



# INSTRUCTIONS

-J05101

REV. 2009-12-18

## PISTON, 883 TO 1200 CONVERSION

### GENERAL

#### Kit Numbers

22698-01A, 22700-01A

#### Models

For model fitment information, see the Screamin' Eagle Pro catalog.

#### NOTE

*This engine related performance part is intended for high performance or racing applications and is not legal for sale or use on pollution controlled motor vehicles. This kit will reduce or void the limited vehicle warranty. Engine related performance parts are intended for the experienced rider only.*

#### Additional Parts Required

Service Gasket Kit 17032-04A.

Cylinder torque plates (P/N HD-33446-A).

Torque bolts (P/N HD-33446-4).

Piston pin retaining ring installer (P/N HD-34623-C)

Carbureted Models: Screamin' Eagle Pro Ignition Race Tuner or Screamin' Eagle Pro Ignition Module is required and must be purchased separately.

EFI Models: Screamin' Eagle Pro EFI Race Tuner is required and must be purchased separately.

### CAUTION

**You must recalibrate the ECM when installing this kit. Failure to properly recalibrate the ECM can result in severe engine damage. (00399b)**

### WARNING

**The rider's safety depends upon the correct installation of this kit. Use the appropriate service manual procedures. If the procedure is not within your capabilities or you do not have the correct tools, have a Harley-Davidson dealer perform the installation. Improper installation of this kit could result in death or serious injury. (00333a)**

#### NOTE

*This instruction sheet references service manual information. A service manual for your model motorcycle is required for this installation and is available from a Harley-Davidson Dealer.*

#### Kit Contents

See Figure 4 and Table 3.

### REMOVAL

#### WARNING

**Prevent accidental vehicle start-up, which could cause death or serious injury. First disconnect negative (-) battery cable at engine and then positive (+) cable from battery. (00280b)**

#### WARNING

**When servicing the fuel system, do not smoke or allow open flame or sparks in the vicinity. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00330a)**

1. Disconnect battery cables, negative (-) cable first.
2. Follow the procedures in the ENGINE section of the service manual to remove cylinder heads, cylinders, and pistons.

#### Boring and Honing Procedure

#### NOTE

*1986 - 2008 model year vehicles: Instead of boring out XL 883 cylinders, XL 1200cc cylinders are available from your Harley-Davidson dealer. See the Screamin' Eagle Pro catalog for available cylinders and fitment information.*

*2009 and later vehicles: The original cylinders cannot be bored to the necessary size. New XL1200 cylinders must be purchased separately. See the Screamin' Eagle Pro catalog for available cylinders and fitment information.*

3. See the following instructions for boring and honing and refer to the applicable ENGINE section of the service manual.
4. After removing the cylinders, check the head gasket and base gasket surfaces for flatness. Remove burrs from all gasket surfaces.
5. Install:
  - a. Original head and base gaskets.
  - b. Cylinder torque plates P/N HD-33446-A.
  - c. Torque bolts P/N HD-33446-4.

Tighten the torque bolts, following the tightening procedure in the ENGINE section of the service manual.

#### NOTE

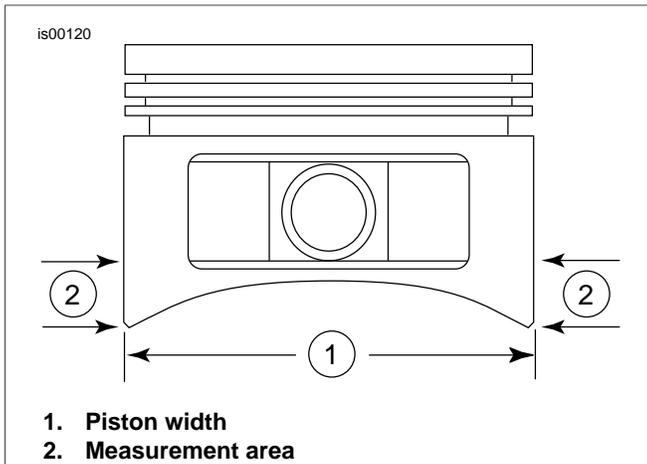
*Torque plates, properly tightened and installed with gaskets, simulate engine operating conditions. Measurements vary as much as 0.001 in. without torque plate.*

- Bore the cylinder with gaskets and torque plates attached. Bore the cylinder to **0.003 in. under the desired finished size**.

**NOTE**

Use the piston to determine finished size. See Table 1 for piston-to-cylinder fit.

