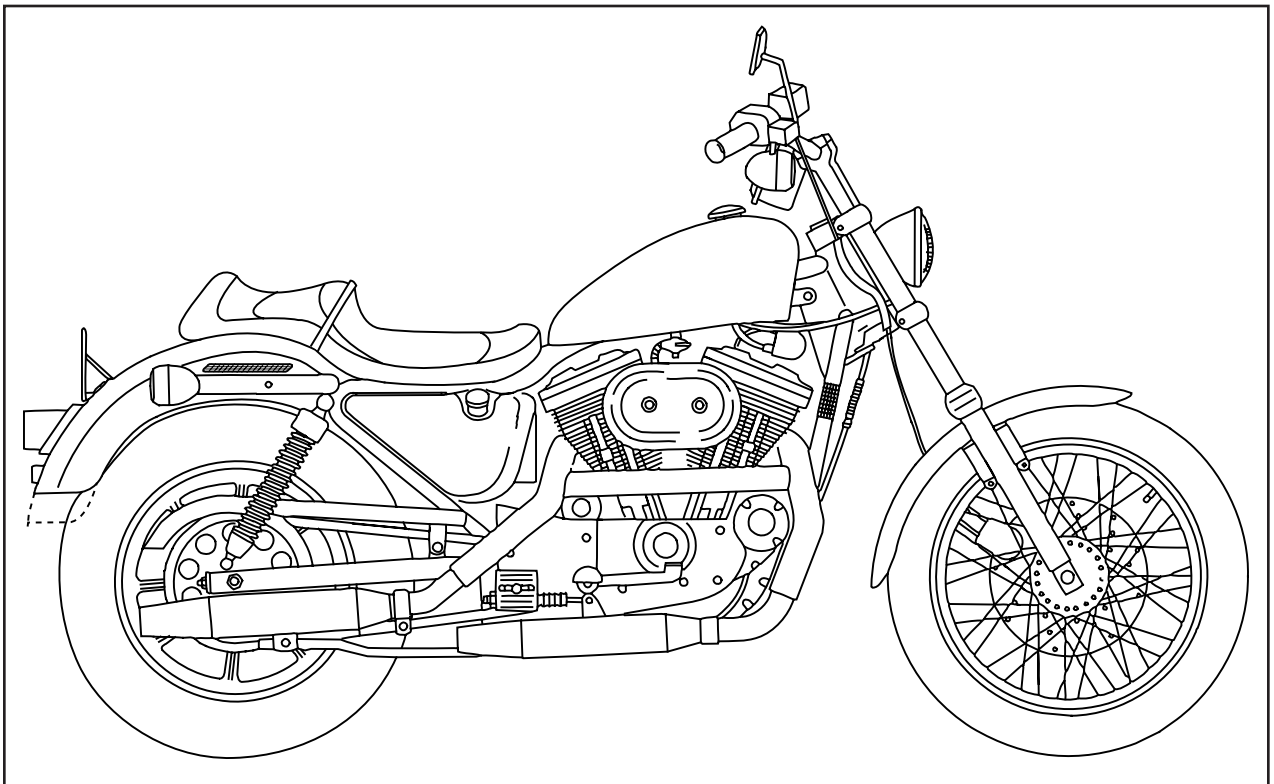


TECHNICAL

TIPS

August, 1998
TT#48



TECH TIPS #48

TABLE OF CONTENTS

Page	Topic
1	XL Sealed Batteries
1	883 Speedo's
1	Tank Mounted Ignition Switch
1	Battery Chargers
1	S.E. Programmable Module
1-2	'98 Big Twin Transmission Cover
2	Rocker Box Head Gaskets
2	Crankcase Info
2	Important: 091 Recall
2	Starter Clutch Failure
2	Short Tip on Short Circuits
2	Historic Code 56
2-3	More on Diagnostics
3	Cruise Control Kits
3	Road King Lighting
3	FLHT/C/U Model Front End Squeak
3	Fastener Change
4	Extra Parts
4	Saddlebag Lid Fitment
4	FLTR Headlamp Assembly
4	FLTR Fairing Screws
4	Roadglide Speedo Cable
4	Speedometer Cables
4	FL Air Suspension
4	Form Revision
5	Tool Tips
6	Tech Tips from the Field
7	Dealer/Distributor Policy Adjustment Request Form

XL Sealed Batteries

We have seen XL sealed batteries returned under warranty with cracks in the case. This is being caused by overtightening the battery hold down strap. The strap nut should be tightened only until the assembly is secure, not to the end of the threads.

