



US Department
of Transportation
Federal Aviation
Administration

**MAJOR REPAIR AND ALTERATION
(Airframe, Powerplant, Propeller, or Appliance)**

OMB No. 2120-0020
Exp: 5/31/2018 Electronic Tracking Number

For FAA Use Only

INSTRUCTIONS: Print or type all entries. See Title 14 CFR §43.9, Part 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. §44701). Failure to report can result in a civil penalty for each such violation. (49 U.S.C. §46301(a))

1. Aircraft	Nationality and Registration Mark N81724	Serial No. 7AC-343
	Make Aeronca	Model 7AC

2. Owner	Name (As shown on registration certificate) James C Spee Douglas K. Spee	Address (As shown on registration certificate) Address 1539 Henrietta St City Redlands State CA Zip 92373 Country USA
----------	--	--

3. For FAA Use Only

The data described herein complies with applicable airworthiness requirements and is approved only for the above described aircraft subject to conformity inspection by a person authorized in FAR 43.7

11/17/2015 *[Signature]*
Date Steven E. Groover, Approving Inspector WP21 RAL FSDO

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	AIRFRAME	Aeronca	(As described in Item 1 above)	7AC-343
<input type="checkbox"/>	<input type="checkbox"/>	POWERPLANT			
<input type="checkbox"/>	<input type="checkbox"/>	PROPELLER			
<input type="checkbox"/>	<input type="checkbox"/>	APPLIANCE	Type Manufacturer		

6. Conformity Statement

A. Agency's Name and Address		B. Kind of Agency		C. Certificate No.	
Name	James O'Brien III	<input checked="" type="checkbox"/>	U. S. Certificated Mechanic	<input type="checkbox"/>	Manufacturer
Address	4343 University Avenue	<input type="checkbox"/>	Foreign Certificated Mechanic	<input type="checkbox"/>	
City	Riverside State CA	<input type="checkbox"/>	Certificated Repair Station	<input type="checkbox"/>	
Zip	92501 Country USA	<input type="checkbox"/>	Certificated Maintenance Organization	<input type="checkbox"/>	3680425

D. I certify that the repair and/or alteration made to the unit(s) identified in item 5 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Extended range fuel per 14 CFR Part 43 App. B <input type="checkbox"/>	Signature/Date of Authorized Individual <i>[Signature]</i>
--	---

7. Approval for Return to Service

Pursuant to the authority given persons specified below, the unit identified in item 5 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is Approved Rejected

BY	FAA Flt. Standards Inspector	Manufacturer	Maintenance Organization	Persons Approved by Canadian Department of Transport
	FAA Designee	Repair Station	<input checked="" type="checkbox"/> Inspection Authorization	Other (Specify)

Certificate or Designation No. 2779034	Signature/Date of Authorized Individual <i>[Signature]</i>
---	---

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

USA N81724

August 24, 2015

Nationality and Registration Mark

Date

Conversion of Aeronca 7AC to Hydraulic Disc Brakes

Removed Cleveland/Van Sickle 38500 wheels and A7200A L/R brake assemblies (pages 32 and 40 of Aeronca 7AC Service Manual). Installed Grove wheels 61-1001A, brake assemblies 29-1001B Rev 1R consisting of 20-076 Torque Plate Assembly and 30-1A Caliper Assembly. Grove axle nuts P/N 5520, axle spacers P/N 5735 and AN 340-40-8 cotter pins used to secure the wheels to the axle per Grove Drawing 28-4006 "Champ Wheel and Brake." AN4-5A bolts secured the brake assemblies to the brake torque plate (Aeronca Drawing 7-807). All Grove parts are TSO certified.

Removed mechanical linkage (see p. 20 of Aeronca Service Manual) and replace with Grove Part Nos. 670-5 Master Cylinder, 082-001 Clamp Assembly, and 082-012 Connecting Rod Assembly. All drawings are attached and incorporated by reference. Mounting used existing brake pedals and is shown on Grove drawing 25-110 "Installation - Master Cylinder."

This installation is identical in configuration and performance to the braking system approved for the 7ECA aircraft and listed in the type certificate data sheet. Mounting is by clamp instead of by welding and is of equivalent strength. This installation was previously approved by San Diego FSDO for Aeronca 7AC N4728E.

Grove parking brake valve 068-014 was installed between the brake fluid reservoir Grove P/N 067-054 and the master cylinders (Grove PN 670-5) using Adel clamps and an aluminum mounting plate. The valve is operated from the instrument panel by an Aircraft Spruce A-700 black button lock dash control P/N 05-13172 labeled Parking Brake.

Hydraulic oil conforming to MIL PRF 46176B or grade 5606 is used in this installation. Flexible hose connections were installed made of new stock, tested to 4000 psi and certified to have bursting pressures 5000 psi and above under safety standards of 49 CFR 571.106. These hoses will conform to Specification SAE-J-1401.

This installation meets certification standards of CAR 3.363, CAR 04a.477, and 14 CFR 23.735. All work will be accomplished in accordance with standard practices of AC43.13-1B and AC43.13-2B.

An operational check was performed showing adequate braking action conforming with certification standards. A leak check was also performed.

