

SERVICE BULLETIN

M-903

May 10, 1985



SERVICE UPDATE GENERAL INFORMATION

Cylinder Heads and Cylinder Studs 1985 Big Twin Evolution™ Engines (See Figure 1)

Big Twin Evolution™ engines are now using a cylinder stud (3) with male threads at both ends. The mating cylinder head screw (1) has female threads. Because of the internal threads the head screw was made a larger diameter.

The 1985 cylinder heads are interchangeable with either style cylinder studs and head screws.

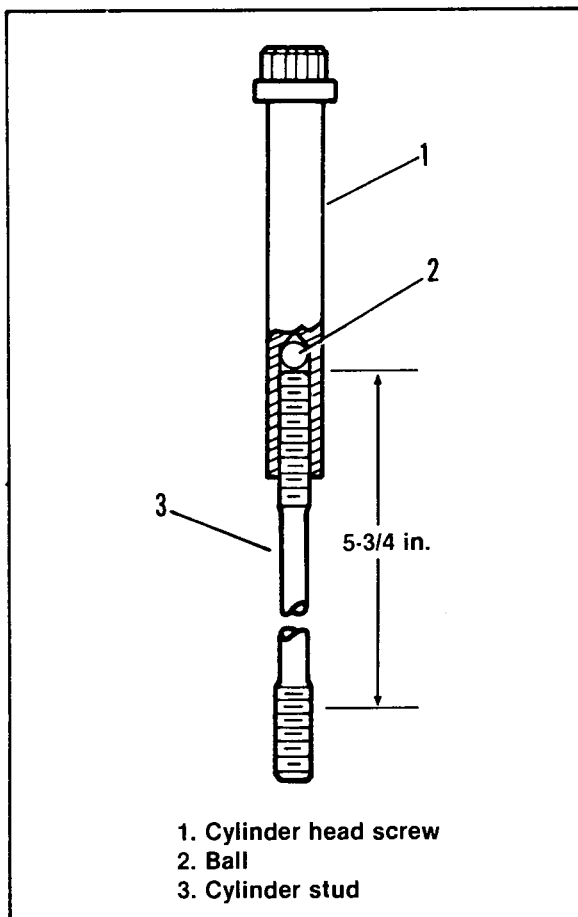


Figure 1. Cylinder Stud and Head Screw

CAUTION

Late style cylinder head washers cannot be used with early style head screws.

The cylinder studs are replaced as follows:

1. Remove bent or damaged cylinder studs with a stud remover.
2. The top end of the stud (cylinder head end) will have a number "3" stamped on the stud end. Measure 5-3/4 in. from the top of the stud toward the bottom of the stud. Paint a line on the threads to indicate the 5-3/4 in. measurement. This painted area will be used as a reference during installation.
3. Place 5/16 in. diameter ball, Part No. 8860 from the XL clutch release mechanism into the head screw recess. Thread the stud into the head bolt until the stud bottoms on the ball.
4. Clean the threads in the crankcase. Apply Loctite Stud'N Bearing Mount on the stud threads.

Use an air or electric impact wrench and install the stud threads to the depth of the painted line.
5. Pack clean shop towels into the crankcase openings to prevent the ball from falling into the fly-wheel compartment when removing the head bolt.
6. With a dial caliper verify that installed stud has a depth of 5.670 - 5.770 in. above the base gasket surface.

Cylinder Head Clamping Pressures All 1340 Evolution™ Engines

GENERAL

For a more even distribution of clamping pressures across the gasket contact surfaces of the 1340 cylinder

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and cylinder head, a new torquing procedure has been developed. The new torquing method eliminates much of the frictional losses which contributed to erratic distribution of head clamping pressures. This new method is applied to all 1340 Evolution™ engines equipped with either style cylinder studs and head screws.

PREPARATION

1. Coat the cylinder stud and head screw mating threads with a parts cleaning solution. Thread and unthread the head screw onto the cylinder head stud using a back and forth motion to scrape the thread surfaces clean of any old oil or carbon deposits. Remove head screws and wipe or blow dry all thread surfaces.
2. Oil the male threads only and the underside of the head (shouldered portion) of the head screw. Wipe off excess oil leaving only an oil film.

CAUTION

Wiping is important so that oil will not pool in the recess of female fasteners which could prevent full thread engagement.

3. Thoroughly clean and dry gasket surfaces of the cylinder and cylinder head. Install a new O-ring at each cylinder dowel and install a new head gasket. Do not install the gasket first as the O-ring properly locates the head gasket.
4. Carefully lower cylinder heads over studs and thread head screws onto studs.

