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Procedure for Fitment of Hinged Drive Arm on 9.5 Tonne Cable Drum Transporters

Applicable Vehicles: Redmond Gary 9.5 Tonne Cable Drum Transporters, S/N: 10755 & 10756

Issue Date: 16 May 2011

Overview: This procedure outlines the actions required to correctly remove the existing drive arm and install a hinged drive arm.

Ensure all of this work is carried out in a safe working environment. All work is to be carried out by a competent tradesperson in a well ventilated area.

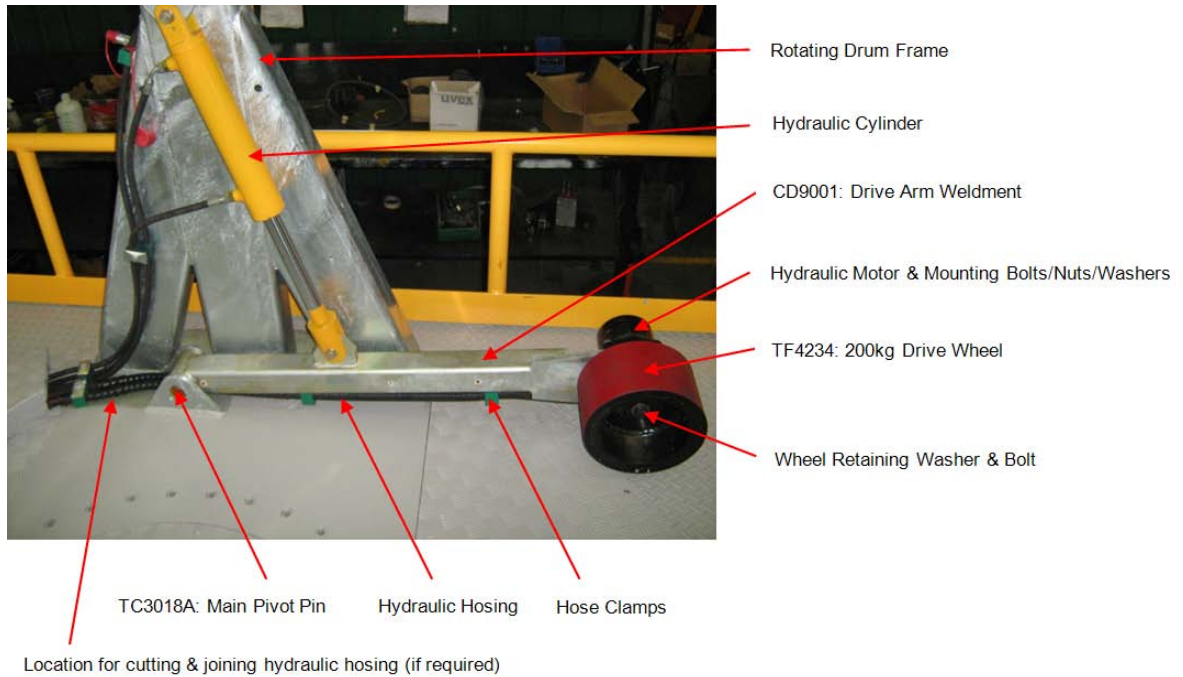
Parts & Equipment Required:

Safety Glasses & relevant PPE
 'Tagging Out' / machine shutdown equipment as required by work practices
 Spanner Set
 Socket Set
 Hammer & Rubber Mallet
 Drift
 Circlip Pliers
 Lifting Equipment
 Existing Rotating Drum Frame, Hydraulic Motor & Cylinder, Drive Wheel
 New parts as provided by Redmond Gary:

