

ISSUE DATE: 02/11/15		 Incorporated	PAGE	
			1 of 91	
REVISION DATE: 02/11/15			FILE NO.	
			A-10038	
		REVISION		
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**MAINTENANCE MANUAL AND INSTRUCTIONS FOR CONTINUED
 AIRWORTHINESS
 FOR
 AEROCET MODEL 6650 TWIN SEAPLANE FLOATS
 INSTALLED ON A QUEST KODIAK 100 AIRPLANE**

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This ICA must be followed when Aerocet 6650 Floats are installed in
 accordance with Supplemental Type Certificate (STC) No. ST12414SE-A.

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.

FAA ACTION Seattle Aircraft Certification Office	
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		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	2 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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		 Incorporated		
ISSUE DATE:	02/11/15		PAGE	3 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0
		TITLE:	Maintenance Manual and ICA	
		SUBTITLE:	Aerocet 6650 Floats on a Quest KODIAK 100	

LOG OF REVISIONS

Revision	Pages Affected	Description	Date	Approved
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		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	4 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

Table of Contents

Log of Revisions	3
1.Introduction.....	9
1.1. Warnings; Cautions; Notes	9
1.2. General Description	10
Figure 1-1: Showing Overview of Basic Components	11
Figure 1-2: View of Model 6650 Floats on a Quest KODIAK 100.....	12
Figure 1-3: General Float Terms.....	12
Figure 1-4: Front View of Floats and Rigging.....	13
Figure 1-5: Model 6650 Float, Side View	13
1.3. How to Use This Supplemental Manual	14
1.4. Fastener Torque.....	14
1.4.1. Torque Value Conversion:.....	14
1.4.2. Tooling Requirements:.....	15
1.4.3. Hardware Cleanliness	15
1.4.4. Torque Procedure.....	15
1.4.5. Fastener Torque Values (Except where otherwise noted)	16
1.4.6. Fastener Use and Discretion	18
1.4.7. Fastener Lengths	18
1.4.8. Fastener Reuse	18
2.Airworthiness Limitations	21
2.1. GENERAL	21
2.2. DESCRIPTION.....	21
3.Nose Gear.....	23
3.1. General Description	23
3.2. Nose Gear – Partial Removal – Reference 65-42000, Sheets 1-3.....	23
3.3. Nose Gear – Full Removal of the Nose Gear (apart from the gear box and riveted on slide brackets) – Reference 65-42000, Sheets 1-3; 65-42100, Sheets 1 & 2; and 65-42300, Sheet 1 & 2.	23
Figure 3-1 : Removal of Composite Nose Spring.....	24
Figure 3-2 : Removal of Box Cap.....	25
Figure 3-3 : Slide tracks to be inspected	26
3.4. Reassembly of the Nose Gear to the Nose Gear Box – Reference 65-42000, Sheets 1-3; 65-42100, Sheets 1 & 2; 65-42300, Sheets 1 & 2; and 65-42400..	27
Figure 3-4 : Bolts for Adjustment of Nose Spring Movement	28
3.5. Removal of the Complete Nose Box and Gear from the front of the float – Reference 65-42000, Sheets 1-3; 65-42100, Sheets 1 & 2; and 65-42300, Sheets 1 & 2.	28
3.6. Nose Wheel Removal and disassembly – Reference 65-42100, Sheets 1 & 2; and Nose Wheel Drawing 65-42170 Sheets 1-3.	29

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	5 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

	Figure 3-5: Oil Bath Wheel Drain Instructions.....	30
3.7.	Nose Wheel Installation - Reference 65-42100, Sheets 1 & 2, and Figure 3-6.31	
	Figure 3-6: Exploded View of Nose Wheel Installation.....	32
3.8.	Detent Piston and Nose Pivot Pin Service - Reference Drawing No. 65-42100, Sheets 1-3; Drawing No. 65-42120; Drawing No. 65-42150, Sheet 1; and Figures 3-7 and 3-8.	33
	Figure 3-7 : Maximum Side to Side Free travel of Nose Wheel.....	33
	Figure 3-8 : Maximum Vertical Movement Nose Block.....	34
4.	Main Landing Gear and brakes.....	37
4.1.	Main Wheel Removal & Assembly – Reference 35A-51800, Sheets 1 & 2. Consult Parker/Cleveland Maintenance Manual and Parts Catalog for brake maintenance and Aerocet Component Maintenance Manual A-10036 for wheel and/or brake maintenance and repair.	37
4.2.	Brake Removal and Inspections – Reference Parker/Cleveland Maintenance Manual AWBCMM0001-7	38
4.3.	Oleo Removal and Disassembly – Reference 65-45000, Sheets 2 & 5; and 65-45200, Sheets 1 & 2. (Oleo Bleeder Assembly 66-T45201 may be available from Aerocet upon request.)	39
4.4.	Oleo Assembly – Reference 65-45000, Sheets 2 & 5; and 65-45200, Sheets 1 & 2. (Oleo Bleeder Assembly 66-T45201 may be available from Aerocet upon request.).....	40
	Figure 4-1: Oleo Seals and O-rings.....	41
	Figure 4-2: Oleo Cut-Away View.....	42
13.	Replace oleo in float using shear pins, washers, and retaining rings.	43
4.5.	Complete Disassembly of Main Gear – Reference 65-45000, Sheets 2-5.	43
4.6.	Complete Assembly of Main Gear including adjustment of submersible sensor and main gear hydraulic actuator – Reference 65-45000, Sheets 1-5.....	43
5.	Hydraulics	47
5.1.	Hydraulic Lines – Reference Drawings 65-47000, 66-47200 & 66-12700.	47
	Figure 5-1: Hydraulic Pedestal Components	48
	Figure 5-2: Hydraulic Pedestal Components, continued	48
5.2.	Hydraulic Actuators – Reference 65-42400, Sheet 1 & 2; and 65-45300, Sheet 1 & 2.....	49
	Figure 5-3: Nose Gear Actuator Cut Away	49
	Figure 5-4: Main Gear Actuator Cut Away	50
5.3.	Electric-Hydraulic Pump –.....	50
	Figure 5-3: Electric-Hydraulic Pump.....	51
5.4.	Backup Hand Pump–	51
6.	Water Rudder	53
	Figure 6-1 From page 4 of Drawing 66-12200	53
7.	Electrical	55

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	6 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

7.1.	Aerocet GC700 Gear Advisory Unit – Reference A-10039, Service Manual and Instructions for Continued Airworthiness for Aerocet GC700 Gear Advisory	55
8.	Spot Mirror Assembly.....	57
9.	Recommended Processes, Products, And Inspection Checklists.....	59
9.1.1.	Cleaning	59
9.1.2.	Float Hull Description and Maintenance	59
	Figure 9-1 Showing typical pump-out cup, plug and access panel.....	60
	Figure 9-2 Showing Fwd Hinging Latch Operation	61
9.1.3.	Metal Hardware	62
9.1.4.	Winter Storage of the Floats	63
9.1.5.	Lubrication.....	63
10.	Troubleshooting	65
10.1	Basic Troubleshooting	65
10.2	Troubleshooting Pump Failure to start.....	66
10.3	Troubleshooting Weight on Water (WOW) system.....	67
11.	Installation and Removal Information	69
11.1.	Floats Installation	69
11.1.1.	Description	69
11.1.2.	Float Handling, Jacking and Towing	69
11.1.3.	Boxing the Floats – Reference 65-10001.....	70
11.1.4.	Aerocet Drawings Required for Conversion from Wheels to Floats	71
12.	Strut and Composite Repair Manual.....	73
12.1.	Struts	73
12.1.1.	Negligible Damage	73
12.1.2.	Repairable Damage	73
12.1.3.	Damage Repairable by Replacing Parts.....	73
12.2.	Composite Float Hulls	73
12.3.	Repair Types and Procedures.....	74
12.4.	Impregnation of Fabric.....	75
12.5.	Resin Mixing.....	76
12.6.	Preparation of Carbon fiber Materials.....	76
12.7.	Surface Coat Application (Gel Coat)	77
12.8.	Keel, Wear Strip, and Chine Bonding.....	77
13.	Instructions for Continued Airworthiness.....	79
13.1.	General Practices.....	79
13.2.	Part 1, Preflight	79
13.3.	Part 2, Daily Inspections	80
13.4.	Part 3, Periodic Inspections.....	80
13.4.1.	Continued Airworthiness Service Schedule.....	81
	Table 13.4.1-1 Service Schedule.....	84
13.5.	Special Inspections.....	85

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	7 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

13.6.	General Practices.....	86
13.7.	Product Listings	86
14.	Illustrated Parts Catalogue	91

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	8 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	9 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

1. INTRODUCTION

Thank you for choosing Aerocet Floats. This manual covers the installation and maintenance of the 6650 floats as 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 Amphibious Twin 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.

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	10 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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 Amphibious 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^[aw1]. Each float offers six 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 or the storage locker hatch covers. 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, and are common to many brands of floats.

		 Incorporated		
ISSUE DATE:	02/11/15		PAGE	11 of 91
REVISION DATE:	02/11/15		FILE NO.	A-10038
		TITLE:	Maintenance Manual and ICA	
		SUBTITLE:	Aerocet 6650 Floats on a Quest KODIAK 100	
			REVISION	0

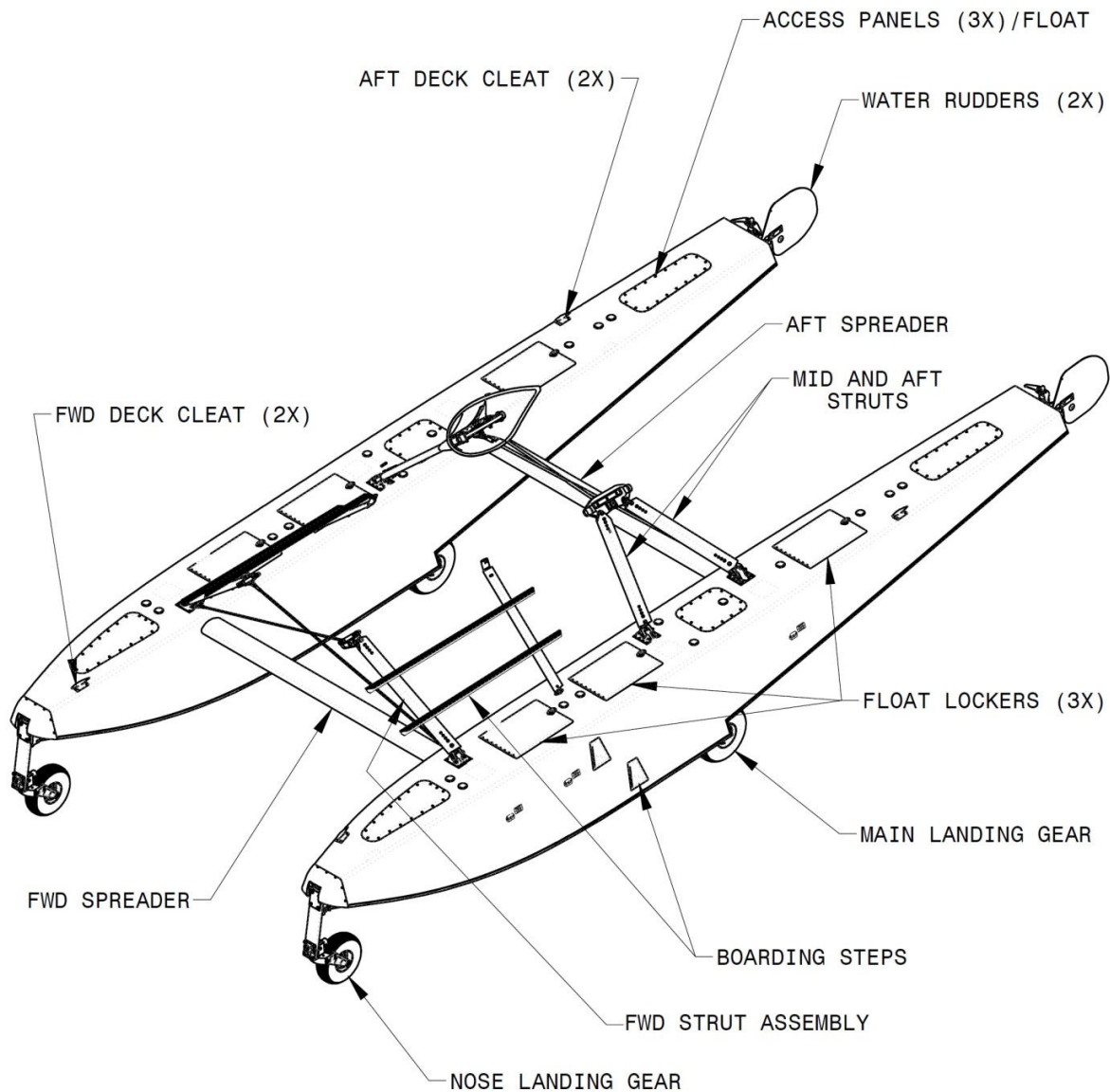


Figure 1-1: Showing Overview of Basic Components

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

		 Incorporated		
ISSUE DATE:	02/11/15		PAGE	12 of 91
REVISION DATE:	02/11/15		FILE NO.	A-10038
		TITLE: Maintenance Manual and ICA	REVISION	0
		SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		