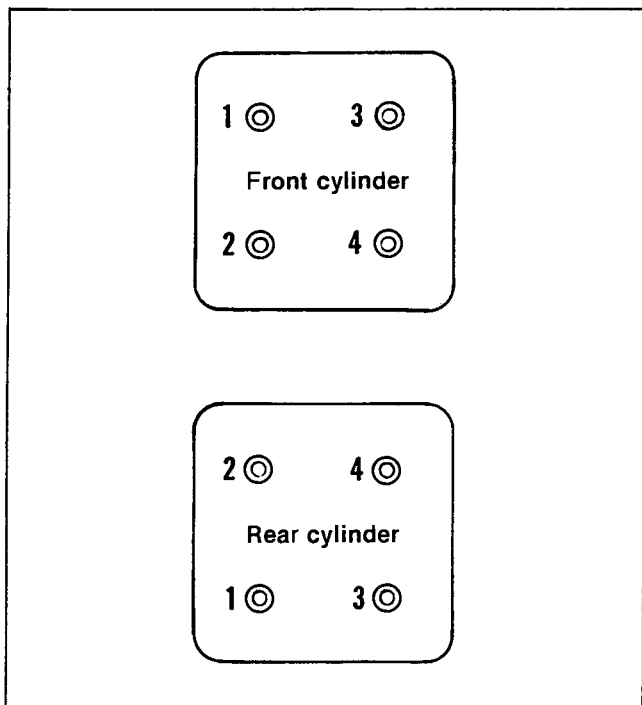


Figure 2. Torquing Sequence

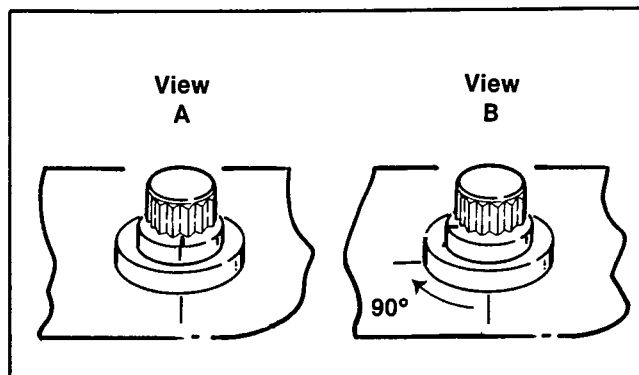


Figure 3. Tightening Head Screw

TORQUE SEQUENCE

1. Refer to Figure 2. With a torque wrench start at the head screw numbered "1" and tighten to a torque of 7 ft lbs. Then proceed to tighten "2", then "3" then "4", in order, to 7 ft lbs torque.
2. Again starting at the head screw numbered "1" and ending with "4" sequentially, tighten each screw to 16 ft lbs torque.
3. Refer to Figure 3. Mark a line on the cylinder head and a corresponding line on the head of the cylinder head screw as shown in View A. Following the same sequence 1, 2, 3, then 4, turn each head screw, one at a time one quarter turn (90°) using the marks as a guide. When marks are all positioned as in View B the procedure is completed.

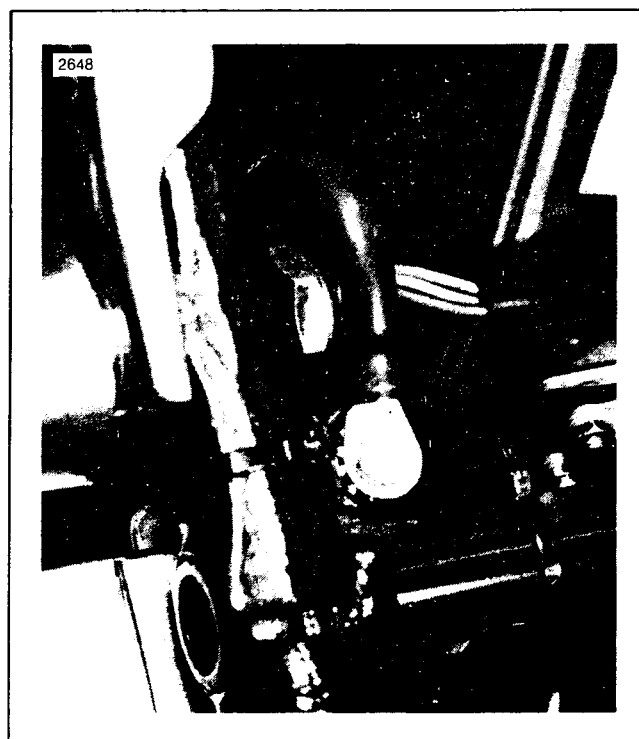


Figure 4. Ground Cable Mounting

Starter System Improvements All Late 1985 Vehicles

With the introduction of the improved starter actuator in late 1984, the starter relay no longer requires the heavy load carrying characteristics designed into the starter relay on early 1985 vehicles. Starting in February 1985, production vehicles are equipped with a Bosch starter relay and new -4 gauge, battery to ground and battery to solenoid, cables. The Bosch relay hook-up is the same as found on 1984 vehicles and the system can be checked and serviced by referring to the 1984 wiring diagrams of the same vehicle model.

Ground Cable All FX Vehicles Excluding FXST (See Figure 4)

It is important that the ground cable on FX vehicles, excluding FXST, are formed and mounted to prevent contact with the rear fender or frame. With the cable loop free to vibrate there is no vibration transmitted to the cable ends which could cause premature failure at the mounting lugs. Be sure the mounting bolts at battery and frame are tightened to hold cable securely. Check the ground cable whenever servicing FX vehicles.