December, 4th,2010

To: Nashville, FSDO

From: Charles V. Avon

Re: Taylorcraft wheel and brake modification

To whom it may concern;

To improve the safety of N26658, a 1940 Taylorcraft BL 65, I have inspected the original shinn wheel and mechanical brakes assemblies and determined that they are unsuitable for use on an airworthy aircraft. This leaves me with a couple of options: either try to find serviceable shinn wheel and brake assemblies (which I have tried and haven't found anything satisfactory) or convert the airplane to hydraulic disk brakes. I cannot find any STC from Cleveland or any other company that would include the Taylorcraft BL65. In addition, the STC's I have seen through Cleveland for similar light airplanes have included larger brake calipers, which is way too much braking action for a light tailwheel aircraft (in my opinion).

I therefore have researched other options and discovered Grove Aircraft Landing Gear Systems, Inc. They are the FAA supplier of wheel and brake assemblies for some new models of American Champion, Maule Air, and Diamond Aircraft. In studying the pictures of their various packages, I have determined that I would like to use the light weight model 61-1 wheel and brake assemblies with Scott master cylinders. My reasoning for preferring this versus a Cleveland counterpart is that the wheel bearings are farther apart in the wheel hubs and therefore closer to the original shinn bearing spacing. They will still require spacers between the bearing and axle nuts, but the wider bearing spacing would spread the load out more similar to the original design.

In studying the tech articles and flight reviews of this particular aircraft design, it appears that the landing gear design has given the airplane a reputation for spirited ground handling, and I want to improve the ground handling while providing safe and dependable brakes. The Modification I am proposing will serve to make the airplane safer and more reliable.

Thank you for your consideration and help!

Charles V Avon

US Department of Transportation
Federal Aviation Administration

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

Form Approved OMB No. 2120-0020 2/28/2011 | 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: N26658	Serial No.: 2000	
	Make: Taylorcraft	Model: BL	Series:
2. Owner	Name *(As shown on registration certificate)*: Charles Victor Avon	Address *(As shown on registration certificate)*: Address 1149 W. Main St; City Hohenwald; State TN; Zip 38462; Country USA	

3. For FAA Use Only

The data identified herein complies with applicable airworthiness requirements and is approved for the above described aircraft subject to a conformity inspection by a person authorized in FAR 43, Section 43.7.

Gerald A Martell 12/16/2010

Aviation Safety Inspector ACE-FSDO-19 — Date

Gerald A Martell

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
☐	☒	AIRFRAME	———	*(As described in Item 1 above)*	———
☐	☐	POWERPLANT			
☐	☐	PROPELLER			
☐	☐	APPLIANCE	Type / Manufacturer		

6. Conformity Statement

A. Agency's Name and Address

Name: DAVID BLISS
Address: 4432 AIRPORT ROAD
City: SPRINGFIELD State: TN
Zip: 37172 Country: USA

B. Kind of Agency

- ☒ U. S. Certificated Mechanic
- ☐ Manufacturer
- ☐ Foreign Certificated Mechanic
- ☐ Certificated Repair Station
- ☐ Certificated Maintenance Organization

C. Certificate No.: A+P 3456094

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 ☐

Signature/Date of Authorized Individual: David Bliss JANUARY 4, 2011

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
- ☐ FAA Designee
- ☐ Manufacturer
- ☒ Repair Station
- ☐ Maintenance Organization
- ☐ Inspection Authorization
- ☐ Persons Approved by Canadian Department of Transport
- Other *(Specify)*

Certificate or Designation No.: A+P 3456094 IA

Signature/Date of Authorized Individual: David Bliss JANUARY 4, 2011

FAA Form 337 (10-06)

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.)

N26658	JANUARY 4, 2011
Nationality and Registration Mark	Date

Removed original shinn and mechanical brakes. Installed Grove Aircraft Landing Gear Systems, Inc. Taylorcraft axel sleeve P/N 5045 over original axle also installed Grove torch plates over axle sleeve and bolted them to the original axle flange with 8 AN3-4 bolts and safety wired them with .032 wire. Next installed 600-6 wheels model number 61-1 with Grove Taylorcraft press cap P/N 5725 and original Taylorcraft axle washer and castle nut, and safety with cotter pin. Next install Scott master cylinders model number P/N 1248H and 1260H using 4 AN3-11 bolts and 4 AN365-1032A nuts and 4 AN970-3 washers. Next run hydraulic lines from master cylinders to calipers using aeroquip hose model 666 flexible hose and reusable 37 degree fittings. All hydraulic line installation performed in accordance with applicable paragraphs of AC 43.13-1B Chapter 9 Section 2 "Hydraulic Systems"

Aircraft weighed prior to flight and weight and balance recorded.

Instructions for Continued Airworthiness: Original size tire and tube (6.00 x 6) to be used with new wheel assemblies. Tire pressure to be maintained in accordance with original service manual. New wheel bearings service/inspection intervals will follow original equipment intervals as outlined in the service manual. The hydraulic system is to be serviced with MIL-H-5606 Hydraulic fluid. Brake pads to be replaced when worn as indicated by wear markers. Inspect installation at applicable intervals (annual or 100 hr.) using FAR 43 App. D and applicable paragraphs of AC 43.13-1B Chapter 9 Section 2 "Hydraulic Systems"

----------END----------

☑ Additional Sheets Are Attached

Paperwork Reduction Act Statement: The reason for collecting this information is to track major maintenance performed on aircraft. The collected information is used as part of the aircraft's historical file. The public reporting burden for this collection of information is estimated to average 30 minutes per response. Responses are mandated by 14 CFR Part 43. Collected information becomes part of the public record and no confidentiality is required. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control number associated with this collection is 2120-0020. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at: 800 Independence Ave. SW Washington, DC 20591, Attn: Information Collection Clearance Officer, AES-200.

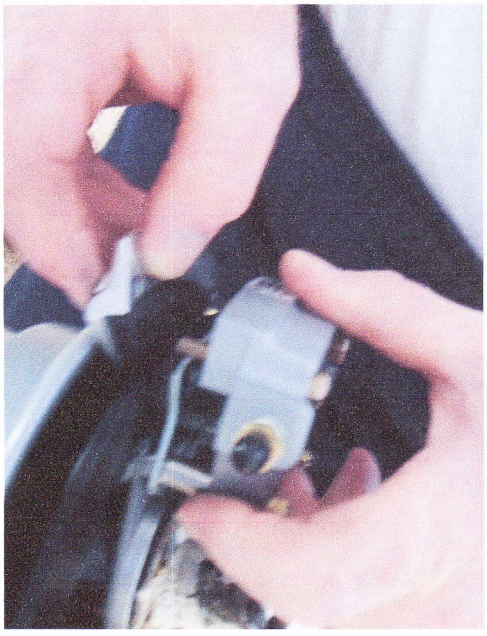
P/N: 5045 Taylorcraft Axle Sleeve
Lot# 10327572 **C/N:** 1282
Grove Aircraft LGS Inc. El Cajon CA 92020
ph. 619-562-1268 fx.619-562-3274
www.groveaircraft.com

P/N: 5725 Taylorcraft Press Cap
Lot# 9201448 **C/N:** 1214
Grove Aircraft LGS Inc. El Cajon CA 92020
ph. 619-562-1268 fx.619-562-3274
www.groveaircraft.com

