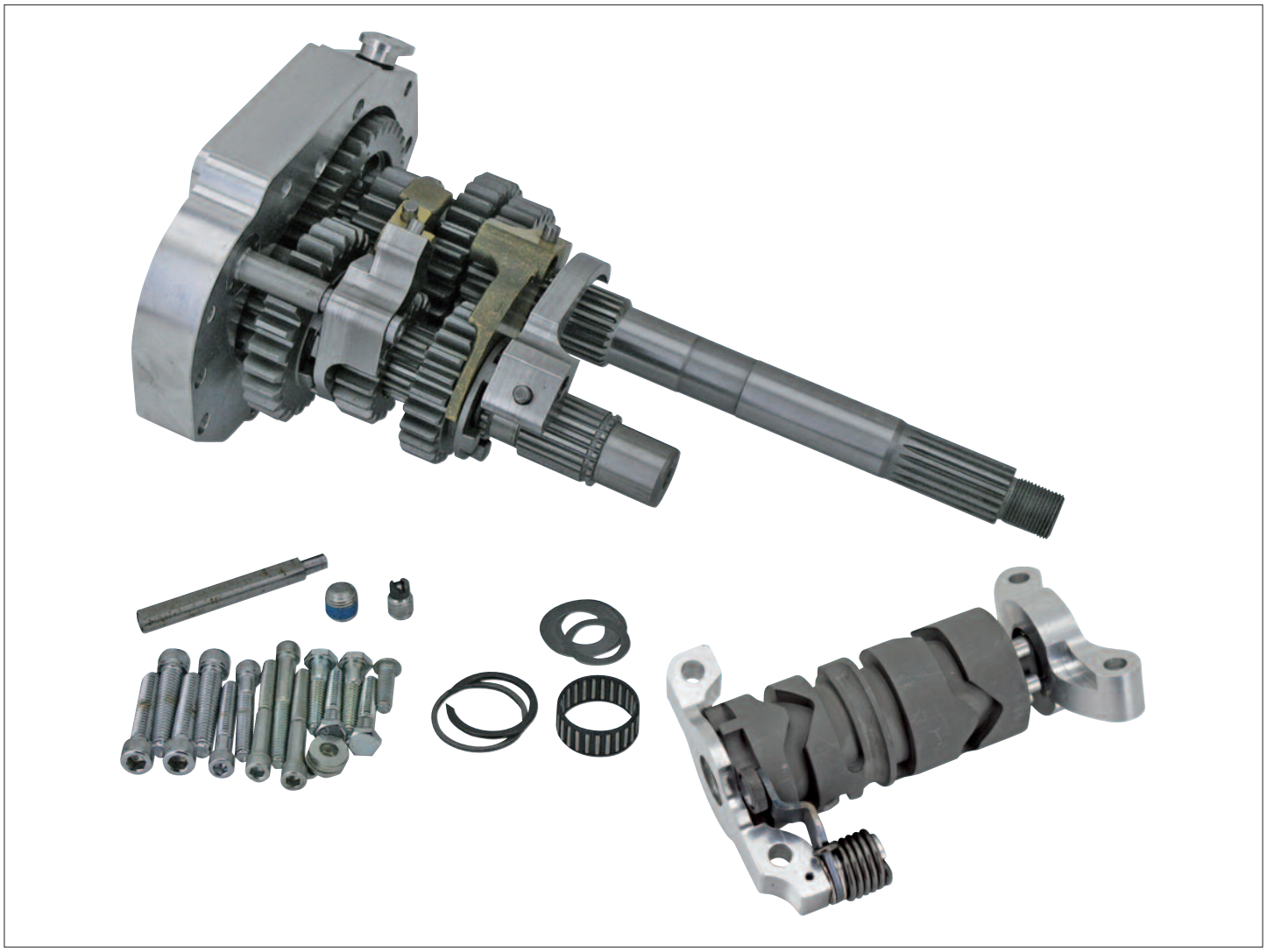
ZPN 700852/700853

6-Speed Conversion Kit for Big Twin 5-Speed Transmissions (700852)
6-Speed Builders Kit for Big Twin 5-Speed Transmissions (700853)

