



# INSTRUCTIONS

-J04509

REV. 2008-01-30

## SCREAMIN' EAGLE MECHANICAL COMPRESSION RELEASE FIXTURE

### GENERAL

#### Kit Number

94638-08

#### Models

For model fitment information, please see the P&A Retail Catalog or the Parts and Accessories section of [www.harley-davidson.com](http://www.harley-davidson.com) (English only).

#### Additional Tools and Materials Required

The following items are required for proper the proper application of this tool:

- Hand drill with 1/2 inch chuck
- Tap handle or wrench
- Hex key wrenches
- Cutting fluid
- Clean motor oil
- Calipers

#### Kit Contents

See Figure 6 and Table 1.

Replacement parts for this kit are available directly from the vendor. If replacement parts are needed contact JIMS® at 805-482-6913 or [www.jimsusa.com](http://www.jimsusa.com).

### DRILLING AND TAPPING PROCEDURE

#### ⚠ WARNING

**Wear safety glasses or goggles while drilling. Flying debris could result in serious eye injury. (00565b)**

#### NOTE

*Perform the following procedure on both the front and rear cylinder heads.*

#### Tool Setup

#### NOTE

*Due to slight manufacturing differences, it may be necessary to tap the fixture into place with a rubber mallet. Do **NOT** use excessive force.*

1. Align the fixture's locating pins with the 3/8 inch tooling holes in the head and install the fixture on the head.
2. See Figure 1 and Figure 6. Secure the fixture (1) to the head with two 5/16-18 socket head cap screws (2) and washers (9) included in the kit. Install the screws in the holes marked "F" when modifying the front head or in the

holes marked "R" when modifying the rear head. Tighten screws to 80 **in-lbs** (9 Nm).

3. See Figure 3 and Figure 6. Install the drill bushing (3) in the bore marked "FRONT" when modifying the front head or in the bore marked "REAR" when modifying the rear head.
4. Tighten drill bushing set screw to 50 **in-lbs** (5.6 Nm).
5. See Figure 2 and Figure 6. Install collar stop (4) onto the 1/2 inch diameter shank of the step drill bit (5). Secure the collar stop with the set screw 3.900 inches (9.90 cm) from the beginning of the 3/4 inch diameter step of the drill bit.



Figure 1. Install Drilling Fixture

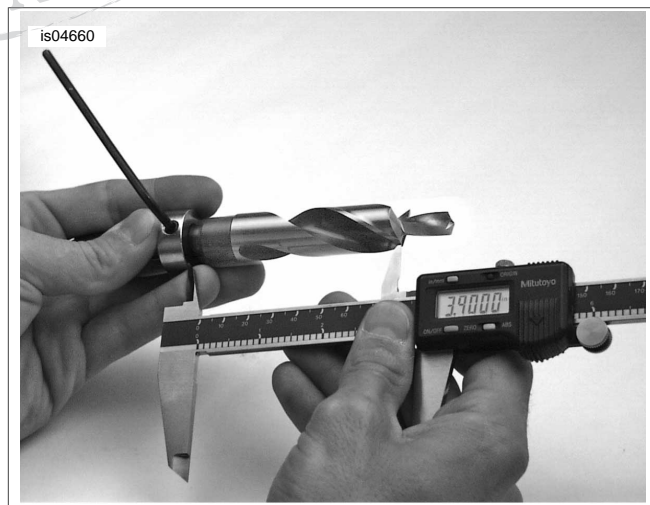


Figure 2. Install Collar Stop on Drill Bit

## Pre-Drill Setup

1. Install step drill bit and stop collar into the drill motor chuck.
2. With the drill stopped, insert the drill bit into the drill bushing in the fixture.

### NOTES

Apply cutting fluid to the drill bit and hole as necessary.

3. With the drill bit approximately 1/4 inch from the cylinder head surface, start the drill. Feed the drill bit slowly into the bushing, especially when the bit first makes contact with the cylinder head. **Drill just deep enough to engage the full diameter of the drill bit tip (approximately 0.125 - 0.250 inch (3 - 6 mm)).** Then stop the drill.

## Verify Hole Diameter

1. Remove the drill bit from the bushing.
2. Measure the diameter of the hole. It should be within 0.351 - 0.360 in. (8.91 - 9.14 mm) for effective tapping.