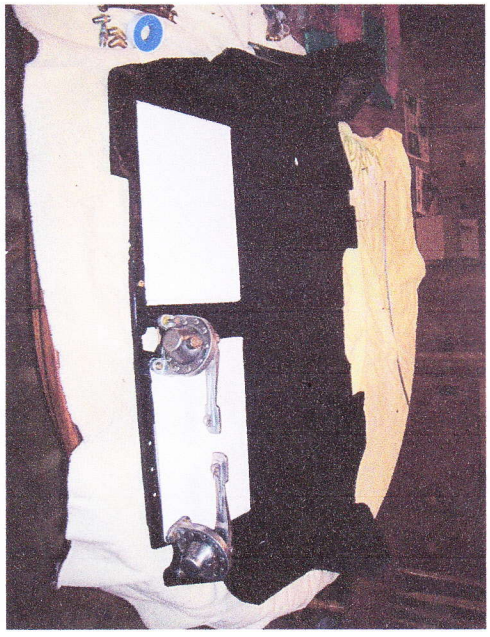
KEY TO PHOTOS

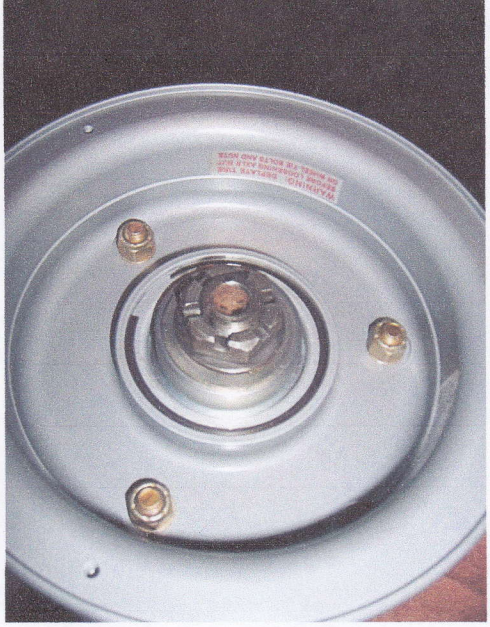
1. Parts for installation
2/3. Taylorcraft axle and gear for mach up.
4. Grove axle sleeve. Torq plates, and AN3H-4A bolts.
5/6. Axle sleeve in place against flange, bolt will be torqued and safety wired
7/8/9. Shows the wheel on angle.
10/11. Shows Grove press cap on axle
12. Taylorcraft axle, washers, and castle nut
13. Axle nut with cotter pin installed.
14/18. Shows caliper installation

