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**INSTRUCTION SHEET FOR JIMS TWIN CAM FLYWHEEL ASSEMBLIES & BIG BORE KIT**

**FOR THE FOLLOWING PART NUMBERS 1881, 1882, 1883, 1884, 1886, 1888, 1937, 1938, 1941, 1942, 1943, 1944, 1945, 1946, 1957, 1958, 1959, 1960**



**"Alpha" Stroker Kit  
(FLH, FXD)**



**"Alpha" & "Beta"  
Flywheel Kits**



**"Beta" Stroker Kit  
(FXST)**

**113" TWIN CAM® SOFTAIL STROKER KITS W/CYLINDERS**

Part No.	Application	Stroke	Bore	Flywheel Dia.	Compression Ratio	Cylinder Finish
No.1957	Use on Beta Softails 2000-06	4 1/2"	4" STD	8 1/4"	9.94:1(Stock Heads)**	Wrinkle Black
No.1958	Use on Beta Softails 2000-06	4 1/2"	4" STD	8 1/4"	9.94:1(Stock Heads)**	Silver

**113" TWIN CAM® FXD, FL, STROKER KITS W/CYLINDERS**

Part No.	Application	Stroke	Bore	Flywheel Dia.	Compression Ratio	Cylinder Finish
No.1943	Use on Alpha 2006-present FXD	4 1/2"	4" STD	8 1/4"	9.94:1(Stock Heads)**	Wrinkle Black
No.1944	or Alpha 2007-present FL	4 1/2"	4" STD	8 1/4"	9.94:1(Stock Heads)**	Silver
No.1937	Use on Alpha 1999-05 FXD	4 1/2"	4" STD	8 1/4"	9.94:1(Stock Heads)**	Wrinkle Black
No.1938	or Alpha 1999-06 FL	4 1/2"	4" STD	8 1/4"	9.94:1(Stock Heads)**	Silver

**116" TWIN CAM® FXD, FL, STROKER KITS W/CYLINDERS**

Part No.	Application	Stroke	Bore	Flywheel Dia.	Compression Ratio	Cylinder Finish
No.1945	Use on Alpha 2006-present FXD	4 5/8"	4" STD	8 1/4"	10.19:1(Stock Heads)**	Wrinkle Black
No.1946	or Alpha 2007-present FL	4 5/8"	4" STD	8 1/4"	10.19:1(Stock Heads)**	Silver
No.1941	Use on Alpha 1999-05 FXD	4 5/8"	4" STD	8 1/4"	10.19:1(Stock Heads)**	Wrinkle Black
No.1942	or Alpha 1999-06 FL	4 5/8"	4" STD	8 1/4"	10.19:1(Stock Heads)**	Silver

**116" TWIN CAM® SOFTAIL STROKER KITS W/CYLINDERS**

Part No.	Application	Stroke	Bore	Flywheel Dia.	Compression Ratio	Cylinder Finish
No.1959	Use on Beta Softails 2000-06	4 5/8"	4" STD	8 1/4"	10.19:1(Stock Heads)**	Wrinkle Black
No.1960	Use on Beta Softails 2000-06	4 5/8"	4" STD	8 1/4"	10.19:1(Stock Heads)**	Silver

**TWIN CAM® ALPHA STROKER FLYWHEEL ASSEMBLIES (WITHOUT PISTONS)**

Part No.	Application	Stroke	Wrist Pin Bushing	Flywheel Dia.
No.1881	Use on Alpha 2006-present FXD or Alpha 2007-present FL.	4 1/2"	0.927" I.D.	8 1/4"
No.1882	Use on Alpha 1999-05 FXD or Alpha 1999-06 FL.	4 1/2"	0.927" I.D.	8 1/4"
No.1883	Use on Alpha 2006-present FXD or Alpha 2007-present FL.	4 5/8"	0.927" I.D.	8 1/4"
No.1884	Use on Alpha 1999-05 FXD or Alpha 1999-06 FL.	4 5/8"	0.927" I.D.	8 1/4"

**TWIN CAM® BETA STROKER FLYWHEEL ASSEMBLIES (WITHOUT PISTONS)**

Part No.	Application	Stroke	Wrist Pin Bushing	Flywheel Dia.
No.1886	Use on Beta Softail® 2000-06	4 1/2"	0.927" I.D.	8 1/4"
No.1888	Use on Beta Softail® 2000-06	4 5/8"	0.927" I.D.	8 1/4"

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**\*WARNING "BETA" STROKER USERS:**

Your JIMS® 116" & 113" "Balanced" Stroker Kit ships with a pressed on balancer drive gear. This gear was tested and proven to protect against potential damage caused by over-revving the engine past 6,200 RPM. **THIS GEAR WILL MOVE DUE TO OVER-REVVING.** Your flywheels will NOT be warranted against movement of this gear due to over revving. In addition to this, the pressed on gear will NOT be available separately.

