

Suredrive™

Installation & Removal Instructions

(Warranty Included)

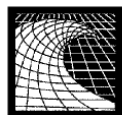
Please read before using Suredrive™

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Manufactured under one or more of the following patents:

Canada	2,034,927
US	5,435,784
Australia	657,302
PCT	568,581

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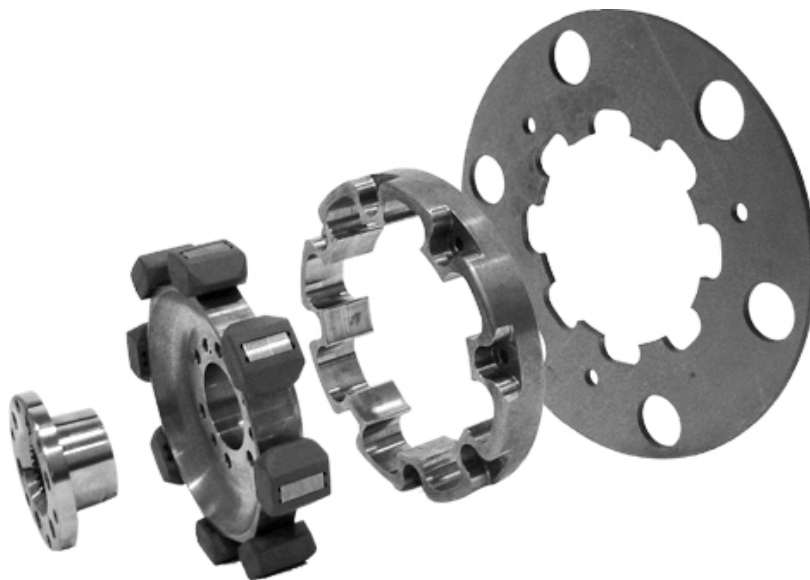


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Please Note: All bolts listed are Grade 8. Any bolts that need to be replaced must be Grade 8. Failure to use Grade 8 bolts will void warranty.



Installation Procedure for Borg Warner Group

For Borg Warner 71C, 72C, 73C or Series 5000 marine transmissions, you will need to complete the following steps prior to installation.

Transmission Adapter Plate Measurement *(See Fig. 1)*

- Remove transmission, transmission adapter plate and old drive plate
- Mount the transmission adapter plate to the engine bell housing and fasten with two bolts
- Measure from the flywheel face to the exterior face of the transmission adapter plate (Faces identified with arrows – see fig.1).
- If the measurement is within 63.5 - 66.7mm (2-1/2" - 2-5/8") proceed with installation using the MOD06 model Suredrive™.
- If the measurement is within 69.85 – 76.2mm (2-3/4" – 3") use the MOD06-BW model Suredrive™. (Only for Borg Warner)

Securing Outer Spider Ring

- **If the distance is correct**, fasten the outer drive ring to the flywheel and torque bolts
- Mount marine transmission adapter plate and tighten retaining bolts (see torque table next page)

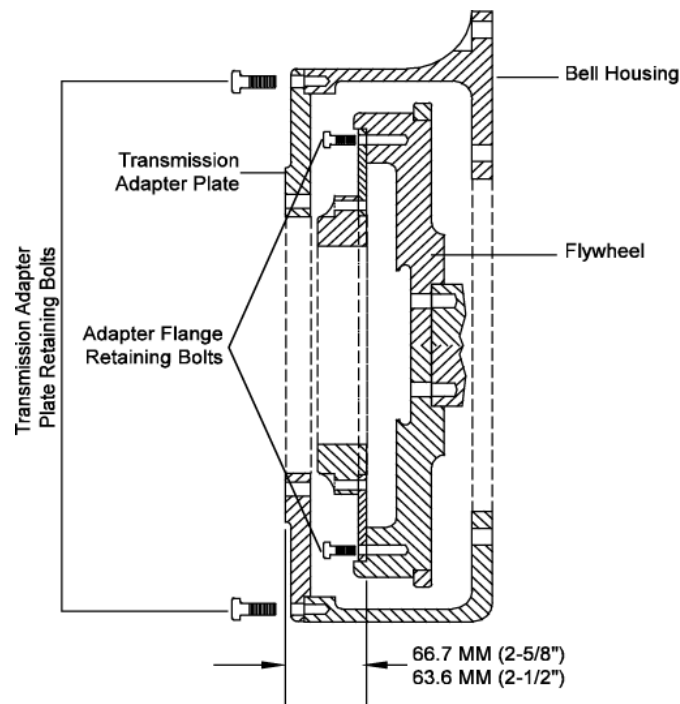


Fig. 1: Transmission Adapter Plate Measurement

Mounting Inner Spider Drive for Borg Warner Group *(See Fig.2)*

- For Borg Warner 71C, 72C, 73C or Series 5000 transmissions, tap the centre spline hub onto the transmission input shaft with the flange towards the gear
- (use a soft hammer) until the hub bottoms out on the input shaft
- Insert key; slide the inner spider drive onto the center spline hub
- Select one bolt as starting point and go around the bolt circle tightening each Bolt ¼" - turn at a time; continue until all bolts have the same resistance.