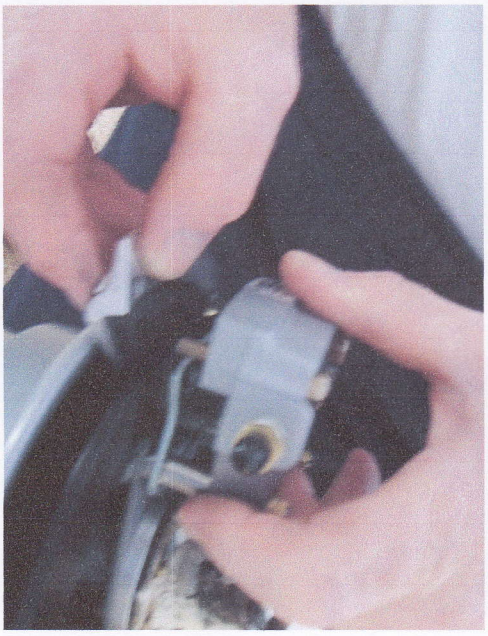


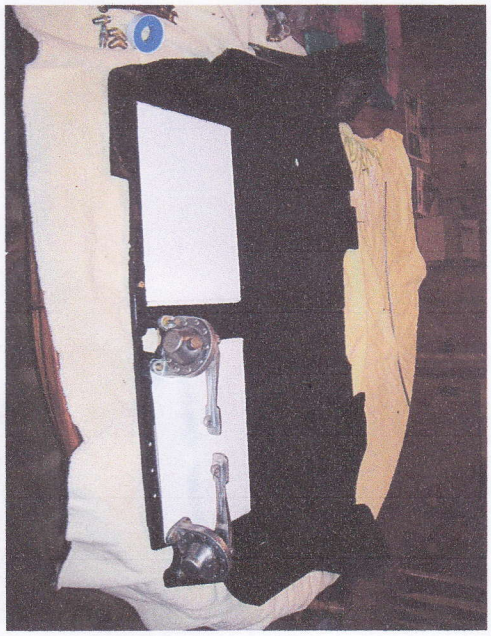


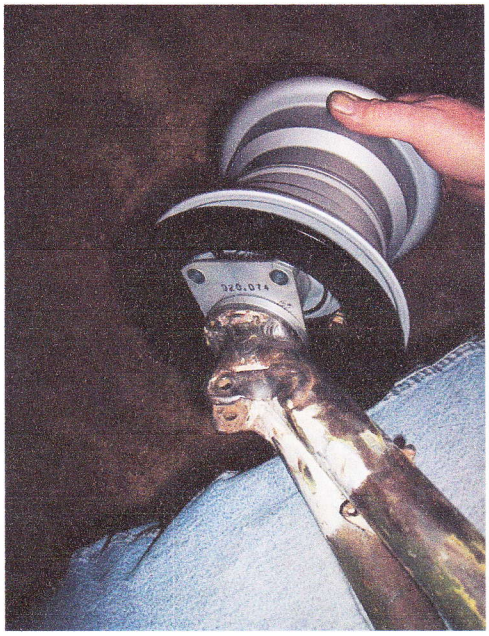



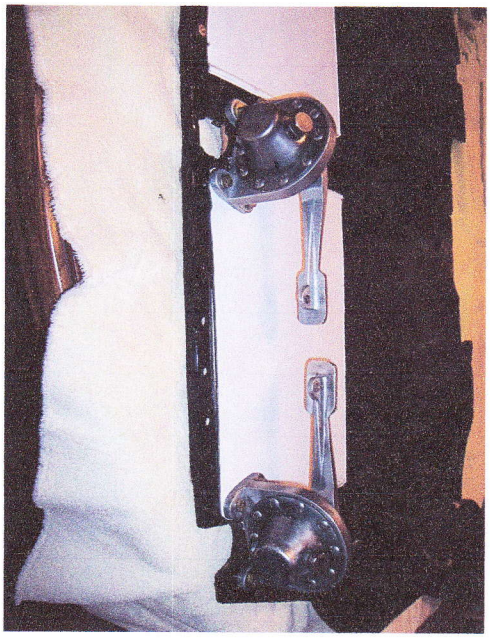
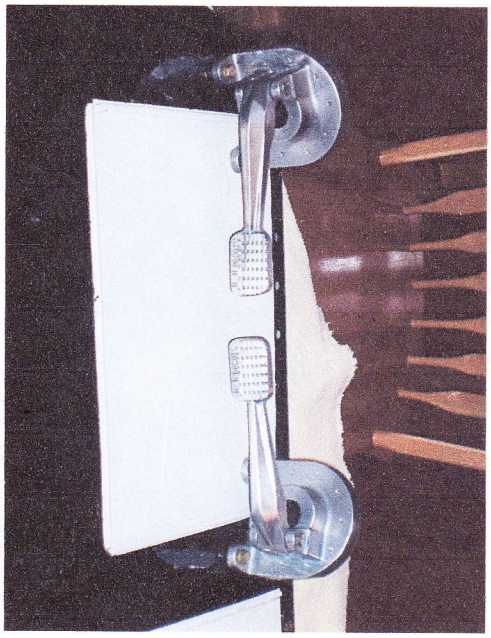
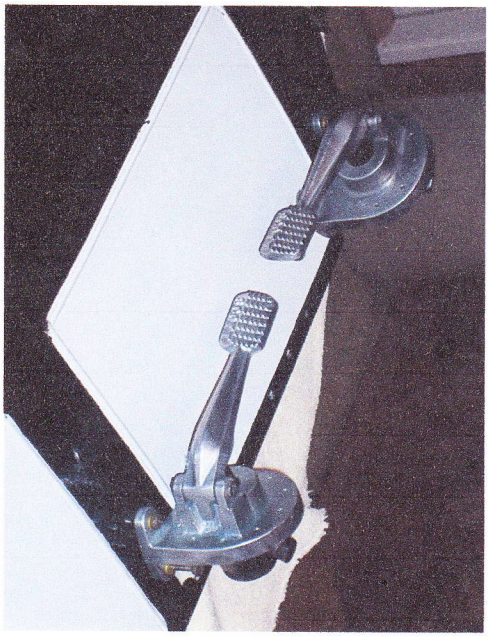
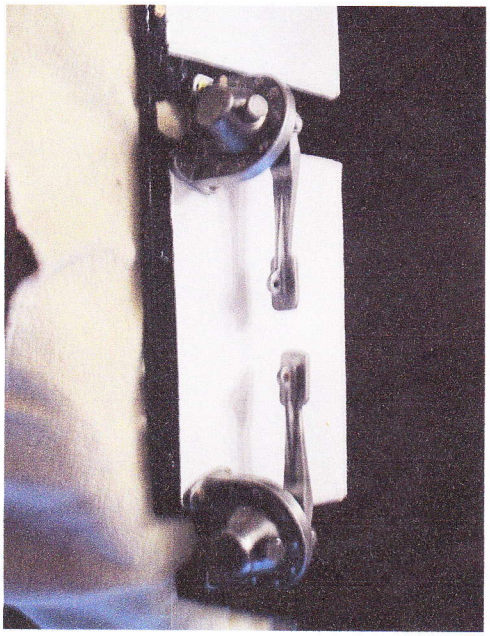
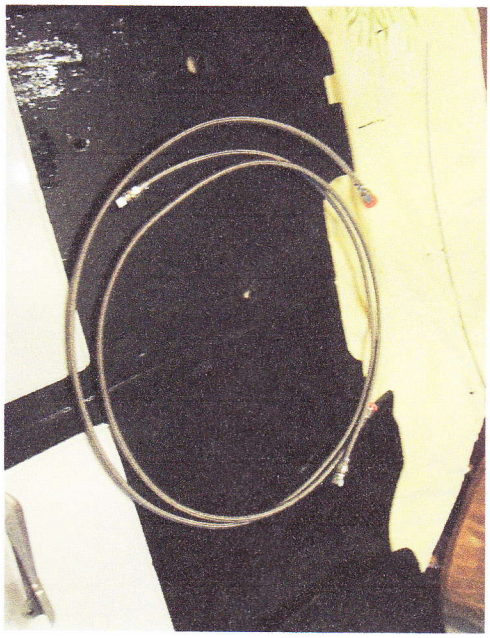
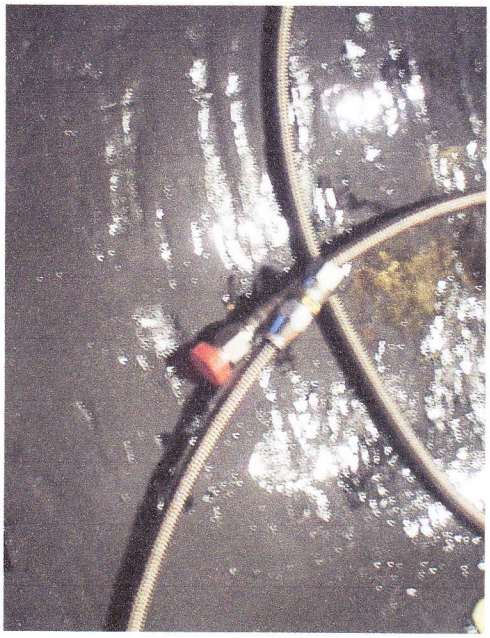
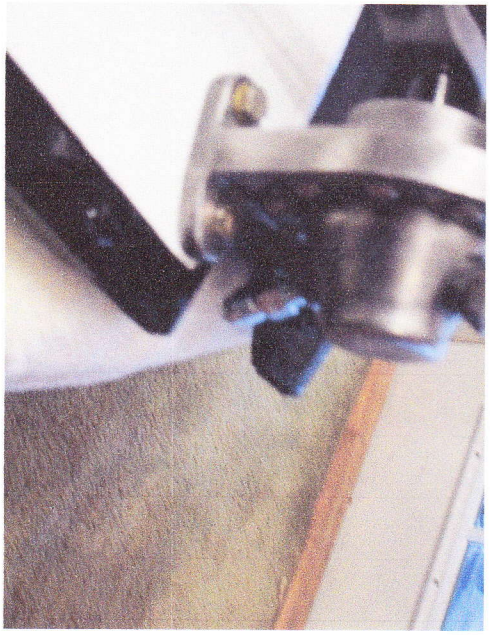



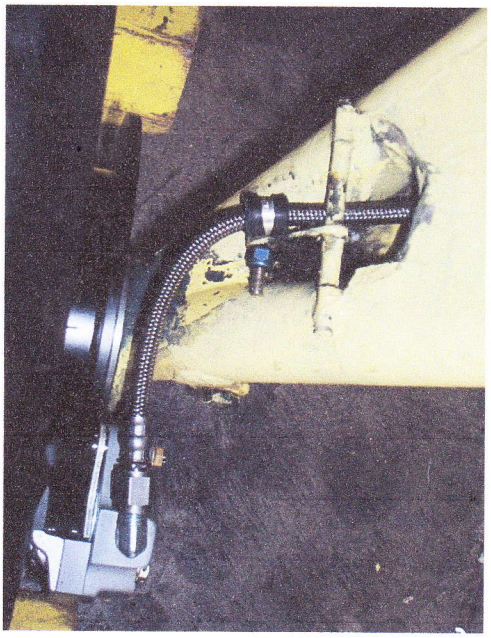


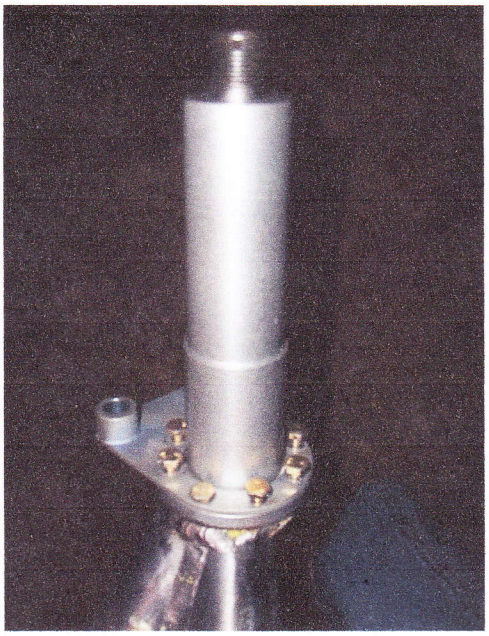


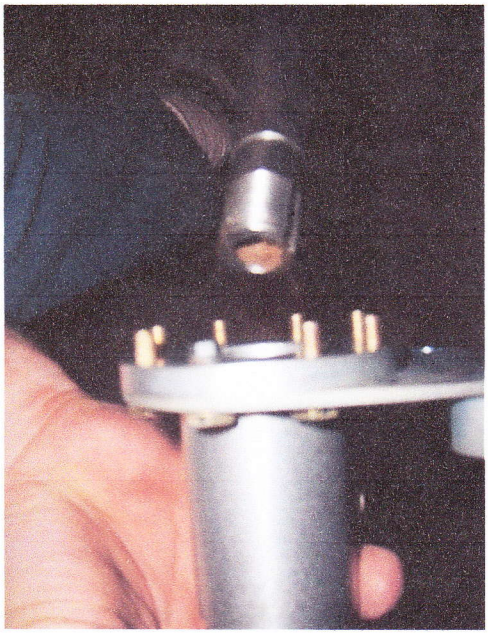
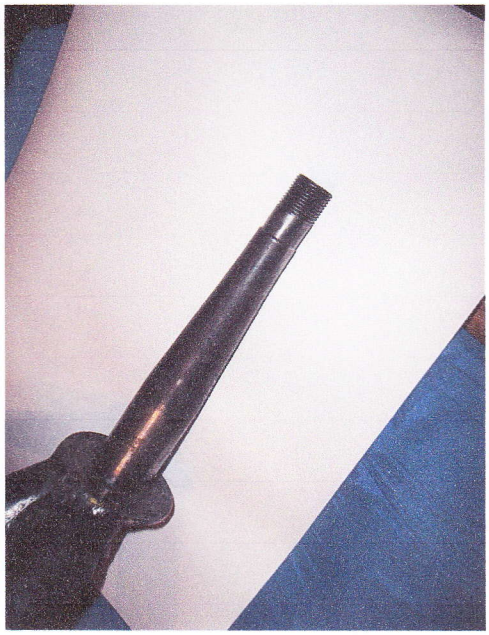