INSTALLATION INSTRUCTIONS



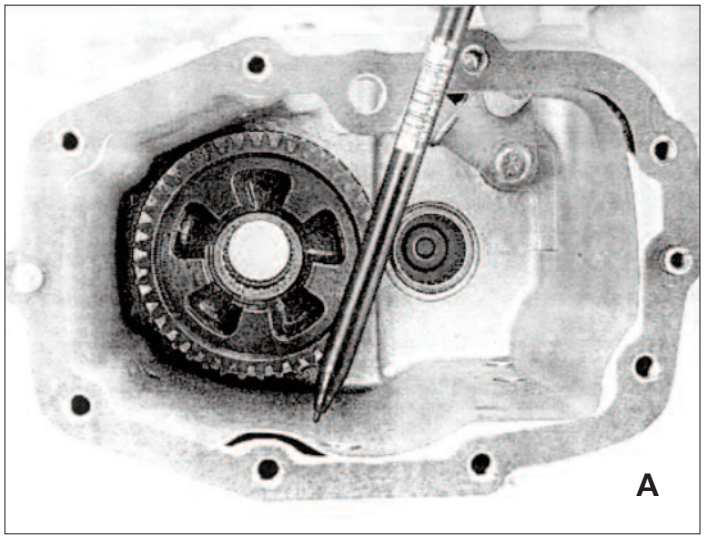
INSTALLATION INSTRUCTIONS FOR 6 SPEED CONVERSION KIT AND 6 SPEED BUILDER KIT
We recommend the kits are installed by a qualified mechanic with knowledge of the Harley-Davidson 5 speed transmission. Also make sure you have a 1990 or later Factory Service Manual available. Tools needed are the same as used for a 5 Speed transmission.

The conversion kit should only be used in new or low milage transmissions. If gears or bearings of a used 5 speed transmission are worn, new ones must be installed, or better, the builder kit should be used.

Gear set Removal
Refer to the Factory Service Manual Section for Mainshaft and Countershaft removal. When you get to the point of actually sliding the gear set out make sure you properly mark the 5th gear set as described in the Factory Service Manual (for used transmissions only). Further follow the factory removal procedure.

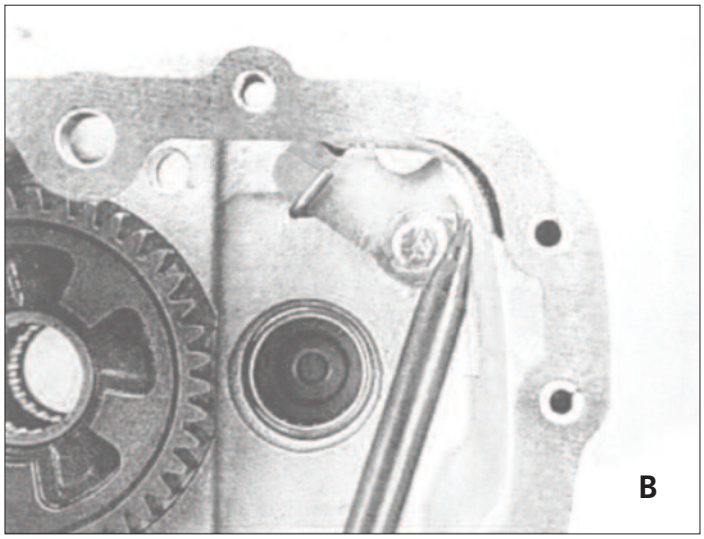
Clearance Checks

The 6 Speed conversion and builder kit will fit in most OEM or aftermarket transmission housings without any modification of the housing. However due to casting differences, in some instances some modification may be needed. The following clearances must be checked before assembling the 6 speed transmission.