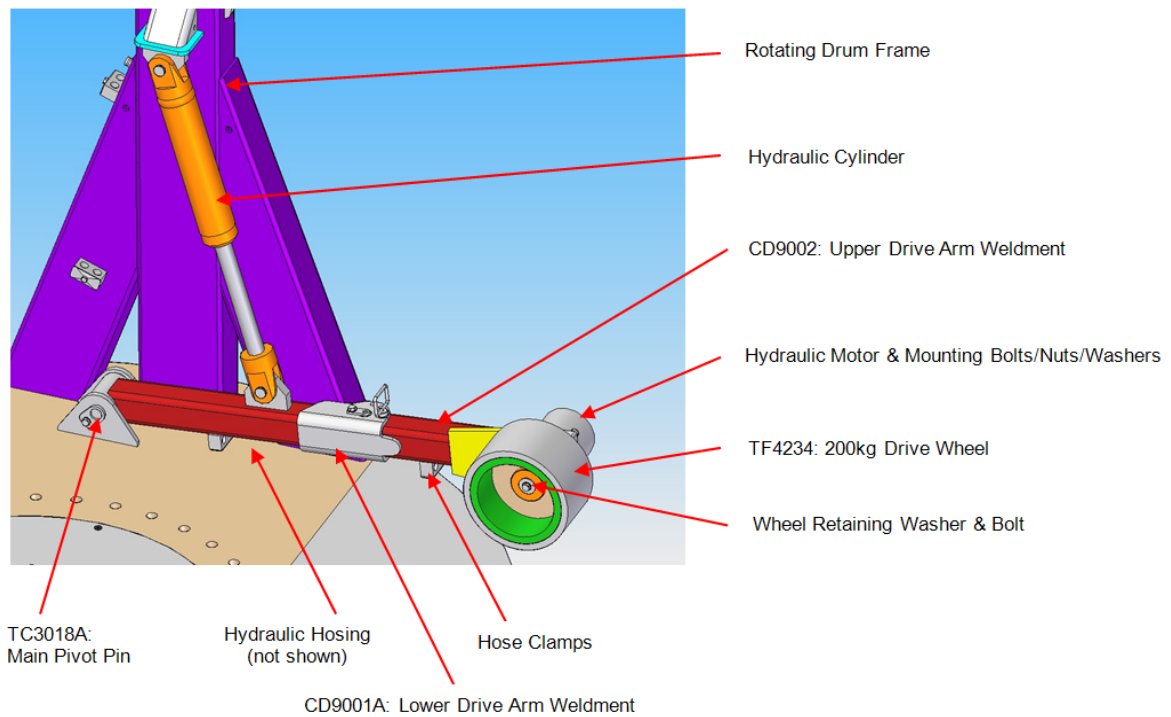
Part Number	Description	Quantity
CD9001A	Lower Drive Arm Weldment (200kg Drive)	1
CD9002	Upper Drive Arm Weldment (200kg Drive)	1
CD9003	Locator Pin Weldment	1
CD9004	Hinge Pivot Pin Weldment	1
4050DU	GGB DU Self Lubricating Bush Ø40 ID x 50 mm Long	2
FM030035-30	GGB Gar-Fil Plain Bearing Ø30 ID x Ø35 OD x 30 mm Long	2
N/A	Hex Head Bolt M10 x 16 mm Grade 8.8 Zinc Plated	1
N/A	Flat Washer 10 mm Zinc Plated	1

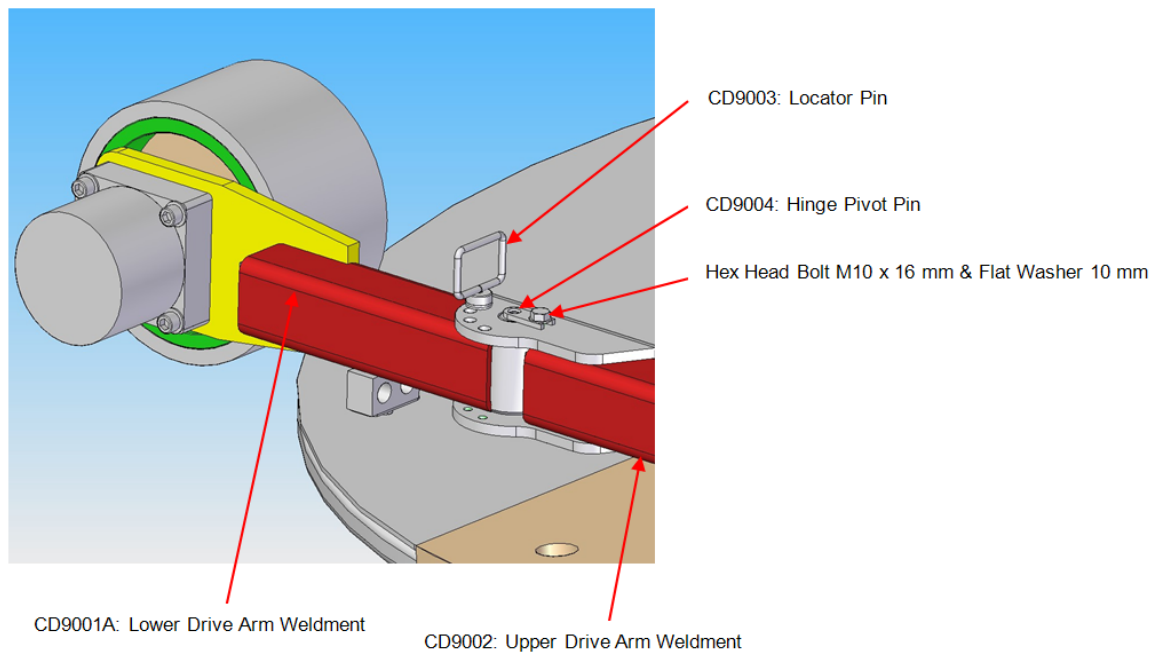
Parts Identification:

