

# SERVICE BULLETIN



M-856

August 6, 1982

## SERVICE INFORMATION — 1983 XL MODELS

### General

The 1983 XL models have a higher compression ratio (8.8 to 1) achieved through new piston design and the use of the earlier style thinner head gasket. This higher compression ratio along with a new two stage ignition system, provides increased performance while allowing use of leaded regular grade gasoline.

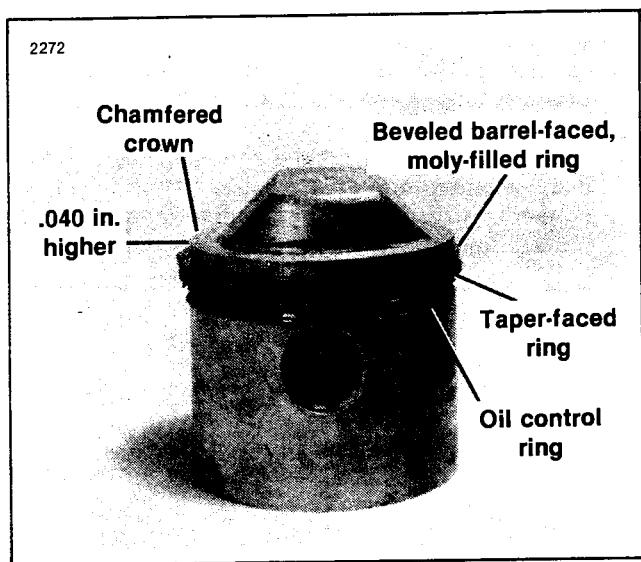


Figure 1. Piston with Rings — 1983

### Piston and Rings

See Figure 1. The new piston crown surface is .040 in. higher. This higher compression piston can be identified by the chamfered edge on the piston crown. Piston rings include a beveled barrel-faced, moly-filled top ring, a taper-faced second ring and a three-piece oil control ring with two chrome plated rails and a corrugated expander.

### Ignition System

#### GENERAL

The computerized microprocessor module is programmed with two spark advance curves to meet varying engine loads. The system includes a vacuum operated electric switch (V.O.E.S.).

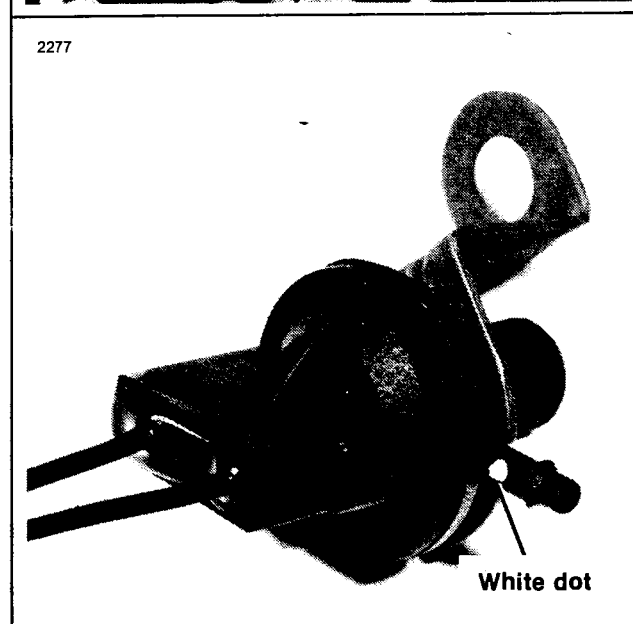
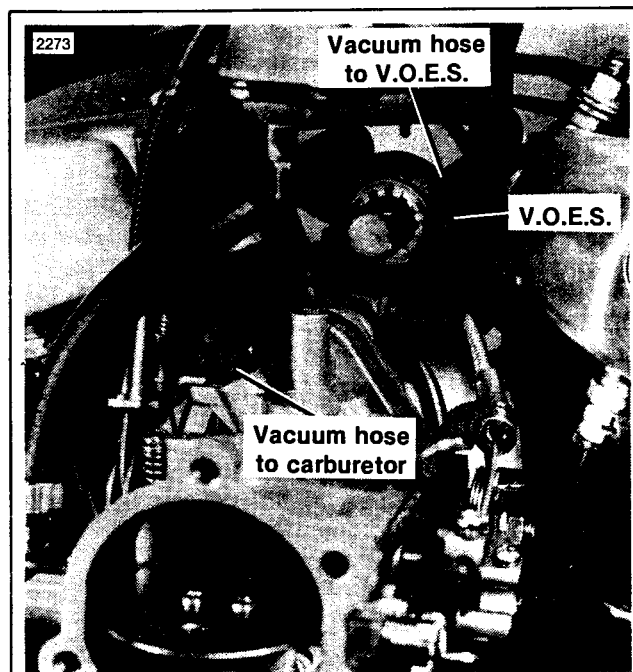