Do not tighten fully one at a time

- It is important to follow this tightening procedure as it ensures that the center spline hub is positively locked onto the input shaft
- Use a torque wrench to tighten between 25-27N-m (18-20 ft/lb), using the same circular tightening pattern to obtain this torque value

Nominal Bolt Size	Torque (N*m)	Torque (ft*lbs)
8mm	25	18
5/16"	27	20
3/8"	48	35

Torque Specifications

Mounting Inner Spider Drive for Other Marine Transmissions *(See Fig.2)*

Note: For Marine transmissions - Newage PRM, Hurth, Twin Disc, ZF etc, you will need to obtain the following measurement before you mount the inner spider drive.

- Remove old drive plate
- Measure from the flywheel mating surface to the mounting face of the transmission adapter plate (*see Fig. 2*), this measurement will be used in the preceding steps to adjust the location of the inner spider drive on the transmission input shaft. This measurement will be referred to as "X"
- Tap the center spline hub onto the transmission input shaft with the flange towards transmission; continue until the hub is flush with the end of the input shaft. Insert key, slide the inner spider drive onto the center spline hub, insert the allen-head bolts (provided) and finger tighten
- Now using the measurement "X" obtained above, adjust the location of the inner spider drive on the transmission input shaft (tap only the center spline hub during adjustment) so that when you measure from the mounting face of the transmission adapter plate to the outside of the elastomers, the distance equals "X". (*See Fig. 2*)
- Double check the inner spider drive position
- Select one bolt as a starting point and go around the bolt circle tightening each bolt 1/4 - turn at a time, continue until all bolts have the same resistance. Do not tighten fully one at a time. It is very important to follow this tightening procedure as it ensures that the center spline hub is positively locked onto the input shaft
- Torque between 25-27N-m (18-20 ft/lb), using the same circular tightening pattern

Important: As you torque the allen-head bolts, the inner spider drive will move towards the transmission, this offset is typical of this arrangement and is important in providing running clearance between the flywheel and elastomers..

