INSTRUCTION SHEET FOR JIMS® FORGED PISTON SETS

Recommended Tools

Part No.	Description
JIMS® No. 1235	*Piston Ring Expander*
JIMS® No. 1236	*Piston Ring Compressor*
JIMS® No. 930	*Cylinder Torque Plates*

Read instruction sheet completely before performing work. Also read H-D Service Manual for piston and cylinder repairs.

JIMS® Twin Cam Piston sets are CNC milled from aerospace forged 2618 aluminum alloy. Pistons are available in Big bore sizes and Stroker sizes of STD to +.010".

For .927" wrist pin clips use JIMS® 4-pack, No. 1604K

For .827" wrist pin clips use JIMS® 4-pack, No. 1602K

Alpha & Beta, Series II Twin Cam 100" Big Bore Piston Sets H-D Stock Stroke Flywheels

Part No.	Application	Bore Size	Stroke Application	Compression Ratio**	Rings
No. **1603**	*Use on Twin Cam 100" 1999-Present*	4" STD	4"	*9.56:1	No.**1491**

**Using a .040" thick head gasket.* ***Compression Ratio Approximate. 0.927" Wrist pin O.D.*

Alpha & Beta, Twin Cam 106" Stroker Piston Sets (JIMS Stroker Kits)

Part No.	Application	Bore Size	Stroke Application	Compression Ratio**	Rings
No. **1614**	*Use on Twin Cam 106" 1999-2006*	4.125"	4"	*10:1	No.**1286-1354**

**Using a .040" thick head gasket.* ***Compression Ratio Approximate. 0.927" Wrist pin O.D.*

Alpha Twin Cam 110" Stroker Piston Sets (JIMS Stroker Kits)

Part No.	Application	Bore Size	Stroke Application	Compression Ratio**	Rings
No. **1615**	*Use on Twin Cam 110" 2007-Present*	4" STD	4.375"	*10:1	No.**1491**

**Using a .040" thick head gasket.* ***Compression Ratio Approximate. 0.927" Wrist pin O.D.*

Alpha & Beta, Series II Twin Cam 113" Stroker Piston Sets (JIMS Stroker Kits)

Part No.	Application	Bore Size	Stroke Application	Compression Ratio**	Rings
No. **1607**	*Use on Series II Twin Cam 113" 1999-Present*	4" STD	4.5" / 4.625"	*10.19:1	No.**1491**
No. **1607B**	*Use on Series II Twin Cam 113" 1999-Present*	4" +.010	4.5" / 4.625"	*10.19:1	No.**1493**

**Using a .040" thick head gasket.* ***Compression Ratio Approximate. 0.927" Wrist pin O.D.*

Alpha & Beta, Series I Twin Cam 113" & 116" Stroker Piston Sets (JIMS Stroker Kits)

Part No.	Application	Bore Size	Stroke Application	Compression Ratio**	Rings
No. **1620**	*Use on Series I Twin Cam 113" & 116" 1999-Present*	4" + .005"	4.5" / 4.625"	*9.56:1	No.**1492**

**Using a .040" thick head gasket.* ***Compression Ratio Approximate. 0.827" Wrist pin O.D.*

Note: It is the Engine builder's responsibility to check and confirm the operating clearances when installing any of JIMS® products.

Alpha & Beta, Series II Twin Cam 116" Stroker Piston Sets (JIMS Stroker Kits)

Part No.	Application	Bore Size	Stroke Application	Compression Ratio**	Rings
No. **1608**	*Use on Series II Twin Cam 116" 1999-Present*	4" STD	4.5" / 4.625"	*10.19:1	No.**1491**
No. **1608A**	*Use on Series II Twin Cam 116" 1999-Present*	4" +.005	4.5" / 4.625"	*10.19:1	No.**1492**
No. **1608B**	*Use on Series II Twin Cam 116" 1999-Present*	4" +.010	4.5" / 4.625"	*10.19:1	No.**1493**