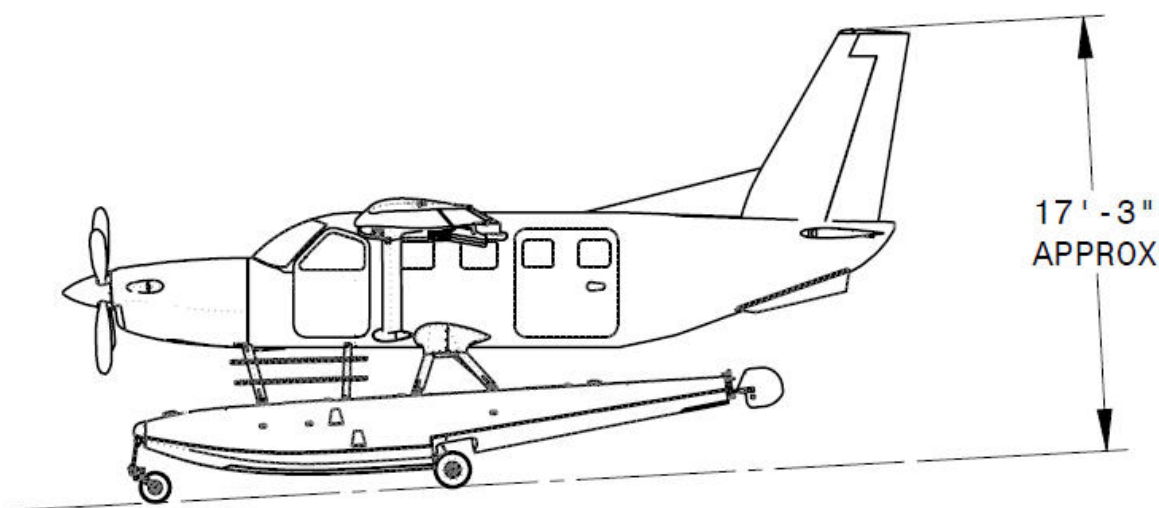


Figure 1-2: View of Model 6650 Floats on a Quest KODIAK 100

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.

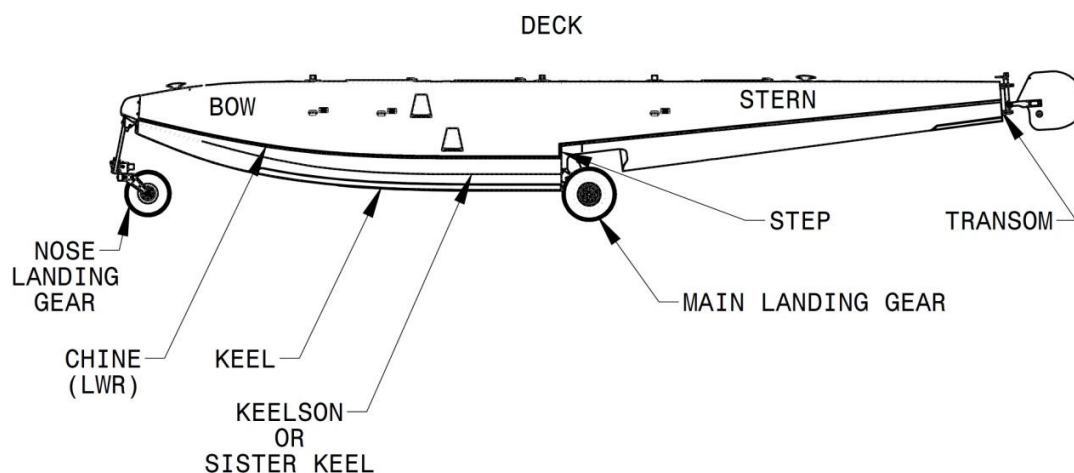


Figure 1-3: General Float Terms

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	13 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

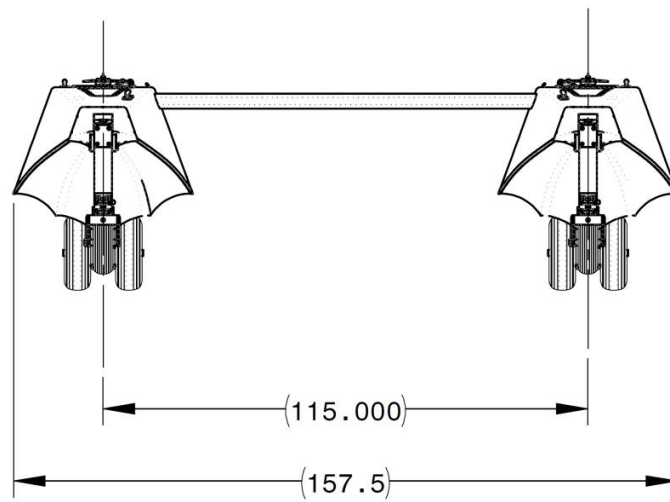


Figure 1-4: Front View of Floats and Rigging

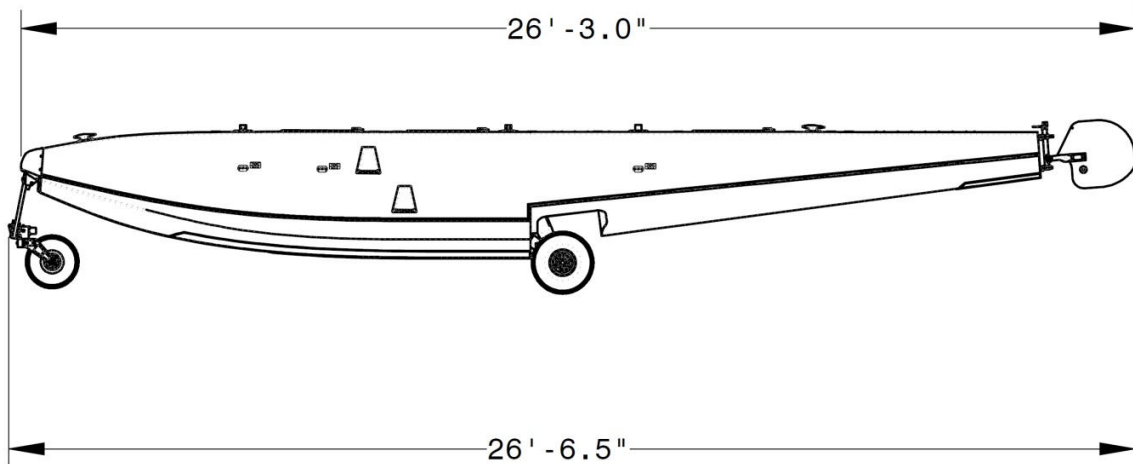


Figure 1-5: Model 6650 Float, Side View

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	14 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

1.3. How to Use This Supplemental Manual

Used in conjunction with the KODIAK 100 Airplane Maintenance Manual, Repair Manual, and Illustrated Parts Catalogue 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:

1. **Airworthiness Limitations**
2. **Nose Gear**
3. **Main Landing Gear and Brakes**
4. **Hydraulics**
5. **Water Rudder**
6. **Electronics**
7. **Spot Mirror Assembly**
8. **Recommended Processes, Products, and Inspection Checklists**
9. **Troubleshooting**
10. **Installation and Removal Information**
11. **Strut and Composite Repair Manual**
12. **Illustrated Parts Catalog.** Drawings and parts necessary to use the Aerocet Model 6650 Twin Seaplane Floats on a Quest KODIAK 100 airplane.

1.4. Fastener Torque

1.4.1. Torque Value Conversion:

To convert in.-lbs. to ft.-lbs: Value (ft.-lbs.) x 12 = Value (in.-lbs.)

To convert ft.-lbs. to in.-lbs: Value (in.-lbs.) x 0.0833 = Value (ft.-lbs.)

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	15 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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 Figure 1.4.3.

1.4.3. Hardware Cleanliness

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.

1.4.4. 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 nutplates.

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

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	16 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

1.4.5. Fastener Torque Values (Except where otherwise noted)

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 TORQUE LIMITS	TIGHTENING
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 AN320 (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
9/16-18	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

Figure 1.4.1 Recommended Torque Values (inch-pounds)

(from AC43.13-1B, Table 7-1)

FINE THREAD SERIES	
THREAD SIZE	MINIMUM PREVAILING TORQUE
7/16 - 20	8 inch-pounds
1/2 - 20	10 inch-pounds
9/16 - 18	13 inch-pounds
5/8 - 18	18 inch-pounds
3/4 - 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
COARSE 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 1.4.2 Minimum Prevailing Torque Values for Re-used Self-Locking Nuts

(from AC43.13-1B, Table 7-2)

		 Incorporated		
ISSUE DATE:	02/11/15		PAGE	17 of 91
REVISION DATE:	02/11/15		FILE NO.	A-10038
		TITLE:	Maintenance Manual and ICA	
		SUBTITLE:	Aerocet 6650 Floats on a Quest KODIAK 100	
			REVISION	0

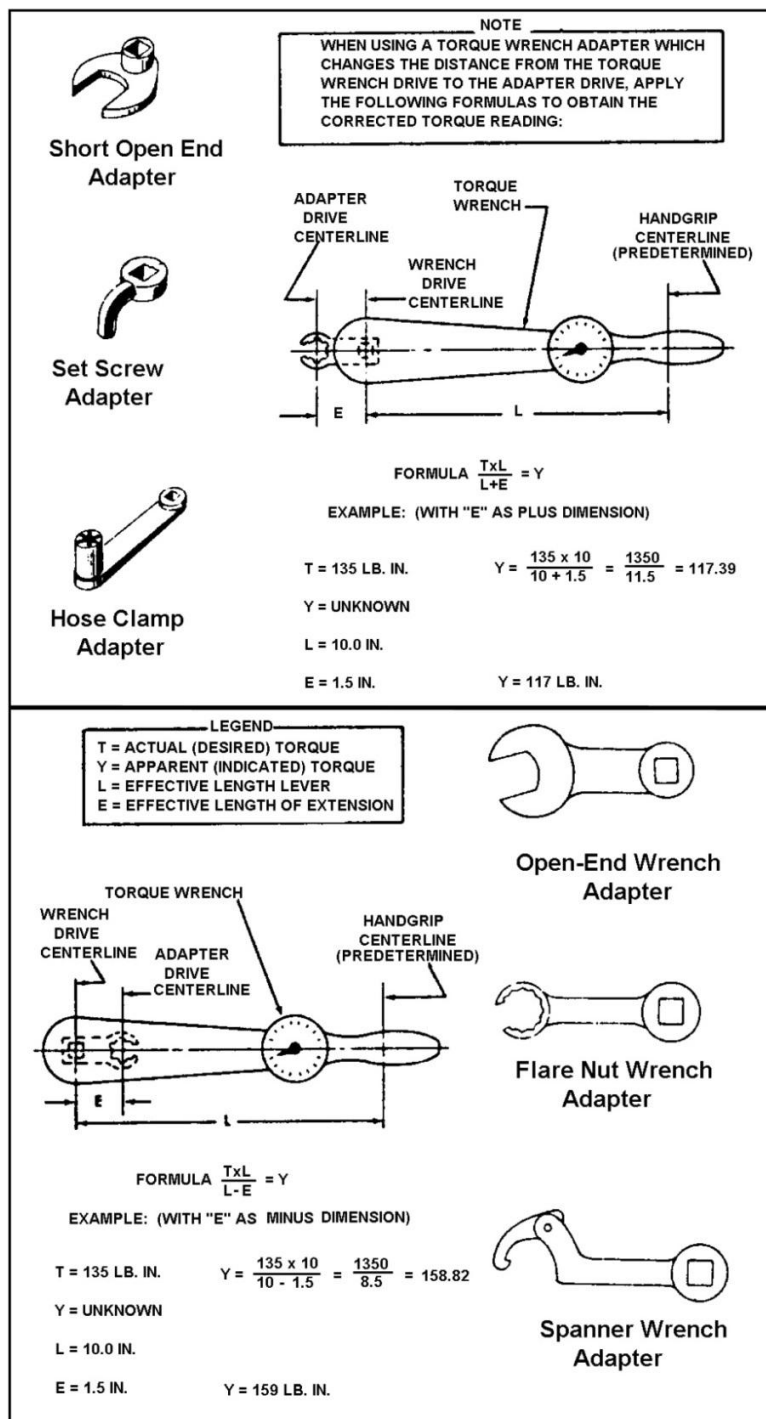


Figure 1.4.3 Torque Wrench with Various Adapters
(from AC43.13-1B, Figure 7-2)