883 Speedo's

When replacing a speedometer on 883's, it is important to label one of the black ground wires on the harness before cutting to ensure it is located on the new speedo correctly. If the 2 black wires are switched, the unit will not power-up and function.

Tank Mounted Ignition Switch

On models equipped with an ignition switch mounted in fuel tank console there is a possibility for the wiring connector to become loose. This can cause an intermittent loss of ignition and/or lights. If you encounter a vehicle with this condition, check to be sure the ignition switch connector is plugged in properly. If it does not lock in the way it should, use several tie wraps to secure it.

Battery Chargers

When using a trickle charger, the battery voltage increases with the amount of charge and should not exceed 15-16 volts for maintenance-free and sealed type batteries. Charge time could be up to 24 hours.

A taper charger charges at a fixed voltage. As the battery's voltage increases with the amount of charge, the current drops accordingly. A drawback of both the taper and trickle chargers is speed. It can take days to bring a discharged battery up to 100%. Do not use a "Battery Tender" type charger to charge a new or discharged battery because it shuts off too soon. They are best when used to maintain a charged battery.

The constant current charger maintains a constant supply of current to the battery at all levels of charging. You select the charging current, as the battery voltage increases with the amount of charge, this charger automatically increases the charging voltage to maintain the current output.

Maintenance free batteries can be tested only with a voltmeter or multimeter and a load tester. These batteries are fully charged when the voltage peaks and then begins to fall — as high as 17 volts on the maintenance free battery.

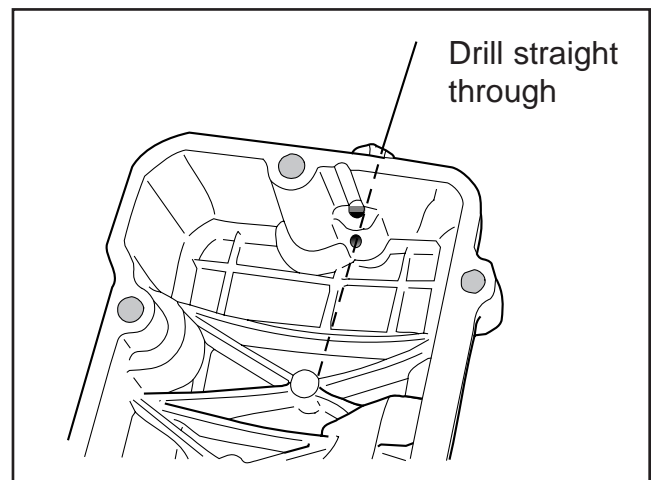
Remember that you should charge a battery at 1/10 of it's amp/hour rating.

S.E. Programmable Module

You should use H-D coils as they have a safe operating range and will not cause module failure. H-D coils have a resistance of 2.8-3.5 ohms and plug wires should be 2000-4000 ohms. After-market coils and wires can have parameters outside this range and have been known to cause modules to fail.

'98 Big Twin Transmission Cover

If you encounter a 1998 Big Twin transmission expelling lube out of the vent hose, there is now a modification that can be performed to reduce this occurrence. You need to remove the top cover from the transmission. Remove the vent line and fitting. Using a drill bit small enough to fit into threaded vent opening, drill a hole through to the inside of cover. Take care not to damage the threads in



vent opening. This modification would be used on rigid mounts after 11-15-97 and on rubber mounts after 6-1-97. If you have any concerns surrounding this, you should contact the Powertrain Service Group in Technical Service.

Rocker Box Head Gaskets

In case you haven't noticed, there was a minor change to the Rocker Box head gaskets P.N. 16778-84B and P.N. 16779-84C. The color changed from Gray to Green. The material is still the same, just a different color.

Crankcase Info

A process change for powder coat fluoride levels will cause the inside of the crankcase to look stained or burnt up. This change will allow the powder coat to bond better.

Important: 091 Recall

We have had reports of technicians attaching the ignition switch connector to a hole on the bottom the 98 radio chassis. **DO NOT DO THIS!** There are explicit routing and installation instructions in the bulletin. Please follow exactly. Do not attempt to use the plastic anchor to attach the connector. This will break the circuit board inside the radio. It is also not a warrantable repair for the radio.

