



LS Timing Cover Conversion Kit

INSTALLATION

Read All Instructions Thoroughly Before Beginning Installation.

Kit Contents Include:

- (1) Cover Assembly
- (1) Drive Adapter Hub
- (1) Distributor Drive Gear
- (1) Timing Pointer W/Fasteners
- (3) Drive Adapter Bushings (Black, Green, Red)
- (8) Timing Cover Button Head Fastener 8mm-1.25 x 25mm
- (3) Drive Adapter Hub Fasteners 8mm-1.25 x 35mm
- (1) Drive Gear Fastener 7/16"-14 x 1"

This LS Timing Cover Conversion Kit adapts a standard small block Ford distributor into CT525 crate and LS series engines, allowing timing adjustment, ability to change mechanical advance curve and also provides an alternative to installing complete computer and fuel injection systems when placing a late model LS engine into an older street performance

vehicle. Enjoy the performance and durability of the GM LS series engine with the simplicity and tune-ability of a distributor and carburetor. Short profile allows the LS engine to fit in popular dirt chassis without relocating the radiator mounts. Kit includes all internal components and new timing cover for converting LS series engines to utilize a standard distributor ignition system and a carburetor with a belt driven or electric fuel pump.



Other items (not included) but are required to complete installation:

- **Dampener** - *The CT525 crate engine includes a dampener (ATI917776) with timing marks so an additional dampener is not required. ATI also offers a dampener in two pieces, the crank hub (ATI part no. 916032M3) and the choice of a steel (ATI part no. 918940) or aluminum (ATI part no. 917070) uter shell. The bolt kit is (ATI part no. 950200).*
- **SB Ford Distributor (221-302 CID)**
- **SB Ford Distributor Hold Down**
- **Spark Plug Wire Set**
- **External Ignition Coil**
- **Intake Manifold**
- **Carburetor**
- **Electric or Belt Driven Fuel Pump**
- **Pulley and Drive Kit**
- **Water Pump Spacers**
- **Standard Rotation Water Pump - (Edelbrock #8895)**

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Other Considerations:

Most LS engines have interference fit dampeners and do not have a keyway retainer. Therefore, an aftermarket dampener must be purchased (except CT525 crate engines). It is also recommended to have crankshaft pinned for circle track applications and other applications with high inertia loads. ATI offers a drill fixture kit (part no. 918993) for drilling the crankshaft to accept a pin to work with ATI and other keyed dampeners.

OE style accessories and pulley systems will not work in conjunction with this timing cover conversion kit due to the requirement of an aftermarket dampener with degree marks for timing purpose and additional length of the timing cover and water pump. Water pump spacers and a standard rotation water pump will be required as the timing cover protrudes out further than stock OE cover.

Instructions for conversion kit begin at the timing cover removal assuming water pump, accessories and fluids are already removed from engine.

1. Remove retaining bolt holding dampener in place then remove dampener using appropriate puller.
2. Remove eight timing cover fasteners holding cover to block and two fasteners attaching oil pan to cover (retain fasteners for installation of new cover.) Use caution removing cover not to damage the gasket as it will be re-used.
3. With the timing chain and gears now visible, rotate crankshaft until dot or timing mark on cam gear is at the 6 o'clock position. Timing marks on cam gear and crankshaft gear should be aligned. If no marks are visible on crank gear, place alignment mark on crank gear for reinstallation using a permanent marker. This should place alignment pin on camshaft at approximately the three o'clock position.
4. Remove cam gear retaining bolts and remove cam gear, exposing the cam retaining plate, be cautious of the thrust bearing behind the cam gear (if applicable) and the direction of installation.
5. The retaining plate needs to be removed and drilled to provide an oil supply to keep the distributor gear well lubricated. Use the template included on page 5 of these instructions. Center punch on the two marks indicated and drill plate using a #72 or .025" drill bit. Deburr or chamfer holes to remove any loose material.
6. Reinstall the cam retaining plate and torque fasteners to 18ft lbs. **(Figure #1).**



Figure #1

**STEPS 7-16 ARE PROVIDED WHEN DRILLING AND PINNING THE CRANKSHAFT.
PROCEED TO STEP 17 TO CONTINUE INSTALLATION WITHOUT MODIFYING CRANKSHAFT.**