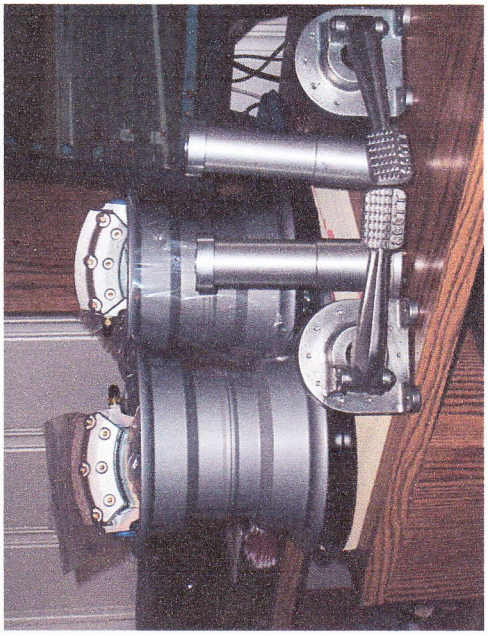

320.014

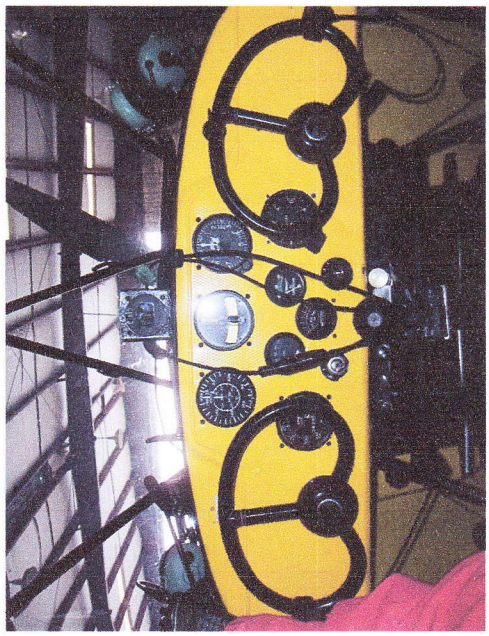








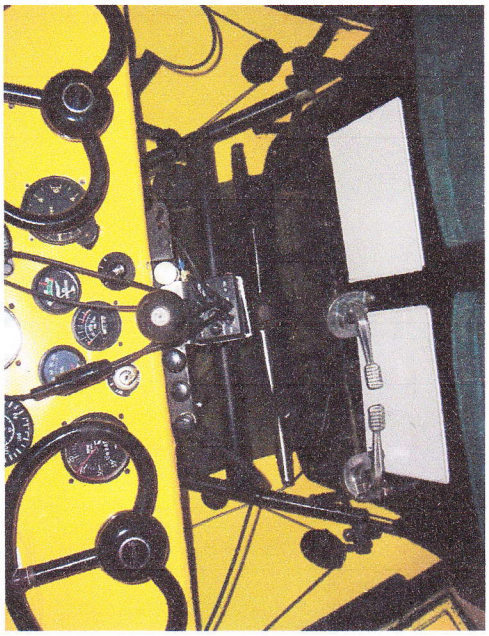
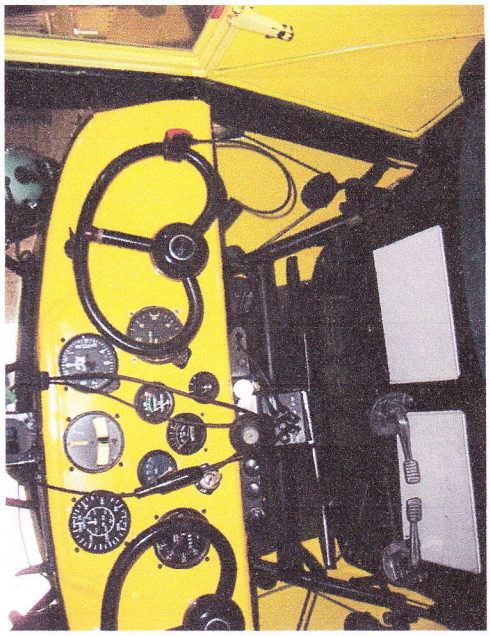
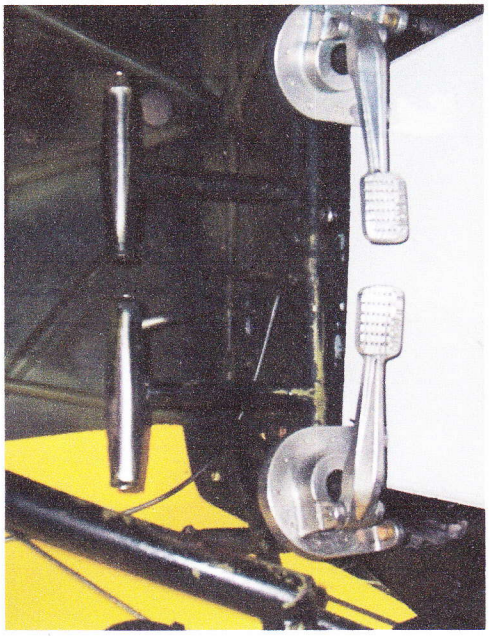
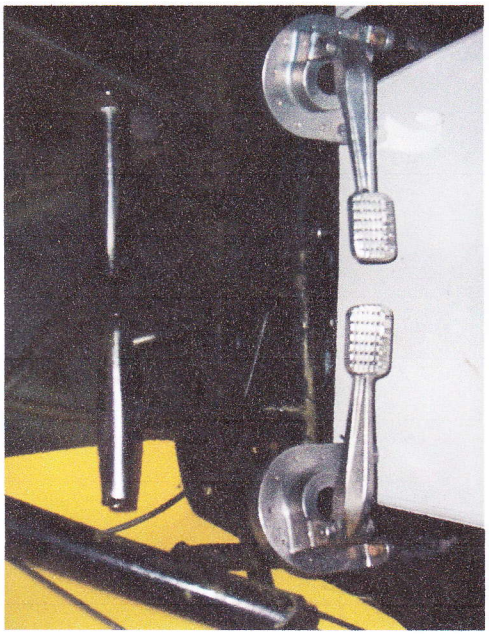
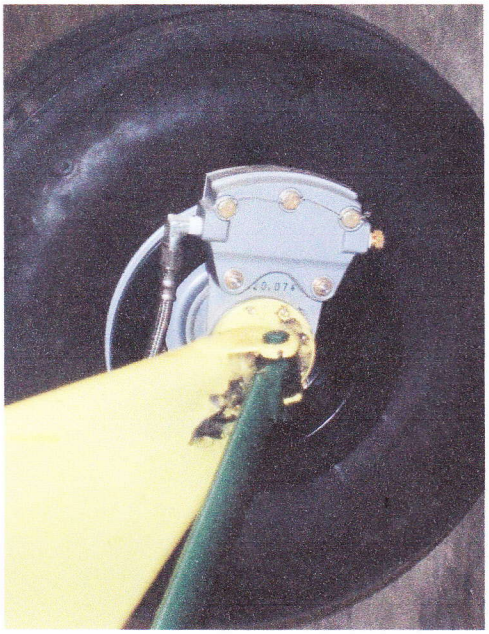
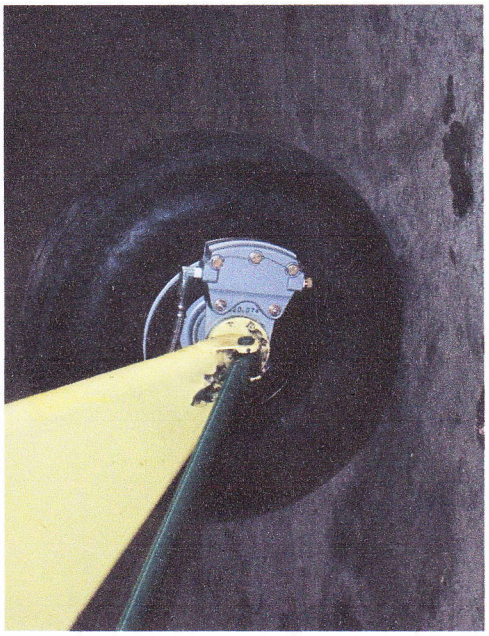