Starter Clutch Failure

We have noticed some confusion concerning starter clutch failures. It is important to understand that when one fails, this is a symptom of another problem. In order to isolate the root cause, a thorough diagnosis of the battery, all necessary wiring and connections, as well as possible charging system conditions need to be performed.

If the battery passes all tests, voltage drop tests on battery cables and connections during starter use should reveal the problem. When battery voltage drops to a certain level, the starter solenoid will disengage. When this happens, the battery voltage recovers and the starter will instantly engage once more. This momentary drop-out and re-engagement of the starter is what damages ring gear teeth and the starter clutch. Battery voltage drop will also cause the ignition module to fire and try to drive the engine backwards resulting in starter clutch failure. If a customer has the habit of hearing the starter "stall" during start-up, releases the start button and pushes button again, the starter clutch can become damaged. The problem is voltage. The clutch is the victim and after the cause of the problem is corrected, the clutch can be replaced. Don't replace the complete starter for clutch failure.

Short Tip on Short Circuits

If you are attempting to locate a short circuit, rather than continuing to replace fuses while looking for the problem, you can use a test light in place of the fuse at the fuse block. Start removing one load at a time or wiggle wires. When the light goes out, examine the wiring on the portion of circuit last disconnected for the cause.

Historic Code 56

If you encounter an EFI vehicle with a historic Code 56, be sure to ask the customer if there is anything noticeable (a hesitation or engine miss, for example) while riding. If the customer experienced no problems, the Code 56 was most likely caused by a slight backward rotation of the engine during starting. This could be caused by a low battery, poor connections in starting circuit, or even by lifting the thumb from the start button before the engine rotated completely through the compression stroke. Clear the code then check battery and connections. If okay, explain the situation and let the customer go.

More on Diagnostics

Electrical components replaced by dealers under warranty are called back for testing in order to improve the product. We are finding a large number of these electrical components have no problem. Please use the 1998 Service Manual Diagnostic Charts to aid in proper diagnosis.

The 1998 and later Service Manuals include more thorough electrical diagnostic flow charts including a labor/condition code at the last box in each diagnostic path. The technician can write this 4-digit code on the work order and the same code goes on the warranty claim to simplify dealer paperwork. H-D then uses the code to help identify mode of failure. We are finding a large number of electrical components are claimed under warranty with Pre-1998 codes which rejects the claim. Please use the correct labor/condition codes to help your dealership administrative people, help H-D, and our suppliers. It will also speed up the credit process.

We are finding that technicians are using trouble code diagnostic charts when a historic code exists. A historic code normally indicates the problem was intermittent. If the technician uses the trouble code diagnostic chart for a condition that does not exist, he will be led to the end of the chart without locating the problem. Trouble code diagnostic charts are for current codes not historic codes. The charts may be referenced, while diagnosing historic codes, only to aid the technician in identifying critical circuits and connections that may be causing the intermittent condition.

Please do not replace the ECM when diagnosing an intermittent condition without prior authorization from Technical Service.

We are experiencing many customer complaints of high or low idle speeds on EFI motorcycles. Please follow the procedures in the Service Manual exactly when adjusting idle speeds. Remember to disconnect the 12 volt power to the ECM for a minimum of 15 minutes following adjustment of hot idle speed so the ECM will relearn the new idle speed. Idle speed fluctuation on vehicles equipped with S.E. Stage Kits is not the fault of the calibration cartridge. Please do not attempt to warranty S.E. stage cartridges.

Cruise Control Kits

We have received some calls about cruise control kits using the 98 module. The condition described is the system works fine until attempting to disengage. The cable seems to not release, even if power to the system is removed, except with use of the throttle roll-off function. It is possible that someone has installed the cable housing into the module in the wrong position. The cable housing has 2 index locking ears. Each of the ears is a different size but with slight force can be installed in either position. The sleeve that fits into the module is "D" shaped to accept the end installed on the servo ribbon. The end of this sleeve also has a 45° opening. If the cable housing is improperly installed, the long end of this sleeve can contact the servo gear and restrict the free release of cruise mechanism. Also, if this is found, it is likely that the servo ribbon is twisted. To correct this described malfunction, install cable housing properly and observe the ribbon is not twisted.

