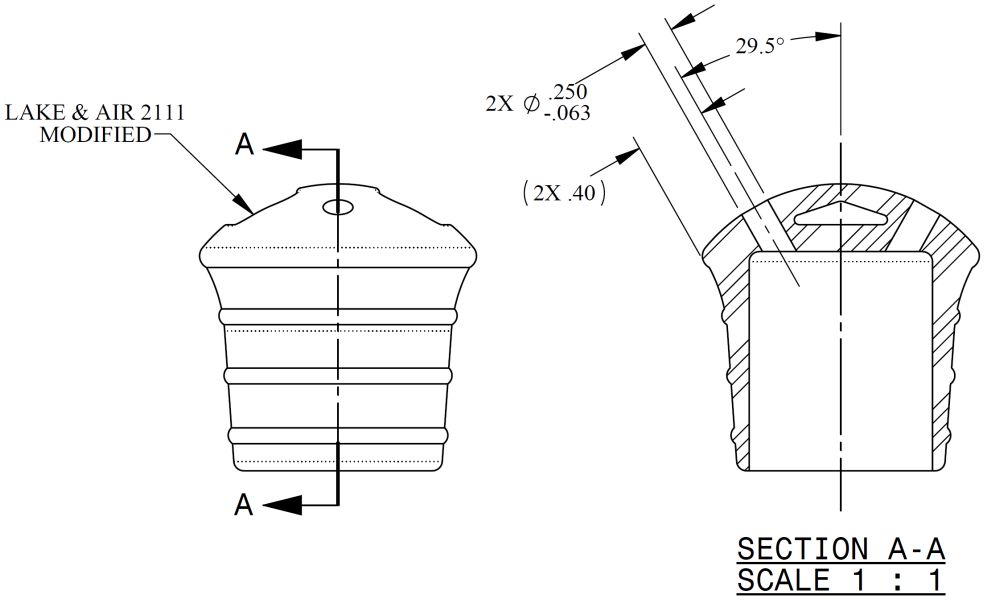


Figure 3-10: Showing properly vented plug (Lake & Air 2111 shown)

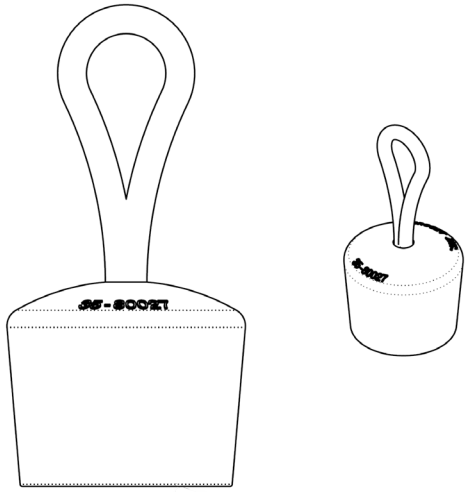


Figure 3-11 Showing Aerocet plug

3.8 Flotation Foam

6750 Seaplane

An installation of foam blocks is located in the aft-most float bay, and behind the partial bulkhead. This is held in place with a set of composite brackets, the FWD brackets including fasteners that facilitate removal for inspections. The brackets affix a composite hold-down plate, which covers the flotation foam.

Remove fasteners and the composite hold-down plate to remove and inspect the foam and/or the water rudder tiller fasteners on the float transoms.

4.0 NOSE GEAR

(6650Amphibian)

4.1 General Description

The nose gear utilizes a composite fiberglass strut to absorb energy on landing along with the deflection of the nose tire. The nose gear uses a 5.00-5 tire on an Aerocet oil bath wheel assembly that is full swiveling, utilizing main wheel braking for steering, and incorporates a centering device to keep the nose gear aligned for landing. The nose gear is retracted by a hydraulic ram which pulls the gear along a track stowing the landing gear strut into a box in the nose of the float, leaving only the tire exposed on the front of the float. A towing lug is located on the lower clamp block. Reference should be made to IPC listings for Nose Gear Assembly 65-42000, and Lower Nose Gear Assembly 65-42100.

4.2 General Practices, Nose Gear Assembly

1. Components and fasteners that penetrate float hull bulkheads and external shell structures shall be sealed with Sika-Flex 292 or equivalent marine grade urethane adhesive during assembly.
2. Aerocet recommends frequent use of ACF-50 or equivalent corrosion inhibiting compound on all metal components after sealant has cured, and/or in places where sealant is not used. (Except slide tracks, see below).

CAUTION

Use of wet film lubricants in nose gear slide tracks may attract debris or leave residue. Over time, this can lead to mechanical friction, which can restrict proper movement.

3. Apply PTFE Dry Film Lubricant to slide tracks.
4. Aerocet also recommends use of EZ Turn Lubricant on fasteners throughout the float installation, particularly in marine environments.

4.3 Nose Gear Partial Removal

(Reference IPC 65-42000.)

1. Position gear in the down position and remove circuit breaker for the hydraulic gear motor.
2. Hoist or Jack the airplane according to Sections 15.1.2, Float Handling, Jacking and Towing 6650.
3. Unbolt the bottom block from the composite nose spring.
4. Unbolt the composite nose spring from the Slide Truck at the upper end.

4.4 Nose Gear Full Removal

(Apart from the gear box and riveted on slide brackets – Reference IPC 65-42000, 65-42100, 65-42300)

1. Remove bumper by removing the eleven screws attaching it to the float.
2. Remove the composite nose spring as shown Figure 4-1.

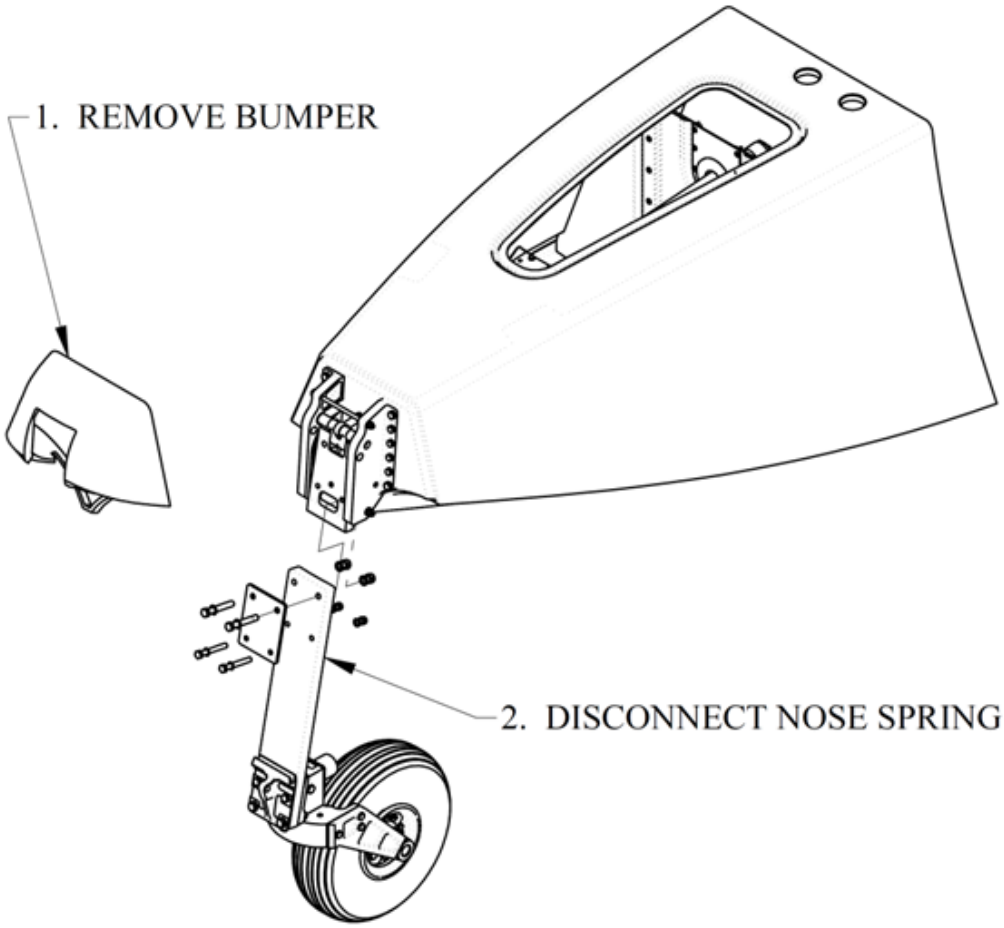


Figure 4-1: Removal of Composite Nose Spring

1. Remove splash guards – refer to Figure 4-2 below (will likely require replacement).
2. Use a knife or razor blade to sever bonding sealant between the float components and the splash guards.
3. Work loose and be careful to avoid damage to Gelcoat or other aluminum nose gear components. (Splash Guards will likely be damaged during removal.)

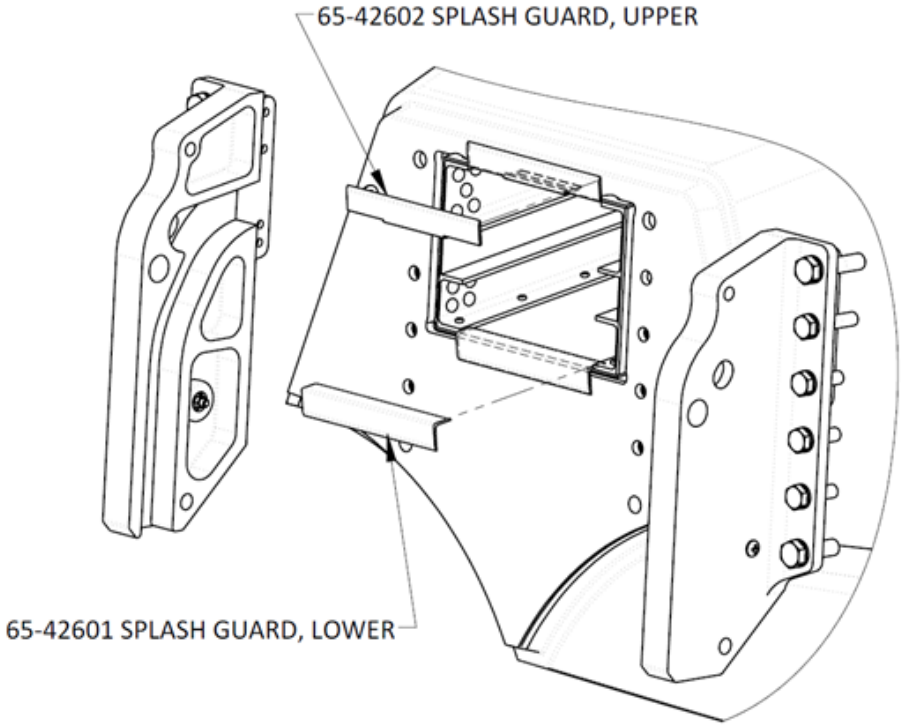


Figure 4-2: Location of Upper and Lower Splash Guards

4. Retract the nose gear cylinder.
5. Disconnect and plug the hydraulic lines from the hydraulic piston.
6. Pull the box cap from the back of the gear box by removing the nine AN3 fasteners as shown in Figure 4-3. The box cap is sealed into place using single part urethane adhesive. Care must be taken to break the seal, yet not damage the mating parts.
7. Taking care to avoid the wiring for the position sensors, mark the position of the up-position sensor for reassembly. Wires do not need to be disconnected if the actuator assembly is only moved a short distance.

8. Slide the box cap aft, along with the hydraulic piston, revealing the lock and slide bushings as shown in Figure 4-3.

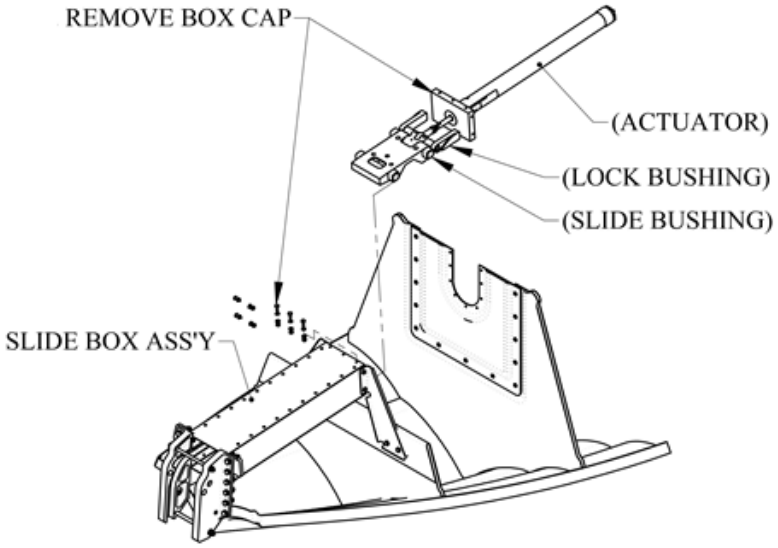
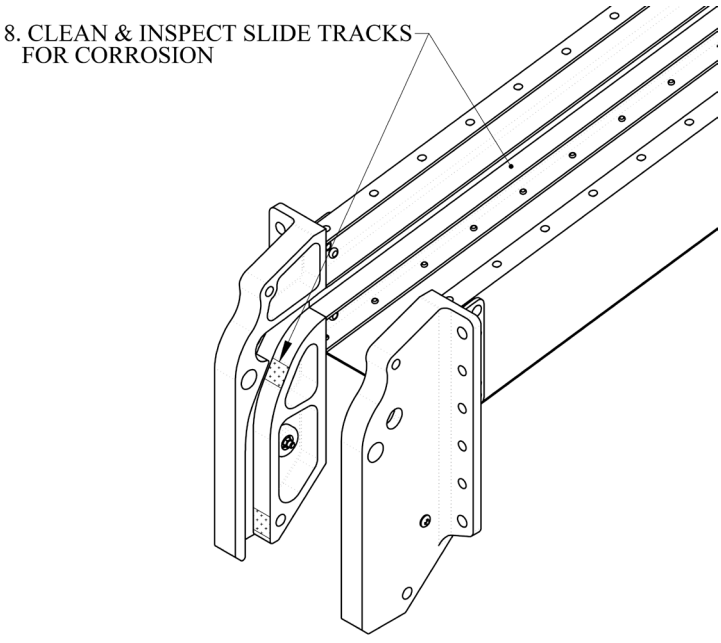


Figure 4-3 Removal of Box Cap

9. Clean and inspect the gear box tracks for wear, as shown below in Figure 4-4.



65-42300 SLIDE BOX ASSEMBLY
(TOP HIDDEN TO SHOW TRACKS)

Figure 4-4: Slide Tracks to be Inspected

10. Inspect and replace slide pins as necessary

11. Inspect and replace lock bushings and slide bushings as necessary
12. Inspect slide truck and lock bracket for wear and replace as necessary.
13. If removal of the rod end, part 65-42029, from the nose gear hydraulic actuator is necessary, readjustment upon reassembly will be required. Prior to disassembling, mark with a permanent marker or masking tape the original location of the rod end on the actuator rod.

NOTE
Thoroughly clean all components prior to re-installation. Do not apply lubricant until all sealants have first been applied and cured.

4.5 Reassembly of the Nose Gear

(Reference IPC 65-42000, 65-42100, 65-42300, 65-42400).

1. Assemble in reverse order of section 4.4. Make sure the lock bracket, part 65-42021, is clean. Clean, dry and apply PTFE dry film lubricant to the slide tracks.
2. Setting the proper adjustment of the rod end to the hydraulic piston is critical.
3. Ensure the rod end, part 65-42029, is screwed onto the nose gear hydraulic actuator at least as far as it was prior to disassembly. If uncertain, screw the rod end onto the actuator until it bottoms.

CAUTION
Incorrect rod end adjustment may be bend piston rod with full gear extension.

4. Put the gear into the down position and adjust the rod end to the piston rod until the lock bushings, part 65-42021, just touch the end of their travel in the slide brackets. Lock into position by tightening the jam nuts to the rod end.
5. The gear down position sensor should be adjusted as far forward as possible with full contact on the hydraulic cylinder, part 65-42401. This will cause indication when the lock bracket comes into a roughly vertical position. However, the lock bushings and lock bracket travel beyond this point when positioned properly.
6. The gear up position sensor should be located on the hydraulic cylinder to activate when the gear is in the fully retracted position. If the position sensor is too far forward, it may not indicate when the gear is fully up because the magnetic ring passes by the sensor.
7. The tension of the upper AN5-63A and lower AN6-64A bolts sets the width of the slide brackets, parts 65-42423-L & -R. These should be tightened to allow 1/8” movement of the nose spring, part 65-42103, where the bottom block, part 65-42105, attaches, shown below in Figure 4-5. If adjusted too

tightly, then the slide bushings may bind during gear operation. If adjusted too loosely, then nose wheel may shimmy and cause damage or excessive wear.

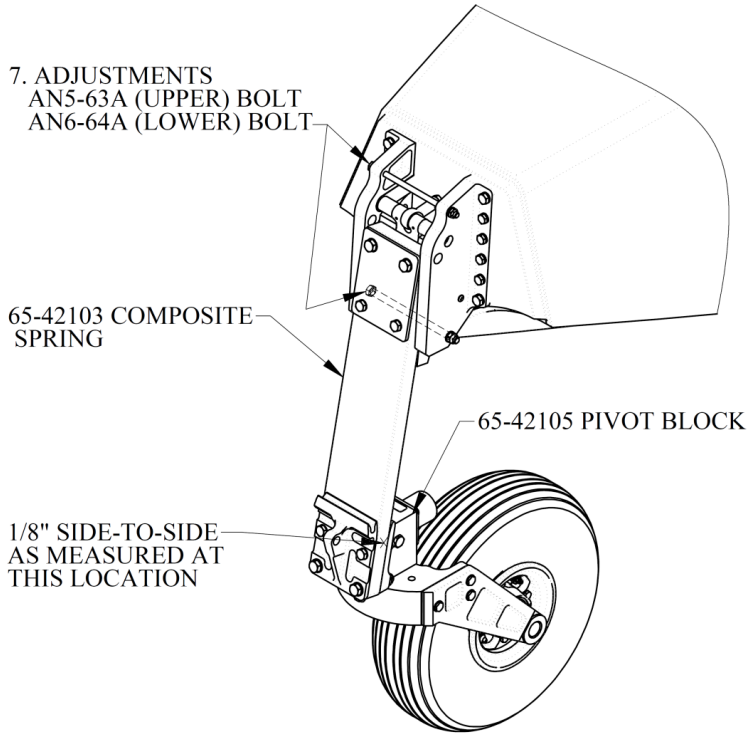


Figure 4-5: Bolts for Adjustment of Nose Spring Movement

4.6 Removal of the Complete Nose Box and Gear from Front of Float

Reference IPC 65-42000, 65-42100, 65-42300.

1. Remove bumper by removing the eleven screws.
2. Disconnect and plug the hydraulic lines from the hydraulic piston.
3. Remove the position sensors and tie them back to protect them from damage.
4. Remove the 12 fasteners which hold the slide brackets onto the front of the float. Remove the 4 fasteners which hold the rear of the nose box to the attach brackets.
5. Remove splash guards- refer to Figure 4-2 above (will likely require replacement of guards).
6. Use a knife or razor blade to sever bonding sealant.
7. Work loose and be careful to avoid damage to Gelcoat or aluminum components.

8. Remove rear supports and pull the complete nose box and gear forward including the hydraulic actuator.
9. Note that single part urethane sealant is used where the box attaches to the front of the float and seals the bolts that hold it on.

4.7 Reassembly of the Complete Nose Box and Gear to the Front of Float

Reference IPC 65-42300, 65-42000

1. Clean bonding areas for sealant around the box cutout and attachment bolt holes. Remove contaminants, oils and debris from bonding surfaces.
2. Insert nose box and install rear supports.
3. Install fasteners in nose of the hull. Seal all fasteners with Sika-flex 292 or equivalent marine grade urethane adhesive.
4. Seal perimeter of Nose Box cutout with Sika-flex 292 or equivalent.
5. Install 65-42600 Splash guards as outlined below.
6. Reinstall remaining Nose Gear components as outlined above.

4.8 Installation of Nose Box Splash Guards

(Reference IPC 65-42600)

With 65-42300 Nose Box installed, but easier without the gear (65-42000 or 65-42100) installed:

1. Bond Upper Splash guard to front of the float and the slide box top as shown in
   Figure 4-6 below with Sika-flex 292 or equivalent urethane adhesive sealant, insuring a leak free seal between nose gear box and float end. Note orientation of the narrow leg.

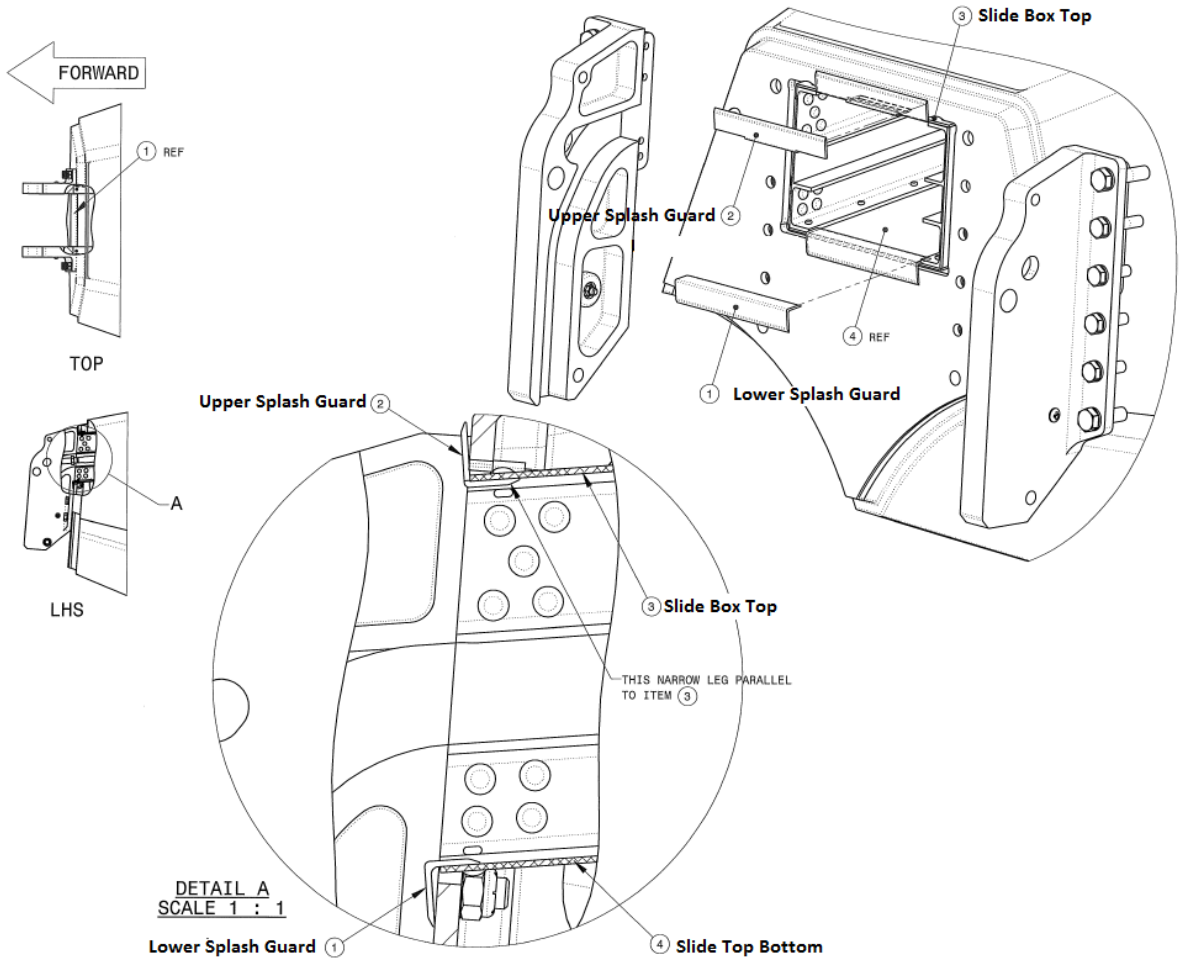


Figure 4-6: Splash Guard Installation

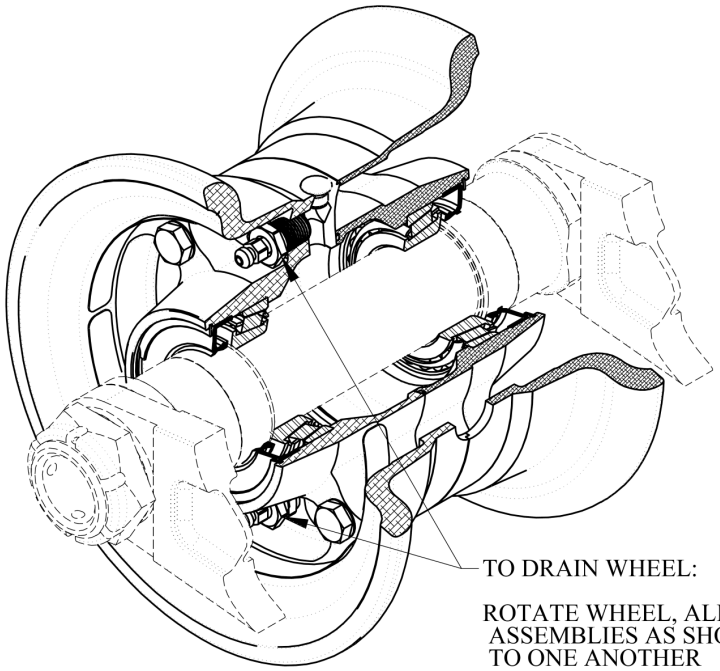
3. Bond Lower Splash guard to front of the float and the slide box bottom with Sika-flex 292 or equivalent urethane adhesive sealant to insure a leak free seal between nose gear box and float end. Note orientation of the narrow leg in Figure 4-6 above.
4. Install upper splash guards with narrow leg parallel to slide top box.

4.9 Nose Wheel Removal and Disassembly

(Reference IPC 65-42100, 65-42170).
Refer to A-10036 COMPONENT MAINTENANCE MANUAL FOR AEROCET WHEEL ASSEMBLIES, OIL BATH AND GREASE PACK TYPE; AND AEROCET BRAKE ASSEMBLY for detailed instructions & inspections

1. Make sure gear is in the down position and hydraulic gear motor circuit breaker is pulled.

2. Jack the airplane according to Sections 15.1.2 Float Handling, Jacking and Towing 6650. Alternately, the front of the plane can be jacked up.
3. Drain wheel as shown in Figure 4-7 below.



CUT-AWAY VIEW OF 65-42170 NOSE WHEEL ASSEMBLY
SOME PIECES OF 65-42100 LOWER NOSE GEAR ASSEMBLY SHOWN
TIRE NOT SHOWN

Figure 4-7: Oil Bath Wheel Drain Instructions

4. Remove cotter pin, castellated nut, and the nose gear axle, 65-42178.

WARNING
DEFLATE TIRE BEFORE DISASSEMBLY.

5. Note position of tensioner bushings and washer for later reassembly.
6. Disassemble wheel as necessary, according to A-10036 Component Maintenance Manual.
7. Inspect wheel bearings, bearing seals, tensioner bushings, O-rings, and washer. Replace as necessary.

4.10 Nose Wheel Installation

(Reference IPC 65-42100 and Figure 4-8)

1. Reverse procedures in Section 4.9. Nose Wheel Removal and Disassembly.
2. Lubricate O-rings and contact faces of bushings with small amount of grease or MIL-H-5606.
3. Lubricate bearing rollers and bores with small amount of oil. Wipe a small amount of grease on wheel seal lips.
4. Lubricate axle shaft, threads, and contact faces with small amount of lithium grease.
5. Install axle through fork, bushings, and wheel bearings. (Figure 4-8)

CAUTION:
Note positions of flats in the axle, forks and bushings.
Misalignment may cause damage to components if tightened.

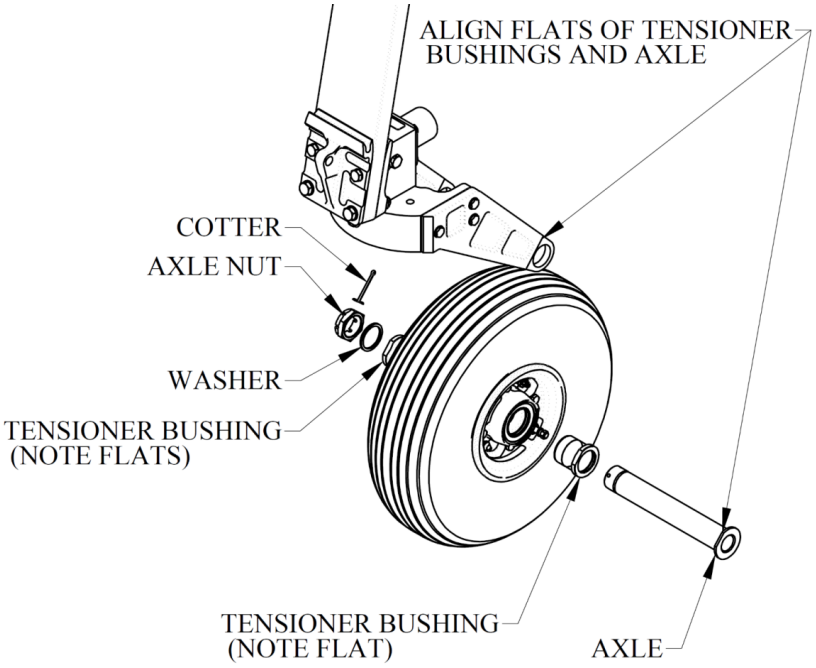


Figure 4-8: Exploded View of Nose Wheel Installation

6. Fully tighten axle nut until the tire and wheel assembly begin to drag when spun. (This will assure that the tapered roller bearings are seated properly.)
7. Loosen the axle nut until the wheel assembly will spin freely again. (No torque)

8. Tighten the axle nut until the nut begins to tighten, but the wheel assembly spins freely and has no perceptible play. The axle nut may be backed off to align the nearest slot to the nearest cotter hole – no more than ¼ turn is necessary.
9. Install cotter pin through the axle nut.
10. Service the wheel with oil according to Aerocet Component Maintenance Manual A-10036.
11. Check the pressure in the 5.00-5 tire. Pressure should be 50 psi ±5 psi.

4.11 Detent Piston and Nose Pivot Pin Service

(Reference IPC. 65-42100, 65-42150, Figure 4-9)

1. Remove detent piston assembly according to exploded view.
2. Check wear on detent piston. There should be no more than 3/16" free travel, side to side, at the axle, as shown in Figure 4-9 below.

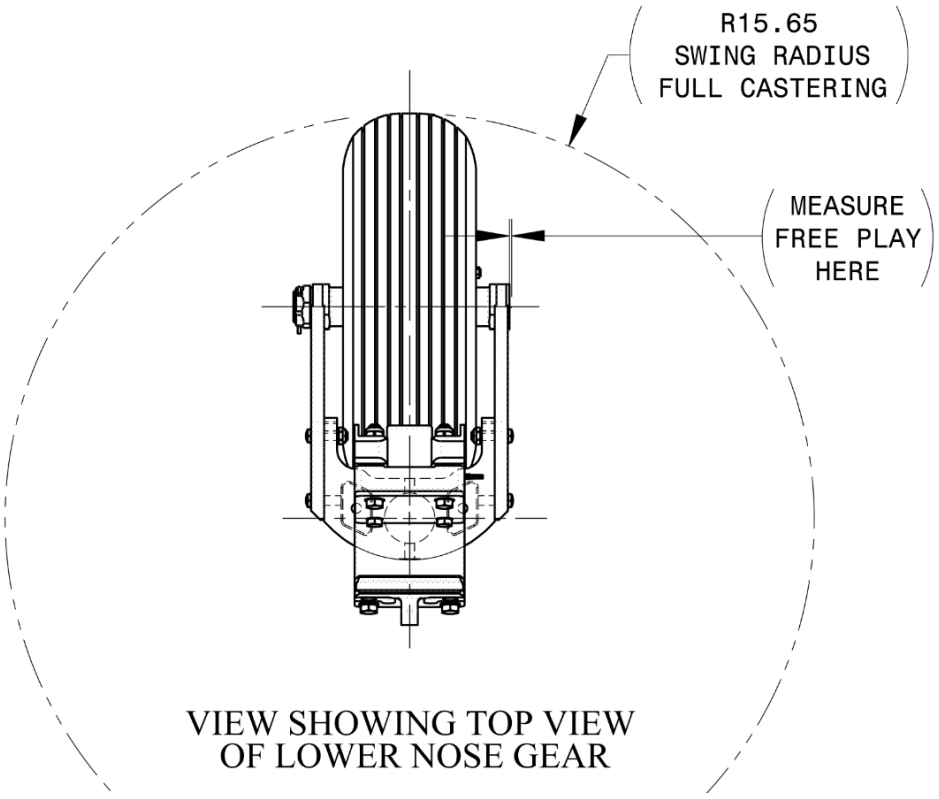


Figure 4-9: Maximum Side to Side Free Travel of Nose Wheel

There should be no more than 1/16" (.063") vertical movement of the nose block, as shown in Figure 4-10e below. If the components fall outside of the acceptable range, adjust, or replace, as necessary.