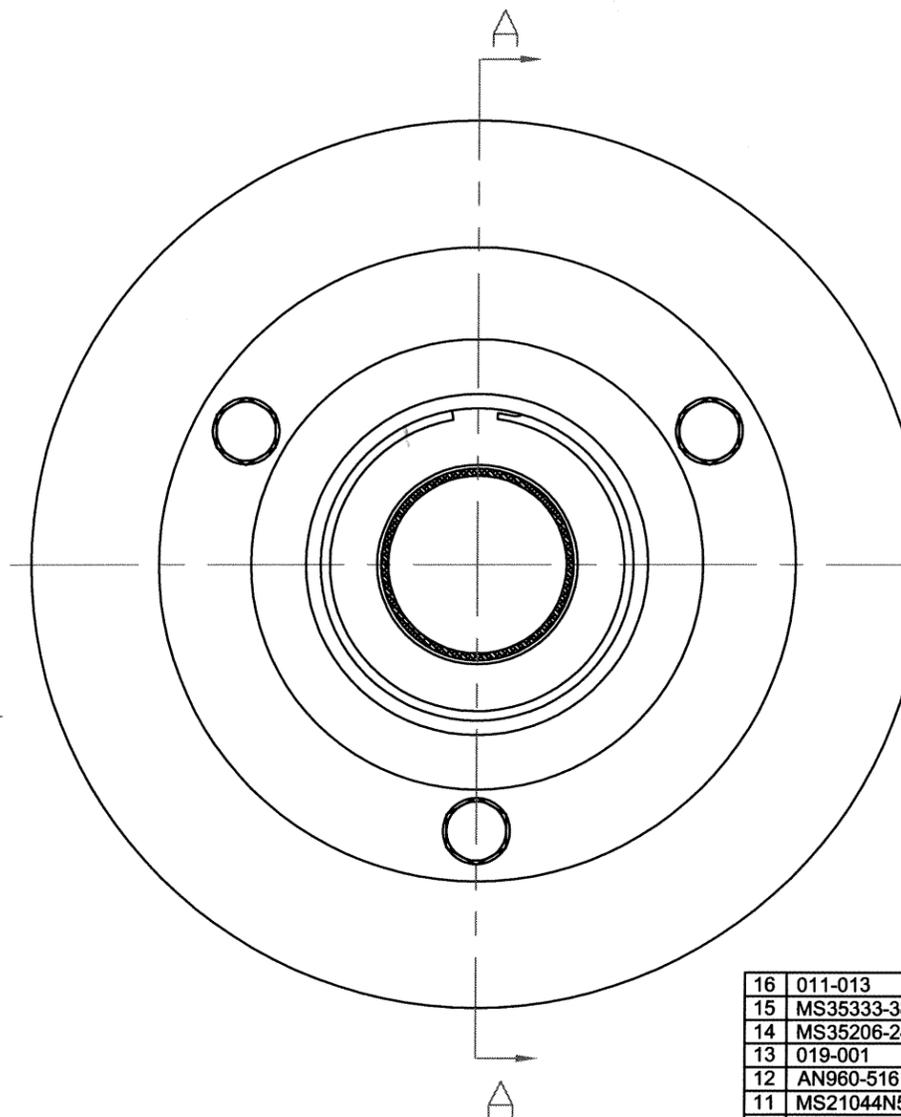
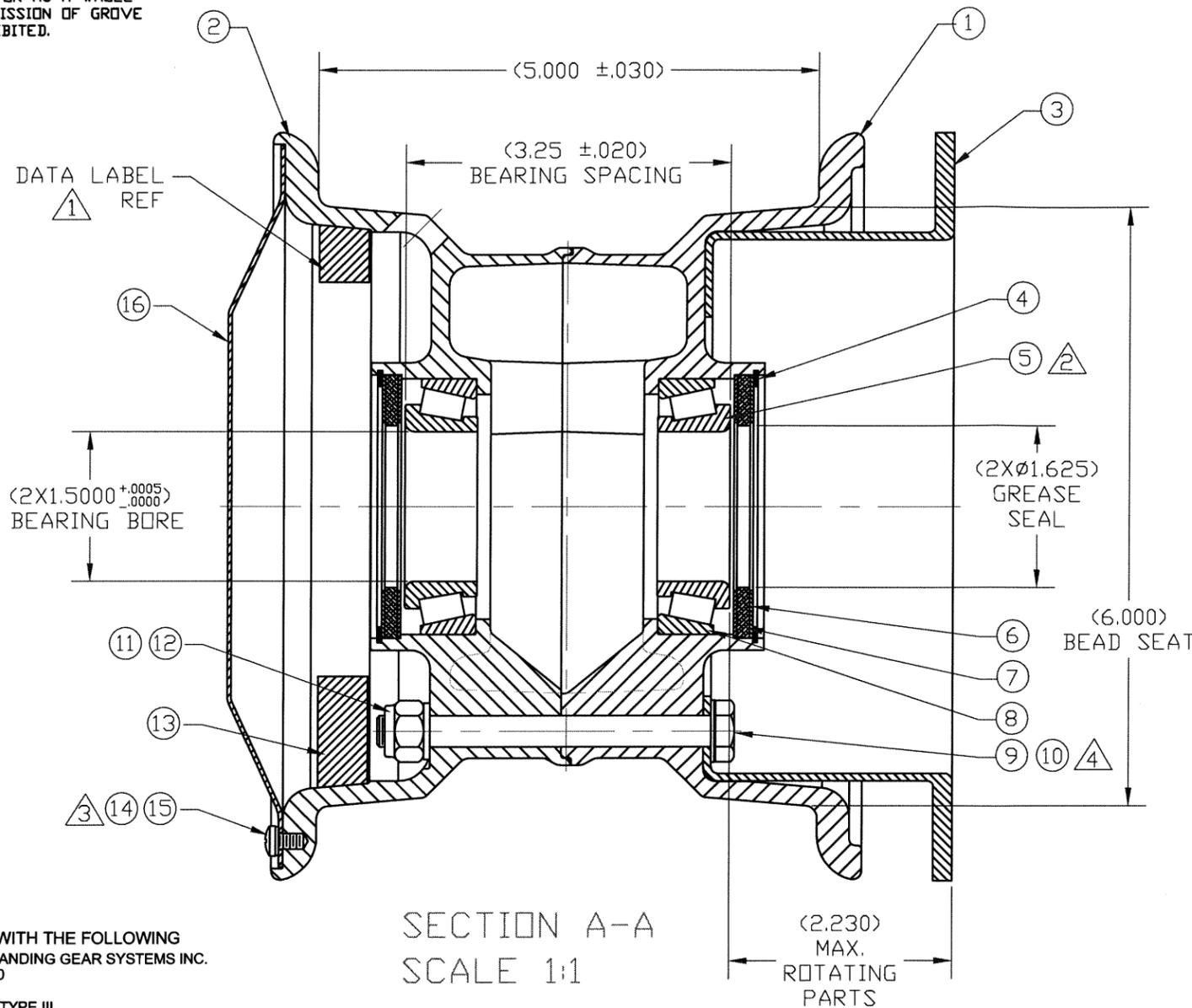
Instructions for Continued Airworthiness are provided in the attachment "Instructions for Continued Airworthiness for Grove Main Wheel and Brake Assemblies with FAA-TSO Approval" Document 13046-11 Rev NC. See first additional sheet for list of attachments.

Additional Sheets Are Attached

PROPRIETARY AND CONFIDENTIAL
 THE INFORMATION CONTAINED IN THIS DRAWING IS
 THE SOLE PROPERTY OF GROVE AIRCRAFT LGS INC.
 ANY REPRODUCTION IN PART OR AS A WHOLE
 WITHOUT THE WRITTEN PERMISSION OF GROVE
 AIRCRAFT LGS INC, IS PROHIBITED.

REVISIONS

ECO NO.	CHG LTR	CHANGES	BY	DATE



- NOTES:
- 1. WHEEL IDENTIFIED WITH THE FOLLOWING
 - A. GROVE AIRCRAFT LANDING GEAR SYSTEMS INC.
EL CAJON, CA. 92020
 - B. PART NO.: 61-1001A
 - C. WHEEL SIZE: 6.00-6 TYPE III
 - D. SERIAL NO. (BEGIN WITH 1001)
 - E. FAA-TSO-C26d

- 2. PACK BEARING CONES WITH MIL-PRF-81322G GREASE (AEROSHELL #22)
- 3. WHEEL WEIGHT 6.90 LBS.
- 4. WHEEL RATINGS PER FAA-TSO-C26d
 - WHEEL RATED STATIC LOAD: S = 1,250 LBS
 - WHEEL RATED RADIAL LIMIT LOAD: L = 2,727 LBS
 - WHEEL RATED LIMIT SIDE LOAD = 2,050 LBS
 - WHEEL RATED COMBINED LIMIT, RADIAL AND SIDE LOAD = 3,411 LBS
 - WHEEL RATED INFLATION PRESSURE: WRP = 50 PSI
 - WHEEL RATED TIRE SIZES: TS_{wr}/WHEEL RATED TIRE LOADED RADIUS: R
 - TIRE SIZE 6.00-6: R=6.9
 - TIRE SIZE 15X6.0-6: R=6.1
 - TIRE SIZE 7.00-6: R=7.3
 - TIRE SIZE 8.00-6: R=7.5

- 5. WHEEL USES TUBE TYPE TIRES WITH TR-20 VALVE STEM.
- 6. HUB CAP INSTALLATION: TORQUE SCREWS (ITEM 14) AND WASHERS (ITEM 15) TO 15 IN-LBS.
- 7. HUB CAP INSTALLATION IS OPTIONAL.
- 8. FOR ASSEMBLY WITH TIRE, TORQUE WHEEL NUTS (ITEM 11) AND WASHERS (ITEM 10 AND 12) AND BOLTS (ITEM 9) TO 150 IN-LBS.

