



INSTRUCTIONS

-J05483

REV. 2011-06-10

SE120R SCREAMIN' EAGLE PRO RACE-USE CRATE ENGINE

GENERAL

Kit Number

19289-12

Models

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

NOTICE

Installation of this kit requires jetting changes or recalibration for proper function. Failure to do so may cause a lean fuel condition, which may result in engine damage. (00623b)

NOTES

This engine is for race use only! You must remove the emissions label and license plate from the factory chassis.

This engine has been assembled with a Dyna Sprocket Shaft Spacer (Part No. 24038-03).

KIT CONTENTS

See Figure 7 through Figure 13 and Table 13 through Table 19.

Additional Parts Required

- Recommended synthetic engine oil, Screamin' Eagle SYN3® 20W50 (Part No. 99824-03/00QT).
- Touring models require replacement of Sprocket Shaft Spacer with Part No. 24008-03 for 2002-2005 models or Part No. 24009-06 for 2006 models.
- The cylinder heads in this kit are machined for use with symmetric intake flanges (original equipment since 2006).

1999-2005 models require separate purchase of symmetric intake seal flanges (Part No. 26993-06), quantity 2.

- Installation of compression releases is required. Refer to Screamin' Eagle Pro Catalog or contact a Harley-Davidson dealer.
- Clutch kit that will support a minimum of 140 ft-lbs of torque.
- SE throttle body, Air Cleaner and High Flow injectors. Refer to the Screamin' Eagle Pro Catalog or contact a Harley-Davidson dealer.
- SE exhaust gaskets kit (Part No. 17048-98).
- Oil cooler is recommended. See P&A Retail Catalog or the Parts and Accessories section of www.harley-davidson.com.
- **For EFI Models:** SE Pro Super Tuner - refer to Screamin' Eagle Pro Catalog or contact a Harley-Davidson dealer.
- See appropriate sections in service manual for the special tools required to install this kit.

⚠ 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.

PREPARATION

NOTE

For vehicles equipped with security siren:

- Verify that the Hands-Free Fob is present.
- Turn the ignition key switch to IGNITION.

For EFI Models:

⚠ WARNING

To prevent spray of fuel, purge system of high-pressure fuel before supply line is disconnected. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00275a)

Follow service manual instructions to purge the fuel supply of high pressure gasoline and remove the fuel supply line.

For ALL Vehicles:

WARNING

To prevent accidental vehicle start-up, which could cause death or serious injury, disconnect battery cables (negative (-) cable first) before proceeding. (00307a)

WARNING

Disconnect negative (-) 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. (00049a)

1. Refer to the service manual and follow the instructions to remove the seat and disconnect the battery cables, negative (-) cable first. Retain all seat mounting hardware.

For Carbureted Models:

WARNING

Gasoline can drain from the carburetor fuel line when disconnected from fuel valve fitting. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. Wipe up spilled fuel immediately and dispose of rags in a suitable manner. (00256a)

1. Turn the fuel supply valve to OFF. Remove the fuel line from the valve.

REMOVAL

Remove OEM Engine

1. Position the motorcycle on a suitable lift.

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. Remove the fuel tank according to the instructions in the service manual.
3. Refer to ENGINE section of the appropriate service manual for removal of engine from chassis.

SE120R ENGINE INSTALLATION

1. Before installing the engine, make sure there is no debris or contaminants in the oiling system. The oil tank should be flushed out. The tank flush-out should be performed by an authorized dealer or qualified technician.
2. Remove the oil passage caps/plugs at the engine to transmission interface.
3. Refer to the ENGINE section of the appropriate service manual for installation of the engine to the chassis.
4. **For Touring Models:** Remove sprocket shaft spacer and replace with appropriate spacer listed in ADDITIONAL PARTS REQUIRED section.

Final Assembly

1. Install the fuel tank according to the instructions in the service manual.

2. Install the 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)

NOTICE

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

3. Download the new ECM calibration when installing this kit. Refer to the Screamin' Eagle Pro Catalog or contact a Harley-Davidson dealer.
4. Start and run the engine. Repeat several times to verify proper operation.

OPERATION

1. Refer to BREAK-IN RIDING RULES in the owner's manual for instructions to break-in the new engine.

MAINTENANCE

1. Refer to the MAINTENANCE SCHEDULE in the appropriate service manual or owner's manual.
2. For engine assembly/disassembly refer to the ENGINE section of the appropriate service manual.

SE120R ENGINE SPECIFICATIONS

NOTE

The following sections provide unique information not available in the service manual ENGINE section for the appropriate Twin Cam 96™ alpha engines from Touring or Dyna platforms.

Table 1. Engine: SE Twin Cam 120R

Item	Specification	
Compression Ratio	10.5	
Bore	4.060 in.	103.12 mm
Stroke	4.625 in.	117.48 mm
Displacement	119.75 in.	1962.39 cc
Lubrication system	Pressurized dry sump with oil cooler	

MANUFACTURING TOLERANCES

Refer to the Twin-Cam 96™ specifications in the service manual for any specification not shown in the following tables.

Table 2. Cylinder Heads

ITEM	IN.	MM
Valve guide in head (tight)	0.0020-0.0033	0.051-0.084
Intake valve seat in head (tight)	0.004-0.0055	0.102-0.140
Exhaust valve seat in head (tight)	0.004-0.0055	0.102-0.140

Table 3. Valves

ITEM	IN.	MM
Fit in guide (intake and exhaust)	0.0011-0.0029	0.028-0.074
Seat width	0.034-0.062	0.86-1.57
Stem protrusion from cylinder head boss	1.990-2.024	50.55-51.41

Table 4. Valve Springs Specifications

ITEM	PRESSURE	DIMENSION
Closed	180 lbs (79 kg)	1.800 in. (45.7 mm)
Open	500 lbs (196 kg)	1.177 in. (29.9 mm)
Free length	n/a	2.210 in. (56.1 mm)

Table 5. Pistons

Piston:	Clearance (in.)
Piston-to-cylinder fit (Loose)	0.0026-0.0036
Piston pin fit (Loose)	0.0003-0.0008
Top Ring End Gap	0.012-0.020
Second Ring End Gap	0.016-0.024
Oil Control Ring Rail Gap	0.008-0.0028
Top Ring Side Clearance	0.0010-0.0022
Second Ring Side Clearance	0.0010-0.0022
Oil Control Ring Side Clearance	0.0003-0.0072

Table 6. Cam Specifications - SE266E

Intake	Specification
Opens	24 BTDC
Closes	58 ABDC
Duration	262°
Max. Valve Lift	0.658 in.
Valve Lift @ TDC	0.208 in.
Exhaust	Specification
Opens	69 BBDC
Closes	17 ATDC
Duration	266°
Max. Valve Lift	0.658 in.
Valve Lift @ TDC	0.178 in.
Cam Timing @ 0.053" of Tappet Lift in Crankshaft Degrees	

SERVICE WEAR LIMITS

Wear limits can be used as a guide when deciding whether to reuse engine parts. Replace used parts whenever the following wear limits are exceeded.