Existing drive arm configuration:



New drive arm configuration:





- Step 1:** Turn the vehicle's ignition keys off and remove them from the ignition, storing them in a safe place. Isolate the batteries and hydraulic power and 'tag' the machine in accordance with safe work practices.
- Step 2:** Safely remove the hydraulic hosing from the existing drive arm to allow for the drive arm's removal.
- Step 3:** Remove the retaining bolt and washer holding the drive wheel on. Remove the drive wheel from the hydraulic motor shaft. Be sure not to lose the shaft key!
- Step 4:** Remove the mounting bolts, nuts and washers from the hydraulic motor. Remove the hydraulic motor from the drive arm.
- Step 5:** Remove the lower clevis pin from the hydraulic cylinder that connects to the drive arm. *Ensure the drive arm is supported before removing the clevis pin!* Detach the cylinder clevis from the drive arm.
- Step 6:** Remove the retaining bolt and Main Pivot Pin TC3018A. *Ensure the drive arm is supported before removing the Main Pivot Pin!* Remove the Drive Arm CD9001 from the Rotating Drum Frame.
- Step 7:** Attain new drive arm part CD9001A (Lower Drive Arm Weldment). Check that the Lower Drive Arm has 2 x 4050DU bushes installed inside the main pivot bore. If the bushes are not installed, carefully install the bushes as per the instructions provided in Appendix A.

- Step 8:** Attain new drive arm part CD9002 (Upper Drive Arm Weldment). Check that the Upper Drive Arm has 2 x FM030035-30 bushes installed inside the hinge bore. If the bushes are not installed, carefully install the bushes as per the instructions provided in Appendix B.
- Step 9:** Fit the hinge pivot of Upper Drive Arm Weldment CD9002 into the hinge housing of Lower Drive Arm Weldment CD9001A. Install the Hinge Pivot Pin CD9004 and M10 x 16 mm bolt and washer.
- Step 10:** Install the Locator Pin CD9003 to secure Upper Drive Arm CD9002 to Lower Drive Arm CD9001A.
- Step 11:** Install the hydraulic motor and drive wheel to the Upper Drive Arm Weldment using the bolts, nuts, washers and shaft key as removed from the old drive arm.
- Step 12:** Install the assembled Upper & Lower Drive Arms (CD9001A & CD9002) so that the main pivot bore sits between the flanges on the base of the Rotating Drum Frame. Fit the Main Pivot Pin TC3018A and the retaining bolt and washer as removed earlier.
- Step 13:** Raise the drive arm up, aligning the clevis pin holes on the hydraulic cylinder. Whilst supporting the drive arm, install the clevis pin and circlips.
- Step 14:** Install the hydraulic hosing and fittings. Ensure the drive arm hinges freely in all positions permitted by the Locator Pin CD9003. Ensure all hosing is sufficiently supported by the hose clamps. Check the hosing will not be obstructed or damaged when the hydraulic cylinder raises and lowers the drive arm. If the existing hosing is not sufficiently long enough to tolerate the hinging motion, it will be necessary to cut, extend and join the hosing to create longer versions. A suitable location for cutting and joining the hosing is shown in the 'Existing Drive Arm Configuration' image above.
- Step 15:** Test the operation of the drive arm. *Check all pins are installed correctly and all hydraulic fittings have been tightened before testing!* Check the arm operates correctly and smoothly. Note: the drive wheel should only be engaged when the Upper Drive Arm CD9002 is aligned straight with the Lower Drive Arm CD9001A.

If you are unsure of any instructions please ask.