- 9. FOR SPARE OUTER WHEEL HALF ASSY, USE P/N 030-007A (INCLUDES P/N 016-007A AND 028-006)
- 10. FOR SPARE INNER WHEEL HALF ASSY, USE P/N 029-007A (INCLUDES P/N 015-007A AND 028-006)

16	011-013	CAP, HUB	1
15	MS35333-38	WASHER, LOCK	3
14	MS35206-242	SCREW	3
13	019-001	LABEL, WARNING	1
12	AN960-516	WASHER	3
11	MS21044N5	NUT	3
10	AN960-516L	WASHER	3
9	AN5-32A	BOLT	3
8	028-006	CUP, BEARING	2
7	010-005	SEAL, FELT	2
6	011-005	WASHER, SEAL	4
5	027-006	CONE, BEARING	2
4	VH-262-S02	RING, SNAP	2
3	018-011	DISC, BRAKE	1
2	016-007A	WHEEL HALF, OUTER	1
1	015-007A	WHEEL HALF, INNER	1
-	61-1001A	WHEEL ASSEMBLY	ASSY
F/N	PART NO.	PART NAME	Qty

Grove
 Aircraft Landing Gear Systems Inc.
 1800 JOE CROSSON DRIVE, ELCAJON, CA 92020

Assy, Wheel

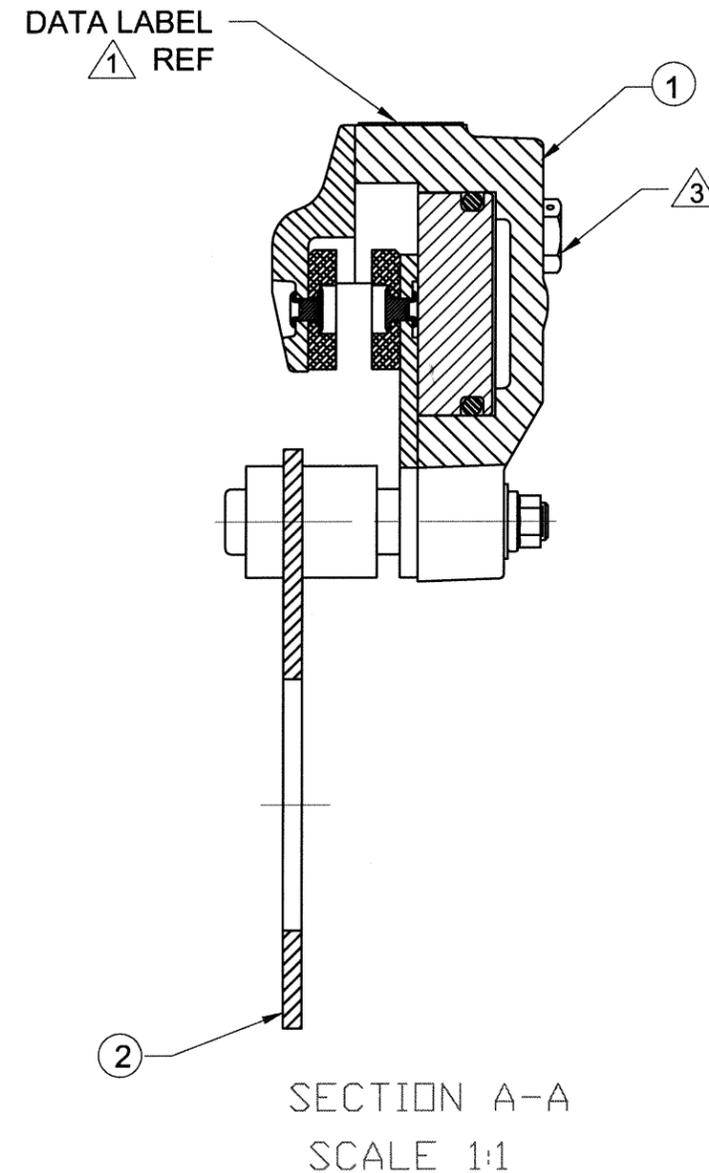
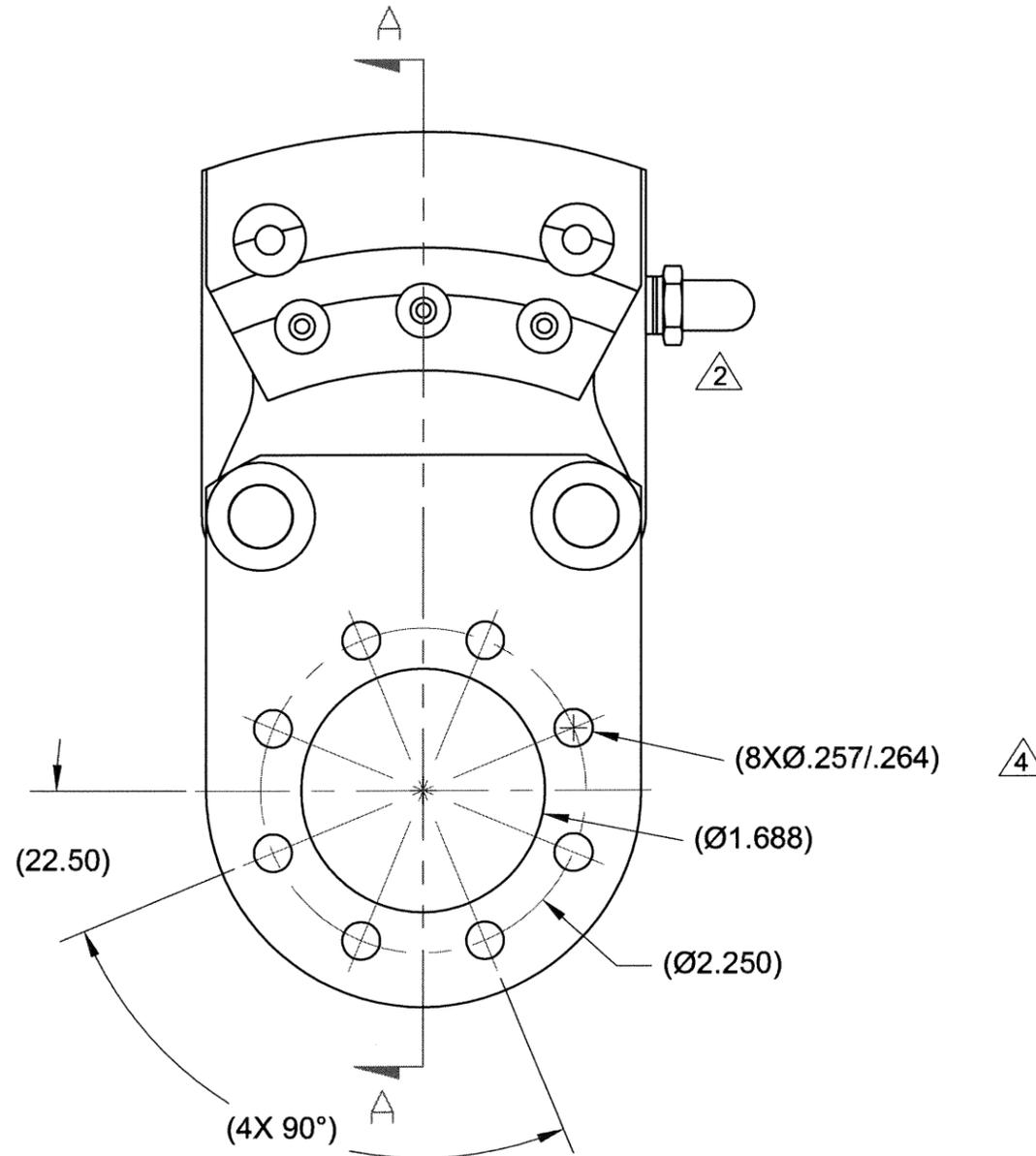
TOLERANCE DECIMAL 0.XX= +/-0.030 DECIMAL 0.XXX= +/-0.010 DECIMAL 0.XXXX= +/-0.005 ANGLE = 0.25 DEGREES	SCALE: NONE	DWG NO. 61-1001A	REV IR	SHT 1 OF 1
PART NO. 61-1001A	DRW: RG 7/08/10	CHK: PN 7/10/10	APV: RG 7/12/10	

PROPRIETARY AND CONFIDENTIAL

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF GROVE AIRCRAFT LGS INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF GROVE AIRCRAFT LGS INC, IS PROHIBITED.