- See Figure 1. Measure the piston width (1), 90 degrees horizontally from both sides of the pin piston pin hole and at 0.144 in. above (2) the lowest portion of the skirt to determine piston-to-cylinder fit.
- Hone the cylinder to its finished size using a 280 grit rigid hone followed by a 240 grit flexible ball hone. Honing must be done with torque plates attached. All honing must be done from the bottom (crankcase) end of the cylinder. Maintain a 60-degree crosshatch pattern in the piston travel area.
- See Figure 2. After machining and honing, chamfer the bottom inner edge (1) of the cylinder liner. The chamfer provides a beveled surface for easier installation of the cylinder over the piston rings. Break leading edge of liner to a flat surface. The bottom edge of the liner (2) will be somewhat sharp after machining. This sharp edge could easily cause damage during installation of the cylinder.



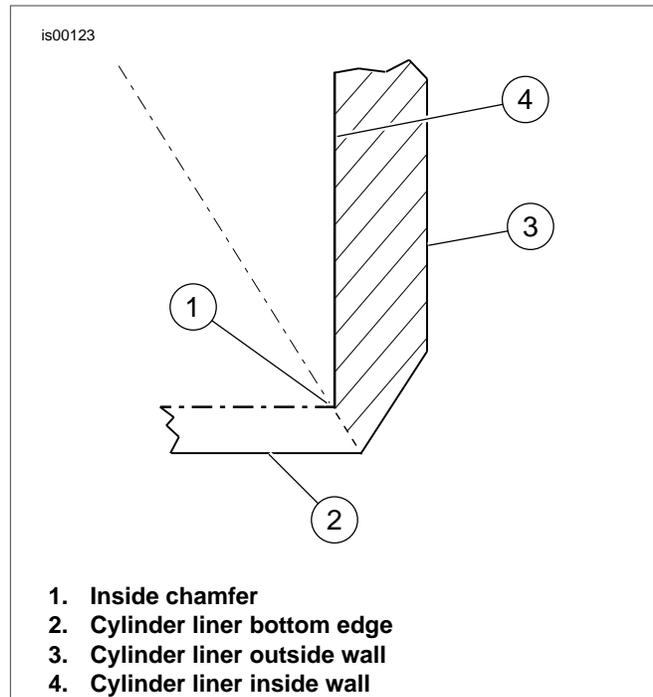
**Figure 1. Piston Measurements**

**Table 1. Specifications**

ITEM	IN.
Fit in cylinder (loose)	0.0025 - 0.0035
Top ring end gap	0.010 - 0.020
Second ring end gap	0.010 - 0.020
Oil control ring rail gap	0.010 - 0.050

**Table 2. Service Wear Limits**

ITEM	IN.
Fit in cylinder (loose)	0.005
Top ring end gap	0.030
Second ring end gap	0.030
Oil control ring rail gap	0.060



**Figure 2. Inside Chamfer and Bottom Edge of Cylinder Liner**

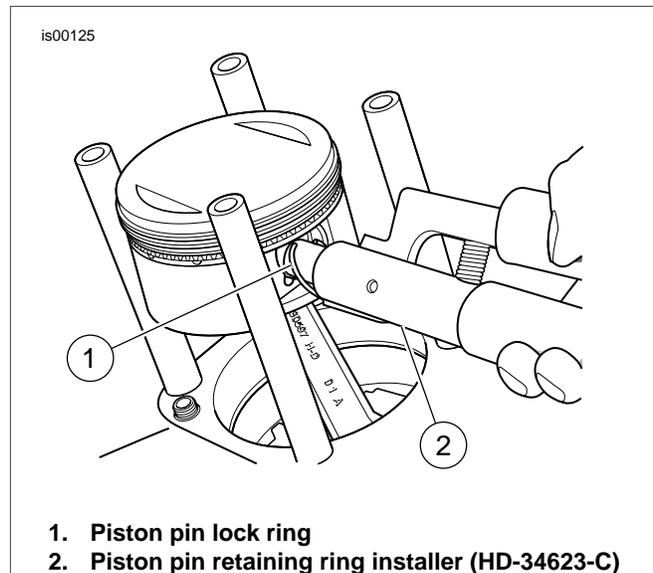
## INSTALLATION

### Piston Installation

**NOTES**

The new 1200cc pistons can be installed with either thrust surface facing the front of the engine. New pistons are not specific to front or back cylinders. Install any new piston in either cylinder.

Check the piston rings for proper side clearance and end gap (see the applicable Sportster service manual). Be sure end gaps of adjacent rings are installed 90 degrees apart.



**Figure 3. Seating Circlip**

- Follow the assembly and torque specifications in the ENGINE section of the applicable service manual.

## Installing Piston Pin Circlips

2. See Figure 3. Insert the circlip (1) onto the Piston Pin Retaining Ring (circlip) Installer (2).
3. Squeeze handles of tool together and insert circlip into slot of the piston. Release the handles and remove tool.
4. Repeat steps for remaining circlips.