NOTE

Refer to the Twin-Cam 96 specifications in the service manual for any specification not shown in the following tables

Table 7. Cylinders

ITEM	REPLACE IF WEAR EXCEEDS	
	IN.	MM
Taper	0.002	0.051
Out of round	0.002	0.051
Warping of gasket or O-ring surfaces: top	0.006	0.152
Warping of gasket or O-ring surfaces: base	0.004	0.102

Table 8. Cylinder Bore

ITEM	REPLACE IF WEAR EXCEEDS	
	IN.	MM
Standard	4.062	103.17
0.010 in. oversize	4.072	103.43

Table 9. Pistons

Piston-to-cylinder fit (Loose)	Wear Limit (in.)
Fit in cylinder (Loose)	0.0061
Piston Pin Fit (Loose)	0.0011
Top Ring End Gap	0.030
Second Ring End Gap	0.034
Oil Control Ring Rail Gap	0.038
Top Ring Side Clearance	0.0030
Second Ring Side Clearance	0.0030
Oil Control Ring Side Clearance	0.0079

SERVICING OR REPLACING SE120R CYLINDERS

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 main fuse. Refer to service manual for your motorcycle.
4. Remove fuel tank according to the instructions in the service manual.

Remove Engine Components

1. Refer to service manual to remove existing air cleaner assembly.
2. Remove the existing exhaust system following service manual procedures.
3. Disassemble the engine top end. Refer to the appropriate engine sections in the service manual.

Install Engine Top End Components

NOTES

See Figure 1. The 4.060 in. cylinder base gasket (1) and cylinder head gasket (2) eliminate the need for O-rings. Do not use O-rings on cylinder dowels or cylinder spigots.

When installing new base gasket (1), install with the embossed side down and the concave side up.

1. Refer to the appropriate service manual and assemble the engine with the following changes:
 - a. Assemble the top end of the engine using the base gaskets and head gaskets provided in the kit. Refer to the appropriate engine section in the service manual.

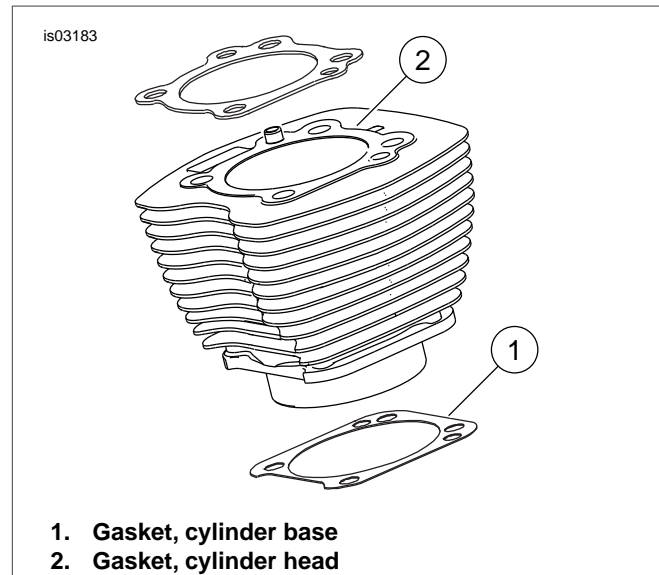


Figure 1. Cylinder Gaskets

Final Assembly

2. Install the fuel tank according to the instructions in the service manual.
3. Refer to the service manual to install the main fuse.
4. Install the 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)

SERVICING OR REPLACING SE120R PISTON

1. Refer to ENGINE section of service manual.

INSTALLATION

⚠ WARNING

To prevent accidental vehicle start-up, which could cause death or serious injury, disconnect battery cables (negative (-) cable first) before proceeding. (00307a)

⚠ WARNING

Disconnect negative (-) 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. (00049a)

1. Refer to the service manual and follow the instructions given to remove the seat and disconnect the battery cables, negative cable first.

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)

- Refer to the ENGINE: STRIPPING MOTORCYCLE FOR SERVICE and TOP END OVERHAUL, DISASSEMBLY sections of the service manual for cylinder head, cylinder and piston removal procedures.
- Follow the procedures in the ENGINE: SUBASSEMBLY SERVICE AND REPAIR, TOP END/ CYLINDER/ UPPER CONNECTING ROD sections of the service manual for inspection of parts.
- See the ENGINE: SUBASSEMBLY SERVICE AND REPAIR, CYLINDER section of the service manual for boring and honing instructions.

NOTES

Install the top ring (barrel-faced) and second ring (taper-faced Napier) with the "N" marking facing up. Oil ring rails can be installed either side up.

The 4.060 inch cylinder base gaskets and cylinder head gaskets included in the kit eliminate the need for O-rings (Part No. 11273). **Do not** use O-rings on cylinder dowels or cylinder spigots.

When installing new base gasket, install with the embossed side down and the concave side up.

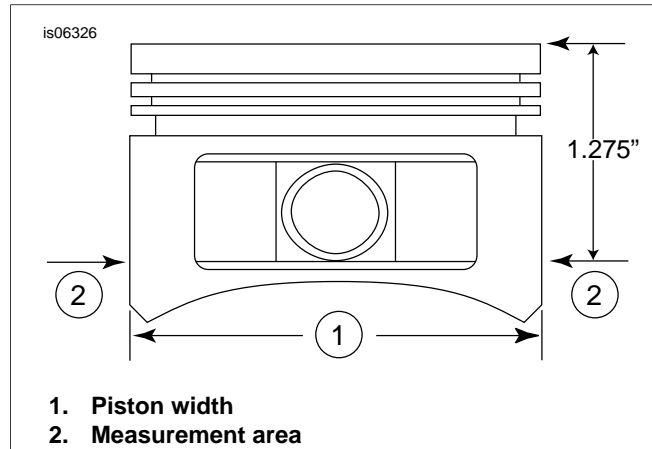


Figure 2. Piston Measurements

NOTE

Checking piston-to-cylinder fit at this location per table 20 is for reference.

- See Figure 2. Measure the piston width (1), 90 degrees horizontally from both sides of the piston pin hole and 1.275 in. down from the deck surface (top) of the piston (2). See table 20 for piston-to-cylinder fit at this location.
- The pistons in this kit are front and rear specific. Install the piston marked "FRONT" in the front cylinder with the arrow pointing towards the **front** of the engine. Install the piston marked "REAR" in the rear cylinder with the arrow pointing towards the **front** of the engine.
- Refer to the ENGINE: TOP END OVERHAUL, ASSEMBLY section of the service manual for piston, cylinder and cylinder head installation procedures.