REVISIONS

ECO NO.	CHG LTR	CHANGES	BY	DATE



- NOTES:**
- 1. BRAKE IDENTIFIED WITH THE FOLLOWING
 - A. GROVE AIRCRAFT LANDING GEAR SYSTEMS INC. EL CAJON, CA. 92020
 - B. PART NO. 29-1001B
 - C. SERIAL NO. (BEGIN WITH 1001)
 - D. FLUID: MIL-PRF-5606.
 - E. TORQUE TIE BOLTS TO 70-80 IN-LB
 - F. FAA-TSO-C26d

- 2. BRAKE ASSEMBLY WEIGHT: 1.76 LBS.
- 3. BRAKE RATINGS PER FAA-TSO-C26d
 - WHEEL/BRAKE RATED DESIGN LANDING ENERGY: KEDL = 170,262 FT-LB
 - WHEEL/BRAKE DESIGN LANDING SPEED: VDL = 70.5 KTS
 - RATED DESIGN LANDING DECELERATION: DDL = 10FT/SEC/SEC
 - BRAKE RATED MAXIMUM PRESSURE: BRP_{MAX} = 1,000 PSI
 - BRAKE RATED METERED OPERATING PRESSURE: BRO_PMAX = 1,000PSI
 - BRAKE RATED MAXIMUM PARKING PRESSURE: BRPP_{MAX} = 1,000 PSI
 - BRAKE RATED RETRACT PRESSURE: N/A
 - BRAKE RATED DESIGN LANDING PRESSURE: BRP_DL = 600 PSI
 - WHEEL/BRAKE RATED STRUCTURAL TORQUE: STR = 12,996 IN-LB
- 4. INLET AND BLEEDER PORTS ARE IDENTICAL: 1/8-27 NPT
WHEN SHIPPED IN SETS CONFIGURE HALF OF THE BRAKE ASSEMBLYS AS SHOWN AND THE REMAINDER OPPOSITE
- 5. USE 30-1A CALIPER ASSEMBLY FOR SPARES. TORQUE PLATE ASSEMBLY NOT INCLUDED.
- 6. TORQUE TIE BOLTS TO 70-80 IN-LB AND SAFTYWIRE AT FINAL ASSEMBLY.
- 7. THERE MUST BE A MINIMUM OF 4 X AN4 BOLT FOR PROPER TORQUE PLATE ATTACHMENT.

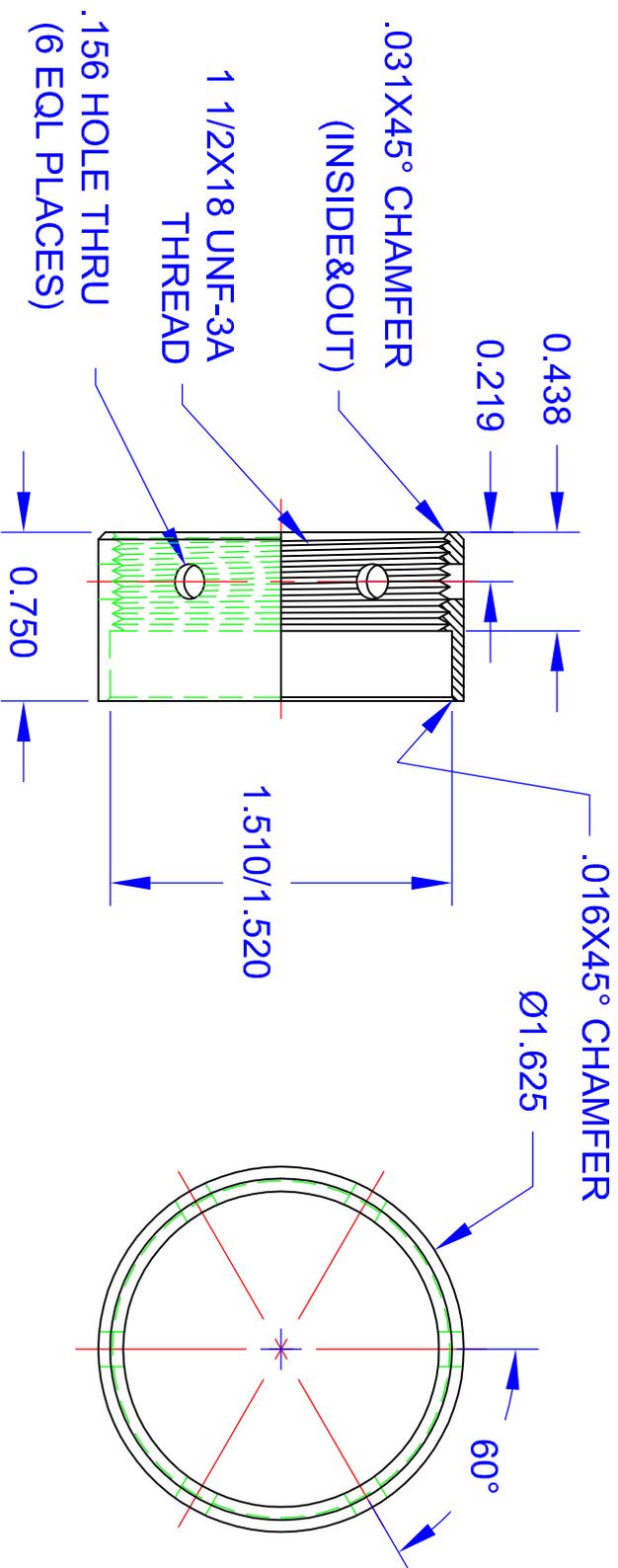
2	020-076	TORQUE PLATE ASSY	1
1	30-1A	CALIPER ASSY	1
-	29-1001B	BRAKE ASSEMBLY	ASSY
F/N	PART NO.	PART NAME	Qty

Grove
Aircraft Landing Gear Systems Inc.
1800 JOE CROSSON DRIVE, ELCAJON, CA 92020

TOLERANCE			
DECIMAL 0.XX=	+/- .030		
DECIMAL 0.XXX=	+/- .010		
DECIMAL 0.XXXX=	+/- .005		
ANGLE =	0.25 DEGREES		
PART NO. 29-1001B	SCALE: NONE	DWG NO. 29-1001B	REV IR SHT 1 OF 1
DRW: RG 11/18/13	CHK: PN 11/18/13	APV: RG 11/19/13	

PROPRIETARY AND CONFIDENTIAL
 THE INFORMATION CONTAINED IN THIS DRAWING IS
 THE SOLE PROPERTY OF GROVE AIRCRAFT LGS INC.
 ANY REPRODUCTION IN PART OR AS A WHOLE
 WITHOUT THE WRITTEN PERMISSION OF GROVE
 AIRCRAFT LGS INC, IS PROHIBITED.