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7. Remove oil pan and oil pump pick-up.
8. Remove oil pump, timing chain (noting direction of chain for re-installation) and oil pump drive cam from crankshaft snout to install ATI #918993 fixture (**Figure #2**).
9. When drilling crankshaft it is important to drill and install the pin in-line with crank timing gear and oil pump drive cam keyway to ease installation/removal of gear and cam. Installing the pin in-line with keyway also provides proper installation of an aftermarket keyed dampener.
10. Using a marker or an awl and a straight edge extend the lines of the keyway to use as a reference to install drill fixture (**Figure #3**). Center fixture hole over extended keyway marks using a flashlight to view through fixture holes.
11. Follow ATI instructions for drilling and pinning crankshaft. Use caution to prevent shavings and debris from entering engine.
12. Once crankshaft drilling and pinning is complete, reassemble.
13. Install timing chain, oil pump cam onto crankshaft snout and install oil pump. Torque pump mounting fasteners to 18 ft. lbs.
14. Remove oil residue from mounting bolt threads and oil pump pickup mounting hole, apply a small amount of blue thread locker to pick-up fastener and install oil pump pick-up to oil pump. Pickup tube has a neoprene o-ring seal so use caution when installing. Torque fastener to 106 in. lbs.
15. Clean oil pan surface and surface of engine block. Apply a small dab of silicone sealant to the two areas where the rear cover meets the block to fill any voids.
16. Install oil pan gasket and oil pan. Tighten fasteners to 18 ft. lbs.
17. Select proper colored drive adapter bushing and insert stepped end into cam gear (**Figure #4**). Black (.550" for LS2 cam gear), Green (.554" for LS1 and LS6 cam gear) and Red (.685" for most aftermarket cam gears including Cloyes #9-3158A Hex-A-Just). Bushing should be tight in cam gear.
18. Verify thrust bearing is positioned behind cam gear (if applicable) and install cam timing gear and adapter with supplied 8mm-1.25 x 35mm socket head fasteners making sure to align timing marks. Crank should be at 12 o'clock position and cam should be at 6 o'clock position (**Figure #5**). Remove bolts one at a time and apply blue thread locker to each and torque to 26 ft. lbs.



Figure #2

ATI 918993

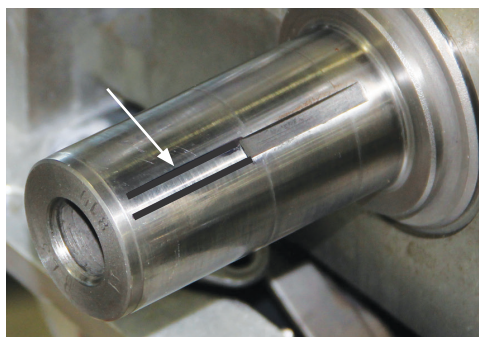


Figure #3

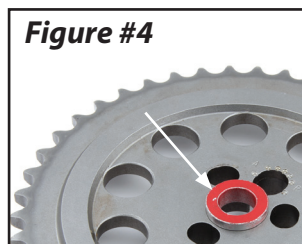


Figure #4



Figure #5

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19. Install distributor drive gear with supplied 7/16"-14 x 1" socket head fastener using blue thread locker and torque to 60 ft. lbs. (**Figure #6**).
20. Rotate crankshaft until cam timing gear mark is at the 12 o'clock position, this will be close to TDC.
21. Install new crankshaft seal into cover GM #12585673 or equivalent.
22. Install timing cover and gasket applying a small dab of silicone in each corner where block, cover and oil pan meet. Note: Bolts should fit tight in cover as these fasteners also align cover (slight filing of holes may be required depending on fastener used as some ARP fasteners have a larger tolerance than OE fasteners). Tighten cover bolts to 18 ft. lbs. Note: Button head fastener included with kit should be installed in top hole to provide additional clearance for distributor.
23. Install timing pointer on cover and tighten fasteners. Do not apply thread locker at this time.
24. Install dampener using installation tool and tighten retainer fastener to 100 ft. lbs.
25. It will be necessary to locate TDC of the #1 cylinder and mark dampener accordingly. A top dead center stop tool such as (Comp Cams part no.4795) that threads into the #1 spark plug hole is the best option for this if cylinder heads are installed on engine. It is recommended to remove all spark plugs from engine and the #1 cylinder rocker arms before performing this procedure to prevent valves from contacting stop.
26. Rotate crankshaft 1/4 turn clockwise and thread stop into spark plug hole.
27. Turn engine back counter-clockwise gently until stop contacts piston and mark dampener or note degree marks.
28. Turn engine clockwise gently just less than one full turn until piston makes contact with stop in the other direction and mark dampener or note degree.
29. Remove the piston stop tool.
30. The middle of these two marks or degrees is the true TDC.
31. Rotate the engine so the true TDC found in step 30 lines up with the timing pointer.
32. Loosen the timing pointer and move to the TDC mark on the dampener.
33. Remove timing pointer screws one at a time and apply a small amount of blue thread locker.
34. Now install the distributor. Mark the body of the distributor directly below the terminal you would like to be the number one cylinder. Apply break in grease or engine oil to distributor gear and install the distributor into the housing with gasket. Position tip of rotor slightly before the mark placed on the distributor housing as shaft/rotor with turn slightly as the distributor gear makes contact with drive gear. Install distributor hold down.
35. Install cap and plug wires using LS firing order 1-8-7-2-6-5-4-3 firing order in counter clock-wise direction.
36. Fill all fluids to proper levels.
37. Start engine and set timing to 29-32 degrees total advance @ 4000 RPM's or to engine builder's specifications.