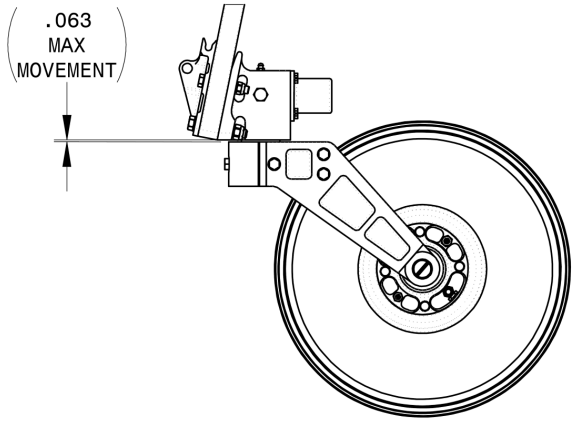


Figure 4-10e: 65-42100 Lower Nose Gear 6650

3. The heat-treated pivot pin, part 65-42152, is heat shrunk into the nose block. The nose block and pivot pin are supplied from Aerocet, Inc. assembled. If the pivot pin is pressed out, the anodized surface is opened up causing dissimilar metal contact between the two components when reassembled.
4. Lightly grease all parts prior to reassembly using marine grade waterproof grease.

> **CAUTION**
> Do not over-grease these components. Severe filling of the cavity may cause hydraulic lock. Components must move freely**.**

5. Lightly introduce grease through the fitting on the top of the bottom block. Initial amounts should be two **very** slow pumps with a conventional hand grease gun. Each stroke should take one minute. **Never use a pneumatic or electric grease gun.** Continually check pivoting action of the nose assembly to assure proper function, watching for hydraulic lock and proper vertical movement. If too much grease has been introduced, push down on the grease check ball and rotate the nose gear 360 degrees a couple of times to expel excess amounts.
6. Introduction of grease through the grease fitting during normal operation should be minimal (**1/2 pump max of a hand grease gun per week**), always watching for hydraulic lock and any damage from grease gun pressure.

CAUTION
DO NOT USE ELECTRIC OR PNEUMATIC GREASE GUNS FOR THIS OPERATION.
Introduce grease very slowly; avoid applying too much pressure on the internal components. Grease guns can develop forces in excess of 10,000 lb. which will damage components.

4.12 Cathodic Protection of the Nose Gear

1. A small anode (35A-40120) is located on each of the slide brackets of the nose gear. These must be installed to the #10-32 threaded hole. See Figure 4-11: Zinc Anode Installation, Nose Gear, Slide Brackets

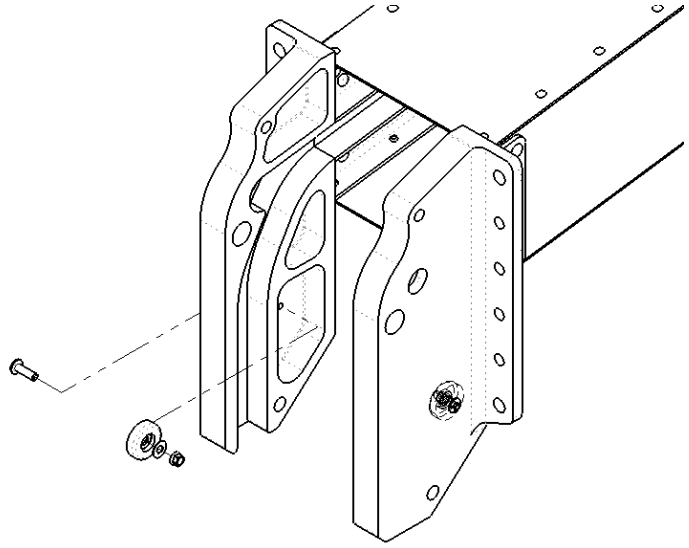


Figure 4-11: Zinc Anode Installation, Nose Gear, Slide Brackets

2. An identical anode is located on the underside of the slide truck. See Figure 4-12.
3. Assure continuity between anode and assembly.
4. Chase threads if necessary to remove possible insulating debris or anodizing.

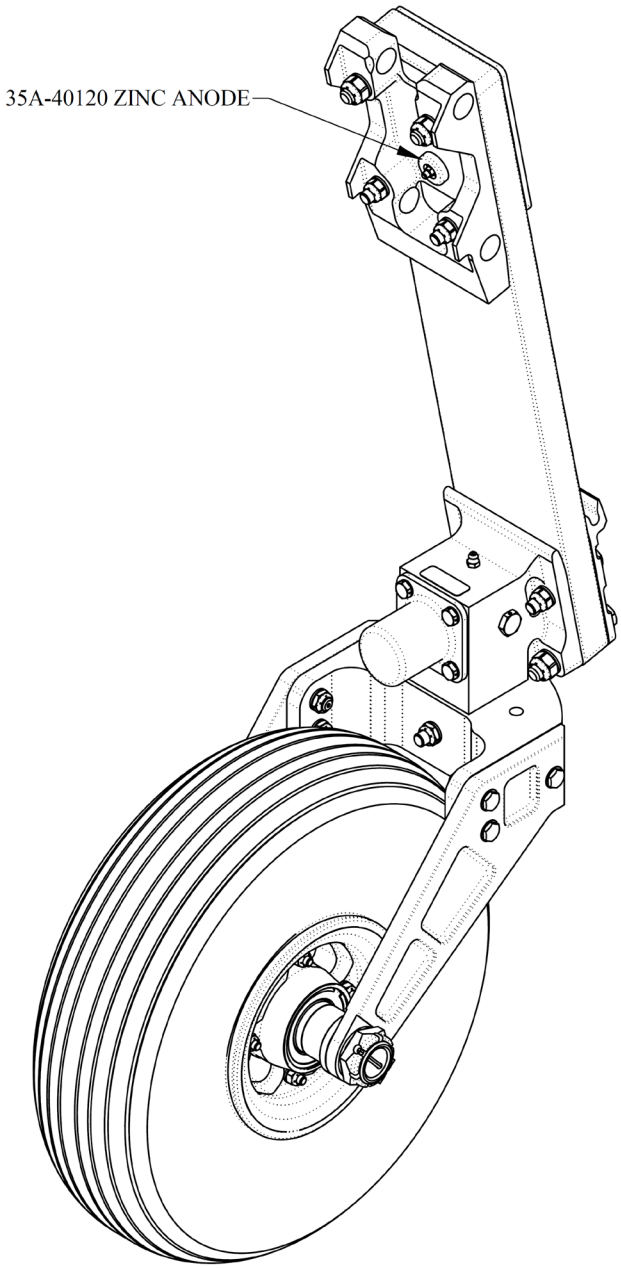


Figure 4-12: Anode on Underside of Slide Truck

5.0 MAIN LANDING GEAR AND BRAKES

(6650 Amphibian)
Reference IPC 65-45000

The main landing gear utilizes 6.00 X 6 tires and an oleo shock strut. The main gear is retracted and held in the up position by a hydraulic actuator. There are no up-locks to fail, and the geometric design allows the actuator to hold the gear in the up position under high G forces with low hydraulic pressures. In the down position, the oleo and drag link, travel into an over center position against the stop bracket. When the gear is in the down position, this position is maintained even without hydraulic pressure, with two springs assisting the over center position. Proximity sensors are used to give gear position information to the landing gear advisory.

5.1 General Practices, Main Gear Assembly

1. All components and fasteners that penetrate float hull bulkheads and external shell structures shall be sealed with Sika-Flex 292 or equivalent marine grade urethane adhesive during assembly.
2. Aerocet Recommends the frequent use of ACF-50 or equivalent corrosion inhibiting compound on all metal components after sealant has cured, and/or in places where sealant is not used. (Except slide tracks, see below)
3. Aerocet also recommends use of EZ Turn Lubricant on fasteners throughout the float installation, particularly in marine environments.

5.2 Main Wheel Removal and Assembly

(Reference: Floats equipped with Parker/Cleveland Brakes: Ref. AWBCMM00. Floats equipped with Aerocet wheel and brake Ref. A-10036).

NOTE
Make sure gear is in the down position and hydraulic gear motor circuit breaker is pulled.

1. Block and jack the airplane according to Section 15.1.2, Float Handling, Jacking and Towing 6650.

WARNING
DEFLATE TIRE BEFORE ANY DISASSEMBLY OF THE MAIN WHEEL.

2. Drain oil bath wheel (Aerocet wheel) in a similar manner to the nose wheel in Figure 4-7.
3. Remove brake pads to allow the wheel and brake disc assembly to be pulled off the axle. One need not disconnect the brake line, unless further inspection

and maintenance to the brake system is intended. Secure the caliper in a manner that does not stress the brake hose. Remove the wheel. See Section 5.3 Brake Removal.

4. Inspect all components for corrosion, and wear according to procedures in Aerocet Component Maintenance Manual A-10036; Cleveland brake assemblies in accordance with Cleveland CMM AWBCMM001.
5. Replace O-rings in the tensioner bushings.
6. Reassemble in reverse order of disassembly. Consult the proper Component Maintenance Manual for further inspection and maintenance of wheel and brake assemblies.
7. Torque axle nut as follows:
   a. Assure proper grease and grease seal installation.
   b. Seat wheel bearing by tightening axle nut to 150-200 in/lbs.
   c. Back nut to 0 in/lbs. and re-torque until perceptible drag is felt. Back nut 1/16 of a turn (one constellation) and install cotter pin in the nearest key hole.
   d. Wheel should spin freely, without perceptible bearing play
8. Install cotter pin through the axle nut.
9. Install brake mount and brake.
10. Service the wheel with oil according to Aerocet Component Maintenance Manual A-10036.

5.3 Brake Removal

(Reference Parker/Cleveland Maintenance Manual AWBCMM0001 or Aerocet A-10036).

Each main wheel has a dedicated brake caliper. To remove the brake caliper:

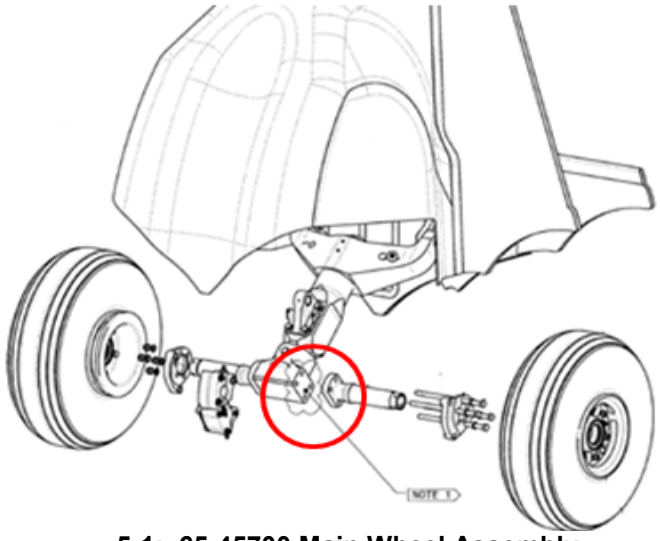
1. Remove the safety wire from the four bolts holding the back plate on. Loosen those four bolts until the back plate is free.
2. Remove back plate.
3. Slide the caliper away from the wheel until it is flush with other caliper and remove.
4. Brake pads should be replaced when the minimum section thickness is less than 0.100”.

5. Generally, the brake discs should be checked for wear, grooves, deep scratches, and excessive pitting. Pitting deeper or coning more than 0.015" or thickness below 0.327" is cause for replacement.

> **NOTE**
> Minimum thickness is mentioned here as a reference only. Refer to the proper component maintenance manual for most current wear limits.

5.4 Lower Main Gear Removal and Installation

1. With main wheel (5-1) and brake removed (see above), remove brake torque plates and axles.
2. Disconnect and/or remove oleo assembly. See Section 5.7 Oleo Assembly.
3. Disconnect the pins connecting the yoke to the bulkhead fittings and remove lower main gear assembly.
4. Install the lower main gear assembly to the attachment fittings on the bulkhead first.
5. Clean and inspect mating surfaces of axles and lower knuckles (Figure 5-2). Corrosion may be found where the hollow of the axle meets with the knuckle and holds water.



5-1: 65-45700 Main Wheel Assembly

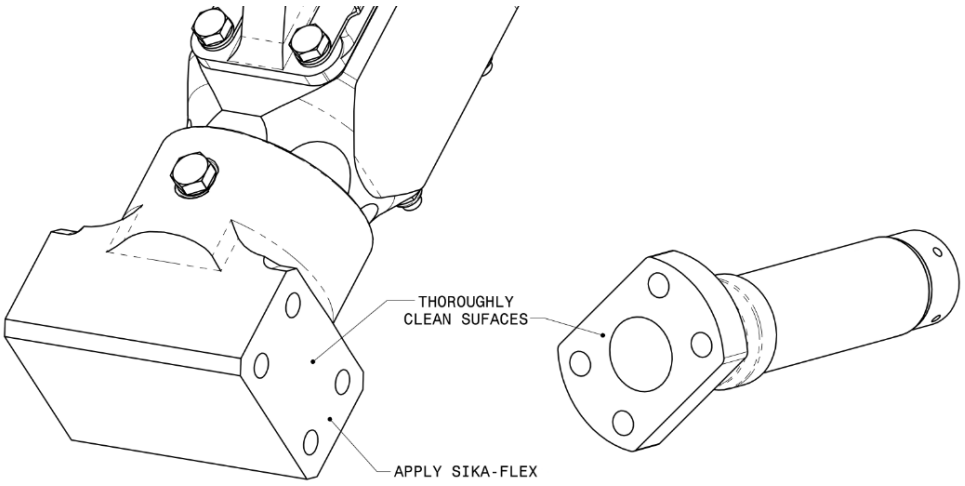


Figure 5-2: Faces of Lower Knuckle and Axles

6. Install the oleo. Section 5.7 Oleo Assembly.
7. Check retracted and deployed position sensor functions. Adjust according to Section 5.9 Complete Assembly of Main Gear. Assure nothing has been knocked out of adjustment during this process. It should not require adjustment, otherwise.
8. Install axles:
   a. Seal the faces of the lower knuckles with a thin, full layer of Sika-flex 292.
   b. With brake mounts and fasteners in place, apply torque to tie bolts evenly. (Per Section 1.4.4 Fastener Torque Values)
   c. Re-torque tie-bolts after Sika-flex cure.
   d. Treat all parts and fasteners with corrosion inhibiting compounds such as PUR-AL-KETONE, LPS 3, CORROSION X, BOESHIELD T9, ACF-50, or marine grade grease.
   e. Apply EZ-TURN lubricant, by United Erie (readily available through common aviation supply outlets) or equivalent to all fasteners during and after installation to inhibit corrosion.
   f. Torque fasteners according to bolt torque table Section 1.4.5 Fastener Use and Discretion re-torque after adhesive cures.

5.5 Cathodic Protection for Float Main Landing Gear

(Reference IPC)

1. Add optional installation of 35A-40120 Zinc Anode to unused, inboard #10-32 threaded hole. See Figure 5-3.

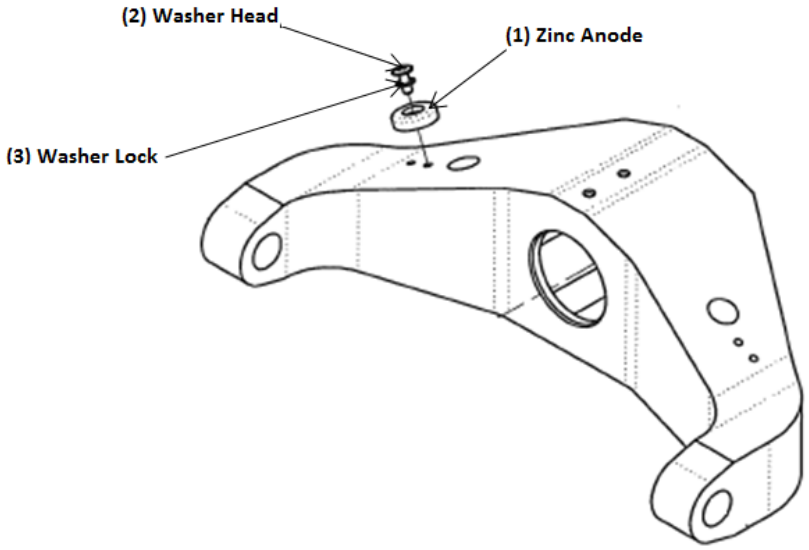


Figure 5-3: Zinc Anode Installation

2. Assure continuity between anode and assembly.
3. Chase threads if necessary to remove possible insulating debris or anodizing.
4. Recommend filling the remaining, unused #10-32 outboard hole with Sika-Flex 292 or equivalent marine grade urethane sealant.
5. Apply Loctite Thread Blocker Blue 242 to #10 fasteners upon installation.

5.6 Oleo Removal and Disassembly

(Reference IPC 65-45000, 65-45200; 66-T45210 may be available from Aerocet upon request.)

1. Make sure gear is in the down position and hydraulic gear motor circuit breaker is pulled.
2. Block and jack the airplane according to Sections 15.1.2, Float Handling, Jacking and Towing 6650.
3. Remove the oleo by pulling shear pins.
4. Keep oleo upright on the bench.
5. Hook a length of ¼" clear plastic tubing to the charge valve and locate the other end in a clean bucket.

6. Release the oleo pressure while securing the base of the charge valve from by using a ø¾ wrench and slowly release the oleo pressure by opening the valve lock nut counter clockwise.
7. Compress the strut to discharge all the fluid from the cylinder. This is done by using a ø3/4 steel rod positioned through the top cap bushings and pressing down on the cylinder. Protect the bottom cap from damage by placing it on a piece of wood or rubber. Bench service tool (Oleo Bleeder Assembly) 66-T45210 provides an easier, leveraged way to facilitate this and keep alignment.
8. Using the two Bottom Sleeve Clamps, 66-T45269 and a vice, remove the bottom cap from the oleo. Locate the service wrench in a vise. Position the oleo bottom facets into the wrench. Place a ø 3/4 steel rod through the bottom cap bushings and unscrew the bottom cap from the oleo bottom in a counter clockwise motion. Drain residual fluid into the bucket. Check fluid for contamination.
9. Remove the high-pressure charging valve.
10. Push the top cap and chrome sleeve down through the oleo bottom.
11. Inspect and replace all available seals as necessary.
12. Further disassembly may be accomplished by removing the internal snap ring and metering insert.
13. The top cap may be removed from the chrome upper by clamping the chrome using Chrome Sleeve Clamp 66-T45268 in a vise. Remove the top cap, turning counter clockwise, using the ø 3/4" rod.

CAUTION
Make sure the clamp tools surfaces are perfectly clean before use.

14. Top cap seals may be inspected and serviced at this time.
15. Examine the metering rod for damage, and, if removed, secure with safety wire.
16. Examine bushings for wear, corrosion or other damage, and replace as necessary.

5.7 Oleo Assembly

(Reference IPC 65-45000, and 65-45200. Oleo Bleeder Assembly 66-T45201 may be available from Aerocet upon request.)

1. In general reverse, disassembly procedures.
2. Lube all seals (Figure 5-4: Oleo Seals and O-Rings) with assembly lube, white lithium grease or MIL-H-5606 before installing. Assure that all Polypak

seals face correctly for keeping the pressure in the oleo. The lip side of the seals should face to the inside of the oleo.

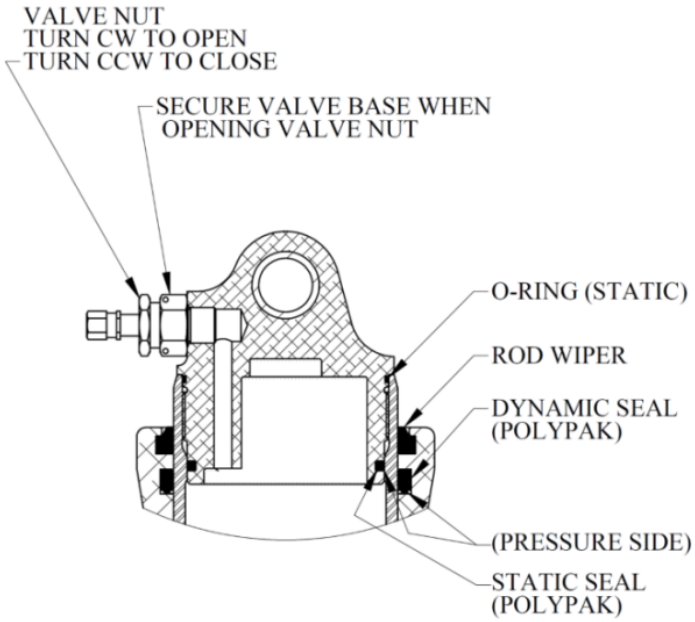


Figure 5-4: Oleo Seals and O-Rings

3. Reassemble the top cap to the chrome sleeve if these were disassembled. Lube the threads lightly with grease. Holding the chrome sleeve using the Chrome Sleeve Clamp 66-T45268 in a vise, screw the top cap back into place. Torque the top cap to the chrome sleeve using Torque Spanner Tool 66-T45267 and a 3/4" rod inserted through the I-Glide bushings.

   Use a torque wrench to torque to 80 foot-pounds.

4. Install the metering insert, but do not install the snap ring. It is much easier to fill the oleo with fluid while the metering insert is removed as described in step 7.
5. Push the top cap and chrome sleeve through the seals on the oleo bottom. Use a large socket and dead blow hammer to assist in getting the chrome sleeve started through the seal and wiper, pushing on the metering insert. Continue pushing until at least ¼" of the chrome sleeve is showing through the rod wiper.
6. Install the high-pressure charging valve.
7. Remove the metering insert, (Figure 5-5) turn the oleo upside down, and fill the chrome sleeve to within 1.25" inches of the snap ring inset with MIL-H-5606 aircraft hydraulic fluid. Put the metering insert back into place assuring the dome is properly positioned as shown in the figure. Install snap ring.

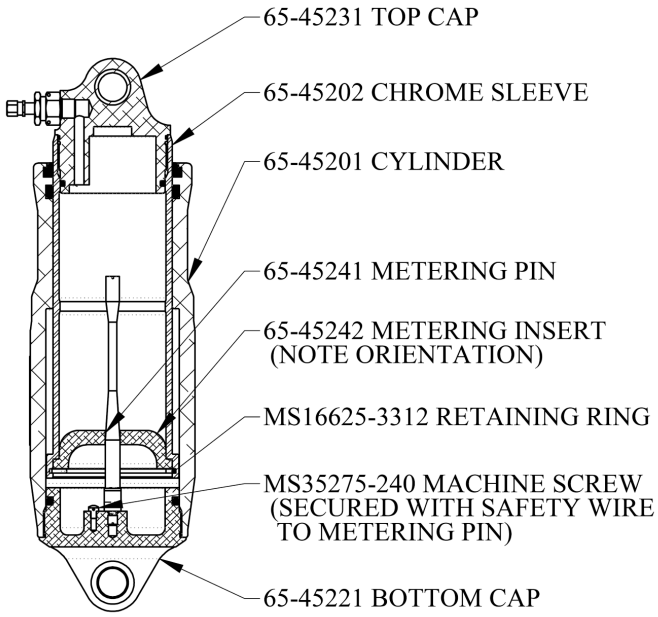


Figure 5-5: Shock Strut (Oleo) Cut-Away View (65-45200)

8. Reassemble the bottom cap to the oleo bottom and torque should be 80 foot-pounds using Oleo Sleeve Clamp 66-T45260 and Torque Spanner Tool 66-T45267.
9. Align the top cap shear pin holes to those of the lower cap, using the two Ø3/4" rods. Always turn the chrome sleeve and top cap clockwise to align the lug holes in order to avoid loosening parts.
10. With the assembly upright, fill the oleo with the proper amount of fresh MIL-H-5606. The use of the Oleo Bleeder Assembly tool 66-T45201 helps to facilitate this process and assures final alignment of the pin holes when charging the oleo with nitrogen. Hook a clear piece of tubing to the charge valve. Place the other end into a clean bucket of MIL-H-5606 aircraft hydraulic fluid. Slowly cycle the oleo at its full travel. Repeat until there is little or no air in the tubing.
11. Check final alignment.
12. Charge the oleo using nitrogen according to the placard on the oleo. This can be done in the bleeder assembly tool to assure alignment.
13. Replace oleo in float using shear pins, washers, and retaining rings.

5.8 Complete Disassembly of Main Gear

(Reference IPC 65-45000,)

CAUTION

Use care to avoid damaging gear position sensors when servicing main gear.

1. Make sure gear is in the down position and hydraulic gear motor circuit breaker is pulled.
2. Jack the airplane according to Sections 15.1.2, Float Handling, Jacking and Towing 6650.
3. Remove oleo and main wheel according to Section 5.4 Oleo Removal and Disassembly and Section 5.1 (Main Wheel Removal and Assembly)
4. Remove lower main gear assembly by removing attachment pins.
5. Remove extension springs by removing upper attachment bolts. Remove drag link by removing upper attachment pins.
6. Disconnect hydraulics and cap lines, then remove the main gear hydraulic actuator.

NOTE

Note placement of washer seals on the bolt that attaches the lower actuator to the main bulkhead actuator housing.

7. Any remaining brackets and the submersible sensor may be removed.
8. Check all parts for corrosion and bushings for wear. Replace as necessary.

5.9 Complete Assembly of Main Gear

(Including Adjustment of Submersible Sensor and Main Gear Hydraulic Actuator – Reference IPC 65-45000.)

1. Reverse procedure in Section 5.4 Oleo Removal and Disassembly with the following particulars: It should be noted that it is easier to install the drag brace and work the adjustment of the hydraulic actuator prior to attaching the gear truck and oleo.
2. Any attachment hardware and bolts that pass through the bulkhead should be sealed with a one part urethane adhesive to assure water tightness and all main pivot pins are to be lubricated with Loctite Marine Grade Anti-Seize 8023 or equivalent.
3. When installing the main gear hydraulic actuator back into the bulkhead, note that there is a washer-seal on each side of the bolt. (Aerocet also recommends use of a one-part, urethane marine-grade sealant here as well, such as Sika-Flex 292 – Do not use silicone.)
4. Install the drag link (Figure 5-6) Assure the proper orientation of the spring bushing to prevent the extension spring from contacting the drag link during gear operation.

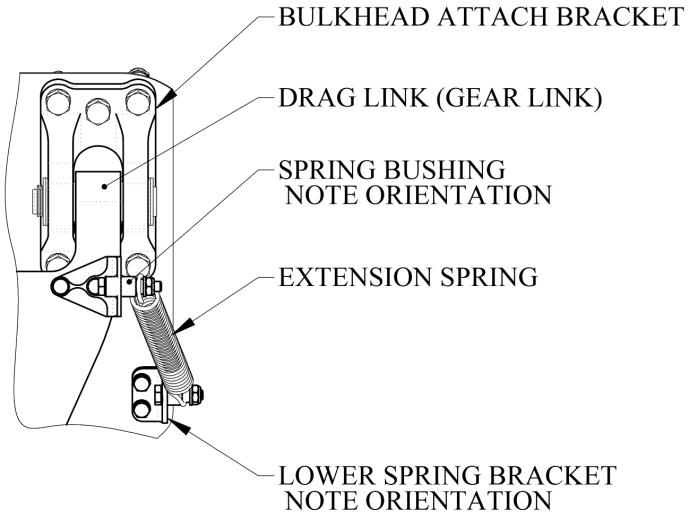


Figure 5-6: Drag Link

WARNING
Floats must be lifted and secured per Section 15.1.2 Float Handling, Jacking and Towing 6650 before actuating gear.

5. After installing the drag link and affixing it to the hydraulic actuator, adjust the actuator rod end so that the drag link rests firmly against the stop bracket with the hydraulic actuator fully retracted. The system must be powered up to

assure that the actuator is fully retracted (main gear in down position). Add 3/4 turn of thread (clockwise motion) into the rod end allowing for assurance of force against the stop. Do not allow more than this as the travel of the actuator rod in the extended position sets the default wheel height in the gear well when retracted for water operation (See Figure 5-7).

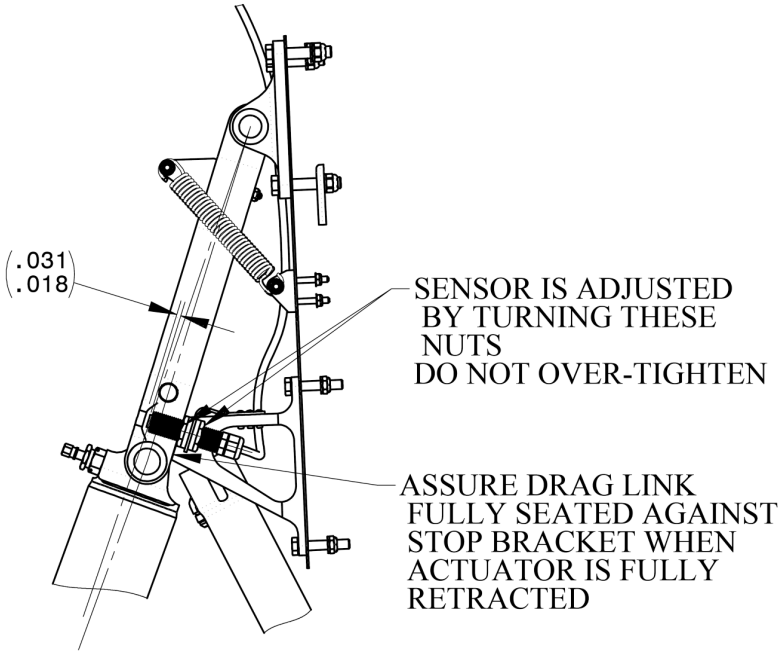


Figure 5-7: Right Hand Side View Drag Link

6. Adjust the gear down (submersible) sensor so that the drag link sensor tab is .018-.031" away from the face of the sensor when the drag link is in the complete retracted position. It is very important that the sensor does not trigger prematurely. Assure that the drag link is "over centered" and against the stop bracket at the time that the sensor is triggered. If the sensor and target are too far apart, then the signal may be weak or intermittent, causing frequent gear advisory enunciations. If the sensor and target are adjusted too closely, then a false gear safe condition could result – the target being in range before the gear are fully deployed, yet the drag link being just out of position. This latter condition is hazardous.

7. The gear up position sensor may only be adjusted after the actuator has been fully adjusted to the down condition. With the actuator adjusted and the gear up position sensor beyond range, retract the gear completely and then adjust the sensor to trigger range. With proper hookup, this sensor will activate red lights in the upper barrel when the target (main gear drag link) is in range, within 1/8". It should be adjusted closer, an additional 1/2 to 3/4 of a turn, to avoid intermittent signals. If the gear up sensor is adjusted with too much gap, then intermittent signal may cause frequent gear advisory enunciations. If the gear up sensor Figure 5-8 is adjusted too closely, then there is increased risk of damaging the sensor face.

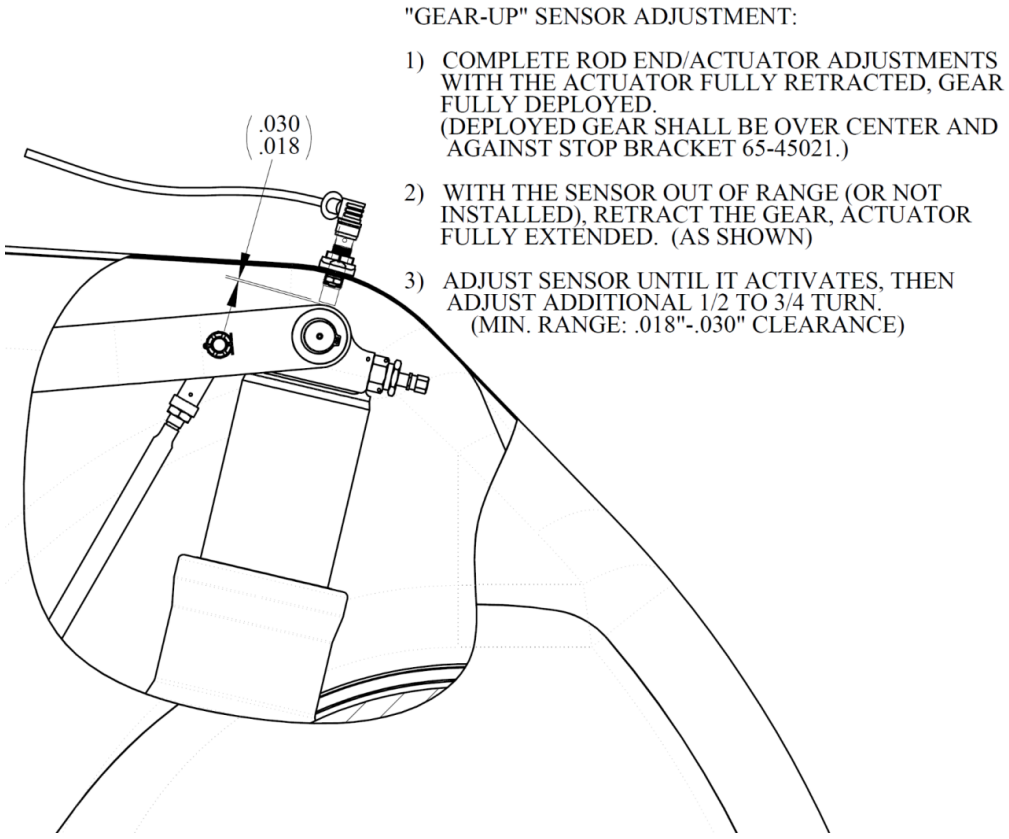


Figure 5-8: Gear Up Sensor Adjustment

6.0 HYDRAULICS

Normal landing gear extension and retraction is accomplished by hydraulic actuators for each gear. The hydraulic system is powered by an electrically-driven hydraulic pump. Hydraulic pump operation is initiated by moving the landing gear lever on the pedestal to either the up or down position. This selector releases pressure, which activates the electric hydraulic pump and moves the gear to the selected position. The pump is shut off as the gear reaches its full extents, increasing the pressure in the system, causing the pressure switch to switch off the hydraulic motor.