Table 10. Specifications

Piston:	Clearance (in.)
Piston-to-cylinder fit (Loose)	0.0026-0.0036
Piston pin fit (Loose)	0.0003-0.0008
Top Ring End Gap	0.012-0.020
Second Ring End Gap	0.016-0.024
Oil Control Ring Rail Gap	0.008-0.0028
Top Ring Side Clearance	0.0010-0.0022
Second Ring Side Clearance	0.0010-0.0022
Oil Control Ring Side Clearance	0.0003-0.0072

Table 11. Service Wear Limits

Piston-to-cylinder fit (Loose)	Wear Limit (in.)
Fit in cylinder (Loose)	0.0061
Piston Pin Fit (Loose)	0.0011
Top Ring End Gap	0.030
Second Ring End Gap	0.034
Oil Control Ring Rail Gap	0.038
Top Ring Side Clearance	0.0030
Second Ring Side Clearance	0.0030
Oil Control Ring Side Clearance	0.0079

PISTON PIN RETAINING RING (CIRCLIP) INSTALLATION

NOTE

Circlip gap must be at 12 or 6 o'clock position when installed.

- See Figure 3. Insert the open end of the circlip (1) into the notch (2) on the groove (3) around the piston pin boss so that the gap is at the 12 or 6 o'clock position when installed.

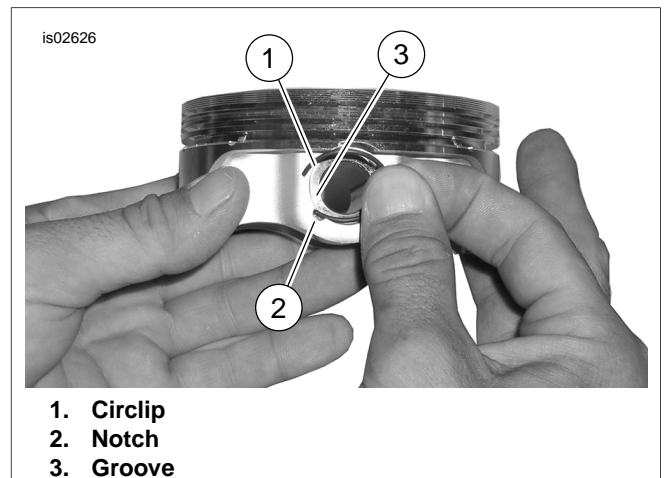


Figure 3. Circlip and Piston

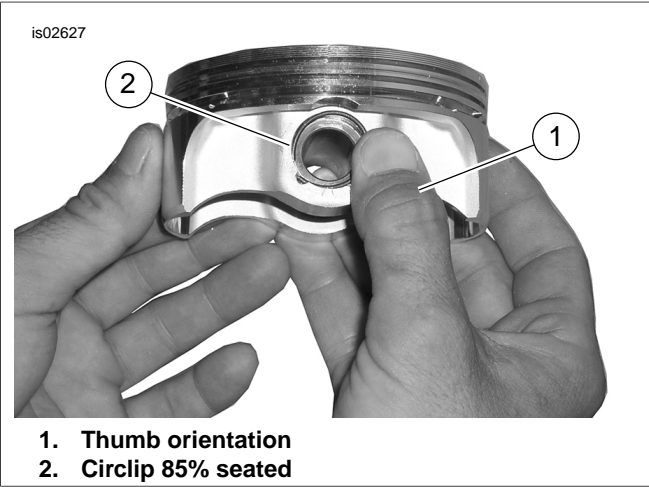


Figure 4. Install Circlip

9. See Figure 4. Position your thumb (1) as shown, and press firmly until approximately 85% of the circlip (2) is seated in the groove.
10. Being careful not to scratch or mar the piston, use a small-bladed screwdriver to wedge the circlip into the remainder of the groove. Repeat for the remaining circlips.

NOTE

Make sure the piston circlip is fully seated, or ENGINE DAMAGE WILL OCCUR.

11. Refer to the ENGINE: ASSEMBLING MOTORCYCLE AFTER STRIPPING section of the service manual for final re-assembly procedures.

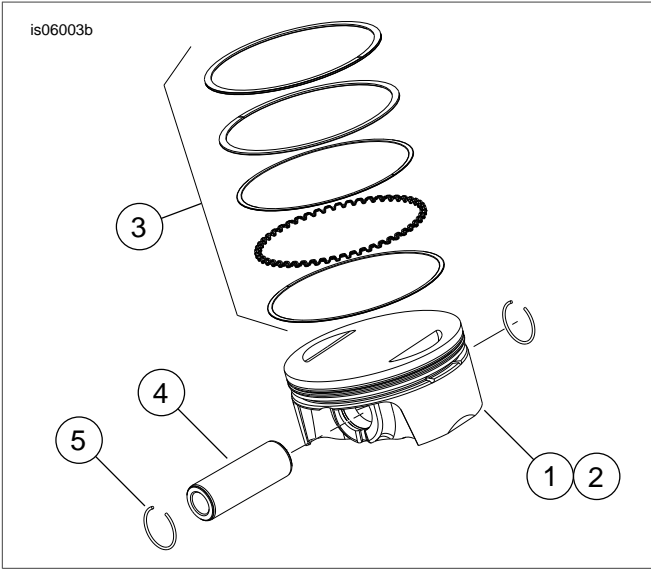


Figure 5. Piston Assembly

Table 12. Piston Assembly

Item	Description (Quantity)
1	Piston (front, standard)
2	Piston (rear, standard)
3	• Ring set, standard (2)
4	• Piston pin (2)
5	• Circlip (4)
1	Piston (front, +0.010)
2	Piston (rear, +0.010)
3	• Ring set, +0.010 (2)
4	• Piston pin (2)
5	• Circlip (4)

REPLACING/SERVICING PUSHRODS

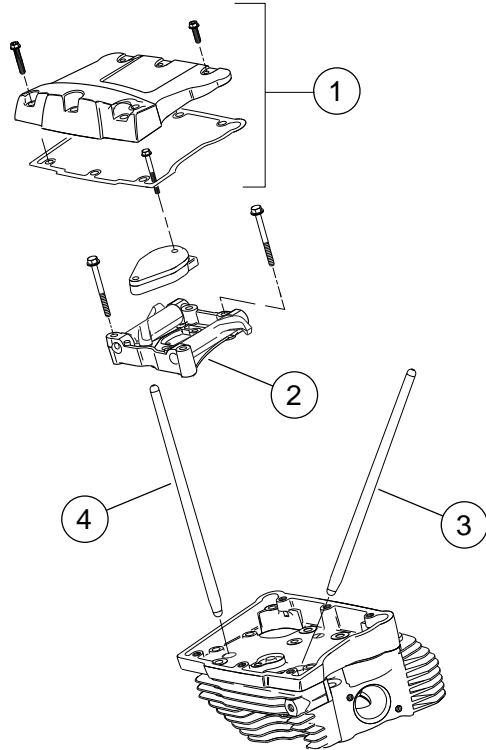
1. Refer to ENGINE section of service manual.

NOTES

Follow the appropriate service manual procedures for installing and removing the pushrods. The pushrods are marked Intake and Exhaust.

