INSTRUCTIONS

-J04478 REV. 2007-06-28

SCREAMIN' EAGLE PRO TC 110 (1800 CC) CONVERSION KIT

GENERAL

Kit Number

29931-08 (Black) and 29932-08 (Silver)

Models

For model fitment information, please see the P&A Retail Catalog or the Parts and Accessories section of www.harley-davidson.com (English only). **Notice:** This kit is not intended for installation on '08 Dyna models, see your dealer for correct '08 Dyna kit number.

Additional Parts Required

This kit requires the separate purchase of the Cam Drive Retention Kit (25566-06). The kit also requires an ACR Overlay Wire Harness Kit (70623-06) except for 2008 Touring models which require ACR overlay harness kit 70623-08. These kits are available from a Harley-Davidson dealer.

The separate purchase of Crankcase Boring Tool Kit (94419-06) is recommended for installing this high performance engine conversion kit.

NOTE

Crankcase Boring Tool Kit (94419-06) includes a modified top center screw (1093) to ensure the crankcase boring tool does not get damaged when installing the conversion kit. This screw can also be purchased separately from a Harley-Davidson dealer for those who wish to use their own boring fixture.

Please see appropriate sections in Service Manual for the special tools required to install this kit.

Proper installation of this kit also requires ECM recalibration using EFI Race Tuner Kit. Refer to Screamin' Eagle Pro Catalog or contact a Harley-Davidson dealer.

⚠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 to Figure 6, and Table 2 to Table 4.

NOTES

This conversion kit is intended for High Performance or Racing applications only and is not legal for sale or use on pollution controlled motor vehicles. This kit may may reduce or void the limited vehicle warranty. Engine related performance parts are intended for the experienced rider only.

REMOVAL

Prepare for Service

1. Position motorcycle on a suitable lift.

NOTE

If vehicle is equipped with Harley-Davidson Smart Security System, see Owner's Manual for instructions to disarm the system.

2. Remove seat according to the instructions in the Service Manual.

⚠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)

3. Remove fuel tank according to the instructions in the Service Manual.
4. Remove Maxi® fuse. Refer to Service Manual for your motorcycle.

Remove Engine Components

1. Remove existing air cleaner assembly. Refer to AIR CLEANER REMOVAL in Service Manual.
2. Remove existing exhaust system. Refer to EXHAUST SYSTEM REMOVAL in Service Manual.
3. Remove engine from chassis following the instructions in the Service Manual.
4. Disassemble engine top end and bottom end. Refer to appropriate ENGINE sections in Service Manual.
5. Remove existing clutch diaphragm spring. Refer to CLUTCH REMOVAL in Service Manual.

MACHINE CRANKCASE

CAUTION

The procedures in this instruction sheet should be performed by one experienced in precision measuring techniques. Failure to meet tolerances called for in this instruction sheet can result in engine damage. (00511b)

Crankcase Boring Preparation

NOTE

During final reassembly of the engine, Harley-Davidson recommends replacing the Original Equipment cylinder studs with Screamin' Eagle High Tensile Studs (16505-01).

1. Remove cylinder studs from the engine crankcase.
2. Mask off all bearings and oil holes to prevent debris and contaminants from entering those areas.
3. Inspect and clean engine case mating surfaces.
4. See Figure 6. Reassemble engine case with original screws, except the top center screw between the cylinders, and tighten to specifications listed in Service Manual.

NOTE

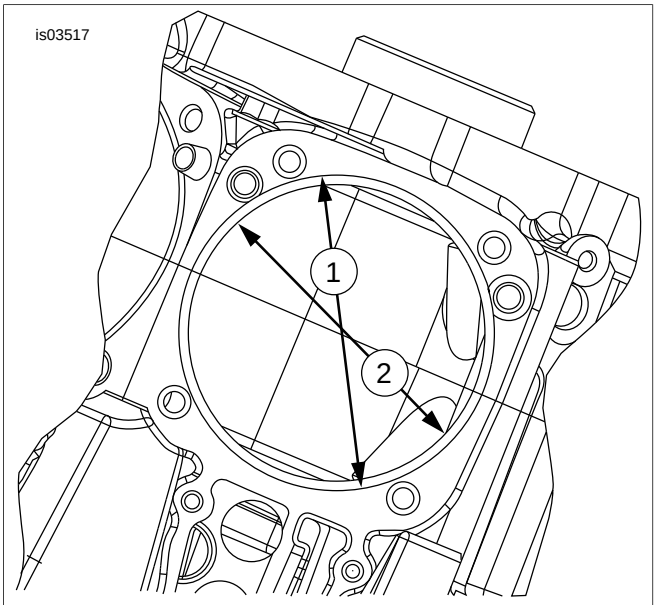
To prevent damage to crankcase boring tool, it is important to replace the top center screw with a modified top center screw (1093). This screw is included in the Crankcase Boring Tool Kit (94419-06) and can be purchased separately from a Harley-Davidson dealer.