Road King Lighting

If you have installed an accessory brake lamp or lighting kit on a 97 or 98 Road King and it blows the lighting fuse when using the brakes, here is the way to correct this. Follow the blue wire from the brake relay up to the main harness. Cut the blue wire at the main harness and use heat shrink to protect bare end in harness. Find the orange wire in the main harness and splice the blue wire to it. Use sealed butt splice connector to seal this connection. This process removes the high amperage brake light system from lighting circuit and places it in use on the instrument circuit.

There will be an accessory harness produced soon but this should prevent any problems until then.

FLHT/C/U Model Front End Squeak

If there is a squeak noticed in the front end with braking or hard bumps, it is most likely due to the speedometer cable rubbing in the fender guide. To check for this condition, simply have someone sit on bike and rock back and forth while holding the front brake. If the noise is present, grab hold of speedo cable near the fender guide and see if the squeak goes away. If it does, rotate the guide slightly to reduce the side contact of the cable through the guide. It may also be necessary to rotate the position of cable drive unit for a more relaxed curve in cable.

Fastener Change

On EFI induction modules, the cold idle adjustment screw changed from hex drive to torx to use the same driver as the hot idle screw.

Extra Parts

The two plastic rings you are now finding in Ultra tour packs are for holes in speaker housings where wiring passes through. They are meant to give the housings a more finished appearance. When the tour pack is moved to the riding position during PDI, tuck extra wiring along with connector into speaker housings, then install plastic ring into opening.

Saddlebag Lid Fitment

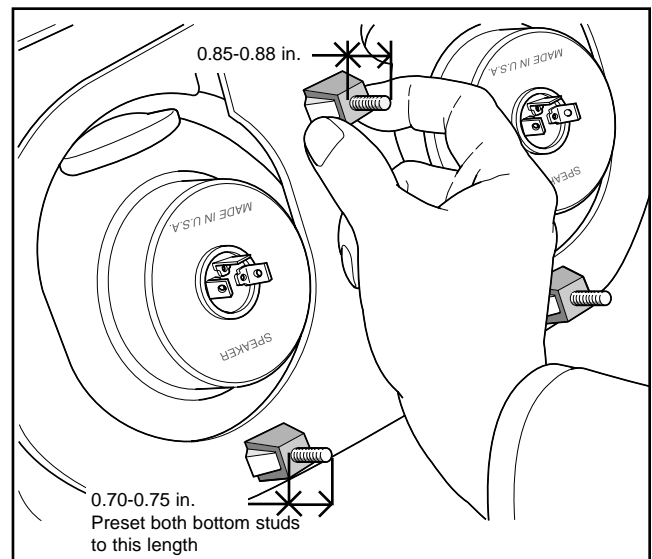
A quantity of saddlebag hinges produced by our supplier were improperly formed. As a result, you may receive complaints that the bag lid does not drop over the “nub” on the saddlebag bottom. Do not replace the saddlebag or hinge. The tether can be removed from the lid allowing access to the bottom hinge attached to the saddlebag bottom. Using a flat screwdriver in the slots next to the hinge pin, carefully adjust the hinge outward and downward. Try closing the lid. When an acceptable appearance is obtained, re-attach the tether. This complete process will take only a minute or two. This adjustment should be performed on vehicles as required.

FLTR Headlamp Assembly

If you experience a loose headlamp assembly on a Road Glide, replace all three “green” mounting clips with black clips P.N. 67981-98A only. Attached is a crossview of this assembly with headlamp aim dimensions which should be set prior to installation of the outer fairing.

FLTR Fairing Screws

The 2 screws used at the bottom corners, P.N. 2940, are not used any more. P.N. 2995 replaces 2940. P.N. 3732 are used at remaining 4 locations. P.N. 2995 could be used in top 4 holes but use caution as it is a longer screw than P.M. 3732.



Presetting Adjuster Studs

Road Glide Speedo Cable

There is an updated speedo cable offered for the Roadglide. If you experience a cable failure, replace with P.N. 67078-85B. This cable is a little shorter than the first cable used.

Speedometer Cables

If you encounter a speedometer cable boot that is damaged at the drive end from contact with the brake rotor screws, you should place silicone in the boot to seal against water entry and reinstall.

FL Air Suspension

There have been questions regarding oil noticed in suspension air lines. Each time someone checks the air pressure, a drop of oil may come out. This condition is common and not abnormal. The manufacturer and engineering have stated there is no effect on performance. This condition can exist because there is no separation between oil and air in our suspension.

