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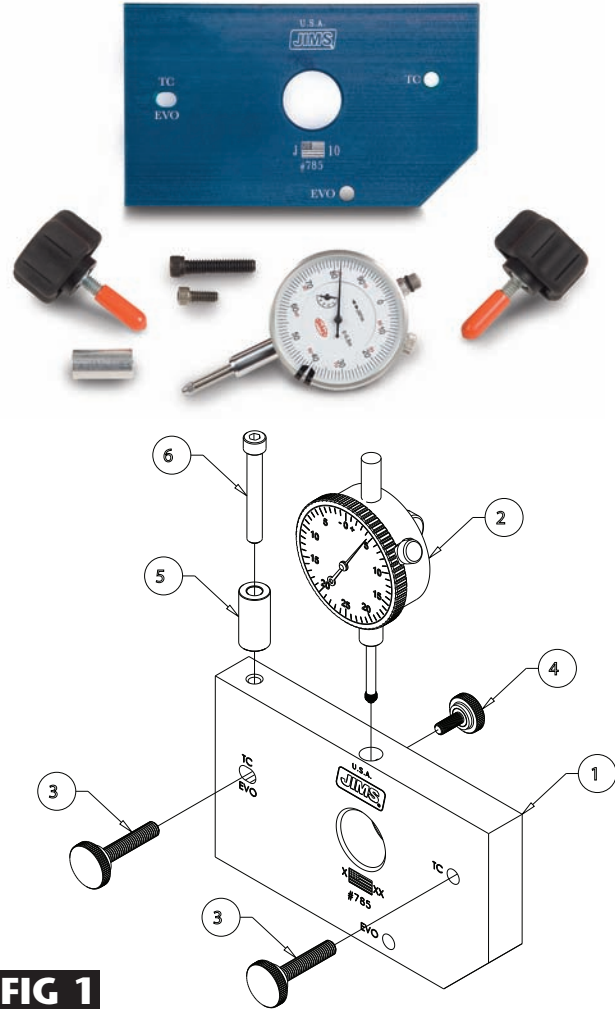
INSTRUCTION SHEET FOR TOOL #785

FLYWHEEL RUNOUT (TRUENESS) INSPECTION GAUGE,

No. 785 - Use on 1970 to present Big Twin Shovel, EVO, and Twin Cam

Check flywheel runout with flywheels in the engine case. Check the amount of gear lash on gear driven cams used in some Twin Cam engines. All V-Twin flywheels must be true when running within an engine.

H-D Service Manual for non -Timken bearing engines 2003 and up lists a service wear limit of .005". This amount is checked in a truing stand. JIMS new flywheel gauge has been designed to check flywheel Runout of the Pinion shaft (Crankshaft) while assembled in engine case. Engines with the left side Timken bearing (all JIMS engines have Timken bearings) show a service wear limit of .003". When checking flywheels installed in the engine case, the runout will be greater than when checked on a truing stand. The best way to use this Runout gauge is with JIMS Tire Rotator Tool No. 936. By using a tire rotator you can relieve more of the stress being applied to the flywheels than rotating the engine with the electric starter motor. This tool can also be used to check cam gear clearance (backlash) see below for more information.



PARTS AVAILABLE SEPARATELY			
No.	Qty.	Description	Part No.
1	1	INDICATING PLATE	785-1
2	1	1" DIAL INDICATOR .001 RESOLUTION	940-4
3	2	THUMBSCREW, 1/4-20 X 1-1/2"	1391
4	1	THUMBSCREW, 10-32 X 1/2"	1392
5	1	SPACER, 1/4" X 1/2" X 1"	1085
6	1	SCREW, 1/4-20 X 1-3/4"	1122
7	1	INSTRUCTION SHEET	785-IS

FIG 1

**NOTE: PLEASE READ ALL INSTRUCTIONS COMPLETELY BEFORE PERFORMING ANY WORK!
IF YOU DO NOT KNOW WHAT YOU ARE DOING, DO NOT DO IT!**

No information in this instruction sheet pertaining to motorcycle repair is represented as foolproof or even altogether safe. Even something safe, done incorrectly or incompletely can and will backfire. You and only you are responsible for the safety of your repair work and for your understanding the application and use of repair equipment, components, methods and concepts. Each and every step this tool is designed to do must be carefully and systematically performed safely by you. All information listed in this instruction sheet has been tested, re-tested and used daily in JIMS® Research and Development Department.

ALWAYS WEAR SAFETY GLASSES OR OTHER FACE AND EYE PROTECTION SUCH AS FULL FACE SHIELD. JIMS® IS NOT RESPONSIBLE FOR DAMAGE, INJURY, OR YOUR WORK. JIMS® IS NOT RESPONSIBLE FOR THE QUALITY AND SAFETY OF YOUR WORK.

Performance Parts For Harley-Davidson Motorcycles



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Perform all work per H-D® service manual for appropriate year and model for the motorcycle you will be repairing. See JIMS® catalog for a complete listing of all engine and transmission tools.