5. Install modified top center screw (1093) between the cylinders and tighten to 50-90 **in-lbs** (5.6-10.2 Nm).

NOTE

To aid in crankcase boring, a Screamin' Eagle Crankcase Boring Tool Kit (94419-06) is available. Modified top center screw (1093) is included in this kit. Refer to Harley-Davidson Genuine Motor Accessories and Genuine Motor Parts catalog or Screamin' Eagle Pro catalog.

6. See Figure 1 and Table 1. Machine crankcase cylinder spigot bore and O-ring counterbore to the dimensions shown.



1. O-ring counterbore
2. Spigot bore

Figure 1. Spigot Bore and O-Ring Counterbore Dimensions

Table 1. Spigot Bore and O-Ring Counterbore Dimensions

Description	Bore	Depth
Spigot Bore	4.205 +/- 0.010 in. (107 +/- 0.25 mm)	1.625 +/- 0.010 in. (41.3 +/- 0.25 mm)
O-Ring Counterbore	4.415 +/- 0.002 in. (112 +/- 0.05 mm)	0.085 +/- 0.003 in. (2.16 +/- 0.08 mm)

Modify Crankcase

NOTE

To prevent severe engine damage, thoroughly clean and remove all chips and debris from the engine crankcase after boring.

1. Disassemble crankcase and wash (or clean) chips and debris from engine crankcase halves as necessary.
2. See Figure 3. Using a 11/32 in. (8.7 mm) drill bit, drill out the existing threads of the top center screw hole. Drill to a depth of 0.79 in. (20 mm) from the gasket surface.
3. Using a size "F" in. (6.6 mm) drill bit, extend the top center screw hole 1.00 in. (25.4 mm) maximum to a depth of 1.79 in. (45.5 mm) from the gasket surface.
4. Using a bottoming tap (purchased separately) size 5/16-18 UNC-2B, tap the screw hole to a minimum depth of 1.59 in. (40.4 mm) from the gasket surface.
5. See Figure 2 and Figure 3. Remove the thin material between the cylinders next to the top center screw as shown, by using a 5/8 in. (16 mm) ball end mill and milling a 5/16 in. (7.94 mm) radius at the two points shown.

