



HARLEY-DAVIDSON UNIVERSITY

TECHNICAL FORUM

2007 MODEL YEAR

NEW Smart Security System Option

- Hands/button-free security key fob
- System arms itself within five seconds of turning ignition "off," and disarms when ignition is turned on or motorcycle is moved with fob present
- Security system is "transparent" to the customer
- Attempts to move the motorcycle with fob on the seat or within 4 in. from antenna could activate the system



- Harley-Davidson® Smart Security System impacts:
 - PDI process
 - Service Writers and Sales
 - Transportation of motorcycle
 - Servicing of motorcycle
 - Customer expectations
- Storage mode eliminated; current draw drops from 3.2 mA to .7 mA
- P&A siren upgrades system with chirp disable feature
- HDI motorcycles, excluding Japan, feature OE siren-equipped security systems

Important Service Note:

Fob requires serial # assignment with DT, and PIN # must be entered before fob assignment.



NEW Speedometers, Tachometers and Indicators (except VRSC™)

- Similar features as the 2006 VRSC™ models
- Clock function
- 6th Gear indicator for Big Twin motorcycles
- Dual trip meters
- Retrofit gauges (suffix change)
- P&A tachometer output signal on 4 in. speedometer
- Lower standby current
- UK dual-face speedometers change to 130 mph (200 km/h)



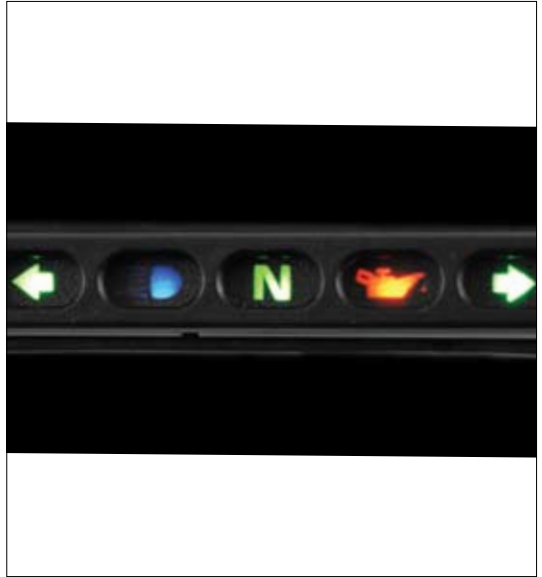
Clock Function

- Displayed on LCD (odometer window)
- Selected with trip switch button (press release)
- Set with trip switch button (press hold/press release)
- 12/24-Hour selectable



NEW LED Indicators (except VRSC™)

- Easier-to-read LED indicators replace incandescent bulbs



Reduced-Effort Clutch Cable

- 2006 Dyna™ design
- New clutch cable
- Reduced-effort clutch lever:
 - 8% Reduction for Sportster® models
 - 10% Reduction for Softail® models
 - 7% Reduction for Touring models



Clutch Interlock Switch

- Clutch interlock switch functions as an “or” function with the neutral switch
- Switch verifies if the motorcycle is in neutral and if not, the clutch lever must be disengaged (pulled in) before motorcycle will start
- Excellent feature for new riders



Electronic Sequential Port Fuel Injection (E.S.P.F.I.)

- Similar design was incorporated for the 2006 Dyna™ models
- O₂ feedback system eliminates the need for catalyts (except VRSC™ models)
- HDI motorcycles are equipped with O₂ sensor feedback
- System adjusts to provide optimal air/fuel mixture
- Some CVO motorcycles require catalyts



NEW Molex® Connectors (except Buell®)

- Molex® connectors are smaller than Deutsch® connectors
- Molex® connectors are internally sealed from moisture



- VRSC™ models feature Molex® connectors exclusively
- Connector is only serviced from the mated side



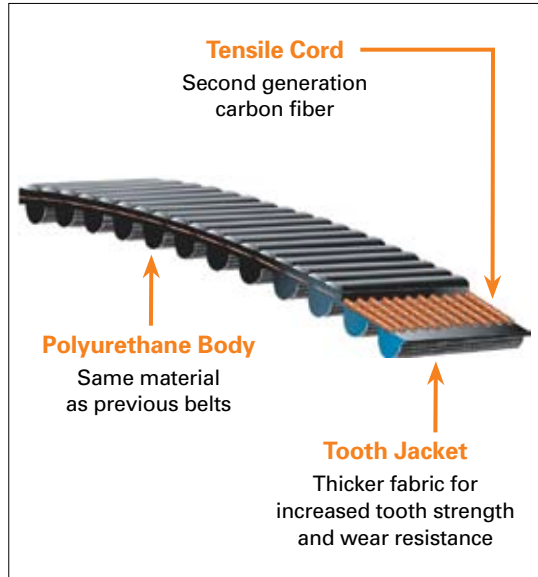
Molex is a registered trademark of Molex Products Company.

