



INSTRUCTIONS

-J00042

REV. 3-1-88

Kit Number 25629-88

883 CYLINDER HEAD TEMPLATE KIT

General

This template kit is for use with Harley-Davidson 1200cc Piston Kit Part No. 16140-87 and was designed for upgrading Evolution 883cc models to 1200cc displacement.

Each kit contains one template.

Procedure

1. Remove cylinder heads following instructions in the appropriate XLH Service Manual.
2. Remove valve springs and valves from both cylinder heads.
3. See Figure 1. Apply machinists die or magic marker to gasket surface of cylinder head. Take the 1200cc gasket from the 1200cc Big Bore Kit and position on cylinder head with holes aligned. Insert two short 3/8" diameter bolts through gasket and into two diametrically opposite bolt holes to keep gasket centered. Hold gasket securely while drawing a circle around the inner perimeter of the gasket. Remove bolts and 1200cc gasket.
4. Take two old 883cc valves and apply grease around the valve seating surface. Insert the valves into the head. The grease will seal the valves and hold them in place.

NOTE

Old valves are used so no damage occurs to good valves and also to protect the valve seats.

5. Set the head level on two short pieces of wooden 2x4. Clamp head firmly to table as considerable force is exerted on hand grinder.

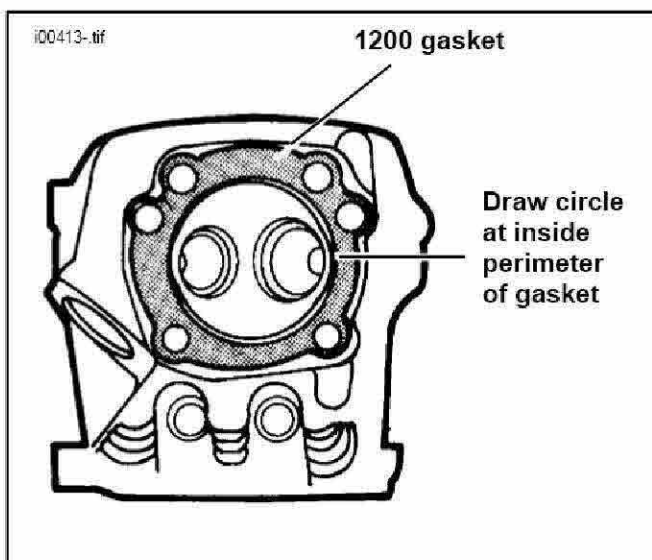


Figure 1. Scribing Perimeter

6. Find an old 1340cc head gasket and apply grease to one surface (the side that contacts the head). Press the gasket onto cylinder head with holes in gasket and head aligned. Insert two short 3/8" diameter bolts through gasket and into two diametrically opposite bolt holes to keep gasket centered.

CAUTION

Gasket is used only as a precaution to protect the machined gasket surface of the head. If this is not done and the gasket surface is damaged, the head gasket will fail.

WARNING

A full face shield, gloves and a long sleeved garment must be worn at all times when using the hand grinder. Metal particles coming off the high speed cutting tool will have enough velocity to penetrate the skin surface and cause injury.

7. See Figure 2. Install an oval shaped aluminum cutting, rotary file into the chuck of an air or electric die grinder. See Figure 3. Enlarge the combustion chamber by removing the material within the scribed circle to a depth and contour that matches the perimeter of the template furnished in the kit. Do not grind up to the line. Leave a small amount of material (approximately 1/16") around the inside perimeter of the line. The valves can be removed when checking the cavity with the template. Once the cavity is nearly to shape, finish sand the surface smooth with an 80 or 60 grit sanding cartridge. The cavity must be contoured to a smooth radius without steps or gouges.
8. When combustion chamber is enlarged and ground smooth to the perimeter of the template, the volume of the cavity must be checked. To check the combustion chamber volume you will need the following:

- CC PLATE can be purchased from any hot rod shop or can be made out of 3/16" Plexiglas 5" x 5" with a 5/16" hole drilled through the center as shown in Figure 4.
- 100 CC BURETTE (with Spigot)-can be purchased from medical or scientific supply house.