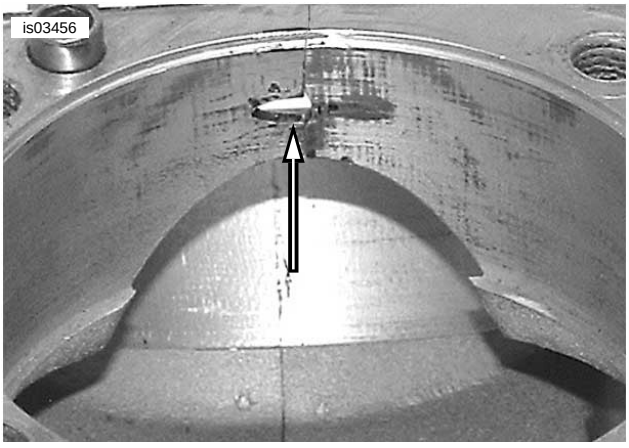
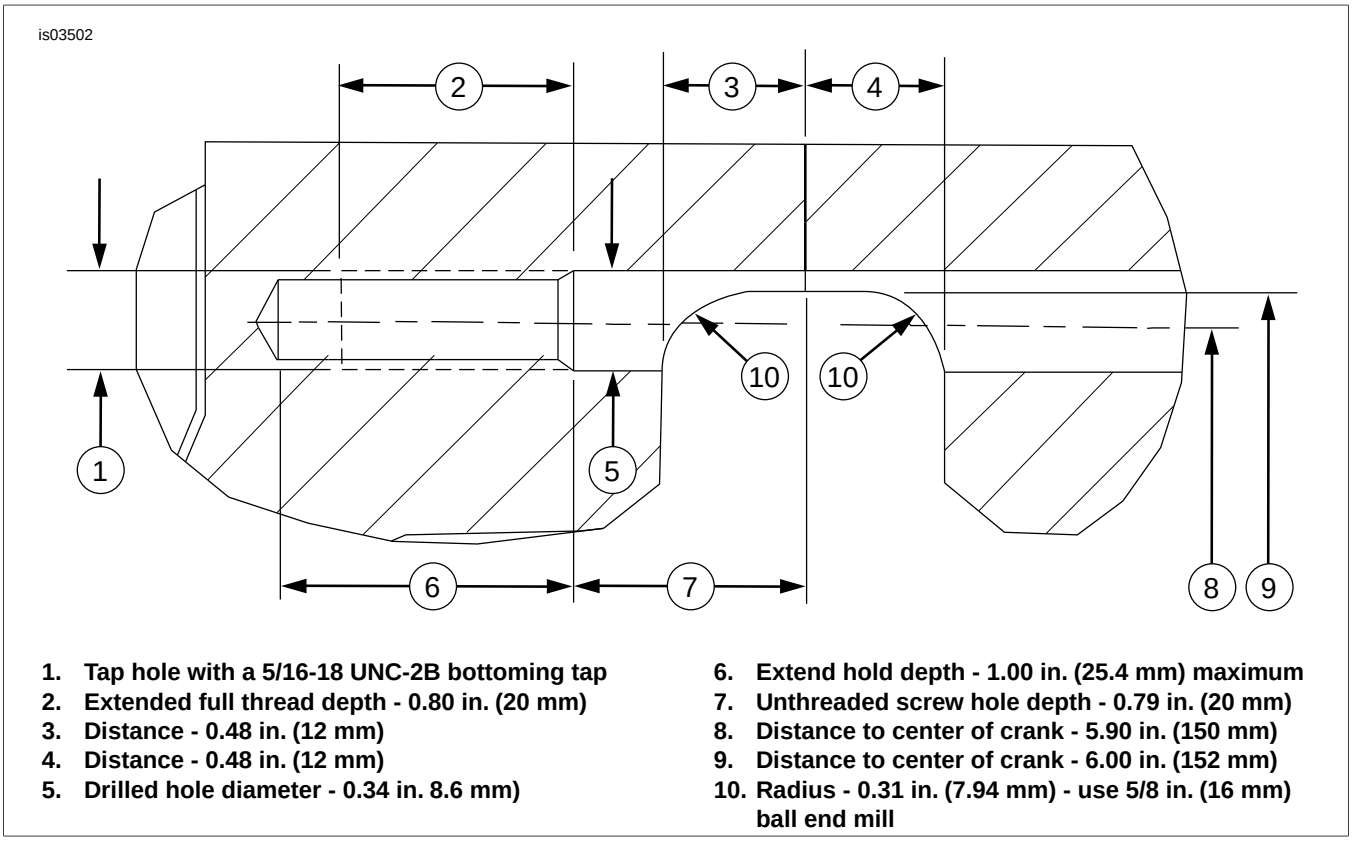


Figure 2. Cylinder Wall

6. Refer to the appropriate Service Manual and assemble the engine with the following changes:
   a. Tighten all of the engine crankcase screws to the specified torque, except the top center engine crankcase screw.
   b. See Figure 6. After the cylinders and heads have been installed and the hardware tightened to specification, install the top center engine crankcase screw (15) supplied in kit. Tighten screw to 50-90 in-lbs (5.6-10.2 Nm).



1. **Tap hole with a 5/16-18 UNC-2B bottoming tap**
2. **Extended full thread depth - 0.80 in. (20 mm)**
3. **Distance - 0.48 in. (12 mm)**
4. **Distance - 0.48 in. (12 mm)**
5. **Drilled hole diameter - 0.34 in. 8.6 mm)**
6. **Extend hold depth - 1.00 in. (25.4 mm) maximum**
7. **Unthreaded screw hole depth - 0.79 in. (20 mm)**
8. **Distance to center of crank - 5.90 in. (150 mm)**
9. **Distance to center of crank - 6.00 in. (152 mm)**
10. **Radius - 0.31 in. (7.94 mm) - use 5/8 in. (16 mm) ball end mill**