The landing gear handle is on the hydraulic pedestal, and has two positions (UP for gear up and DOWN for gear down) which give a mechanical indication of the gear position selected. From either position, the handle must be pulled out to clear a detent before it can be repositioned. Moving the handle to UP or DOWN will start the electrically-driven hydraulic pump in the selected direction of gear travel.

6.1 Hydraulic Lines

(Reference IPC 65-47000, Installation Drawings 66-47200 & 66-12700, Figure 6-1 and Figure 6-2)

1. All hydraulic lines are serviceable according to the drawings. The aluminum lines are made up of 5052-0, ¼" outside diameter, .035" wall, with conventional 37 degree flared ends. These can be purchased by part number or made up by a certified mechanic. The flexible lines are custom sized and may be purchased according to their part numbers.
2. Ensure lines are all clean and flared properly upon replacement.
3. Hydraulic lines that run up the struts need to be placed in position prior to installation of the aircraft onto the floats. Ensure the lines are centered in the struts as they enter from either end so as to not allow wear from vibration. Also, ensure the step attachment bolts clear the lines upon installation. Shrink tubing may be installed where these lines enter and exit the struts.
4. All hydraulic lines need to be clear of all electrical and control cables, and must be secured and isolated from surrounding structures to avoid damage during service. (Ref AC-43.13)

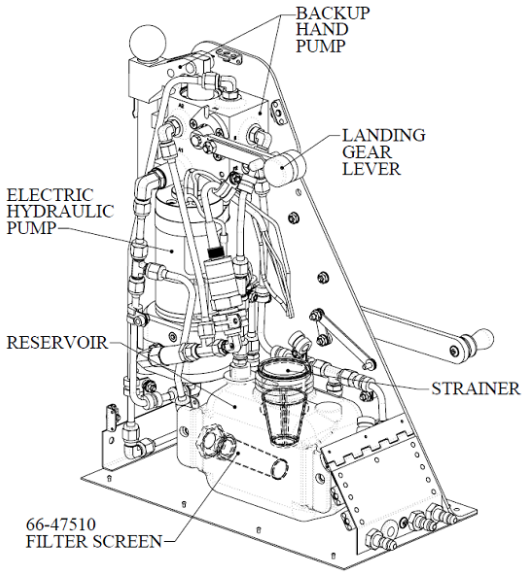


Figure 6-1: Hydraulic Pedestal Components

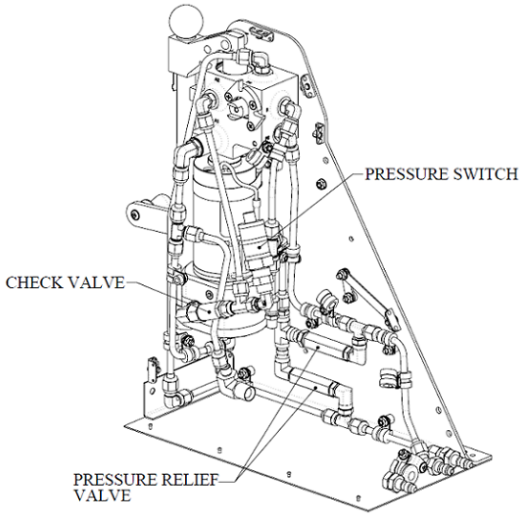


Figure 6-2: Hydraulic Pedestal Components, (continued)

6.2 Flexible Hydraulic Lines

(Reference 66-12700 Rev J or later FAA Approved Revision

Customers have the option of switching to flexible hydraulic hoses to replace hard tubing on struts as shown in Figure 6-3 and Figure 6-4 below.

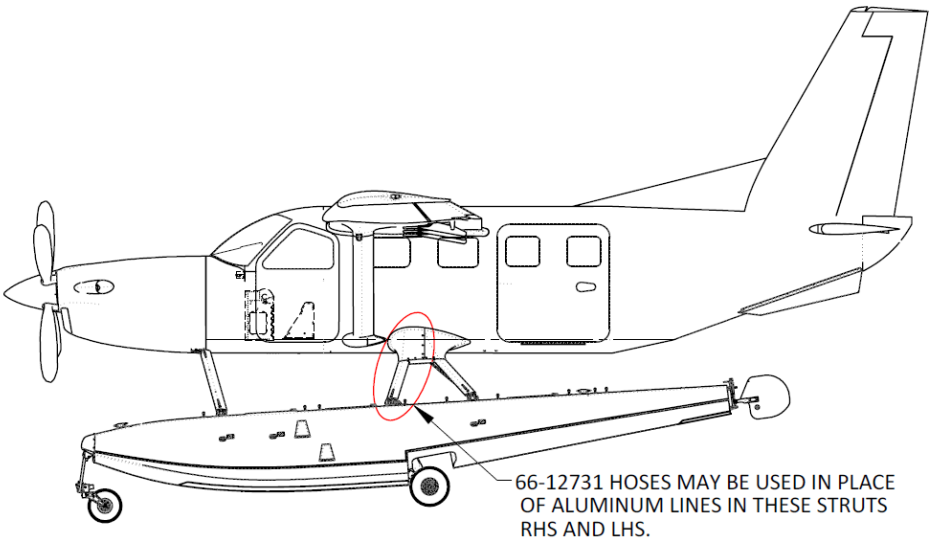


Figure 6-3: Position of Struts on Kodiak 100

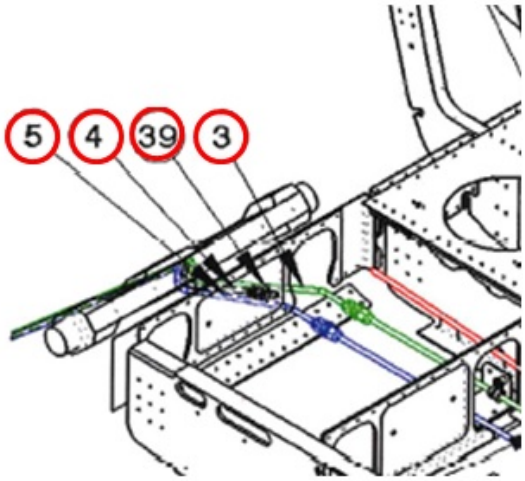


Figure 6-4: Position of Hydraulic Tubes on Struts

Table 6-1: Parts List Call Out for Figure 5.5

Partial Parts List from 66-12700 Drawing					
Item No.	QTY	Type	Part No.	Description	Optional
3	1	ASSY	66-12721	Tube, Hydraulic, #11 [Deploy LHS]	66-12731
4	1	ASSY	66-12722	Tube, Hydraulic, #12 [Brake LHS]	66-12731
5	1	ASSY	66-12723	Tube, Hydraulic, #13 [Retract LHS]	66-12731
6	1	ASSY	66-12724	Tube, Hydraulic, #14 [Deploy RHS]	66-12731
7	1	ASSY	66-12725	Tube, Hydraulic, #15 [Brake RHS]	66-12731
8	1	ASSY	66-12726	Tube, Hydraulic, #16 [Retract RHS]	66-12731
39	6	REFERENCE	AS5174D0404	Union, Flared Tube (AN8 15-4D, OBS.)	

Instructions to remove and replace hard tubes with flexible hose are as follows:

1. Apply flexible spiral wrap, Figure 6-5 approximately 6” length at possible contact points where hoses exit strut, top and bottom and at float and fuselage fittings. Spirals shall not align with contact edges. Reference 66-12700 drawing.
2. Use Ø1/4” nylon 6/6, flame retardant spiral wrap, Thomas and Betts SRNY-250-9-C or equivalent.

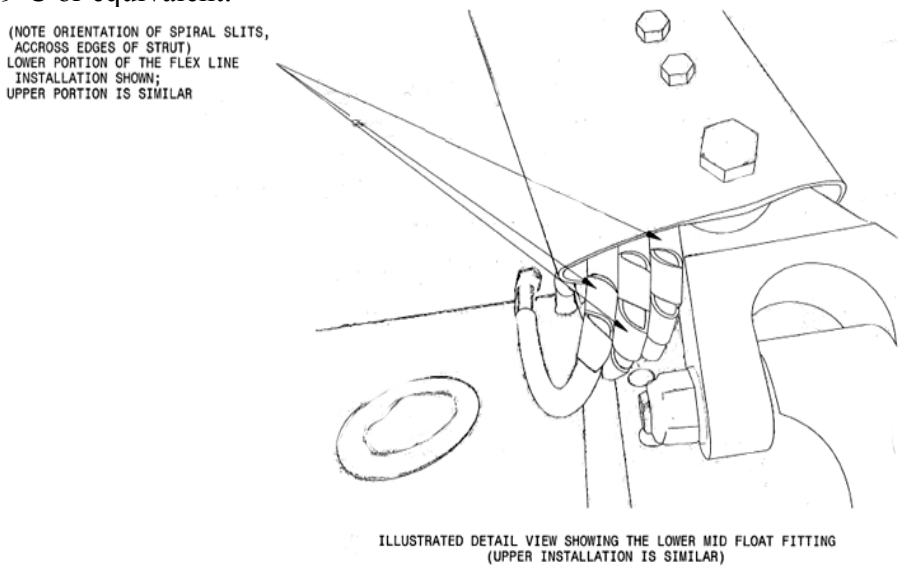


Figure 6-5: Lower Float Flexible Spiral Wrap

6.3 Hydraulic Actuators

(Reference 65-42400, Sheet 1 and 2; and 65-43500, Sheet 1 and 2)

1. Both the nose Figure 6-6 and main gear actuators Figure 6-7 can be rebuilt.
2. Disassemble according to the reference drawings.
3. Note that the nose gear actuator incorporates a ceramic magnet to trigger the nose gear sensors. This is located on the piston behind the retaining washer.
4. Inspect and replace all seals and any damaged parts for service.
5. Pre-lube all seals and mating surfaces with a lithium grease or MIL-H-5606.
6. Upon reassembly assure that the ports on the main gear actuator in the piston cap lines up with the holes in the cylinder.

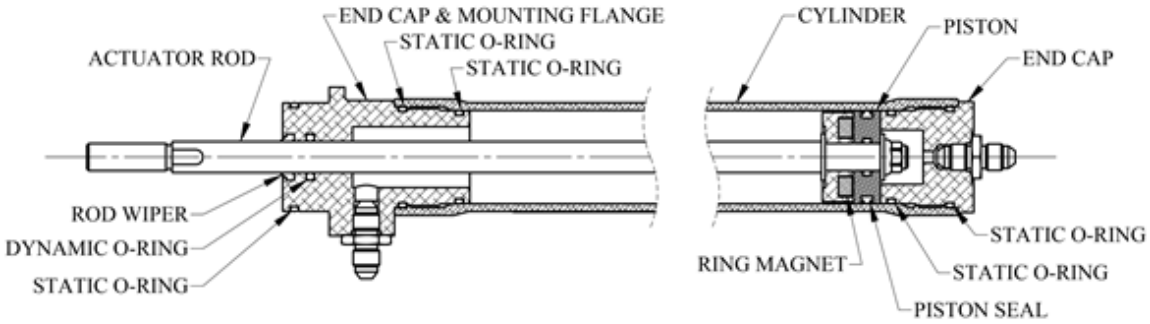


Figure 6-6: Nose Gear Actuator Cut Away View (65-42400)

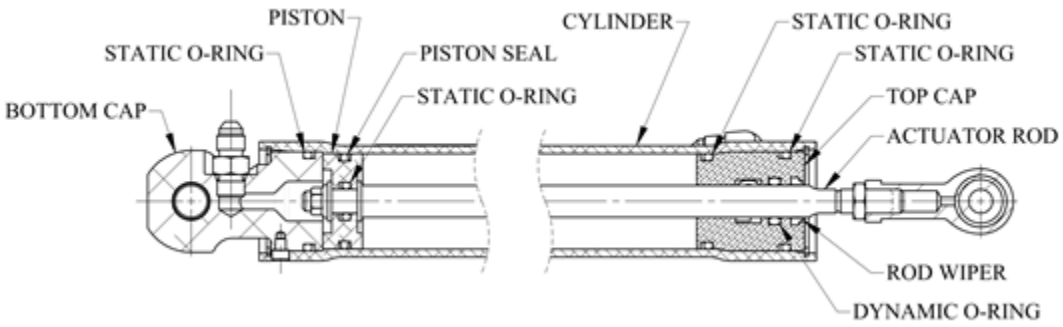


Figure 6-7: Main Gear Actuator Cut Away View (65-45300)

6.4 Electric-Hydraulic Pump

The electric hydraulic pump (Figure 6-8) is the primary hydraulic drive for landing gear operation. The pump head is a positive displacement gear pump specifically designed for this application. It is driven by a DC motor. The pump and motor are intended to pump fluid in only one direction.

The motor is thermally protected in two ways. The resettable thermal disc will trip first when the temperature of the motor housing rises above normal operating temperatures. Once it cools off it can be reset by pressing the white button on the thermal disc housing. If the thermal disc fails to function properly, the thermal fuse will trip at a higher temperature. The thermal fuse is not resettable and is not repairable in the field. Contact Aerocet Inc. for replacement.

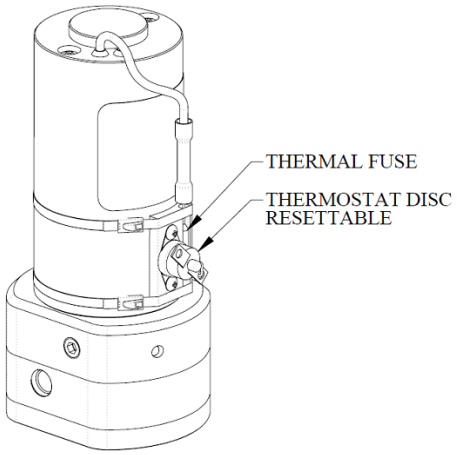


Figure 6-8: Electric-Hydraulic Pump

6.5 Backup Hand Pump

1. Normal operation - the Hand Pump handle should be vertical.
2. Hand Pump operation should be according to the Airplane Flight Manual Supplement (AFMS).
3. If pump should leak, contact Aerocet, Inc. for replacement.

7.0 WATER RUDDERS

6650 Amphibian: 66-12200 WATER RUDDER RIGGING INSTALLATION, AEROCET MODEL 6650 FLOATS, KODIAK AIRCRAFT

6750 Seaplane: 66-11200 WATER RUDDER RIGGING, AEROCET MODEL 6750 FLOAT INSTALLATION, KODIAK AIRCRAFT

Each of the float water rudder assemblies consists of a rudder post, which is hinged to upper and lower hinge brackets on the float, and carries a steering lever at its upper end and a rudder at its lower end, on a swing type pivot bracket. The swing type pivot bracket permits the rudder to be retracted. Nyliner type bushings are installed on the assembly as bearings for the rudder post pivot points and the rudder retraction pivot points. No lubrication is required. The water rudders are controlled together, through a series of pulleys, turnbuckles, extension springs, and clamps, to the rudder control cables. The steering system consists of two control cables, one attached through an extension spring to the outboard end of each water rudder steering lever, and a single balance cable attached to the inboard ends of the steering levers. The cables run through a series of pulleys, through the fuselage skin, and terminate at clamps which are attached to the rudder control cables under the floorboards in the aircraft. See Figure 7-1: From Page 4 of Drawing 66-12200 below.

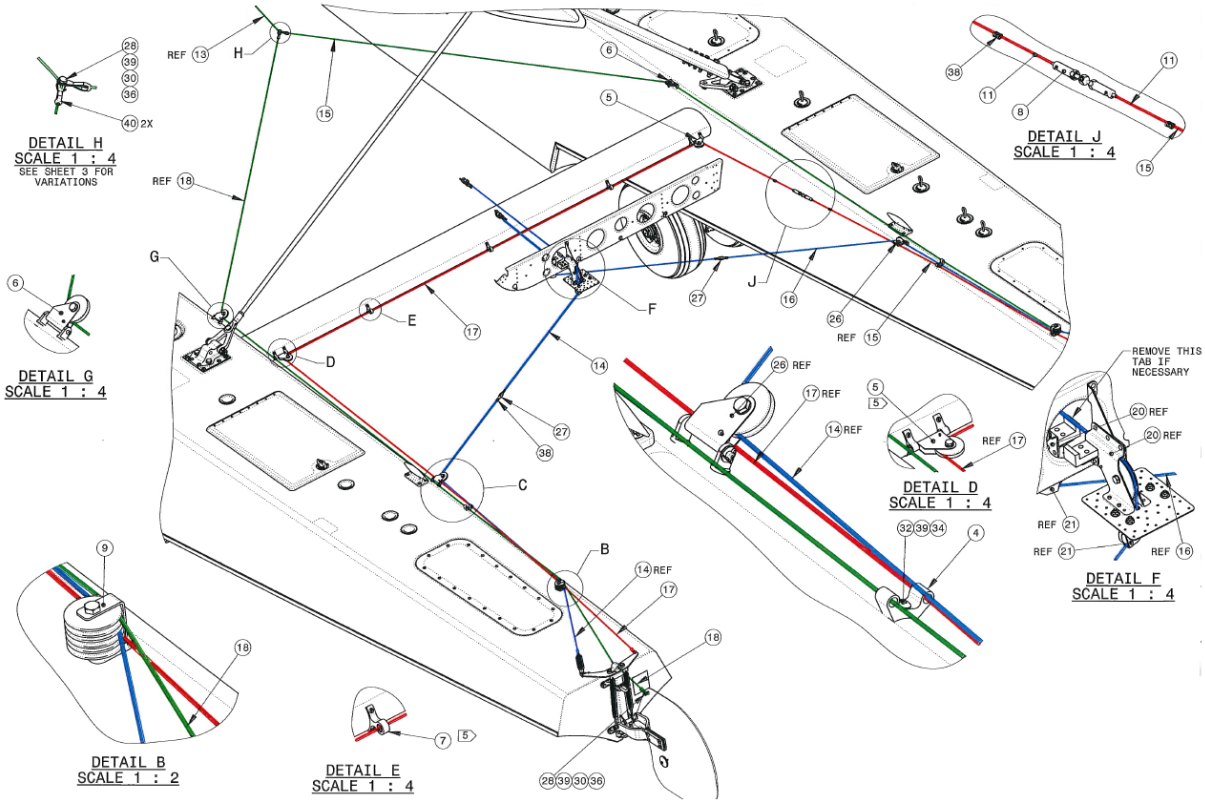


Figure 7-1: From Page 4 of Drawing 66-12200

To enable the water rudders to be retracted for take-off and mooring, a retraction cable control is provided (Reference 66-12200, Sheets 1-7). The retraction handle, located on the center pedestal, is connected to the retraction cables, which are routed over pulleys and through guides to the water rudders, which are located within a pivot bracket, and held in the down position by springs. The rudder may be retracted by putting the Water Rudder Retract Handle in the aft position, see Drawing 66-47200.

The rudder steering rigging should align the rudders straight ahead when the airplane rudder is centered. Cables should be just taut. There should be no pre-stretching of the springs, which connect to the airplane rudder system. This keeps the friction low, not hampering yaw stability.

The water rudder retract cables should be rigged so that the rudders are tucked neatly behind the float transoms when retracted and the cables just become slack in the down position.

7.1 Water Rudder Cathodic Protection

An anode may be optionally installed to the water rudder blades (Figure 7-2). This is highly recommended when used in marine environments.

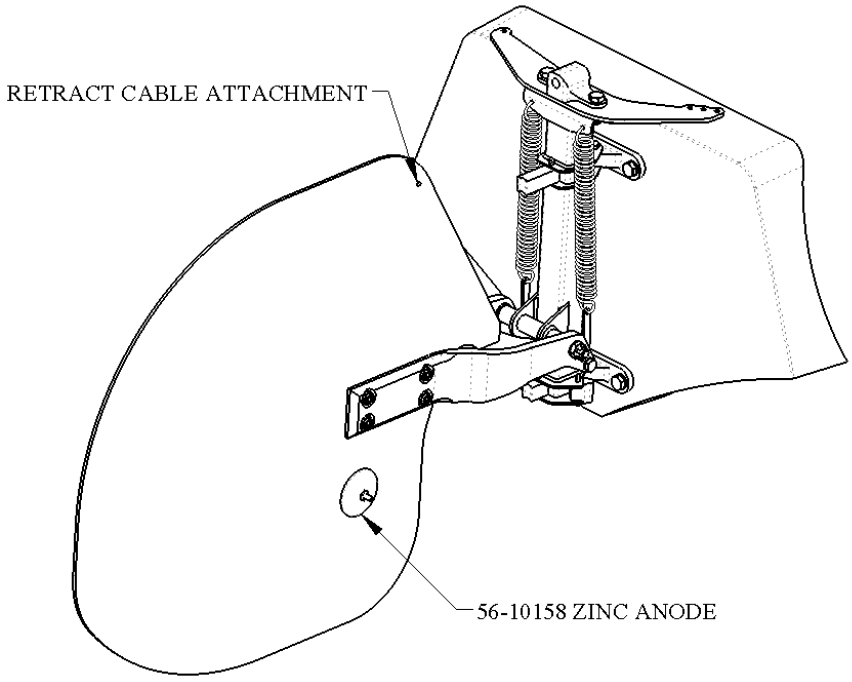


Figure 7-2: Water Rudder Cathodic Protection

The purpose of this anode is to protect aluminum components from galvanic corrosion. In order for it to be effective, the LSP insulator originally used on early installations must have been removed and 66-12220-7 retract cable replaced. Reference Section 15.4 Water Rudder Installation for replacement instructions. Also reference Section 11.0 Anodic Systems for details regarding anodic requirements and functions.

8.0

8.0 ELECTRICAL

There are several purposes of the electrical system in the 6650 series floats. The primary function is that of float landing gear actuation. Power is supplied to the electric pump, indication of gear position is provided to the gear advisory. (Gear selection is actually a hydraulic/mechanical function, not electrical.) Weight on Wheels (WOW) System is used to indicate when the aircraft is on the ground or water. This is used to initiate the HOBBS meter, pitot heat, and stall warning when the aircraft leaves the ground or water, and it takes the place of the landplane squat switch. When the aircraft touches down again, this system disengages the HOBBS meter, pitot heat and stall warning.

8.1 Gear Indication

Magnetic reed switches in the nose gear actuators complete a circuit when the actuator piston arrives in an up or down position, signaling the appropriate gear advisory light. These are adjusted in accordance with Section 4.5 Reassembly of the Nose Gear

Powered proximity sensors in the main gear signal the gear position when extents are fully reached. These are powered switches and require specific adjustments in accordance with Section 5.9 Complete Assembly of Main Gear

Wire Harnesses

6650 Amphibian:	66-60015 IN-AIRCRAFT INSTRUMENTATION, WIRE HARNESS; 66-60026 AIRCRAFT PEDESTAL WIRING SCHEMATIC 66-12700 ELECTRIC AND HYDRAULIC INSTALLATION
6750 Seaplane:	66-60115 IN-AIRCRAFT INSTRUMENTATION, WIRE HARNESS 66-11700 ELECTRIC AND HYDRAULIC INSTALLATION

Amphibian wiring harness incorporates necessary wiring for float landing gear operation, indication, gear advisory and WOW systems. There is a second harness installed in the float pedestal (66-47200) to provide power and operation of the electric hydraulic pump that drives the float landing gear.

Seaplane wiring harness incorporates necessary wiring for the WOW system.

Routing is in accordance with 66-12700 (Amphibian) or 66-11700 (Seaplane), and it connects the float landing gear sensors through the float struts and following the existing aircraft harness route, connects to the WOW box, the float pedestal, the gear advisory and to aircraft power. In the Seaplane, the harness only connects to the WOW box and to aircraft power.

8.2 Aerocet GC700 Gear Advisory Unit

(Reference A-10039, Service Manual and Instructions for Continued Airworthiness for Aerocet GC700 Gear Advisory)

On the gear advisory display (Figure 8-1) eight position-indicator lights (four gear up and four gear down) indicate landing gear position. The "Hyd Pump" indicator light illuminates during the electric hydraulic pump operation. The landing gear system is also equipped with an emergency hand pump, which accomplishes the same task manually, should the electric pump fail to operate properly.

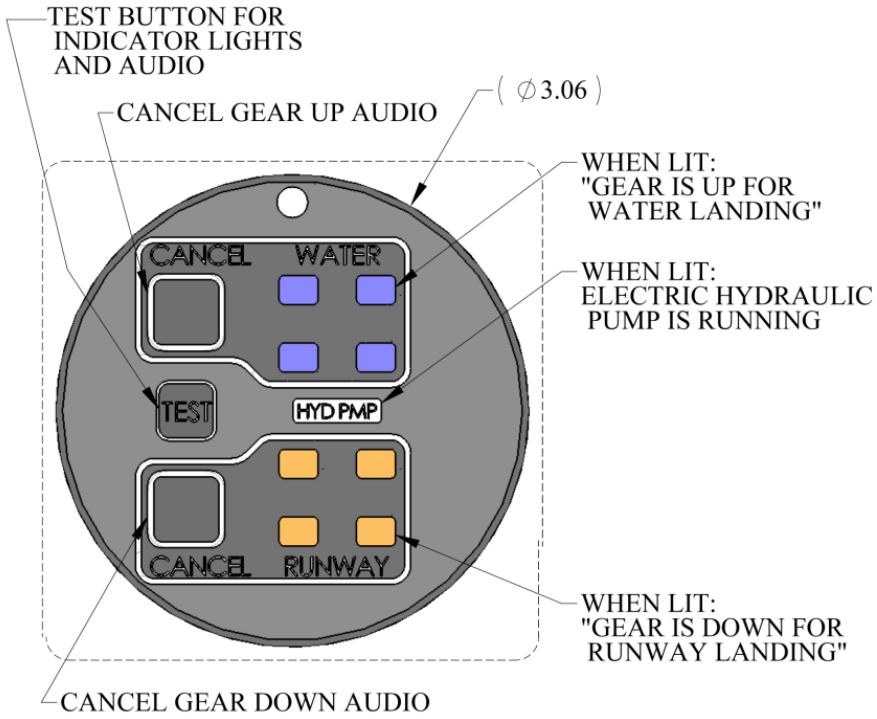


Figure 8-1: Gear Advisory Unit

The WATER, LAND, and PUMP light circuits are protected by the Landing Gear Advisory circuit breaker, and are therefore independent of the landing gear motor circuit and will function when using the emergency hand pump. The Landing Gear Advisory Unit includes an audio output that is connected to the audio output source for verbal pilot information regarding gear position. A static and pitot pressure source is connected to the Unit which determines airspeed. The Landing Gear Advisory Unit has a trigger point set at approximately 85 knots. This adjustment is factory set and user accepts liability for altering these settings. As the airplane passes through approximately 100 knots speed the system is armed. When the airplane slows through the trigger speed an audio voice will announce the position of the gear and what kind of landing it is suited for. With the gear up the message will say, "Water landing, gear is up for water landing". With the gear down the message will say, "Runway landing, gear is down for

runway landing". This message will continue and repeat itself until acknowledged by the pilot by canceling out the message by the appropriate button on the Landing Gear Advisory Unit itself. If the gear goes to a landing position and remains there without all four gears in place for a period of time beyond normal cycle time, the gear will advise the pilot that the gear is unsafe with the following message: "Gear is unsafe, check gear". The message will repeat until canceled. The "TEST" button in the center left position of the face, when depressed, will sound an audible announcement indicating the current position of the gear. One of three announcements listed above, will repeat as long as the button is depressed. This announcement will continue to repeat and complete the phrase, until the button is released.

Adjustments to the Gear Advisory unit are identified in A-10039. The Gear Advisory unit is a sealed unit and it should be returned to Aerocet, Inc. for any servicing.

NOTE
Information included here is for reference only. The service manual, A-10037, should be consulted for the most up-to-date information.

8.3 Weight on Water System (WoW)

(All 6650 series floats: A-31021, WOW, In Aircraft Calibration.)

6650 Amphibian: 66-60015 IN-AIRCRAFT INSTRUMENTATION, WIRE HARNESS;
66-60026 AIRCRAFT PEDESTAL WIRING SCHEMATIC
66-12700 ELECTRIC AND HYDRAULIC INSTALLATION

6750 Seaplane: 66-60115 IN-AIRCRAFT INSTRUMENTATION, WIRE HARNESS
66-11700 ELECTRIC INSTALLATION

Weight on Wheels (WOW) System is used to indicate when the aircraft is on the ground or water. This is used to initiate the HOBBS meter, pitot heat, and stall warning when the aircraft leaves the ground or water, and it takes the place of the landplane squat switch. When the aircraft touches down again, this system disengages the HOBBS meter, pitot heat and stall warning.

This is accomplished through a strain gauge located on the left-mid float strut. It is protected with a polyolefin heat-shrink sleeve, and is also located beneath the float strut fairing.

The strain gauge is provided as a part of the completed strut assembly at this time. Acceptable field replacement of the strain gauge difficult and is not recommended at this time.

Calibration in accordance with A-31021 is required upon installation, replacement or when otherwise necessary.

9.0 SPOT MIRRORS

(6650 Amphibian only)

Spot Mirror and Bracket Assembly provides a visual verification of landing gear position. It installs on and inspection panel under the aircraft wings, both port and starboard. Aircraft equipped with weather radars will have the starboard mirror attached to the aft fairing of the weather radar.

Install and adjust in accordance with Drawing No. 66-12800.

Disassemble in opposite order of assembly.

10.0 COLORATION LIMITATIONS 6650 AND 6750

1. The top and bottom of each float hull is to be white coloration.
2. Outboard sides of float hull shall have a maximum coverage of 1,305 in^2 non-white colorations.
3. Inboard sides have no color restrictions, being shaded from direct solar-thermal effects.

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11.0 ANODIC SYSTEMS

6650 Amphibian & 6750 Seaplane: Drawing 66-12070

Anodic systems are part of a multi-pronged approach to fighting corrosion of metal components. The first defense is in the design. Aerocet has gone to great lengths to minimize corrosion by anodizing aluminum components, avoiding or minimizing dissimilar metals where possible, and eliminating contact where possible. Other portions of this manual point out the necessity of freshwater rinsing, cleaning, and mechanical removal of residues and deposits from the seaplane or amphibian assembly. Along with a regimen of washing and rinsing, it is also critical to add corrosion inhibiting compounds to metal components, with a mixed strategy of sealing seams, protecting exposed surfaces with greases, applying water displacing products, and persistent maintenance. Even with all of these regimens in place, corrosion can get the upper hand, resulting in costly replacements; thus the use of inexpensive, sacrificial anodes.

11.1 Anode Strategy – Cathodic Protection

Any two metals that are assembled with electrical contact to one another, and immersed in an electrolyte bath, will create a battery. One metal will be more anodic, the other more noble, or cathodic, resulting in a voltage differential. The most anodic metal suffers corrosion, and that corrosion can be aggressive. Corrosion never sleeps, and because seaplanes work in wet environments, they are constantly re-applying electrolyte (water in various forms) to their aircraft. The purpose of the anode is to sacrifice itself as the most anodic metal, taking the brunt of any corrosion, when properly connected and maintained.

To work properly, the anode must be wetted or submersed in electrolyte, and be connected electrically to protected components. Connectors, wire and fasteners should be kept in good condition to assure continued function. Clean and replace as needed.

Materials used in aircraft structures most often include magnesium, aluminum, stainless steel, titanium, and graphite. In this list, magnesium is the most anodic, and graphite the most noble. Galvanic scale charts are readily available to review this, showing the expected voltage from each metal. Zinc anodes are more anodic than aluminum, but are less anodic than magnesium; therefore zinc anodes are useful to protect most aircraft components, but would not be helpful preventing corrosion of magnesium.

Zinc anodes have been used in the boating industry to protect vessels of many types and sizes for many decades. They are best used in salt water (marine) or, for a short time, in brackish water. They have not proven either useful or detrimental in fresh water. Aerocet uses zinc anodes at this time, and recommends their use in marine environments along with an aggressive regimen of cleaning, inspection and lubrication.

11.2 Anode Locations

There are a number of anode installations (See Figure 11-1) on Aerocet 6650 and 6750 floats, designed to protect isolated portions of the metal floats and/or the aircraft as well.