The pushrods are directional. Be sure the larger end of the pushrods are installed down in the lifter sockets.

is06297



1. Rocker cover assembly
2. Rocker arm support plate assembly
3. Rear intake pushrod
4. Rear exhaust pushrod

Figure 6. Push Rods

is06774b

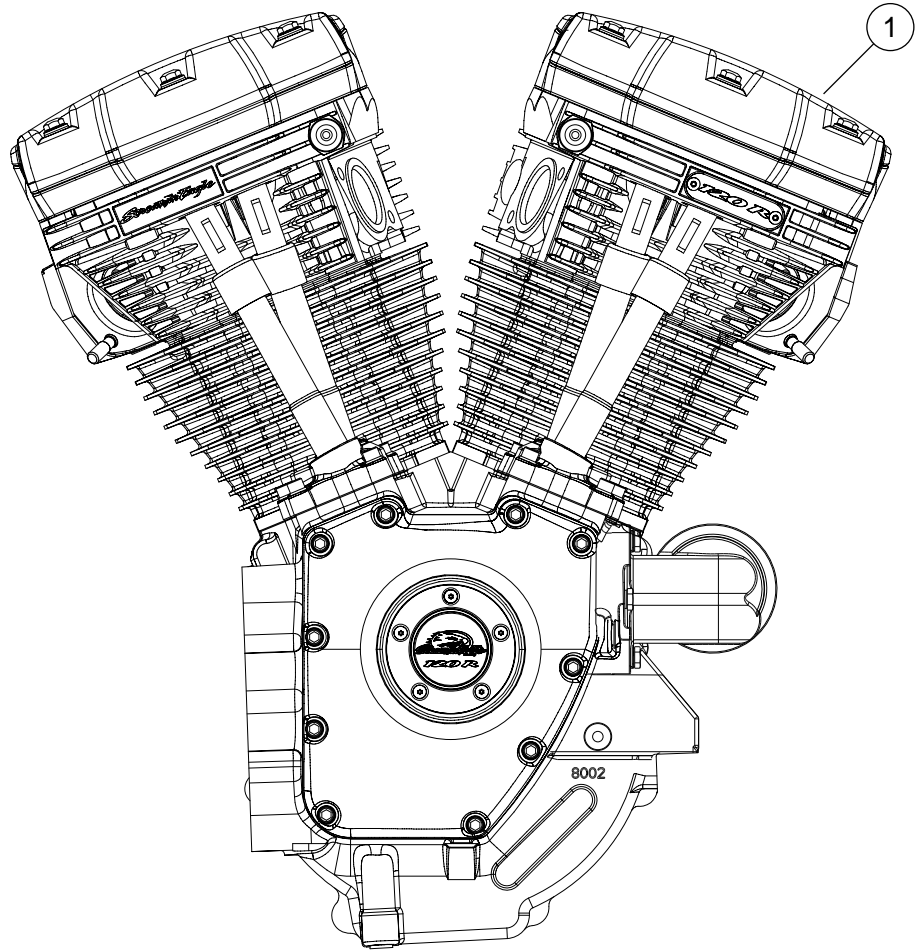


Figure 7. Engine Assembly, SE120R Complete

Table 13. SE120R Screamin' Eagle Pro Race-Use Crate Engine

Item	Description (Quantity)	Part Number
1	Engine assembly, complete	19289-12

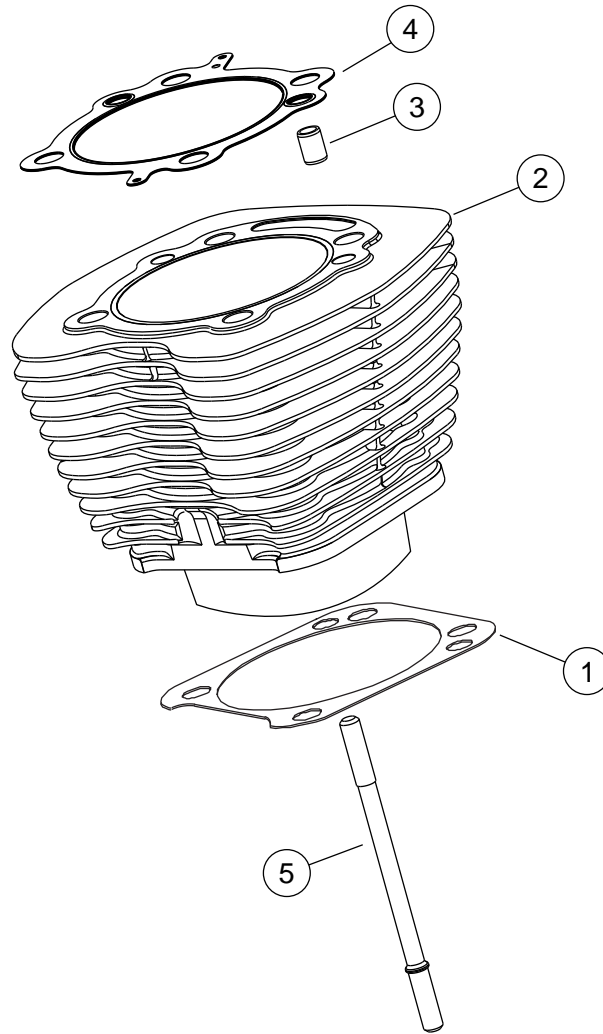


Figure 8. Service Parts: SE120R Screamin' Eagle Pro Race-Use Crate Engine

Table 14. Service Parts: SE120R Screamin' Eagle Pro Race-Use Crate Engine

Item	Description (Quantity)	Part Number
1	Base gasket, cylinder (2)	16736-04
2	SE cylinder kit, 4.060 in., (black) (includes items 1, 3, 4, 1105 and 1086A)	16550-04C
3	Dowel pin, ring (4)	16595-99A
4	Gasket, cylinder head (2)	16104-04
5	Stud, cylinder (8)	16834-99A
6	Gasket kit, engine overhaul (does not include cylinder head gasket, base gasket or valve stem seals) (Not Shown)	17053-99C
7	Gasket kit, top-end, (does not include cylinder head gasket, base gasket or valve stem seals) (Not Shown)	17052-99C

