

# *TECHNICAL*

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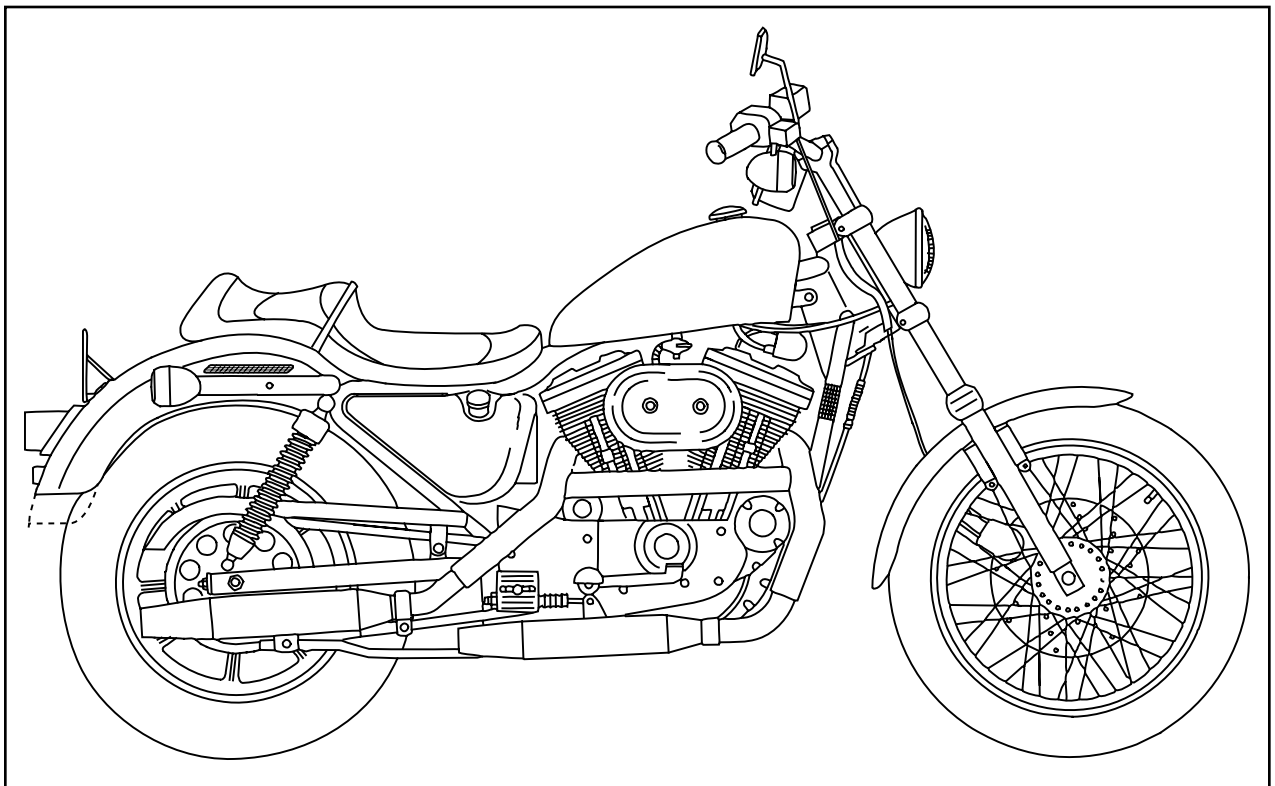
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# *TIPS*

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June, 1999  
TT#50



# **TECH TIPS #50**

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## **TECH TIPS #50**

JUNE 1999

### **FLY WHEEL PINION RACE PROGRAM**

Make note of the following change of address when returning items to Harley-Davidson. Use the Red, White, and Blue Label and address it:

**Attn: Supervisor, Dept. 621**

Effective June 1, 1999, the cost for fitting and sizing a new pinion race on the right flywheel will increase from \$50.00 to \$60.00.

When considering sending the right flywheel for a new pinion race, **DO NOT** attempt to move or remove the old race. If the pinion race has moved on the shaft during use, **DO NOT SEND IT IN FOR REPLACEMENT**. During replacement, the interference fitment is tested to meet specification.

### **SHOVELHEAD INFO**

This is to announce the Shovelhead No-Lead Head Exchange is **DISCONTINUED**.

### **TWIN CAM LIFTER NOISE**

Hydraulic lifters are self-adjusting. They automatically adjust length to compensate for engine expansion and valve mechanism wear, keeping the valve mechanism free of lash when the engine is running. When starting an engine which has been turned off for even a few minutes, the valve mechanism may be slightly noisy until the hydraulic units completely refill with oil.