Figure 3. Top Center Engine Crankcase Screw Hole Modification

INSTALLATION

Install Engine and Clutch Components

1. See Figure 6. Inspect camshaft needle bearings (7) and replace if necessary.
2. See Figure 4 through Figure 6. Assemble engine top end and bottom end using parts from kit. Refer to appropriate ENGINE sections in Service Manual.
3. Install engine in chassis following the instructions in the Service Manual.
4. Install clutch diaphragm spring from kit. Refer to CLUTCH INSTALLATION in Service Manual.
5. Install exhaust system. Refer to EXHAUST SYSTEM INSTALLATION in Service Manual.
6. Install air cleaner assembly. Refer to AIR CLEANER INSTALLATION in Service Manual.

Install ACR Overlay Wire Harness

Refer to Instruction Sheet in ACR Overlay Wire Harness Kit.

Final Assembly

1. Install Maxi® fuse. Refer to Service Manual for your motorcycle.
2. Install fuel tank according to the instructions in the Service Manual.
3. Install seat according to the instructions in the Service Manual.

⚠WARNING

After installing seat, pull upward on seat to be sure it is locked in position. While riding, a loose seat can shift causing loss of control, which could result in death or serious injury. (00070b)

CAUTION

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

4. Download the new ECM calibration using EFI Race Tuner Kit. Refer to Screamin' Eagle Pro Catalog or contact a Harley-Davidson dealer.
5. Start and run engine. Repeat several times to ensure proper operation.

Operation

Refer to BREAK-IN RIDING RULES in the Owner's Manual for instructions to break-in the motorcycle.