5/16 Bolt hole boss clearance

This can easily be checked with the trap door gasket. Put the gasket on the dowel pins. AII material of the boss around the hole that "sticks outside" the gasket (60 degrees forward to 60 degree backwards) must be removed (see figure A).



Primary fork clearance

Place the gasket on the housing and, if necessary, remove material as indicated for clearing the shifter fork (see figure B).

YOU ARE NOW READY TO BEGIN THE FINAL INSTALLATION

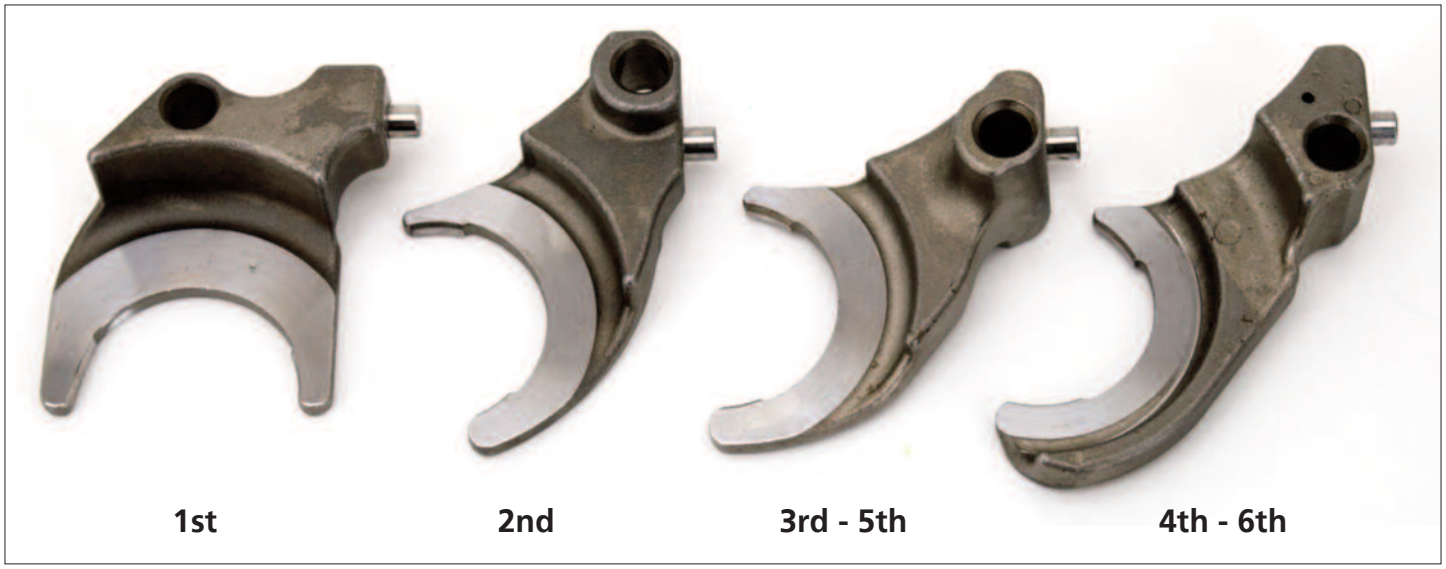
When using the conversion kit, you must transfer some of the 5-speed gears to the 6 speed. Take the 5th gear and the 2nd gear trom the countershaft and install them on to the 6 speed countershaft (in the same direction as they were in the 5 speed, do not turn them around) using the new bearing and thrust washer included in the kit. Use the new retaining ring that is provided and install it after you put the 5th gear on the countershaft. Remove the 2nd gear from the mainshaft and re-install it on to the 6 speed (in the same direction as it was in the 5 speed).

Put the trap door gasket on the case dowel pins.