**Using a .040" thick head gasket.* ***Compression Ratio Approximate. 0.927" Wrist pin O.D.*

Alpha & Beta, Twin Cam 117" Stroker Piston Sets (JIMS Stroker Kits)

Part No.	Application	Bore Size	Stroke Application	Compression Ratio**	Rings
No. **1616**	*Use on Alpha Twin Cam 117" 2007-Present*	4.125" STD	4.375"	*10.5:1	No.**1286-1354**

**Using a .040" thick head gasket.* ***Compression Ratio Approximate. 0.927" Wrist pin O.D.*

Alpha, Twin Cam 120" Stroker Piston Sets (JIMS Stroker Kits)

Part No.	Application	Bore Size	Stroke Application	Compression Ratio**	Rings
No. **1611**	*Use on Twin Cam 1999-Present*	4.125"	4.5"	*10.5:1	No.**1286-1354**

**Using a .040" thick head gasket.* ***Compression Ratio Approximate. 0.927" Wrist pin O.D.*

Beta, Twin Cam 120" Stroker Piston Sets (JIMS Stroker Kits)

Part No.	Application	Bore Size	Stroke Application	Compression Ratio**	Rings
No. **1613**	*Use on Twin Cam 1999-Present*	4.125"	4.5"	*10.5:1	No.**1286-1354**

**Using a .040" thick head gasket.* ***Compression Ratio Approximate. 0.927" Wrist pin O.D.*

Alpha, Twin Cam 124" Stroker Piston Sets (JIMS Stroker Kits)

Part No.	Application	Bore Size	Stroke Application	Compression Ratio**	Rings
No. **1617**	*Use on Twin Cam 1999-Present*	4.125"	4.625"	*10.5:1	No.**1286-1354**

**Using a .040" thick head gasket.* ***Compression Ratio Approximate. 0.927" Wrist pin O.D.*

Beta, Twin Cam 124" Stroker Piston Sets (JIMS Stroker Kits)

Part No.	Application	Bore Size	Stroke Application	Compression Ratio**	Rings
No. **1618**	*Use on Twin Cam 1999-Present*	4.125"	4.625"	*10.5:1	No.**1286-1354**

**Using a .040" thick head gasket.* ***Compression Ratio Approximate. 0.927" Wrist pin O.D.*

Note: It is the Engine builder's responsibility to check and confirm the operating clearances when installing any of JIMS® products.

INSTRUCTION SHEETS FOR JIMS® FORGED PISTON SETS

Step 1 – Piston to Cylinder Clearance .002 to .003 at 68°F.

a. Maintaining a minimum clearance between the cylinder wall and the piston will require a longer break in period, but will prolong the life of the pistons and rings.
b. Maintaining a loose fit will not require as long of a break in period, however, the loose fit will decrease the pistons and rings life.
c. Cylinders should be honed with 240-280 grit stone. Follow the H-D Service Manual for boring and honing procedures. Use JIMS Torque Plates when boring or honing T/C cylinders.
d. Check piston diameter at the point indicated in figure 1. Measure pistons at the widest point across the front and back (perpendicular to wristpin bore). See figure 1.
e. Piston Direction – When installing your pistons onto your rods, position the piston so that the arrow marked on the top will be pointed in the direction of the intake valve. See figure 1.
f. Ring Installation, use JIMS No.1235 ring expander tool to install rings.
   1. Top compression ring has a silver tint on the outside face. If this ring has an identifying mark (dot), install in top groove of piston with dot facing up. If there is no dot present, install the silver tinted outer faced ring in the top groove with the beveled edge facing up.
   2. Second compression ring has a darker outside face with a bevel on the inside face. This ring should also have an identifying mark (a dot). Install in second groove of piston with dot facing up. If there is no dot, install second ring with beveled edge facing down.
   3. Oil control rings are of three-piece design. One inside expander (Do not shorten expander) and two rails. Install expander with a rail placed below expander and above expander.
   4. Ring Gap Inspection – Both top and second compression ring end gap to be .016 to .022. With the two oil control rails end gap to be .010 to .050. ***(Note: If any ring gaps are modified, all burrs must be removed or engine damage can result).***
   5. Ring gap placement must be per H-D service manual.
   6. Install pistons per H-D service manual.

