M-6316-C351
Crankshaft Damper
INSTALLATION INSTRUCTIONS

NOTE:

The M-6316-C351 crankshaft damper has a bolt in counterweight to achieve the 28.2 oz.-in. unbalance required for externally balanced 302 engines produced prior to 1981 and all externally balanced 289 and 351 V-8s. For internally balanced engines see note on page 2.

! ! ! WARNING: THERE MAY BE TIMING CHAIN COVER-TO-DAMPER INTERFERENCE WITH EARLY STYLE (REAR LOADING SEAL) COVERS ! ! !

INSTALLATION INSTRUCTIONS:

Step 1: Engine must be completely cold.

Step 2: Remove water pump. Rotate engine by hand until timing pointer indicates 0° TDC.

Step 3: Remove original damper carefully using a puller or removal tool.

Step 4: The 289, 302, 351 engine family has used several different timing pointer locations. Most applications will have a timing pointer at the 10 o'clock, 11 o'clock or 2 o'clock pointers. The Ford Racing damper has two sets of timing marks for either 11 o'clock or 2 o'clock positions; 10 o'clock timing pointers should be replaced with an F1TZ-6023-A. With the crankshaft keyway at the 12 o'clock position, the #1 piston is at TDC. In this position, the timing pointer should point to one of the 0° marks on the damper. For a quick check prior to installation, compare the timing marks on the original damper with the marks on the Ford Racing damper to determine if one of these is the correct timing marks for your application. If it looks like the pointer will not line up with either 0° line, call the Ford Racing Performance Parts Techline.

Step 5: After you have identified which set of timing marks are correct for your engine, highlight the degree mark for your initial timing setting with paint or grease pencil (white or yellow are easiest to see) for future timing location identification.

Step 6: Inspect the crankshaft post to ensure there are no burrs or rust. If required, polish with Scotchbrite or very fine emery paper.

Step 7: Measure the crank snout OD and the Damper ID (at the minimum section). Accurate measurements with both parts at the same temp are essential. Subtract the damper ID from the crank snout OD to determine the interference fit. Recommended fit is .0002" to .0012". If the interference is excessive (too tight) have the damper hub ID honed to bring the fit to spec. Most automotive machine shops are equipped to perform the honing operation.

Step 8: Examine the key. If it is damaged or loose in the keyway groove of the crankshaft, install a new key.

Step 9: Replace the front timing cover seal.

Step 10: Smear the crankshaft post and the timing cover oil seal lip with clean engine oil.

Step 11: Immerse the damper in boiling water for 15 minutes. This will expand the hub of the damper to make installation easier.

Step 12: Remove the damper from the boiling water (using insulated, heat-proof gloves). Oil the hub ID and quickly slip the damper on the crank post with the damper keyway aligned with the crank key.

Step 13: Use a smooth block of aluminum to protect the face of the damper while driving it on the crank post. Quickly install the damper bolt and washer and torque to 90 ft./lbs. **DO NOT ALLOW THE DAMPER TO COOL BEFORE INSTALLATION IS COMPLETED**.

Step 14: Recheck torque after the damper has cooled completely.

Step 15: The 289, 302, 351 engine family has used many different styles of crankshaft dampers with various pulley spacings and bolt hole combinations. Ford Racing offers pulley spacers to properly position the crank pulley. Please see the attached list for your application.

Step 16: Before reinstalling the water pump, ensure a minimum of 1/8" clearance exists between the damper inertia ring and the pump housing. **WARNING: Some cast iron water pumps have a casting rib, which must be ground off to clear the damper.**

Step 17: Check pulley alignments and check clearance for all components before restarting engine.

INTERNALLY BALANCED CRANKSHAFTS:

For special-purpose race engines that utilize an internally balanced crankshaft, the bolt-in counterweight can be removed to convert the damper to a neutral balance condition.

NOTE: Your Ford Racing damper is correctly balanced at the factory. Should your engine be dynamically balanced by a balancing shop, no material is to be added or removed from the damper.

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CRANK PULLEY SPACER APPLICATIONS

PART NUMBER	ENGINE	YEAR	CRANK PULLEY BOLT PATTERN	SPACER THICKNESS
M-8510-A351	351W	79 & earlier	4 bolt	.350"
M-8510-B351	351W 302	80 & later 80 & earlier	4 bolt	.950"
M-8510-C351	301/351W with .917" SVO crank sprocket	302: 80 & earlier; 351W: 80 & later;351: SVO HO	4 bolt	.875"

NOTES:

1979 and earlier 351W with .917" SVO crank sprocket can use the M-8510-A351 spacer if .070" is machined from the rear of the damper hub.

Early 3-bolt crank pulleys generally bolt directly to the damper (damper is drilled for 3- and 4-bolt patterns). However, sheave alignment should be checked and the pulley shimmed as necessary to correct any misalignment.