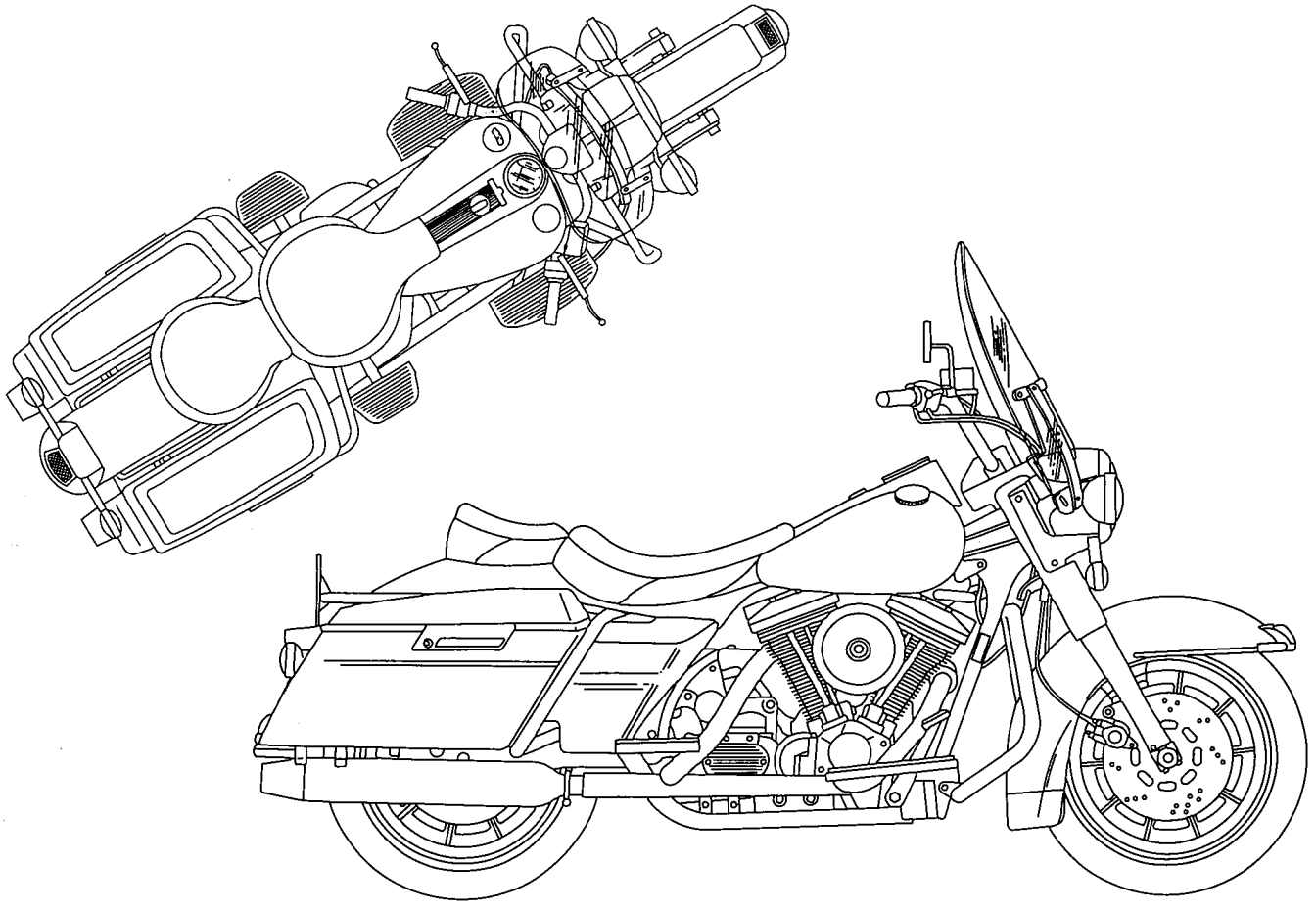
TECHNICAL TIPS

October 1994
TT#40



MOTOR HARLEY-DAVIDSON COMPANY®

A quick fix for FLHR seat pans, pg. 2

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** ALL MODELS **

GREASE FITTING CHANGE

Beginning on August 24th, all motorcycles, except Dyna models, are being produced with **unpainted** steering head bearing grease fittings. The fittings are being installed on the assembly line rather than prior to frame painting.