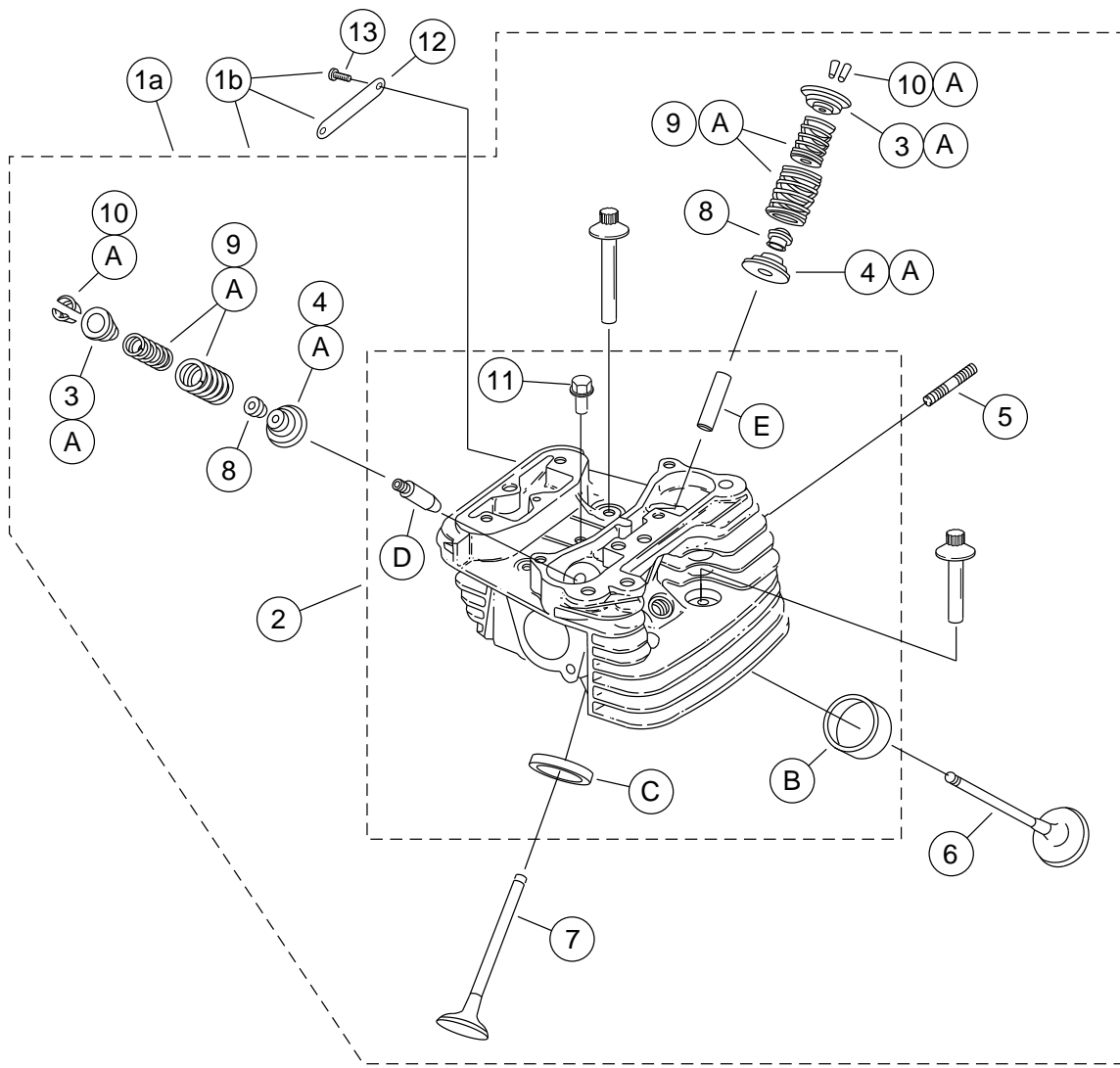


Figure 9. Service Parts: SE120R Screamin' Eagle Pro Race-Use Crate Engine

Table 15. Service Parts: SE120R Screamin' Eagle Pro Race-Use Crate Engine

Item	Description (Quantity)	Part Number
1a	Cylinder head assembly, rear (includes Items 2 through 11)	16921-08
1b	Cylinder head assembly, front with CNC ported medallion (includes Items 2 through 13)	16917-08

Table 15. Service Parts: SE120R Screamin' Eagle Pro Race-Use Crate Engine

Item	Description (Quantity)	Part Number
2	• Cylinder head (machined, with items B, C, D and E installed)	Not Sold Separately
3	• Collar, valve spring, upper (4)	See Service Kits
4	• Collar, valve spring, lower (4)	See Service Kits
5	• Stud, exhaust port (4)	16715-83
6	• Intake valve (2)	18190-08
7	• Exhaust valve (2)	18183-03
8	• Seal, valve (4)	18046-98
9	• Valve spring unit (4)	See Service Kits
10	• Retainer, valve collar (8). Also included with Kit 18281-02A	18240-98
11	• Automatic compression release plug (2)	16648-08
12	• Medallion, "120R" (for front cylinder head only)	17136-10
13	• Screw, button head, TORX (2) (for front cylinder head only)	94634-99
14	Screw, internal thread, 3-3/16 inch (4)	16478-85A
15	Screw, internal thread, 1-7/8 inch (4)	16480-92A
16	Spark plugs (not shown) (2)	32186-10
Service Kits:		
A	Valve Spring Kit, Screamin' Eagle	18281-02A
The following Screamin' Eagle parts are available separately:		
B	Valve seat, intake	18191-08
C	Valve seat, exhaust	18048-98A
D	Valve guide, intake (for service)	
	• (+ 0.003 in.)	18158-05
	• (+ 0.002 in.)	18156-05
	• (+ 0.001 in.)	18154-05
E	Valve guide, exhaust (for service)	
	• (+ 0.003 in.)	18157-05
	• (+ 0.002 in.)	18155-05
	• (+ 0.001 in.)	18153-05