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	18 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

1.4.6. Fastener Use and Discretion^[aw2]

1.4.7. 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.

1.4.8. 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.

		 Incorporated		
ISSUE DATE:	02/11/15		PAGE	19 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0
		TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		

Availability:

One complete copy of this manual shall be provided with each new set of Aerocet Model 6650 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.

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 _____

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	20 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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		 Incorporated		
ISSUE DATE:	02/11/15		PAGE	21 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0
		TITLE:	Maintenance Manual and ICA	
		SUBTITLE:	Aerocet 6650 Floats on a Quest KODIAK 100	

2. 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.

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

A.TIME LIMITED ITEMS.

None.

B.REQUIRED INSPECTIONS INTERVAL.

None.

C.SCHEDULED MAINTENANCE: Aerocet Model 6650 Amphibious Twin Seaplane Floats recommended Inspection or Replacement Schedule is located in Section 13.4.1.

		 Incorporated		
ISSUE DATE:	02/11/15		PAGE	22 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0
		TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		

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		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	23 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

3. NOSE GEAR

3.1. 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 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 slide 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 Nose Gear Assembly 65-42000, Sheets 1-3 and Lower Nose Gear Dwg. No. 65-42100, Sheets 1-3.

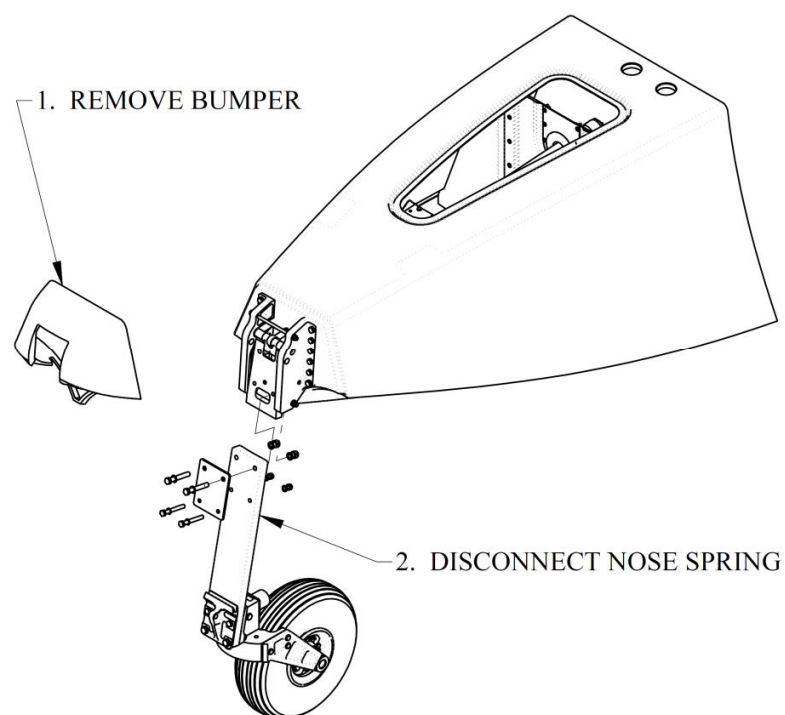
3.2. Nose Gear – Partial Removal – Reference 65-42000, Sheets 1-3

1. Position gear in the down position and remove circuit breaker for the hydraulic gear motor.
2. Jack up the airplane according to Section 11.1.2.
3. Unbolt the bottom block from the composite nose spring.

3.3. Nose Gear – Full Removal of the Nose Gear (apart from the gear box and riveted on slide brackets) – Reference 65-42000, Sheets 1-3; 65-42100, Sheets 1 & 2; and 65-42300, Sheet 1 & 2.

1. Remove bumper by removing the eleven screws attaching it to the float.
2. Remove the composite nose spring, as shown below in Figure 3-1.

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	24 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

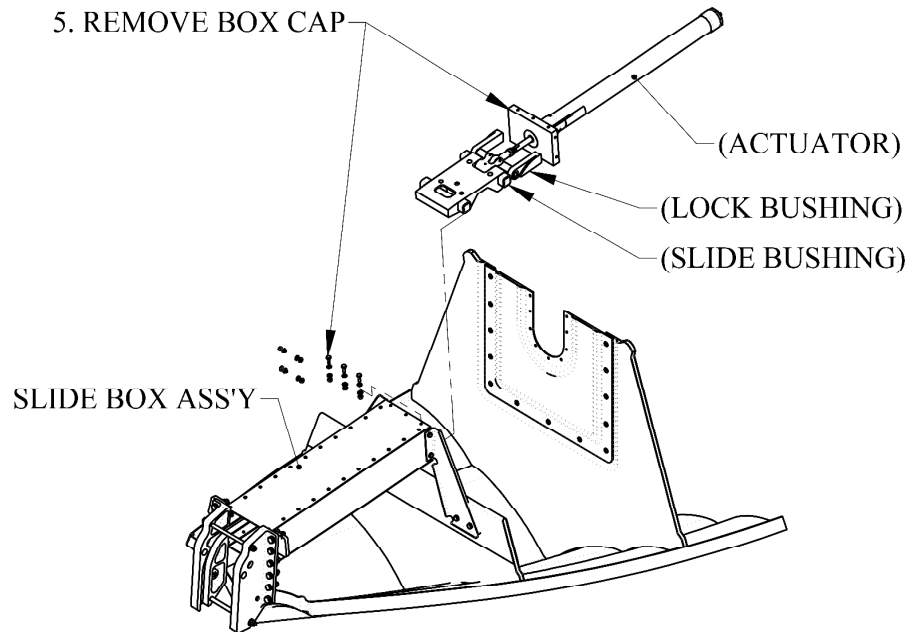


65-42000 NOSE GEAR, MODEL 6650 FLOATS
TOP SHELL OF FLOAT HULL HIDDEN

Figure 3-1 : Removal of Composite Nose Spring

3. Retract the nose gear cylinder.
4. Disconnect and plug the hydraulic lines from the hydraulic piston.
5. Pull the box cap of the gear box by removing the nine AN3 fasteners, as shown in Figure 3-2. 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.

		 Incorporated		
ISSUE DATE:	02/11/15		PAGE	25 of 91
REVISION DATE:	02/11/15		FILE NO.	A-10038
		TITLE:	Maintenance Manual and ICA	
		SUBTITLE:	Aerocet 6650 Floats on a Quest KODIAK 100	
			REVISION	0



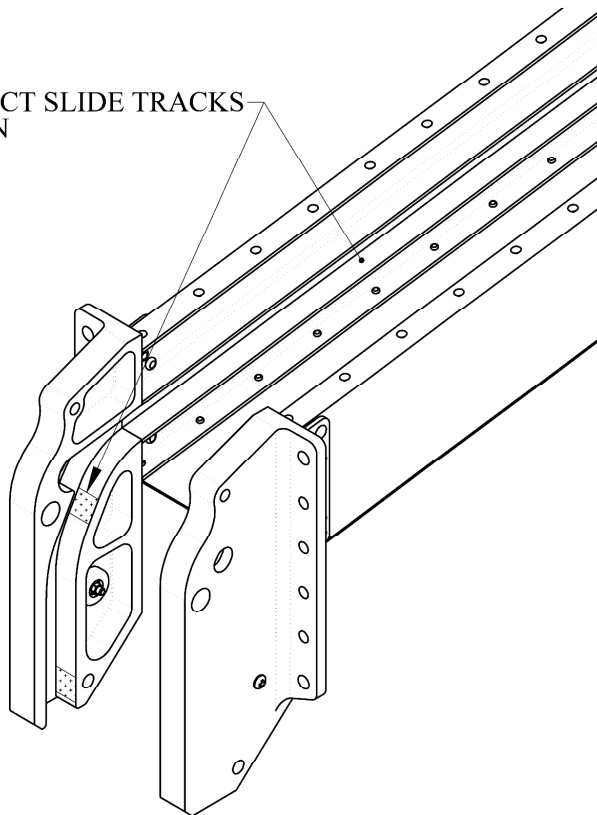
65-42000 NOSE GEAR, MODEL 6650 FLOATS
TOP SHELL OF FLOAT HULL HIDDEN

Figure 3-2 : Removal of Box Cap

6. 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.
7. Slide the box cap aft, along with the hydraulic piston, revealing the lock and slide bushings.
8. Clean and inspect the gear box tracks for wear, as shown below in Figure 3-3.

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	26 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

8. CLEAN & INSPECT SLIDE TRACKS
FOR CORROSION



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

Figure 3-3 : Slide tracks to be inspected

9. Inspect and replace slide pins as necessary
10. Inspect and replace lock bushings and slide bushings as necessary
11. Inspect slide truck and lock bracket for wear and replace as necessary.
12. 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.

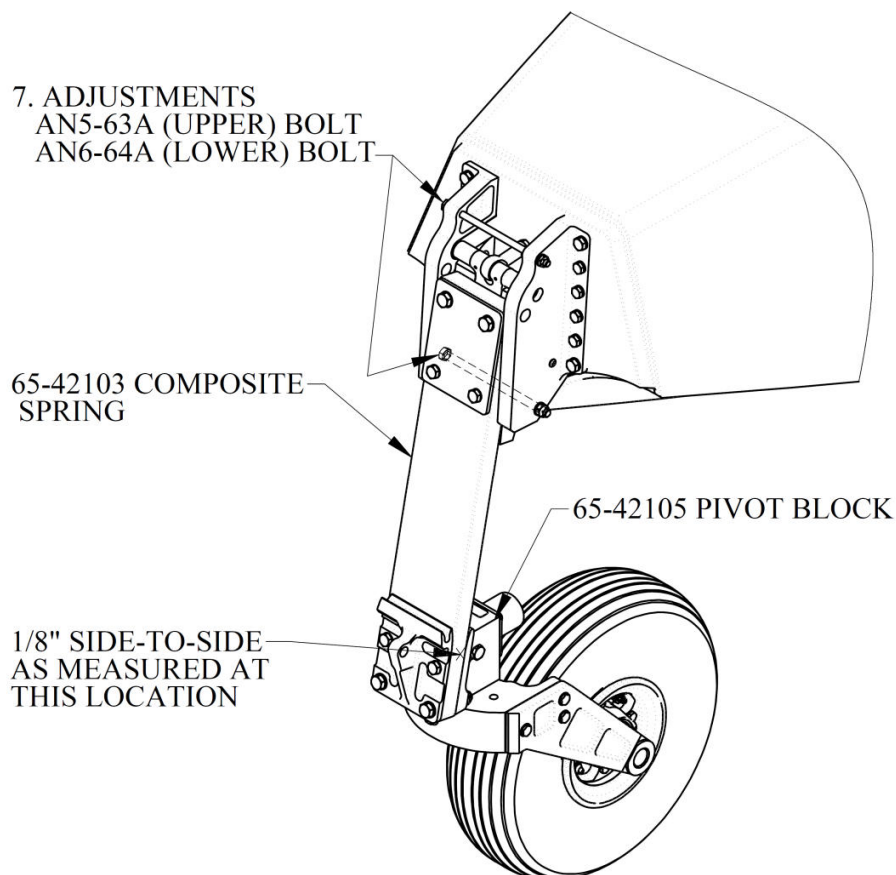
		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	27 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

3.4. Reassembly of the Nose Gear to the Nose Gear Box – Reference 65-42000, Sheets

1-3; 65-42100, Sheets 1 & 2; 65-42300, Sheets 1 & 2; and 65-42400.