## CHECK VALVE-TO-PISTON CLEARANCE

### NOTE

*It is important to check valve-to-piston clearance as described in the following steps. We recommend that this inspection be performed by a Harley-Davidson dealer.*

1. Apply a 1/8 in. (3.2 mm) thick layer of clay to the crowns of both pistons (in the areas where the valves meet the pistons).
2. Install the cylinder heads per the service manual procedures, using the new gaskets from the Gasket Kit (purchased separately).  
Assemble the heads and valve train, and tighten the internal-threaded cylinder screws to the torque specifications listed in the service manual.
3. Turn the engine (by hand) through two complete revolutions.
4. Remove the heads and measure the clay at its thinnest point.

### NOTES

*Clay must measure 0.080 in. (2.03 mm) at the thinnest point. If this measurement does not meet the minimum thickness, the depth of the valve notches must be increased; however, the depth of the notches must not exceed 0.135 in. (3.43 mm).*

*Valve radial clearance should also be checked. Radial clearance of 0.050 in. (1.27 mm) is recommended.*

## ASSEMBLY

1. Refer to appropriate ENGINE sections of service manual to assemble the engine.

### NOTE

*Engine re-jetting or re-timing may be required to achieve full potential of this performance product.*

## WARNING

**Connect positive (+) battery cable first. If positive (+) cable should contact ground with negative (-) cable connected, the resulting sparks can cause a battery explosion, which could result in death or serious injury. (00068a)**

## WARNING

**When servicing the fuel system, do not smoke or allow open flame or sparks in the vicinity. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00330a)**

2. Connect battery cables, positive (+) cable first.

## CAUTION

**You must recalibrate the ECM when installing this kit. Failure to properly recalibrate the ECM can result in severe engine damage. (00399b)**

3. *Carbureted models:* Use Screamin' Eagle Pro Ignition Race Turner or Screamin' Eagle Pro Ignition Module to verify proper installation of kit.

*EFI models:* Use Screamin' Eagle Pro EFI Race Turner to verify proper installation of kit.

### NOTE

*This diagnostic equipment must be purchased separately and are available at a Harley-Davidson dealer.*

## Engine Break-In

For the first 500 miles, to wear-in critical parts, observe the following driving rules:

1. During the first 50 miles, keep the engine speed below 2500 RPM in any gear.
2. Through the first 500 miles, vary the engine speed, avoiding steady speed for long distances. Engine speed up to 3000 RPM is permissible in any gear after the first 50 miles.
3. Avoid fast starts at wide-open throttle. Drive slowly until the engine warms up.
4. Avoid overloading the engine, such as running the engine at extremely low RPM in higher gears.

# SERVICE PARTS

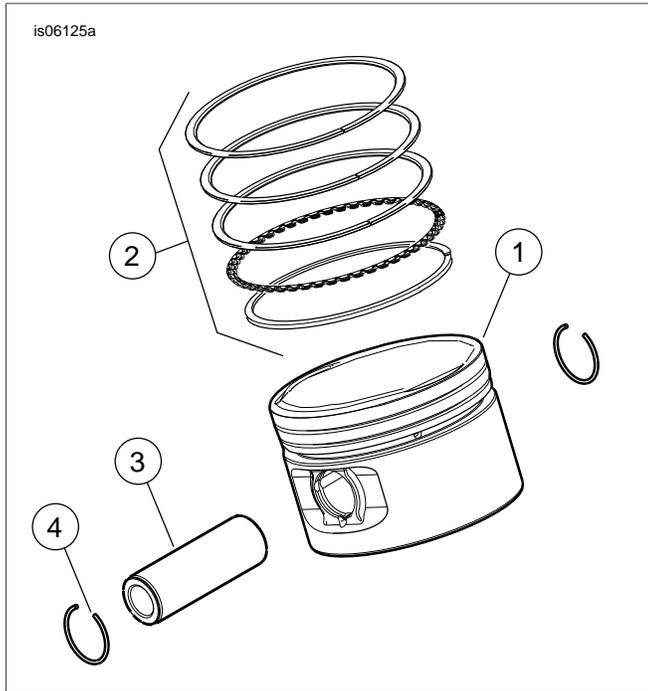


Figure 4. Service Parts: Piston, 883 to 1200 Conversion

Table 3. Service Parts Table, Front and Rear Piston Kits

Kit	Item	Description (Quantity)	Part Number
Kit 22698-01A Piston Kit Standard	1	Piston (standard)	Not sold separately
	2	Ring set (standard) (2)	21925-04
Kit 22700-01A Piston Kit (+0.010)	1	Piston (+0.010)	Not sold separately
	2	Ring set (+0.010) (2)	21927-04
<b>Items common to all Piston Kits:</b>			
	3	Piston pin (2)	22481-04
	4	Retaining ring (Circlip) (4)	22482-04