FLEXILOCK

HYDRAULIC PUMP DRIVE KITS FOR DIESEL ENGINES

INSTALLATION INSTRUCTIONS

DYNAGEAR AUSTRALIA

PE-ASSEMBLY PARTS CHECK.

Check that all components of the kit are available. All FLEXILOCK Direct Hydraulic Pump Drive Kits for Diesel engines should include the following items.

Item 1. Steel flywheel driveplate with an attached polymer drive element with internal gear teeth. This item attaches with bolts to the engine flywheel.

Item 2. Geared drive hub, black in colour, made of steel with a splined or round bore keyed hole through the axis. This item attaches to the hydraulic pump shaft.

Item 3. Engine housing adaptor either a steel flat plate type or a cast bell type. This item attaches to the engine housing and the hydraulic pump attaches to it.

Item 4. A plastic bag of bolts and washers for attaching item 1 and item 3 to the diesel engine.

Item 5. Assembly instruction Form PT70 which you are now reading.

IDENTIFICATION OF DRIVE KITS.

Engine housing adaptors, (Item 3) in all drive kits are supplied with a nameplate which is attached to the outside face. The Pt Number stamped on the nameplate will usually fully identify by code the complete composition of the drive kit. Refer to page 9 of the OEM Dynamics Fluid Power, Diesel and Mobile Catalogue PT3 for further details.

DIESEL ENGINE COMPATIBILITY.

Flexilock drives have been pre-engineered for interfacing hydraulic pumps to diesel engines having engine flywheel housings manufactured to ANSI, SAE J617C standard and flywheels to ANSI, SAE J620D standard. Not all diesel engines comply with these interfacing standards. Differences from standard may occur when the diesel engine was originally supplied for automotive applications where flywheels are made for automotive clutches or in some cases where the origin is Europe or Japan. In some instances tapped holes in flywheel or engine housing may be metric or UNF rather than the UNC stated in the standard. A short form copy of the standards is published on page 3 of the OEM Dynamics Fluid Power, Diesel and Mobile Catalogue PT3. Before assembly make sure that the engine has a flywheel recess which accepts the periphery of the supplied driveplate (Item 2) and the length 'G' on your engine (Refer SAE J620D Standard) is correct for the size of driveplate indicated. Also make sure the flywheel housing adaptor (Item 3) fits the diesel engine housing.

HYDRAULIC PUMP COMPATIBILITY.

Flexilock drives are available to accept a large range of hydraulic pumps including almost the complete range to ANSI, SAE J744C as well as many DIN types. All pump attachment tapped holes in the kit supplied engine housing adaptors are US UNC size unless otherwise indicated or requested. Where the J620D standard specifies both a 2 hole and 4 hole bolting option for a pump interfacing code, we provide both options. A short form copy of ANSI, SAE J744C standard is published on page 3 of the OEM Dynamics Fluid Power, Diesel and Mobile Catalogue PT3. Make sure that the pilot diameter of the hydraulic pump slides freely but neatly into the pump aperture of the engine housing adaptor (Item 3) with the face of the pump bolting flange sitting flat against the housing while checking that the bolt holes in the pump match the tapped holes in the housing (Item 3). Also check that the Geared drive hub (Item 2) will fit on to the input shaft of the hydraulic pump.

THE CLAMPLOCK SPLINE LOCKING SYSTEM.

Where splined hydraulic pumps are specified, our FLEXILOCK kits are supplied with CLAMPLOCK splined locking mechanisms as part of the geared drive hub (Item 2). Five types are available which cover the broadest range of splined locking connections available. Care should be taken to ensure that the Clamplocks are tightened in accordance with the instructions in Step 3. Refer to Table 3 page 2 for tightening torque values.

CANTILEVER OR SIDE LOADING FORCE MOMENT.