1. Assemble in reverse order of section 3.3. Make sure the lock bracket, part 65-42021, is clean. Clean, dry and Teflon spray the slide tracks for lubrication.
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. (Danger – if the rod end adjustment is incorrect the piston rod may be bent 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 3-4. 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.

		 Incorporated		
ISSUE DATE:	02/11/15		PAGE	28 of 91
		TITLE:	Maintenance Manual and ICA	
REVISION DATE:	02/11/15	SUBTITLE:	Aerocet 6650 Floats on a Quest KODIAK 100	
			FILE NO.	A-10038
			REVISION	0



65-42000 NOSE GEAR, MODEL 6650 FLOATS

Figure 3-4 : Bolts for Adjustment of Nose Spring Movement

3.5. Removal of the Complete Nose Box and Gear from the front of the float –

Reference 65-42000, Sheets 1-3; 65-42100, Sheets 1 & 2; and 65-42300, Sheets 1 &

2.

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.

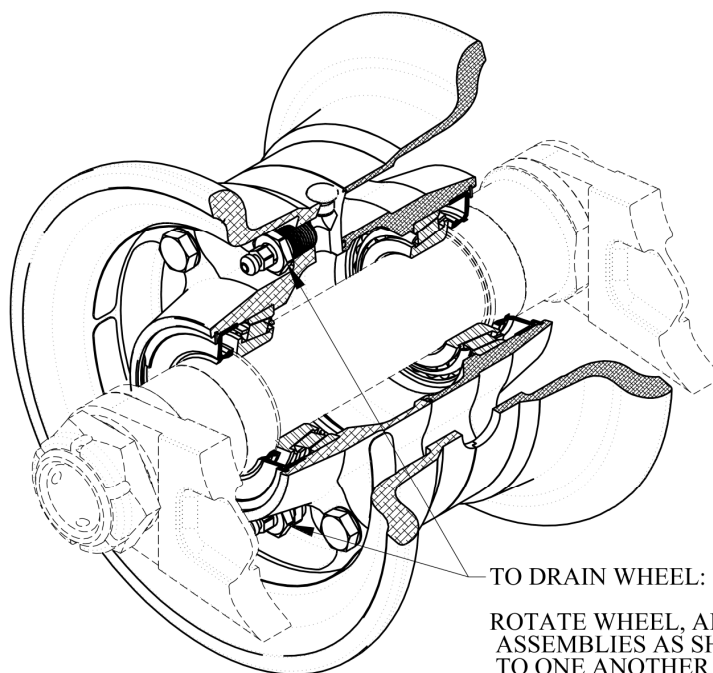
		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	29 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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. Pull the complete nose box and gear forward including the hydraulic actuator.
6. 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.
7. Reverse these procedures for installation. Reseal according to Note 1 on 65-42300.

3.6. Nose Wheel Removal and disassembly – Reference 65-42100, Sheets 1 & 2; and Nose Wheel Drawing 65-42170 Sheets 1-3.

1. Make sure gear is in the down position and **hydraulic gear motor circuit breaker** is pulled.
2. Jack the airplane according to Section 11.1.2. Alternately, the front of the plane can be jacked up.
3. Drain wheel as shown in Figure 3-5 below.

		 Incorporated		
ISSUE DATE:	02/11/15		PAGE	30 of 91
REVISION DATE:	02/11/15		FILE NO.	A-10038
		TITLE:	Maintenance Manual and ICA	
		SUBTITLE:	Aerocet 6650 Floats on a Quest KODIAK 100	
			REVISION	0



TO DRAIN WHEEL:

ROTATE WHEEL, ALIGNING BLEEDER ASSEMBLIES AS SHOWN, VERTICALLY TO ONE ANOTHER

ATTACH TUBING TO LOWER (TO CATCH HYDRAULIC FLUID) OR PLACE A CATCH BASIN BENEATH ASSEMBLY

OPEN UPPER BLEEDER ASSEMBLY (VENT)

OPEN LOWER BLEEDER (DRAIN)

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

Figure 3-5: 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.

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	31 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

7. Inspect wheel bearings, bearing seals, tensioner bushings, o-rings, and washer. Replace as necessary.

3.7. Nose Wheel Installation - Reference 65-42100, Sheets 1 & 2, and Figure 3-6.

1. Reverse procedures in Section 3.6.
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.

CAUTION:

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

		 Incorporated		
ISSUE DATE:	02/11/15		PAGE	32 of 91
REVISION DATE:	02/11/15		FILE NO.	A-10038
		TITLE: Maintenance Manual and ICA	REVISION	0
		SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		

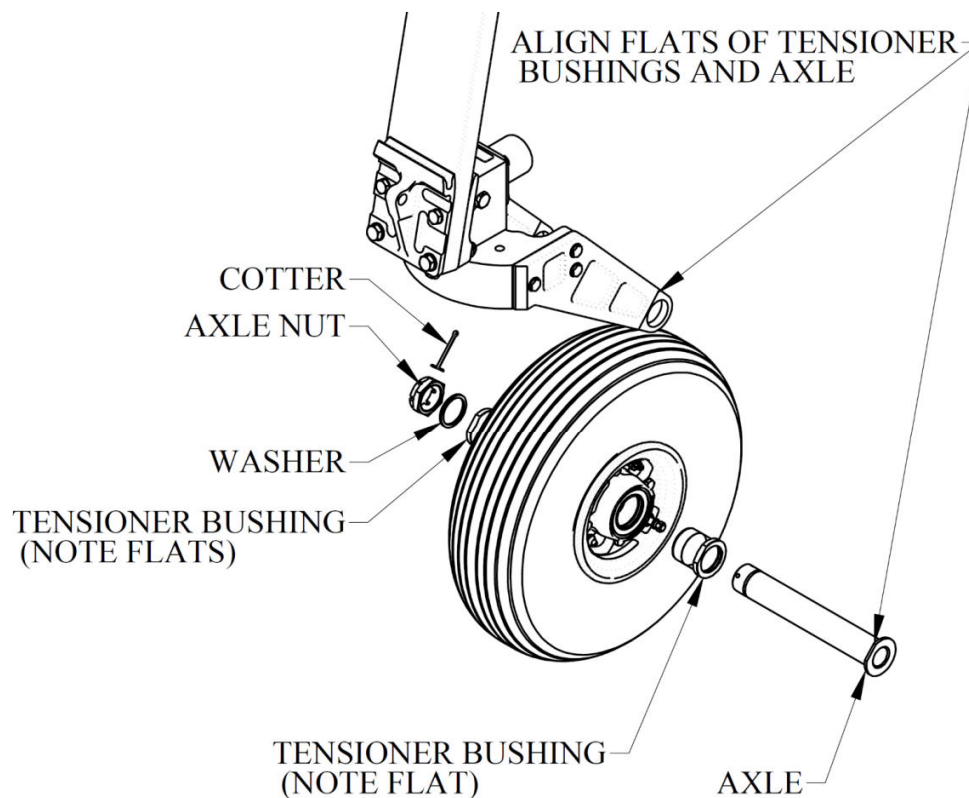


Figure 3-6: Exploded View of Nose Wheel Installation

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.

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	33 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

3.8. Detent Piston and Nose Pivot Pin Service - Reference Drawing No. 65-42100, Sheets 1-3; Drawing No. 65-42120; Drawing No. 65-42150, Sheet 1; and Figures 3-7 and 3-8.

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 3-7.

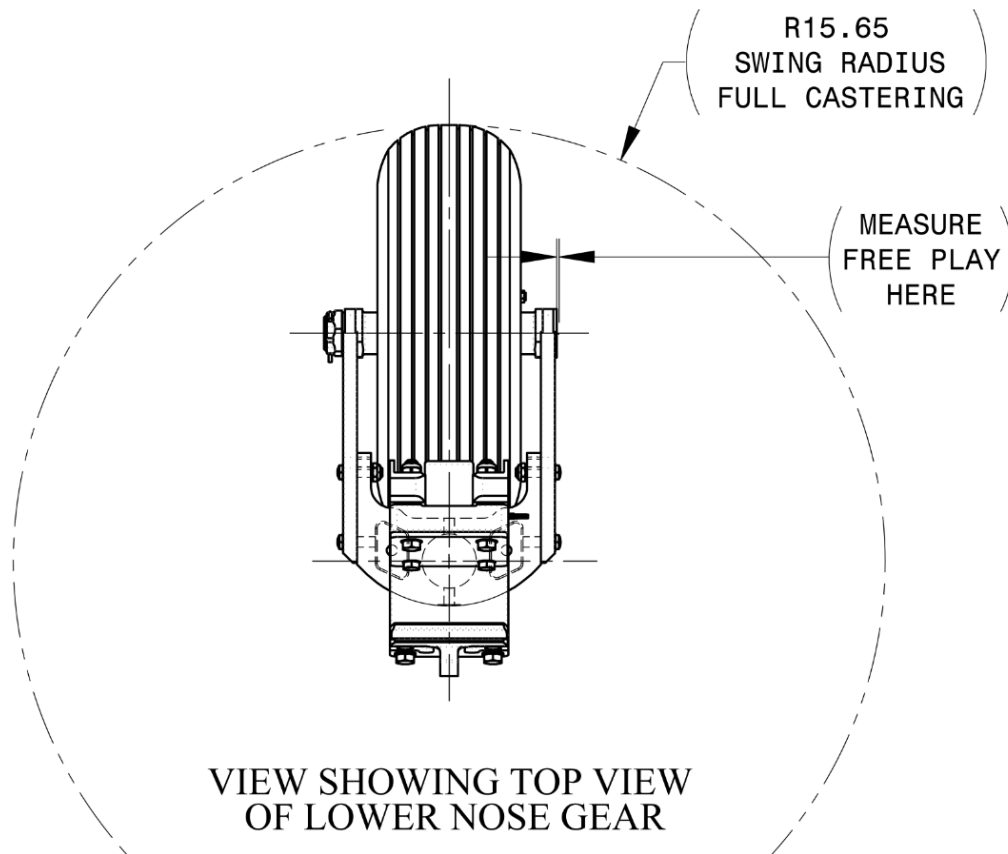
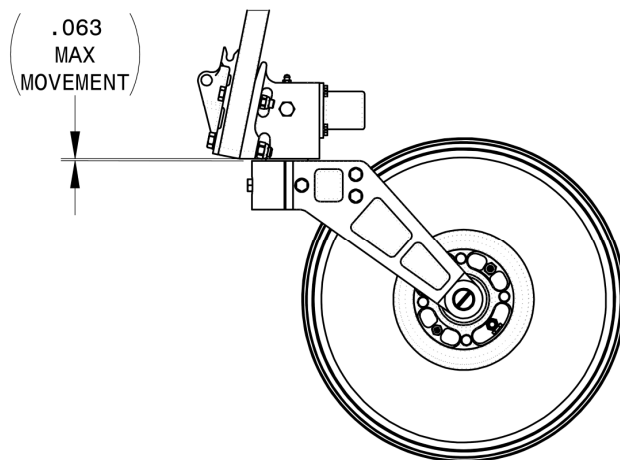


Figure 3-7 : Maximum Side to Side Free travel of Nose Wheel

There should be no more than 1/16" (.063") vertical movement of the nose block, as shown in Figure 3-8. If the components fall outside of the acceptable range, adjust, or replace, as necessary.

