



## PENN MACHINE COMPANY

# Procedure for replacing overrunning clutch 3AP - 4AP -5AP

1. Remove the four 5/16<sup>th</sup> bolts holding the clutch cover.
2. Remove the cover.
3. Remove the gasket.
4. Cut and remove the safety wire on the four 5/16 bolts holding the stub shaft to the clutch.
5. Remove the four 5/16<sup>th</sup> bolts.
6. Remove the stub shaft. This may require a “light” tap with a soft faced hammer.
7. Rotate the outer race of the clutch to determine which way it freewheels. (Clockwise or Counterclockwise) This information is needed for reassembly.
8. Rotate the input shaft so the keyway in the clutch is in the top dead center (12 o’clock) position. This will keep the key from falling into the housing when the clutch is removed.
9. The clutch is a line to line fit. The end of the input shaft may be lightly staked with a center punch. Minor grinding of these stake marks with a Dremel or like tool may be required.
10. Pull the clutch off. This may be able to be accomplished by hand. If not, use a 2 leg puller reaching in to back side of the outer race of the clutch. The legs of the puller should be positioned at the 3 o’clock and 9 o’clock positions to avoid interference with the oil trough that extends into the back side of the clutch. It should only require moderate pressure with standard hand tools on the puller to remove the clutch.
11. Check the clutch fit area of the input shaft for any problems (high spots, dings, gouges, etc.).
12. Carefully remove the key from the keyway of the input shaft.

- 13.** Check to be sure that the key will pass through the keyway in the clutch without interference.
- 14.** Reinstall the key. Make sure it is properly seated in the keyway of the input shaft.
- 15.** Slide the clutch back on to the input shaft. Make sure that the outer race of the clutch freewheels in the proper direction. For clutch replacements it should freewheel in the same direction as previously checked prior to removal. For rotational changes, it should freewheel opposite the direction it was previously installed. If the outer race freewheels in the wrong direction, slide the clutch off and flip it end-for-end and reinstall. This will change the direction of rotation. Recheck the freewheeling direction.
- 16.** If the clutch slides easily on the input shaft, it may be lightly staked. To accomplish this, center punch the end of the input shaft approximately 1/16<sup>th</sup> in from the O.D. in two or three places.
- 17.** On new clutch installations, check to see that the diameter of the minor counterbore on the stub shaft is larger than the diameter of the inner race portion of the clutch.
- 18.** Install the stub shaft on to the clutch and bolt on with four new 5/16<sup>th</sup> - 20 x 3/4 drilled head bolts. Blue loctite should be used on these bolts. DO NOT use lock washers on these bolts as they are internal to the gearbox and the lock washer could break. Torque the bolts to 17 ft. lbs. Safety wire the bolts in pairs.
- 19.** Replace the seal in the clutch cover. PMC Part # 912574.
- 20.** Install a new gasket. PMC Part # 140603
- 21.** Install the clutch cover. Be careful not to damage the seal. Install the four 5/16<sup>th</sup> bolts.