SERVICE PARTS

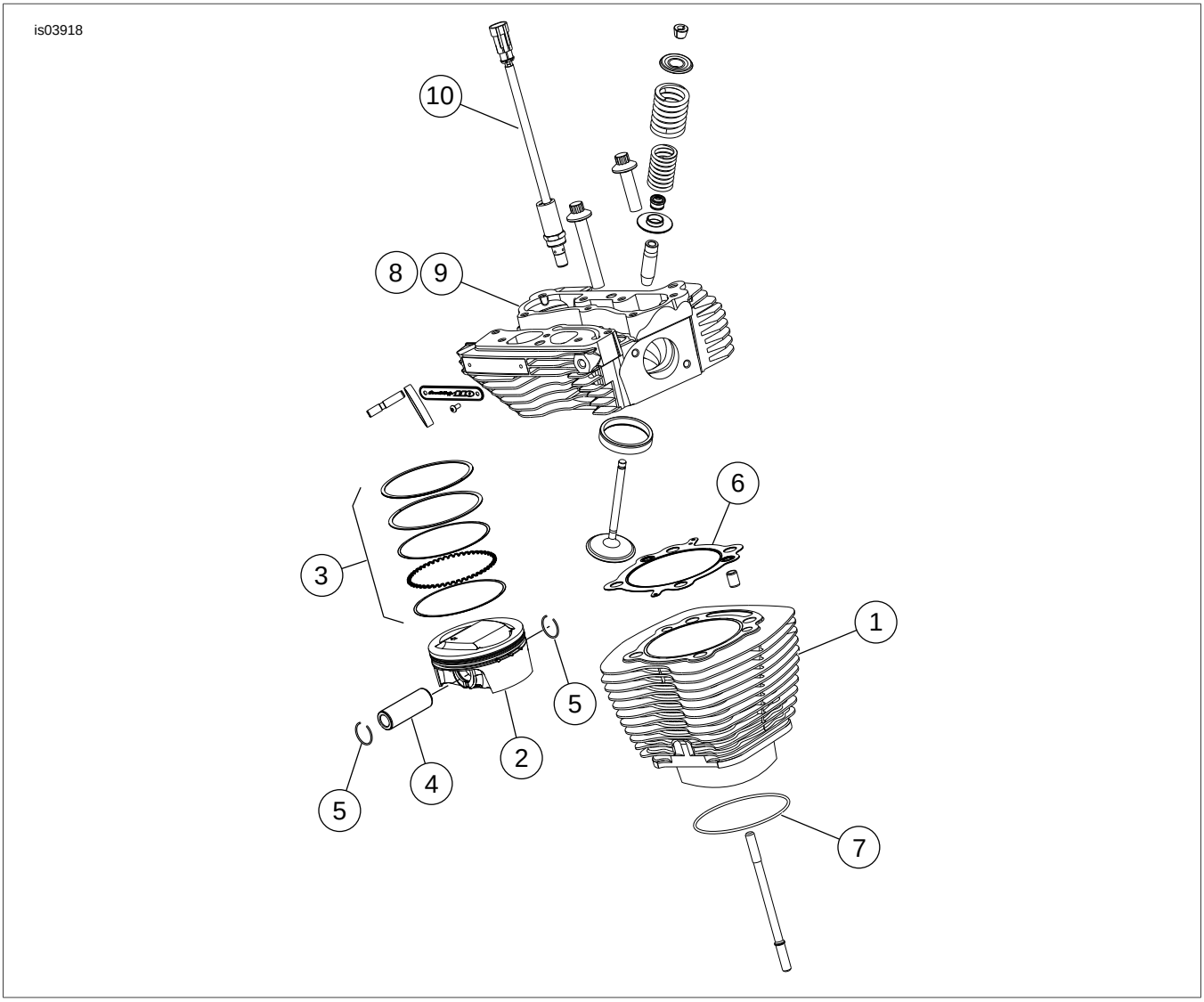


Figure 4. Service Parts: Screamin' Eagle Pro TC 110 (1800 CC) Conversion Kit

Table 2. Service Parts: Screamin' Eagle Pro TC 110 (1800 cc) Conversion Kit

Item	Description (Quantity)	Part Number		Item	Description (Quantity)	Part Number
1	Cylinder assembly (Black) (2) (used in Kit 29931-08)	17285-07		7	O-ring, cylinder spigot (2)	10956
	Cylinder assembly (Silver) (2) (used in Kit 29932-08)	16815-07		8	Cylinder head assembly, front (black)	17288-08
2	Piston (2)	Not Sold Separately			Cylinder head assembly, front (silver)	17289-08
3	Piston Ring Set (2)	22285-07		9	Cylinder head assembly, rear (black)	17252-07
4	Piston pin (2)	22558-07			Cylinder head assembly, rear (silver)	17262-07
5	Piston pin circlip (4)	22097-99		10	Automatic Compression Release (ACR)	28861-07
6	Gasket, cylinder head (2)	16801-07A		Notes: Piston Kit (22502-07) includes 2 through 5. Item 5 is also included in Engine Overhaul Gasket Kit (17053-99B). For cylinder head assembly (8, 9) components, refer to 2008 FLHTCUSE3 (99428-08), 2008 FXDSE2 (99430-08), and 2008 FXSTSSE2 (99458-08) Parts Catalogs.		