**JIMS® insists that a 6,200 MAX RPM rev-limiting device be used at ALL times!**

**BALANCING INFORMATION FOR FLYWHEEL KITS WITHOUT PISTONS**

To maintain JIMS® balance factor for the smoothest engine performance possible, you will need to install a 2 piston set having a total weight, including pistons, rings, wrist pins, and wrist pin keepers. Use pistons weighing between 1125g to 1145g when building with the following flywheel part numbers: 1881, 1882, & 1886, for 4-1/2" stroke. Use a 2 piston set weighing between 1125g to 1135g when building with the following flywheel part numbers: 1883, 1884, & 1888, for 4-5/8" stroke.

**IMPORTANT NOTES**

1. Must order 113" or 116" gasket set and EFI spacer kit separately. See JIMS catalog page 10.
- \*\*2. Compression ratio based on 85.9cc head with .040" head gasket and 9.5cc piston dish at zero deck height. Case machining required for 4" cylinders.
3. For proper installation of JIMS stroker kits on 2003 and later cases, JIMS® strongly recommends you convert the left crankshaft bearing to the H-D® 9028 Timken. Use JIMS® No.959 Timken Conversion Kit to perform this operation.

## IMPORTANT PRODUCT INFORMATION FOR BOTH "ALPHA" & "BETA" STROKERS KITS

### RECOMMENDED COMPONENTS FOR TWIN CAM "ALPHA" & "BETA" STROKER KITS

**ELECTRONIC FUEL INJECTED MANIFOLD SPACER KITS**

(EFI Head to Manifold Spacer) Use with 113" or 116" JIMS® Stroker Kits when fitting standard width manifolds. JIMS® 113" or 116" Stroker's 0.100" taller cylinders increase the distance between the heads by 0.080". This spacer kit allows for the use of standard width manifolds such as the standard Harley® EFI, Screamin' Eagle®, S&S® or other stock width

manifolds.

No.725 - Use on 1990-05 EVO Big Twins and Twin Cam®.

No.721 - Use on all 2006-present Twin Cam® models.

**113"/116" STROKER KIT ACCESSORIES**

113" or 116" stroker kits require a special extended manifold. JIMS® recommends using a Mikuni® carburetor. However, you can use a stock CV, Screamin' Eagle® CV, or an S&S® "G" carburetor.

**CARBURETED**

No.700 - (Manifold) Use with Mikuni® Carburetor, Stock CV Carburetor, or Screamin' Eagle CV Carburetor. (Use with No.703 or No.701)

No.702 - (Manifold) Use with S&S Super "G" Carburetor. Includes aluminum spacer. Customer must use his bakelite spacer

No.703 - (Flange) for use with Part No.700 40mm CV, or a 42mm Mikuni.

No.701 - (Flange) for use with Part No.700 44mm CV, or a 45mm Mikuni.

**CASE BORING TOOLS**

The new JIMS® case boring tool takes all the guess work out of boring T/C motor cases and will accept JIMS® 4" bore cylinders, for the JIMS® 113" and 116" F/W cylinder kits. This tool is designed to be used in a heavy duty 15" drill press.

See Tool Section of Catalog.

No.1408 - Use on all Twin Cam® models, A or B, 1999 to present.

No.1409 - Use on EVO, Big Twin 1984-99.

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**10mm  
COMPRESSION  
RELEASE VALVES**



These release valves make starting your engine effortless by

venting cylinder compression with just the push of a button. JIMS® has found these to be indispensable when used with JIMS® Stroker Kits. Simply drill and tap each cylinder head and thread in the self-sealing release valves .

No.727K - Use on all Big Twin, Sportsters and Buells.

**NOTE:** Install JIMS® Compression Release Valves with JIMS® Installation Tool No.1169 for Twin Cam®, or use JIMS® Tapping Tool No.1169-1 for all other engines. (See catalog page 124)

**GASKET KITS FOR JIMS®  
TWIN CAM® STROKER KITS**

Complete engine and primary gasket kits for JIMS® 4" bore 113" & 116" Stroker Kits. Includes .040" Head Gasket, .020" Base Gasket.