JIMS Tools recommended for performing this service:

- No. **936**, JIMS Tire rotator for ease of rotating engine by hand
- No. **994** or No. **1285** Cam lock tool, see catalog for year applications.
- No. **1283** Cam chain tool see catalog for year applications.
- No. **33443-84** Twin Cam oil pimp alignment screw (Qty. 2)

OTHER TOOLS RECOMMENDED FOR USE WITH THIS TOOL:

- 1 - 3/16" Allen wrench or Allen socket
- 1- Safety glasses
- 1 - H-D Service Manual
- Required hand tools needed for the removal of cam cover and cam support.
- Manufacturers specifications for gear driven cams.

Warning: *Disconnect the negative ground cable at the battery or Maxi fuse as indicated in service manual.*

Note: *Follow your service manual for the removal of cam chest components needed to gain access to the end of Pinion shaft (Crankshaft) for use of this tool.*

Assembly of tool for checking Flywheel run out on all Twin cams, EVO, and Shovels 1970 to 1984

1. Apply a small amount of clean oil or lube to the threads of thumbscrew No. **1392**. Place the mounting end of indicator No. **940-4** all the way into the bore at the top of indicator plate No. **785-1**. Position the indicator's face to be on the same side as the Laser engraving of plate. Just finger tighten the thumbscrew No. **1392** so the indicator will not move.

See Fig 1.

2. Apply a small amount of clean oil or lube to the threads of both thumb- screws No. **1391**. Place the above assembly up to the cam cover gasket surface of right case. Then, depending on the year of engine you will be checking, install both thumbscrews No. **1391** through the laser marked holes and thread into the case. The location of mounting screws is determined by the year and model as indicated by the laser marking on the outside face of the indicator plate. If the application is Twin Cam, install both thumbscrews through these holes and if the application is EVO or Shovel install both thumbscrews through these holes. **See Fig 1.**

Caution: As you place indicator plate No. **785-1** over Pinion shaft using your finger tip, lift indicator rod up and over Pinion shaft.

3. On the right side of indicator (about the 2:00 O'clock position) is the face dial lock screw. Loosen it and you can turn the face to locate the "O" (Zero) at the indicating needle. Retighten the lock screw.
4. Remove the spark plugs and place the transmission in high gear. Position the rear wheel off the ground and place on stand No. **936**. You can rotate the engine while noting the amount of runout as shown on the dial indicator.

CAUTION: WEAR SAFETY GLASSES OVER YOUR EYES.
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THE LAST TOOLS YOU WILL EVER NEED TO BUY.

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Note: Please refer to your service manual for the amount of allowable flywheel run out. If your flywheels are running out more than the allowed amount, see JIMS catalog for the tools required for flywheel removal. If your flywheels are in need of service, JIMS can rebuild or supply you with a new set of flywheels, contact JIMS at 805-482-6913 or www.jimsusa.com for application and availability.

Checking Gear drive cams for gear lash

Note: It will be much easier and you will have a better indicator reading of gear lash if you remove the pushrods or release the adjustment of all 4 pushrods.

1. If the Allen head screw No.1122 and spacer No.1085 is mounted to the top left of indicator plate as shown in **Fig 1**. remove both and apply a small amount of clean oil or lube to the threads of screw No.1122. Also remove the indicator by unscrewing thumbscrew No.1392.
2. Place screw No. 1122 through the mounting hole on the back side of indicator, followed by spacer No.1085 over the screw. **See Fig 1.**
3. With your 3/16" Allen wrench mount this assembly to the top right side cam cover mounting screw hole. Just finger tighten screw no more than 50 in-lbs. At the same time placing the sharp end (tip removed) of the indicator's stem on one of the teeth of cam gear. **See Fig 2.**
4. You will need to make sure that the small drive gear mounted to Pinion shaft can not move. You can gain a more accurate indicator reading by using a wrench (on the bolt holding the gear to cam) to move the cam gear back and forth as you are checking gear lash.

Note: Follow the manufactures specifications for the correct amount of gear lash required for a quiet valve train.

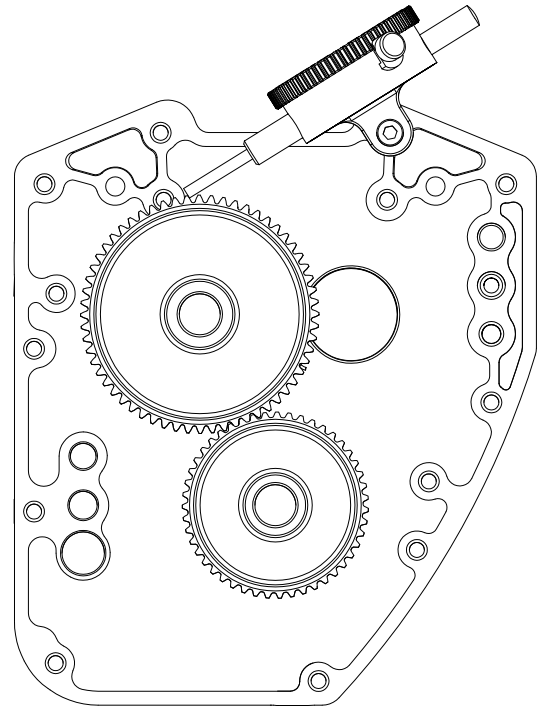


FIG 2

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