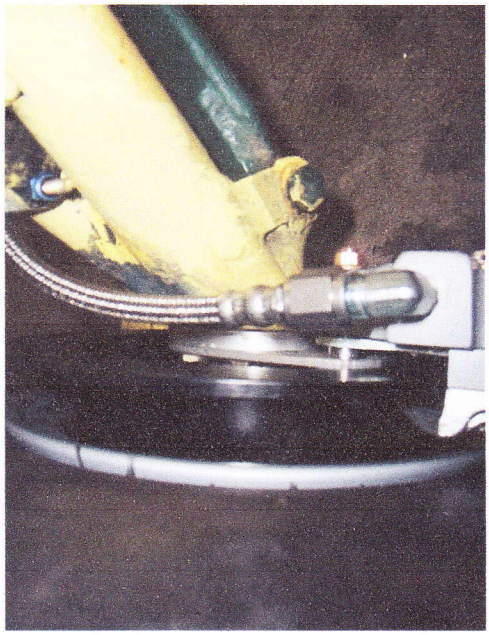










INSPECTION CERTIFICATE № 09.8292

EN 10204 - 3.1

KYM3

AS 9100 SGS ISO 9001:2000 SGS

Consigner: KAMENSK URALSKY METALLURGICAL WORKS JOINT STOCK COMPANY
5, Zavodskaya Str., Kamensk Uralsky, Sverdlovsk Region, 623405, Russia Tel: (3439) 39 52 22 Fax: (3439) 39 50 68

Consignee: Fry Steel Company	Quantity: 43
	Net Weight, kg.: 1632
Contract number: N11193-S 45569	Specification №: N11193
Article number: 83105	Lot №: 1
	Package №: 371595, 371596, 371597, 371598
Description of Goods: Round bars	

Grade of Product	Dimensions, inch/mm	Requirements on the Products
d2,75" d69,85	144" 3658	Material conforms to quality of alloy: 6061 T6511 Product conforms to all requirements of: AMS-4173E,ASTM-B221-08,AMS-QQ-A-200/8,QQ-A-200/8F, This product conforms to European Union RoHS Directive 2002/95/EC

Mechanical Properties

The Condition of Tested Standards	Lot Number	Cast Number	Number of Tests	Tensile Strength ksi min	Tensile Strength ksi max	Yield Strength (0,2% offset) ksi min	Yield Strength (0,2% offset) ksi max	Elongation, % min	Elongation, % max	Hardness, HB
Required				38.0	-	35.0	-	10.0	-	-
-	65537	17-2991	3	51,8	52,3	47,6	48,4	13,5	14,0	99,1

Chemical Composition, %

Element	Silicon Si	Iron Fe	Copper Cu	Manganese Mn	Magnesium Mg	Chromium Cr	Nickel Ni	Zinc Zn	Titanium Ti	Zirconium Zr
Required	0,4-0,8	0,7	0,15-0,40	0,15	0,8-1,2	0,04-0,35	-	0,25	0,15	-
Contents	0,6	0,62	0,20	0,09	1,0	0,15	-	0,07	0,08	-

Element	Ti+Zr	Na	Tin Sn	Bismuth Bi	Plumbum Pb	Mn+Cr	Ca	Other Elements Each	Other Elements Total	Al
Required	-	-	-	-	-	-	-			
Contents	-	-	-	-	-	-	-	0,05	0,15	remainder
						-	-	0,05	0,15	remainder

Other Tests

Method	Macro-structure	Micro-structure	USI	Electro-conductivity	Contents H2 of metals cm3/100gr	
Result	-	-	-	-	-	Mercury - Free "Russia is country of melt and manufacture"

MATL ONLY № 1282 APPROVED SALES INSP 3

On behalf: KUMW, JSC.

Shipping Date: 14.04.2009

Inspector: L.V.Belousova

/Inspection Department engineer N.V. Alekhina

KAMENSK URALSKY METALLURGICAL WORKS QUALITY DEPARTMENT KUMW

FRY STEEL CO. CERTIFIES THAT THIS IS A TRUE COPY OF THE ORIGINAL MILL TEST REPORT NOW ON FILE
RECEIVED AND INSPECTED
JUN 01 2009
BY CHIP SANDOVAL - Q.C. MANAGER

AXLE SLEEVE

Press Cup

ZW08020319

LiaoNing ZhongWang Group Co., Ltd

Tel: 0086-419-4150985/4153521 Fax: 0086-419-4150985/4150491
299 Wensheng Road, Liaoyang city, Liaoning Province, P. R. China 111003

TEST REPORT

FRY STEEL CO. CERTIFIES THAT THIS IS A TRUE COPY OF THE ORIGINAL MILL TEST REPORT NOW ON FILE RECEIVED AND INSPECTED

APR 10 2008

BY _____
CHIP SANDOVAL - Q.C. MANAGER

Customer: FRY STEEL
Customer PO#: 44952
Item Code: FRY-000187-MIL-1200-NA
Die Number: PCA-D000187
Alloy & Temper: 6061-T6511
Production Description: 1 7/8" ROUND BAR, 12'
Heat Number: ZW08020319
Lot Number: 20080224551
Date: 2008/2/2
Applicable Specifications: ASTM-B221-02 AMS-QQ-A-200/8 QQ-A-200/8F AMS-4173-E

CHEMICAL ANALYSIS: %

Mg	Si	Fe	Cu	Zn	Mn	Cr	Ti	Other		Al
								EACH	TOTAL	
0.96	0.55	0.15	0.27	0.01	0.07	0.07	0.02	≤0.05	≤0.15	REM

TENSILE TEST:

Ult. Sterngth (ksi)	Yield Strength (ksi)	Elongation % LN 2"
45	40	13

We hereby certify that the item listed have been checked and tested in accordance with the specifications noted and have been found to meet all the applicable requirements. Certifications are kept on file for 36 months from the date of purchase and are available for review upon request.