Final Drive Belt

- 1 in. wide X7N belt
- Second generation carbon fiber
- Thicker fabric for increased tooth strength and wear resistance
- Touring models receive a 137T belt
- H-D Japan Touring models receive a 136T belt

Important Service Note:

New belt tension specifications for all models.





BIG TWIN ENGINES

NEW Twin Cam 96™ Engine Powertrain Specifications

- Displacement:
96 cu. in. 1584 cc up
from 88 in. 1450 cc
 - Achieved by stroke
increase to 4.375 in.
(111.13)
- Touring Alpha engines
have increased torque
to 93 ft. lbs. (126 NM)
@ 3500 rpm



- Softail® Beta engines
have increased torque
to 90 ft. lbs. (122 NM)
@ 2750 rpm
- Dyna™ Alpha engines
have increased torque
to 92 ft. lbs. (125 NM)
@ 3000 rpm



Twin Cam 96™ Connecting Rods and Pistons

- Lighter pistons and connecting rods for lower reciprocating weight
- Shorter wrist pin



25-Degree Injectors

- 2006 running change to 25-degree fuel injectors (P/N H-D-27709-06A)



Twin Cam 96™ Components Follow 2006 Dyna™ Powertrain

- Compensator assembly/alternators
 - Four spring pack design for domestic and HDI models
 - Compensator spring pack now welded to rotor



- Twin Cam 96™ Alpha engine/transmission gasket



Twin Cam 96™ Components Follow 2006 Dyna™ Powertrain (cont.)

- Engine cases with integral oil filter adapter



- External oil lines have been eliminated for Dyna™ and Touring Big Twin engines
- Softail® engines continue with external oil lines



**Twin Cam 96™ Components
Follow 2006
Dyna™ Powertrain** (cont.)

- Cam plate changes
 - Primary hydraulic cam chain tensioner



- Cam plate changes
 - Secondary hydraulic cam chain tensioner



Twin Cam 96™ Components Follow 2006 Dyna™ Powertrain (cont.)

- Cam plate changes
 - Cam plate uses parent material bearings



- Crankshaft assembly and cases
 - Inner cam bearings



Twin Cam 96™ Components Follow 2006 Dyna™ Powertrain (cont.)

- Assembled cams



- Oil pump assembly
 - 10% More flow and 23% scavenging capacity improvement
 - O-ring between oil pump and cam support plate has been eliminated
 - 10/11 Lobe gerotor set



Twin Cam 96™ Components Follow 2006 Dyna™ Powertrain (cont.)

- Dyna™-style roller cam chains
 - All Big Twin models feature hydraulic chain tensioners and new cam chains