Figure 2. Vacuum Operated Electric Switch (V.O.E.S.)

#### VACUUM OPERATED ELECTRIC SWITCH (V.O.E.S.)

See Figure 2. The V.O.E.S. is located above the intake manifold. The V.O.E.S. senses intake manifold vacuum

through an opening in the carburetor body. A vacuum hose connects the V.O.E.S. to the carburetor.

The V.O.E.S. is open under high engine load conditions (low vacuum) and closed under low engine load conditions (high vacuum). The high vacuum curve selected for maximum spark advance under normal light load conditions provides improved fuel economy and performance. The low vacuum curve (retarded spark) minimizes spark knock, while maintaining performance under high load conditions.

The computer module selects the proper curve when it receives an open or closed electrical signal from the V.O.E.S. This system ensures correct timing to suit starting, low and highway speed requirements.

#### NOTE

*Early build XLX models may have a V.O.E.S. with a vacuum operating requirement of 7 in-Hg resulting in a longer than necessary retarded ignition curve. This V.O.E.S. should be replaced with a new V.O.E.S. requiring only a 4 in-Hg vacuum for operation. The new V.O.E.S. is identified by a white dot at the vacuum hose connection as shown in Figure 2.*

Affected dealers should order the proper quantity of correct vacuum operated electric switches for XLX motorcycles shipped to their dealership having a V.O.E.S. **without** a white dot under Part No. 26557-83.

When the vacuum operated electric switches are received, they should be installed immediately in all affected motorcycles.

Following normal warranty procedure, submit a warranty claim for parts and labor as follows:

Replacement of V.O.E.S. — Job Code 5383

Labor allowance for replacing the V.O.E.S. is .2 hours. Any replaced V.O.E.S. must be returned along with the properly completed warranty claim form for credit. Attach a return address P-label, Form Number 1248 to the outside of the package.

#### TIMING

Ignition timing should be checked every 2500 miles.

Use an Inductive Timing Light, Part No. HD-33813 (timing gun) to view advanced timing of flywheel through accessory plastic view plug, Part No. HD-96295-65, screwed into timing inspection hole. Make sure view plug does not touch flywheels. Timing light leads should be connected to the front spark plug cable, ground and battery positive terminal. Make sure vacuum hose is properly installed at carburetor and at vacuum operated electric switch. Start engine and set engine speed at 1300 rpm. Light will flash each time spark occurs. Loosen sensor plate screws just enough so that plate can be shifted using a screwdriver in notch as light aimed into inspection hole stops timing mark in center of hole.

#### WARNING

**When checking advance timing, always check V.O.E.S. operation. Failure to do so may result in running engine with too much spark advance, and may cause extreme engine knock and engine failure.**

#### TIMING ADVANCE

1000cc 4-SPEED	
Range .....	10°-55° BTDC
Start .....	10° BTDC
Fast idle .....	40° BTDC
1800-2800 rpm and up .....	55° BTDC

#### CHECK V.O.E.S. OPERATION

After engine has been timed with a strobe timing light, perform the following check:

With the engine idling, remove vacuum hose from carburetor and momentarily plug carburetor fitting. Timing will retard and engine speed should decrease. Reinstall vacuum hose to carburetor. Timing mark should reappear and engine speed should increase to preset speed.

If speed does not decrease and increase as described, check vacuum operated electric switch (V.O.E.S.) wire connection to computer module and ground wire. V.O.E.S. must be replaced if malfunctioning.