REVISIONS			
ECO NO.	CHG LTR	CHANGES	BY DATE



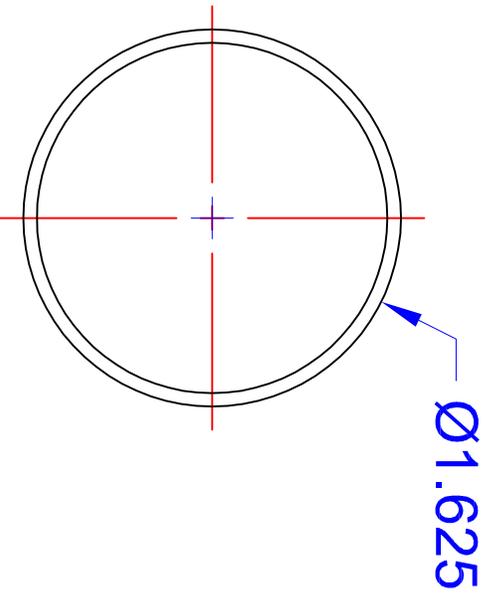
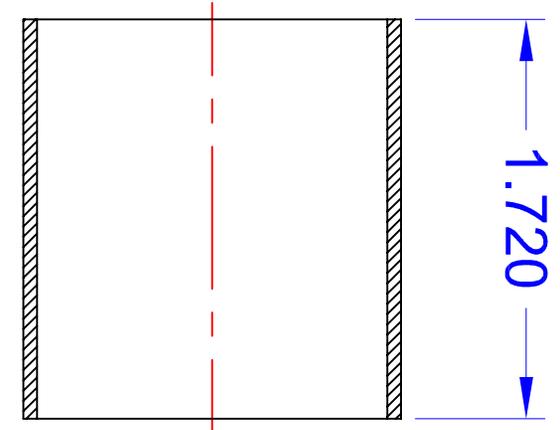
- NOTES:
1. DEBURR AND BREAK ALL EDGES
 2. MATERIAL 1.625 DIA X .120 WALL 1020/1026 STEEL TUBE (ASTM A513)
 3. GOLD ZINC FINISH PER ASTM B633 TYPE II ALT-FINISH-CAD PLATE PER AMS-QQ-P416 CLASS II, TYPE II CLEAR

TOLERANCE	
DECIMAL 0.XX=	+/- .030
DECIMAL 0.XXX=	+/- .010
DECIMAL 0.XXXX=	+/- .005
ANGLE =	0.25 DEGREES

 1800 JOE CROSSON DRIVE, ELCAJON, CA 92020			
NUT, AXLE			
SCALE: NONE	DWG NO. 5520	REV IR	SHT 1 OF 1
DRW: RG 8/10/13	CHK: PN 8/10/13	APV: RG 8/11/13	

PART NO. 5520

REVISIONS			
ECO NO.	CHG LTR	CHANGES	BY DATE



NOTES:

1. DEBURR AND BREAK ALL EDGES
2. MATERIAL 1.625 DIA X.058 WALL 1020/1026 (ASTM A513)
OR 4130N (AMS-T-6736) STEEL TUBE
3. GOLD ZINC FINISH PER ASTM B633 TYPE II

TOLERANCE
DECIMAL 0.XX= +/-0.030
DECIMAL 0.XXXX= +/-0.010
DECIMAL 0.XXXXX= +/-0.005
ANGLE = 0.25 DEGREES
PART NO. 5735

Grove

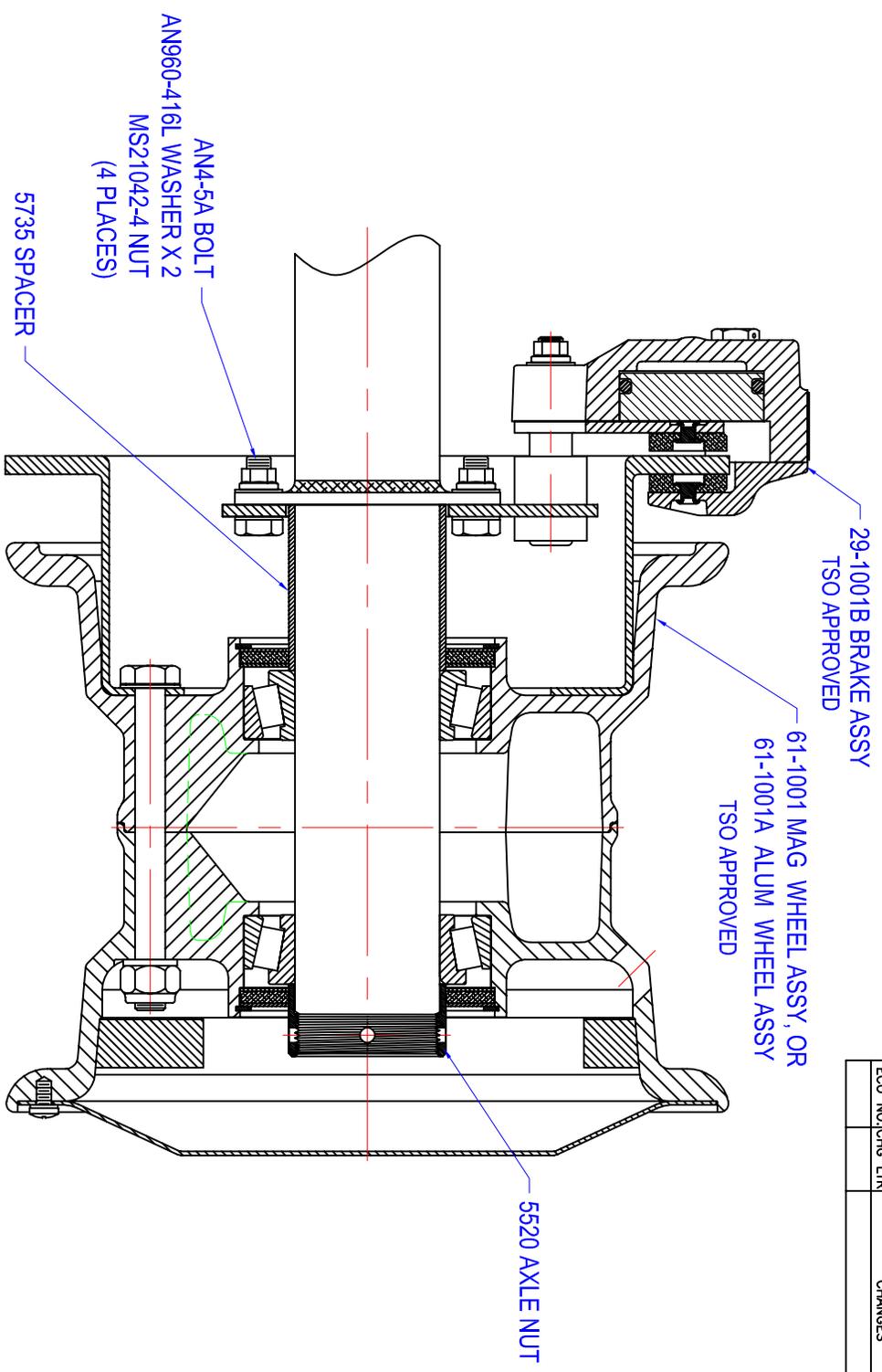
Aircraft Landing Gear Systems Inc.