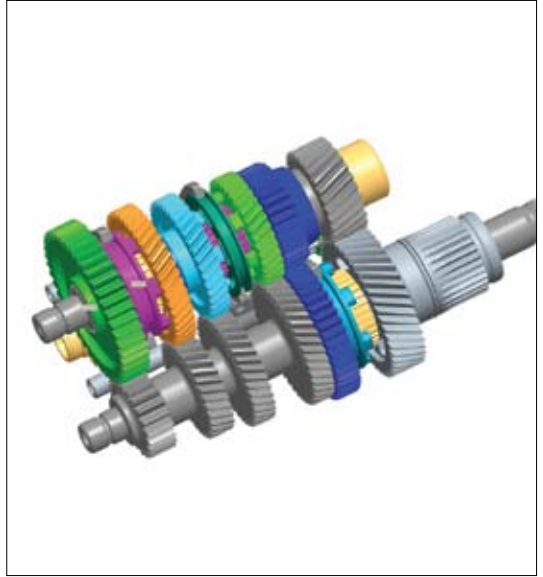


- Flywheel sprocket shaft splines match 2006 Dyna™ models

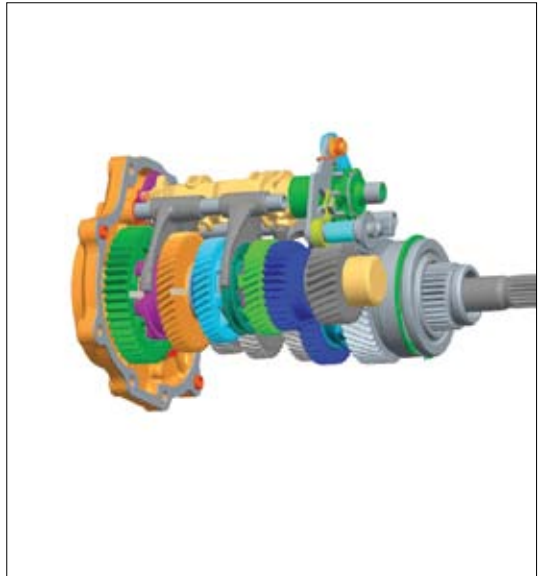


Twin Cam 96™ Components Follow 2006 Dyna™ Powertrain (cont.)

- 6-Speed Cruise Drive™ transmission
- 6th Gear is direct drive 1:1
- Lower cruising rpm in 6th gear is achieved with new primary ratio
- 2nd, 3rd, 4th and 6th are helical gears
- 1st and 5th are spur gears
- 1st, 2nd, 3rd and 4th gears are integral on mainshaft



- 5th and 6th gears are integral on countershaft
- Six of 12 gears are individually serviceable
- Christmas tree gear layout on shafts
- VRSC™-style dog ring shifting
- XL/XB-style shifter design



Twin Cam 96™ Components Follow 2006 Dyna™ Powertrain (cont.)

- 6th Main drive gear
- Quad-ring replaced by O-ring on new main drive gear
- Needle bearings for 6th gear mainshaft
- Needle bearings secured by retaining rings
- Double-row output bearing
- Sprocket spacer incorporated into bearing



- Primary drive system
- Drive ratio is 1.35:1
- Dyna™ clutch shell
- Starter ring gear moved to inboard on clutch hub



**Twin Cam 96™ Components
Follow 2006
Dyna™ Powertrain** (cont.)

- Automatic mechanical primary chain tensioner



- New inner primary housings
- Inner primary must be removed to service rotor and stator



**Twin Cam 96™ Components
Follow 2006
Dyna™ Powertrain** (cont.)

- Primary gasket/fasteners

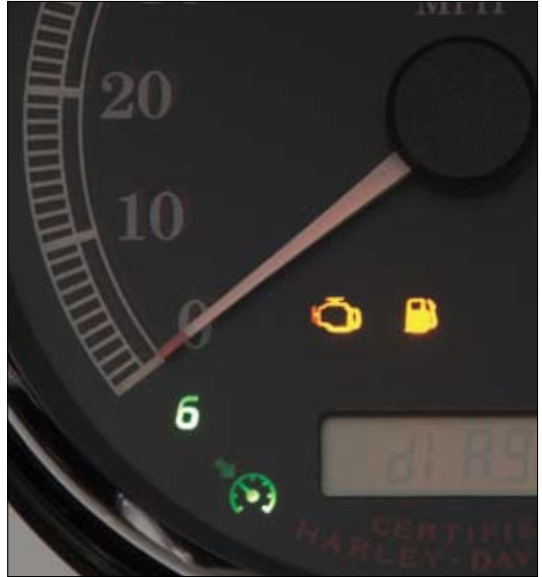


- Primary chain inspection cover has been removed



6th Gear Indicator

- Lamp activates during motorcycle operation in 6th gear
- Vehicle speed and engine rpm determine light activation; not a switch



Charging System

- Softail® and Dyna™ models feature a new 40-amp alternator



NEW One-Piece Horn Cover

- For ease of assembly



OE Exhaust

- Improved sound quality



HDI Only - Active Intake

- Solenoid controls the opening and closing of baffle in the air cleaner backing plate to reduce intake noise
- H-D Japan motorcycles do not feature active intake



- Solenoid attached to backside of air cleaner backing plate



HDI Active Exhaust

(except Japan)

- Actuator closes valve in the exhaust system during higher engine loads
- Optimizes power while meeting noise regulations
- Composite cable mount and cable are sold as a kit



Important Service Note:

Never move the actuator by hand (or with a tool).