		 Incorporated		
ISSUE DATE:	02/11/15		PAGE	34 of 91
REVISION DATE:	02/11/15		FILE NO.	A-10038
		TITLE: Maintenance Manual and ICA	REVISION	0
		SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		



65-42100 LOWER NOSE GEAR, MODEL 6650 FLOATS

Figure 3-8 : Maximum Vertical Movement Nose Block

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.

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	35 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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 10,000lb

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	36 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	37 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

4. MAIN LANDING GEAR AND BRAKES

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.

4.1. Main Wheel Removal & Assembly – Reference 35A-51800, Sheets 1 & 2. Consult Parker/Cleveland Maintenance Manual and Parts Catalog for brake maintenance and Aerocet Component Maintenance Manual A-10036 for wheel and/or brake maintenance and repair.

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 11.1.2.

WARNING

BE SURE TO DEFLATE TIRE BEFORE ANY DISASSEMBLY OF THE MAIN WHEEL

2. Drain oil bath wheel in a similar manner to the nose wheel. Figure 3-5
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.
4. Inspect all components for corrosion, and wear according to procedures in Aerocet Component Maintenance Manual A-10036.

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	38 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

5. Replace o-rings in the tensioner bushing.
6. Reassemble in reverse order of disassembly. Consult the proper Component Maintenance Manual for further inspection and maintenance of wheel and brake assemblies.
7. Tighten the axle nut, ensuring the proper amount of friction on the wheel bearings. Use procedures outlined in the appropriate Component Maintenance Manual; or
 - a) 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.)
 - b) Loosen the axle nut until the wheel assembly will spin freely again. (No torque)
 - c) Tighten the axle nut until the nut begins to tighten, but the wheel assembly spins freely and has no perceptible play. Axle nut may be backed off to align the nearest slot to the nearest cotter hole – no more than ¼ turn is necessary.
6. Install cotter pin through the axle nut.
7. Install brake mount and brake.
8. Service the wheel with oil according to Aerocet Component Maintenance Manual A-10036

4.2. Brake Removal and Inspections – Reference Parker/Cleveland Maintenance Manual AWBCMM0001-7

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. Remove back plate.
2. Slide the caliper away from the wheel until it is flush with other caliper and remove.

Brake pads should be replaced when the minimum section thickness is less than 0.100”.

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.

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	39 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

NOTE

Minimum thickness is mentioned here as a reference only. Refer to AWBCMM0001-7 for most current wear limits.

4.3. Oleo Removal and Disassembly – Reference 65-45000, Sheets 2 & 5; and 65-45200, Sheets 1 & 2. (Oleo Bleeder Assembly 66-T45201 [DH3] 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 Section 11.1.2.
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 ¾” 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 3/4” 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-T45201 [TH4] provides an easier leveraged way to facilitate this and keep alignment.
8. Using the two Bottom Sleeve Clamps, 66-T45269 [TH5] 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 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.

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	40 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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 [TH6][DH7] in a vise. Remove the top cap, turning counter clockwise, using the 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.

4.4. Oleo Assembly – Reference 65-45000, Sheets 2 & 5; and 65-45200, Sheets 1 & 2.

(Oleo Bleeder Assembly 66-T45201 [TH8][DH9] may be available from Aerocet upon request.)

1. In general reverse, disassembly procedures.
2. Lube all seals 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.

		 Incorporated		
ISSUE DATE:	02/11/15		PAGE	41 of 91
REVISION DATE:	02/11/15		FILE NO.	A-10038
		TITLE:	Maintenance Manual and ICA	
		SUBTITLE:	Aerocet 6650 Floats on a Quest KODIAK 100	
			REVISION	0

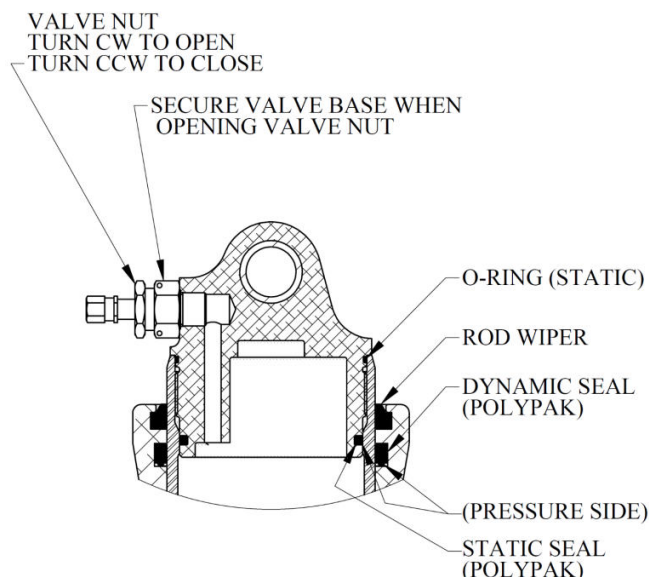


Figure 4-1: Oleo Seals and O-rings

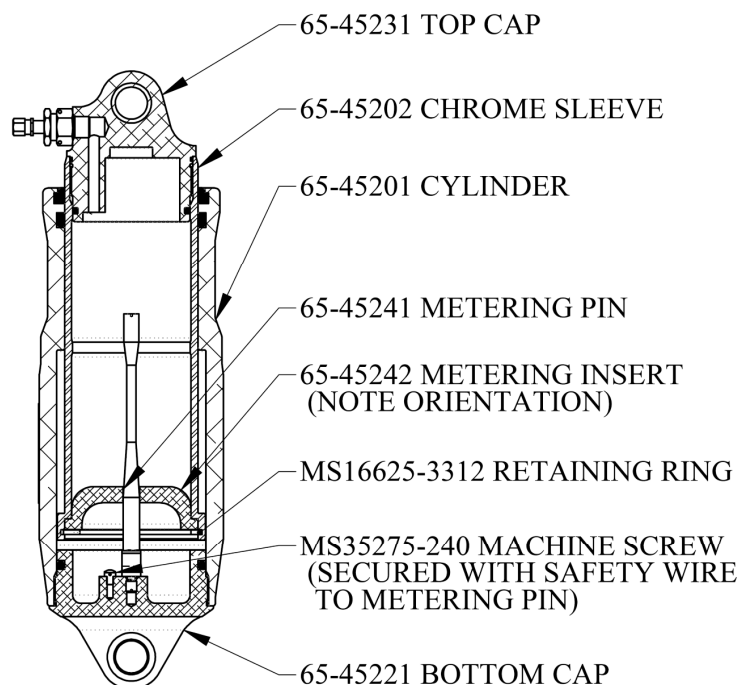
3. Reassemble the top cap to the chrome sleeve if these were disassembled. Lube the threads lightly with grease. Holding the chrome sleeve using the Chrome Sleeve Clamp **66-T45268** [TH10][DH11] in a vise, screw the top cap back into place. Torque the top cap to the chrome sleeve using Torque Spanner Tool **66-T45267** [TH12][DH13] 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 1/4" of the chrome sleeve is showing through the rod wiper.
6. Install the high pressure charging valve.
7. Remove the metering insert, 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

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	42 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

metering insert back into place assuring the dome is properly positioned as shown in the figure. Install snap ring.



65-45200 SHOCK STRUT (OLEO) CUT-AWAY VIEW

Figure 4-2: Oleo Cut-Away View

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^[TH14].
9. Align the top cap shear pin holes to those of the lower cap, using the two 3/4" 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^{[TH15][DH16]} helps 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

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	43 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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.

4.5. Complete Disassembly of Main Gear – Reference 65-45000, Sheets 2-5.

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 Section 11.1.2.
3. Remove oleo and main wheel according to Sections 4.1 and 4.2
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.

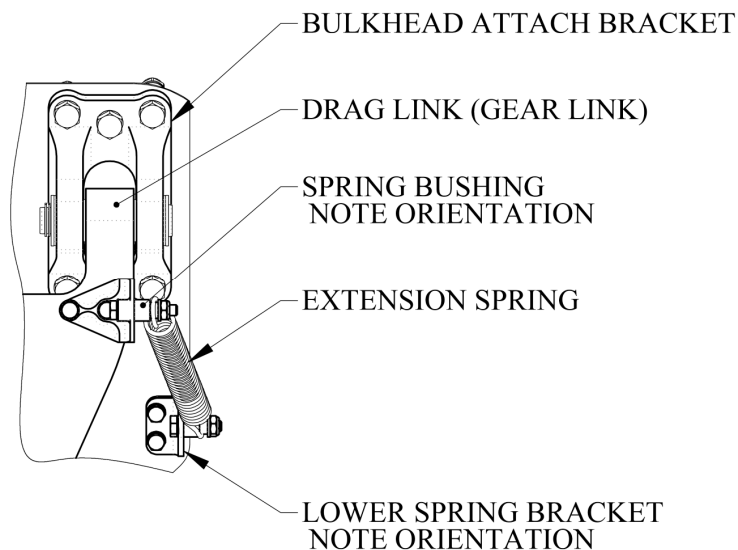
7. Any remaining brackets and the submersible sensor may be removed.
8. Check all parts for corrosion and bushings for wear. Replace as necessary.

4.6. Complete Assembly of Main Gear including adjustment of submersible sensor and main gear hydraulic actuator – Reference 65-45000, Sheets 1-5.

1. Reverse procedure in Section 4.5 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.

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	44 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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 the 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. Assure the proper orientation of the spring bushing to prevent the extension spring from contacting the drag link during gear operation.



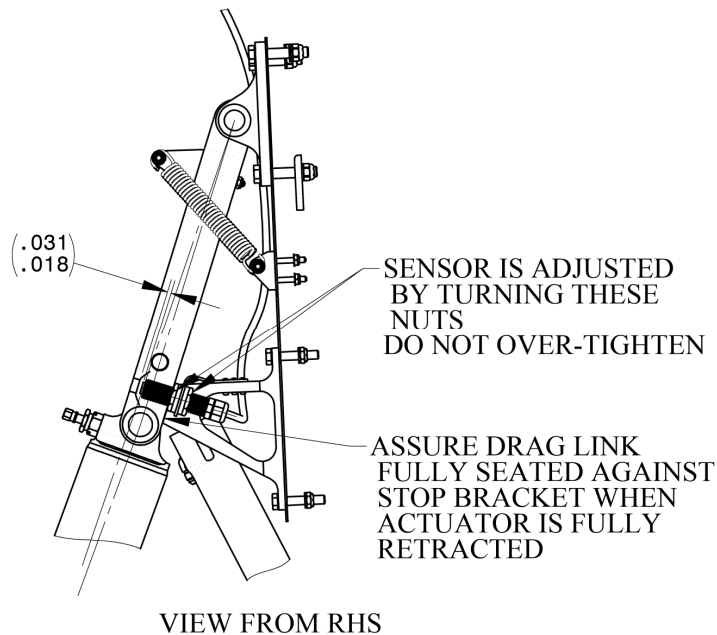
WARNING:
FLOATS MUST BE LIFTED AND SECURED PER SECTION 11.1.2 BEFORE ACTUATING GEAR.

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

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	45 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

the actuator rod in the extended position sets the default wheel height in the gear well when retracted for water operation.

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.