There are limitations as to how much cantilever or side loading which can be applied to the housing by the weight and moment of the hydraulic pump or by any other lateral force applied to the hydraulic pump body or its plumbing, controls and attachments. Due to the wide range of sizes of hydraulic pump interfacing every application should be examined under its own circumstances. For our standard duty type steel plate or cast housings we recommend that a maximum static cantilever moment of 14 kgm (101 Lbf Ft) should not be exceeded for single element pumps. Where multi-element (piggy back) pump assemblies with a high ratio of length to interfacing size are installed they should be supported by suspension under a A frame or non-lateral force imposing bracket. Dynamic forces should also be considered. These include transport or off-road movement where the appliance is subject to vertical and/or horizontal dynamic forces during terrain negotiation. When in doubt consult the pump manufacturer regarding maximum allowable loading on the pump interfacing.

REFER OVER LEAF FOR DETAILED INSTALLATION INSTRUCTIONS

WAIVER OF RESPONSIBILITY FOR EVENTS BEYOND CONTROL.

WE make every effort to select the correct Flexilock drive kit to match the power requirements and interfacing information provided by the customer. We will accept no responsibility whatsoever for incorrect information provided by the customer. Responsibility for checking that all components correctly match the power requirements, end use engine and pump interfacing, cantilever loading limitations and installation requirements are entirely the responsibility of the customer. It is the responsibility of the distributor or reseller to ensure that a legible copy of Installation Instructions Form PT70 is supplied to the customer or end user with each kit sold.

IMPORTANT INSTALLATION INSTRUCTIONS RETAIN WITH GOODS AT ALL TIMES

ABN 11 003 908 496

HYDRAULIC PUMP DRIVE KITS FOR DIESEL ENGINES

FORM PT70 PAGE 2

INSTALLATION INSTRUCTIONS

FLEXILOCK

DYNAGEAR AUSTRALIA

ENTER Pt NUMBER HERE FOR REF

"L" LENGTH ___ to ___

By:

Date:

TABLE 1

SERIES BY "K" Ø

Series	Code	"K"
63	90	63.4 (2.5")
101	91	101.5 (4")
127	92	126.8 (5")
195	95	194.5 (7.657")

FIGURE 1

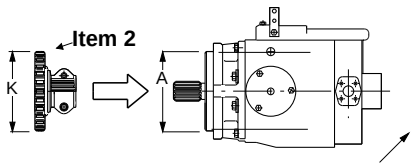

FIGURE 2
INDEPENDENT PUMP ASSEMBLY METHOD
When "K" Geared Drive Hub Is Smaller Than "A" Pump Pilot
Engine Housing Adaptor is not Fitted Before Fitting Geared Drive Hub

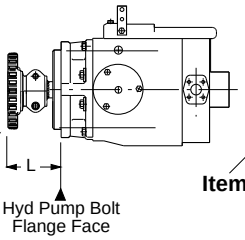

FIGURE 3
INTEGRAL ENGINE HOUSING ASSEMBLY METHOD
When "K" Geared Drive Hub Is Larger Than "A" Pump Pilot
Engine Housing Adaptor is Fitted Before Fitting Geared Drive Hub

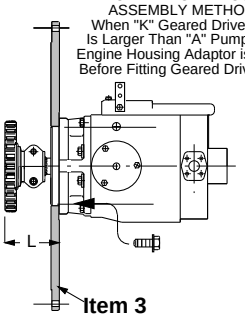

TABLE 2

HUB SET UP LENGTHS

Hsg No	FW No	"B"mm	Code	"L"Length mm
SAE 5	6 1/2"	6	90/C	45 to 48
SAE 5	6 1/2"	40	91/D	77 to 80
SAE 5	7 1/2"	6	90/E	45 to 48
SAE 5	7 1/2"	40	91/F	77 to 80
SAE 5	8"	6	90/G	47 to 52
SAE 5	8"	8	91/G	77 to 80
SAE 4	6 1/2"	8	90/A	45 to 48
SAE 4	7 1/2"	8	90/H	45 to 48
SAE 4	7 1/2"	40	91/Z	77 to 80
SAE 4	8"	8	90/J	47 to 52
SAE 4	8"	8	91/J	77 to 80
SAE 4	10"	8	91/K-92/K	72 to 77
SAE 3	10"	8	91/M-92/M	72 to 77
SAE 3	11 1/2"	8	91/P-92/P	72 to 75
SAE 2	11 1/2"	12	91/S-92/S-95/S	75 to 79
SAE 1	11 1/2"	12	92/B-95/B	75 to79
SAE 1	14"	51	92/W-95/W	79 to 85
SAE 1	14"	51	95/WA	79 to 85