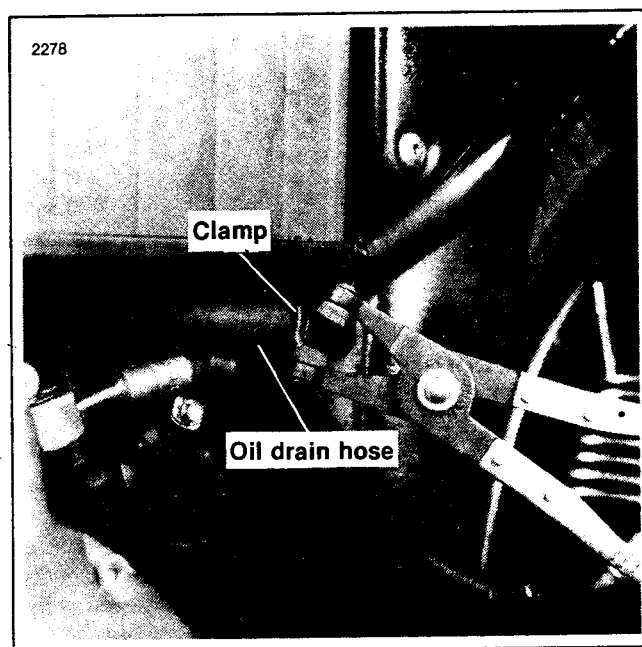


Figure 3. Oil Drain Hose

#### Oil Tank Drain Method

See Figure 3. Using HOSE CLAMP PLIERS, Part No. HD-8404, loosen and slide the clamp from the oil drain hose to the plug bracket. Disconnect hose and drain oil from tank into suitable drain pan.

For reinstallation of drain hose, connect hose to plug bracket and secure with clamp. Fill oil tank with 3

quarts of Harley-Davidson POWER BLEND SUPER PREMIUM OIL.

**NOTE**

*If oil pressure light stays on, air may have been introduced in the oil system making it necessary to prime the oil pump.*

## Indicator Lamp Replacement XLX and XLS

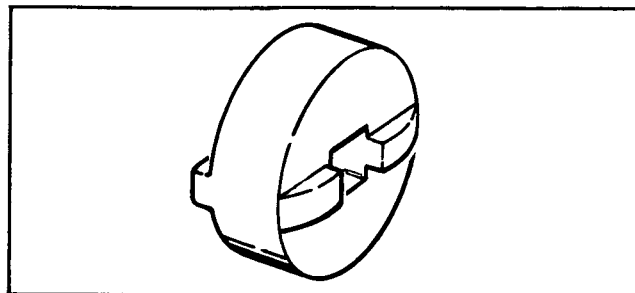
### REMOVAL

1. Remove two bolts, lockwashers and flat washers securing headlamp bracket.
2. Disconnect terminal block from headlamp.
3. Using PIN TERMINAL TOOL, Part No. HD-97362-71, remove wires of indicator lamp from terminal. Note location of wires for installation of new indicator lamp.
4. Loosen speednut with a flathead screwdriver wedged under speednut at indicator lamp bracket. Slide speednut off wires and remove indicator lamp.

### INSTALLATION

1. Install indicator lamp wires through bracket. Slide speednut over wires and secure indicator lamp in bracket with speednut.

2. Install wires to terminal block.
3. Connect terminal block to headlamp.
4. Secure headlamp bracket with two bolts, lockwashers and flat washers.



**Part No. HD-33186 Access Plug Removal Tool**

### Access Plug Removal Tool

The Access Plug Removal Tool, Part No. HD-33186, is used with a standard 3/8 in. drive tool to remove the access plugs from the primary cover.

One side of the tool is square cut to fit 1976 and earlier models. The other side is cut to fit 1977 and later models.

ROUTING:	SERVICE MANAGER	SALES MANAGER	PARTS MANAGER	CHIEF MECHANIC	MECHANIC NO. 1	MECHANIC NO. 2	MECHANIC NO. 3	MECHANIC NO. 4	RETURN THIS TO:
INITIAL HERE									