Apply some oil to the gears and shafts and on to the main drive gear seal. Install the gear set by sliding the mainshaft through the main drive gear and slowly pushing the whole trap door/gear set assembly until the case dowel pins contact the dowel holes in the side door. (for used gears: line up the markings on the 5th gears to re-establish the proper mesh of the gears). A teflon hammer is helpful to tab the trap door.

Install the four 5/16" UNC socket head bolts in the lower 4 screw holes and torque them to factory specs. Install the two 1/4" socket head bolts in the bolt holes above the dowel pin and torque them to factory specs.

Put the shifter forks (*Fork 4th-6th, Fork 3rd-5th, Fork 2nd*) on the gears and slide the shifter shaft in.



Put the *Fork 1st* shifter fork on the counter shaft, and slide the auxiliary shifter shaft in. The head of the auxiliary fork shaft should be 1/2" below the surface. If needed tab the shaft until it properly seats against the support. Put some Low grade Loctite on the 1/2-20 set screw and torque it to 2-4 ft-lbs.

Check if all forks slide freely on the fork rods by moving them back and forwards. Check if forks have enough clearance with the housing (as outlined in the Clearance Checks section).

Install the shift drum assembly, make sure the fork pins are in the grooves in which they belong. Tighten down the four 1/4-20x1 1/4" hex head bolts in a circular pattern. Application of a light Loctite to the four 1/4-20x1 1/4" hex head bolts is recommended.

Check the lenght of the Fork pins, shift drum has to move freely.

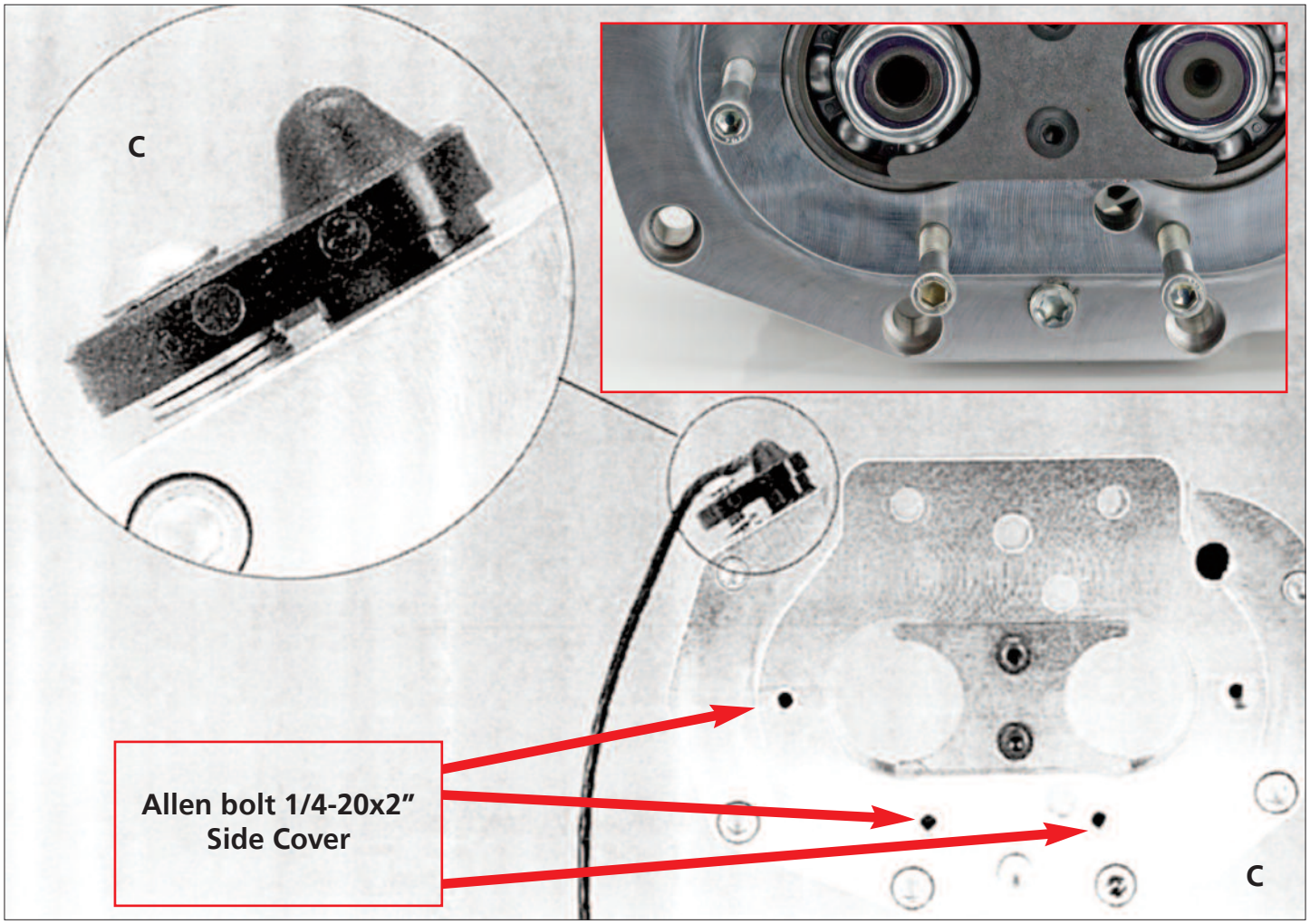
Set the adjustment on the shifter pawl adjustment screw as per the Factory Service Manual.