This test report applies to bundle mark: 0JI070, 0JI071, 0JJ039, 0JJ043, 0JJ050, 0JJ051, 0JK054, 0JK059, 0JK061, 0JK072, 0JL038,

1 7/8 RD

Li Yansong, Quality Manager

LIAONING ZHONGWANG GROUP CO., LTD. TESTING CENTER 辽宁忠旺集团有限公司 检测中心 2110040004576

GALGS
CAN NO 1214
APPROVED

Golden State Metal Finishing

2737 Via Orange Way
Suite 104/103
Spring Valley, CA 91978-1750

CERTIFICATION

Date
11/23/2010

Bill To	Ship To
GROVE AIRCRAFT LGS INC. ACCTS PAYABLE 1800 JOE CROSSON DRIVE SUITE A EL CAJON, CA 92020	GROVE AIRCRAFT LGS INC. 1800 JOE CROSSON DRIVE SUITE A EL CAJON, CA 92020

P.O. Number	Ship	Via
10327566	11/23/2010	WILLCALL

Quantity	Item Code	Description
4	010-016	ANODIZE CLEAR PER MIL-A-8625F,TYPE IIB,CLASS 1; SEAL CAP
4	5045	ANODIZE CLEAR PER MIL-A-8625F,TYPE IIB,CLASS 1; TAYLOR CRAFT AXLE SLEEVE
2	5725	ANODIZE CLEAR PER MIL-A-8625F,TYPE IIB,CLASS 1; TAYLOR CRAFT PRESS CAP

WE CERTIFY THAT THE PARTS LISTED HAVE BEEN PROCESSED IN ACCORDANCE WITH SPECIFICATIONS NOTED

Phone #	Fax #
(619) 670-0135	(619) 670-0490

11-23-10

OWNER

Grove
Aircraft Landing Gear Systems Inc.

Installation Instructions

Wheels

- **Tire & Tube Installation** — When installing the tire and tube, be sure to: 1) sprinkle talc powder inside the tire to allow the tube to "move" to its seated position easily, 2) install the red dot on the tire (if so marked) adjacent to the valve stem, 3) lubricate the valve stem with a small amount of grease prior to pushing it through the grommet on the wheel, and 4) take care not to "pinch" the tube when assembling the wheel halves.
- **Lubricate Wheel Bearings** — Grove Aircraft wheels are shipped with only a light protective coating of Aeroshell-22 grease on the bearings. Prior to use on the aircraft, you must remove and lubricate both tapered roller bearings on each wheel, using Aeroshell-22 grease or equivalent.
- **Torque Wheel Bolts & Nuts** — For 500x5 wheels: 90 inch-pounds; for 600x6 wheels: 150 inch-pounds.
- **Pre-Load Wheel Bearings** — It is important that the axle nut be tightened properly. With the aircraft jacked up, rotate the wheel and tire while tightening the axle nut until it is so tight that you are unable to turn the wheel and tire. Care must be taken not to damage the valve stem during this process. Loosen the axle nut just enough so that the wheel and tire are on the "edge" of rotating freely. Install a safety cotter pin through the axle nut and axle. Check to see that the installed cotter pin does not interfere with the valve stem, or any other part of the wheel and tire assembly.

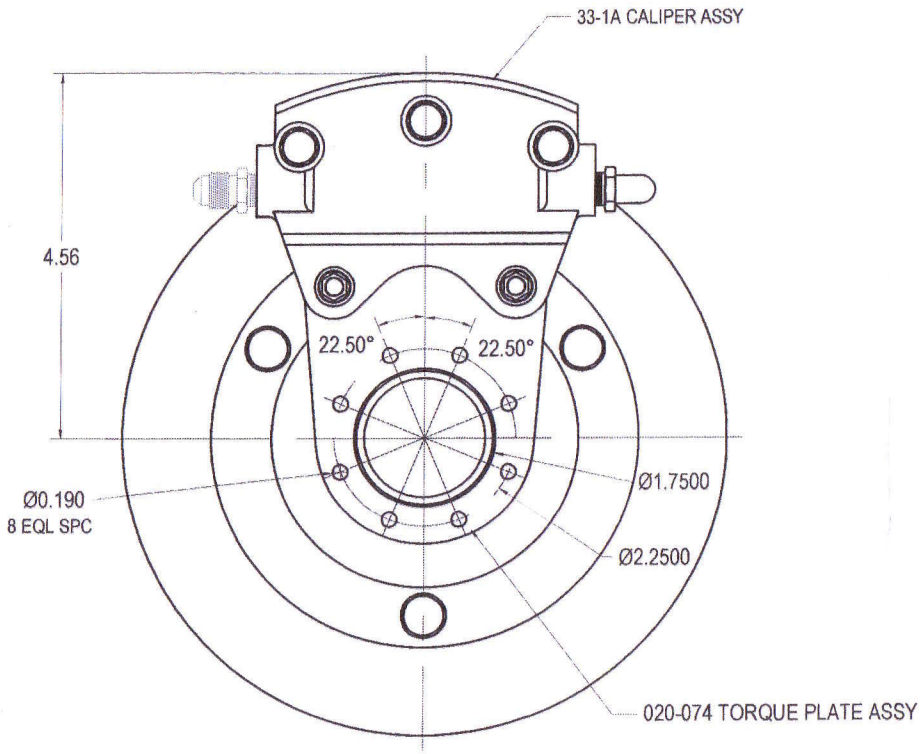
Brakes

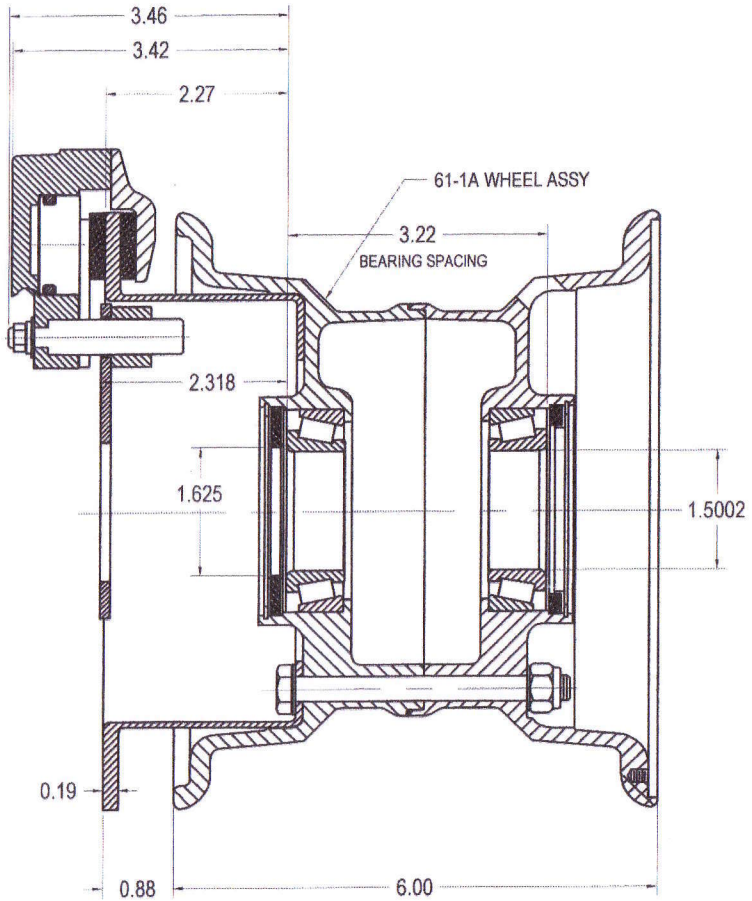
- **Use the Proper Brake Fluid** — Improper brake fluid will ruin the seals in the brake system. Use only standard aircraft Mil-H-5606 red hydraulic fluid. Never use automotive brake fluid!
- **Bleed the Brakes** — The best method to fill and bleed aircraft brakes is from the bottom up. Loosely connect a 1/8" ID clear hose to the brake caliper bleeder screw from your brake fluid source. An oil can used exclusively for this purpose works well. Pump the oil can until the hose is full of fluid, with no air bubbles. Tightly secure the hose to the bleeder valve, while opening it a quarter turn. Pump fluid into the system until it fills the brake cylinder reservoir. (The reservoir filler or vent cap must be open during this process). Tighten the bleeder valve screw, remove the hose, and reseal the reservoir. Check your work by insuring that the reservoir is full and that you have a "hard pedal."