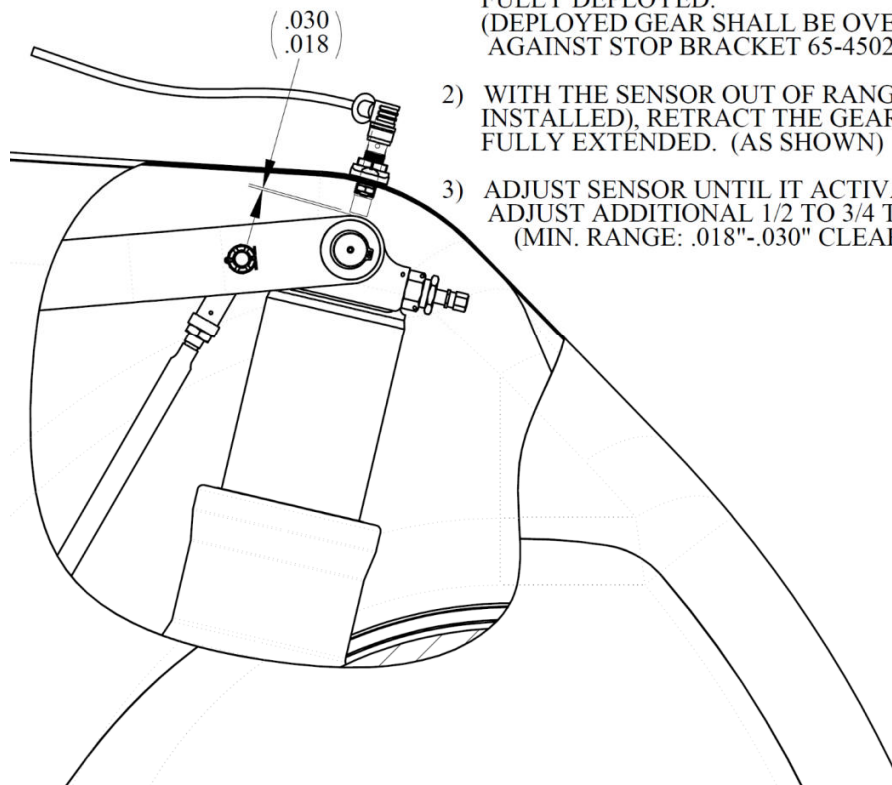
7. The gear up position sensor may only be adjusted after the actuator has been fully adjusted to the down condition. With the actuator adjusted and the gear up position sensor beyond range, retract the gear completely and then adjust the sensor to trigger range. With proper hook up, this sensor will 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,

		 Incorporated		
ISSUE DATE:	02/11/15		PAGE	46 of 91
REVISION DATE:	02/11/15		FILE NO.	A-10038
		TITLE:	Maintenance Manual and ICA	
		SUBTITLE:	Aerocet 6650 Floats on a Quest KODIAK 100	
			REVISION	0

then intermittent signal may cause frequent gear advisory enunciations. If the gear up sensor is adjusted too closely, then there is increased risk of damaging the sensor face.

"GEAR-UP" SENSOR ADJUSTMENT:

- 1) COMPLETE ROD END/ACTUATOR ADJUSTMENTS WITH THE ACTUATOR FULLY RETRACTED, GEAR FULLY DEPLOYED. (DEPLOYED GEAR SHALL BE OVER CENTER AND AGAINST STOP BRACKET 65-45021.)
- 2) WITH THE SENSOR OUT OF RANGE (OR NOT INSTALLED), RETRACT THE GEAR, ACTUATOR FULLY EXTENDED. (AS SHOWN)
- 3) ADJUST SENSOR UNTIL IT ACTIVATES, THEN ADJUST ADDITIONAL 1/2 TO 3/4 TURN. (MIN. RANGE: .018"-.030" CLEARANCE)



		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	47 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

5. 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.

5.1. Hydraulic Lines – Reference Drawings 65-47000, 66-47200 & 66-12700.

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.

		 Incorporated		
ISSUE DATE:	02/11/15		PAGE	48 of 91
REVISION DATE:	02/11/15		FILE NO.	A-10038
		TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100	REVISION	0

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)

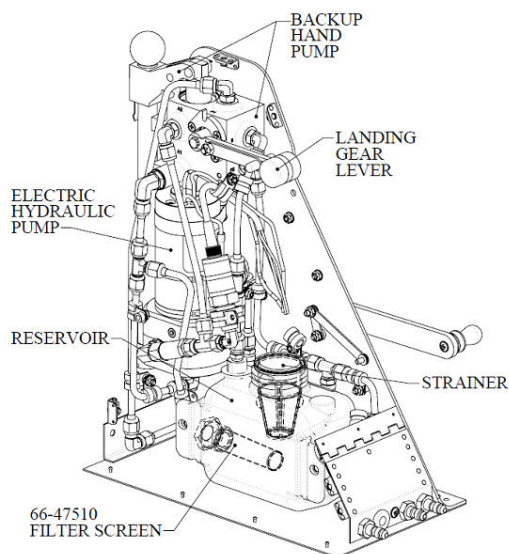


Figure 5-1: Hydraulic Pedestal Components

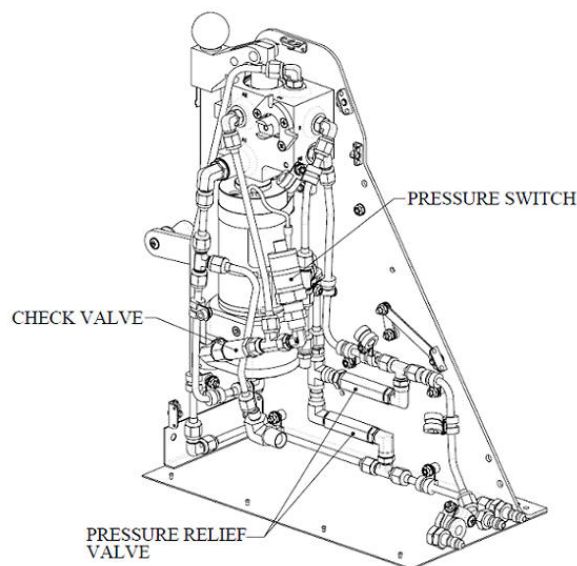


Figure 5-2: Hydraulic Pedestal Components, continued

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	49 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

5.2. Hydraulic Actuators – Reference 65-42400, Sheet 1 & 2; and 65-45300, Sheet 1 &

2.

1. Both the nose and main gear actuators 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.

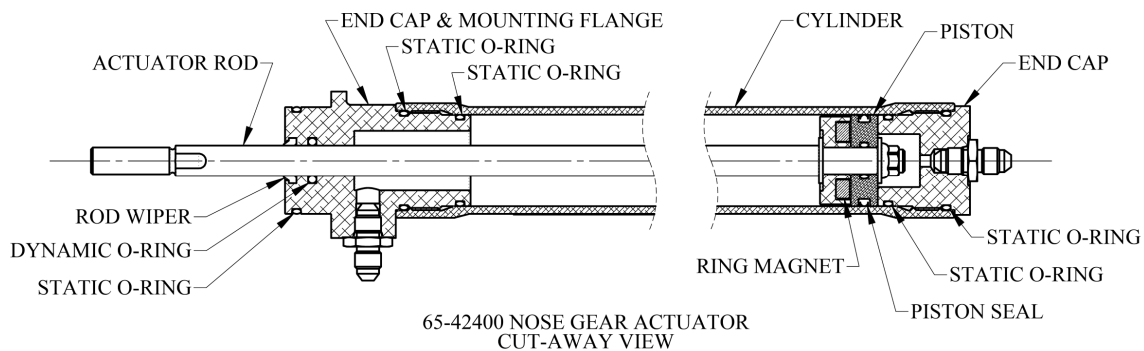


Figure 5-3: Nose Gear Actuator Cut Away

		 Incorporated		
ISSUE DATE:	02/11/15		PAGE	50 of 91
REVISION DATE:	02/11/15		FILE NO.	A-10038
		TITLE:	Maintenance Manual and ICA	
		SUBTITLE:	Aerocet 6650 Floats on a Quest KODIAK 100	
			REVISION	0

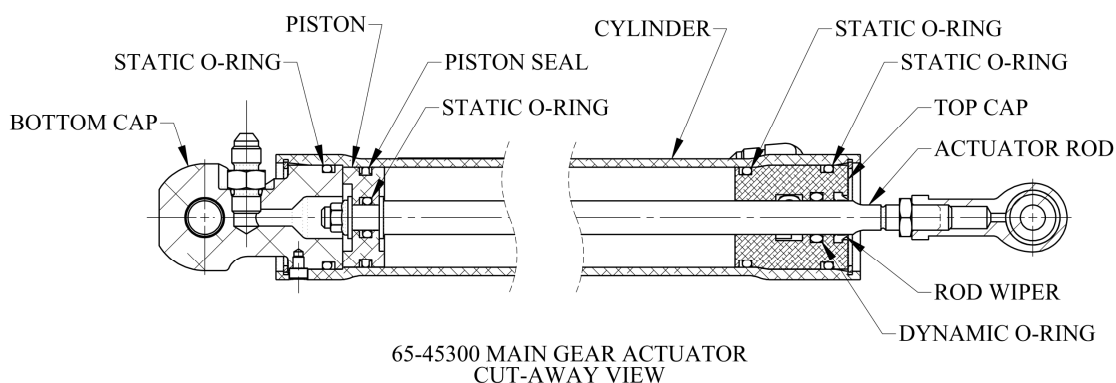


Figure 5-4: Main Gear Actuator Cut Away

5.3. Electric-Hydraulic Pump –

The electric hydraulic pump 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.

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	51 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

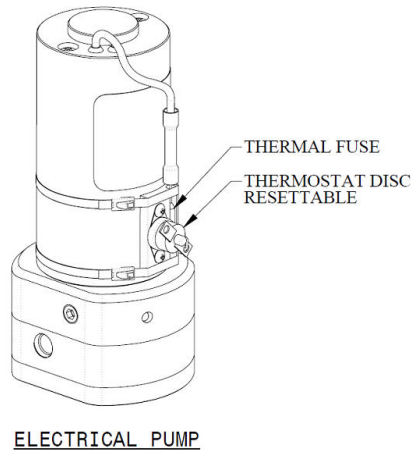


Figure 5-3: Electric-Hydraulic Pump

5.4. Backup Hand Pump–

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

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	52 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	53 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

6. WATER RUDDER

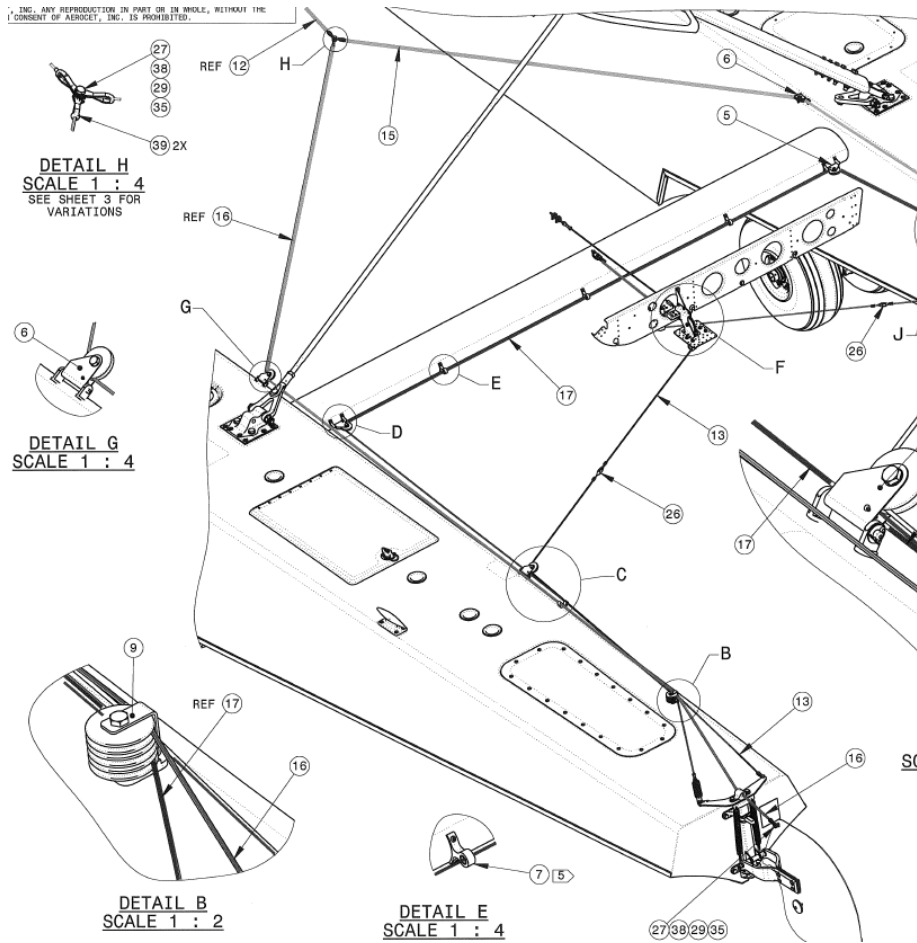


Figure 6-1 From page 4 of Drawing 66-12200

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

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	54 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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.