- No.871 - 2007 to present FL'S. (4" Bore)
- No.872 - 2007 to present FXST. (4" Bore)
- No.870 - 2006-present Dyna. (4" Bore)
- No.858 - 2000-06 Softail & 1999-05 Dyna. (4" Bore)
- No.859 - 1999-06 FL Models. (4" Bore)
- No.857 - 4" Head & Base gasket kit only.
- No.873 - 4.125" Head & Base gasket kit only.

*Note:* Base gasket is not an o-ring style gasket.

**Timken Case Bearing Conversion Tool**



This tool is designed to easily and accurately convert the left side crankshaft roller bearing (H-D® No.24604-00D) to the more durable Timken bearing (H-D No.9028).It may also be used to replace the bearing for stock 88" or 96" engines. See catalog for more information or No.959-IS instructions.

No. 959 - Use on Twin Cam engines 2003- present.

**JIMS PERFORMANCE PARTS TO COMPLEMENT YOUR 113" OR 116" TWIN CAM**



**High Torque  
Starter Motors**  
See Catalog Pg 13



**Performance  
Battery Cable Sets**  
See Catalog Pg 13



**High Torque  
Starter Ring Gear  
& Pinion Gear**  
See Catalog Pg 14



**JIMS High Performance Billet  
Clutch**  
See Catalog Pg 82



**JIMS "Ellipse"  
Performance 53mm,  
58mm, & 62mm  
Throttle Body**  
See Catalog Pg 1A

**WARNING:**

**(Note: Read all instructions before performing work)**

Prior to installation of this kit please read and follow the procedures and safety precautions to reduce the risk of personal injury. Refer to H-D® Service Manual for specifications and for removal and installation of the engine. Read instructions completely so you understand before performing any steps. Always disconnect battery cables to prevent injury. Your work place should be clean and well lit, wear safety glasses and protective clothing when working around power tools and compressed air.

Use authorized H-D® Service Manual for reference. If you are not sure about the procedures in these instructions, have a reputable H-D® repair shop perform those procedures for you.

**IMPORTANT CYLINDER  
PREPARATION**

Before installing cylinders on cases, the inner bores and gasket area must be scrubbed and cleaned with hot soapy water.

**IMPORTANT STARTER NOTE**

Due to the higher compression ratio created by the 113" & 116" stroker kits, your starter system efficiency may be reduced and may become prematurely damaged. JIMS® recommends installing high-output starter components (Heavy-duty gauge cables, heavy-duty battery, and high-output starter) along with compression release valves to maintain your starter system efficiency.

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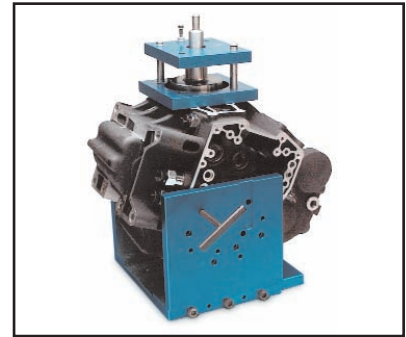


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## INSTRUCTION SHEET FOR JIMS TWIN CAM FLYWHEEL ASSEMBLIES & BIG BORE KITS