### **TWIN CAM OIL PRESSURE SENDER**

You may find it handy to use a 90° crows foot wrench to remove and install the oil pressure sending unit on the Twin Cam Engine. Use a 15/16" Crows Foot ( Snap-on # FC30B) on FLHT's and FLHR's. Use a 1 1/16" Crows Foot ( Snap-on # FC34A) on FLHTC/U/I.

Those of you installing a sidecar on a Twin Cam motorcycle may find it necessary to remove and reinstall the oil filter mount to install the required 90° fitting for the oil pressure sending unit. This will require replacing the locktabs, part number #35061-99, on the oil filter mount bolts. If you are installing a 99 sidecar, these locktabs should be included in the connection kit. They are not, however, listed on the service parts list for that kit. When using an older sidecar, you will need to have your parts department supply them.

### **SIDECARS**

If you've recently installed a new sidecar, you have noticed changes to the necessary parts and procedures. These changes are important to remember and use if fitting an older sidecar to a 99 vehicle. In most cases, the mounting hardware is with the old sidecar. This means you don't need to purchase a complete connection kit.

To obtain the extra parts and information needed, use Fax On Demand to get the instructions for part number # 87166-99 Sidecar Connection Kit. Near the back of the instructions is a service parts breakdown of the kit. You will need to purchase Items #41-60. Use this instruction sheet to accomplish the assembly.

Coming this summer will be a Retrofit Supplement Kit containing these parts and instructions. Also, we will be offering an adapter harness for the lighting harness. Until that time, you will need to assemble the lighting harness adapter yourself.

You will find it necessary to contact the Touring/ Electrical Team in Tech Service to obtain prior authorization before replacing any sidecar assembly under warranty.

As with any warranty concern, if there is doubt about coverage, contact Technical Service using the Policy Request Fax Form or phone. Be prepared to provide complete and accurate information.

## **HEADLAMP AND PASSING LAMP BEZEL**

Accessory Headlamp and Passing Lamp Bezels, part #69622-99, #69623-99, and #69624-99, may not tighten the lamp assembly adequately. Should you encounter this condition, a gasket kit is available by calling the P&A Fitment Group of Tech Service. The new kits, #69622-99A, #69623-99A, and #69624-99A include the gasket kit. DO NOT return the -99 kits as defective stock.

## **TOURING MODEL FRAME CHANGE**

There is a running change to the FL Touring frame. This will be noticeable when the seat is removed. The change improves rocker box access and will allow more flexibility for the installation of future accessories. This will also change the part number to an "A" version.

## **RADIO AVC**

Radios on 1999 vehicles shipped after March 15, 1999, have the capability for AVC adjustment. Vehicles with these radios will give you the ability to help customers that desire more or less volume change from stop to highway speeds.

The procedure is as follows:

1. Enter diagnostic mode
2. Push LO/DX button to move from diagnostic group 1 (d1) to Diagnostic Group 5 (d5).

**Note:** Scrolling message "Firmware 9/25/98" indicates that the radio has the AVC adjustment feature.

3. Push LO/DX button. Display will show AVC on top screen and a number, 0 through 4, on the lower screen.
4. Push mode switch up to increase volume or down to decrease volume.

**Note:** The standard setting is "2". Zero (0) is the lowest volume setting, and "4" is the highest.

To exit the diagnostic mode, merely turn the ignition off.

This AVC feature will be automatically installed in all radios during repair.

## **WARRANTY GUIDELINES**

Recently, all dealers received a new Warranty Policies and Procedures Manual. This manual contains some very important information regarding how to properly submit claims for credit.

For the technician, more emphasis is placed on proper inspection and diagnosis/repair procedures. This also includes documenting and physically identifying a problem when found. To reduce the chance for a condition to be missed upon return inspection, use the proper condition/labor codes. For a cosmetic issue, use masking tape on painted parts and grease pencil on other items to identify the location of the problem. When a part is inspected or tested and no problem is found, the claim will not be paid. Inspection and testing for imperfections is costly and time consuming. When a part is determined to have no problem, that part may not be returned.

Proper diagnosis and identification of returned parts will help reduce the rising cost of vehicles and improve quality.

We have noticed FL front fenders returned under warranty with paint worn where the front brake line made contact. This condition should be noticed at PDI and the brake line attitude adjusted. The speedometer cable should be correctly attached to the brake line so as to prevent contact. We will not consider crediting claims for this condition.

Most cosmetic paint issues can be identified and corrected during set up by making adjustments and using the Paint Repair Kit.

## **WHAT IS A "MEGOHM"?**

Technicians frequently ask this question. This term is used often throughout the electrical diagnostic charts. A megohm is one million ohms—a great amount of resistance! Most DVOMs will display "•, OL, etc.". The greatest resistance is an open, such as a broken wire.