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 Sheet 3 of 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.

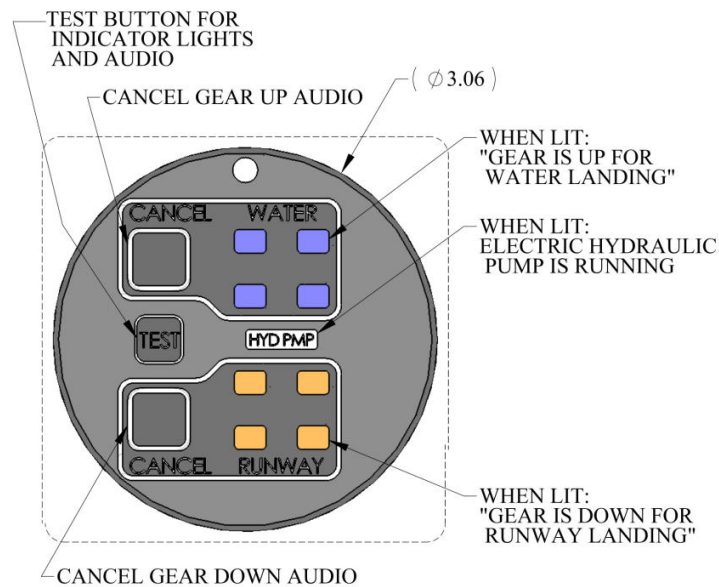
The water rudder retract cables should be rigged so that the rudders are tucked neatly behind the float transoms when retracted and the cables just become slack in the down position.

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	55 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

7. ELECTRICAL

7.1. 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 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.



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

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	56 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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 should be consulted for the most up-to-date information.

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	57 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

8. SPOT MIRROR ASSEMBLY

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 radars will have the starboard mirror attached to the aft fairing of the weather radar.

Install according to Drawing No. 66-12800.

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	58 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	59 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

9. RECOMMENDED PROCESSES, PRODUCTS, AND INSPECTION CHECKLISTS

9.1.1. 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. 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 hangered, minimizes condensation in these bays.

9.1.2. Float Hull Description and Maintenance

The metal chine strips are abrasive wear surfaces used to protect the floats from docks and pilings. See Figure 1-3. 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 1-3. These wear strips should be inspected during pre-flight and upon suspicion of damage. The strips should never be

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	60 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

allowed to wear through to the gel-coat surface on the float. Replace the wear strips as necessary. See section 12.8 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 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.

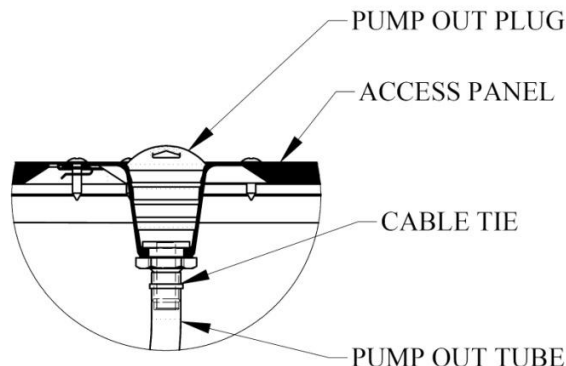


Figure 9-1 Typical pump-out cup, plug and access panel

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

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	61 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

the knob and the door panel as necessary and turn clockwise to engage the catch and reach the detent.

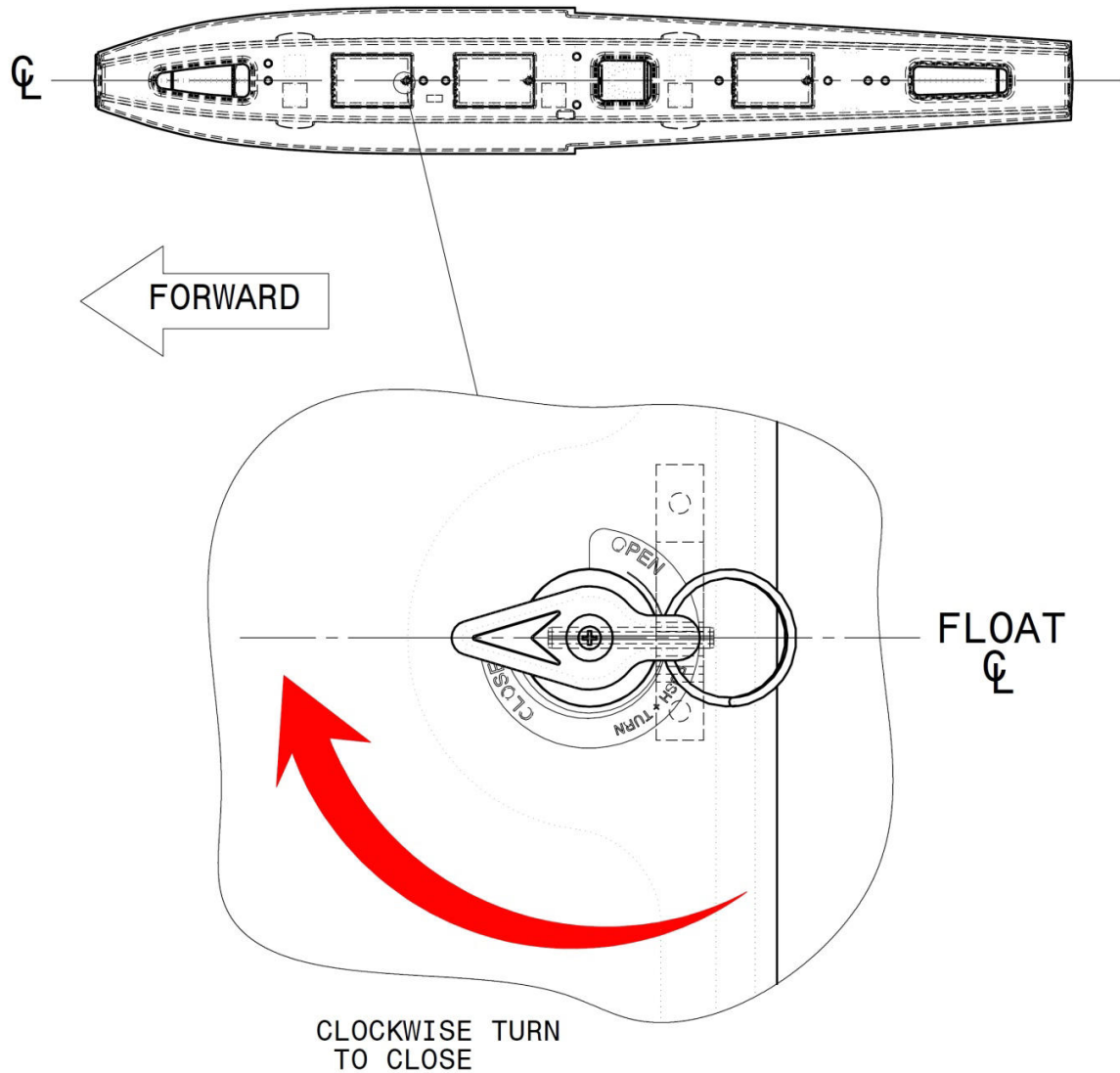


Figure 9-2 Fwd Hinging Latch Operation

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	62 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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.

9.1.3. 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. 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 Corrosion X, 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

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	63 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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.

9.1.4. 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.

9.1.5. Lubrication

Nose tracks and blocks are to be kept clean and should lubricated by cleaning and spraying with a dry Teflon spray. 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, clean mating surfaces (remove any existing grease) prior to application.

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	64 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	65 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

10. TROUBLESHOOTING

10.1 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 is mis-aligned	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 blade(s)	Locate and replace damaged pieces.
"Howling" noise from one or both floats after take-off	Locker door left open.	Fly the airplane. Land. Latch the doors.
Aircraft is unstable during water operations	Broken structural members	Inspect Struts, Tie Rods, etc. for breaks and for adjustment.
Rudder Pedal feels "stiff"	Mis-aligned steering cables	Correct the alignments of the exit holes through the floats to the aircraft mounted pulleys.
	Over-tightened turnbuckles	Adjust tension.
	Over-tightened internal float fittings	Loosen the fittings and re-snug them by hand.
Reduced water rudder steering	Broken cable	Replace as necessary.
	Debris caught in the tiller	Remove debris.
	Jammed Cable	Check all pulley assemblies for missing keepers and fouled cables.
	Broken rudder retract spring(s) - Rudders do not deploy fully.	Replace as necessary.
Water Rudders do not retract	Cable jammed	Check for fouled cables and debris, especially at tiller.

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	66 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

10.2 Troubleshooting Pump Failure to start

Problem	Possible Cause	Corrective Action
Electric Pump Will Not Start	Circuit breaker Tripped	Reset circuit breaker
	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. Caution – floats must be jacked up on land prior to cycling gear.
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. Thermal cutoff switch tripped due to overheating of motor. [aw17]Pressure switch, relay or motor failure. Check pump breaker[CB18].
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.[CB19]
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.

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	67 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

10.3 Troubleshooting Weight on Water (WOW) system

Problem	Possible Cause	Corrective Action
Flight HOBBS meter does not log flight time and aural stall warning inhibited when in flight	<u>Disconnect J5 from WOW box and perform the following electrical checks</u> <u>WOW box located in MID BAY forward of the cross-tube bay.</u>	
	.+20 VDC $\leq$ J5 pin 8 $\leq$ 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
	<u>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.</u>	
	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	
	<u>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.</u>	
	Voltage on pin 10 relative to pin 16 (gnd) $\leq 2.400 \pm 0.100$ 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
<u>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.</u>		

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	68 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	69 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

11. INSTALLATION AND REMOVAL INFORMATION

11.1. Floats Installation

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

11.1.1. 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.

11.1.2. Float Handling, Jacking and Towing

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

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	70 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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. 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 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.

11.1.3. **Boxing the Floats – Reference 65-10001**

Place the floats a suitable distance apart, and in a parallel position. 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. 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. Treat the insides of the slip tubes and outsides of the spreader bar ends with white lithium grease. Insert the forward and aft spreaders into one float until the pre-drilled holes align with the deck plate holes. 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. Insert opposite ends of the spreader bars into the opposite float. It may be helpful to affix a 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. Finalize by introducing the clamps blocks (56-10202), necessary washers, and self-locking nuts. Torque the bolts to 25 ft/lbs and coat the bolt and nut with EZ-Turn Grease or equivalent. 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.