Regards,

Darren Hoare
Service & Parts Manager
Redmond Gary Australia
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Appendix A – Installing DU Bushes

DU[®]
DX[®]

Installation and Fabrication

Self-Lubricating Bearings, Prelubricated Bearings

GGB North America

700 Mid Atlantic Parkway, Thorofare, New Jersey 08086

Phone 1-800-222-0147 • Fax 1-856-848-5115 • www.ggbearings.com

Bearing installation

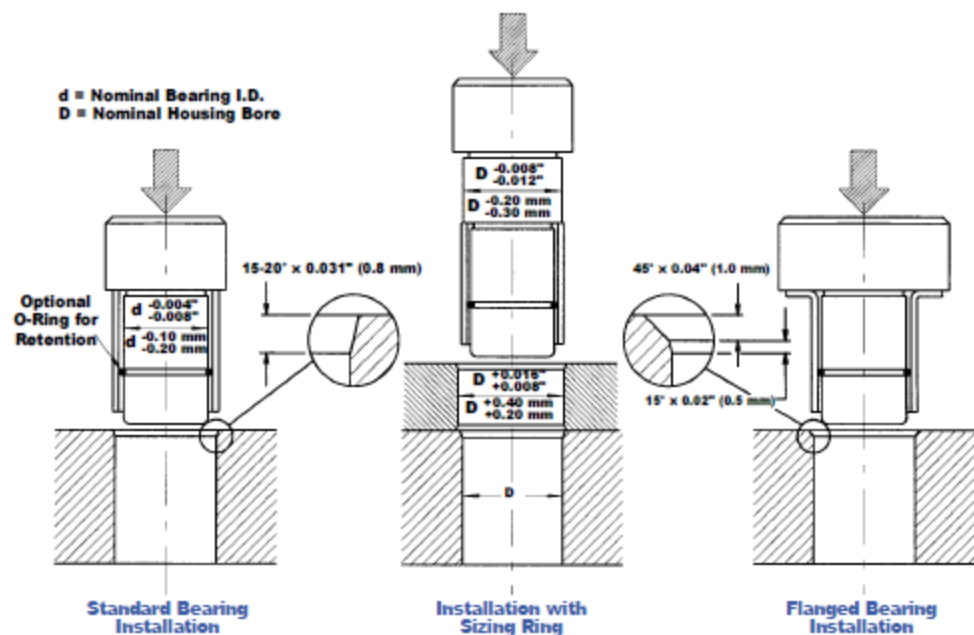
As illustrated by Figure 6-1, the bearing is inserted into its housing with the aid of a conventional stepped mandrel, preferably made from case-hardened mild steel and free of burrs and sharp edges.

Care must be taken to insert the bearing squarely into the housing to avoid damage to the lining material. A slight lead-in chamfer should be machined in the housing and a smear of oil may be applied to the housing bore to assist the fitting operation. Installation can be further improved by using an installation ring as shown on Figure 6-1. This approach is helpful for installing large diameter bearings. Figure 6-1 shows the recommended housing bore chamfer for flanged DU bearings. Recommended arbor and chamfer dimensions are given in the accompanying illustrations. Housing and shaft sizes are given in the standard product tables.

When the use of a mandrel for large bearings becomes impractical, other methods can be used, provided care is taken to protect the edge of the bearing from being damaged. Steps must be taken to maintain the alignment of the bearing split during assembly.

Note: Even though bearing surfaces of DU and DX materials are extremely durable when rubbing against a suitable shaft or thrust face, care must be taken to ensure that the bearing material is not scratched or otherwise damaged by sharp projections before or during installation.

Figure 6-1. Installing DU and DX Bearings



6 Installation and Machining

6.1 Installation

The retention of GGB filament wound bearings in metal housings is excellent due to the high material stiffness and a thermal expansion rate similar to steel. The press fits used for bronze bearings are adequate for filament wound bearings in most cases.

The bearing will close in by an amount equal to the measure of interference with the housing. This close-in must be considered when calculating the installed bore and corresponding shaft diameter.

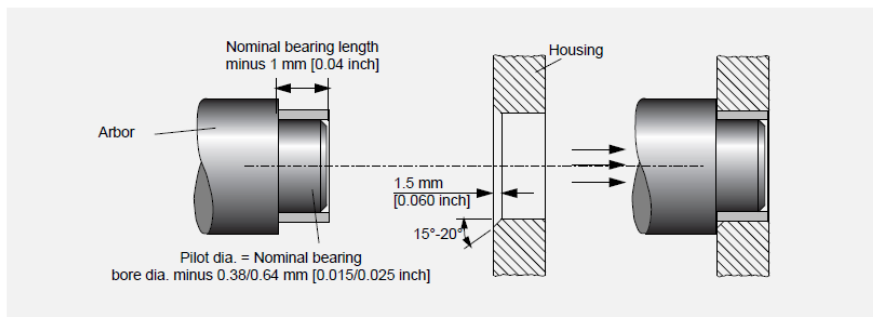


Fig. 20: Fitting of bearings