Clutch Rod End/Conversion Kit

Remove the thrust bearing trom the 5 speed clutch rod end and re-install it on the extended rod end provided with the kit. Install this rod end on the right side, at the end of the mainshaft, under the clutch cover. Install the clutch release cover.

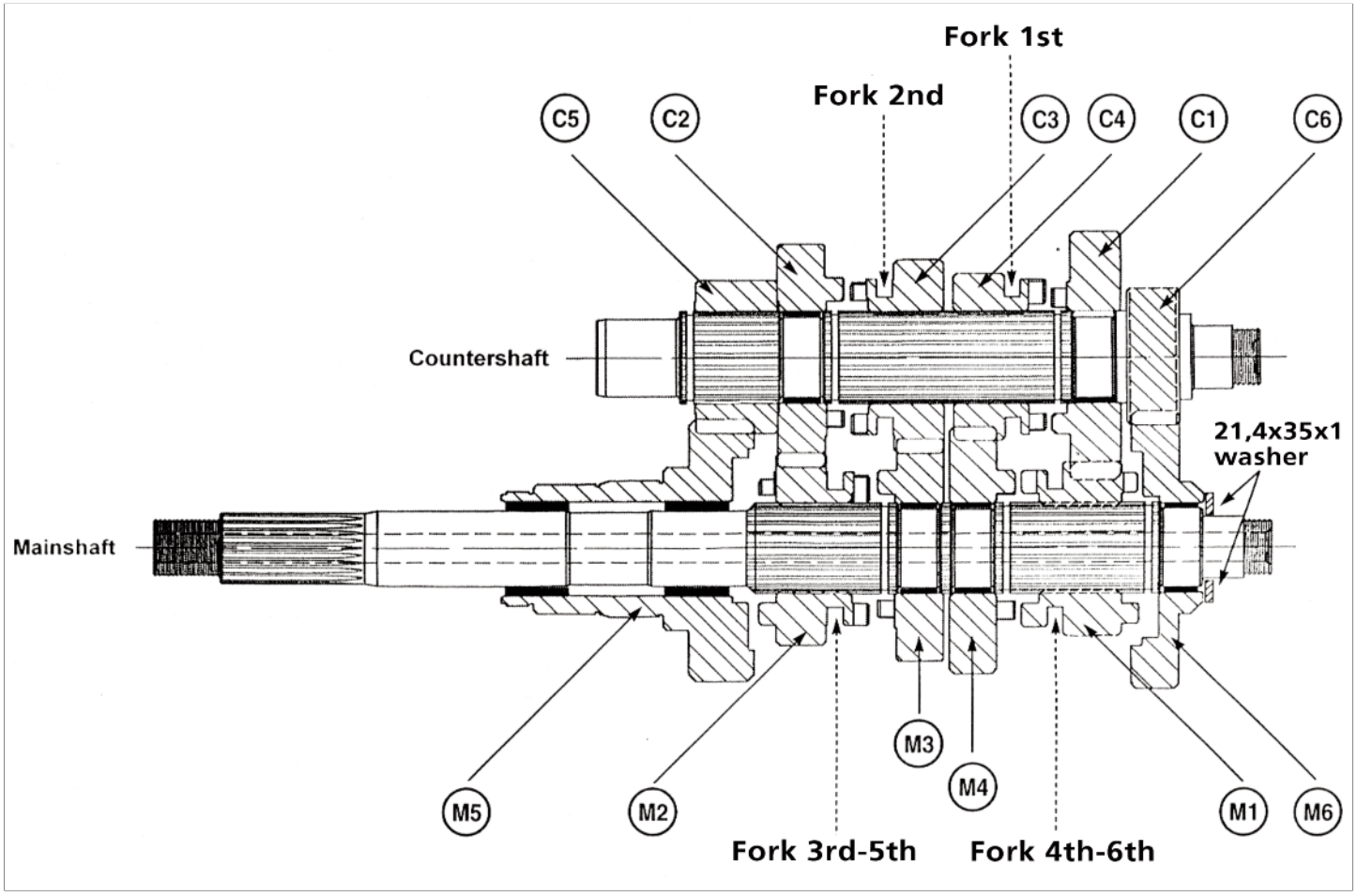
Speed Sensor Installation

If you have a transmission case with speed sensor, replace the speed sensor with the dummy plug (with an o-ring), screw, and washer provided with your kit. Install the speed sensor in the trap door. You must space the sensor with 1/4" spacer washers between the speed sensor and the trap door for proper sensor spacing to the 6th mainshaft gear that is triggering the sensor (see figure C). You may need a conversion box to correctly calibrate the speedo unit (for example Dakota Digital speed re-calibration unit, model SGI-6, or S&S re-calibration unit). Fill the transmission with 20 to 24 oz. transmission oil. We recommend the use of a good 75W140 or similar transmission oil.