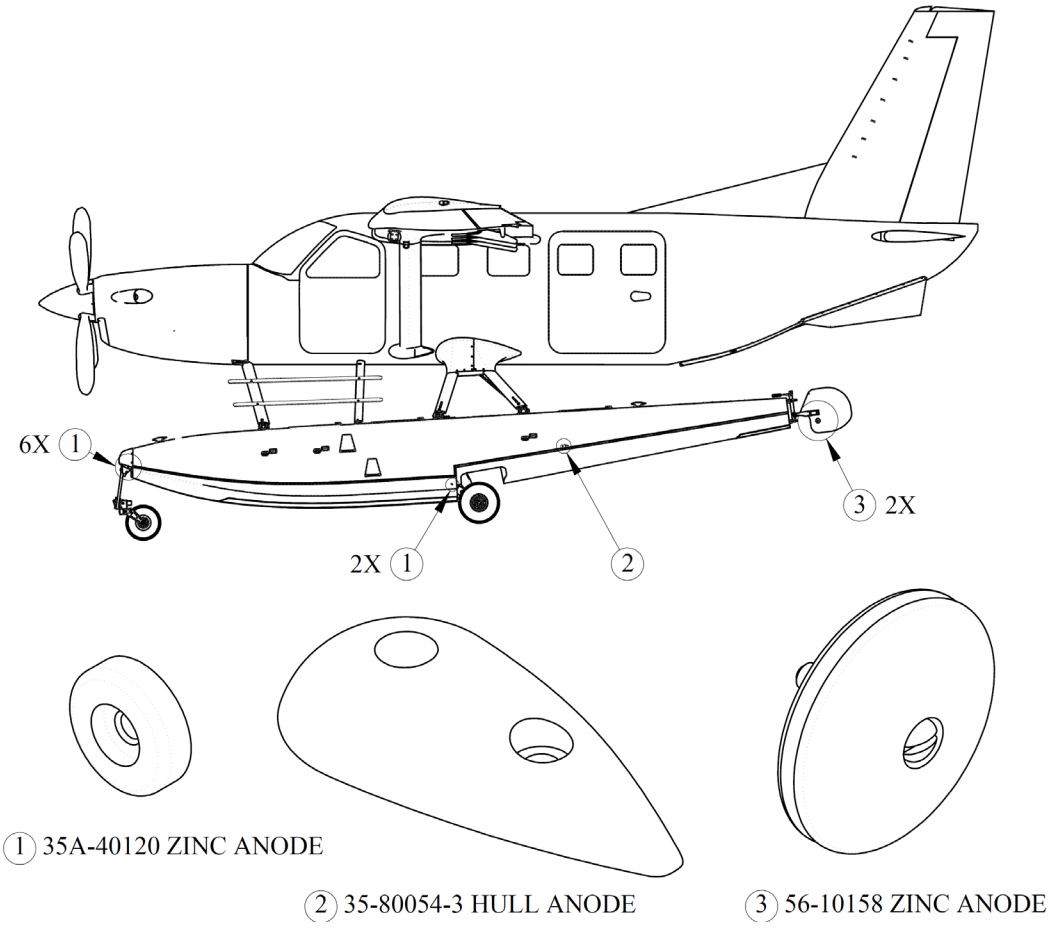

Figure 11-1: Anode Installation Locations on 6650 and 6750 Floats

① 35A-40120	ZINC ANODE	6650 Amphibian only	Nose gear slide brackets, slide truck and lower main gear yoke. Reference Sections 4.12 & 5.5
② 35-80054-3	ZINC ANODE	6650 Amphibian and 6750 Seaplane	Inboard chine of LHS float hull. Reference TBD
③ 65-10158	ZINC ANODE	6650 Amphibian and 6750 Seaplane	Water Rudder Blades. Reference TBD

11.3 Anode Inspections and Procedures

A properly working anode should exhibit corrosion. Once the mass of the anode has been lost, replace the anode and attachment fasteners.

If anode is not corroding when used in a marine environment, then check and restore the continuity between the anode and connected components. Note that anodized aluminum surfaces will not conduct electricity and will not offer a positive result. Continuity must be checked between the anode and steel components, or non-anodized aluminum components like rivets, which are chemically treated, not anodized.

In some cases, such as days of exposure in brackish water, zinc anode surfaces may become oxidized, which will reduce or inhibit the anode performance. It is necessary to abrade the anode surfaces to expose fresh material in these cases.

Anodes installed in the nose gear slide bracket and the lower main gear yoke are conductive through the attachment fastener threads. Clean and chase threads as necessary to restore continuity.

Anodes attached to the water rudders are intended to contact the blade beneath the anode by the removal of all paint and anodizing. Check continuity from anode to the water rudder retract cable, then from the retract cable to the float pedestal in the cabin.

NOTE

If equipped, then remove 66-12501 Insulator from water rudder retract cable to establish anodic connection between aircraft and water rudder anode.

Never paint anodes. This will inhibit anode performance.

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12.0 LIGHTNING STRIKE PROTECTION SYSTEM (LSP)

6650 Amphibian: IPC 65-17190 LSP CABLE INSTALLATION, AEROCET 6650 FLOATS
6750 Seaplane: IPC 65-21090 LIGHTNING STRIKE PROTECTION (LSP), INSTALLATION

The Lightning Strike Protection system (LSP) provides a path for lightning to follow should it become attached to the float hull structures, so that the most structural components are not compromised. Specially constructed jumpers are used to connect necessary components along the lightning path, in accordance with MIL-DTL-83413/8. See Figure 12-1 and Figure 12-2 for locations of LSP bonding Jumper assemblies.

Note

The Lightning Strike Protection (LSP) system is built in accordance with FAA CFR's. It serves the specific purpose of creating a path for lightning to enter and leave a structure without destroying the most critical components. In the event of a strike, there will most likely be damage to the float hulls, especially at the entry and exit points of the lightning.

Amphibian: Nose gear assembly is bonded to keel strips through a specially constructed jumper having a surge protector which serves to prevent galvanic corrosion but still allows large current to pass in the event of a strike. (Shown in Detail A, Figure 12-3 and Detail B, Figure 12-4 below). FWD and Step Area Keel Strips are bonded to one another with a jumper. (Shown in Detail C, Figure 12-5 below.) That is in turn bonded with a jumper to built-in conductive mesh aft of the main gear box area. (Detail D, 6650 Amphibian, Figure 12-6 below). The top and bottom shells of the float hull are bonded with large washers. (Detail E, Figure 12-8 below). A conductive mesh is built into a path along the remainder of the floats.

Seaplane: FWD and Step Area Keel Strips are bonded to one another with a jumper. That is in turn bonded with a jumper to built-in conductive mesh aft of Float Sta. 65.5. (Detail D 6750 Seaplane, Figure 12-7 below) The top and bottom shells are bonded with large washers. (Detail E, Figure 12-8 below).

12.1 LSP Installation Considerations

1. Standard practices and values per AC43.13-1 shall be used for general guidance, LSP cable and lug installation, and electrical wires for protection and routing.
2. Install LSP bonding points per Aerocet Process Specification A-31019, "Electrical Bonding of Composites For Lightning Protection".
3. Approved securing devices such as MS21919WDG4 clamps or 66-60032 support loop can be installed as necessary to insure that all lines are free and clear of all existing structures. Secure LSP conductor cables with cable ties, (MS3367-1-9, 8 in.) Or (MS3367-4-9, 4 in.) where necessary to restrict movement. Sika-flex 292, 3M 5200, or similar marine grade urethane adhesive may be use to secure cable in areas where it may contact float structures.

4. Use EZ Turn Fuelube, MIL-G-6032 AM 1 Type 1 or SAE-AMS-G-6032, to liberally coat and cover all connector joints to help exclude air.
5. Use Techflex™ "Flexo FR" expandable sleeving to prevent chafing of cable against surfaces where necessary, secure ends of sleeving with MS3367-4-9 cable ties.
6. Seal all holes that penetrate bulkheads with Sika-Flex 292, 3M 5200, or similar marine grade urethane adhesive. Tin 1" section that passes through structures and apply insulation sleeving to .75" minimum length over tinned portion.
7. All terminations shall meet .003 Ohms or less per termination.

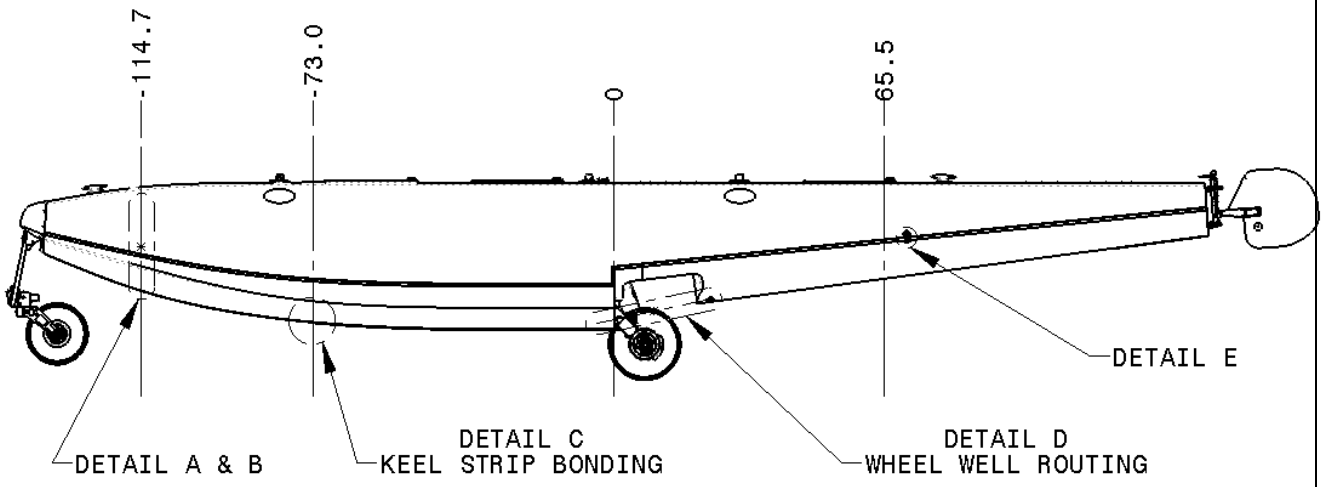

Figure 12-1: Locations for LSP Bonding Jumper Assemblies 6650

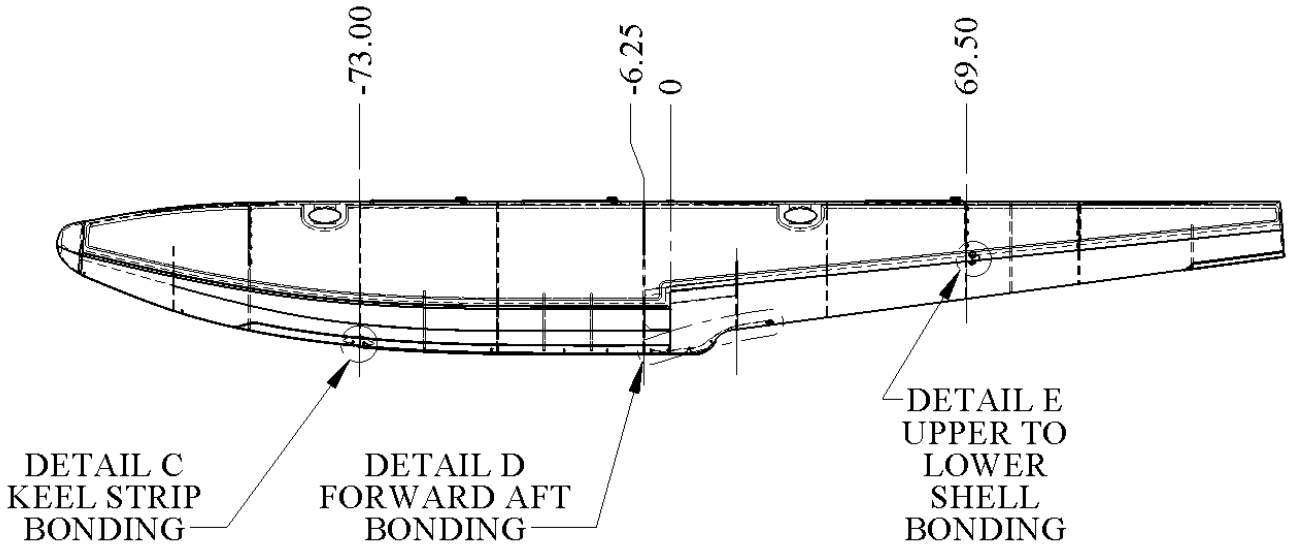

Figure 12-2: Locations for LSP Bonding Jumper Assemblies 6750

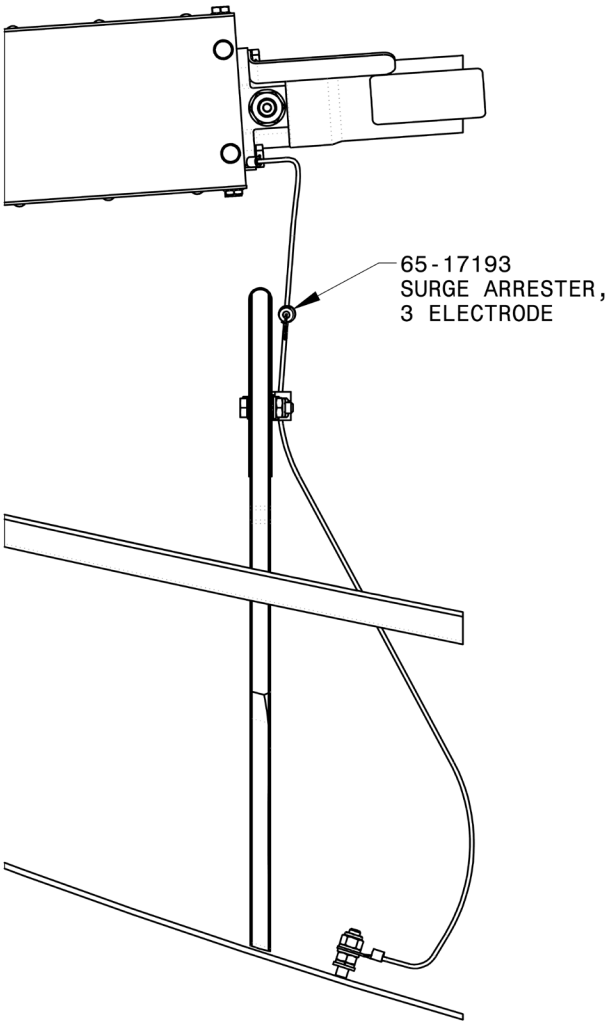

Figure 12-3: LSP Bonding of Nose Gear 6650

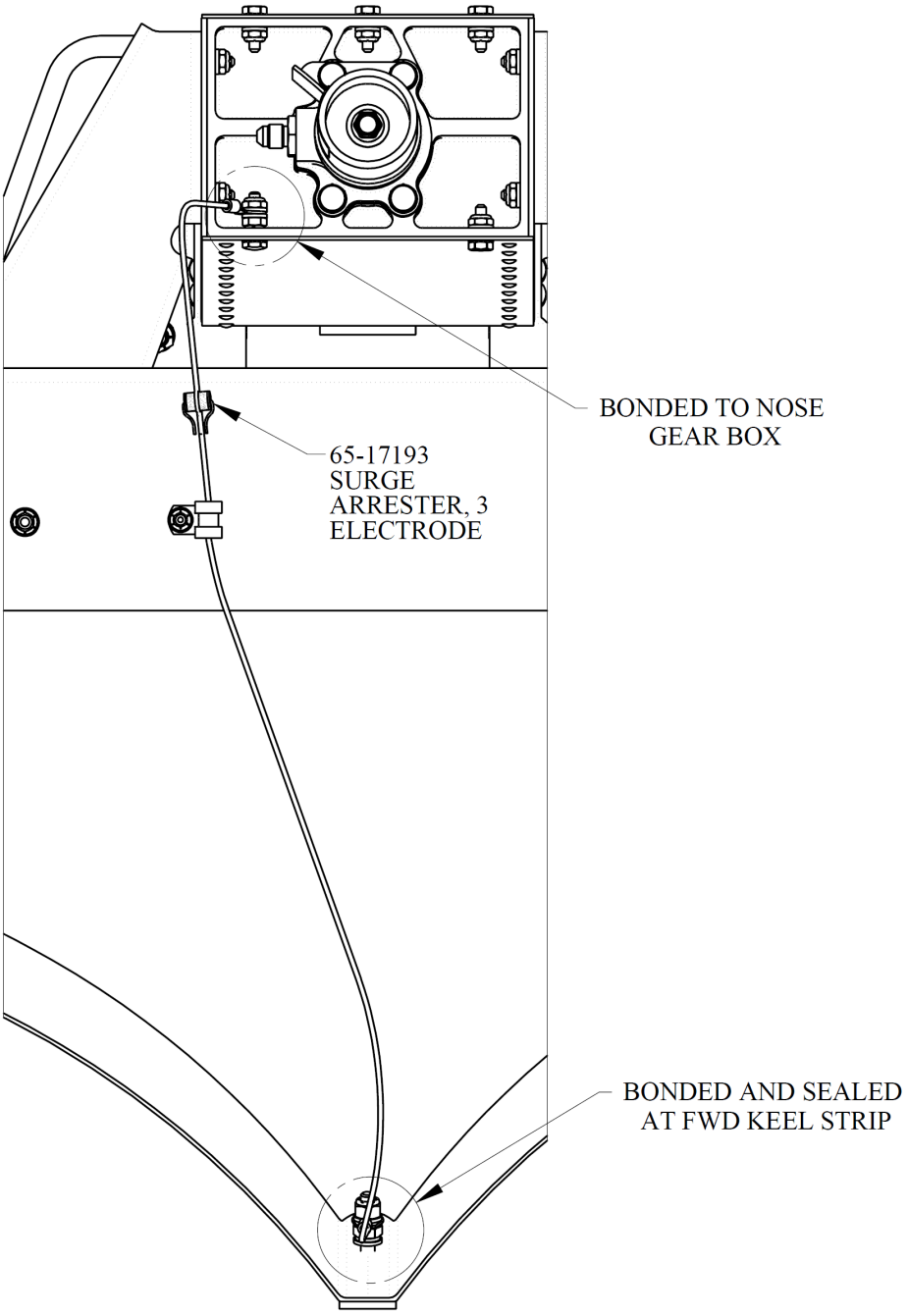

Figure 12-4: LSP Bonding of Nose Gear to FWD Keel Strip

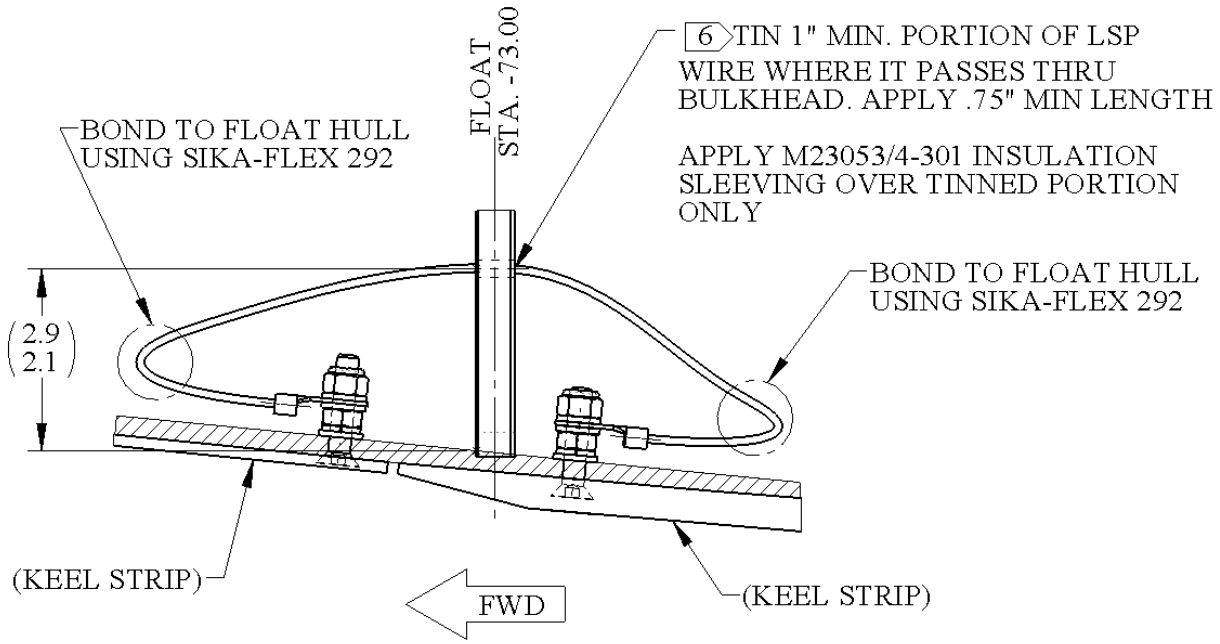

Figure 12-5: Keel Strip LSP Bonding Both 6650 and 6750

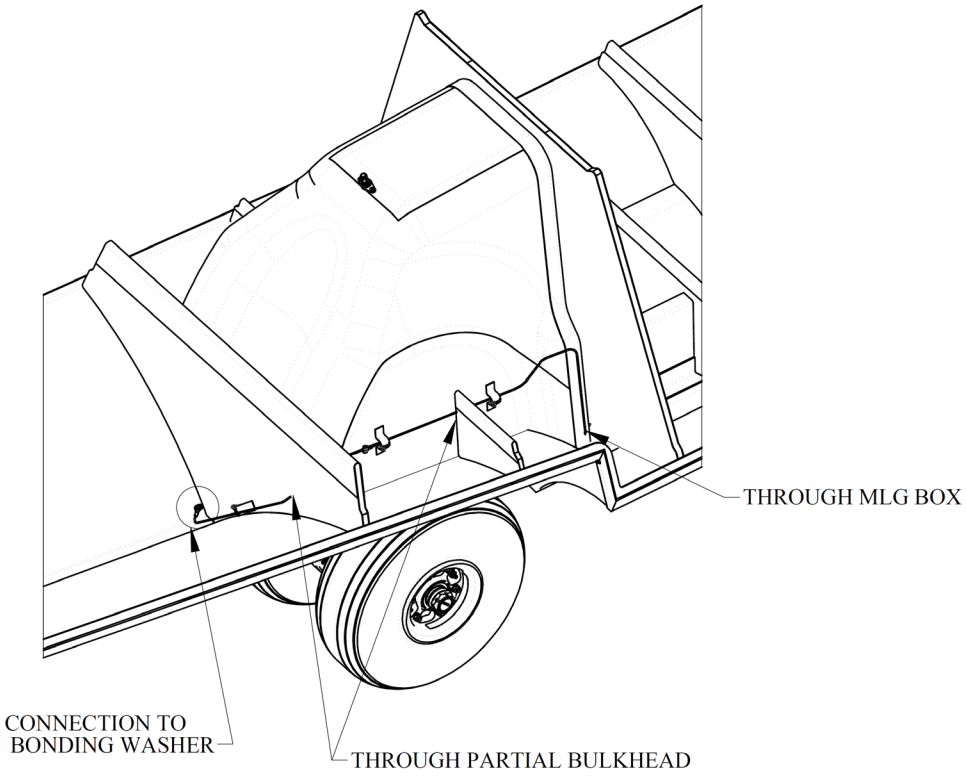

Figure 12-6: LSP Routing 6650

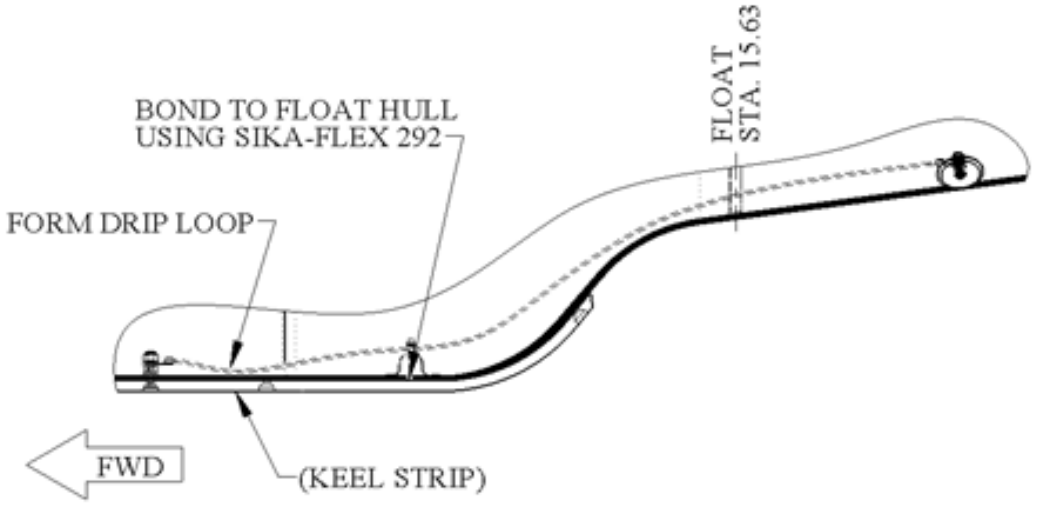

Figure 12-7: Forward AFT Bonding 6750

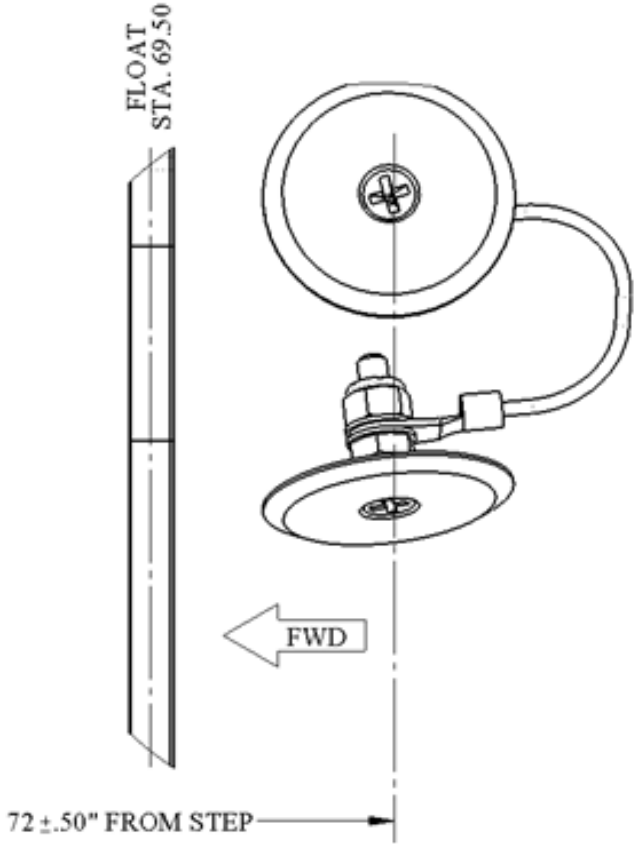

Figure 12-8: 2X Upper to Lower Shell Bonding

Applies to both 6650 Amphibian and 6750 Seaplane floats

12.2 LSP Inspection

LSP wiring must be kept in good condition. Inspect for corrosion and continuity of 3 ohms or less at each termination.

Check bulkhead and hull penetration points for leakage. Re-seal as necessary.

If a lightning strike is suspected, then the entire LSP system must be inspected and replaced as needed. In addition, the entirety of the floats hulls must be inspected for damage, especially around lightning entry and exit points.

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13.0 RECOMMENDED PROCESSES, PRODUCTS, AND INSPECTION CHECKLISTS

13.1 Cleaning

Seaplanes operating in salt water or brackish water should be thoroughly hosed down or flushed with fresh water each day, including the landing gear bays.

The float's design, which uses an all-composite structure, basically eliminates hull corrosion and leakage. The floats should be kept clean with biodegradable soap and water. The sides and the bottoms from the step aft can be waxed to help in the cleaning process. The bottoms of the floats from the step forward should not be waxed, as this gives unpredictable water performance. Stains from the waterline down may be removed using marine fiberglass stain remover. FSR (Fiberglass Stain Remover), manufactured by Davis, is recommended. Do not use abrasive cleaners or pads—these will scratch the white gel-coat surface. The gel-coat color surface should always be maintained on the floats for ultraviolet radiation protection.

6650 Amphibian: When healing in to shore, care should be taken to avoid the rock shield area ahead of the step. This shield normally flushes the area on takeoff but any build-up of debris needs to be addressed if the float plane is typically healed in (especially with clay and rocks). There cannot be any obstruction preventing the main landing gear from fully deploying for a land landing. Leaving the float locker doors open, when hangared, minimizes condensation in these bays.

Properly bathing a saltwater-operated seaplane immediately after EVERY day of saltwater operation is critical to maintaining the aircraft. Failure to do so can result in severe corrosion. Different bodies of saltwater with their varying salt concentration, air temperature, and humidity of the operating environment play a significant role in determining how badly the aircraft may corrode if salt removal and corrosion prevention practices are not followed. High salt content, high temperatures, and high humidity make for the most corrosive conditions.

Be aware of the quality of the fresh water supply. It may be advisable to test your water supply for acidity/alkalinity and dissolved solids. It is recommended that water have a pH between 6.5 and 7.5, and less than 200 parts per million dissolved solids. If you practice a strict bathing routine but continue to note abnormal corrosion, the quality of water may be a problem.

Use of a product like Salt-Away®, in accordance with manufacturer's instructions will prove helpful in removing fresh salt and help with removing some of the old as well. This is a water-based compound specifically designed for this purpose. It is distributed internationally and application devices are available from the manufacturer as well.

Pressure washers are **not recommended** for salt removal. They tend to push salt around the aircraft surface, rather than to dissolve the salt and let it sheet off of the aircraft. The high pressures can deposit salt into areas of the aircraft that are not normally salted during aircraft landings and takeoffs. The goal is to use high-flow, but low-pressure flow of freshwater to sheet

water off of the aircraft. Use a high quality adjustable hose nozzle, and wide bore hose, that can put a large volume of water on the aircraft without blasting salt and soap into cracks and crevices.

A proper application setup will be needed for water-displacing oils to preserve several areas that contain many unpainted metal components. "ACF-50®" is oil that may be fogged into areas using a compressed air, venturi type spray gun. It can also be sprayed directly onto the area needing protection. The advantage of the fog system is that hard to reach components inside compartments can be coated by tiny airborne particles of the oil, which will stay airborne and continue to apply itself several hours after spraying. The system consists of a compressed air supply, spray gun, pick-up tube, and product container. Air pressure between 60-120 psi is needed to properly atomize the liquid.

Brushing of the belly, sides, and tail with a soft bristle brush on a 6-foot (2-meter) pole is advised. There tends to be more salt on the aft and lower portions of the aircraft, but in some conditions, many other areas of the aircraft can become salted.

Soap can be used during the bathing process, particularly for removing oils. Zep Aviation Aircraft Cleaner II, part number R50335, is a proven product for this purpose. Follow the manufacturer's instructions, and reduce the recommended amount of soap by as much as 50% if there is very little or no oily residue on the aircraft. Check the belly for oil before preparing soap concentrations. Soap can cause corrosion the same as saltwater, and must be rinsed quickly and thoroughly just like the salt.

If washing in direct sunlight, it may be advisable to wash in sections. Do not allow soap to dry on the aircraft, or it will become difficult to rinse away.

13.2 Bathing Procedure for Kodiaks on Aerocet 6650 and 6750 Floats

1. It is recommended to remove the fairings at least once per week during bathing, or any time the aircraft will sit un-used for more than a week. Fairings should be removed and later reinstalled by, or under the supervision of, a certificated mechanic.

2. Prepare a 5-gallon (20 liter) bucket with soapy water as described above.

3. Park the aircraft in the wash area. You should have plenty of hose length to reach all sides of the aircraft. Using a tall ladder as needed, thoroughly rinse the aircraft from the top down, from front to back. Make the water sheet down the aircraft: Do not blast the aircraft so that water bounces off of it. The water should stick and flow down the surfaces.

4. Using the pole brush, working from front to back, scrub the sides and rinse, leaving the most oily, soiled portions of the aircraft for last. It only takes a small amount of agitation to remove the salt that remains after a good rinsing. Prolonged scrubbing is not needed. Avoid scrubbing metallic items that are coated with preservative oils, such as float hardware. Rinse thoroughly.

5. Scrub the horizontal stabilizer and the vertical stabilizer as far up as can be reached safely. Rinse thoroughly.

6. Scrub and rinse the belly last. If it is oily it may take more scrubbing than the sides. Agitate the soapy water in the bucket with the brush often to clean off the brush. Change the water as often as may be necessary. It is recommended to change water between baths when washing multiple aircraft.

7. If the strut fairings have been removed, the unpainted metallic parts underneath will need rinsing. Take care not to blast water into the aircraft fuselage. Scrubbing is not recommended here, as this area should be heavily coated with grease and other preservative oils.

8. Before the aircraft is moved off the wash pad, pay special attention to giving the landing gear a thorough rinse.

9. The mechanic or supervised assistant should open the forward and middle hatches of both floats which are secured by screws. Check hydraulic lines and fittings for leaks and corrosion. Liberally fog/spray all four of these compartments with ACF-50®, and immediately screw down the hatches. Take care while closing the middle hatches to place the float pump pickup tube in its retainer at the bottom of the compartment. The fog of oil will float in the air, coating parts and displacing water.

10. The mechanic should address the strut fairings area at this time. Inspect for heavy salt deposits that do not rinse away, and remove as needed. Inspect for corrosion. If corrosion is apparent, let the area dry of water. Remove preservative oil on affected areas with an appropriate solvent, treat the corrosion per standard practices, and reapply grease (AGC-2 aluminum complex grease works well) over all the hardware that is normally covered by the fairings. Spray directly with ACF-50®. As a general rule, heavier greases should be applied before the lighter oils. Reinstall the fairings, and wipe off any excess oil or grease.

11. Float nose gear slide box assembly should be fogged or sprayed liberally with ACF-50® or equivalent. Slide tracks should be wiped free of any wet lubricant, however, and then lubricated with a PTFE dry-film lubricant.

13.3 Float Hull Maintenance

The metal chine strips are abrasive wear surfaces used to protect the floats from docks and pilings. See Figure 1-4 (6650) and Figure 1-6 (6750). These extrusions are bonded on using a one-part urethane adhesive. These strips should be kept intact.

Aluminum strips are bonded and screwed onto the keel for protection. Optional fiberglass wear strips may be added upward and outward from the keel near the step area where the float would nest in the rocks on a beach. See Figure 1-4 (6650) and Figure 1-6 (6750). These wear strips should be inspected during pre-flight and upon suspicion of damage. The strips should never be

allowed to wear through to the gel-coat surface on the float. Replace the wear strips as necessary. See Section 15.3.6 Keel, Wear Strip, and Chine Bonding for instructions on repairing, or replacing these strips.

