

Instructions for Continued Airworthiness

Make: Taylorcraft

Model: BC12-D

Serial number: 9172

Registration number: N96872

Revision: 0

Date: 9/10/2014

System: Grove wheels and Hydraulic brakes

RECORD OF REVISIONS

<u>Revision Number</u>	<u>Issue Date</u>	<u>Date Inserted</u>	<u>By</u>
Original	9/10/2014	9/10/2014	J. Shaw

CONTENTS

1. **Introduction:** N96872 is a 1946 BC12-D Taylorcraft, two place fixed wing airplane originally equipped with Shinn wheels and mechanical brakes. These items have been removed and replaced with new Grove wheels and Scott master cylinders. This modification was accomplished in accordance with the Grove Aircraft installation instructions, and Advisory Circular 43.13-1B, Chapter 9, Section 2 "Hydraulic Systems".
2. **Description:** The mechanical brake system (Shinn wheels, control cables, pulleys, brake pedals) has been completely removed from the aircraft. Two Scott master cylinders (right and left) have been installed on the floorboard so that the pedals are located in essentially the same locations as the original brake pedals. The floorboard was reinforced with a .040" thick aluminum plate in this area to support the load of the master cylinders when braking pressure is applied. Aeroquip flexible hose was used to connect each Scott master cylinder to its respective brake caliper, and each reservoir is serviced with Mil-H-5606 "red" hydraulic fluid. The function of this modification is to provide a more reliable and trouble free braking system than the old and problematic mechanical brakes. Replacement Parts for the Shinn wheels and brakes are expensive and hard to find also. The wheels and brakes should be inspected every 100 hours of operation, or annually, whichever comes first.
3. **Control:** Operation of the Grove disc brake conversion is identical to the operation of the original factory installed brakes.
4. **Servicing Information:** The hydraulic system is to be serviced with MIL-H-5606 hydraulic fluid. The wheel bearings are to be lubricated with Aeroshell-22 , Mobil-28, or any equivalent wheel bearing grease. If the wheel bearings show any signs of pitting, cracks, evidence of overheating, or corrosion, they shall be replaced. The tires and inner tubes are standard 6.00x6 sizes, and should be replaced as necessary. Tire pressures should be maintained as specified in the Taylorcraft maintenance manual. Wheel bolts and nuts are to be torqued to 150 inch-pounds. Brake caliper bolts are to be torqued to 90 inch-pounds.

5. **Maintenance instructions:** To bleed the brakes, loosely connect a 1/8" ID clear hose to the brake caliper bleeder screw from a clean brake fluid source, such as a pressure oil can or large syringe. Pump the hydraulic fluid through the bleeder valve until the reservoir is full. Tighten the bleeder valve screw, remove the hose, and close the reservoir. Check the brakes for proper operation, and ensure that there is a "hard pedal". When installing new brake pads, they must be conditioned by "dragging the brakes" while taxiing at a slow speed with moderate power. Do not use maximum braking pressure. Allow the brakes to cool for 5-10 minutes, and then test the results at full static run-up. If the brakes hold, break-in is complete. If they fail to hold, repeat the previous steps until they do.
6. **Trouble shooting information:** If the brakes have a "soft-pedal", pump the brakes several times. Many times that will fix the problem. If the problem persists, drain the hydraulic fluid from the system and repeat the brake bleed process.
7. **Removal and replacement information:** Jack the aircraft in accordance with the manufacturer's instructions. Install the wheel onto the axle and tighten the axle nut ensuring that the wheel bearings are fully seated into the wheel. While slowly rotating the wheel, tighten the axle nut until it is hand tight. Check that wheel runs free, or with very little drag. If not, loosen the axle nut only enough so that the wheel turns free, or with little drag. Align the axle nut to the nearest hole in the nut with the cotter pin hole in the axle. If you need to move the nut for alignment, first try to tighten it. If the wheel still moves with little or no resistance, use that alignment. If there is increased resistance to rotation, loosen the nut to the next hole. When installing the cotter pin, extreme care must be taken to ensure that the cotter pin does not interfere with the valve stem or other parts of the wheel when the wheel is rotated. Install the brake caliper and rotate the wheel to ensure that it is secure and rotates freely. Lower the aircraft to the ground following the manufacturer's instructions.
8. **Diagrams:** Not applicable.
9. **Special inspection requirements:** There are no special inspection requirements for this wheel and brake conversion.
10. **Application of protective treatments:** There are no protective treatments required.
11. **Data:** Wheel assembly bolts and nuts are to be torqued to 150 inch-pounds. Brake caliper bolt torque is 90 inch-pounds. Hydraulic fluid is MIL-H-5606. Replacement brake linings are Part number 066-111 (4 required).

12. **List of special tools:** There are no special tools required for the maintenance of this installation.
13. **For commuter category aircraft:** Not applicable.
14. **Recommended overhaul periods:** No additional overhaul time limitations.
15. **Airworthiness limitations:** Not applicable.
16. **Revision:** If a revision to this ICA is necessary, It shall be re-submitted to the local FSDO with a new FAA form 337.

LIST of EFFECTIVE PAGES

<u>Title</u>	<u>Page</u>	<u>Revision No.</u>
Cover	1	0
Record of Revisions	2	0
Contents	3-5	0
List of Effective Pages	6	0