The installation of these parts may affect the factory warranty. It is the responsibility of the user to determine the suitability of this product for his/her use, and the user shall assume all legal, personal injury risk and liability and all other obligations, duties and risks associated there-with.

NOTE:
When neutral light keeps burning when shifting in gears ('98-00 Models): change neutral switch to later model (OEM 33904-00) ZPN **722032**.



Zodiac 6-speed builders and transmission conversion kits

	ZPN stock lenght	*OEM*	*No. of teeth*	*ZPN 25mm extended*	*ZPN 45mm extended*	*ZPN 55mm extended*
M1 gear	**700816**		16T	<<	<<	<<
M2 gear	**237068**	OEM 35026-94	27T	<<	<<	<<
M3 gear	**700818**		27T	<<	<<	<<
M4 gear	**700817**		29T	<<	<<	<<
M5 gear	**237070**	OEM 35029-94	41T	**700839**	use **700839**(1)	**701131**
M6 gear	**700815**		35T	<<	<<	<<
Mainshaft	**700813**			**700932**	**700933**	**701122**
C1 gear	**700819**		25T	<<	<<	<<
C2 gear	**237072**	OEM 35027-94	32T	<<	<<	<<
C3 gear	**700821**		23T	<<	<<	<<
C4 gear	**700820**		19T	<<	<<	<<
C5 gear	**237074**	OEM 35626-94	22T	<<	<<	<<
Countershaft	**700814**		16T	<<	<<	<<

(1) 45 mm offset uses 25 mm offset maindrive gear with 3/4” offset drive pulley