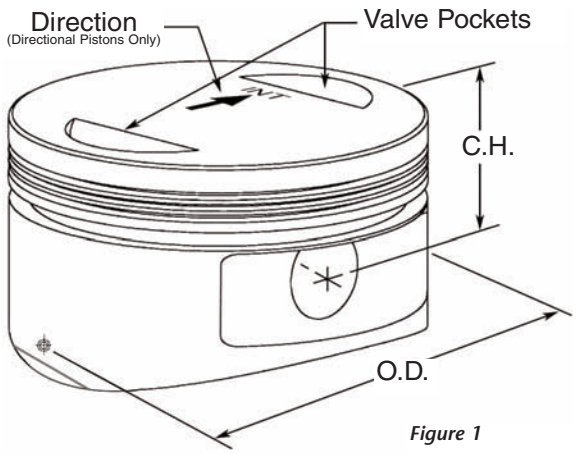

Figure 1

Break In Procedure

After final assembly, the engine must be broken in. Over revving or lugging engine could cause damage to pistons and / or other engine components. On the initial start up, excessive heat build up can occur. Do not over heat by revving engine or running at a fast idle too long. To ensure proper head gasket seal upon first time engine start up, idle engine 1000-1500 R.P.M. until cylinder head temperature reaches about 250 degrees. Shut engine off and let cool. This procedure is necessary to properly seal top end components.

Because most engine damage could occur during the first 50 miles, keep the heat down by not exceeding 2800 R.P.M., but do not lug engine.

Continue to vary speed for the next 500 miles and do not exceed 3800 R.P.M. for the balance of the first 1000 miles. Avoid overheating engine. Do not lug engine or idle for long periods of time. No trailer towing, racing, etc. Change oil and filter after the first 500 miles.

WARRANTY

All JIMS® parts are guaranteed to the original purchaser to be free of manufacturing defects in material and workmanship for a period of six (6) months from the date of purchase. Merchandise that fails to conform to these conditions will be repaired or replaced at JIMS® option the parts are returned within the six (6) months warranty period or within ten (10) Days thereafter.

In the event warranty service is required, the original purchaser must call or write JIMS® immediately with the problem. Some problems can be rectified by a telephone call and need no further course of action. A part suspected of being defected must not be replaced by a dealer without prior authorization by JIMS®. If it is deemed necessary for JIMS® to make an evaluation to determine whether the part is defective, it must be packaged properly to prevent further damage and be returned prepaid to JIMS® with a copy of the original invoice of purchase and a detailed letter outlining the nature of the problem, how the part was used and the circumstances at the time of failure. If after an evaluation has been made by JIMS® and the part was found to be defective, repair, replacement or credit will be granted.

ADDITIONAL WARRANTY PROVISIONS

1. JIMS® shall have no obligation in the event a JIMS® part is modified by person or organization.
2. JIMS® shall have no obligation if a JIMS® part becomes defective in whole or in part as a result of improper installation, improper maintenance, improper use, abnormal operation, or any other misuse or mistreatment of the part.
3. JIMS® shall not be liable for any consequential or incidental damages resulting in the failure of a JIMS® part, the breach of any warranties, the failure to deliver, delay in delivery, delivery in non-conforming condition, or for any other breach of contract or duty between JIMS® and a customer.
4. JIMS® parts are designed exclusively for use in Harley-Davidson® motorcycles. JIMS® shall have no warranty or liability obligation if JIMS® part is used in any other application.
5. Any damaged or defective product replaced by JIMS® will not be returned under any circumstance.