  If you have a "soft-pedal," pump the brakes several times. Many times that will fix the problem. If the problem persists, drain the fluid and repeat the above process.
- **Tighten and Safety Wire the Brake Calipers** — Torque the brake caliper bolts to 90 inch-pounds, and then safety wire.
- **Seat the Brake Pads** — These non-asbestos organic composition brake pads require a thin layer of glazed material at the lining friction surface in order to provide maximum braking performance. This glazed layer is produced by the heat generated during normal braking operations, and is maintained during the life of the lining. Since new brake pads do not have this layer, it must be created by the following process:
  1. Heat the pads by "dragging the brakes" while taxiing at a slow speed with moderate power. Do not use maximum braking pressure.
  2. Allow the brakes to cool for 5 - 10 minutes
  3. Test the results at full static run-up. If the brakes hold, break-in is complete. If they fail to hold, repeat steps 1 and 2 until they do.

Replacement Brake Pads

Brake Pad Part Number 066-105 — Use on 36 Series Brake Calipers
Brake Pad Part Number 066-106 — Use on 30, 35 & 39 Series Brake Calipers
Brake Pad Part Number 066-111 — Use on 31,32 & 33 Series Brake Calipers





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 800 PSI
KINETIC ENERGY RATING 168,934 FT-LB
BRAKING TORQUE @ 600 PSI- 5,683 IN-LBS
LIMIT LOAD RATING 4000 LBS.
FOR USE ON TAYLOR CRAFT

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

Wheel & Brake Assy

TOLERANCE	DRAWN BY	DWG NO.	REV
DECIMAL .XX= +/-.030 DECIMAL .XXX= +/-.010 DECIMAL .XXXX=+/-.005 ANGLE = 0.25 DEGREES	R. P. Grove	61-138	IR
FINAL ASSY	DATE 9/16/09	SCALE None	SHEET 1 of 1

Light Weight 600x6 Wheel & Brake Set

- Fits standard 600x6 1-1/2" axle
- Brake Calipers utilize standard brake pads and O-ring seals
- Brake Discs are machined from one piece forging
- Discs are heat treated for longer life

- Static Load Rating 1250 pounds per wheel
- Kinetic Eneregy 163.366 ft-lb

Model 61-1
Price $749.00

BRAKE PEDAL GEOMETRY

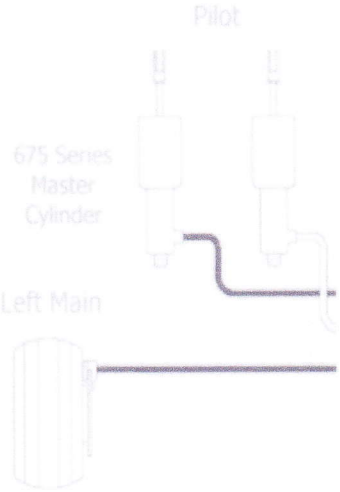
Brake pedal geometry plays an important role in the performance of a brake system. The brake cylinder must deliver the proper pressure and fluid volume to the caliper for optimum braking. All Grove Aircraft brake systems are designed to work well together and with other high pressure systems from other manufacturers.

A general rule-of-thumb is to design the brake pedal geometry to have a 2 to 1 ratio of pedal travel to brake cylinder travel. Thus, 1" of pedal travel will result in 1/2" of cylinder travel. A pedal force of about 75 pounds will result in an adequate 500 psi force to the brake caliper.

BRAKE SYSTEM PLUMBING

The drawing to the right represents a typical brake plumbing installation

Note: The most "upstream" componet must be a reservoir. You can use either the 675 series master cylinder with integral resevoir, or a separate remote reservoir.



KINETIC ENERGY

$$\text{Kinetic Energy} = \frac{.044 \times W \times V^2}{N}$$

W= Landing Weight in lbs.
V = Landing Speed in Knots
N = Number of Wheels w/Brakes

One of the functions of the brake system is to absorb the heat energy deve during braking. The majority of this heat is absorbed by the brake disc. T the mass of the disc, the more heat energy it is able to absorb. A well desi system will provide adequate disc mass without excessive weight. As you from the formula on the left, kinetic energy is a function of the mass (weig aircraft and its landing speed.

The following table lists the kinetic energy values for Grove wheel and brake asser

US Department of Transportation
Federal Aviation Administration

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

Form Approved
OMB No. 2120-0020
For FAA Use Only
Office Identification FAA-AAL-FSDO-03

INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 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. 1421). Failure to report can result in a civil penalty not to exceed $1,000 for each such violation (Section 901 Federal Aviation Act of 1958).

1. Aircraft	Make: Taylorcraft	Model: BL-65
	Serial No.: 3082	Nationality and Registration Mark: N 27440
2. Owner	Name *(As shown on registration certificate)*: Butcher, Thomas W.	Address *(As shown on registration certificate)*: 5121 Woodhaven Ave Anchorage, AK 99516-4254

3. For FAA Use Only

The data/alteration identified herein complies with the applicable airworthiness requirements and is approved for the above described aircraft, subject to conformity inspection by a person authorized in FAR Part 43.

9/23/99 — Date — Signature FAA-AAL-FSDO-03

4. Unit Identification / **5. Type**

Unit	Make	Model	Serial No.	Repair	Alteration
AIRFRAME	(As described in Item 1 above)				X
POWERPLANT					
PROPELLER					
APPLIANCE	Type / Manufacturer				

6. Conformity Statement

A. Agency's Name and Address	B. Kind of Agency	C. Certificate No.
Wen Worthington 10314 Main tree Dr Anchorage, AK 99516	X U.S. Certificated Mechanic Foreign Certificated Mechanic Certificated Repair Station Manufacturer	AMP 2112280

D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 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.

Date	Signature of Authorized Individual
Sept 23, 1999	Wen Worthington

7. Approval for Return To Service

Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is X APPROVED ☐ REJECTED

BY						
	FAA Flt. Standards Inspector		Manufacturer	X	Inspection Authorization	Other *(Specify)*
	FAA Designee		Repair Station		Person Approved by Transport Canada Airworthiness Group	

Date of Approval or Rejection	Certificate or Designation No.	Signature of Authorized Individual
Sept 23, 1999	2112280	Wen Worthington

FAA Form 337 (12-88)

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.)

Installed hydraulic brake system in aircraft using the following:

1) 26A Scott Brake cylinders P/N 1248-H and 1260H.

2) Cleveland Wheel & Brake kit P/N 199-46

3) New Axles and spools manufactured by ATlee Dodge.

4) 8:50 x 6 Tires mounted on wheels.

5) Manufactured all new brake lines and Bled brakes

Entire system assembled using all new A.N. Hardware.

The alteration listed above shall be inspected for continued airworthiness in accordance with F.A.R. Appendix 'D'.