1800 JOE CROSSON DRIVE, ELCAJON, CA 92020

SPACER, AXLE

SCALE: NONE	DWG NO. 5735	REV IR	SHT 1 OF 1
DRW: RG 10/10/13	CHK: PN 10/10/13	APV: RG 10/11/13	

REVISIONS			
ECO NO	CHG LTR	CHANGES	BY DATE



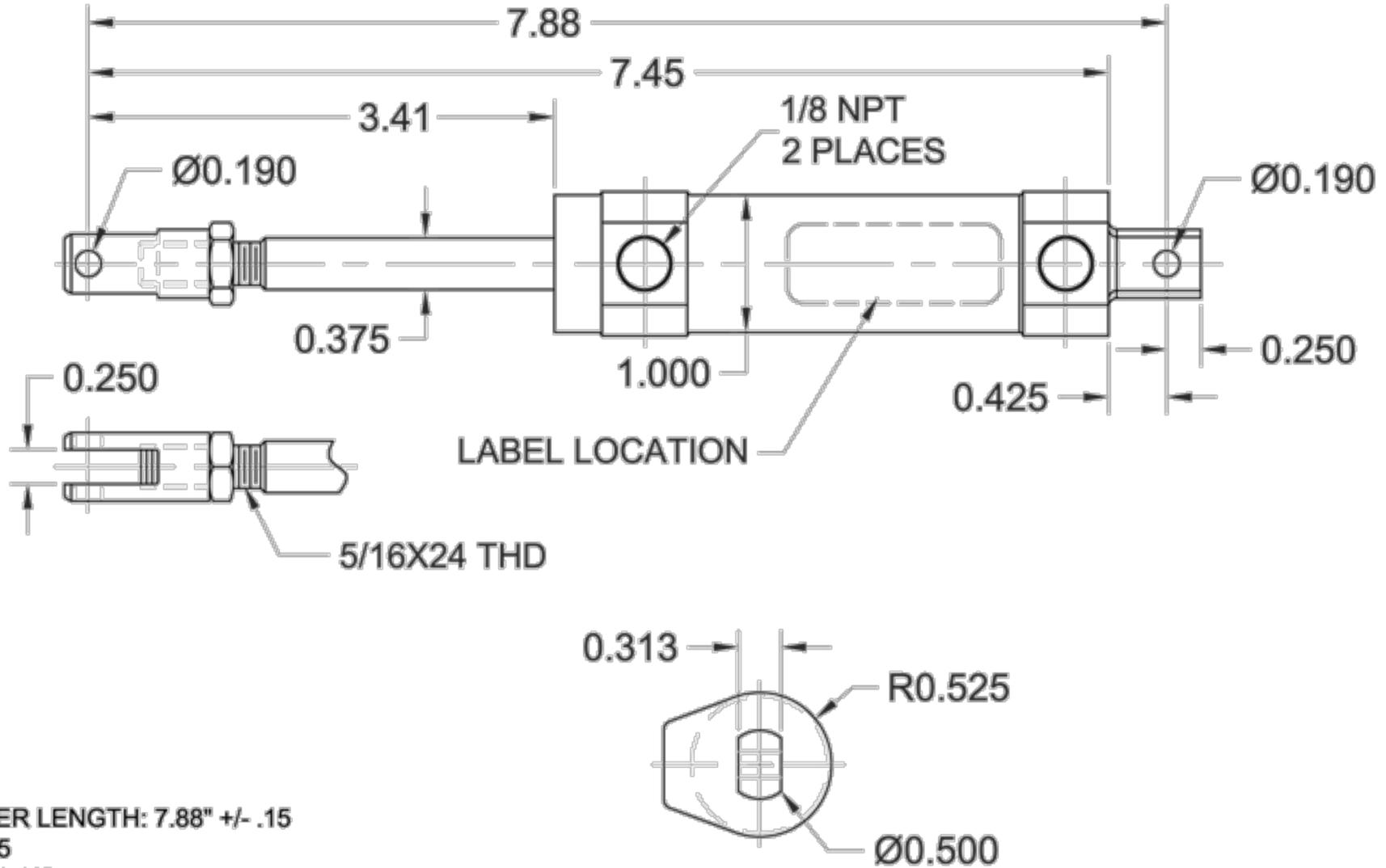
WHEEL SIZE 600X6 TYPE III
 STATIC LOAD RATING 1250 LBS.
 TORQUE WHEEL NUTS TO 150 IN.LBS.
 TORQUE BACK PLATE BOLTS TO 90 IN. LBS.
 MAX OPERATING PRESSURE 1000 PSI
 FITS AERONCA CHAMP

TOLERANCE		DECIMAL .XX= +/-0.030	
		DECIMAL .XXX= +/-0.010	
		DECIMAL .XXXX= +/-0.005	
		ANGLE = 0.25 DEGREES	
FINAL ASSY	DATE	8/8/09	SCALE
		None	SHEET
		1	of 1

Grove
 Aircraft Landing Gear Systems Inc.
 1800 JOE CROSSON DRIVE, ELCAJON, CA 92020

CHAMP WHEEL & BRAKE	
DRAWN BY	DWG NO.
R. P. Grove	28-4006
REV	IR

REVISIONS					
ECD NO.	CHG	LTR	CHANGES	BY	DATE



PIN CENTER LENGTH: 7.88" +/- .15
 BORE: .625
 STROKE: 1.40"
 DISPLACEMENT: .430 CU.IN.
 PORTS: 1/8" NPT
 WT. .48 LBS
 USE MIL-H-5606 HYD FLUID
 MAX OPERATING PRESS: 1000 PSI
 PRESSURE OUTPUT: 3.26 X APPLIED FORCE
 LABEL PART "FAA-PMA" PER 14 CFR 45.15
 ALL DIMENSIONS (REF), EXCEPT STROKE

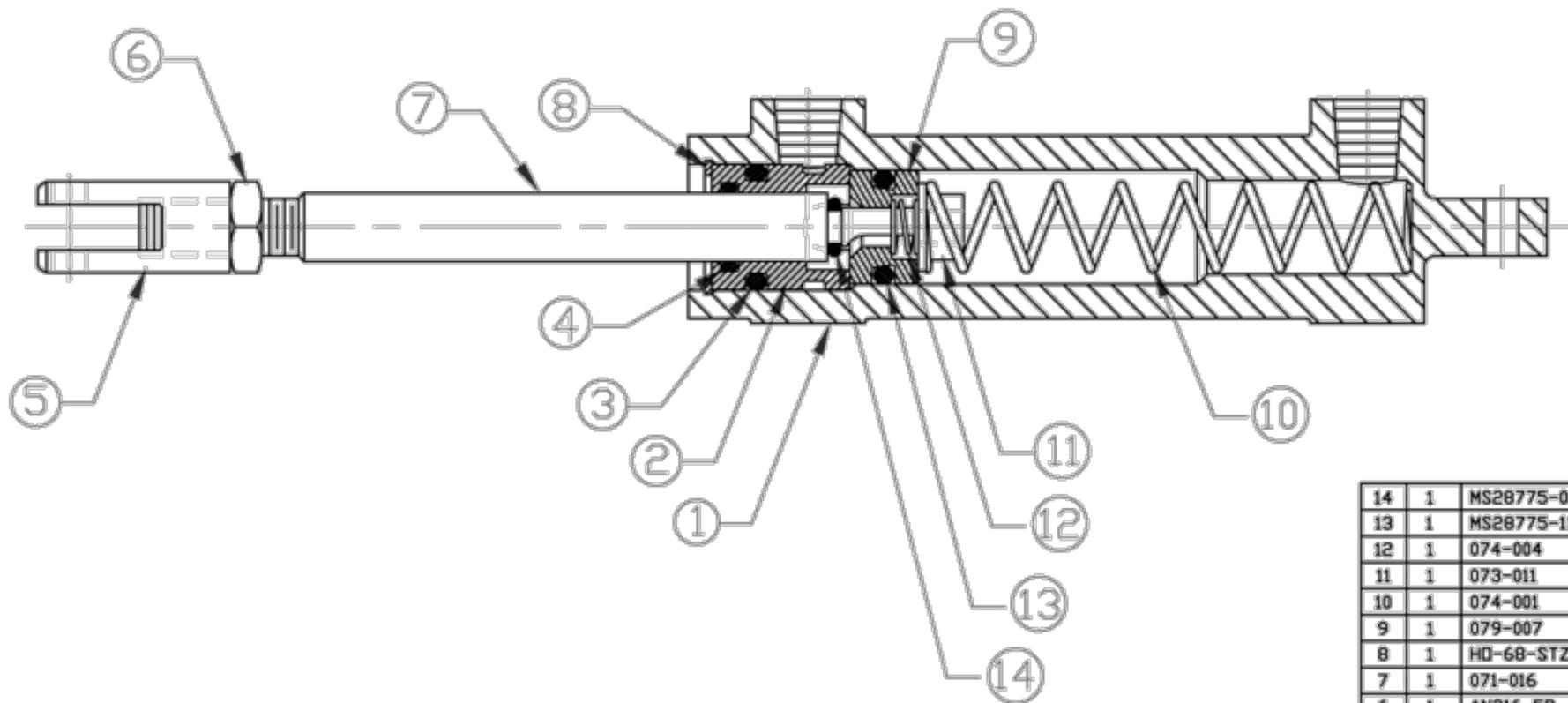
Grove
Aircraft Landing Gear Systems Inc.
1800 JOE CROSSON DRIVE, ELCAJON, CA 92020