**ATTENTION!:** Please read all instructions completely and thoroughly before performing any work.

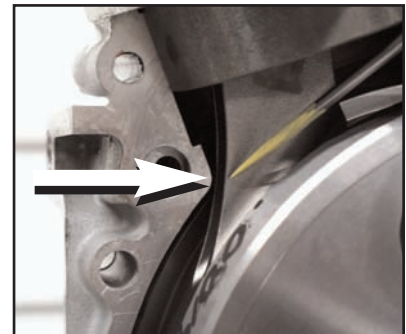
1. Follow instructions in H-D® Service Manual for removal of engine for your year and model. With engine removed from frame and sitting on the workbench, follow the disassembly instructions in the service manual to disassemble engine. Clean all parts thoroughly including gasket surfaces, and inspect all parts for visible damage. Measure all parts for wear using the service wear limit section in the H-D® Service Manual. Replace any worn or damaged parts with JIMS® engine parts or equivalent.
2. On 4" bore kits you will be required to machine cases to accept 4" bore cylinders (use JIMS® No.1408 Case Boring Fixture). See **Picture No.1** & 2. Bore to 4.220" +.03/-.00 diameter at a depth of 1.655" +.03/-.00 for the 116" & 113" kits and 1.330" +.03/-.00 for the 100" kit, measuring from the gasket surface. Before machining cases, you must remove cylinder studs and H-D® piston oiling jets. **Note: You will be using JIMS® piston oiling jets for reassembly included with this kit.** Mask off all bearings and oil holes. Bolt cases together with H-D® hardware. Tighten case bolts to factory spec. Check all cylinder studs and threaded holes. Replace any damaged cylinder studs. JIMS® suggests using the latest cylinder studs from H-D® or Screamin' Eagle®.
3. After machine work is done, clean cases of all machine material. Follow H-D® Service Manual for installation of studs.
4. Checking Clearances: connecting rod to case, cylinder to cylinder, piston to piston, and piston to case, below cylinder spigot (both front and rear) See Pic.3. To make the job easier, use JIMS® No. 1745 Timken Bearing Simulator.
  - A. With flywheel assembly simulated in left case, install pistons without rings. Pistons can be installed in either location, front or rear. Mount both cylinders and pistons to left case. **NOTE: On 4" bore cylinders; there is a relief area on the cylinder spigot.** Each 4" bore cylinder and piston must have the reliefs on the cylinder spigot facing each other when installed on cases. See **Picture No. 4**
  - B. Check, and if necessary grind or file for a minimum clearance of .060 between rod and case. See **Picture No.3**  
**NOTE: Only remove material from the case and not the rods!**
  - C. Check, and if necessary grind or file for a minimum clearance of .050 between cylinder spigots and a minimum clearance of .060 between piston skirts. See **Picture No.4**  
**NOTE: Clean all machine material from cases.**  
**CAUTION!: Only remove enough material to maintain the minimum clearance.**



Picture No.1



Picture No.2



Picture No.3



Picture No.4

**CAUTION: WEAR SAFETY GLASSES. EXCESSIVE FORCE MAY DAMAGE PARTS AND TOOL. SEE JIMS® CATALOG FOR OVER 200 OTHER TOP QUALITY PROFESSIONAL TOOLS. THE LAST TOOLS YOU WILL EVER NEED TO BUY.**

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<--- Instructions continued from page 3

5. After checking all clearances for proper fitment, install piston oiling jets into right case half. All kits are provided with new piston oiling jets except the 100" Big Bore Kit. This kit will use the original H-D® piston oiling jets. Before installing piston-oiling jets, clean threads in case. Then apply a drop of loctite 222 (purple) to the last few threads. **(CAUTION: Keep all foreign material out of piston oiling jets).** Install the new o-rings in the groove on the piston oiling jets and then apply a very thin film of clean 20-50 engine oil to the new o-rings. Torque the new Allen screws to 20-30 (inch) lbs.

**NOTE:** These threads in the engine case are very delicate, so be careful not to cross thread these screws or over-torque.

**NOTE:** For future service of JIMS® piston oiling jets, use O.E.M. P/N 26432-76A for o-ring replacement.

6. Pistons and cylinders in these kits are cleared for installation. Below is the clearance information. Always check fitment and clearance before final assembly. **See Picture No.5**

**NOTE:** Check H-D® service manual for ring positioning around each piston, also read the instructions with your piston set for installing rings on pistons.

**NOTE:** When installing Jims stroker kits on 2003 and later cases, JIMS® strongly recommends you convert the left crankshaft bearing to the H-D® 9028 Timken. Use JIMS® No.959 Timken Conversion Kit to perform this operation.

7. Assemble per H-D®. Service Manual. **NOTE:** When assembling case halves together, seal with High-Performance Sealant H-D No.99650-02 or equivalent.

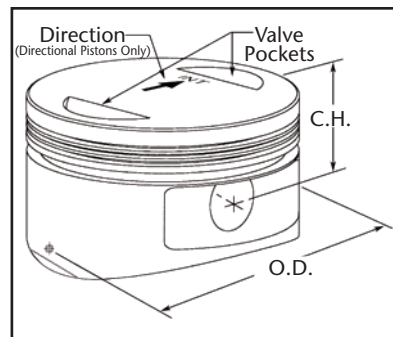
- A. Tighten case bolts to factory specs except top center case bolt between cylinders.
- B. Install top center bolt last after you have cylinders and heads installed and torqued to H-D® specs. **NOTE:** When installing 4" bore cylinders on cases, they need to have the relief on bottom of skirt facing each other when installed as shown in picture No.4
- C. Apply High-Performance Sealant H-D No.99650-02 to shoulder of top center case bolt and torque to 50-90-inch lbs maximum. **See Picture No.6** You can use your stock manifold for 113" stroker kits. For 116" kits you will need JIMS® manifold (JIMS® No.700 or 702) or flange (JIMS® No.703, 701, or 725) for your carburetor application. (See page 2)