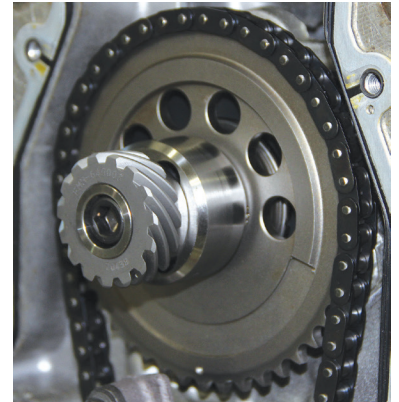


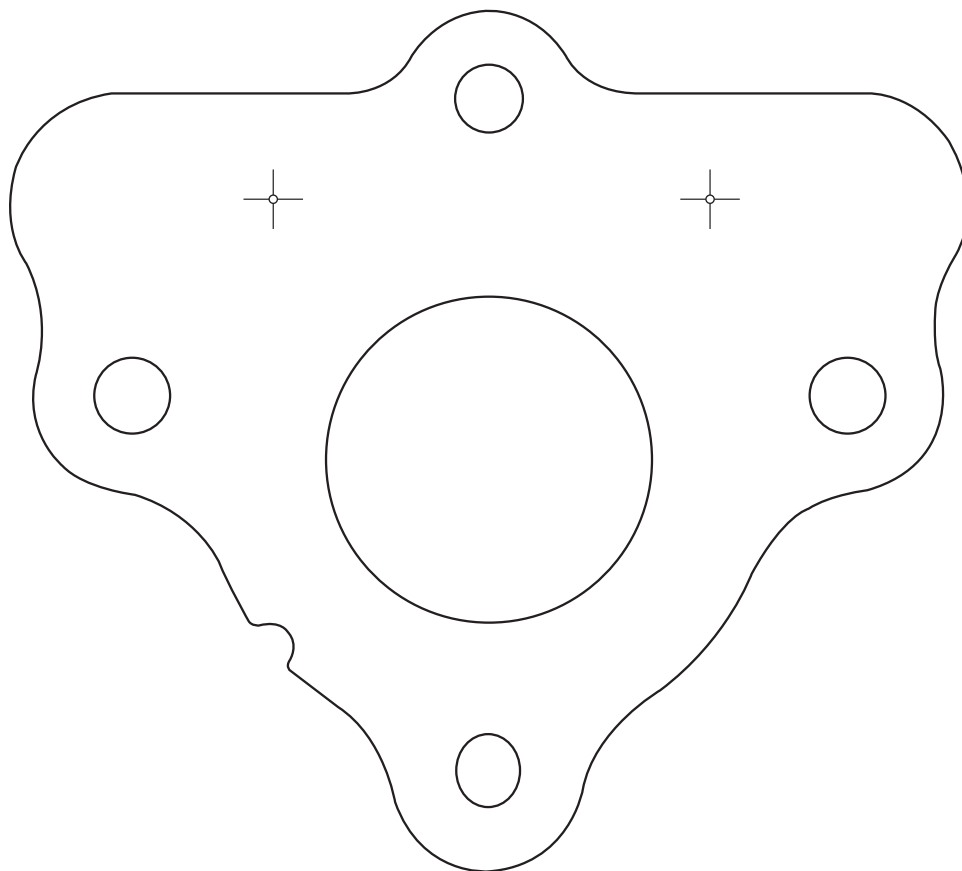
Figure #6



LS Timing Cover Conversion Kit

TEMPLATE FOR DRILLING CAM RETAINING PLATE

(Refer to page 2, step #5).



6"

To ensure accuracy of template, make sure this line measures exactly 6" long.

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