In the event a rear shock is laid on its side without capping the air fitting and oil escapes, no accommodation has been made to refill or replace oil lost. It requires the replacement of entire assembly.

Form Revision

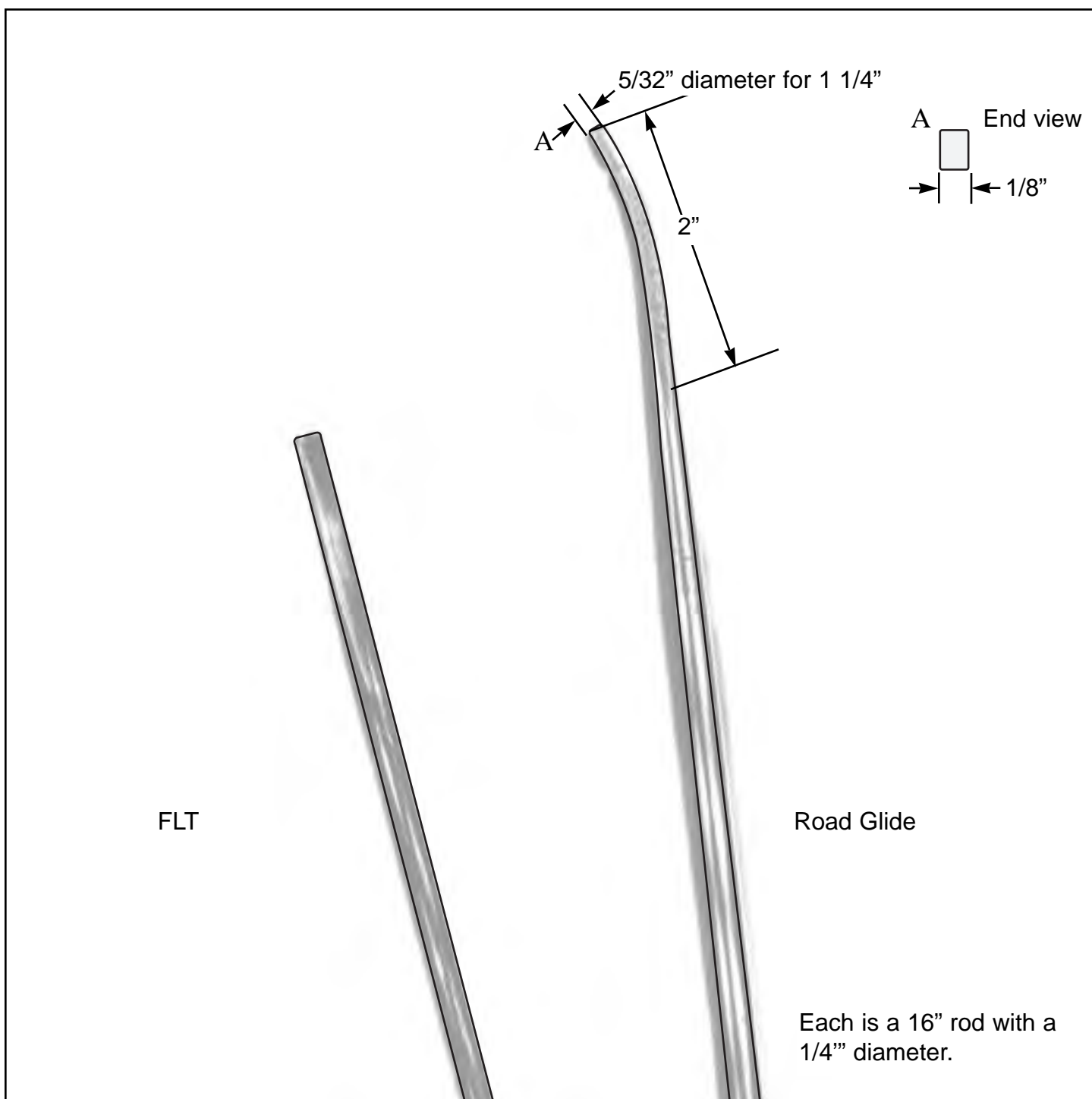
Attached you will find the latest version of our policy adjustment request form. Take notice of the changes. It is very important that all information requested be supplied for timely decisions to be given. This is the only form that will be acknowledged for use on policy adjustment requests. A grace period of 90 days is given to adapt to using only this form.