## **EFI IDLE**

There are many confused and frustrated technicians calling here regarding setting idle speeds on fuel injected vehicles. We feel a review is necessary.

### **First of all, it is mandatory that the hot idle speed be set and then memorized by the ECM.**

There are rumors that removing the ECM fuse does not always erase a previous idle memory and that disconnecting the battery negative cable is the answer. When disconnecting battery power from the bike, you are erasing the clock and all radio station presets, thus causing another customer dissatisfaction issue. To remove all chance of battery power going to the ECM, simply remove both ECM relay and Fuel Pump relay fuses at the same time. This will eliminate the chance of deleting those comfort settings and reduce the amount of time you spend resetting clock and sound system presets.

### **Second, the hot idle speed memory must be confirmed before attempting to set a cold idle speed.**

Another point of confusion is what is expected as normal for a cold start idle rpm. You set the cold idle speed to 1500 rpm with the engine at normal operating temperature where the engine is able to use fuel efficiently. When the engine and fuel are cold, an enriched fuel mixture is necessary. Fuel, when cold, does not atomize or ignite as easily as when warm. Therefore the cold start rpm is going to be dependent on ambient air and engine temperature and will vary from the 1500 rpm setting. The intent of the cold start parameters is to allow a cold engine to start and run. That's all. The colder the weather, the lower the cold start rpm. If performance work has been done, this condition could be exaggerated. The performance stage kits are designed to run their best with an engine at operating temperature. If it is really cold, it may even be necessary to "crack" the throttle slightly to help the engine start. Once started, leave the throttle alone until the engine is warm.

## EFI EXHAUST

We seem to be hearing about more driveability issues on fuel injected bikes. More times than not, we find out later that Off Road/Race or aftermarket exhaust is used. Not only do we require using only Harley-Davidson Touring mufflers, but use of any prohibited exhaust system may create conditions or symptoms that generate customer complaints. We will not help diagnose driveability issues when using prohibited parts. The use of Off Road/Race application exhaust systems on Harley-Davidson motorcycles is prohibited for on-road use and could constitute fines and penalties.

## NOISY FUEL PUMP?

After receiving a couple of fuel pumps replaced under warranty for excessive noise, we sent them to the manufacturer for testing. Testing showed these pumps to be within specification for flow and current draw. There was also no abnormal noise emitted from the pumps.

Most of our experience with a "noise" phenomenon is associated with the excitation of the check valves in the fuel lines. There is a resonant flow that the fuel pump can produce that makes the valve noisy. When the fuel pump is suspected and replaced, this flow rate is changed (being a different pump) causing the appearance that the fuel pump was the cause for the noise.

Our recommendation is to replace the check valves instead of the fuel pump. Springs would have variance in them just as the pumps have variance.

## CLUTCH INSPECTION COVER QUAD RING

Harley-Davidson has learned that compression of the clutch inspection cover O-ring on some vehicles with 1998 and earlier Evolution engines can lead to distortion of the cover. To correct this problem, a new quad ring seal (PN 25416-84A) has been developed that requires less compression than the old style O-ring seal.

Since Harley-Davidson will no longer be selling the old style O-ring seal (PN 25416-84), use the new quad ring when performing service or installing a new clutch inspection cover. We recommend that you follow the procedures below.

- 1) Discard the clutch inspection cover if warpage exceeds 0.010 inch (0.25mm).
- 2) Obtain **new** quad ring (PN 25416-84A). The ring is identified by a white paint dot. Verify the white dot is present.
- 3) Verify the quad ring is clean and dry. Inspect for cuts, tears or other damage. Replace if necessary.
- 4) Swab all lubricant from the quad ring groove.
- 5) Install quad ring into primary chaincase cover with the nubs contacting the ring groove walls. Proceed as follows:
  - a) Place quad ring into position above groove in clutch inspection cover with the flat sealing surface of the ring facing upward.
  - b) At three or four locations equally spaced around circumference of seal, press quad ring into groove so that the nubs contact the ring walls.
  - c) Place clutch inspection cover over quad ring and press ring into place.
  - d) Remove cover and carefully inspect ring to verify that it has not rolled over.
- 6) Install clutch inspection cover in primary chaincase cover. Install three socket screws using **new** rubber sealing washers. Alternately tighten screws to 50-70 in-lbs (6-8Nm).

## **SPORTSTER TRANSMISSION SHIFT DETENT**

There was a change made to the Sportster transmission detent plate to improve shift quality. The zinc die cast part has had a material change to powdered metal. The ramps were redesigned as well. The new part number is PN 33656-90A. This retrofits to all five speed XL's 1991 and later. This change occurred on April 22, 1999.