

# Disc-O-Torque Hydraulic Clutches D4

Installation & Maintenance Manual

P-5057-TBW  
Form 1385



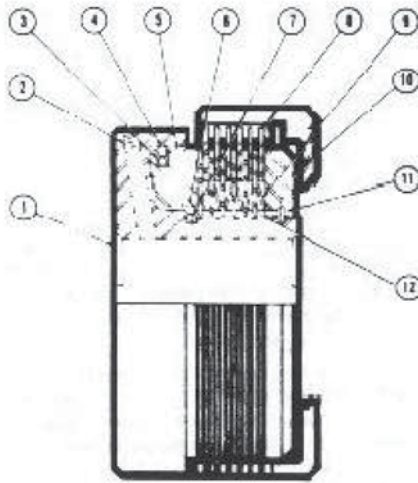
**WARNING:**

**Rotating equipment must be properly guarded.**

**It is the responsibility of the user to properly guard all rotating equipment to comply with OSHA or any applicable regulations. Failure to properly guard may contribute to severe injury should someone come in contact with the rotating parts or should the rotating part fail.**

**WARNING:**

**DO NOT use Wood's products on any primary aircraft drive or any other drive which could endanger human life should a drive component fail.**



Rebuild Kits			
Disc Kit D4xxDK		Seal Kit D4xxSK	
Item	Description	Item	Description
8	Friction Disc	4	Outer Piston Ring
12	Separator Disc	6	Inner Piston Ring
9	Separator Spring	3	Outer O-Ring
11	Snap Ring	7	Inner O-Ring

Components not included in rebuild kits		
Item	Description	Notes
1	Hub	When and if these parts require replacement, it is usually a sign unseen damage may have occurred to other components in the clutch assembly. It is recommended that the entire clutch assembly be replaced
5	Piston	
10	Back Plate	
2	Plug	

**INSTALLATION**

Friction disc lugs must be slip fit in driven cup slots. When installing the cup, align lugs and slots carefully. Do not force during assembly; bent lugs will cause the clutch to malfunction. When installing the clutch, be sure the actuation hole in your rifle drilled shaft is properly located in relation to the actuation port in the clutch bore

**ACTUATING FLUID & LUBRICATING OIL**

Standard D4 models do not have bearings and therefore require no internal lubrication. Disc pack cooling can be accomplished with external spray, mist or splash.

**TYPES OF OIL**

Use any high grade ATF (automatic transmission fluid) or Socony-Mobile DTE 24 oil (or equivalent).

**MAINTENANCE**

Model D4 Disc-O-Torque clutch, when properly applied and installed, will operate for a long period of time without attention. However, at equipment overhaul time, or when clutch repairs are necessary, all worn parts should be replaced. Rebuild kits are available for rebuilding clutches in the field.

## HOW TO SELECT AND ORDER THE DISC-O-TORQUE REBUILD KITS:

Disc-O-Torque rebuild kits can be easily ordered by specifying the proper kit number, series, model number and bore size of the clutch.

<b>Example: (Seal Kit)</b>	<b>Kit No.</b>	<b>Series</b>	<b>Model No.</b>	<b>Bore</b>
	<b>D445SK</b>	<b>D4</b>	<b>45</b>	<b>1 3/8</b>

Kits should be obtained from the manufacturer of the machine in which the clutch is used, i.e., the original equipment manufacturer, or from the local **TB Woods** distributor.

### DISASSEMBLY

1. Compress the disc pack by depressing the clutch backplate (10).
2. With the backplate depressed, remove the snap ring (11).
3. Remove friction discs, separator plates and separator springs as a pack (8,12, and 9). If removing parts individually, note order of assembly.
4. Remove the piston (5) from the hub (1). Cover the piston with a cloth to prevent damage after this operation.
5. If any of the above parts are worn, overheated or warped, they should be replaced. Compare each part to a new part to determine degree of wear or distortion.
6. Examine the teflon seals (4 & 6) and "O" rings (3 & 7); remove if badly worn.

### REASSEMBLY

1. Install the "O" ring (8) and teflon seal (6) into the hub groove.

NOTE: Teflon seals must be installed with a proper tool, such as an automotive type piston ring compressor.

2. Place the piston ring compressor over the teflon seal and tighten. This will compress the teflon seal to allow installation of the piston.
3. Install the "O" ring (3) and the teflon seal (4) into the piston groove in the same manner outlined above.
4. Install the disc pack (friction discs, separator plates, and separator springs) in the original order of assembly.
5. Place the backplate over the disc pack. With an arbor press, compress the disc pack and install the snap ring (11).

CAUTION: The discs should be centered in the pack before pressing to avoid damage.

### TEST THE CLUTCH

After assembly is completed, the unit should be checked in two ways:

1. Check clearance in the disc pack. All discs should be free with no binding. Following is clearance required in the disc pack:

SIZE	AVERAGE	MAXIMUM
D430	.072"	.105"
D435	.096"	.130"
D445	.096"	.134"
D455	.108"	.142"
D460	.114"	.149"
D470	.126"	.161"

This can be measured with a dial test indicator by depressing the backplate (10) until all discs are engaged. .

2. Check leakage. Apply normal operating pressure to the clutch and see if oil leaks out. There should be only a minimum amount--about one drop per minute. If excessive leakage is experienced, reinspect the teflon seals and seal diameters in the hub and piston.