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	71 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

11.1.4. Aerocet Drawings Required for Conversion from Wheels to Floats

DRAWING NUMBER	DESCRIPTION
66-12000	MASTER DRAWING LIST, AEROCET MODEL 6650 FLOAT INSTALLATION, KODIAK 100 AIRCRAFT
66-12010	AEROCET MODEL 6650 FLOAT INSTALLATION TO QUEST KODIAK 100A AIRCRAFT
66-12020	STRUT INSTALLATION, AEROCET MODEL 6650 FLOATS, KODIAK AIRCRAFT
66-12050	PLACARDS, AEROCET MODEL 6650 FLOAT INSTALLATION, KODIAK 100 SERIES AIRCRAFT
66-12060	DRAIN GROMMET INSTALLATION, AEROCET MODEL 6650 FLOAT INSTALLATION, KODIAK AIRCRAFT
66-12120	STRUT ASSEMBLY, FWD, AEROCET MODEL 6650 FLOAT INSTALLATION, KODIAK AIRCRAFT
66-12130	STRUT ASSEMBLY, MID, MODEL 6650 FLOAT INSTALLATION, KODIAK AIRCRAFT
66-12160	STRUT ASSEMBLY, AFT, AEROCET MODEL 6650 FLOAT INSTALLATION, KODIAK AIRCRAFT
66-12170	STEERING GEAR BUNGEE MOUNT, AEROCET 6650 FLOAT INSTALLATION, KODIAK AIRCRAFT
66-12200	WATER RUDDER RIGGING INSTALLATION, AEROCET MODEL 6650 FLOATS, KODIAK AIRCRAFT

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	72 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

DRAWING NUMBER	DESCRIPTION
66-12300	CABIN BOARDING STEP INSTALLATION, AEROCET MODEL 6650 FLOATS, KODIAK AIRCRAFT
66-12350	BOARDING STEP STRUT ASSEMBLY, AEROCET MODEL 6650 FLOAT INSTALLATION, KODIAK AIRCRAFT
66-12400	FAIRING ASSEMBLY, AEROCET MODEL 6650 FLOAT INSTALLATION, KODIAK AIRCRAFT
66-12410	NOSE GEAR COVER, INSTALLATION OF
66-12500	BRACE ASSEMBLY, LOWER ENGINE MOUNT
66-12600	PLACARD INSTALLATION, LOCKER LOADING DATA, KODIAK 100 AIRCRAFT
66-12700	ELECTRIC AND HYDRAULIC INSTALLATION, AEROCET MODEL 6650 FLOATS, KODIAK AIRCRAFT
66-12701	CENTER PANEL MODIFICATION, GEAR ADVISORY & CIRCUIT BREAKERS
66-12760	BRAKE MASTER CYLINDER INSTALLATION
66-12800	MIRROR ASSEMBLY INSTALLATION, AEROCET MODEL 6650 FLOAT INSTALLATION, KODIAK AIRCRAFT
66-12900	VENTRAL FIN INSTALLATION
66-12910	VENTRAL FIN ASSEMBLY
65-46010	IN-FLOAT INSTRUMENTATION WIRE HARNESS [PART OF FLOAT TSO]
66-46020	SCHEMATIC, HYDRAULIC SYSTEMS
66-47100	HYDRAULIC HAND PUMP, DOUBLE ACTING
66-47200	PEDESTAL, HYDRAULIC, KODIAK AIRCRAFT
66-47400	WATER RUDDER RETRACT HANDLE ASSY
66-60015	IN-AIRCRAFT INSTRUMENTATION, WIRE
66-60016	AIRCRAFT PEDESTAL WIRING SCHEMATIC, QUEST KODIAK AIRCRAFT
66-60017	IN-AIRCRAFT FLOAT ATTACH, TRANSITION, WIRE HARNESS, AEROCET 6650 AMPHIB FLOATS
66-60025	ENCLOSURE ASSEMBLY, WEIGHT ON WHEELS

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	73 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

12. STRUT AND COMPOSITE REPAIR MANUAL

12.1. Struts

12.1.1. 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.

12.1.2. Repairable Damage

No other repairs are authorized without FAA approval.

12.1.3. Damage Repairable by Replacing Parts

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

12.2. 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

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	74 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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.

12.3. 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 Damaged 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 surrounding defect 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. 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

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	75 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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.

12.4. 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. See section 12.5 (below) regarding resin mixing.

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	76 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

12.5. 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.

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.

12.6. Preparation of Carbon fiber Materials

1. Carbon fiber cloth shall be trimmed on a clean table to prevent contamination.

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	77 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

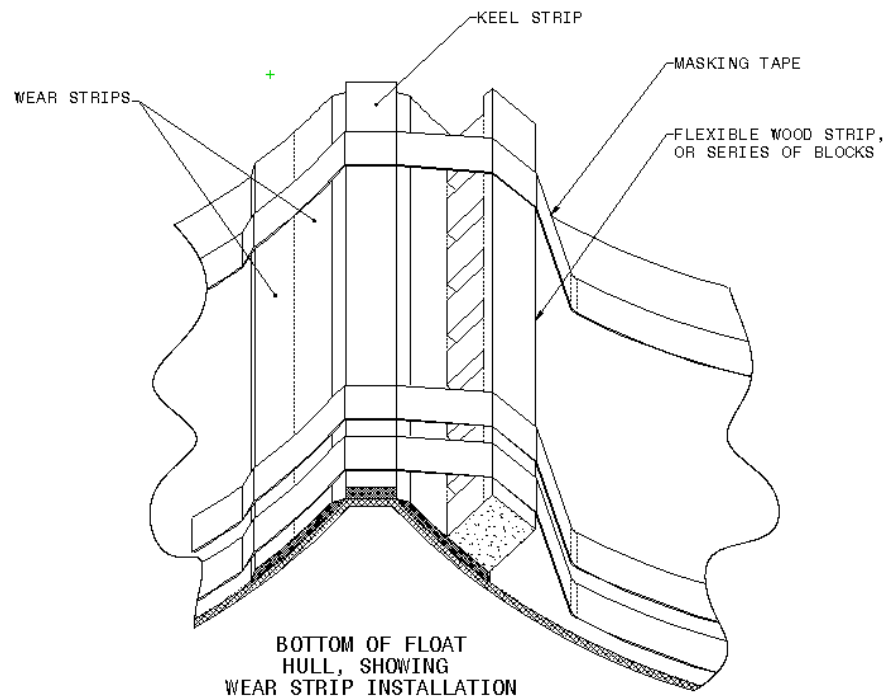
2. When laps are necessary, lap widths of at least 0.5 inch shall be maintained for carbon fiber pieces in any given ply and no more than one of the component plies shall be lapped at any one place. The number of laps shall be kept to a minimum.

12.7. Surface Coat Application (Gel Coat)

1. All surface coats must be applied to a thickness of 10 to 15 mil. 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.

12.8. Keel, Wear Strip, and Chine Bonding

1. Prepare keel area 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.



		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	78 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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.

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	79 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

13. RECOMMENDED SERVICE SCHEDULE, GENERAL PRACTICES AND PRODUCT LISTINGS FOR SERVICE

13.1. 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.

13.2. Part 1, Preflight

Conduct Preflight inspections according to existing KODIAK 100 Airplane Maintenance 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

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	80 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

8. Assure the ventral fins and strakes have no damage from docks or other obstacles.

13.3. Part 2, Daily Inspections

Conduct daily inspections according to existing KODIAK 100 Airplane Maintenance Manual, and refer to Table 13.5.1-1, Continued Airworthiness Service Schedule, below.

13.4. Part 3, Periodic Inspections

Conduct periodic inspections according to existing Quest KODIAK 100 Airplane Maintenance Manual, and refer to Table 13.4.1-1, Continued Airworthiness Service Schedule, below.

ISSUE DATE: 02/11/15		 Incorporated	PAGE		81 of 91
			FILE NO.		A-10038
REVISION DATE: 02/11/15			TITLE:		Maintenance Manual and ICA
			SUBTITLE:		Aerocet 6650 Floats on a Quest KODIAK 100
				REVISION	0

13.4.1. Recommended Service Schedule

INSPECTION TIME INTERVALS			HOURLY LIMITS			
	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

		 Incorporated		
ISSUE DATE:	02/11/15		PAGE	82 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0
		TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		

INSPECTION TIME INTERVALS			HOURLY LIMITS			
	Item	Notes	25	50	100	Annual
Hulls and Struts	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
	Baggage Compartment	Inspect seals, latches, internal damage from baggage.				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[TH20]			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 of Nose Gear Box	Apply corrosion spray to box inside front float compartment (note #3).			X	X
	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.			X	X

ISSUE DATE: 02/11/15		 Incorporated	PAGE		83 of 91
			FILE NO.		A-10038
REVISION DATE: 02/11/15			TITLE:		Maintenance Manual and ICA
			SUBTITLE:		Aerocet 6650 Floats on a Quest KODIAK 100
				REVISION	0

INSPECTION TIME INTERVALS			HOURLY LIMITS			
	Item	Notes	25	50	100	Annual
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 Dwg. 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
	Cleanliness	Keep debris from building up, especially on the drag brace stop to assure overcenter operation & rock deflector		X		X
	Main Gear and Axle Seals ^[TH21]	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

ISSUE DATE: 02/11/15		 Incorporated	PAGE		84 of 91
			FILE NO.		A-10038
REVISION DATE: 02/11/15			TITLE:		Maintenance Manual and ICA
			SUBTITLE:		Aerocet 6650 Floats on a Quest KODIAK 100
		REVISION		0	

INSPECTION TIME INTERVALS			HOURLY LIMITS			
	Item	Notes	25	50	100	Annual
Main Landing Gear	Bushings/Attachment Pins	Romove pins and relube. 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 sight glass - 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

Table 13.4.1-1 Service Schedule

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	85 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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-Sieze 8023 or equivalent for pin/bushing lubrication..

13.5. 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.

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	86 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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.

13.6. 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

13.7. Product Listings

1. Hydraulic Fluid – Mil-H-5606 (updated Mil-PRF-5606)

		 Incorporated		
ISSUE DATE:	02/11/15		PAGE	87 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0
		TITLE:	Maintenance Manual and ICA	
		SUBTITLE:	Aerocet 6650 Floats on a Quest KODIAK 100	

2. Teflon Spray – Accupro Dry Lube 0024636, Comet Industries 6P-730A
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 Grease
6. Float Sealant for Bolts and Chine Strip attachment – Sika Manufacturing Sikaflex 292
7. Rust (corrosion) Protection – ACF-50, Corrosion X, Boeing Co. Boeshield T9
8. Bolt Protection - PUR-AL-KETONE, LPS Industries LPS 3, Zip Chemical Co. Zip D-5029NS, EZ Turn Lubricant United-Erie
9. Composite Materials for Hull Repair – Contact Aerocet, Inc. for resin, cloth, gel-coat and resin thickeners

		 Incorporated TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		
ISSUE DATE:	02/11/15		PAGE	88 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0

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		 Incorporated		
ISSUE DATE:	02/11/15		PAGE	89 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0
		TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		

14. WEIGHT AND BALANCE

14.1. 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 float installation and verify the remaining items. On level scales with each wheel on the scales aircraft empty – no fuel.

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)			

ISSUE DATE: 02/11/15		 Incorporated	PAGE		90 of 91
			FILE NO.		A-10038
REVISION DATE: 02/11/15			TITLE:		Maintenance Manual and ICA
			SUBTITLE:		Aerocet 6650 Floats on a Quest KODIAK 100
		REVISION		0	

If weighing the aircraft is not practical, use the following data

Item	Weight (lbs.)	Arm (in. from datum)	Moment, W*Arm (in·lbs.)
Certified Empty Weight as currently equipped (verify the equipment list)			+
Exchange Weight	775.6	75.03	58,194
New Empty Weight (Total)			
Total Arm (divide moment by weight, M/W)			

14.1.1. 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. The following table shows weight and balance data for typical equipment. Equipment not listed must be weighed separately.

Item	Weight (lbs.)	Flight Station, F.S. (in.) on Kodiak 100
Electric Hydraulic Pump (w/hardware)	10.0 lbs.	167.50
Hydraulics Pedestal	18.7	43.23
GC600 Gear Advisory, wiring, and hydraulic lines	4.0	44.97

		 Incorporated		
ISSUE DATE:	02/11/15		PAGE	91 of 91
			FILE NO.	A-10038
REVISION DATE:	02/11/15		REVISION	0
		TITLE: Maintenance Manual and ICA SUBTITLE: Aerocet 6650 Floats on a Quest KODIAK 100		

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

Installation Drawings:

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
66-12200.....	WATER RUDDER RIGGING INSTALLATION
66-12300.....	BOARDING STEP INSTALLATION
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 WIRING SCHEMATIC

Illustrated Parts Catalog (IPC)

A-10038, Appendix A	(Bound separately)
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