Round Bore Keyed Hub

FIGURE 4

CLA, CLB, CLC or CLDB Splined Lateral **CLAMPLOCK** Hub

FIGURE 5

ASSEMBLE GEARED DRIVE HUB TO HYDRAULIC PUMP

STEP 1. Refer to **FIG 2** and **3** and check dimensions "K" and "A" to determine which assembly method is to be used. If **FIG 3** method is used, assemble and secure Item 3 to the pump before Item 2.

STEP 2. When assembling Item 2, check and clear pump shaft of foreign matter or obstructions in splines, or keys etc. before sliding the hub on shaft. The geared drive hub must be positioned to correct "L" length indicated in **FIG 2**, so full gear tooth drive contact is made in polymer element driveplate Item 1 in **FIG 6**. In standard kits with SAE Pumps, "L" length is shown in **TABLE 2** by using the first four codes from your kit part number and reading the "L" length. Eg:- Code "90/C" would indicate "L" as **45mm to 48mm**. If drive kit is not a standard SAE type refer to our Sales department for dimension "L". After finding "L" length use a rule or vernier calliper and position the outer geared face of Item 2 at "L" length from the Hyd Pump bolt flange face. "L" length must never exceed max shown. Position the hub for the longest spline or key contact while remaining inside tolerance. The hub is then secured to the shaft as detailed in step 3. 63 series DIN group with taper shaft are fixed length position and do not require "L" length positioning.

STEP 3. **FIG 4**, Round Bore Keyed Type are secured in position with two **M8** grub screws. Loctite 242, 243 or similar should be used in the threads which should be tightened to 11 Ft Lbs torque. 63 series DIN taper types are secured with an end nut supplied with the pump. **FIG 5**. Splined Lateral Clamplock are secured with 2 high tensile cap screws with pre-coated Loctite thread film. Refer to **TABLE 3** for bolt tightening torque.

TABLE 3

Bolt Torque Values For Splined Clamplock Hubs Newton Metres (Nm)

TYPE	BOLT	TORQUE	DRIVER
CLA	5/16" UNF	24 to 36	1/4" Hex Key
CLB	3/8" UNF	40 to 64	5/16" Hex Key
CLC	7/16" UNF	70 to 100	3/8" Hex Key
CLDB	7/16" UNF	70 to 100	3/8" Hex Key
SL	5/16" UNF	24 to 36	1/2" AF Socket

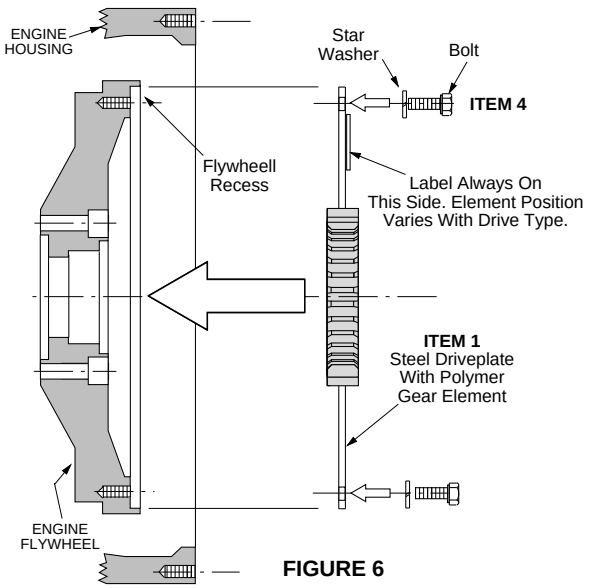

FIGURE 6

ASSEMBLE DRIVEPLATE TO DIESEL ENGINE

STEP 4. Refer to **FIG 6**. Item 1 Steel flywheel driveplate with attached polymer element locates in flywheel clutch drive ring recess. Some flywheels are provided with multiple recesses for additional driveplate size options. The supplied driveplate has a identification label. The driveplate must be entered in to the flywheel drive ring recess with the label outwards, Hence:- The label faces away from the engine. Make sure that the flywheel is cleared of burrs paint or grease and that the drive plate pushes in flat into the recess and the tapped holes in the recess line up with the bolt holes in the driveplate.
Note: 7 1/2 type flywheels may have flywheel recess diameters of 9.440" rather than the standard 9.500". Consult our sales office if this problem exists on your engine.