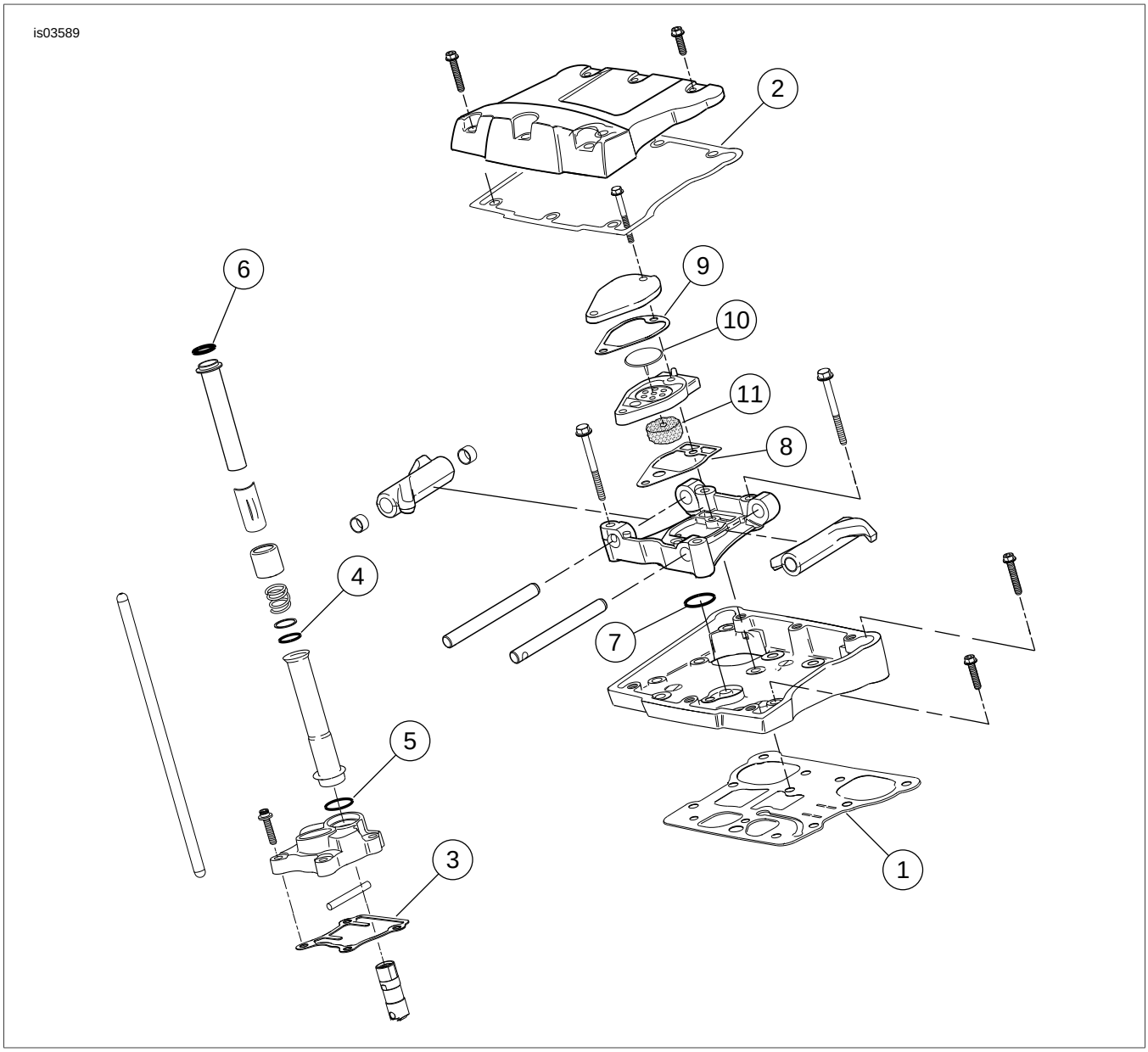


Figure 5. Service Parts: Screamin' Eagle Pro TC 110 (1800 CC) Conversion Kit

Table 3. Service Parts: Screamin' Eagle Pro TC 110 (1800 CC) Conversion Kit

Item	Description (Quantity)	Part Number		Item	Description (Quantity)	Part Number
1	Gasket, rocker cover base (2)	16719-99A		9	Gasket, breather (2)	Not Sold Separately
2	Gasket, rocker cover top (2)	17386-99A		10	Umbrella valve (2)	26858-99
3	Gasket, tappet cover (2)	18635-99B		11	Filter element, breather (2)	63815-99
4	O-ring, middle push rod cover (4)	11132A		12	Seal, EFI intake (2) (Not Shown)	29995-86B
5	O-ring, lower push rod cover (4)	11145A		13	Seal, map sensor (Not Shown)	11291
6	O-ring, upper push rod cover (4)	11293		14	Spring, clutch diaphragm (Not Shown)	37951-98
7	O-ring, rocker arm support (2)	11270		Notes: Breather Gasket Kit (17162-03) includes 8 through 11. Items 1 through 13 are included in Engine Overhaul Kit (17053-99B).		
8	Gasket, breather (2)	Not Sold Separately				