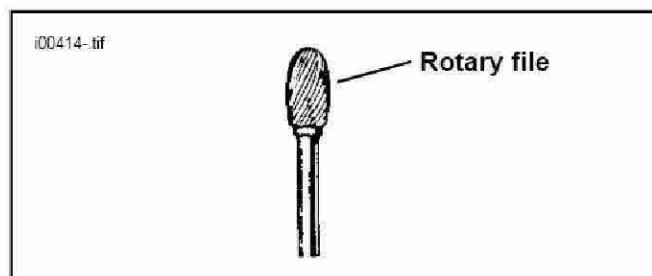


Figure 2. Aluminum Cutting Tool

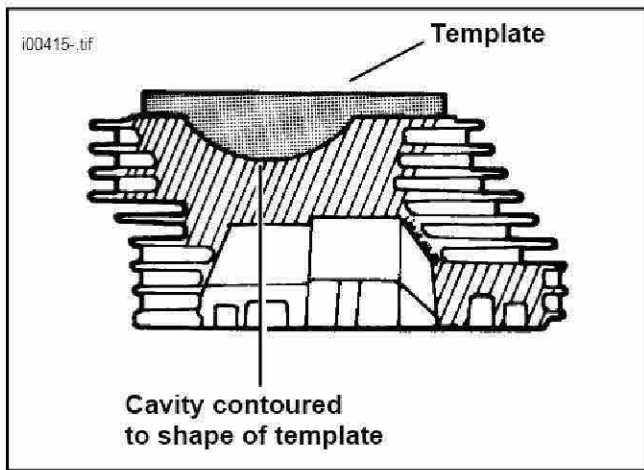


Figure 3. Shaping Combustion Chamber

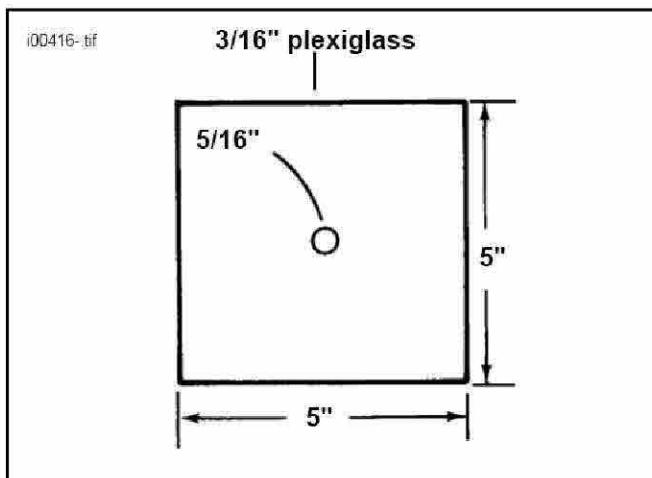


Figure 4. CC Plate

9. Remove old gasket. Apply a thin coat of grease around the seating surface of the old valves. Install the old valves, each with one valve spring. Be sure spark plug is installed. Apply a thin coat of grease on the gasket surface of the head. Apply grease to the CC. Plate in a circle matching the perimeter of the head gasket.
10. See Figure 5. Press the plastic plate, grease side down, on the head and slide back and forth in short strokes to insure all surfaces are sealed around the entire perimeter.
11. Fill the burette with a clean light oil such as cutting oil. Adjust the level of the fluid so that the bottom of the meniscus (concave surface of fluid) is level with the zero graduation.
12. Slowly fill the combustion cavity with oil until the fluid comes up to the bottom of the plastic plate. If the head is not sitting perfectly level, air bubbles will appear off to the side from center. Carefully slide (do not lift) the plate so the center hole, in plate, is over the air bubble or shim under head to move bubble to center. Fill the air pocket with fluid up to the bottom of the plate. Repeat at all other air bubbles.
13. When the cavity is filled and all air bubbles are eliminated, read the level of the fluid in the burette. The fluid level should be between 60-62CCs.

14. If the fluid level is less than 60 CCs, remove the fluid using a baster or large syringe. Do not remove valves. Wipe the cavity clean and remove additional material by filing, grinding, or sanding. Repeat process of removing material and checking volume until final reading at burette is between 60-62CCs.
15. Thoroughly clean combustion cavity and all ports of metal filings.
16. Install good valves and both valve springs. Assemble head and install following instructions in appropriate XLH Service Manual.

COMPRESSION RATIO WITH STANDARD BORE AND STANDARD HEAD GASKET	
Volume Cylinder Head Combustion Chamber	Compression Ratio
60cc	9.9:1
61cc	9.7:1
62cc	9.6:1

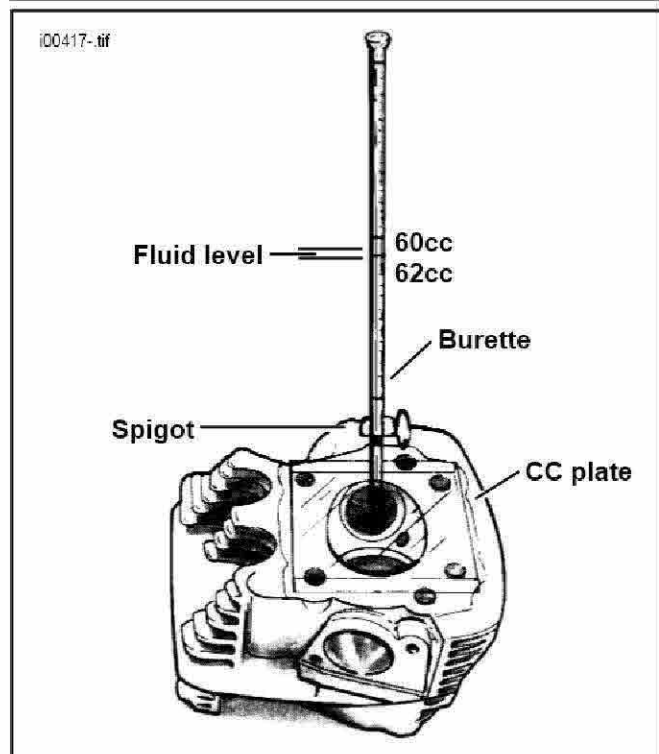


Figure 5. Checking Combustion Chamber Volume