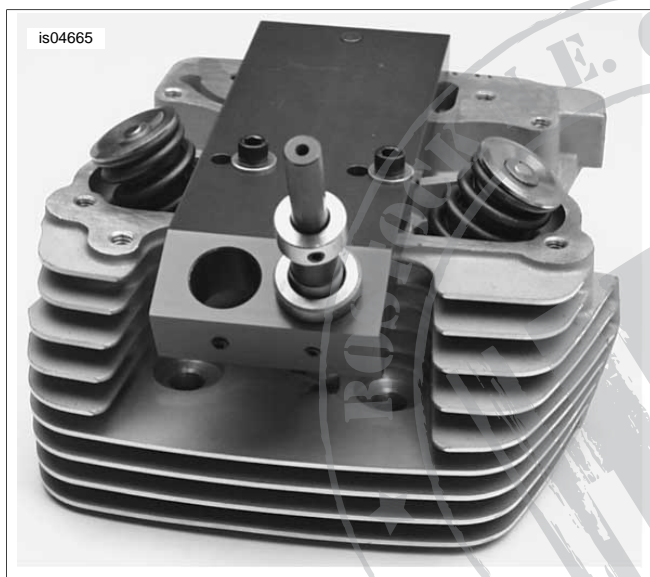


Figure 3. Install Drilling Bushing



Figure 4. Tap Drilled Hole

## Drill and Spot-Face

### NOTES

Apply cutting fluid to the drill bit and hole as necessary.

The collar depth setting is set as a starting point. It may be necessary to drill deeper due to cylinder head differences. Do not exceed a depth of 4.03 in. (10.24 cm).

1. Start the drill, then applying steady and even pressure, drill into the head until the collar stop is flush against the fixture. Ensure that full spot face of the cylinder head is achieved (approximately 0.75 in. (1.9 cm) diameter).

## Tap the Hole

1. Assemble the tap as follows:
  - a. See Figure 4 and Figure 6. Insert tap (6) into tap holder (7).
  - b. Secure the tap with the set screw of the tap holder. Ensure the tap is oriented so that the set screw engages the flat of the tap. Tighten the set screw to **50 in-lbs (5.6 Nm)**.
  - c. Install tap holder into a tap handle (not included).
2. Insert the tap holder into the drilling bushing and fixture.

### NOTE

Apply cutting fluid to the tap and hole as necessary while tapping.

3. Start the tap by applying slight downward pressure while turning in a clockwise direction.
4. Continue to turn the tap clockwise until the tap has bottomed out, as indicated by increased resistance. Do **NOT** force the tap.
5. Back the tap out, by turning the tap counterclockwise, 3 - 4 turns, then blow out the debris using compressed air.
6. Turn the tap clockwise again, until the tap bottoms out (a minimum of 13 threads). Do **NOT** force the tap.
7. Turn the tap counterclockwise and remove the tap.

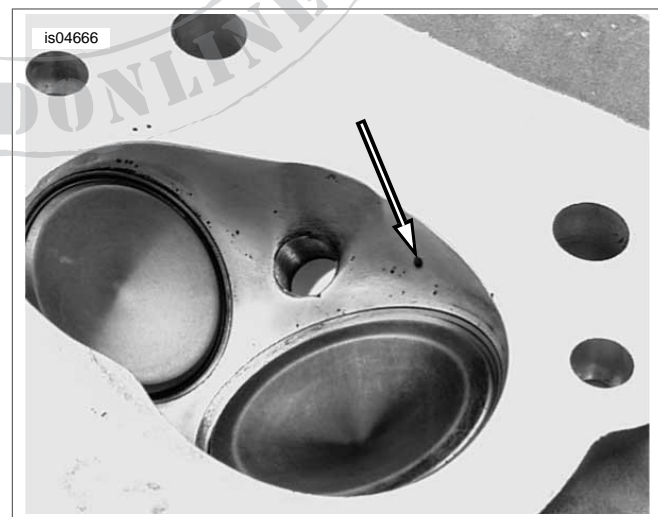


Figure 5. Combustion Chamber Release Hole

### Drill Combustion Chamber Release Hole

1. Remove two socket head cap screws, washers and the drilling fixture.
2. Install the 1/16 inch drill bit (8) (included in kit) into the drill motor chuck.

3. Use the existing drill point at the bottom of the first drilled hole as a pilot. Slowly drill a 1/16 inch hole (See Figure 5.) into the combustion chamber. Be careful not to break the drill bit off in the head.
4. Clean any loose debris out of the hole.