All Customer Service phone numbers shown in bold

Belted Drives and Sheaves	Couplings Cont.	Gearing	Linear Products
<p><b>TB Wood's</b> <i>Belted Drives</i> Chambersburg, PA - USA <b>1-888-829-6637</b> – Press #5 <i>For application assistance:</i> <i>1-888-829-6637 – Press #7</i></p>	<p><b>TB Wood's</b> <i>Elastomeric Couplings</i> Chambersburg, PA - USA <b>1-888-829-6637</b> – Press #5 <i>For application assistance:</i> <i>1-888-829-6637 – Press #7</i> <i>General Purpose Disc Couplings</i> San Marcos, TX - USA <b>1-888-449-9439</b></p>	<p><b>Bauer Gear Motor</b> <i>Gear Motors</i> Esslingen, Germany <b>+49 (711) 3518-0</b> Middlesex, NJ - USA <b>1-732-469-8770</b></p> <p><b>Boston Gear</b> <i>Enclosed and Open Gearing, Electrical and Mechanical P.T. Components</i> Charlotte, NC - USA <b>1-800-825-6544</b> <i>For application assistance:</i> <i>1-800-816-5608</i></p> <p><b>Nuttall Gear and Delroyd Worm Gear</b> <i>Worm Gear and Helical Speed Reducers</i> Niagara Falls, NY - USA <b>1-716-298-4100</b></p>	<p><b>Warner Linear</b> <i>Linear Actuators</i> New Hartford, CT - USA <b>1-800-825-6544</b> <i>For application assistance:</i> <i>1-800-825-9050</i> Saint Barthélemy d'Anjou, France <b>+33 (0)2 41 21 24 24</b></p>
<p><b>Couplings</b></p> <p><b>Ameridrives</b> <i>Mill Spindles, Ameriflex, Ameridisc</i> Erie, PA - USA <b>1-814-480-5000</b> <i>Gear Couplings</i> San Marcos, TX - USA <b>1-800-458-0887</b> <i>Universal Joints, Drive Shafts, Mill Gear Couplings</i> Erie, PA - USA <b>1-920-593-2444</b></p> <p><b>Bibby Turboflex</b> <i>Disc, Gear, Grid Couplings, Overload Clutches</i> Dewsbury, England <b>+44 (0) 1924 460801</b> Boksburg, South Africa <b>+27(0) 11 918 4270</b></p> <p><b>Guardian Couplings</b> <i>Engineered Flywheel Couplings, Engine Housings and Pump Mounts, Flexible Shaft Couplings</i> Michigan City, IN - USA <b>1-219-874-5248</b></p> <p><b>Huco</b> <i>Precision Couplings and Air Motors</i> Hertford, England <b>+44 (0) 1992 501900</b> Chambersburg, PA - USA <b>1-888-829-6637</b></p> <p><b>Lamiflex Couplings</b> <i>Flexible Couplings, Bearing Isolators, and Coupling Guards</i> Cotia, SP - Brasil <b>+55 (11) 4615-6300</b></p>	<p><b>Electromagnetic Clutches and Brakes</b></p> <p><b>Inertia Dynamics</b> <i>Spring Set Brakes; Power On and Wrap Spring Clutch/Brakes</i> New Hartford, CT - USA <b>1-800-800-6445</b></p> <p><b>Matrix</b> <i>Electromagnetic Clutches and Brakes, Pressure Operated Clutches and Brakes</i> Brechin, Scotland <b>+44 (0) 1356 602000</b> New Hartford, CT - USA <b>1-800-825-6544</b></p> <p><b>Warner Electric</b> <i>Electromagnetic Clutches and Brakes</i> New Hartford, CT - USA <b>1-800-825-6544</b> <i>For application assistance:</i> <i>1-800-825-9050</i> Saint Barthélemy d'Anjou, France <b>+33 (0)2 41 21 24 24</b> <i>Precision Electric Coils and Electromagnetic Clutches and Brakes</i> Columbia City, IN - USA <b>1-260-244-6183</b></p>	<p><b>Heavy Duty Clutches and Brakes</b></p> <p><b>Industrial Clutch</b> <i>Pneumatic and Oil Immersed Clutches and Brakes</i> Waukesha, WI - USA <b>1-262-547-3357</b></p> <p><b>Svendborg Brakes</b> <i>Industrial Brakes and Brake Systems</i> Vejstrup, Denmark <b>+45 63 255 255</b></p> <p><b>Twiflex</b> <i>Caliper Brakes and Thrusters</i> Wichita Falls, TX - USA <b>1-844-723-3483</b> Twickenham, England <b>+44 (0) 20 8894 1161</b></p> <p><b>Wichita Clutch</b> <i>Pneumatic Clutches and Brakes</i> Wichita Falls, TX - USA <b>1-800-964-3262</b> Bedford, England <b>+44 (0) 1234 350311</b></p>	<p><b>Overrunning Clutches</b></p> <p><b>Formsprag Clutch</b> <i>Overrunning Clutches and Holdbacks</i> Warren, MI - USA <b>1-800-348-0881</b> – Press #1 <i>For application assistance:</i> <i>1-800-348-0881 – Press #2</i></p> <p><b>Marland Clutch</b> <i>Roller Ramp and Sprag Type Overrunning Clutches and Backstops</i> Warren, MI - USA <b>1-800-216-3515</b></p> <p><b>Stieber Clutch</b> <i>Overrunning Clutches and Holdbacks</i> Heidelberg, Germany <b>+49 (0) 6221-30470</b></p>

For information concerning our sales offices in Asia Pacific check our website [www.altramotion.com.cn](http://www.altramotion.com.cn)



[www.tbwoods.com](http://www.tbwoods.com)

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