Ed

☐ Additional Sheets Are Attached

*U.S.GPO:1994-568-012/00019

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

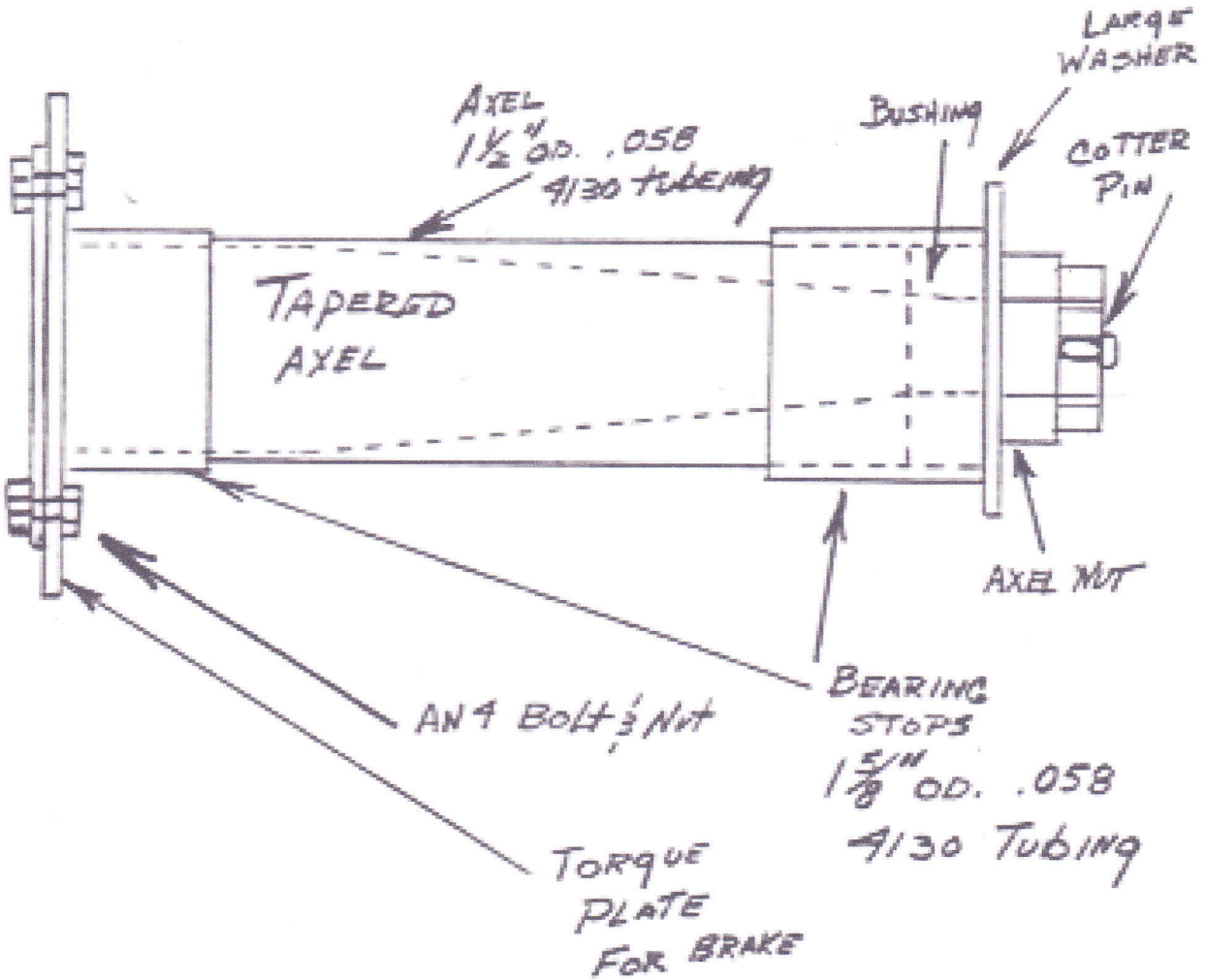
(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

1) Installed Cleveland wheels and brakes.

2) Adapted wheels to tapered axle by using 1½" OD .058 4130 tubing and 15/8" OD .058 4130 tubing for bearing stops. Used factory nut and large washer with machined bushing inside of 1½" axle (see drawing.

3) All hardware used in accordance with AC43.13-1A, Chapter 5, Aircraft Hardware.

4) Weight and balance computed and equipment list updated.



END

☐ Additional Sheets Are Attached

US Department of Transportation
Federal Aviation Administration

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

Form Approved
OMB No. 2120-0020

For FAA Use Only
Office Identification

INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 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. 1421). Failure to report can result in civil penalty not to exceed $1,000 for each such violation (Section 901 Federal Aviation Act of 1958).

1. Aircraft	Make: Luscombe	Model: 8A
	Serial No.: 1383	Nationality and Registration Mark: N28554
2. Owner	Name *(As shown on registration certificate)*: Lindsey, Robert J Giroux, Luke D	Address *(As shown on registration certificate)*: 8982 Prine Rd. Baldwinsville, NY 13027-9627

3. For FAA Use Only

THE ALTERATION OR REPAIR IDENTIFIED HEREIN COMPLIES WITH THE APPLICABLE AIRWORTHINESS REQUIREMENTS AND IS APPROVED FOR USE ONLY ON THE ABOVE DESCRIBED AIRCRAFT, SUBJECT TO CONFORMITY INSPECTION BY A PERSON IN 14 CFR PART 43.7.

APPROVING INSPECTOR Nicholas A Eull

DATE 11/8/2004 AEA FSDO 23

4. Unit Identification / **5. Type**

Unit	Make	Model	Serial No.	Repair	Alteration
AIRFRAME	*(As described in Item 1 above)*				X
POWERPLANT					
PROPELLER					
APPLIANCE	Type / Manufacturer				

6. Conformity Statement

A. Agency's Name and Address	B. Kind of Agency	C. Certificate No.
Luke Giroux 2687 Co. Rt. 57 Fulton, NY 13069	X U.S. Certificated Mechanic Foreign Certificated Mechanic Certificated Repair Station Manufacturer	351800287 IA

D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 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.

Date	Signature of Authorized Individual
11/01/04	Luke Giroux

7. Approval for Return To Service

Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is ☒ APPROVED ☐ REJECTED

BY						Other *(Specify)*
	FAA Flt. Standards Inspector		Manufacturer	X	Inspection Authorization	
	FAA Designee		Repair Station		Person Approved by Transport Canada Airworthiness Group	

Date of Approval or Rejection	Certificate or Designation No.	Signature of Authorized Individual
4/28/05	351800287IA	Luke Giroux

FAA Form 337 (12-88)

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.)

Removed original Shinn wheels and mechanical brakes. Installed Grove Aircraft Landing Gear Systems, Inc. 6.00 x 6 Light Weight wheel and brake set (model 61-1) and a Grove Aircraft Landing Gear Systems, Inc. brake master cylinder assembly (model 670-3) for each heel brake pedal. The new brake caliper mounts are bolted to the original axle bracket assemblies, and axle spacers fabricated and installed as necessary to facilitate wheel to caliper alignment.
Support brackets were fabricated and installed to connect the individual master cylinders between the fuselage structure and their respective brake pedals.
The master cylinders were connected to a common reservoir mounted on the inside of the firewall by a combination of solid and flexible hydraulic lines. The calipers are connected to the master cylinders by a combination of flexible hydraulic lines (where movement will be required) and solid hydraulic lines. All hydraulic line installation performed in accordance with applicable paragraphs of AC 43.13-1B Chapter 9 Section 2 "Hydraulic Systems".

Aircraft weighed prior to flight and weight and balance recorded.

Instructions for Continued Airworthiness: Original size tire and tube (6.00 x 6) to be used with new wheel assemblies. Tire pressure to be maintained in accordance with original service manual. New wheel bearing service/inspection intervals will follow original equipment intervals as outlined in the service manual. The hydraulic system is to be serviced with MIL-H-5606 hydraulic fluid. Brake pads to be replaced when worn as indicated by wear markers. Inspect installation at applicable intervals (annual or 100 hr.) using FAR 43 App. D and appicable paragraphs of AC 43.13-1B Chapter 9 Section 2 "Hydraulic Systems"

----------END----------

☐ Additional Sheets Are Attached

* U S G P O 1990-761-753