



**Instruction Sheet For Tool No.1277**



**Cam Shaft Remover and Installer**  
Use on all Twin Cam 88™ Models

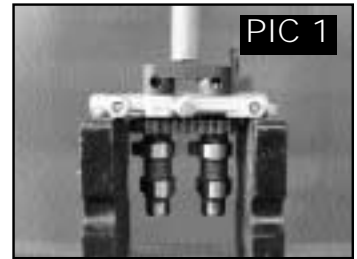
*Brand new for '99. This multi-function tool will remove and replace front and rear camshafts and the ball bearings in the new twin cam 88™. It provides the precision alignment of the camshaft to insure a smooth press in and out of the support plate.*

\* Refer to H-D service manual for specifications\*

(Note: Read all before performing work) **WARNING:** Always wear eye protection and always disconnect the battery.

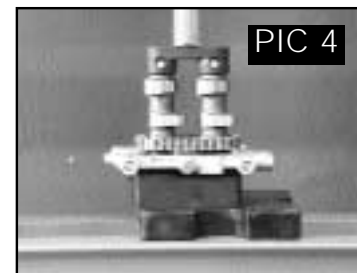
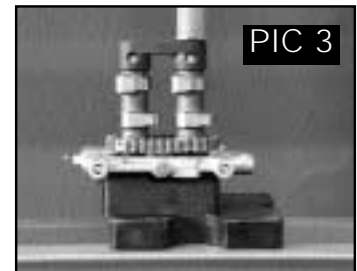
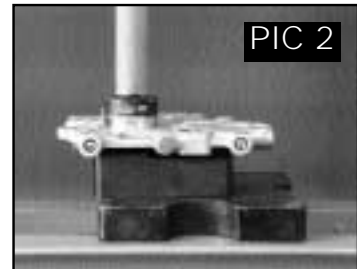
**TO REMOVE:**

1. Use JIMS tool No. 1283 to unload the secondary chain tensioner. Follow the instructions included with the tool.
2. **(CAUTION) Secure cam support plate in vise using soft jaws to prevent damage to plate.**
3. Remove retaining ring from end of the front cam shaft. (Wear safety glasses)
4. From inside of cam support plate, remove the 4 torx screws(T20) that secure the bearing retainer plate.
5. **(NOTE) Mark the secondary cam chain with a felt marker to indicate the original direction of rotation for reassembly.**
6. Support the cam support plate in an arbor or hydraulic press with the primary chain side facing up, use parallel blocks and place parallels as close to the chain as possible. See picture No. 1
7. Place the cup tool No. 1277-2 over the ends of the cam shafts. Align the cups so they can center and contact the inner bearing races. Then center cup tool under ram of press between the cams apply pressure and press both cams (with bearings attached) from cam support plate. (Caution: Do not try to press the cams out without the bearings or you will damage the support plate.)
8. Remove secondary cam chain from cam sprockets.
9. To remove the bearings off of camshafts use JIMS tool No. 1280. Follow instructions supplied with tool.



**TO INSTALL BEARINGS AND CAMS:**

1. Position cam support plate (secondary cam chain side facing up) over support block No. 1277-1, make sure the outer races of bearing's bore's are properly supported. One corner of the tool block is tailored to accommodate the chain guide blocks cast in the front of the cam support plate. Apply a small amount of press fit lube JIMS No. 2124 to bearing O.D. and bearing bore. Position bearing (letter side up) over bearing bore. Slip pilot installer No. 1277-3 through bearing into hole of support block. See picture No. 2
3. Position ram of press over pilot installer No. 1277-3. Press on installer until bearing makes contact with bottom of bore in cam support plate. Repeat steps for other bearing.
4. Install the bearing retainer plate with the (4) plate torx screws, use Loctite medium strength thread locker 242 Tighten screws to 20-30 IN-LBS. in a crosswise pattern use a T20 torx driver. Make sure the oil hole in the plate aligns with secondary cam chain oiler.
5. Place cam support plate back on support tool block No. 1277-1 to support inner races as cams are being installed.
6. Align the punch marks on the teeth of the cam sprockets. Mark the locations of the punch marks on the back side of the gears, using a colored marker. This marking procedure is necessary to orient cams when they are pressed in.
7. Install the secondary chain in the cam sprocket of both cams. Remember to install in the original direction of rotation using the mark on the chain during disassembly. Also apply a small amount of press fit lube JIMS No. 2124 to camshaft and bearing bore.
8. With the secondary chain installed on the cam sprockets and the marks aligned, place the sprocket ends of the cam shafts into the bearings.
9. **Note: Don't mix camshafts. Front cam has retaining ring groove. Also note the journal of the front cam sits deeper in the bearing, it must start first.**
10. Install the cup tool No. 1277-2 over the ends of both cams: Center ram of press directly over front cam end (See picture No. 3). Slowly apply pressure until inboard end of camshafts are flush. They are flush when the cup tool contacts the end of the rear cam, you can view this through two viewing holes in the tool cup. **(Warning: Make sure that the tensioner shoe is out of the way of the chain during pressing procedure or the tensioner will be damaged.)**
11. Now center the cup tool under the ram (See photo No. 4). Press evenly until both cams are seated in the bearings.
12. Verify that punch marks on outboard end of shafts line up using a straight edge. If not the camshafts must be removed and re-installed. **(Warning: with two new cam bearings).**
13. Install new retaining ring in groove at end of camshaft.



<b>PARTS AVAILABLE SEPARATELY</b>			
No.	Qty.	Description	Part No.
1	1	SUPPORT BLOCK	1277-1
2	1	TWIN CAM CUP	1277-2
3	1	PILOT, INSTALLER	1277-3
4	1	INSTRUCTION SHEET	1277-IS

**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.

**"From the Track... To the Street!"**