**Note: Before installing head gasket**

If you are using a 3 layer riveted "EST" style head gasket and you have aftermarket heads, you may find that you have interference with the rivet in the head gasket. If so, use a smooth jaw vice to reduce the thickness of the rivet before installation.

Ring End Gaps: For Ductile moly rings for Twin Cam™	
Top compression ring	.016" - .022"
2nd compression ring	.016" - .022"
Oil control Ring rail	.016" - .050"

Piston Clearance Information	
Minimum.	.002 Clearance
Maximum	.003 Clearance



**Picture No.5**

When installing pistons, position the piston so that the arrow marked on the top of the piston points in the direction of the intake valve. See above picture.



**Picture No.6**

**NOTE: It is the engine builder's responsibility to check and confirm all operating clearances when installing any JIMS® products.**

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**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 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.

**CAUTION: Improper initial engine start up may cause head gaskets to fail prematurely.**

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.

**WARNING! "Beta" Stroker kits must never be revved any higher than 6,200 RPM!**

**Compression Table**

Kit	Stock Head C.R.	Screamin' Eagle Head C.R.
	96.2cc Swept Volume .040" Gasket	86.3cc Swept Volume .040" Gasket
<b>113"</b>	9.94:1	10.88:1
<b>116"</b>	10.19:1	11.2:1

\* Stock Twin Cam Head= 85.9cc  
 \* Screamin' Eagle Head = 76.0cc  
**Swept Volume=(Combustion Chamber Volume + Gasket Volume + Valve Pocket Volume)**

**WARRANTY**

All JIMS® parts are guaranteed to the original purchaser to be free of manufacturing defects in materials and workmanship for a period of 6 (six) months from the date of purchase. Merchandise that fails to conform to these conditions will be repaired or replaced at JIMS® option if the parts are returned to us by the purchaser within the 6 (six) month warranty period or within 10 (ten) 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 defective must not be replaced by a Dealer without prior authorization from 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 any other 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 from the failure of a JIMS® part, the breach of any warranties, the failure to deliver, delay in delivery, delivery in nonconforming 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 a JIMS® part is used in any other application.
5. Any parts which have been replaced for any reason become the property of JIMS®, and will not be returned under any circumstances.

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***Recommended Tools:***

<b>Part No.</b>	<b>Description</b>
JIMS® No.2234	Primary drive locking tool (A must)
JIMS® No.1288	Crankshaft guide (A must)
JIMS® No.33443-84	Oil Pump, and Valve Cover alignment Tool (A must)
JIMS® No.973	Timken Race and Bearing installer adapter
JIMS® No.975	Engine rotator, Late Twin Cam
JIMS® No.976	Engine rotator, Early Twin Cam
JIMS® No.1283	Cam chain tensioner tool (A must)
JIMS® No.994	Cam crank sprocket lock tool, Late Twin Cam (A must)
JIMS® No.1285	Cam crank sprocket lock tool, Early Twin Cam (A must)
JIMS® No.1276	Wristpin remover (A must)
JIMS® No.1047TP	Crank assembly removing tool (A must)
JIMS® No.1048	Hard cap (A must)
JIMS® No.39361-69	Motor sprocket seal installation tool (A must)
JIMS® No.1022 (Alpha)	Engine stand or modular base No.1145 w/ No.1140
JIMS® No.902 (Beta)	Engine stand or modular base No.1145 w/ No.1142
JIMS® No.97225-55	Sprocket shaft bearing installation tool (A must)
JIMS® No.1745	Timken bearing simulator (As needed)
JIMS® No.1236	Piston ring compressor tool (A must)
JIMS® No.1235	Ring expander tool
JIMS® No.1169	Compression Release Valve installation tool
JIMS® No.1408	Case Boring Tool, for all Twin Cam
JIMS® No.1163	Balancer Shaft Retention Pins (For B Motors)
JIMS® No.940	Endplay guage indicator tool, for crankshaft

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