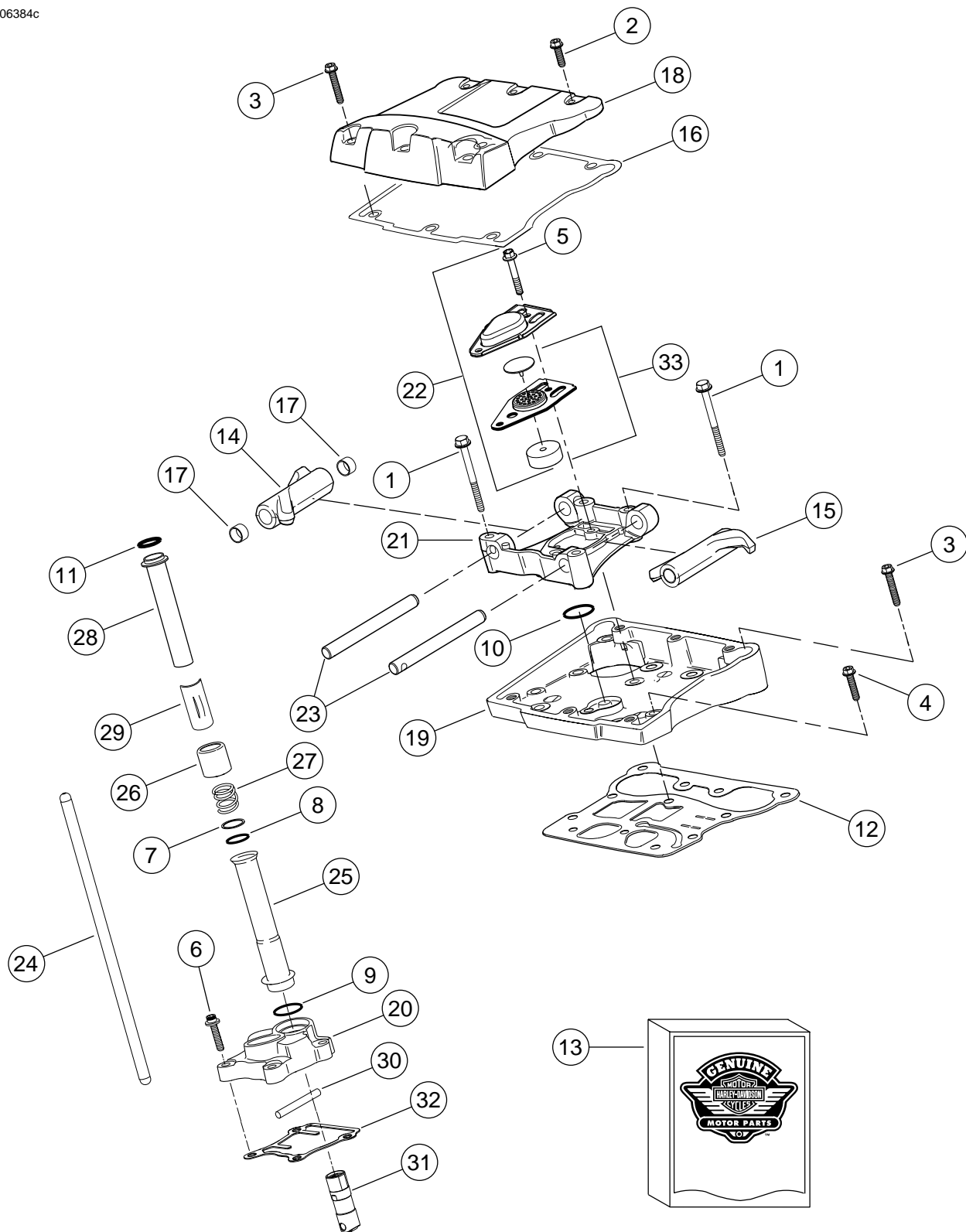


Figure 10. SE120R Screamin' Eagle Pro Race-Use Crate Engine

Table 16. Service Parts: SE120R Screamin' Eagle Pro Race-Use Crate Engine

Item	Description (Quantity)	Part Number
1	Screw 5/16-18 X 2-1/2 hex flange head (grade 8) (8)	1039
2	Screw 5/16-18 X 1.0 hex head, with lockpatch (6)	3692A

Table 16. Service Parts: SE120R Screamin' Eagle Pro Race-Use Crate Engine

Item	Description (Quantity)	Part Number
3	Screw 5/16-18 X 1-3/4 hex head, with lockpatch (10)	3693A
4	Screw 5/16-18 X 1-1/4 hex flange head, with lockpatch (8)	3736B
5	Screw 1/4-20 X 1-11/16 hex head (grade 8), with lockpatch, (4)	4400
6	Screw 1/4-20 X 1 socket head, with lockpatch (8)	4741A
7	Washer 11/16 X 29/32 X 1/32 (4)	6762B
8	O-ring, push rod cover (4)	11132A
9	O-ring, push rod cover (4)	11145A
10	O-ring (2)	11270
11	O-ring (4)	11293
12	Gasket, rocker housing (2)	16719-99B
13	Gasket kit, cam service	17045-99D
14	Rocker arm, front intake, rear exhaust, with bushings (2)	17360-83A
15	Rocker arm, rear intake, front exhaust, with bushings (2)	17375-83A
16	Gasket, rocker cover (2)	17386-99A
17	Bushing, rocker arm (8)	17428-57
18	Rocker cover, (chrome) (2)	17572-99
19	Rocker housing, (chrome) (2)	17578-10
20	Lifter cover, front (chrome) Lifter cover, rear (chrome)	17964-99 17966-99
21	Support, rocker arm (2)	17594-99
22	Breather assembly (2)	17025-03A
23	Shaft, rocker arm (4)	17611-83
24	Perfect Fit push rod kit (+0.030 inch)	18401-03
25	Cover, push rod, lower (4)	17939-99
26	Cap, cover spring (4)	17945-36B
27	Spring, push rod cover (4)	17947-36
28	Cover, push rod upper (4)	17948-99
29	Retainer, spring cap (4)	17968-99
30	Pin, anti-rotation (2)	18535-99
31	Hydraulic lifter (4)	18573-07
32	Gasket, lifter cover (2)	18673-07
33	Baffle assembly, breather (2)	26500002