All float access panels are to be removed upon annual inspection to detect any hidden damage and to comply with the maintenance of this supplemental manual. During this time, ensure that all the pump-out tubes (Figure 13-1) are not cracked (especially around the fitting to the pump-out cup), that they pass through their respective locators to keep them in the low spots, and that they have no blockages. If a pump-out tube is cracked, it will not pull the water out of its respective compartment, resulting in extra weight and CG problems. Replace as necessary.

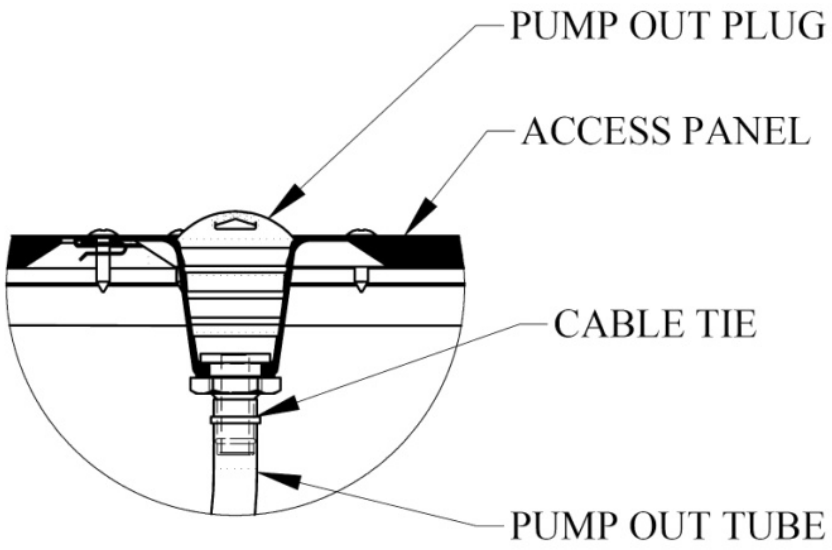

Figure 13-1: Pump-Out Cup, Plug and Access Panel

Any damage penetrating to the float structure, de-lamination of the layers of cloth, or wearing through of gel-coat must be repaired according to Hull Repair Section in the Repair Manual section of this supplemental manual. Significant damage warrants consultation from Aerocet, Inc.

Float locker latches and seals are to be maintained as needed. Adjust the locker latches by spacing the black catch ramp (using thin washers) the correct distance to maintain a detent when the locker catches.

Orient the arrow-shaped handle pointing forward (toward the hash mark in the “CLOSE” position shown on the placard) and in the detent. To close the latch, push downward on the knob and the door panel as necessary and turn clockwise to engage the catch and reach the detent. See Figure 13-2.

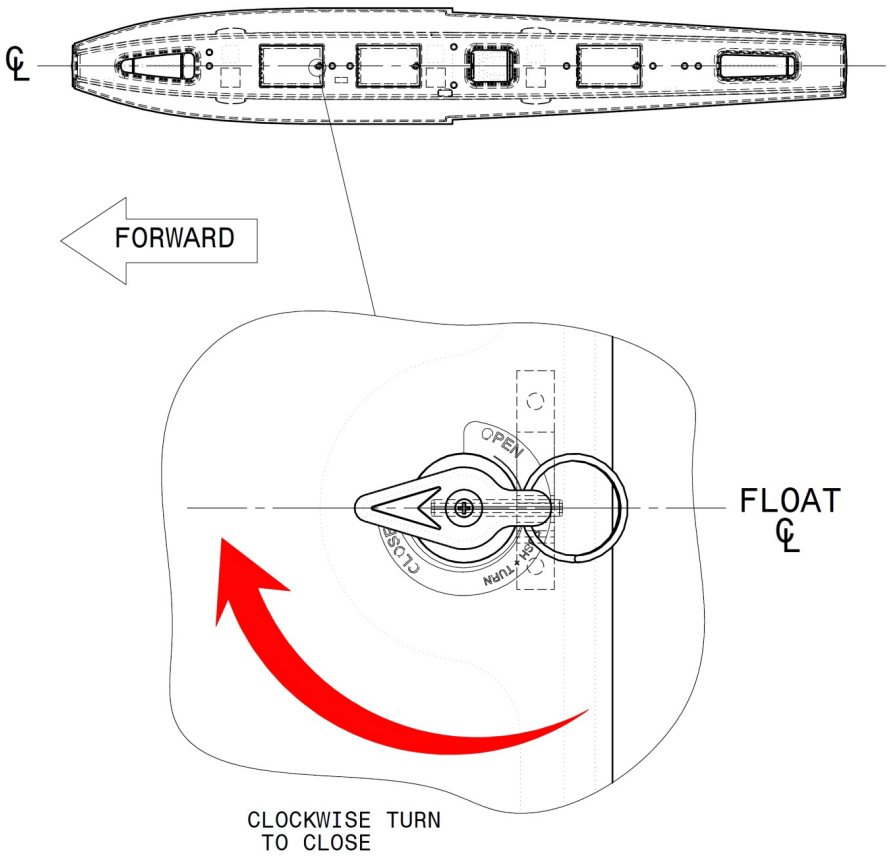

Figure 13-2: Forward Hinging Latch Operation

Investigation should be prompted if excessive water is pumped from any of the pump-out cups during preflight. Water can leak through the pump-out plugs that need to be vented for expansion and contraction from flying to altitude and may also seep through the access panel seals.

Condensation will also generate water inside the float compartments. More than four or five full pumps of water using an aircraft float pump should raise concern for maintenance. In contrast, if a pump-out tube is cracked or broken, a significant sucking sound will not be heard when the pump is removed from the pump-out cup. If there is question regarding the integrity of the pump-out tube, the operator must investigate and determine the cause. Attention should be given to any bolts that pass through the stern or other external float structures. These should be sealed into place using a single part urethane such as Sika-Flex 292. It should also be noted that more water is typically pumped from the stern and bow compartments because they are often covered with water during operation and allow more seepage through the plugs and seals. Pump-out plugs must have some venting capability to allow for expansion and contraction of the air in each compartment during flight. Two drilled holes are typical for venting or some pump-out plugs have a pull string tied through a vent hole.

If the pilot strikes rocks or debris when on the water, he must assess the damage as soon as possible. Continuing into a high-speed situation with the floats will typically exacerbate the damage due to high water pressure.

13.4 Metal Hardware

Hardware such as cross-wire terminals, wire pulls, bolt heads, nuts, and other hardware items should be protected with a coating of EZ-Turn, Paralketone rust preventative or heavy grease.

Operations in saltwater or brackish water demand extra attention to the metal components. Protection can be achieved by using ARDROX AV 30 (Plate 1) or AquaShield™ (Plate 2).

Plate 1: ARDROX AV 30

Plate 2: AquaShield™ (Blue/Green Grease)

Plate 3 The entire aircraft main landing gear area may be treated with AV30.

Plate 3: Trunnion Sprayed with ARDROX AV 30™ (Fairing removed)

Plate 4 shows mounting points that are sprayed with ARDROX AV 30. Note how areas are taped off to get a clean line minimizing cleanup.

Plate 4: Mounting Point Sprayed with ARDROX AV 30™

Plate 5: Tape Removed Showing Clean Lines

All unpainted surfaces should be sprayed that might be splashed with water.

Plate 6 shows an example of green grease in the flap tracks. The flaps were run to make sure there was no interference due to the grease. Note that the AV 30 is spread up inside the flap pocket.

Plate 6: Green Grease in Flap Tracks

Plate 7 shows entire flap Track Sprayed with AV-30

Plate 7: Flap Tracks Sprayed with AV-30

Plate 8 shows the nose gear lock bracket that has not been coated yet

Plate 8: Nose Gear Lock Bracket

Protection is also required in landing gear, the water rudder and internal parts.

Plate 9 shows AquaShield™ on the landing gear and hydraulic fittings.

Plate 9: Landing Gear and Hydraulic Fittings with AquaShield™ and ARDROX AV 30

Plate 10 shows protection with AquaShield™ and ARDROX on the rudder assembly.

Plate 10: Rudder Assembly with AquaShield™ and ARDROX AV 30

Plate 11 shows protection with ARDROX AV 30 on the rudder assembly.

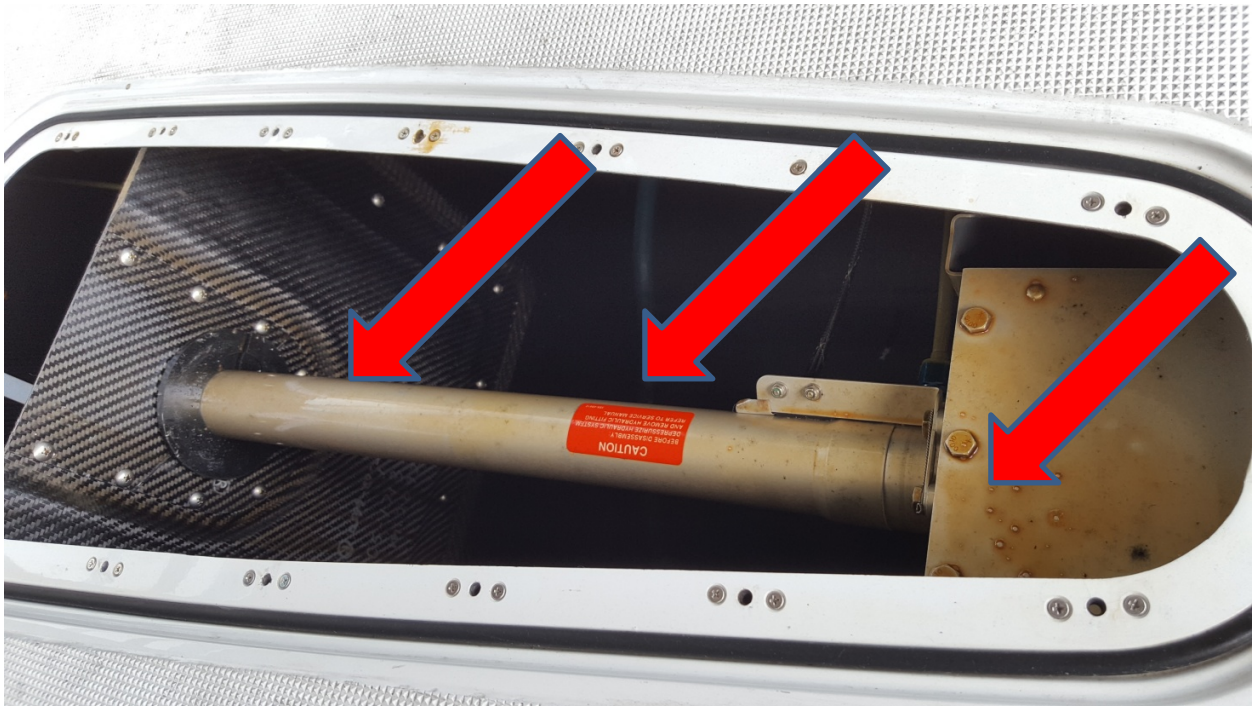

Plate 11: Internal Float Fittings ARDROX AV 30

After operations in these environments, washing should be done daily with fresh water if possible with attention paid to metal fittings. Usage of an anti-corrosion spray like ACF-50®, or its equivalent, should be used as often as possible. This displaces moisture and contaminants, and can be applied to wet or dry metal components. It is the cheapest defense for corrosion versus replacement of expensive parts. It is advisable to remove and grease the shafts of all cad-plated steel bolts yearly. No action is required for stainless hardware.

13.5 Winter Storage of the Floats

If possible, store floats indoors and/or under cover where temperatures do not drop below freezing. In locations where temperatures drop below freezing, add one quart of RV antifreeze through each of the pump-out cups and tape over the pump-out holes to minimize the amount of moisture that enters each of the six compartments. Masking tape is not a suitable option; duct tape, or similar, is recommended.

13.6 Lubrication

Nose tracks and blocks are to be kept clean and should be thoroughly lubricated and treated with a PTFE dry film lubricant.

Nose block lubrication is addressed in Section 3.8. HCF Grease or equivalent should be used and use caution when applying the grease.

The main gear pivot pins and attach points for the drag brace, gear truck and oleo attach must be kept lubricated with Loctite Marine Grade Anti-Seize 8023, HCF Grease or equivalent. If using 8023, then clean mating surfaces (remove any existing grease) prior to application.

Aircraft and float fittings should be treated with ACF-50® or equivalent, including fasteners and joints between components. Remove strut fairings at aircraft main gear bay to expose components and apply lubricants to trunnion components, struts and fasteners.

Threaded portions of tie rods should be lubricated with Loctite Marine Grade Anti-Seize 8023.

13.7 Anodic Systems

There are several anodic systems that may be installed, including the nose gear slide brackets (Ref. Section 4.12 Cathodic Protection of the Nose Gear), lower main gear yoke (Ref Section 5.5 Cathodic Protection for Float Main Landing Gear), water rudder (Ref Section 7 Water Rudders) and aircraft (Ref TBD).

A working anode will corrode over time. Look for this corrosion and replace the anode periodically.

Assure electrical bond between anode and connected components. Anodized surfaces and fiberglass components are not conductive and will not easily bond. Refer to specific installation sections listed above and re-establish electrical bond as necessary.

If a zinc anode forms an oxide barrier, then it is likely to become less effective. This is particularly the case when moored in brackish water for a day or two. Remove oxides with an abrasive brush, or poly pad to expose base material. (Steel wool is not recommended.)

CAUTION
Do not coat zinc anodes in lubricant, greases, paints, primers, or other corrosion-inhibiting compounds.

13.8 Flotation Foam

6750 Seaplane IPC 65-21180

Flotation foam is located in the aft-most float bay of the 6750 Seaplane Floats. It is designed to prevent capsizing in particular scenarios of flooding of float compartments. It is constructed in nine (9) pieces of lightweight polystyrene closed cell foam, being held in place by a top panel, and fastened to the aft-most partial bulkhead.

Remove the top panel by removing the two fasteners at the forward end, just ahead of the partial bulkhead. Inspect for condition. If the foam panels have disintegrated, or absorbed excessive water, replace the set. Weight of one panel set (for one hull) should not exceed 3.25 lb.

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14.0 TROUBLESHOOTING

Table 14-1: Basic Troubleshooting

Problem	Possible Cause	Corrective Action
Water in Floats	Missing Plug	Install Plug
	Condensation	Pump out float bays
	Improperly fastened access panel or locker door	Install panel, latch locker door
	Damaged or missing door seals	Inspect seals, replace as necessary
	Missing access panel fasteners	Replace as necessary
	Improperly sealed fasteners	Disassemble, clean, inspect and reinstall with sealant
	Cracked cable sheathes	Replace as necessary
	Damaged float hull	Inspect float bays for signs of penetration
Excessive Drift Left or Right During Water Taxi Operations	Water rudder rigging misaligned	Align the float rudders by re-adjusting the steering cables and/or the balance cable
	Debris caught on floats	Remove debris
	Damage to one float	Inspect and repair damage
	Damage to water rudder blades	Locate and replace damaged pieces
	Rigging has fallen out of adjustment	Check alignment of cables and pulleys. Check cable clamps for security and position.
Aircraft is Unstable During Water Operations	Broken structural members	Inspect struts, tie rods, etc., for breaks and for adjustment
Rudder Pedal Feels "Stiff"	Misaligned steering cables	Correct the alignments of the exit holes through the floats to the aircraft mounted pulleys
	Over-tightened turnbuckle	Adjust tension
	Over-tightened float fittings	Loosen the fittings and re-snug them by hand
	Fouled cables or pulleys	Check cables for misalignments, debris and dock lines.
Reduced Water Rudder Steering	Broken cable	Replace as necessary
	Jammed cable	Check all pulley assemblies for missing keepers and fouled cables, such as dock lines
	Broken rudder retract spring(s) – Rudders do not deploy fully	Replace as necessary
Water Rudders Do	Cable jammed	Check for fouled cables and debris,

Not Retract		especially at tiller

Table 14-2: Troubleshooting Pump Failure to Start

Problem	Possible Cause	Corrective Action
Electric Pump Will Not Start	Circuit breaker tripped	Reset circuit breaker
	Gear wear on hydraulic pump	Remove and replace hydraulic pump. Section 6.4 Electric-Hydraulic Pump.
	Motor wiring connections	Check motor wiring
	Faulty pressure switch or relay	Replace Switch or Relay
	Faulty or dirty pressure relief valve	Clean and check, Replace as necessary
	Pressure build up in system from both sides of up and down lines	Cycle gear selector into up and down positions to relieve the pressure and return to “Down” position. In this circumstance, the pump will then operate normally. If not replace the unit.
Gear Stops Mid-Position: Pump Cuts Off	Binding gear will shut motor off because of a premature pressure build up.	Clean nose tracks and main gear pins.
		Remove residues from wet lubricants, or corrosion deposits
		Thermal cutoff switch tripped due to overheating of motor.
		Pressure switch, relay or motor failure. Check pump breaker.
Pump Running Continuously or Intermittently	Hydraulic leak	Inspect all connections and check for fluid along all routes.
	Hydraulic leak with no leak apparent – pump failure or actuator piston seal failure.	Verify the handle is in up or down position and locked Isolate the pump and each actuator for pressure tests. Replace the pump, or repair the actuator.
Slow Gear Operation	Mechanical interference	Check gear for damage and debris. Check adjustments, especially for the nose gear assembly. Check hydraulic lines for damage such as kinks or blockages. Check screens, electrical connections, pump gears. Replace as necessary.

Table 14-3: Troubleshooting Weight on Water System

Problem	Possible Cause	Corrective Action
Flight HOBBS Meter Does Not Log Flight Time and Aural Stall Warning Inhibited When in Flight	**Disconnect J5 from WOW box and perform the following electrical checks** WOW box located in MID BAY forward of the cross-tube bay.	
	+20 VDC ≤ J5 pin 8 ≤ 32 VDC	Check breaker, Check wire harness and connectors
	J5 pin 13 = Aircraft ground	Check wire harness and connectors
	Resistance between J5 pin 14 and J5 pin 6 = 350 ± 5 ohms	Check wire harness and connectors. Check left mid strut for damage to strain gage
	Resistance between J5 pin 13 and J5 pin 6 = 350 ± 5 ohms	Check wire harness and connectors. Check left mid strut for damage to strain gage
	Resistance between J5 pin 13 and J5 pin 14 = 700 ± 5 ohms	Check wire harness and connectors. Check left mid strut for damage to strain gage
	With aircraft on ground, WOW circuit powered and cover removed from WOW assembly, perform the following calibration checks through the test header (J1) on the WOW circuit board.	
	Voltage on pin 10 relative to pin 16 (gnd) = 2.700 ±0.010 VDC	Adjust R24 if required
	Voltage on Pin 12 relative to pin 16 = 2.500 ±0.005 VDC	Adjust R6 if required
	If either voltage cannot be set properly, contact Aerocet Customer Service	
	With aircraft hanging from wings or in flight, WOW circuit powered and cover removed from WOW assembly, perform the following calibration checks through the test header (J1) on the WOW circuit board.	
	Voltage on pin 10 relative to pin 16 (gnd) ≤ 2.400 ±0.100 VDC	If voltage out of range, contact Aerocet Customer Service
	Voltage on Pin 12 relative to pin 16 = 2.500 ±0.005 VDC	If voltage out of range, contact Aerocet Customer Service

NOTE

When aircraft is in flight or is hanging from wings, the green LED on the WOW circuit board should be ON. When aircraft is on the ground or on the water, the green LED on the WOW circuit board should be OFF. If both of these are correct and the flight HOBBS meter still does not log flight time and aural stall warning is still inhibited when in flight, contact Aerocet Customer Service.

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15.0 INSTALLATION, REMOVAL AND CONVERSION INFORMATION

15.1 Float Installation

This section should be used in conjunction with Chapter 32 of the KODIAK 100 Airplane Maintenance Manual.

15.1.1 Description

Each float is attached to the airplane by forward, mid, and aft struts. The front strut is bolted at the top to the forward fuselage fitting, part 66-12102. The boarding step strut is attached to the cabin boarding step mount. The mid and aft struts are bolted to the trunnion on the upper end. At the lower end, the struts are bolted independently to lugs on the float.

The floats are braced by a system of crossed streamline wires (tie rods). These are connected from the trunnion to the opposite rear deck fitting, and similarly from the top of each front strut to the opposite front deck fitting. Each bracing wire (tie rod) is provided with a threaded end, bushing, and lock nut for tightening and rigging adjustment. Two steps are attached between the forward and step strut, on each side of the airplane, for entrance to the cockpit.

The 6650 amphibian floats may be towed or hand pushed with the gear in the fully down position if desired. Hydraulic pressure is not necessary. The front wheels are fully castering, allowing a very small, indeterminate turn radius.

CAUTION

NEVER RETRACT OR DEPLOY FLOAT LANDING GEAR WITHOUT FIRST REMOVING ALL WEIGHT, AND FULLY SUPPORTING AND SECURING THE ASSEMBLY.

The gear is fully tested to withstand all landing loads in the fully deployed condition without hydraulic pressure; however, the hydraulic system is not designed to support the weight of the floats or aircraft.

WARNING

Always ensure security and balance of suspended assembly. Never place any body part beneath suspended floats without first securing and properly blocking. Injury or death may occur if ignored.

15.1.2 Float Handling, Jacking and Towing 6650

See also Section 15.1.4 (Hoisting)

1. In order to service the float bottoms or aircraft installation rigging, the floats may be lifted with hydraulic jacks, or by taking the top fairing off the wing/fuselage intersection, looping a strap through the front spar attach point, and lifting with a spreader bar and winch. The best lift point for hydraulic jacks on the keel is 7 inches ahead of the step; this

locates the jack directly under the main bulkhead in the float and nearest the strong step area.

2. Use a 2x6 board in between the jack and the keel to distribute the load and reduce point pressure on the float structure.

CAUTION

Never lift the assembly with a small surface, like an edge or a point. This introduces unnecessarily high stresses that can damage structures. Assure use of clean, quality lumber of similar dimensions offered here to minimize point loads and to distribute them over larger areas. Avoid using metals or other hard materials that might damage float or finishes.

3. After raising the float, block the float in two places, one ahead of the step and the other aft of the step. It's best to position sawhorse(s) beneath bulkheads, which are located 80.00 inches or 122.64 inches aft of the step.

4. The airplane may be otherwise lifted with a launching dolly or large forklift under the spreader bars. Lift as closely as possible to the float hulls without touching the hulls.

WARNING

Always ensure security and balance of suspended assembly. Never place any body part beneath suspended floats without first securing and properly blocking. Injury or death may occur if ignored.

5. Towing the amphibious aircraft can be done by a rigid "V" frame attached to the tow lugs on the front of the lower nose gear springs (Figure 15-1 and Figure 15-2) or by a rope yoke around the forward strut deck fittings. Care should be taken to not run over curbs or other obstacles that could overstress the nose landing gear.

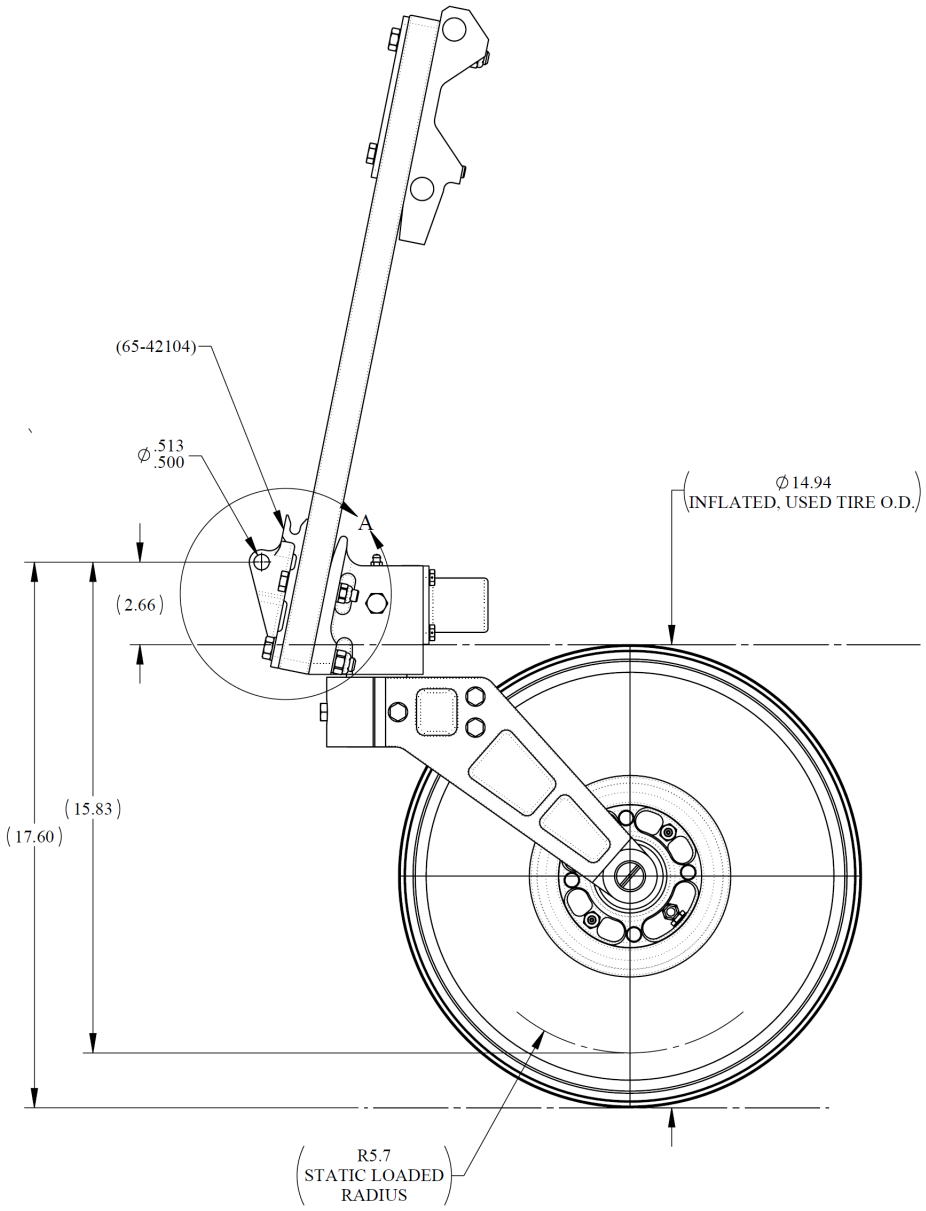

Figure 15-1 Showing Towing Lug for 6650 Nose Gear

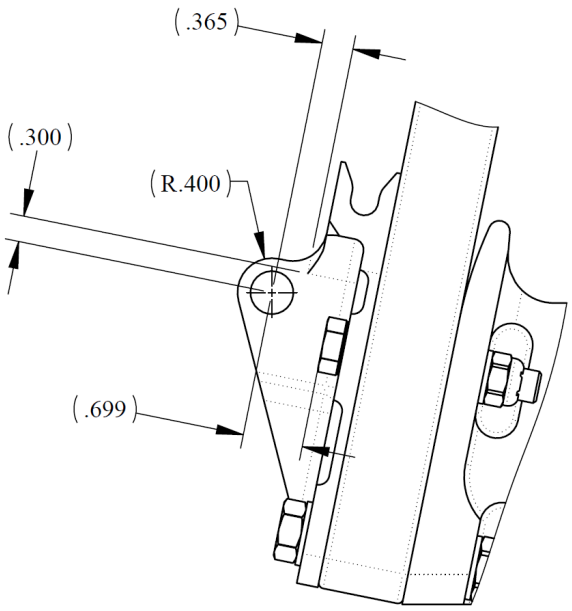

Figure 15-2 Showing Towing Lug Details

6. Turning radius of the floats is minimized by the design of the 360° castering nose wheels.

15.1.3 Float Handling, Jacking and Towing 6750

1. Lifting with Spreaders: The spreaders used on the 6750 Seaplane floats are of lighter construction than those of the 6650 Amphibian floats and will not support lifting loads of an aircraft at full gross weight.

> **CAUTION**
> Never exceed 5,200 lb. gross weight when lifting 6750 Seaplane by the float spreaders. Lifting devices located beneath the spreaders shall be applied as widely as possible without contacting the sides of the float hulls.
> In no case shall lifting devices be located more than 12 in. from the float hulls.

2. Initial Lifting from inside chines: The 6750 Seaplane Floats may be lifted from the inside chines in order to create enough space to use a floor jack beneath the keels. Use a 2 x 4 x 12 in. piece of lumber to spread the load, 7" ahead of the step, centered on bulkhead.

CAUTION

Never lift the assembly with a small surface, like an edge or a point. This introduces unnecessarily high stresses that can damage structures. Assure use of clean, quality lumber of similar dimensions offered here to minimize point loads and to distribute them over larger areas. Avoid using metals or other hard materials that might damage float or finishes.

3. Using either the spreaders, or the inner chine of the floats (see above), lift the floats high enough to locate a floor jack beneath the keel, centered 7 in. forward of the step. Use a 2 x 6 x 8 in. block of lumber between the float keel and the jack.
4. Once raised, install blocks beneath the floats to support and secure the suspended assembly. This is required to prevent injury or damage should the jack(s) fail, or the load become otherwise imbalanced. Locate blocks beneath bulkheads, such as 73 in. ahead of step and 80 in. aft of the step.

WARNING

Always ensure security and balance of suspended assembly. Never place any body part beneath suspended floats without first securing and properly blocking. Injury or death may occur if ignored.

15.1.4 Hoisting

See also Sections 15.1.2 and 15.2.3 Float Handling, Jacking and Towing 6650 and Float Handling, Jacking and Towing 6750

WARNING

Always ensure security and balance of suspended assembly. Never place any body part beneath suspended floats without first securing and properly blocking. Injury or death may occur if ignored.

1. Procure/fabricate
   a. A mobile crane unit with the capacity to lift 8,000 lbs., at a distance 20 feet away from the vehicle, with vertical height minimum of 20 feet.
   b. A forklift and fabricate an extension to adapt the forks to the tail-tie down bolt hole for aircraft pitch control during hoisting.
   c. Two six-foot nylon loops with 4,000 lbs. minimum strength (2-inch wide 6400 lb. recommended).
   d. 6x6 inch wooden beam cut to 18 inches in length.
   e. Crane/hoist adapter suitable to adapt the crane hook to the two nylon straps which will be 52 inches apart.

2. Loop the nylon straps under the forward main wing spars.
3. Connect the forklift to the tail tie down of the aircraft.
4. Position the crane hook and adapter over the nylon straps and connect.
5. Lift the aircraft until all landing gear are free and clear of ground and retract the landing gear.
6. Set the aircraft down on the float keels, using wood to protect the keels and floor.
7. Set tension on the crane so that the aircraft barely has weight on the floor.
8. Place the wooden 6x6 beam standing upright under one float to prevent the floats from tipping back.
9. Maintain communication between mechanics and the forklift and crane operators. It may be necessary to make adjustments to extract bolts. It is also recommended to have extra persons should it be necessary to adjust the roll axis orientation of the aircraft.
10. The upper end of all four flying wires connect to eyebolts that pass-through fittings and are secured with nuts. For the forward flying wires, remove the cotter pins and nuts, and pull the bolts out with flying wires still attached.
11. Loosen to finger tightness, but do not remove the nut securing the aft flying wires' eyebolts to the trunnions.
12. Remove the boarding steps under the pilot and copilot entrances (two per side)
    a. Remove the aft crew boarding steps support by removing the lower attach bolt, and very gently tipping upward while pulling outward. It is not necessary to remove the two screws at the upper end of the support.
    b. Remove four bolts per side, that connect the trunnions to the airframe.
    c. Lift the aircraft off of the float assembly.
    d. At this point, either the aircraft will need to be swung away from the floats, or the floats will need to be removed from under the aircraft. It is recommended to have 2 or four strong flat dollies for moving the floats.
    e. With 4 men, lift up on the aft of both floats.
    f. Position dollies under the aft of the keel (the "Skeg") it is possible to balance on 2 dollies but 4 are recommended.
    g. Move to the front of the floats and lift once more, placing additional dollies 6 feet ahead of the skeg.

15.1.5 Boxing the Floats

6650 Amphibian: Reference 65-10001 AEROCET MODEL 6650 FLOATS, TSO ASSEMBLY

6750 Seaplane: Reference 65-20001 AEROCET MODEL 6750 FLOATS, TSO ASSEMBLY

1. Place the floats a suitable distance apart, and in a parallel position.
2. Identify by markings on the spreader bars which spreader bar goes to the front and which to the rear (F for front or B for back). The markings will always end up on the bottom of the spreader bar when installed.
3. Make a mark on each spreader bar by measuring the depth of the slip tubes (socket) to assure the spreader bar is not installed too deep, fracturing the outside skin on the float.
4. Treat the insides of the slip tubes and outsides of the spreader bar ends with white lithium grease.
5. Insert the forward and aft spreaders into one float until the pre-drilled holes align with the deck plate holes.
6. Insert AN8 bolts into position at this time. It is advisable to put some EZ-Turn Grease or equivalent on the bolts for final assembly. Wipe off excess under the bolt head before it seats (1/2" up) and apply Sika-Flex 292 or equivalent urethane adhesive sealant for a waterproof seal under the bolt head.
7. Insert opposite ends of the spreader bars into the opposite float. It may be helpful to affix a strap to the deck cleats of each float, cinching them together in tandem with incremental movements until the pre-drilled holes line up. Note again in the process that the spreader bar is not inserted beyond the mounting holes and damaging to the float.
8. Finalize by introducing the clamps blocks (56-10202), necessary washers, and self-locking nuts.
9. Torque the bolts to 25 ft-lb. and coat the bolt and nut with EZ-Turn Grease or equivalent.
10. Seal the gap at the interface between the spreader bar and the inside of the float with a fillet of black Sika-Flex 291, 3M 5200 or equivalent. Do not use silicone for this application.