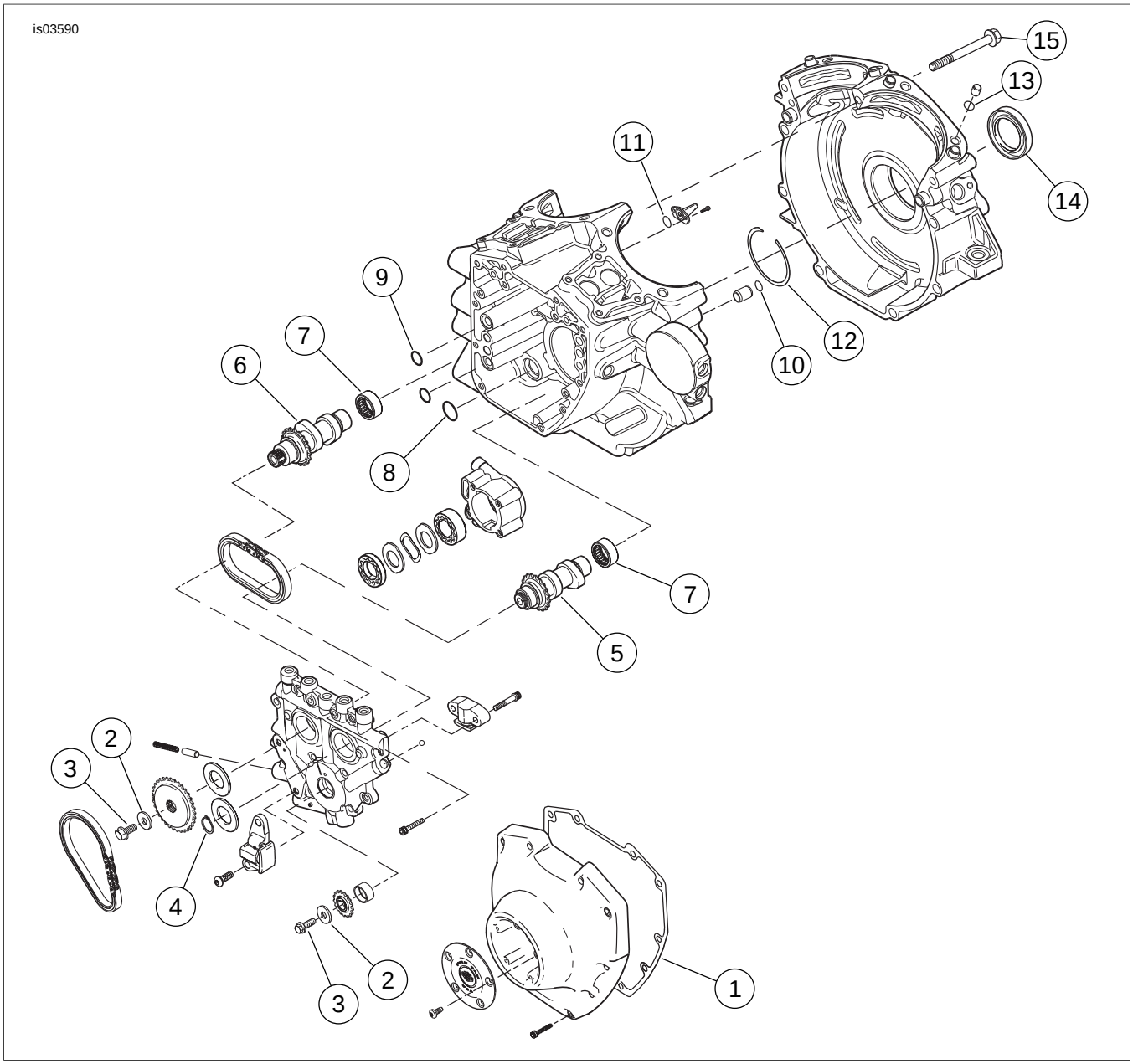


Figure 6. Service Parts: Screamin' Eagle Pro TC 110 (1800 CC) Conversion Kit

Table 4. Service Parts: Screamin' Eagle Pro TC 110 (1800 cc) Conversion Kit

Item	Description (Quantity)	Part Number
1	Gasket, cam cover	25244-99A
2	Washer	Not Sold Separately
3	Capscrew, flanged	Not Sold Separately
4	Retaining ring	11461
5	Camshaft, front	Not Sold Separately
6	Camshaft, rear	Not Sold Separately
7	Bearing, needle (2) (must be purchased separately, if needed)	9215
8	O-ring, oil pump to cam plate	11293
9	O-ring, cam plate to crankcase (2)	11301
10	O-ring, crankcase ring dowel (2)	26432-76A
11	O-ring, piston cooling (2)	11140

Table 4. Service Parts: Screamin' Eagle Pro TC 110 (1800 cc) Conversion Kit

Item	Description (Quantity)	Part Number
12	Retaining ring, internal	35114-02
13	O-ring, crankcase dowel (2)	11273
14	Seal, main bearing oil	12068
15	Screw, top center crankcase, long	1090
16	Screw, modified, crankcase boring (Not Shown) (must be purchased separately)	1093
17	Flywheel bearing, sprocket shaft (not shown)	24004-03A
Notes: Cam Drive Retention Kit (25566-06) includes 2 and 3. Items 8 through 14 are included in Engine Overhaul Gasket Kit (17053-99B). Items 5 and 6 available in Cam Kit (25475-06).		