STEP 5. After positioning the driveplate Item 1 into the flywheel, select the flywheel bolts supplied in Item 4 and make sure they are the correct size, thread and length to suit the application. We recommend that Loctite 242 or 243 should be used to secure the bolts additional to the star shake proof washers provided in item 4. Bolt torque values should be to engine manufacturer's specifications.

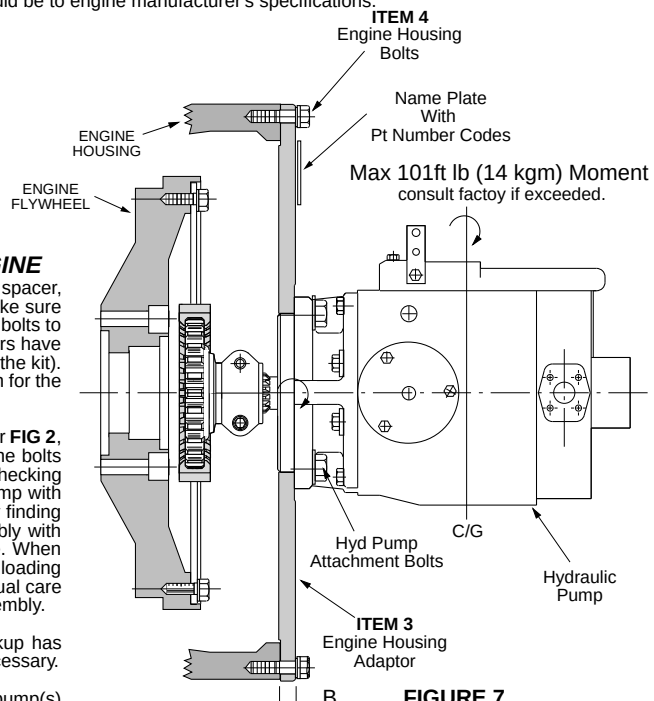

FIGURE 7

ASSEMBLE ENGINE ADAPTOR AND PUMP TO DIESEL ENGINE

STEP 6. Refer to **FIG 7**. Item 3, the engine housing adaptor is made of steel. The spacer, if required, is made of cast iron. Before assembly of the housing to the engine make sure that the intersecting faces and pilots of both engine and adaptor are clean and the bolts to be used are the correct size, thread and length for the application (housing adaptors have UNC tapped holes for pump mounting, pump mounting bolts are not supplied with the kit). Also, ensure that when assembled the housing will be in the correct rotated position for the pump ports, controls etc. to face as you require.

STEP 7. If assembling the pump by the independent pump assembly method, refer **FIG 2**, the engine housing adaptor Item 3 should first be assembled to the engine and the bolts and spring washers from Item 4 installed and tightened. Then after cleaning and checking the intersecting surfaces of the pump and adaptor, lift the pre-assembled hyd. pump with Item 2 Hub attached and slide the assembly in through the housing hole, carefully finding gear tooth alignment slide the assembly fully into place. Do not force the assembly with impact or by winding in with bolts as damage will result to the polymer driveplate. When positioned, insert and tighten the pump attachment bolts. Make sure there is no end loading on pump shaft. If assembling by the integral housing method, refer **FIG 3**, take equal care when entering hub in polymer drive intersection and follow Step 6 for housing assembly.

STEP 8. Re-check bolts. If possible rotate engine to ensure no binding or lockup has occurred due to incorrect assembly. Check cantilever loading. Support pump if necessary.

STEP 9. Canterlever loading - this is the turning moment due to the weight of the pump(s) multiplied by the distance to the centre of gravity of the pump(s) from the Engine Housing Adaptor Plate. Maximum allowable moment is 101 ftlbs (14 kgm). Consult factory if exceeded.