15.1.6 Aerocet Drawings Required for Conversion from Wheels to Floats

See Sections 19.1 and 19.2 Installation Drawings 6650 Amphibian:, and Installation Drawings 6750 Twin Seaplane: for installation document listing.

15.2 Installation/Replacement of Struts

6650 Amphibian: 66-12020 STRUT INSTALLATION, AEROCET MODEL 6650 FLOATS, KODIAK AIRCRAFT

6750 Seaplane: 66-11020 STRUT INSTALLATION, AEROCET MODEL 6750 FLOATS, KODIAK AIRCRAFT

15.2.1 Forward Struts

A new optional forward strut is available. Although the existing struts conform to existing CFRs, this new strut exceeds requirements and was developed for rough seas. Instructions to replace existing struts are as follows:

1. Hoist airplane and secure.
2. Support floats.
3. Loosen and remove upper forward tie rods.
4. Remove AN48 eyebolts (upper Strut) and AN8-25 Bolts (lower strut).
5. Inspect fasteners and tie rods for any damage or corrosion.
6. Install new struts.
7. Reinstall tie rods.
8. Apply EZ-TURN Lubricant by United Erie, (readily available through common aviation supply outlets) or equivalent to all fasteners during and after installation to inhibit corrosion.
9. Fastener torque in accordance with Section 1.4. Fastener Torque
10. Adjust tie rods and rig installation in accordance with either 66-12020 Rev E or later, or SL23-66-12020 (Instructions to Tie Rod Adjustments), or per instructions listed below.
11. When replacing 66-12120 strut assembly with 66-12126, enter a weight change of +5.1 lb. at FS 2.9 in. aft of firewall or complete new weight and balance measurement.

15.2.2 Replacement of Mid Struts

Consider the Weight on Water (WOW) harness when replacing mid struts. (See A-A-31021.) Note that hydraulic lines from the floats are routed through this strut.

1. Hoist airplane and secure.
2. Support floats.
3. Loosen and remove upper forward tie rods.
4. Remove AN48 eyebolts (upper Strut) and AN8-25 Bolts (lower strut).
5. Inspect fasteners and tie rods for any damage or corrosion.
6. Install new struts.
7. Reinstall tie rods.

8. Apply EZ-TURN Lubricant by United Erie, (readily available through common aviation supply outlets) or equivalent to all fasteners during and after installation to inhibit corrosion.
9. Fastener torque in accordance with Section 1.4. Fastener Torque
10. Adjust tie rods and rig installation in accordance with either 66-12020 Rev E or later, or SL23-66-12020 (Instructions to Tie Rod Adjustments), or per instructions listed below.
11. When replacing 66-12120 strut assembly with 66-12126, enter a weight change of +5.1 lb. at FS 2.9 in. aft of firewall or complete new weight and balance measurement.

15.2.3 Replacement of Aft Struts

Refer to installation drawings, and to Installation of Sleeve to Trunnion (6650). Note that the electrical from the float sensors and the hull anode are routed through this strut.

1. Hoist airplane and secure.
2. Support floats.
3. Loosen and remove upper forward tie rods.
4. Remove AN48 eyebolts (upper Strut) and AN8-25 Bolts (lower strut).
5. Inspect fasteners and tie rods for any damage or corrosion.
6. Install new struts.
7. Reinstall tie rods.
8. Apply EZ-TURN Lubricant by United Erie, (readily available through common aviation supply outlets) or equivalent to all fasteners during and after installation to inhibit corrosion.
9. Fastener torque in accordance with Section 1.4. Fastener Torque
10. Adjust tie rods and rig installation in accordance with either 66-12020 Rev E or later, or SL23-66-12020 (Instructions to Tie Rod Adjustments), or per instructions listed below.
11. When replacing 66-12120 strut assembly with 66-12126, enter a weight change of +5.1 lb. at FS 2.9 in. aft of firewall or complete new weight and balance measurement.

15.2.4 Installation of Trunnion and Sleeves

(Reference 66-12105, Trunnion 66-12106 Sleeve and Figure 15-3)

Work instructions for easier installation of sleeve 66-12106 to 66-12105 trunnions are shown below:

1. Clean trunnion pins of debris and contaminates.
2. Apply EZ Turn Lubricant to all contact faces of trunnion pins.
3. Place 66-12105 Trunnion(s) in a freezer or other freezing environment of 0°-30°F, approximately. (This is to shrink the aluminum slightly and ease installation.)
4. Assure cleanliness of 66-12106 Sleeve(s).
5. With the trunnion(s) cooled (approximately 3-6 hours, min.), heat sleeve(s) to approximately 350° - 425°F in a capable oven. (Kitchen, commercial or toaster oven will suffice.) This will take 30 – 60 minutes. (This is to expand the stainless slightly and ease installation.)

WARNING
Use proper mitts or other protection when handling heated metal parts, or injury may occur.

CAUTION
Work quickly, one heated sleeve at a time, leaving any other sleeves in the oven to keep the temperature hot while the workpiece is being installed. If the workpiece cools too much, then the pressing will become more difficult, requiring an arbor press or possibly destructive removal.

6. Stand trunnion on end, on wood over a solid floor or solid surface. Work quickly to avoid cooling of the sleeve, align the sleeve over the trunnion pin and press the sleeve fully, the hat section seating against the aluminum shoulder of the trunnion. A sand mallet or rubber mallet may be used if needed to assure full seating.

WARNING
Do not use a steel or brass (or any other metal) mallet to seat the sleeves, or damage may occur.

7. Repeat for all other sleeves as necessary.

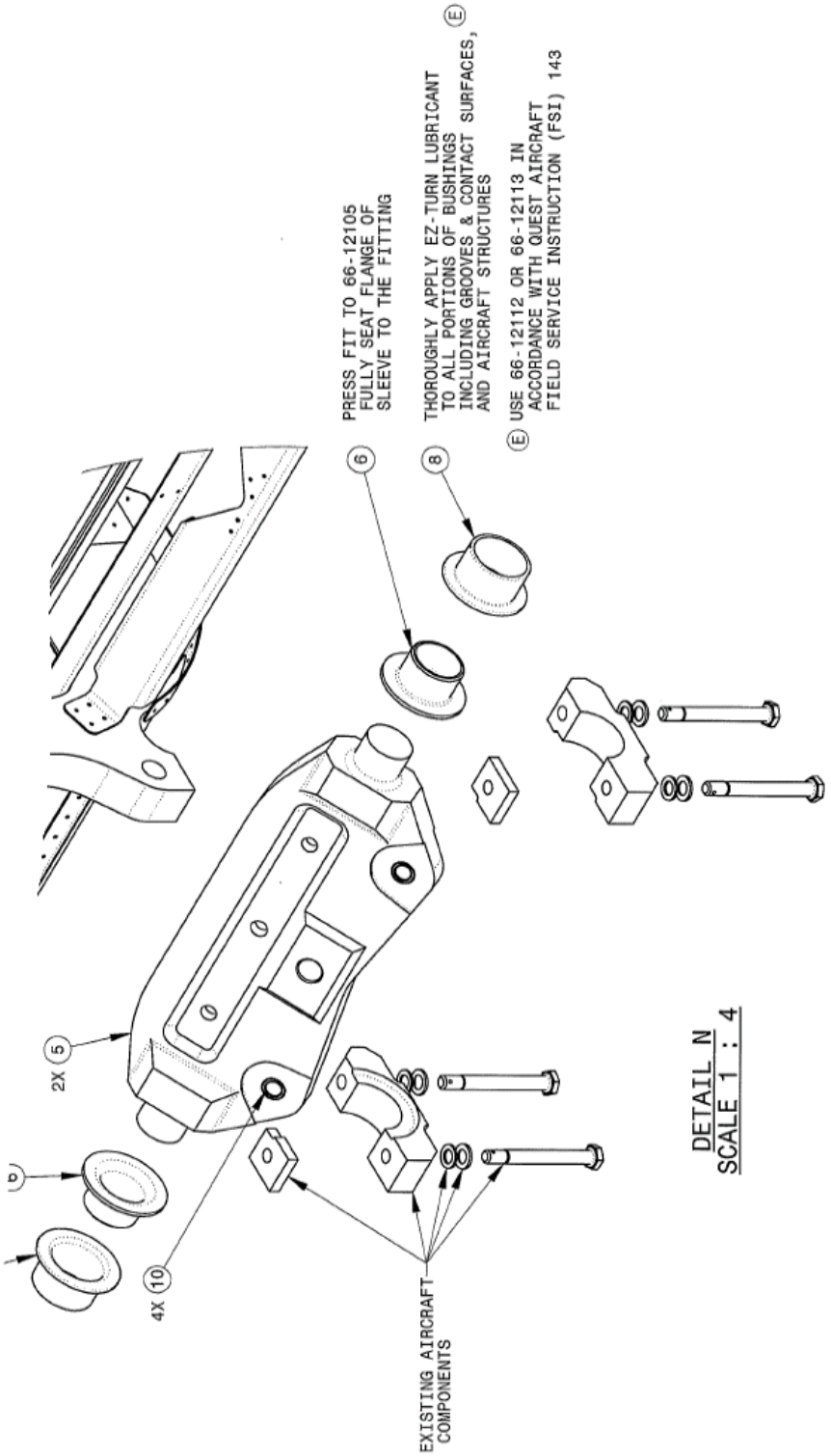

Figure 15-3: Exploded View for Sleeve and Trunnion

15.3 Tie Rod Adjustments

The following are instructions to properly adjust tie rods to ensure the aircraft is rigged squarely:

NOTE
Struts and tie rods must be completely boxed before adjustments are made.
See Section 15.1.4 (Boxing the Floats)

NOTE
Apply marine grade anti seize such as LOCTITE Marine Grade Anti Seize 8023 or similar to all threaded portions of tie rods.

1. Assure balanced fuel load in wings; empty is preferred
2. Assure even thread insertion in clevis ends. Minimum thread shall be evident past the witness hole shown in Figure 15-4.

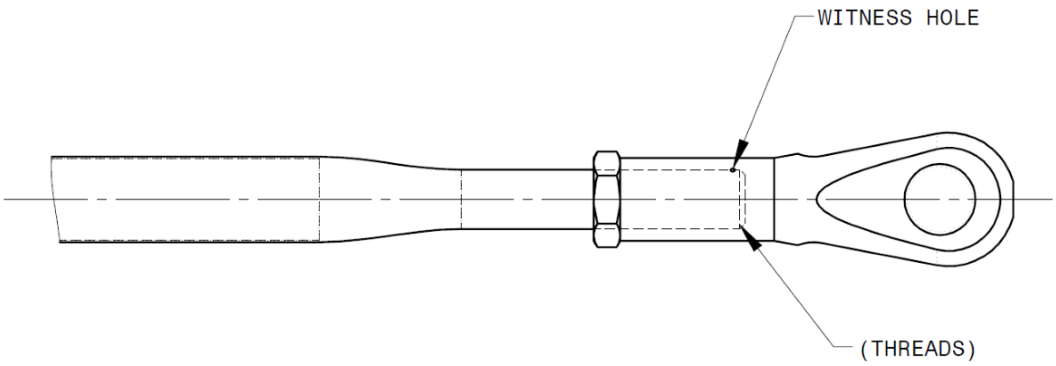

Figure 15-4: Witness Hole

3. FWD tie rod lengths, pin to pin, shall match (LHS and RHS).
4. AFT tie rod lengths, pin to pin, shall match (LHS and RHS).
5. Position of the mid deck fitting to wing strut tie down shall match within 1" LHS to RHS. [Ref Dimension B, Figure 15-5 below using like points of reference for each side].

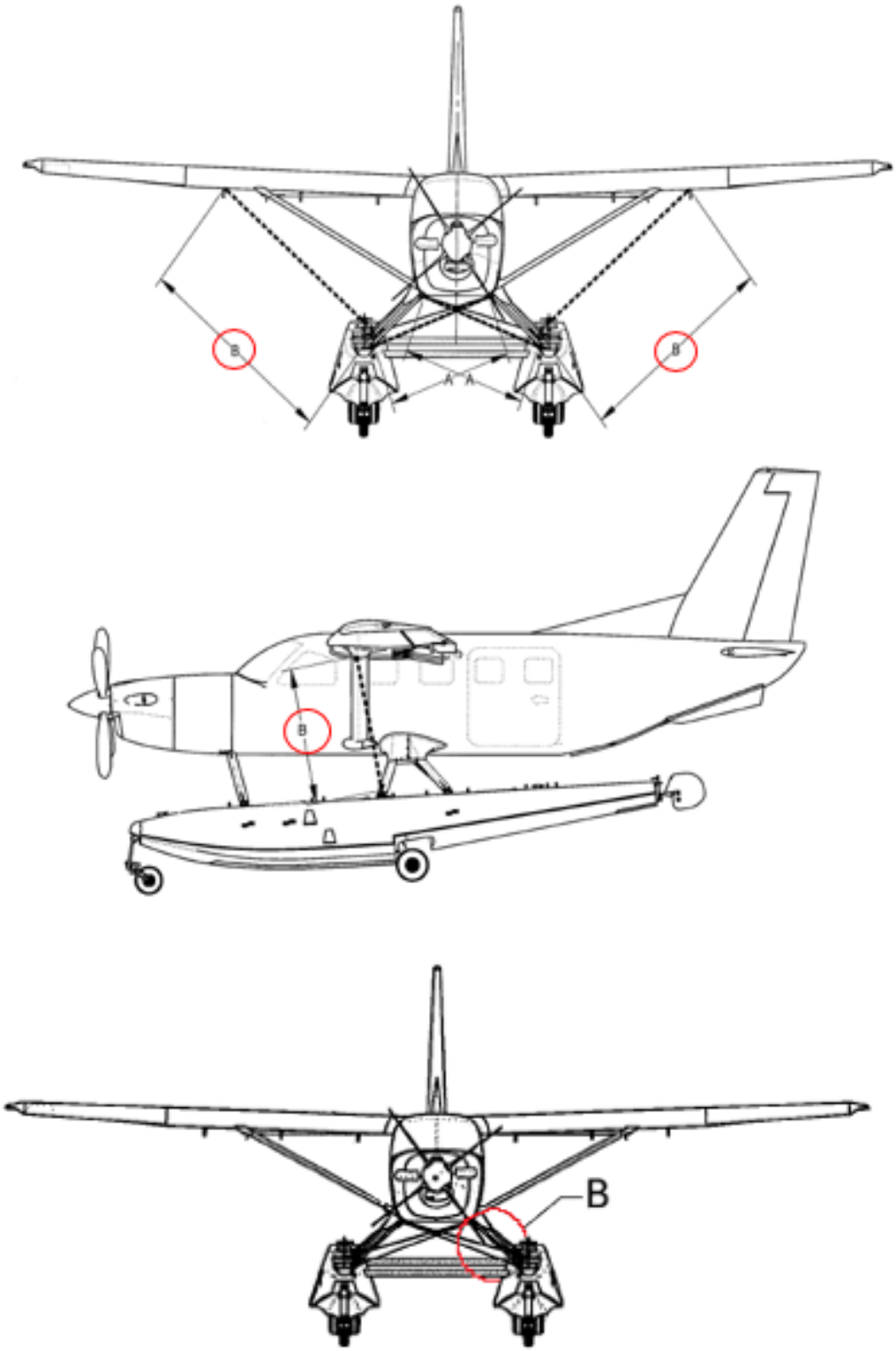

Figure 15-5: LHS and RHS Reference B on Kodiak

6. Tension of the FWD wires shown in Figure 15-6such that a 15lb. force at the center of the wires and perpendicular to the flat of the wire, deflects the wire .200-.300 inches.
7. Tension of the AFT wires shown also in Figure 15-6 such that a 50lb. force at the center of the wires and perpendicular to the flat of the wire, deflects the wire .100-.150 inches.

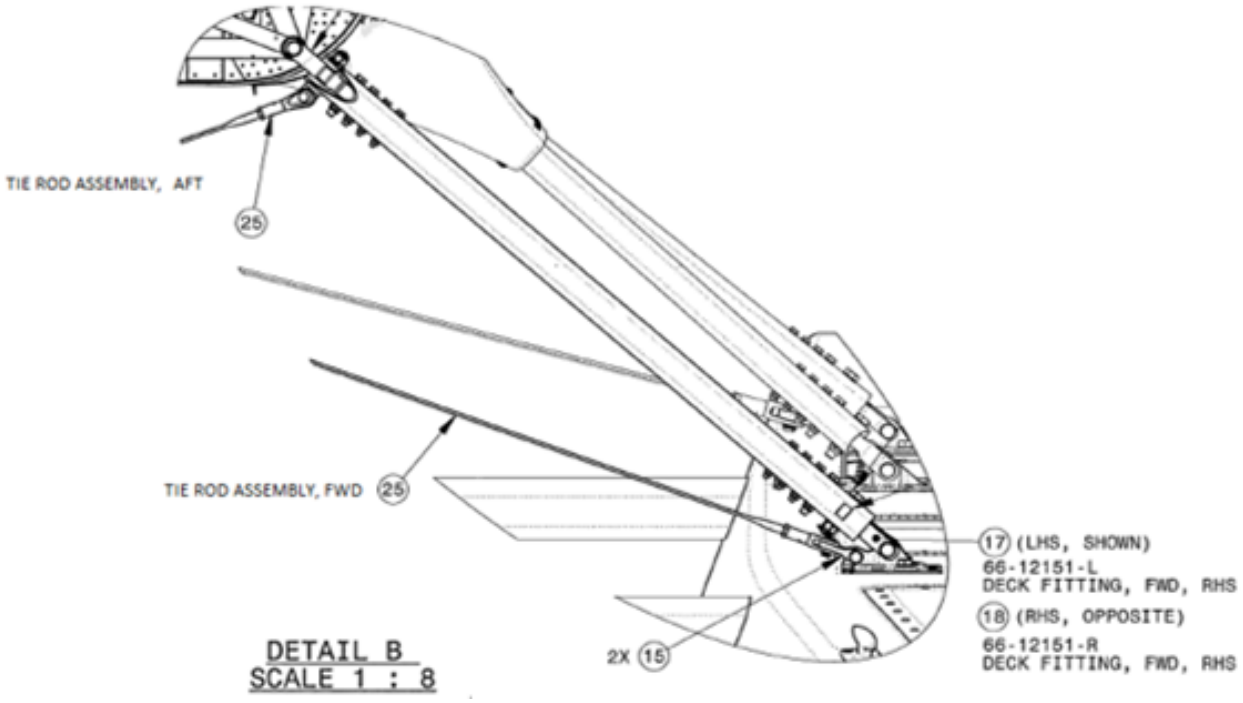

Figure 15-6: Forward and Aft Tie Rod Assemblies (66-12145)

8. Assure that the streamlined shape is oriented with the airstream. Tighten the jam nuts. (FWD: 270 to 300 in.-lb.) (AFT: 600 to 780 in.-lb.)
9. Insert chafe protection such as leather, Teflon or nitrile sheet or tubing of about 1 in. length, located between wires at intersections. Secure with weather resistant lace, or cable ties. Heavy wall heat shrink (Polyolefin) is acceptable.
10. For re-installation or for used tie rods: lengths shall not exceed nominal length +.13” when measured in the free, uninstalled condition.

    66-12192 FWD tie rod max free length not to exceed 73.13”.

    66-12196 AFT tie rod max free length not to exceed 74.63”.

15.4 Water Rudder Installation

6650 Amphibian: 66-12200 WATER RUDDER RIGGING INSTALLATION, AEROCET MODEL 6650 FLOATS, KODIAK AIRCRAFT;
66-12201 WATER RUDDER RETRACT HANDLE ALTERNATE INSTALLATION;
66-47200 PEDESTAL, HYDRAULIC, KODIAK AIRCRAFT, AEROCET 6650 FLOAT

6750 Seaplane: 66-11200 WATER RUDDER RIGGING, AEROCET MODEL 6750 FLOAT INSTALLATION, KODIAK AIRCRAFT
66-11210 WATER RUDDER RETRACT HANDLE ASSEMBLY, KODIAK AIRCRAFT, AEROCET 6750 FLOAT

Water rudders are to be connected to the aircraft rudder steering cables (Figure 15-7) through a series of pulleys in accordance with Drawing No. 66-12200 for the 6650 Amphibian, or 66-11200 for the 6750 Seaplane.

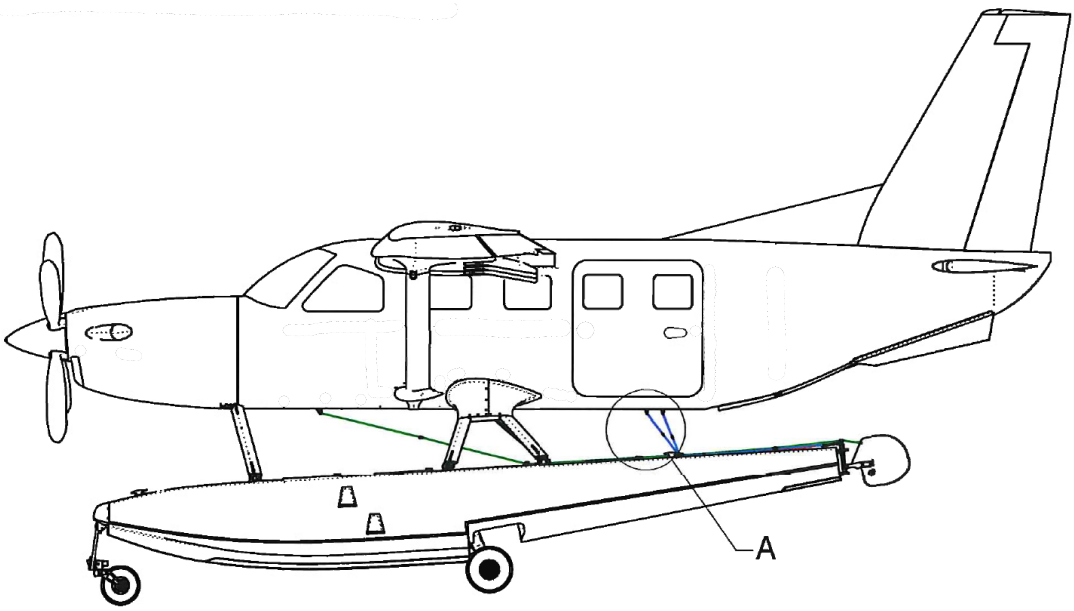

Figure 15-7 Water Rudder Cables

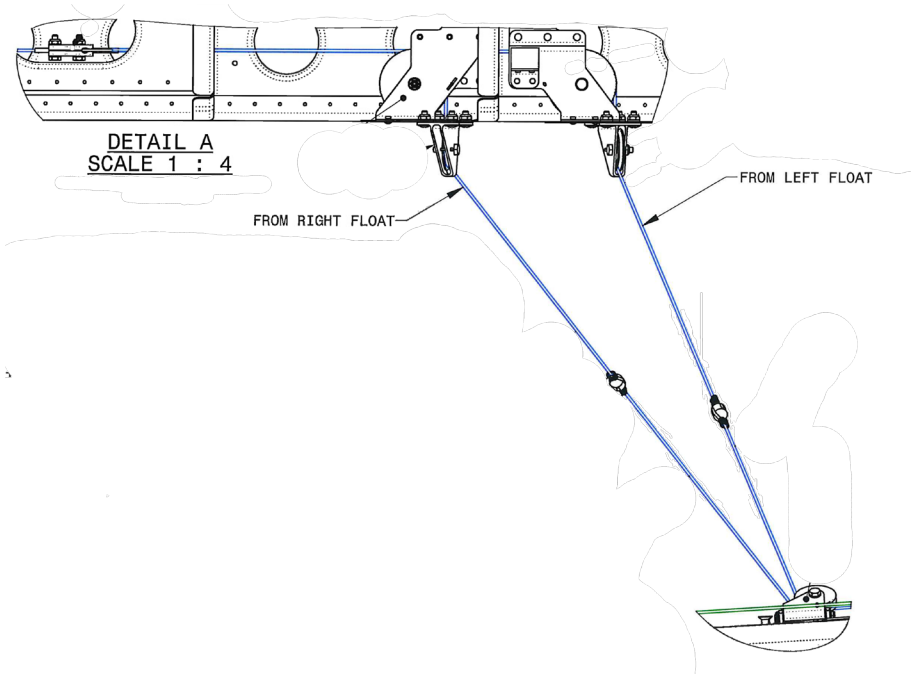

Figure 15-8 Water Rudder Steering Cables, with LSP Isolators

Approved cable terminations and their options are specified in the installation drawings.

Lightning Strike Protection (LSP) isolators are required on the rudder steering cables between the float decks and the aircraft fuselage as show in Figure 15-8. They are not required on the retract cable and will isolate the aircraft from the water rudder anode if installed. If you wish to remove the LSP isolator from the retract cable, then use the following instructions.

15.4.1 Water Rudder Retract Cable for Customers in Marine Environment

For customers in a marine environment, corrective action can be taken to minimize corrosion by establishing a connection to the existing zinc anode on the water rudder blade. See Section 15.4.1 Water Rudder Retract Cable for Customers in Marine Environment

Instructions for Removal and Replacement:

1. If applicable, remove existing water rudder retract cable Part No. 66-12220-7.5
   a. Disassemble bolt assembly at the wye intersection below the aircraft belly.
   b. At the pedestal retract handle, cut the cable somewhere above the floor of the aircraft, allowing it to pass through and out of the aircraft.
   c. Remove cable from retract handle. Keep the fastener hardware for re-use. (Note: self-locking nut may be replaced at the discretion of the mechanic.)
   d. Discard the cable pieces. These will not be reused.
2. At the wye, below the aircraft, re-assemble the cables using the new assembly in place of the old. (The new assembly has no insulator in line. This will establish an electrical

connection to the water rudder.) Apply anti-seize during bolt assembly at the wye, and also apply EZ-turn to it when completed.

3. Feed the loose end of the cable through the pulleys, then to the water rudder retract handle.
4. Slide on the shrink tubing (insulation sleeve) M23053/5-106 prior to looping the cable around the cable eye and out of the way temporarily. (Will finish installing this in step 12.)
5. Install the cable eye (or thimble) Part No. AN100C4 to the retract arm. (It will hang loosely around the bolt and bushing.)
6. Install the Nicopress bushing loosely on the cable.
7. With the water rudder retract arm in the "down" position (fwd), loop the cable around the retract cable eye, assuring that the Nicopress Part No. MS51844-23 fitting is behind the eye. Feed the cable back through the Nicopress fitting and push it snugly against the eye.
8. Temporarily secure the cable position using a U-bolt style clamp (provided). See Figure 15-9 below. (DO NOT crimp the Nicopress until the rudder position adjustment is verified.)

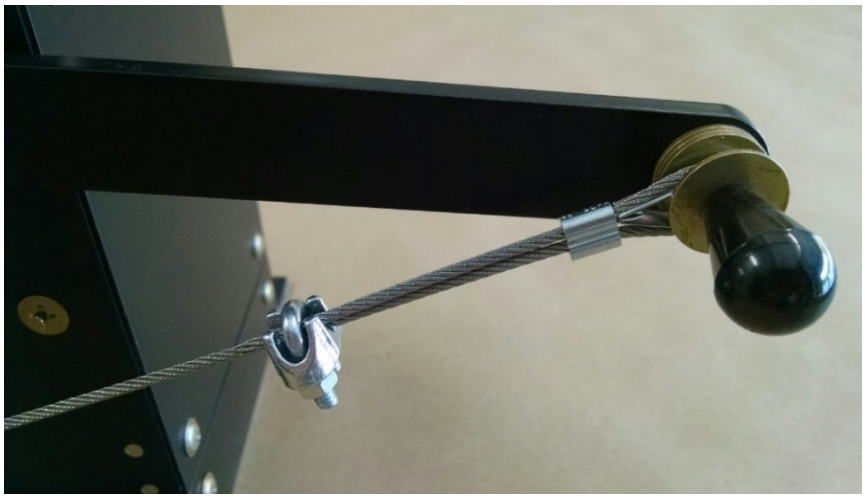

Figure 15-9: Securing Temporary Position with U-Bolt Clamp

   a. Verify the water rudder position
   b. Water rudder retract cable must be adjusted in such a manner that the rudder reaches the fully deployed position, against the stops.
   c. Additionally, there should be very little, if any slack in the cable when in the deployed position.
   d. 7Water rudder retract cable must be taught enough to pull the rudder highly enough behind the float as possible.

9. Once the position is verified; then crimp the Nicopress fitting, assuring that it is firmly located against the cable eye.

10. Remove the U-bolt style clamp and trim the loose end of the cable closely to the Nicopress fitting.
11. Slide the insulation sleeve over the Nicopress, particularly over the trimmed cable.
12. Carefully apply heat until it is fully compressed on the cable. See Figure 15-10 below. (Intent is to prevent injury from frayed cable ends.)

Figure 15-10: Insulation Sleeve over Nicopress

NOTE

Aerocet does not recommend a pull test on MS51844-23 "NICOPRESS SLEEVES" as used on Water Rudder Retract Cable(s). Field-swaged sleeves must be installed using the proper tool, which has been shown to produce acceptable results, by checking with a terminal gauge.

WARNING

Proof testing the retract cable while installed may risk damage to other components and is not recommended.

It is suitable to crimp the sleeve, as depicted in AC43.13-1, Section 7-148, assuring 1/8" minimum cable extending from the completed sleeve. A longer cable end showing through the sleeve is acceptable. It is also suitable to install a heat shrink tubing to cover the sleeve and cable end after the installation is determined to be acceptable.

As a practical test, activate the water rudder retraction several times and ensure that no slippage is observed.

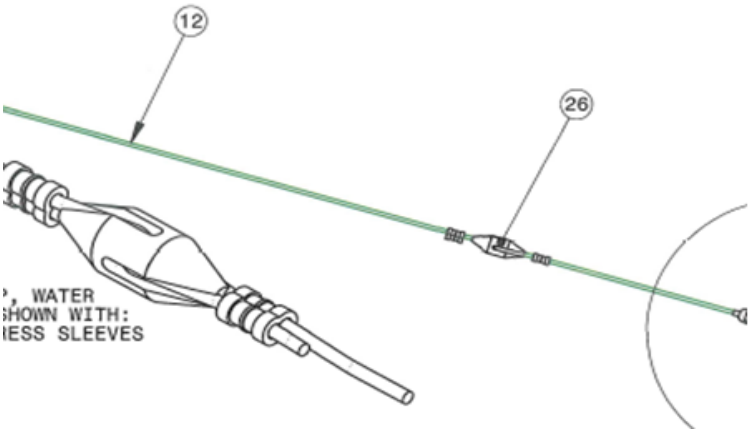

Figure 15-11: 66-12501 Insulator, Originally Installed on Water Rudder Retract Cable

Original installation (Figure 15-11 above) showing the 66-15201 insulator, which is to be removed and the entire water rudder retract cable replaced between the wye and the retract handle. (Do NOT remove insulators installed on the Water Rudder Steering cables.)

Figure 15-12 shows a water rudder retracted using the original handle.

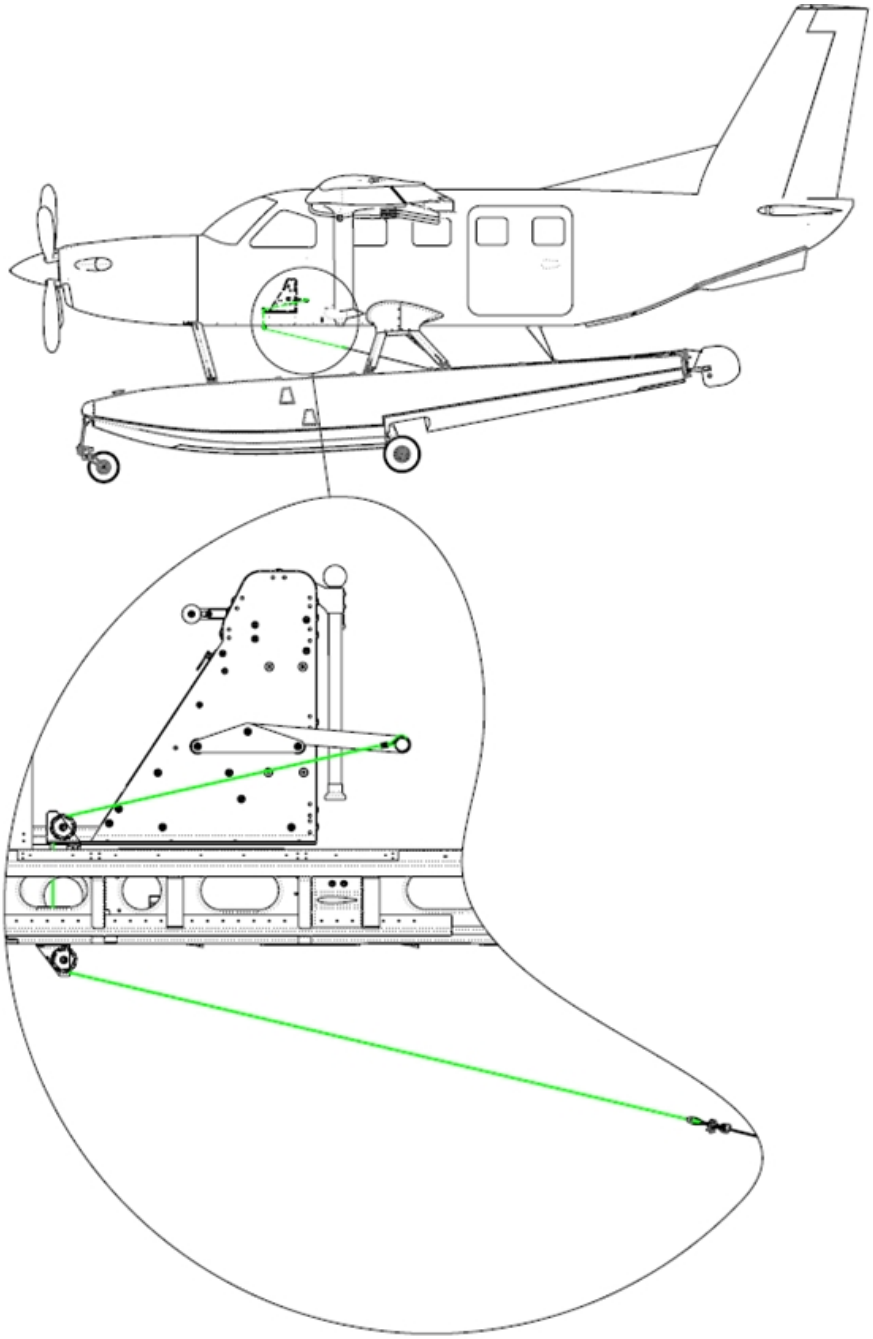

Figure 15-12: Water Rudder Retracted, (Original Handle Shown)

15.4.2 Alternate Water Rudder Retract Handle

Reference Drawings 66-12200, 66-12201 or IPC for 6650 Amphibian
Reference Drawing 66-11200, 66-11210 or IPC for 6750 Seaplane

Customers may wish to retract the water rudder blade to alternate positions. The following modifications to the water rudder retract handle and the addition of a pulley allow additional throw and adjustability.