Tool Tips

Always use the "Extreme Pressure Lubricant" (J-23444A) included with all Kent-Moore tools having threaded parts. Examples are HD-35316A Main Drive Gear Tool and HD-95970-32L piston pin bushing tool. This greatly extends tool life and prevents damage and threaded tool parts.

The Big Twin Mainshaft race remover and installer, HD-34902A, has been superseded to HD-34902B. A material change has been made to the bridge, J7830-5, to eliminate thread stripping. Earlier tools experiencing this problem will be replaced at NO CHARGE under K-M's Lifetime warranty.

Attached is a picture showing a couple of helpful tools that technicians can make. They are used to adjust steering necks on FL models. The tools help to turn the star nut on steering stems. One is used on FLHT models and a slightly different version on Roadglides.



Tech Tips from the Field

Have you ever noticed how hard it is to compress the rear brake caliper in order to service the pins or do a tire change? Well, here is an easy way to eliminate the strain on your hands and wrists. Take an old cylinder stud and thread it into the caliper and presto, you have a compression aid. If you want, you can use two to really get the job done fast. The collar should go towards the caliper and only thread it in until you have good engagement, not until it stops.

Mike Paul
Motown HD/Buell
Taylor, MI #2537

To perform steering head bearing adjustments, you need to remove the chrome cover on the fork stem bolt on some models. This cover, with a hidden screw, can be difficult to remove at times. If you get an old seat strap, fold it in half, and use it on this cover like a strap wrench. While pressing down with your thumb on top, turn the cover counterclockwise to remove. When replacing the cover, apply a little anti-seize to the threads.

Sanj Danato
Down Under

We need your help!!!!

The riding months are here and call volume is increasing.

Many comments have been made as to the difficulty encountered contacting technical services. Here are some suggestions to help you get a quicker response.

First, Fax all Policy Adjustment inquiries (fax form attached). Include test or measurements data as per the service manual

Second, When phoning in with a technical question or issue, the following information should be included: Name of caller, VIN, mileage, dealer number and phone extension if the dealership has an automated phone answering system. Also, give a short description of the call topic.

Third, when calling about parts, give the part number and a short topic description. Also include the year and model if not related to a specific VIN.

Remember:

1. If a customer is referred to call customer service, this generates a minimum of two additional calls for technical and/or customer service. This in turn reduces the time we are available to devote to dealer calls.
2. When we return calls to dealers, we will remain on hold to wait up to three minutes for an answer, as there are many dealers waiting for our assistance.
3. Limit calls to times the vehicle is physically present for service. The troubleshooting section of the manual provides symptoms and likely causes.
4. Make a phone contact when the first service attempt does not fix the customers issue.
5. Exhaust your internal resources before calling. Use the documentation you have purchased.
6. Calling technical service does not automatically give you authorization for parts and labor.
7. When technical support requests a part returned, use this address:

Attention: Name of person requesting item
Harley-Davidson Motor Company
Customer Support
3700 West Juneau Avenue
Milwaukee, WI 53208

Use a plain label with your dealer address. Include inside the VIN., dealer no. and contact person at the dealership.



Dealer/Distributor Policy Adjustment Request Form

Date: _____

Please provide the following information: (Typed or Clearly Printed)

Dealer/Distributor Name: _____ Dealer/Distributor Number: _____

Your Name: _____ Your fax number (_____) _____ - _____

Customer's Name: (First/Last) _____ / _____

Vehicle Identification Number: _____

Mileage/Kilometers (circle one) _____ Date of Purchase: _____

Total number of pages faxed for this vehicle including this one: _____

Nature of the problem you wish to have considered: _____

Name the specific Service manual Electrical diagnostic tests used and the results found: (if applicable)

Warranty claim or work order number for this request: _____

Major parts which need to be replaced: (By Part Number/Description)

Specific labor operation to be performed: (Labor code) _____

Customer Concern Code: _____ Condition Code: _____

Are there modifications to the vehicle ? _____ Describe _____

Is this vehicle covered by an Extended Service Contract? _____

If yes, have they been contacted to cover this repair? _____

What was their decision? _____

What portion of this repair are you (dealer) willing to contribute? _____

What portion of this repair is the customer willing to contribute? _____

When all the information above is provided, FAX this form to the Service Department Authorization Fax Number: (414) 343-_____. You will receive a faxed reply to your attention as soon as possible. Incomplete, inaccurate or illegible request forms will be returned for completion.