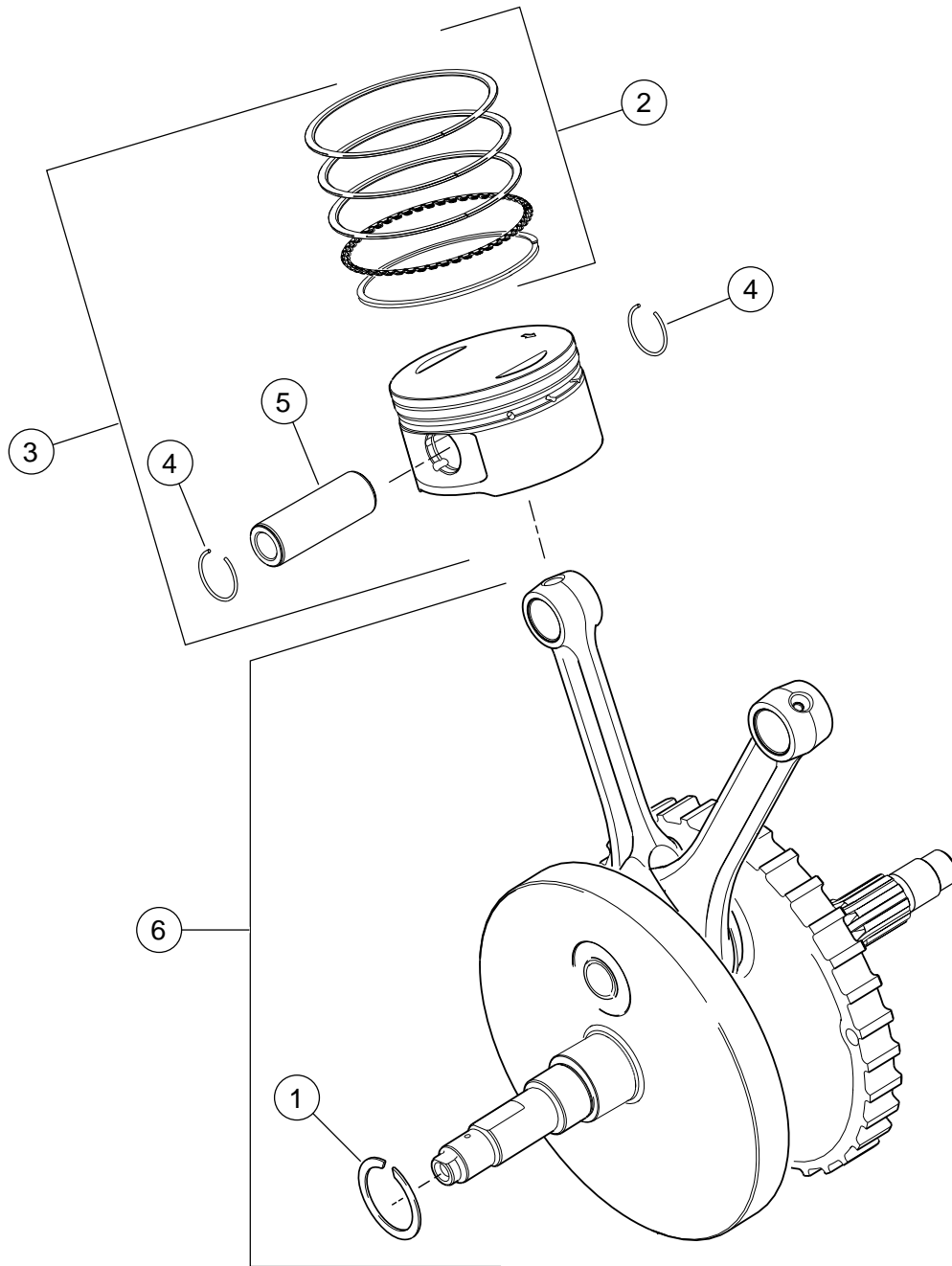


Figure 11. Service Parts; SE120R Screamin' Eagle Pro Race-Use Crate Engine

Table 17. Service Parts: SE120R Screamin' Eagle Pro Race-Use Crate Engine

Item	Description (Quantity)	Part Number
1	Retaining ring	11177A
2	Piston ring set, standard (2) Piston ring set, 0.010 inch over size (2)	22526-10 22529-10
3	Piston kit, front and rear, with ring sets, piston pin and lock rings, standard Piston kit, front and rear, with ring sets, piston pin and lock rings, 0.010 inch over size	22574-10 22576-10
4	Lock ring, piston pin (4)	22097-99
5	Piston pin (2)	22310-10
6	Flywheel assembly kit	24100007

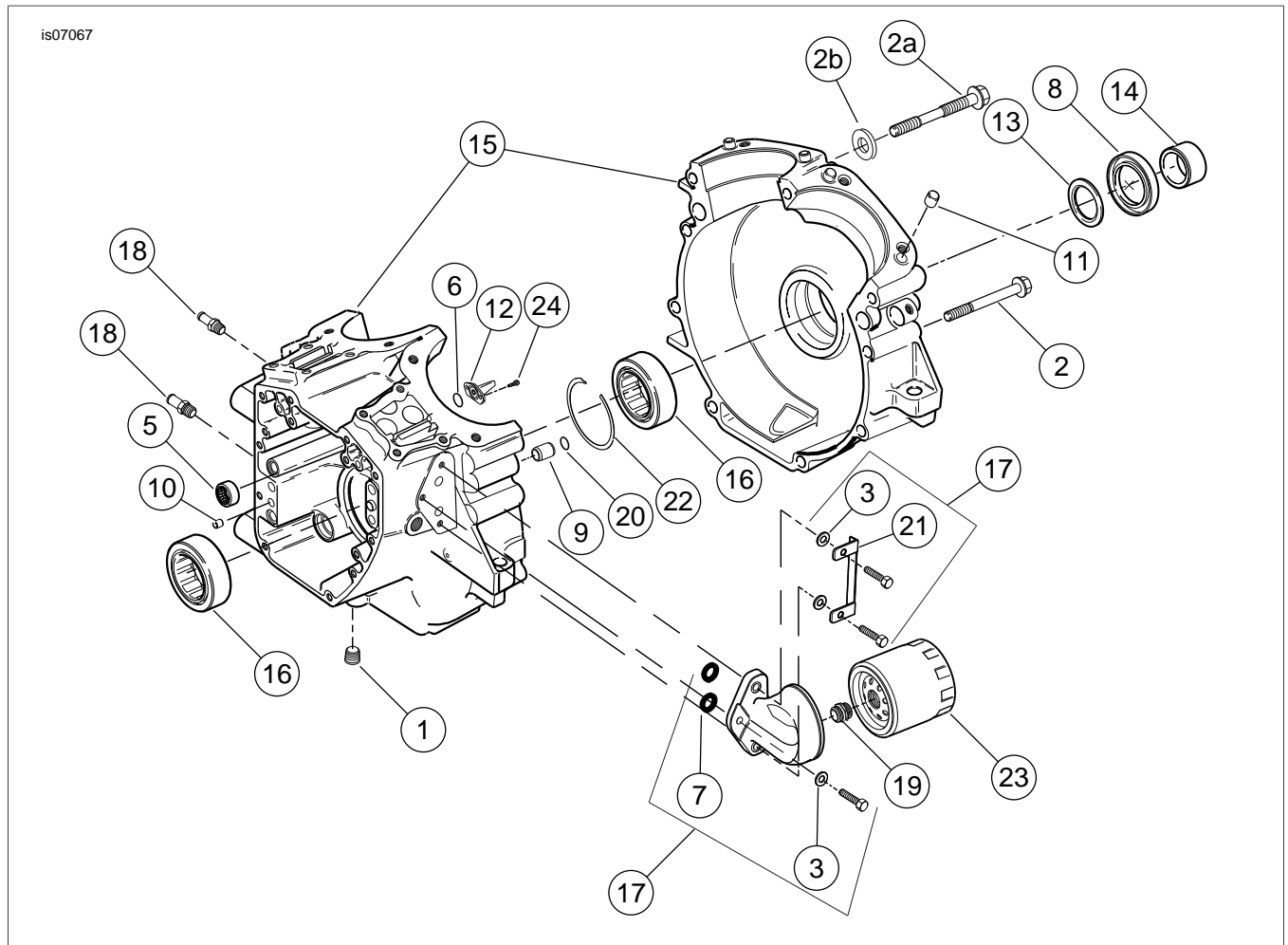


Figure 12. Service Parts: SE120R Screamin' Eagle Pro Race-Use Crate Engine

Table 18. Service Parts: SE120R Screamin' Eagle Pro Race-Use Crate Engine

Item	Description (Quantity)	Part Number
1	Plug (3)	765
2	Screw, 5/16-18 x 3.0 inch, hex flange head (8)	895
2a	Screw, top center crankcase	1105
2b	Washer, sealing	1086A
3	Washer (3)	6099
4	Washer 1-1/4 x 1-53/64 x 1/8 (2)	8972
5	Needle bearing kit, (kit contains 2)	24017-10
6	O-ring (2)	10930
7	O-ring (2)	11293
8	Oil seal	12068
9	Dowel pin (2)	16574-99A
10	Dowel pin (2)	16589-99A
11	Dowel pin (4)	16595-99A
12	Piston cooling jet, with 10930 (2)	22315-06A
13	Bearing kit, left side with 8972, 24605-07, 35114-02, and inner race	24004-03B
14	Spacer, sprocket shaft (Dyna models only)	24038-03
15	Crankcase set, (black) with 5, 12, 13, 16, 22, 24 and 3983 bolts (not shown)	24400031
16	Bearing, main (2)	24605-07
17	Oil filter mount kit, with lockplate kit, adapter and O-rings	26261-99