1. The water rudder retract handle, alternate installation (Shown in Drawing Numbers 66-12201 or 66-11210) is intended to provide installers and operators a means of additional adjustment to water rudders.
2. All water rudder rigging requirements shall be in accordance with Drawings 66-12200 (Amphibian) or 66-11200 (Seaplane) water rudder rigging.
3. By use of the pulley and anchor system shown, the throw of the retract cable is increased, which will result in a water rudder that is higher when in the retracted position that it would be without.
4. Larger adjustments must first be done in the context of the rigging installation drawing.
5. Finer, incremental adjustments can be accomplished by the choice of fastener hole in 66-47403 retract arm.

> **NOTE:**
> Holes that are farthest from the retract arm pivot with the most throw, while holes that are **closest** will have the least throw. To assure the most possible throw, locate the wye of the retract cable as closely to the fuselage as possible without striking any structure in the fully retracted state.

6. Water rudder shall reach full extended (deployed) condition when arm is in the full, forward position, (Figure 15-13) in accordance with Drawing Number 66-12200. Avoid slack in the retract cable in this condition.

   See Figure 15-14 for fully retracted water rudder handle.

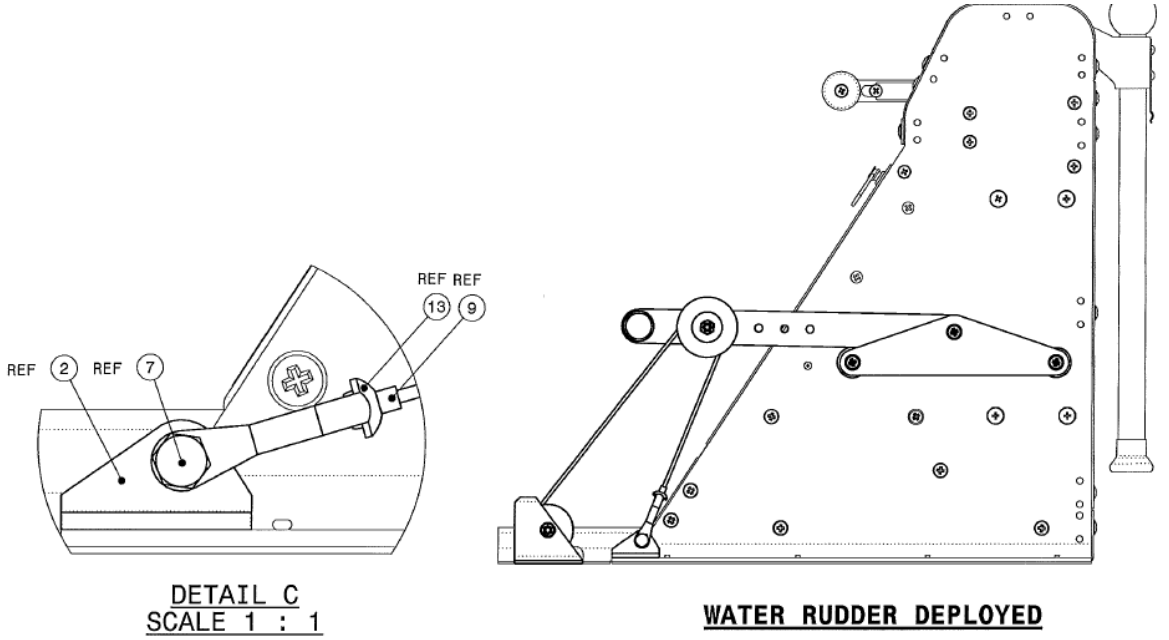

Figure 15-13: Water Rudder Deployed, Alternate Handle Shown

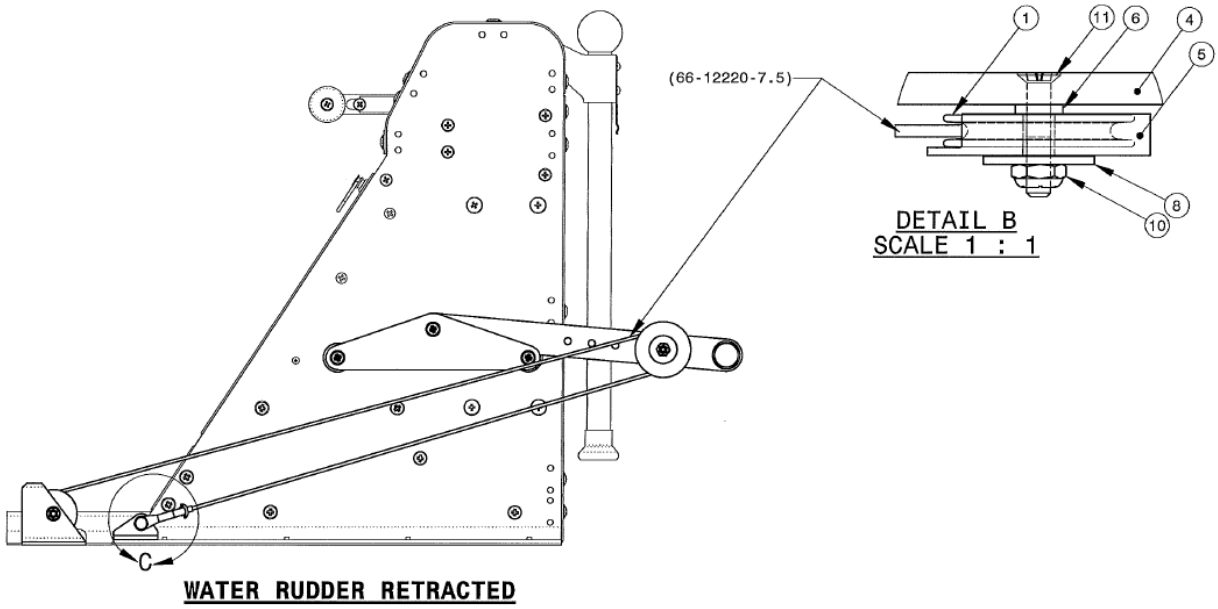

Figure 15-14: Water Rudder Retracted, Alternate Handle Shown

Table 15-1: Parts List for Alternate Water Rudder Retract Handle Installation

ITEM NO.	QTY	TYPE	PART NUMBER	DESCRIPTION
1	1	PART	35-34030	PULLEY
2	1	PART	66-12202	BRACKET, CABLE ANCHOR
3.	1	ASSY	66-12220-7.5	CABLE, RUDDER RETRACT, COMMON
4	1	ASSY	66-47400	WATER RUDDER RETRACT HANDLY ASSY
5	1	PART	66-47404	CABLE GUARD
6	1	PART	66-47405	CABLE GUARD BUSHING
7	1	HRDWR	AN3-4A	BOLT – MACHINE, AIRCRAFT
8	1	HRDWR	AN970-3	WASHER, FLAT (LARGE AREA)
9	1	HRDWR	MS20664C3	BALL & SINGLE SHANK
		HRDWR	MS21083C3	NUT, SELF-LOCKING, LOW HEIGHT, STAINLESS
		HRDWR	MS24694S57	MACHINE SCREW, FLAT COUNTERSUNK HEAD, 100°
		HRDWR	NAS1149C0363R	WASHER FLAT, STAINLESS
		HRDWR	NAS1435K3	FORK END

See Figure 15-15 for water rudder positions for the 6650 amphibian.

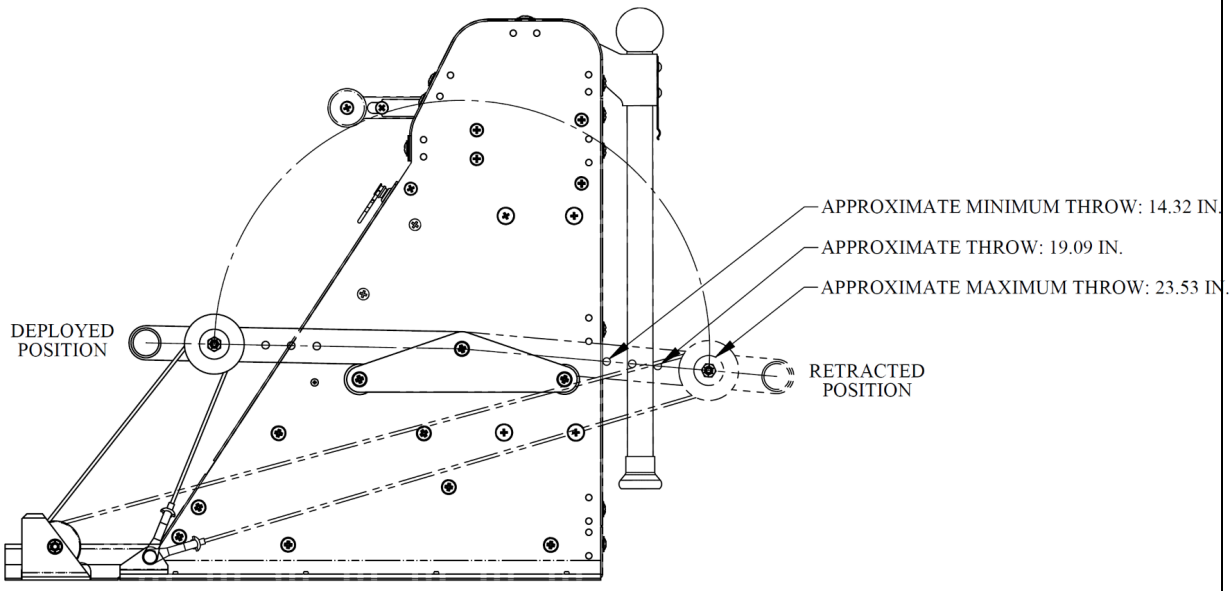

Figure 15-15 Showing Water Rudder Retract positions for 6650 Amphibian

15.5 Cabin Boarding Step Installation

(Reference IPC and Dwg. No. 66-12300)

After the struts and tie rods have been installed and adjusted, the cabin boarding steps can be installed to provide a means of entrance and egress from the fwd aircraft cabin.

Install in accordance with Drawing No. 66-12300.

15.6 Spot Mirror Assembly (Model 6650 Amphibian only)

Spot Mirror and Bracket Assembly provides a visual verification of landing gear position. It installs on an inspection panel under the aircraft wings, both port and starboard. Aircraft equipped with weather radar will have the starboard mirror attached to the aft fairing of the weather radar.

Install according to Drawing No. 66-12800.

15.7 Hull Anode Installation

Reference 66-12070 ANODE INSTALLATION for either 6650 Amphibian or 6750 Seaplane

15.8 Post Float-Installation Inspection

Reference 17.5 Post Float Installation Inspections

15.9 Float Removal Procedures

(Reference Section 15.1.4 Hoisting)

There are several basic steps to float removal. First is “Before Connecting Crane”, in which many of the internal components or non-supporting float structures can be removed from the aircraft before suspending the assembly, which is generally easier to accomplish. Second is hoisting the assembly for float removal. after which the float structures are disconnected and removed from the aircraft. Lastly, is replacement of aircraft landing gear, in accordance with Quest Aircraft procedures.

Amphibian floats may best be handled while the float landing gear is in the fully extended, down position. Hydraulic pressure is not required in order to support full weight, however, if the gear is located in any position beyond the fully extended, down position, you may damage components.

CAUTION

NEVER RETRACT OR DEPLOY FLOAT LANDING GEAR WITHOUT FIRST REMOVING ALL WEIGHT, AND FULLY SUPPORTING AND SECURING THE ASSEMBLY.

The gear is fully tested to withstand all landing loads in the fully deployed condition without hydraulic pressure; however, the hydraulic system is not designed to support the weight of the floats or aircraft.

If working on 6750 Seaplane floats, it may be helpful to set the floats on a piece of lumber or plywood to protect the keels as a precaution. Refer to Section 15.1.3 Float Handling, Jacking and Towing 6750 for lifting floats.

15.9.1 Before Connecting Crane:

1. Remove cowling.
2. Disconnect both batteries.

WARNING
DE-FUELING OF AIRCRAFT MUST BE PERFORMED TO PREVENT ROLLVER.
Do not attempt to remove float(s) before de-fueling.

3. Remove upper-forward wing root fairings.
4. Remove aft float strut/main landing gear fairings.
5. Remove all cotter pins on fuselage end of float struts.
6. Remove nose gear cover.
7. Open the aft bulkhead inside the aircraft.
8. Inside the aft belly, disconnect the swaged ball ends for the water rudder steering cables that penetrate the fuselage.
9. Regarding the same cables, unscrew the outside belly pulleys from the fuselage and pull the cables out of the aircraft. Secure them out of the way on the float structure.
10. Disconnect the water rudder retract cable where it exits the fuselage under the flight crew seats.
11. Disconnect and cap the 6 float hydraulic lines where they come out of the top of the float strut.
12. Remove float hydraulic lines in aircraft main landing gear bay. Hydraulic lines ahead of the main landing gear bay may be left in place if float reinstallation is anticipated. Cap any hydraulic lines that are left in the aircraft for later use. Hydraulic line support brackets may be left if desired, but remove the clamps and other hardware. Otherwise, remove the lines and brackets entirely. (Ref 66-12700)
13. Disconnect the float wiring harness from the connector in the aircraft main landing gear bay, and secure harness with clamps. (Ref 66-12700)
14. Gear advisory and circuit breakers may be left in the instrument panel if they are positively secured in the off condition.
15. Remove float pedestal if desired (66-47200 Amphibian; 66-11210 Seaplane). Install AN525-10Rxx (length as required) in unused nut plates.
16. Remove ventral fins and strakes.
17. Remove float mirrors. Re-use fasteners to plug holes, or replace inspection covers.

18. Remove boarding steps.
19. Remove float cabin boarding step fuselage mount. (To be replaced with aircraft crew boarding step.)

15.9.2 Removal of Float Assembly

Refer to Section 15.1.4 Hoisting before proceeding.

With the aircraft hoisted and secured:

1. Loosen and remove tie rods.
2. Loosen and remove struts from fuselage fittings. This will require help to lift and lower the aircraft, or shift its weight in order to remove fasteners and prevent the struts from being dropped or damaged.
3. Loosen and remove struts from float fittings and prepare them for storage.
4. Remove FWD fuselage fittings.
5. Remove float trunnions at aircraft main gear area.

15.9.3 Install Landing Gear

Install the aircraft landing gear or place the aircraft in a cradle approved by Quest Aircraft to make any necessary repairs.

15.9.4 Disassembly of the Floats

(Reference IPC 65-10001 Amphibian)
(Reference IPC 65-20001 Seaplane)

Disassembly of the floats may be performed to save floor space, or for storage in containers.

1. Remove urethane seal at the joint of the spreader and the slip tube on the inboard side of the hulls.

2. Deck fittings are best left attached, but care should be taken to protect them from damage during disassembly and storage.

3. Working from either the left or right hand float, remove all of the AN8 deck bolts and clamp blocks in that hull only. The bolts will likely be tightly fitted and may require some use of a sand mallet to tap them back out. Leave the bolts installed in the opposite hull.

4. To proceed from this point, you will likely need four people to “catch” and secure the float hulls, two on each hull. One or two people can then work the float loose, alternating pushing the fore and aft ends of the floats until the spreaders are free of the sockets. Keep the progress as even as possible to avoid damaging the spreaders or sockets.

5. As the spreaders break free of the sockets, try to stabilize each of the float hulls to avoid damage from either the spreader ends striking the ground or chipping the gel coat as they swing out of the socket.

6. Move the free float clear of the work area and secure the other in order to remove the spreaders from it next.

7. Following a similar procedure as before, remove the AN8 bolts and the clamp blocks from the remaining hull.

8. With at least two people, one on each end, securing the fore and the aft ends of the hull, work the remaining spreaders out of the sockets with a bit of a back and forth, or a circular, rocking motion.

9. Clearly mark the spreader to identify exactly from which floats it was removed, clean, wrap and store them as needed.

10. Refer to Section 13.5 Winter Storage of the Floats as necessary. Check that any hydraulic lines are suitably capped and protected from damage.

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16.0 STRUT AND COMPOSITE REPAIR MANUAL

16.1 Struts and Tie Rods

16.1.1 Negligible Damage

Smooth dents in the skin surface of the float, struts that are free from cracks and sharp corners may be classified as negligible damage, provided they do not exceed 1.0 inch diameter and 0.10 inch in depth. Multiple dents in one strut, provided they are at least 1.0 feet apart may be classified as negligible damage. Holes in the struts may be classified as negligible damage provided they do not exceed 0.25 inch diameter (for example, a miss-drilled hole for a step). Multiple holes in one strut may be classified as negligible damage, provided there are no more than two holes for every 4 inches of length.

Sharp notches in the tie rods, such as caused by striking an object, should be blended out with a 10:1 length-to-depth ratio. No more than .120" of material shall be removed. If this depth is exceeded, then replace the tie rod.

16.1.2 Repairable Damage

No other repairs are authorized without FAA approval

16.1.3 Damage Repairable by Replacing Parts

Any damage to the struts or tie rods that exceeds the negligible limits, or causes any bending, twisting, or cracking of the struts will necessitate complete replacement.

16.2 Main Landing Gear (MLG) Repair Bushings

In accordance with Quest Aircraft FSI 143, Aerocet Drawing No. 66-12020, Rev F or later, or 66-11020

The instructions for adding repair bushings (See Figure 16-1) are as follows:

1. Use 66-12112 or 66-12113 in accordance with Quest Aircraft Field Service Instruction (FSI) 143. Use Aerocet number(s) when Aerocet floats are installed.
2. For aircraft modified with Aerocet floats (installed), use Aerocet bushings listed in Table 16-1: Comparison Bushings below instead of Quest Aircraft bushings.

Table 16-1: Comparison Bushings

Comparison Bushings			
Quest Bushing (Land Plane)		**Aerocet Bushing (Float-equipped)**	
100-420-1109	2.063 +/-0.003in	66-12112	2.063 +0.00/-0.003in
100-420-1110	2.125 +/-0.003in	66-12113	2.125 +0.00/-0.003in

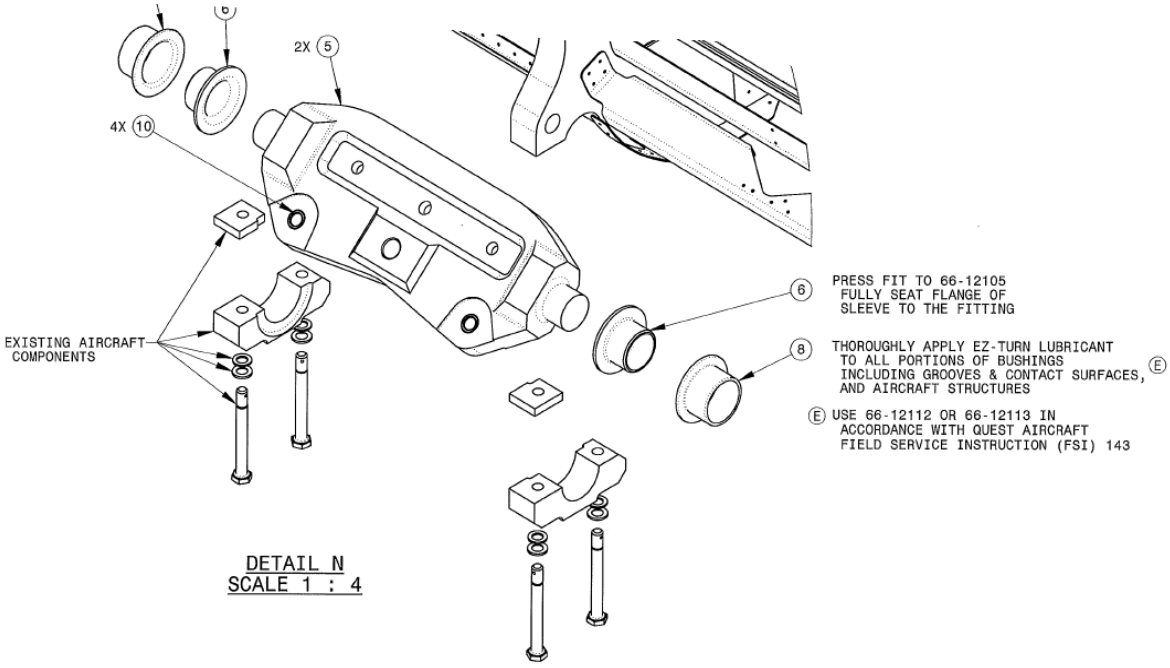

Figure 16-1: Repair Bushings

16.3 Composite Float Hulls

Composite float repair, done correctly, will obtain the strength required to put the float back into service and cosmetically show little or no evidence of damage ever having taken place. The materials used for original construction and repair are conventional to the industry. Any damage on the bottom of the float should be repaired immediately because of the tremendous water pressures encountered. Contact Aerocet, Inc. prior to beginning a repair to obtain correct materials, including resin (resins have shelf lives), catalyst, cloth, gel-coat, and resin thickeners. Epoxy underwater patch kits may be used in an emergency if the damage is relatively small, but the repair must be replaced with correct materials for equal strength status. Damage larger than 4.0 inches in size requires consulting Aerocet, Inc. for proper laminate orientation and assuring correct number of laminates in the damaged area.

16.3.1 Repair Types and Procedures

All repaired areas on the exterior must be surface coated (gel-coated) with a minimum of 10 mil thickness to assure UV protection. Types of repairs are described below:

1. Resin Starved Areas, Exposed Fibers, or Small Impact Damage Soft Spots (0.5 Inches Diameter or less)
   a. Sand surface in defective area to remove gloss.
   b. Use a brush, squeegee, or syringe to work resin into defective area. Use the same resin as the original laminate
2. Small Bruises, Punctures Less Than 0.25 Inches Diameter or Surface Voids

a. Sand surface in defective area to remove gloss.

b. Cut patches to fit correction area using the same fabric as the original part. Extending a minimum of 0.5 inch past the damaged area of each layer. All patch corners must be rounded.

c. Apply a light brush coat of resin so that it appears similar to the original coat.

d. Place one or more plies on detail covering correction area using impregnation of fabric as described below.

3. Cuts, Fractures, or Punctures 0.25 Inch Diameter or larger.

a. Cut back enough material to ascertain the extent of the damage. Trim back plies to a smooth oval; generally, 0.5 inch per ply.

b. If the area is large enough, supply backing to hold the shape of the original contour. Put a parting agent on this backing to assure its release.

c. Replace the fabric on a ply-for-ply basis overlapping 0.5 inch minimum on each succeeding ply using impregnation of fabric as described in section 13.4. Any smooth areas need to be sanded with 80-grit sandpaper to assure proper bonding.

d. If damage has occurred where there is sandwich construction involving the core, work each layer separately. Fix either the outside or inside skins. Then cut to fit like core material to replace the damaged core. Bond the core onto the repaired skin using the proper resin and thickener. A mixture of Hydrex resin and Aerosil 202 thickener should be applied to the bonding surface of the core using a squeegee (using Torin Corebond alternative is acceptable). A film of approximately 0.015 inches should be used. Apply pressure to the bond to assure proper adhesion to the skin and to eliminate air voids. Apply this pressure to small areas of core bonding using weights such as lead shot bags with a release film that eliminates sticking to any excess bonding material. Larger areas require the use of a vacuum bag for core bonding. Consult Aerocet, Inc. for this procedure. Fill any seam voids with a resin/glass bubble mixture. Apply the final laminates according to the ply schedule to finish the repair

16.3.2 Impregnation of Fabric

To impregnate fabric with resin, cut the fabric in a suitable shape, lay it on a flat surface, and apply the resin mixture evenly with a squeegee. Alternatively, you may impregnate the fabric with resin with the fabric on the defective area providing voids and starved areas are not produced. Impregnate the fabric in place by applying a thin coat of resin to the area to be laminated, applying the resin directly to the fabric using a squeegee or brush, and then laying the fabric down, rolling it into the resin. Any air in the laminate should be removed using a squeegee or brush.

16.3.3 Resin Mixing

Gel times or pot life is the time it takes the resin to set up in the container after proper and thorough mixing with accelerators and catalysts. Gel times can be adjusted significantly by varying the amounts of these materials. Gel times will also vary significantly with the batch size if left in a bucket or with a very thick laminate.

TYPICAL GEL TIMES USING HYDREX 33253, (33350-15 is similar) 100gm castings only; laminate times are typically double that of the gel times.

Table 16-2: Typical Gel Times Using Hydrex 33253

33%MEKP %Catalyst	Resin Qty	50°F	60°F	70°F	80°F
1.00%	100gm	60 min	32 min	23 min	15 min
1.50%	100gm	43 min	23 min	17 min	11 min
2.00%	100gm	35 min	20 min	15 min	8 min

NOTE

Under no circumstances should more than 2.0 percent catalyst mixture be used. Conversely, if you use less than the recommended minimum amount of catalyst (1.00 percent) the resin may never completely cure, resulting in a reduction of strength.

WARNING

Be extremely careful with the MEKP catalyst. Contact with eyes must be prevented. Blindness may result. Flush eyes immediately if MEKP catalyst makes contact with eyes, and contact a physician immediately. Never mix MEKP catalyst into the resin without eye protection.

16.3.4 Preparation for Carbon Fiber Materials

1. Carbon fiber cloth shall be trimmed on a clean table to prevent contamination.
2. When laps are necessary, lap widths of at least 0.5 inch shall be maintained for carbon fiber pieces in any given ply and no more than one of the component plies shall be lapped at any one place. The number of laps shall be kept to a minimum.

16.3.5 Surface Coat Application (Gel Coat)

1. All surface coats must be applied to a thickness of 10 to 15 mils. Use a mil gauge and check often. Waterline down is very critical to prevent blistering from water absorption.
2. All surface coats must be catalyzed with 2 percent MEKP.
3. Thinning of surface coats can only be done to manufacturer's recommendations.

16.3.6 Keel, Wear Strip, and Chine Bonding

1. Prepare keel area (Figure 16-2: Bottom of Float Hull Showing Wear Strip Installation) by sanding float surface with 80-grit sandpaper. It is desirable to mask out the area immediately surrounding the strips in order to avoid excess damage to the gel coat.

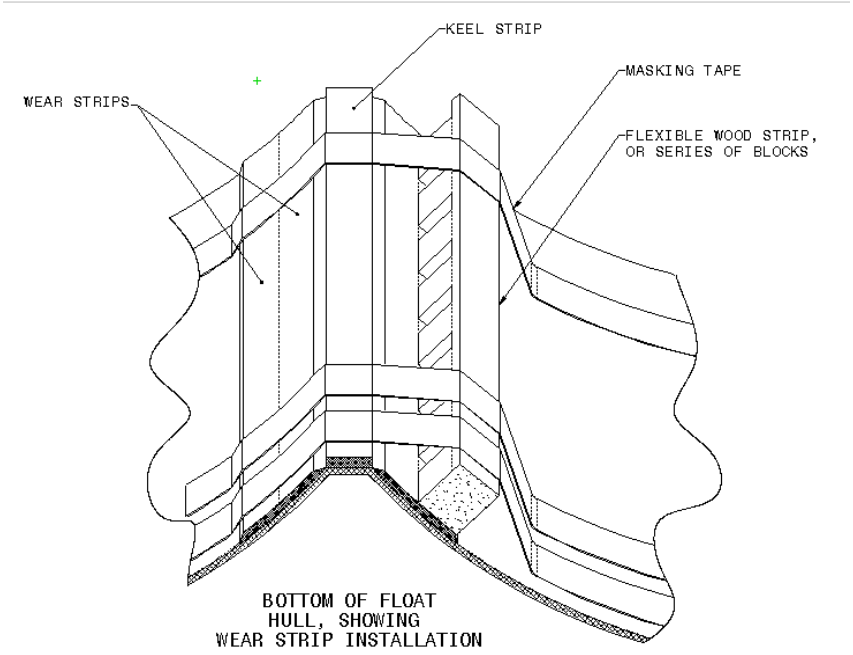

Figure 16-2: Bottom of Float Hull Showing Wear Strip Installation

2. Bond aluminum keel strips and chine aluminum angle extrusions using a marine grade urethane adhesive (e.g. Sikaflex 292). Fiberglass wear strips should be bonded using a mixture of Hydrex resin and Aerosil 202 thickener. A thick epoxy resin (clear type, not yellow) may be used to bond the fiberglass wear strips as well.
3. Wear Strips only: Affix strips as shown in diagram. Do not allow the resin to fully harden before trimming excess. Time to harden varies with temperature and ratios mixed. Another more advanced method of attaching these strips is with a vacuum bag setup.
4. Keel and Chine Strips only: Hold the keel or chine strip in place using an abundance of masking tape. Remove tape after the urethane cures and clean up excess material. Aerocet recommends carefully scoring the squeeze-out along the edges of the keel strips, then peeling it away in strips.

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17.0 RECOMMENDED SERVICE SCHEDULE, GENERAL PRACTICES & PRODUCT LISTINGS FOR SERVICE

17.1 General Practices

1. Metal Parts: check for corrosion (rust), stress cracks or metal distortion, elongation of holes, and rivet damage.
2. Critical Bolts: check for corrosion (rust), wear, and torque. It is recommended that some form of corrosion-inhibiting compound be applied to all threaded fasteners and other similar parts. Possible products used include those listed in the Product Listings that follow, but are not limited to these products. Apply per manufacturer recommendations only.
3. Composite Parts: check for stress cracks, gel coat presence (UV protection), and punctures. (Section 5 covers repair and re-work of composite parts.)
4. All parts/fasteners that penetrate float structures, such as a bulkhead or the float deck, must be sealed with marine-grade urethane adhesive such as Sikaflex 292.

17.2 Part 1, Preflight

Conduct Preflight inspections according to existing KODIAK 100 Airplane Maintenance Manual. Note: Immediately following completion of a float installation, a specific Post Installation Inspection may be followed. Reference §13.5 of this manual.

Float Specific items:

1. Check for water in all compartments with the float hand pump.
2. Check float lockers secured.
3. Water rudders are free and cables in place.
4. If on land, check for debris in the wheel well area and in the front nose gear tracks.
5. If on land, visually check the bottoms of the floats for any damage.
6. Assure that no lines have damaged wires or hydraulic lines protruding from the floats into the struts.
7. Check the flying wires for tautness.
8. Assure the ventral fins and strakes have no damage from docks or other obstacles.

17.3 Part 2, Daily Inspections

Conduct daily inspections according to existing KODIAK 100 Airplane Maintenance Manual, and refer to Table 17-1, Recommended Service Schedule, below.
Conduct wash-downs and apply corrosion inhibiting compounds in accordance with 13.0 Recommended Processes, Products, And Inspection Checklists.

17.4 Part 3, Periodic Inspections

Conduct periodic inspections according to existing Quest KODIAK 100 Airplane Maintenance Manual, and refer to Table 16.1, Recommended Service Schedule, below.