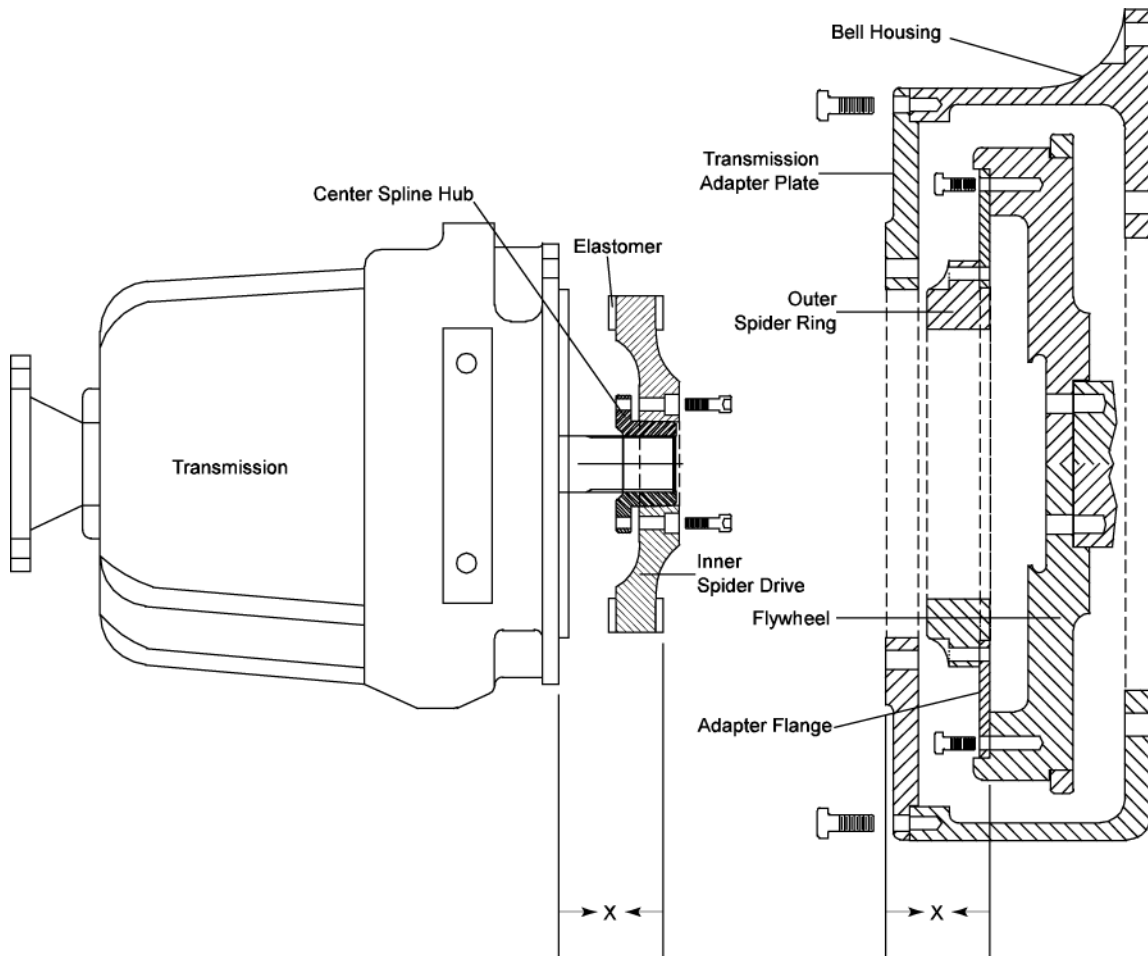


Fig. 2: Mounting Inner Spider Drive to Transmission

Mounting Transmission to Engine

- Mount the transmission complete with the inner spider and transmission adapter plate, you may have to rotate the transmission input shaft in order for the inner spider drive to index with the outer spider ring
- Once indexed the inner spider drive **should** engage easily into the outer spider ring

Please note: Forcing the Suredrive™ together without indexing the inner spider drive and outer spider ring could damage the elastomers

Removal Procedure using the T100 Removal Tool (See Fig. 3)

- Remove the six allen-head bolts from the center spline hub.
- To separate inner hub from the spider, use special tool part #T100
- There are 3 (three) threaded holes provided in the inner spider drive (5/16" NC)
- Attach tool (T100) with 3 (three) - 5/16" - N/C bolts (Supplied)
- Tighten these bolts alternately until the inner hub separates from the spider

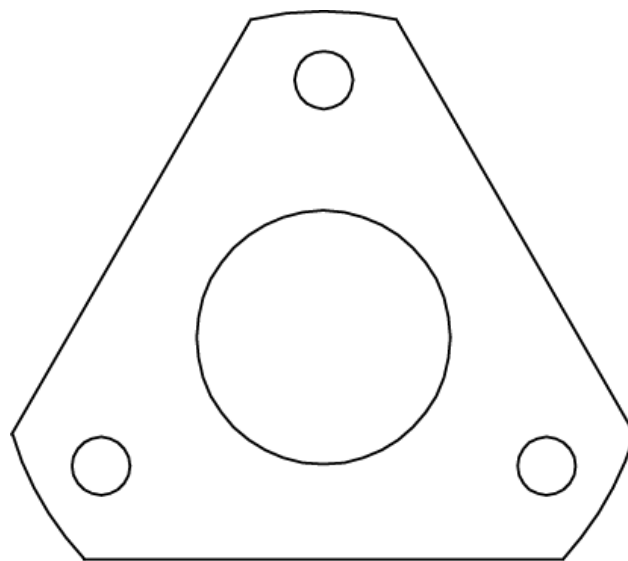


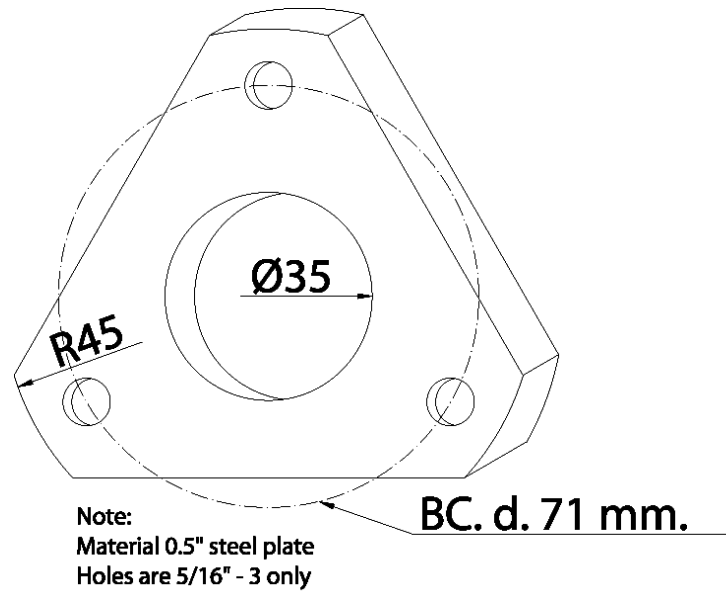
Fig. 3: T100 Removal Tool

PLEASE NOTE: THE ELASTOMERS WILL FAIL, IF ENGINE IS OVERHEATED BY MECHANICAL FAILURE OR COOLENT LOSS, WHICH CAUSES THE TEMPERATURE TO INCREASE ABOVE 210 DEGREES.