TOLERANCE
 DECIMAL 0.XX= +/- .030
 DECIMAL 0.XXX= +/- .010
 DECIMAL 0.XXXX= +/- .005
 ANGLE = 0.25 DEGREES

MASTER CYLINDER			
SCALE: NONE	DWG NO. 670-5	REV R	SHT 1 OF 2
PART NO. 670-5	DRW: RG 12/12/11	CHK: PN 12/14/11	APV: RG 12/14/11

REVISIONS

ECO NO.	CHG LTR	CHANGES	BY	DATE



14	1	MS28775-008	D-Ring
13	1	MS28775-111	D-Ring
12	1	074-004	Spring
11	1	073-011	Spring Guide
10	1	074-001	Spring
9	1	079-007	Piston
8	1	HD-6B-STZD	Snap Ring (Rotor Clip)
7	1	071-016	Piston Rod
6	1	AN316-5R	Jam Nut
5	1	075-012	Clevis
4	1	MS28775-012	D-Ring
3	1	MS28775-112	D-Ring
2	1	072-009	Rod Support
1	1	070-200	Cylinder Body
-	Assy	670-5	Master Cylinder
F/N	Qty	Part Number	Name/Description

NOTES

1. LUBRICATE D-RINGS WITH DDW MOLYKOTE 55M D-RING LUBE.
2. APPLY LOCTITE 262 THREAD LOCKER TO ITEM 11 AND HAND TIGHTEN.
3. ACCEPTANCE TEST PER GTP NO.101
4. HAND TIGHTEN ITEM 6 FOR SHIPPING.
5. INSTALL PLASTIC PLUGS INTO PORTS FOR STORAGE AND SHIPPING.

Grove

Aircraft Landing Gear Systems Inc.
1800 JOE CROSSON DRIVE, ELCAJON, CA 92020

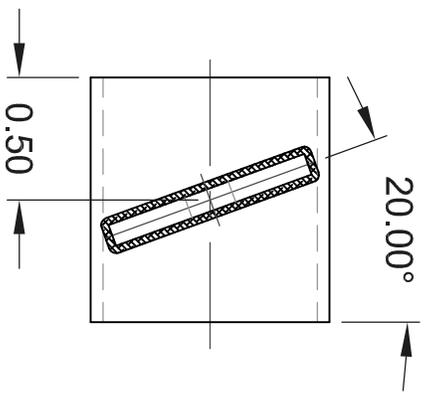
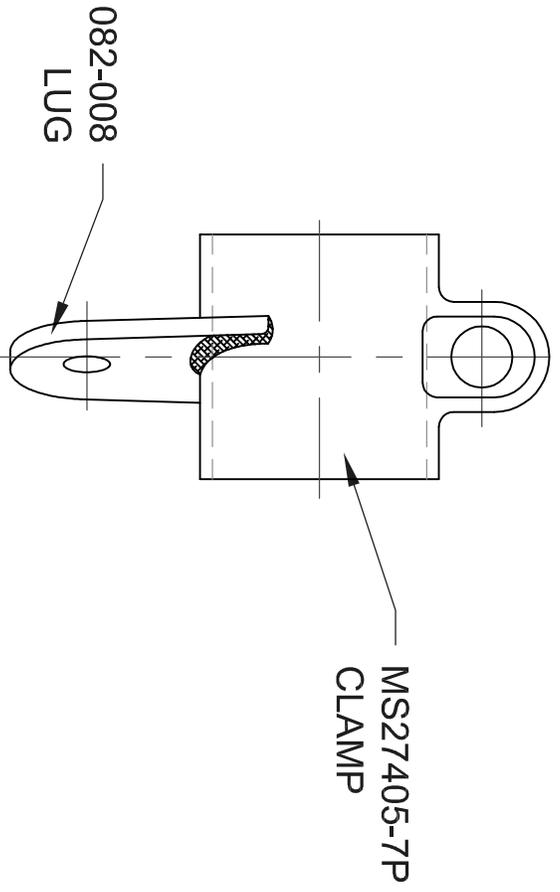
MASTER CYLINDER

TOLERANCE
DECIMAL 0.XX= +/-0.030
DECIMAL 0.XXX= +/-0.010
DECIMAL 0.XXXX= +/-0.005
ANGLE = 0.25 DEGREES

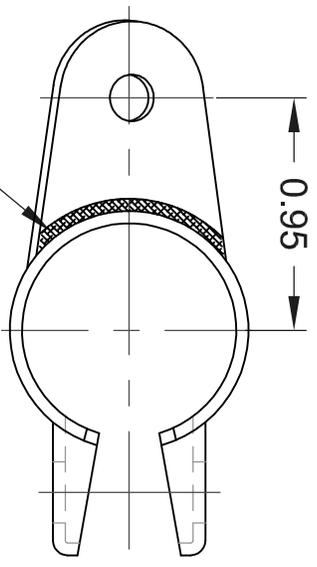
SCALE: NONE | DWG NO. 670-5 | REV IR | SHT 2 OF 2

PART NO. 670-5 | DRW: RG 12/12/11 | CHK: PN 12/14/11 | APV: RG 12/14/11

REVISIONS			
ECO NO.	CHG LTR	CHANGES	BY DATE



WELD LUG COMPLETE BOTH SIDES



NOTES:

1. WELD PER 43.13-1B CHAPTER 5, SECTION 4-74 (6), METHOD 4-75d USE AWS A5.18 WELDING ROD
2. FINISH-CLEAR ZINC PER ASTM B633, TYPE III ALT FINISH-CAD PLATE PER AMS-QQ-P416 CLASS II, TYPE II CLEAR
3. P/N 082-002 SHOWN, 082-001 OPPOSITE

TOLERANCE	
DECIMAL 0.XX = +/- .030	
DECIMAL 0.XXXX = +/- .010	
DECIMAL 0.XXXXX = +/- .005	
ANGLE = 0.25 DEGREES	
PART NO.	
082-001 LEFT HAND	
082-002 RIGHT HAND	