Table 17-1: Recommended Service Schedule

INSPECTION TIME INTERVALS						
			HOURLY LIMITS			
System	Item	Notes	25	50	100	Annual
Water Rudder System	Water Rudders and Tiller Posts	Inspect for damage and freedom of movement. Check immediately after a take-off or landing with the rudders down.	X		X	X
	Cables	Inspect for fraying, especially around pulleys, and inspect cable guards (cotter pins).			X	X
	Pulleys and Bushings	Inspect for freedom of rotation and condition of pulleys. Lube with LPS 2			X	X
Hulls and Struts	Float exterior	Inspect for damage, surface coat (gel coat - UV protection).			X	X
	Float exterior	Rinse with fresh water, daily if in salt or brackish water. Note 5			X	X
	Float exterior, bottoms	Inspect for damage, wear, keel wear strips and chine wear strips.			X	X
	Float interior	Inspect for evidence of damage from the interior vantage point.				X
	Access Panels and Pump Out System	Inspect seals, cracks in pump out tubes, attachment of pump out tubes, tube routing.				X
	Deck Blocks, Deck Plates and Hardware	Spray coat protection according to Note 1 and hardware according to Note 2. If working in saltwater, protect more frequently.			X	X

INSPECTION TIME INTERVALS						
			HOURLY LIMITS			
System	Item	Notes	25	50	100	Annual
	Struts and Strut Fairings	Inspect for damage and corrosion. Remove strut fairings to check upper attachments and inspect heat shrink of "Weight on Wheels" strain gage assembly.				X
	Tie Rods	Inspect for notches or dents.	X		X	X
	Baggage Compartment	Inspect seals, latches, internal damage from baggage.				X
	Anodes	Check anodes for signs that the anodes are corroding and for continuity. Remove oxide if necessary.	X		X	X
	Flotation Foam (6750 Seaplanes)	Inspect for condition and weight.			X	X
Placards	Cabin Placards	Inspect for placement and legibility.				X
Nose Landing Gear	Nose Gear Tracks	Inspect, clean and re-lube. Note 3	X		X	X
	Nose Gear Bottom Block	Lubricate. Do not lubricate without reading warning. Note 4		X		X
	Nose Wheels, Axles and bearings	Inspect according to Aerocet Dwg. A-10036. Inspect O-rings on tensioner bushings			X	X
	Nose Wheel Seals	Spray corrosion inhibitor on metal component of seal			X	X
	Nose Wheel Fiberglass Spring	Inspect for cracks, delamination, paint.			X	X
	Nose Gear Aluminum Parts	Inspect for corrosion, damage. Note 5			X	X
	Internal Protection	Apply corrosion spray to			X	X

INSPECTION TIME INTERVALS						
			HOURLY LIMITS			
System	Item	Notes	25	50	100	Annual
	of Nose Gear Box	box inside front float compartment (note #3).				
	Bolts - Hardware	Inspect for corrosion, apply corrosion protection (note #4).			X	X
	Nose Gear Lock & Slide Bushings	Inspect for wear, apply light amount of grease to slide pins through holes in lock.			X	X
	Seal Around the Nose Gear Box	Inspect for gaps and Reseal between box and float front. Spray corrosion inhibitor on metal component of seal.			X	X
Nose Landing Gear	Centering Device Check	Assure side to side travel at the axle is within limits and vertical travel is also within limits. Any shimmy indication should cause investigation of side play limits.				X
	Perform Retraction Test	Inspect travel & extra side play in deployed position, also perform emergency gear extension & retraction test.				X
Main Landing Gear	Main Gear Aluminum Parts	Inspect for corrosion, damage. Note 5			X	X
	Main Wheel and Bearings	Inspect according to Aerocet Document. A-10036.			X	X
	Main Gear Truck Drain	Remove lower plug on gear truck block between the axles to check for water. Note: It is filled with Styrofoam balls to protect from freezing damage. Don't spray or add any oil to this cavity (attacks foam).				X
	Brake Assemblies	Inspect for wear, leakage, corrosion		X		X

INSPECTION TIME INTERVALS						
			HOURLY LIMITS			
System	Item	Notes	25	50	100	Annual
	Cleanliness	Keep debris from building up, especially on the drag brace stop to assure over center operation & rock deflector		X		X
	Main Gear and Axle Seals	Spray corrosion inhibitor on metal component of seal, Inspect O-rings on tensioner bushings.				X
	Bolts - Hardware	Inspect for corrosion, apply corrosion protection. Notes 1,2,5			X	X
	Bushings/Attachment Pins	Remove pins and re-lube. Note 7				X
	Extension Springs	Assure they are in place without breaks			X	X
	Composite Gear Box	Inspect for cracks, damage			X	X
	Oleo Strut	Inspect for leakage, damage, pressure				X
	Perform Retraction Test	Inspect travel, also perform emergency gear extension & retraction test				X
Retraction System (Fluid)	Hydraulic Fluid Level	Check level - fill according to placard on reservoir	X			X
	Hydraulic Fluid Screen, Contaminates	Clean and inspect screen, Check for moisture & debris				X
	Hydraulic Lines & Fittings	Inspect for leaks, dents, corrosion, contact with airframe, cables, struts[6]				X
	Hydraulic Actuators	Inspect for leakage (fittings, seals), rod straightness, corrosion			X	X
Retraction System (Electric)	Pump, Solenoids, Pressure Switches	Inspect wiring, mounting, loose terminals, general condition			X	X

INSPECTION TIME INTERVALS						
			HOURLY LIMITS			
System	Item	Notes	25	50	100	Annual
Wheel Assemblies See also A-10036.	Wheels	Inspect for corrosion, cracks and other visible damage.	X			
	Fasteners	Inspect that nuts are properly installed and have not worked loose. Bolt threads should be flush to 1-1/2 threads extending beyond the nut.	X			
	Brake Disk	Inspect the brake disk for rust, excessive grooves, large cracks, or other visible damage. Replace disk when minimum thickness falls below 0.327 in. / 8.306 mm.		X		
	Oil Bath Reservoir (15W-50 Multi-Grade Motor Oil) See filling instructions In "Main Wheel Assembly" section.	Inspect for water contamination in the oil bath resulting in a light brown emulsion. For fresh water use, inspect annually. For salt water usage, inspect more frequently, every 2 months recommended. Flush and replenish as needed.	X		X	
	Grease Pack Type (Bearing Grease) See filling instructions In "Main Wheel Assembly" section.	Charge reservoir with grease gun slowly until grease expels from purge hole in seal, 2 month intervals recommended. For Salt water usage, recharge system after each occurrence.	X			
	Tires	Visually inspect tires for cuts, flat spots, and tread or sidewall damage. Check inflation pressure.	X			
Brake Assembly	Housing and fittings	Inspect for corrosion, cracks, or other visible damage. Check inlet fitting bosses and anchor bolt lugs for cracks.	X			

INSPECTION TIME INTERVALS						
			HOURLY LIMITS			
System	Item	Notes	25	50	100	Annual
	Back Plate	Inspect attachment bolts to insure they are properly torqued and have not worked loose. Gaps between the back plate and cylinder would be evidence of this.			X	
	Brake Cylinder Anchor Bolts	Inspect anchor bolts in torque plate bushings for sloppiness. Slight movement is normal. Excessive movement is cause for removal and detailed inspection.			X	
	Brake Linings	Linings should be visually checked for extreme chipping on the edges. Lining worn to a minimum thickness of 0.100 inch (2.54 mm) must be replaced.			X	
	Torque Plate	Visually inspect torque plate for corrosion, cracks, loose anchor bolt bushings, or other visible damage. Anchor bolt bushings must be flat against torque plate surface.			X	
	Brake Fluid	Inspect for any brake fluid leaks. Organic linings which have been contaminated with fluid should be replaced.		X		

Note 1: Spray coat of a migrating corrosion material (ACF-50, Boeshield T9, or Corrosion X).

Note 2: Coat hardware with EZ-Turn Lubricant, PUR-AL-KETONE or LPS 3.

Note 3: If working sand, wash out tracks daily to remove abrasive potential and lubricate with dry Teflon coating spray. Salt buildup should be cleaned and recoated with a dry Teflon spray.

Note 4: Nose block grease warning - Introduction of grease through the grease fitting during normal operation should be minimal (1/2 pump max of a hand grease gun per week) always watching for hydraulic lock and any damage from grease gun pressure. Introduce grease very slowly.

Note 5: Coating with anti-corrosion spray is recommended in situations where there is extensive exposure to non-fresh water, i.e. salt water. An aerosol container or a pump sprayer is recommended for ease of application.

Note 6: Check all connections between stainless flex lines and aluminum fittings in bulkheads for corrosion and that they are not loose.

Note 7: Use Loctite Marine Grade Anti-Seize 8023 or equivalent for pin/bushing lubrication.

17.5 Post Float Installation Inspections

Conduct a thorough review, inspection and function check of the float and aircraft systems per the instructions in this section.

NOTE

This section of writing (§17.5) is intended to provide a method of verifying the function of systems associated with the installation of Aerocet Model 6650 Amphibious Floats to a Quest KODIAK 100 Airplane. In no case shall it supersede information provided in the Airplane Flight Manual (AFM) or the Airplane Flight Manual Supplement (AFMS).
Information provided in this section is intentionally reduced to a checklist form in order to facilitate float systems assessments only. Complete procedures are provided in the AFM or AFMS, and are not to be violated.

17.5.1 Upon Completion of Installation

1. INSPECT all aspects of aircraft which may have been disturbed during installation.
2. INSPECT under-floor areas and float compartments for tools, parts or other loose debris.
3. VERIFY all fastener safety devices, and fastener tightness; wiring and hydraulic lines are secure, and positively separated from structures and chafing hazards.

17.5.2 Ground Check, Gear Operation, Electric-Hydraulic System

1. Aircraft – Securely Suspended per Maintenance Manual, Gear systems prepared for operation.
2. Master Switch – ON
3. Avionics Switch – ON
4. Landing Gear – SELECT GEAR DOWN, or GEAR UP. Cycle both directions fully. Refill hydraulic reservoir as necessary. At full extents of gear, and full pressure built up, the electric pump should stop.
5. Landing Gear – VERIFY position and orientation of spot mirrors.
6. Gear Advisory Audio – VERIFY aural gear enunciation, “Gear is down for runway landing…” (with gear down); or “Gear is up for water landing…” (with gear up).
7. Gear Advisory Cancel – PRESS to VERIFY end of aural gear enunciation. (PRESS CANCEL RUNWAY for Gear DOWN position; or PRESS CANCEL WATER for Gear UP position.
8. Gear Advisory Test – PRESS to VERIFY present gear position, and all gear indicator lights illuminate.

9. CHECK for hydraulic fluid leaks along all routes of hydraulic lines

17.5.3 Ground Check, Gear Operation, Emergency Hand Pump System

1. Emergency Hand Pump – SELECT GEAR UP or GEAR DOWN, VERIFY acceptable operation. Cycle both directions fully. Refill hydraulic reservoir as necessary. At full extents of gear, firm pressure should be felt in the pump handle.

> **NOTE**
> Gear Advisory system will function normally during this process, unless Master or Avionics Switches are OFF.

2. CHECK for hydraulic fluid leaks along all routes of hydraulic lines.
3. Leave gear in desired condition in preparation for Check-Flight.

17.5.4 Ground Check, Airplane Logs, Weight and Balance

1. Aircraft Logs – RECORD changes made per STC SA02452SE.
2. Aircraft Logs – MEASURE and RECORD new weight and balance

17.5.5 Other Ground Checks, Airplane Logs, Weight and Balance

1. Water Rudder System – INSPECT cables, pulleys, routing, proper movement, completeness, separation from chafing hazards, ETC.
2. VERIFY installation of all aircraft inspection covers.
3. Verify Flight Hobbs – VERIFY THAT FLIGHT TIME HAS NOT ACCUMULATED SINCE LAST FLIGHT (this assures that the Weight on Water (WOW) system is functioning).
4. INSPECT the floats and attachment for dents, cracks, punctures, completeness of installation, fastener safety devices, all nuts tightened.
5. Float Access Panels and Bilge Plugs – SECURE all float access panels and bilge plugs. Fasteners should be hand-tightened, bilge plugs inserted with enough pressure to ensure a snug fit.
6. Locker Latches – DETENTS ENGAGED, LATCHES TURNED CLOCKWISE TO STOPS.
7. Landing Gear – INSPECT. Check the main wheel oleo struts for proper inflation. Check fluid level in hydraulic reservoir. INSPECT for foreign objects and debris.

> **NOTE**
> Refer to labels on the main wheel oleo struts for strut inflation procedures.

Proper tire inflation for 6.00-6 main wheel tires is 50 PSI; tire inflation for the 5.00-5 nose wheel is 50 PSI.

17.5.6 Pre-Roll-Out Checks

1. Master Switch – ON
2. Avionics Switch – ON
3. Gear Advisory Audio – VERIFY aural gear enunciation, "Gear is down for runway landing…" (with gear down); or "Gear is up for water landing…" (with gear up).
4. Gear Advisory Cancel – PRESS to VERIFY end of aural gear enunciation.
5. Gear Advisory Test – PRESS to VERIFY present gear position, and all gear indicator lights illuminate.

17.5.7 In-Flight Checks

1. **After Take-off**
   a. Retract Landing Gear – VERIFY Landing gear retracts properly and Electric Hydraulic Pump de-activates at full retraction of gear.
   b. Gear Advisory – VERIFY gear position lights illuminate, all Blue for gear up, water landing.
2. **Climb**

   Rudder Trim – VERIFY sufficient right trim for 95 knot climb with MCP and flaps 0°.
3. **Cruise**

   Ensure no abnormal vibrations exist
4. **Emergency Gear Operations Check**
   a. Flight Condition - MAINTAIN AIRSPEED OF 100 KIAS (flaps up) or 85 KIAS (flaps down) (140 KIAS VL_o).
   b. Disable Electric-Hydraulic Pump - PULL 15 AMP PUMP PWR BREAKER.
   c. Operate Hand Pump – SELECT Gear DOWN – VERIFY hand pump operation to deploy float landing gear. Pump until fully extended and firm pressure is detected.
   d. Approximate number of pumps to gear DOWN is 90 full strokes.
   e. Approximate number of pumps to gear UP is 70 full strokes.
   f. Gear Advisory – VERIFY aural enunciation of "Gear is down for runway landing…"
   g. Gear Advisory – CANCEL aural enunciation by pressing CANCEL Runway button.

h. Landing Gear – VERIFY gear position in mirrors.

i. Select Gear UP – VERIFY hand pump operation to retract float landing gear. Pump until fully retracted and firm pressure is detected.

j. Gear Advisory – VERIFY aural enunciation of "Gear is up for water landing…"

k. Gear Advisory – CANCEL aural enunciation by pressing CANCEL Water button.

l. Landing Gear – VERIFY gear position in mirrors.

m. Enable Electric-Hydraulic Pump – PUSH 15 AMP PUMP PWR circuit breaker.

5. **Descent**

a. Rudder Trim – VERIFY sufficient trim for 180 knots and flaps 0°.

b. Ensure no abnormal vibrations or buffeting exists

6. **Water Landing**

a. Landing Gear – VERIFY gear selector in the UP position.

b. Gear Advisory – VERIFY aural "gear up for water landing" enunciates below 85 knots.

c. Gear Advisory – VERIFY all Blue gear indicator lights are illuminated.

d. Water Rudders – UP (retraction handle aft)

e. Perform Water landing and verify controllability and function of floats.

f. Water Rudder Operation - In displacement condition, EXTEND the water rudders – VERIFY proper operation in both directions of rudder operation.

7. **Runway Landing**

a. Landing Gear – VERIFY gear selector in the DOWN position.

b. Gear Advisory – VERIFY aural "gear is down for water landing" enunciates below 85 knots.

c. Gear Advisory – VERIFY all Amber gear indicator lights are illuminated.

d. Water Rudders – UP (retraction handle aft)

e. Perform Runway Landing – VERIFY controllability and function of gear. No abnormal shimmy or vibration.

8. **Post Flight Checklist**

a. Water Leakage – CHECK floats for excessive water or any signs of hydraulic fluid.

b. Hydraulic Leakage – CHECK hydraulic lines for leaks.

c. Control Cables – CHECK tension, wear, routing and separation from chafing hazards.

d. Water Rudders – CHECK rudders for condition and security.

e. General – CHECK attachment gear for tension, general condition

End of 17.5, Post Float Installation Checklist

17.6 Special Inspections

Conduct special inspections per existing KODIAK 100 Airplane Maintenance Manual:

In a variety of circumstances, it is necessary to perform prompt inspections for damage. Details relating to these investigations are addressed in Sections 9.1.2 and 11 of this supplemental manual, and in the Service Schedule (Table 13.4.1) above. The pilot is responsible for determining the severity of damage to the aircraft and its flightworthiness while in the field. Inspections and repairs are to be performed as necessary and per practices outlined in this manual.

A list of possible scenarios includes, but is not limited to the following:

1. Landing completed on grass or other runway surfaces: Inspect bottom of float, including wear strips and keel plate.
2. Harsh landings on either runway or water: Remove and inspect float strut attachment hardware for bent hardware and elongated holes, including all fitting bolts and AN4 bolts through struts.
3. Impact with a submerged object during taxi, take-off, or landing on water: Remove and inspect float strut attachment hardware for bent hardware and elongated holes. Inspect entire bottom of float.
4. Suspected damage incurred during tie-down or mooring (e.g. damage from wind or wave action): Remove and inspect attachment hardware and deck plates. Inspect both exterior and interior of float sides where contact with object may have occurred.
5. Excessive water encountered during pump-out on pre-flight inspection: Inspect to determine cause of excess water.

NOTE
Exceptional inspections are not limited to this list; other scenarios may occur that warrant exceptional inspections.

17.7 General Practices

1. Wiring – attachment to terminals, damaged or corroded terminals, melting of insulation, chafing of insulation
2. Metal Parts – check for corrosion, stress cracks or metal distortion, elongation of holes, rivet damage
3. Critical Bolts – check for corrosion (rust), wear, torque
4. Composite Parts – check for stress cracks, gel coat presence (UV protection), punctures

5. Nose Wheel Slide Tracks – clean and lubricate with a dry Teflon coating spray

17.8 Product Listings

Warning
Carefully observe all manufacturer's instructions, product Safety Data Sheets, and government regulations pertaining to product use and disposal.

Note
Aerocet recommends use of the most environmentally safe products where possible.

1. Hydraulic Fluid – Mil-H-5606 (updated Mil-PRF-5606)
2. Teflon Spray – Accupro Dry Lube 0024636, Comet Industries GP-730A plus, DuPont Non-Stick Dry Film Lubricant, or LPS Dry Film PTFE Lubricant.
3. Nose Gear Lock Bracket Grease – Texas Refinery Corp TRC #880 C&C, BG Products HCF # 605 (Parker P/N 219-06300)
4. Rudder pulleys after installed - LPS Industries LPS 2
5. Main gear pivot pins - Loctite Marine Grade Anti-Seize 8023, LPS 2, HCF # 605 Grease
6. All sealing, for Bolts– Sika Manufacturing Sikaflex 292
7. Rust (corrosion) Protection – ACF-50®, Corrosion X®, Boeing Co. Boeshield T9 or Corrosion X® Heavy Duty; Ardrox AV30 or Aquashield™
8. Bolt Protection - PUR-AL-KETONE, LPS Industries LPS 3, Zip Chemical Co. Zip D-5029NS, EZ Turn Lubricant United-Erie, or DuBois Chemical ACG-2 Polymer-fortified, Aluminum Complex Grease.
9. Composite Materials for Hull Repair – Contact Aerocet, Inc. for resin, cloth, gel-coat and resin thickeners.
10. Salt-Away® - Water-borne salt removal product that aids in removing salt from surfaces. International distribution from Salt-Away Products, Inc. 3633 West MacArthur Boulevard, Suite 412, Santa Ana, CA 92704-6848. Phone 888-SALT-AWAY (725-8292); International Phone 001-714-550-0987. http://www.saltawayproducts.com
11. Zep Aviation Aircraft Cleaner II, part number R50335 – Water-borne soap for emulsifying and removing dirt and oils. Zep Inc. 1310 Seaboard Industrial Blvd, NW Atlanta, GA 30318 Telephone: 404-352-1680. http://www.zepdistribution.com (Available through multiple aviation distributors.)
12. CA 1000 Non-Chromate Corrosion Inhibitive Jointing Compound – may be used as a corrosion inhibitor where grease, ACF-50, Ardrox AV30 or Aquashield might otherwise be used. Observe all manufacturer safety and application instructions, and all local ordinances. PRC-DeSoto International, Inc. 12780 San Fernando Road Sylmar, CA 91342 Telephone (818) 362-6711 Toll Free (800) AEROMIX www.ppgaerospace.com

18.0 WEIGHT AND BALANCE

The most accurate means to determine the weight and balance of a modified aircraft is by physical measurement.

CAUTION

Aerocet highly recommends that the aircraft be weighed to determine the actual weight and balance of the Kodiak 100 modified aircraft. An inaccurate CG may lead to exceeding the CG range, resulting in inadequate control.

Modify the equipment list to include the 6650/6750 float installation and verify the remaining items.

18.1 6650 Amphibian using Float Landing Gear:

On level scales with each wheel on the scales aircraft empty – no fuel. See Table 18-1).

Table 18-1: 6650 Amphibian Weight with No Fuel
(When measured using Amphibian Landing Gear)

Scale	Measured Weight	Arm	Moment, W*Arm
Front Left scale		-44.25	
Front Right Scale		-44.25	
Rear Left Scale		99.25	
Rear Right Scale		99.25	
Tare weights (chocks)			
Tare weights (chocks)			
Total Weight & Moment			
Total Arm (divide moment by weight, M/W)			

18.2 6650 Amphibian 6750 Seaplane, Weight Using Spreader Method

(Shown in Figure 18-1, & Figure 18-2)

Weight may be obtained by use of scales on the fore and aft spreaders.

1. With aircraft suspended and clear of the ground, prepare and place scales, stand and blocks or shims as needed to support the aircraft.

> **CAUTION**
> Lifting devices located beneath the spreaders shall be applied as widely as possible without contacting the sides of the float hulls.
> In no case shall lifting devices be located more than 12 in. from the float hulls.
>
> ***6750 Seaplane:*** *Never exceed 5,200 lb. gross weight when lifting seaplane by the float spreaders.*

2. Tare the weight of the blocks and shims.

3. Using the distances shown in Figure 18-1, and the weights measured from the scales, complete the information as shown in Table 18-2.

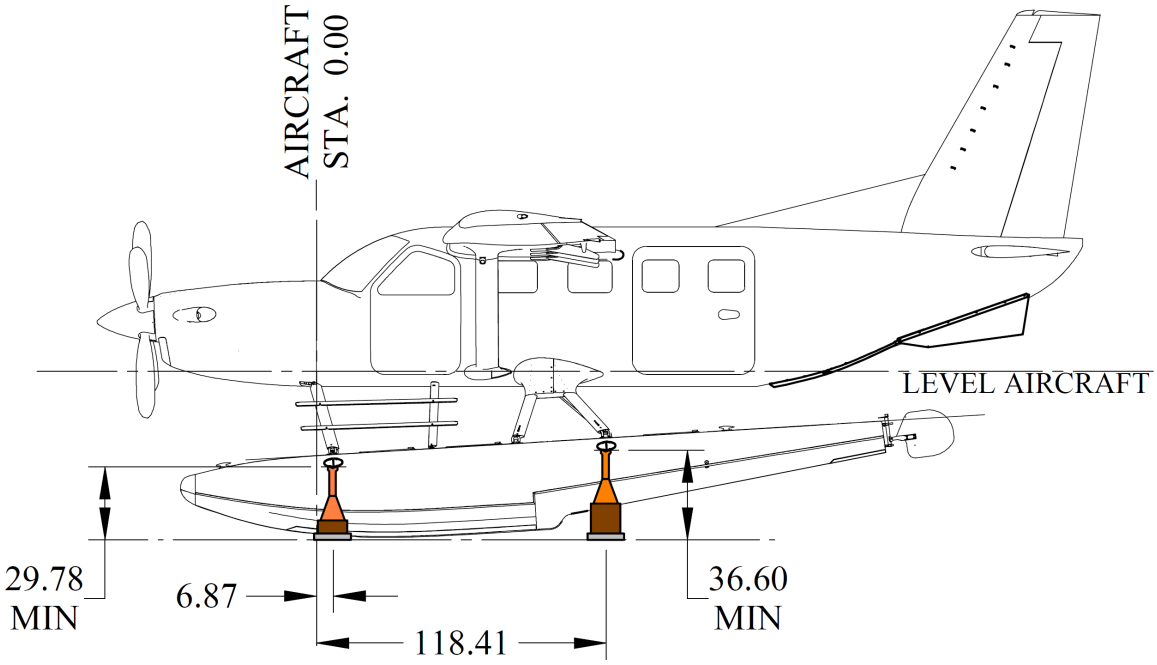

Figure 18-1 Showing 6750 Seaplane, weight at spreaders
(LHS Float Hull hidden)

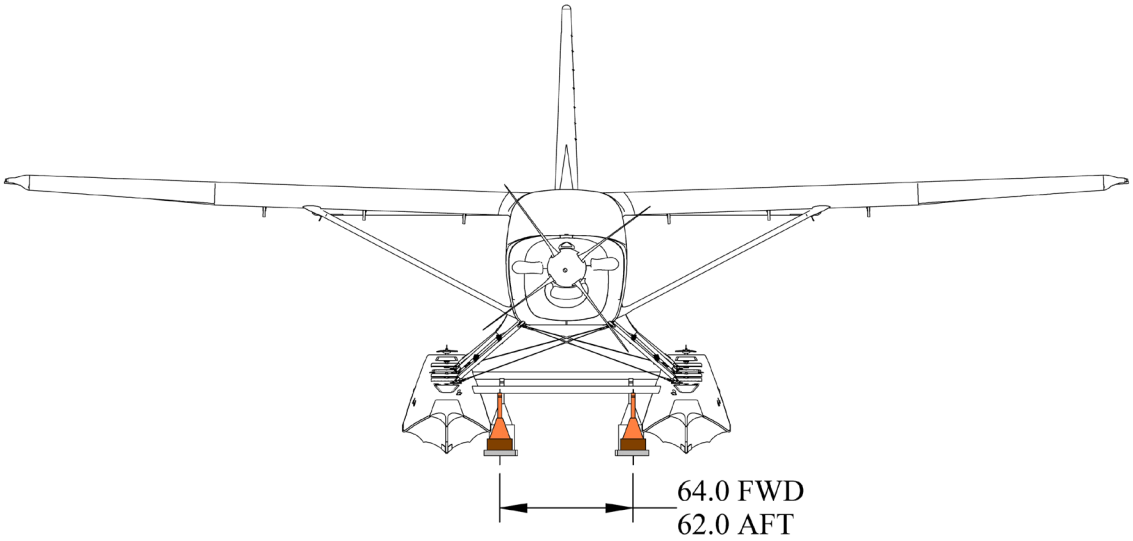

Figure 18-2: Measuring Weight, Front View

Table 18-2 6650 Amphibian or 6750 Seaplane Weight with No Fuel
(When measured using Spreaders as shown in Figure 18-1 & Figure 18-2)

Scale	Measured Weight	Arm	Moment, W*Arm
Front Left scale		6.87	
Front Right Scale		6.87	
Rear Left Scale		118.41	
Rear Right Scale		118.41	
Tare weights (chocks, stands, shims)			
Tare weights (chocks, stands, shims)			
Total Weight & Moment			
Total Arm (divide moment by weight, M/W)			

Alternately, the floats can be weighed at the keels, assuring aircraft levelling and locating of the scales in aircraft station coordinates. (Use bulkhead positions and lumber as described in 15.1.2 or 15.1.3, spreading any point loads, and serving as shims to level the aircraft as necessary.)

If weighing the aircraft is not practical, use the data in Table 18-3 below.

Table 18-3: Data When Weighing Not Practical

Item	Weight (lb.)	Arm (in. from datum)	Moment, W*Arm (in-lb.)
Certified Empty Weight as currently equipped (verify the equipment list)			+
6650 Amphibian Exchange Weight	775.6	75.03	58,194
6750 Seaplane Exchange Weight	421.7	79.85	33,673
New Empty Weight (Total)			
Total Arm (divide moment by weight, M/W)			

18.3 Weights for Components Left Installed

For temporary float removals, such as for winter flight on skis, it may be desirable to leave certain float equipment on board such as hydraulic lines & fittings and electrical wiring (per the Gear Advisory), and hydraulics pedestal. Table 18-4 shows weight and balance data for typical equipment. Equipment not listed must be weighed separately.

Table 18-4: Weight and Balance Table

Item	Weight (lb.)	Flight Station, F.S. (in.) on Kodiak 100	Applicability
Hydraulics Pedestal	18.7	43.23	6650 Amphibian
GC600 Gear Advisory, wiring, and hydraulic lines	4.0	44.97	6650 Amphibian
6750 WOW & Wiring Harness	1.23	76.50	6750 Seaplane
6750 Water Rudder Retract Pedestal & FWD pulleys	2.34	41.25	6750 Seaplane

18.4 Optional Float Equipment

Floor Boards and other items that are commonly stowed in float lockers, such as bilge pumps, paddles, dock lines, anchors or other equipment must be measured and entered in the aircraft weight and balance prior to flight. If stowed in a float locker, then use the appropriate float locker CG location when calculating.

19.0 SUPPORT DOCUMENTATION

Support documentation including Installation Drawing listing and Illustrated Parts Catalog. Contact Aerocet for copies of latest approved documents.

19.1 Installation Drawings 6650 Amphibian:

65-10001	AEROCET MODEL 6650 FLOATS, TSO ASSEMBLY
66-12000	MASTER DRAWING LIST
66-12010	AEROCET MODEL 6650 FLOAT INSTALLATION
66-12020	STRUT INSTALLATION
66-12040	STEERING GEAR BUNGEE INSTALLATION
66-12050	PLACARDS [INSTALLATION]
66-12060	DRAIN GROMMET INSTALLATION
66-12070	ANODE INSTALLATION
66-12120	STRUT ASSEMBLY, FWD
66-12130	STRUT ASSEMBLY, MID
66-12160	STRUT ASSEMBLY, AFT
66-12200	WATER RUDDER RIGGING INSTALLATION
66-12201	WATER RUDDER RETRACT CABLE ALTERNATE INSTALLATION
66-12300	BOARDING STEP INSTALLATION
66-12350	BOARDING STEP STRUT ASSEMBLY
66-12400	FAIRING ASSEMBLY
66-12410	NOSE GEAR COVER, INSTALLATION OF
66-12600	PLACARD INSTALLATION, LOCKER LOADING DATA
66-12700	ELECTRIC AND HYDRAULIC INSTALLATION
66-12701	CENTER PANEL MODIFICATION
66-12760	BRAKE MASTER CYLINDER INSTALLATION
66-12800	MIRROR ASSEMBLY INSTALLATION
66-12900	VENTRAL FIN INSTALLATION
66-12910	VENTRAL FIN ASSEMBLY
65-46010	IN-FLOAT INSTRUMENTATION WIRE HARNESS (TSO)
66-46020	SCHEMATIC, HYDRAULIC SYSTEMS
66-47100	HYDRAULIC HAND PUMP, DOUBLE-ACTING
66-47200	[FLOAT] PEDESTAL, HYDRAULIC
66-47400	WATER RUDDER RETRACT HANDLE ASSEMBLY
66-60015	IN-AIRCRAFT INSTRUMENTATION, WIRE HARNESS
66-60016	AIRCRAFT [FLOAT] PEDESTAL WIRING SCHEMATIC
66-60025	ENCLOSURE ASSEMBLY, WEIGHT ON WHEELS

19.2 Installation Drawings 6750 Twin Seaplane:

66-11010	AEROCET MODEL 6750 FLOAT INSTALLATION
66-11020	STRUT INSTALLATION
66-11050	PLACARDS, AEROCET MODEL 6750 FLOAT INSTALLATION
66-11200	WATER RUDDER RIGGING INSTALLATION
66-11210	WATER RUDDER RETRACT HANDLE ASSEMBLY
66-11700	ELECTRICAL INSTALLATION
66-11701	CENTER PANEL MODIFICATION, GEAR ADVISORY & CIRCUIT BREAKERS
66-12040	STEERING GEAR BUNGEE MOUNT, INSTALLATION
66-12060	DRAIN GROMMET INSTALLATION
66-12070	ANODE INSTALLATION
66-12120	STRUT ASSEMBLY, FWD
66-12130	STRUT ASSEMBLY, MID
66-12160	STRUT ASSEMBLY, AFT
66-12170	STEERING GEAR BUNGEE MOUNT
66-12191	TIE ROD ASSEMBLY, FWD
66-12195	TIE ROD ASSEMBLY, AFT
66-12220	CABLE, RUDDER CONNECT
66-12300	CABIN BOARDING STEP INSTALLATION
66-12350	BOARDING STEP STRUT ASSEMBLY
66-12400	FAIRING ASSEMBLY
66-12410	NOSE GEAR COVER INSTALLATION
66-12600	PLACARD INSTALLATION, LOCKER LOADING DATA
66-12800	MIRROR ASSEMBLY INSTALLATION
66-12900	VENTRAL FIN, STRAKE AND VORTEX GENERATOR INSTALLATION
66-12910	VENTRAL ASSEMBLY
66-60115	IN-AIRCRAFT INSTRUMENT, WIRE HARNESS 6750 FLOATS
A-31021	WOW, IN AIRCRAFT CALIBRATION

19.3 Illustrated Parts Catalog (IPC)

A-10038, Appendix A(Bound separately) Applies to both Amphibian and Seaplane floats

19.4 Other Documentation

A-31021 WOW, IN-AIRCRAFT CALIBRATION

A-10036 COMPONENT MAINTENANCE MANUAL, AND INSTRUCTIONS FOR CONTINUED AIRWORTHINESS, FOR AEROCET 5.00" X 6.00" (6.00-6) WHEEL AND BRAKE ASSEMBLY, OIL BATH

A-10039 SERVICE MANUAL AND INSTRUCTIONS FOR CONTINUED AIRWORTHINESS FOR AEROCET GC700 GEAR ADVISORY

19.5 For Japanese Certified Aircraft, include these additional drawings:

66-12050-JPN PLACARDS, JAPANESE, AEROCET MODEL 6650 FLOAT INSTALLATION, KODIAK 100 SERIES AIRCRAFT

66-12600-JPN PLACARD INSTALLATION, LOCKER LOADING DATA, JAPANESE LANGUAGE

66-11050-JPN PLACARDS, JAPANESE, AEROCET MODEL 6750 FLOAT INSTALLATION, KODIAK 100 SERIES AIRCRAFT

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