Table 18. Service Parts: SE120R Screamin' Eagle Pro Race-Use Crate Engine

Item	Description (Quantity)	Part Number
18	Fitting, straight (3)	26314-99
19	Adapter, oil filter	26352-95A
20	O-Ring (2)	26432-76A
21	Lockplate kit with screws, O-rings and washers	35071-99
22	Retaining ring	35114-02
23	Oil filter (chrome)	63798-99A
24	Screw, TORX® 8-32 x 3/8 (4)	68042-99

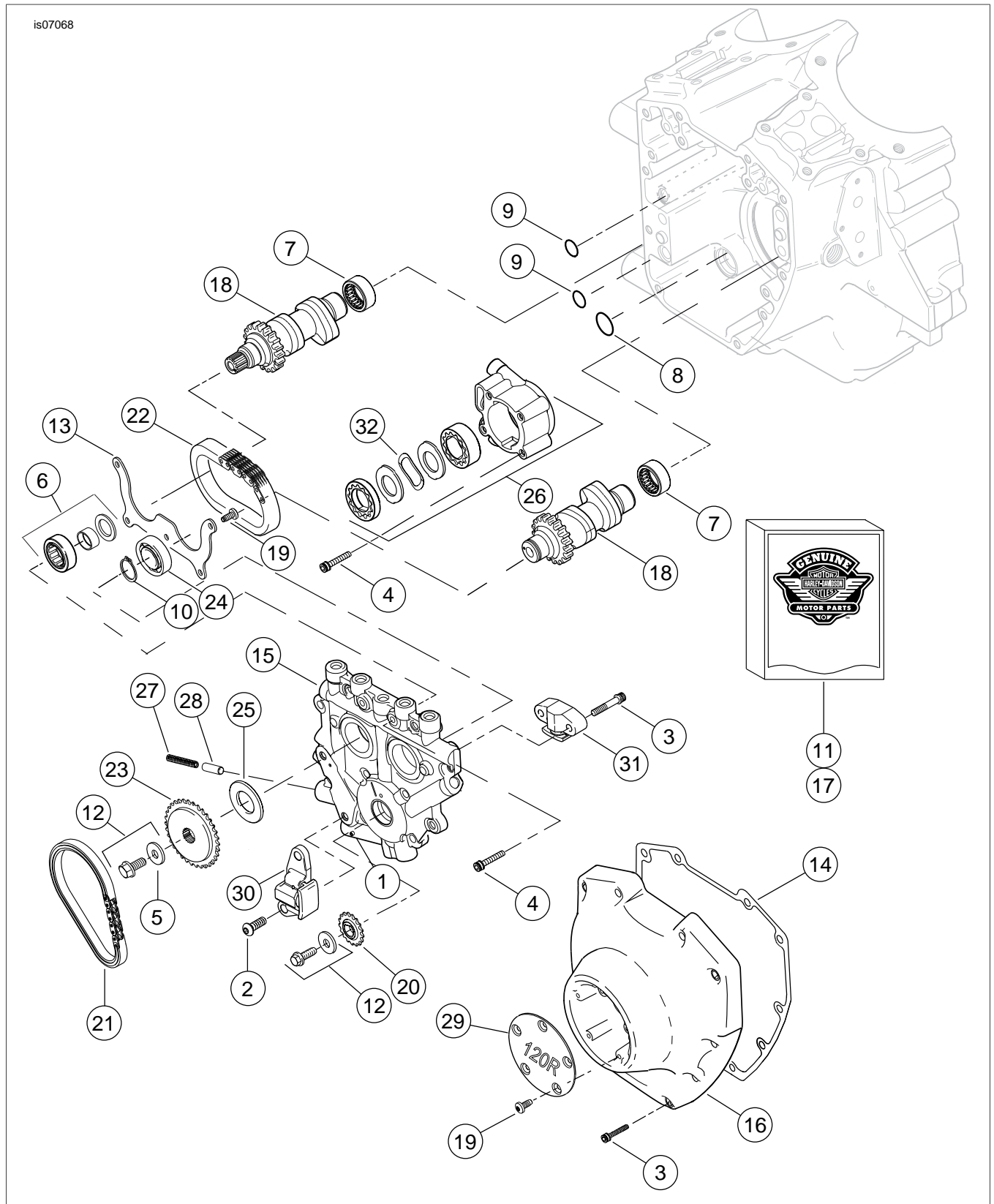


Figure 13. Service Parts: SE 120R Screamin' Eagle Pro Race-Use Crate Engine

Table 19. Service Parts: SE120R Screamin' Eagle Pro Race-use Crate Engine

Item	Description (Quantity)	Part Number
1	Roll pin	601
2	Screw, primary cam chain tensioner (2)	942

Table 19. Service Parts: SE120R Screamin' Eagle Pro Race-use Crate Engine

Item	Description (Quantity)	Part Number
3	Screw, cam cover, 1/4-20 x 1-1/4, knurled with lockpatch (grade 8), (10)	4740A
	Screw, secondary cam tensioner, 1/4-20 x 1-1/4, knurled with lockpatch (grade 8), (2)	4740A
4	Screw, 1/4-20 x 1, socket head, with lockpatch (8)	4741A
5	Washer, 3/8 x 1-1/8 x 7/32	6294
6	Bearing assembly with bearing, inner race, washer and O-ring	8983
7	Needle bearing kit, (kit contains 2)	24017-10
8	O-ring	11293
9	O-ring (2)	11301
10	Retaining ring	11494
11	Gasket kit, cam service	17045-99D
12	Cam drive sprocket retention kit, with 6294, screws and washer	25566-06
13	Plate, bearing retaining	1200018
14	Gasket, cam cover	25244-99A
15	Cam support plate, with bypass valve	25400018
16	Cam cover, (chrome)	25369-01B
17	Camshaft chain and fastener kit, with 25566-06, 25673-06, 25675-06 and 25728-06	25585-06
18	Camshaft, front and rear kit, SE266E	25400029
19	Screw, 8-32 x 3/8 TORX head (5)	68042-99
20	Sprocket, cam drive on crankshaft, 17 T	25673-06
21	Chain, primary cam drive	25675-06
22	Chain, secondary cam drive	25607-99
23	Sprocket, cam drive, 34 T	25728-06
24	Ball bearing	8990A
25	Spacer, cam drive sprocket alignment 0.287 inch thick	25722-00
	Spacer, cam drive sprocket alignment 0.297 inch thick	25723-00
	Spacer, cam drive sprocket alignment 0.307 inch thick	25721-00
	Spacer, cam drive sprocket alignment 0.317 inch thick	25719-00
	Spacer, cam drive sprocket alignment 0.327 inch thick	25717-00
	Spacer, cam drive sprocket alignment 0.337 inch thick	25725-00
	Spacer, cam drive sprocket alignment 0.347 inch thick	11889
	Spacer, cam drive sprocket alignment 0.357 inch thick	11890
26	Oil pump assembly	62400001
27	Spring, relief valve	26210-99
28	Relief valve, oil pump	26400-82B
29	Cover, 120R	25495-10
30	Chain tensioner, primary cam drive chain	39968-06
31	Chain tensioner, secondary cam drive chain	39969-06
32	Spring, separator	40323-00