Recommended Information regarding installation for flywheel without spigot (Dowel Pins)

- Dial gauge outer drive ring onto flywheel
- Drill into the adapter flange and flywheel with 1/4" drill bit (use a hand drill)
- Finally drive roll pin into the hole
- This will center the outer ring

Construction Diagram for the T100 Removal Tool



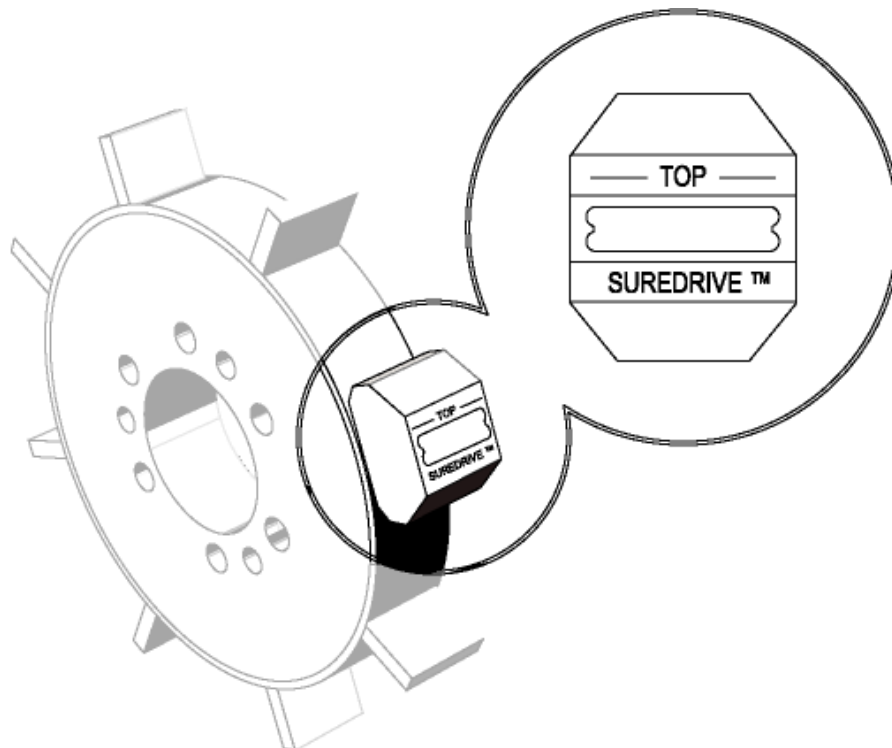
Additional Installation Notes

PLEASE NOTE:

To install Flange Retaining Bolts:

- Use Loctite (high-strength)
- Torque to 15 – 16 LBS.

Elastomers are marked 'Top'.



Limited Warranty

The SUREDRIVE™ is warranted to be free from defects in workmanship and materials on purchase.

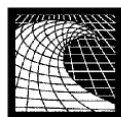
If the goods are defective, they will be repaired or replaced, at the manufacturer's option, without charge on return to the manufacturer. Goods must be returned within 10 years (for all metal components) from the date of purchase with dated, satisfactory proof of purchase from the Authorized Dealer. Elastomers are not covered by warranty.

This warranty is only given to the original purchaser of the SUREDRIVE™ and is void if the SUREDRIVE™ has been

- a) damaged by negligence or accident after purchase,
- b) used in applications which exceed the recommended torque ratings for the specific SUREDRIVE™ model,
- c) used other than for the purpose for which it is intended to be used or not used in accordance with any installation or operating instructions supplied with the SUREDRIVE™,
- d) adapted or repaired other than by the vendor or an Authorized Dealer (a list of Authorized Dealers is available from the manufacture on request), or
- e) added on to or used with other goods which may affect the integrity, performance, safety or reliability of the SUREDRIVE™.

This warranty is given in place of all other warranties and assurances whether express or implied, including but not limited to matters of quality, fitness for purpose, or merchantability.

The manufacturer accepts no liability, under any circumstances whatsoever, for any consequential damage or loss suffered by anyone as a result of using or being unable to use the SUREDRIVE™



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