#### NOTES

Apply cutting fluid to the drill bit and hole as necessary.

### SERVICE PARTS

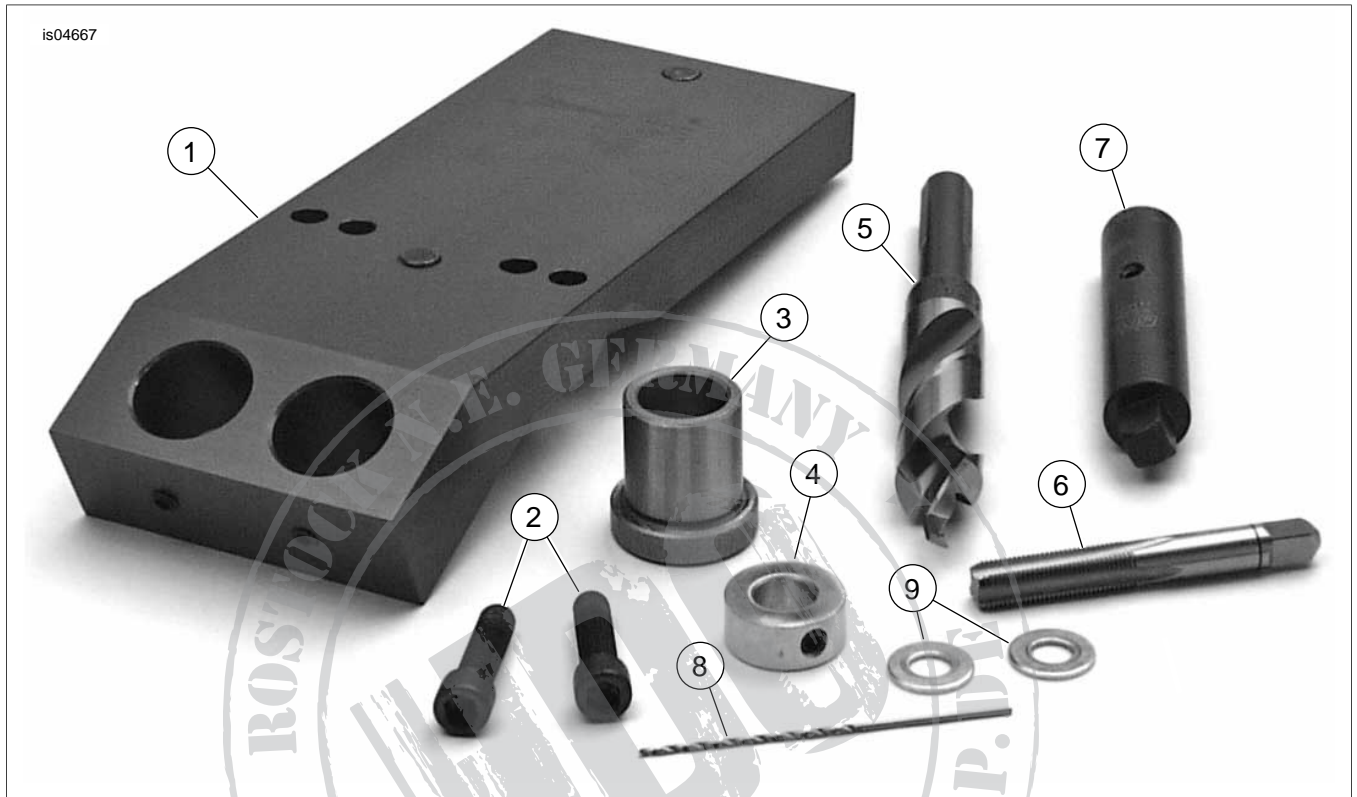


Figure 6. Kit Contents for Screamin' Eagle Mechanical Compression Release Tool

Table 1. Service Parts

Item	Description (Quantity)	Part Number
1	Drilling fixture	Not Sold Separately
2	Socket head cap screw, 5/16-18 (2)	Not Sold Separately
3	Drilling bushing	Not Sold Separately
4	Collar stop	Not Sold Separately
5	Step drill bit*	Not Sold Separately
6	Tap*	Not Sold Separately
7	Tap holder*	Not Sold Separately
8	Drill bit, 1/16 inch*	Not Sold Separately
9	Washer (2)	Not Sold Separately

\* If replacement parts are needed contact JIMS® at 805-482-6913 or [www.jimsusa.com](http://www.jimsusa.com).