Actuator cannot be dropped or it will need replacement.

Active exhaust systems are to be "replace only" service items, no repairs.



Twin Cam 96B™ Balanced Engine

- New 1584 cc Twin Cam 96B™ balanced engine
- 6-Speed Cruise Drive™ transmission is part of this powertrain



Twin Cam 96B™ Balancers

- New balancer is first pressed into bearing
- A new tool shown here to press assembly





TOURING FAMILY

NEW Idle Temperature Management Download Option

- For prolonged engine idle conditions
- In hot riding conditions, an optional dealer-enabled engine calibration is available
- New download cuts combustion to rear cylinder
- Engine must be at certain operating temperature
- Vehicle must be at idle and not moving to activate
- Exhaust changes tone with only front cylinder firing
- Exhaust may have slightly different odor
- Installation of download is free one time only (under warranty)
- Removal of download is free one time only (under warranty)
- Prior systems have been removed for 2007 models



Sidecar Brake Reservoir

- Relocated in order to provide necessary clearance for the O₂ sensors
- Mounts to the outside of the front frame support bracket



- New design



Shift Lever and Floorboard Changes

- New shift lever, left-hand rider floorboard supports and passenger floorboard supports
- Changes accommodate additional clearance necessary due to new engine, transmission and primary drive
- Shift lever retrofits to prior models but pre-2007 levers do not fit new Touring motorcycles
- New board mounts retrofit to prior motorcycles
- Old board mounts do not retrofit to 2007 models



Frame and Swingarm Changes

- Frame, swingarm and engine mounts accommodate new engine
- Swingarm forging moved to the rear
- New swingarm support brackets (end caps)
- New forged, front engine mount bracket clears new crankcase
- Swingarm mounts do not retrofit
- 2007 Touring frame does not retrofit to prior models



Jiffy Stand Change

- Touring motorcycles come with a new Jiffy stand to accommodate changes from new engine
- New bumper
- Mount has changed



Saddlebag Supports

- New cast zinc I-brackets and end bullets for saddlebags
- New brackets appear the same but have a smoother finish on all sides
- Reduces scratching of saddlebags when removing



Twin Cam 103™ cu. in. Engine for Police Models

- 1690 cc CVO engine
- 9.6:1 Compression ratio
- Unique calibration
- ABS and Harley-Davidson® Smart Security System optional equipment
- Unique clutch spring
- Catalyst mufflers
- Active intake and exhaust on HDI Police motorcycles



Sidecars for Police Motorcycles

- Police Touring motorcycles with ABS do not accept a sidecar
- Hydraulic line routing on the right side interferes

Important Service Note:

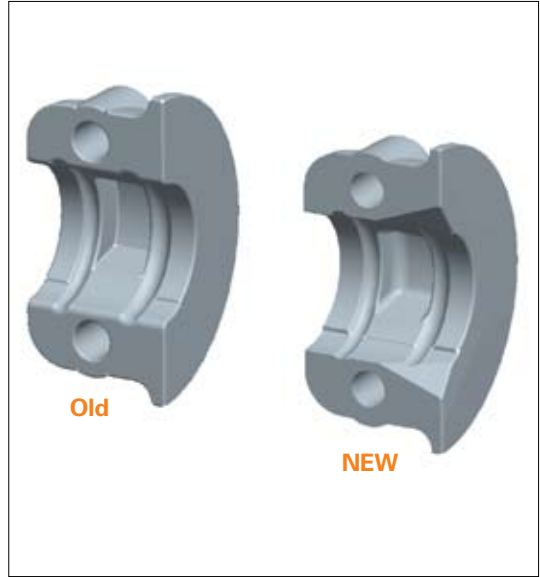
Police and Touring motorcycles equipped with sidecars will not accommodate an oil cooler.

Oil cooler assembly needs to be removed before sidecar installation.



NEW Handlebar Clamps

- Handlebar control clamps are modified improving clearance for wire harness



Front Electrical Caddy

- New caddy mounts under voltage regulator retaining connector for crank position sensor