Grove

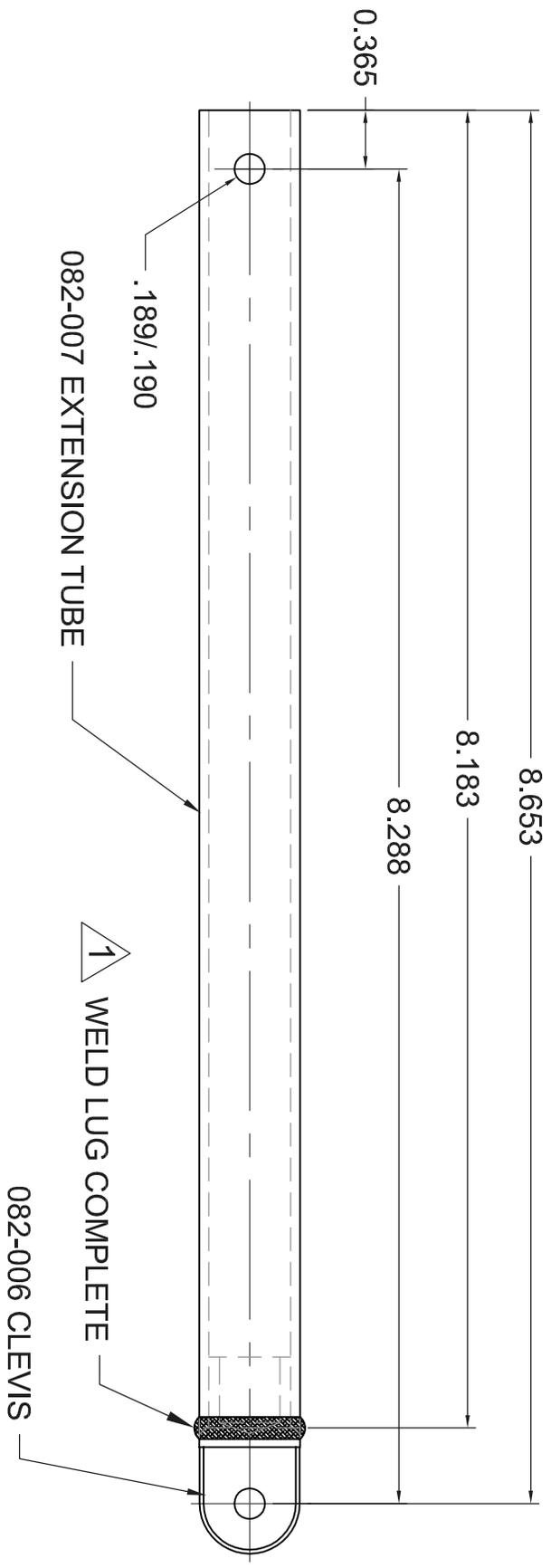
Aircraft Landing Gear Systems Inc.

1800 JOE CROSSON DRIVE, EL CAJON, CA 92020

ASSY, CLAMP

SCALE: NONE	DWG NO. 082-001	REV IR	SHT 1 OF 1
DRW: RG 2/25/14	CHK: PN 2/25/14	APV: RG	2/26/14

REVISIONS				
ECO NO.	CHG LTR	CHANGES	BY	DATE



NOTES:

1. WELD PER 43.13-1B CHAPTER 5, SECTION 4-74 (6), METHOD 4-75d USE AWS A5.18 WELDING ROD
2. FINISH-CLEAR ZINC PER ASTM B633, TYPE III ALT FINISH-CAD PLATE PER AMS-QQ-P416 CLASS II, TYPE II CLEAR

TOLERANCE	DECIMAL 0.XX = +/-0.030
	DECIMAL 0.XXX = +/-0.010
	DECIMAL 0.XXXX = +/-0.005
	ANGLE = 0.25 DEGREES
PART NO.	082-012

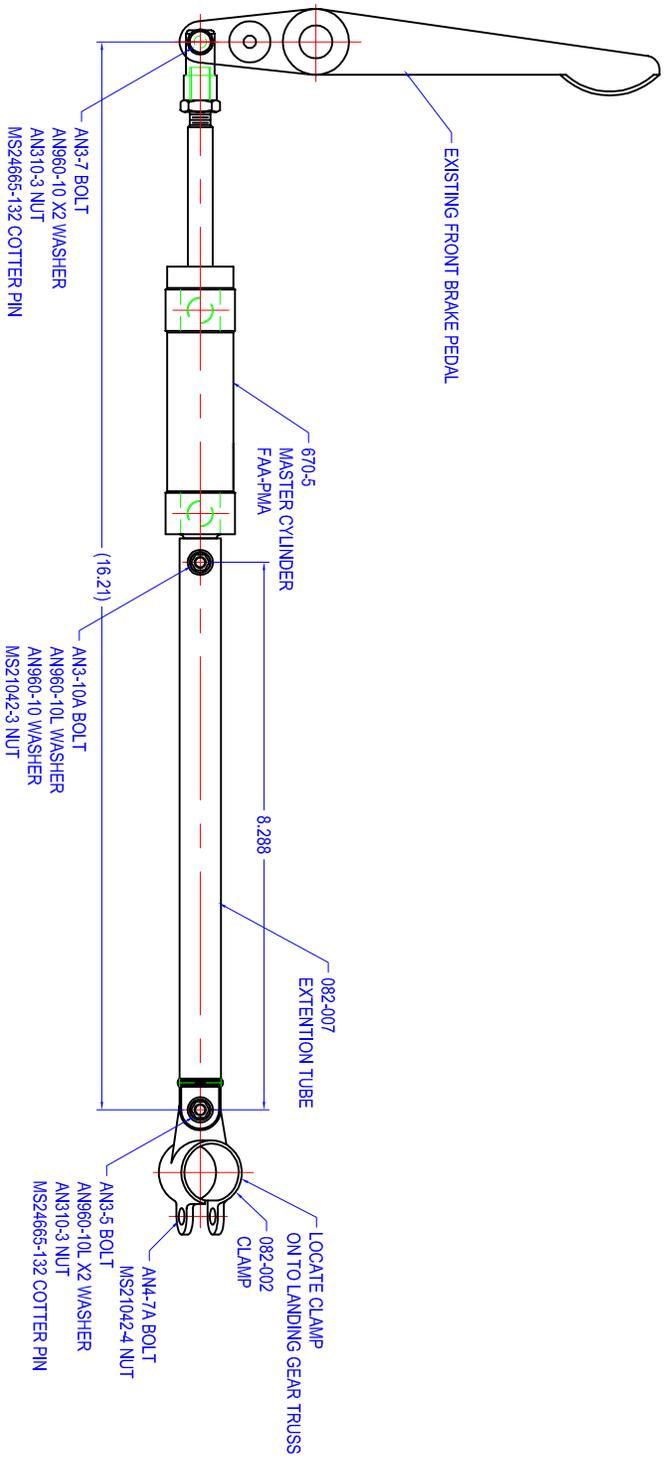
Grove

Aircraft Landing Gear Systems Inc.
1800 JOE CROSSON DRIVE, EL CAJON, CA 92020

ASSY, EXTENSION TUBE

SCALE:	NONE	DWG NO.	082-012	REV	IR	SHT	1 OF 1
DRW:	RG	2/25/14	CHK:	PN	2/25/14	APV:	RG 2/26/14

REVISIONS			
ECO NO	CHG LTR	CHANGES	BY DATE



MAX OPERATING PRESSURE 1000 PSI
FITS AERONCA CHAMP

TOLERANCE		DECIMAL .XX = +/- .030	
		DECIMAL .XXXX = +/- .010	
		DECIMAL .XXXXX = +/- .005	
		ANGLE = 0.25 DEGREES	
FINAL ASSY	DATE	8/8/09	SCALE
			None
			SHEET
			1 of 1

Grove
Aircraft Landing Gear Systems Inc.
1800 JOE CROSSON DRIVE, ELCAJON, CA 92020

INSTALLATION, MASTER CYLINDER

DRAWN BY	DWG NO.	REV
R. P. Grove	25-110	IR