CRANKCASE CHANGE

All crankcase sets have a stamped number that indicates the size of the pinion bearing's outer race. This identifying stamped number (1,2 or 3) has been relocated. On 1340 crankcases the stamp is now located **inside** the right crankcase below the base gasket surface. XL's crankcases are stamped, **inside** the gearcase compartment, just below the #4 camshaft bushing.

** XL MODELS **

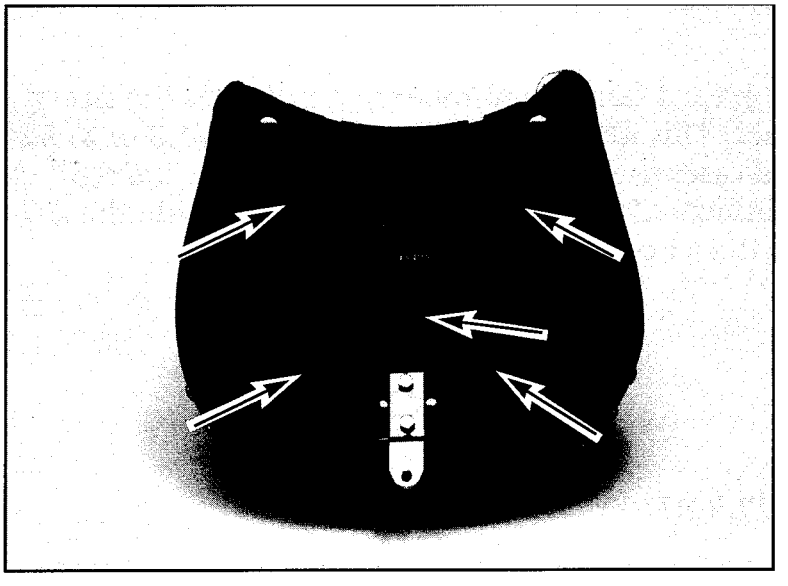
SPARK PLUG APPLICATION

The 1994 Genuine Accessory Catalog **incorrectly** indicates that Screamin' Eagle Spark Plugs, part number 32321-91 can be used in pre-1986 Iron Sportsters. This could cause major engine damage. The correct plug is part number 32322-91.

** FLHR MODELS **

SEAT MODIFICATION

Road King passenger seat pans can cause a contact situation with the fender's paint which an owner might find objectionable when the seat is later removed for solo operation. This can be avoided by installing crankcase breather umbrellas, part number 26856-89, into holes which have been drilled in the seat base. Five of these will be required. The photo, below, shows the locations. This suggestion came to us from **Richard Deaux**, technician at **Harley-Davidson of Charlotte, NC.**



** FL MODELS **

FIELD FIXES FOR HEADSET TICKING

We are now aware of several improvements that can be made to 93 and 94 Ultras in the field that will decrease the amount of ignition and/or regulator noise perceived in the headset. Three of these improvements have been implemented as running changes in production.

The first running change was to relocate the point from which the fairing speaker switch received it's ground. This occurred in late November 93, and will be described under the heading "ground relocation". The second running change was to reroute a primary ignition wire away from the radio chassis. This occurred in mid February 94 and will be described under the heading "up the flyswatter". The third running change was the addition of a DIN extension cable retainer to all 1995 Ultras built after August 8, 1994.

The remainder of the improvements could be implemented as field repairs using care that they are adapted only as needed and in a workman-like way. Here follows a list of the improvements and their applications. Refer to the section so numbered for details on what implementing the improvement entails.

1. Speaker Switch Ground Relocation- 94 only

2. Grey Primary Wire Relocation- 94 only

3. Regulator Dedicated Ground- 93 & 94

4. Regulator DC Wire Relocation- 94 only

5. DIN Connector Retaining Clip- 93 & 94

6. Front Plug Wire Replacement- 93 & 94

7. DIN Cable Verification- 93 only

1. GROUND RELOCATION

Prior to the November change, 94 Ultra fairing speaker switches sought their ground through a black/green wire which, via several splices, ran to the ground bolt located above the starter. This route proved to introduce too much "electrical noise" into the headset through the pod. The speaker switch now obtains it's ground directly from the back of the radio chassis. An early 94 Ultra can be

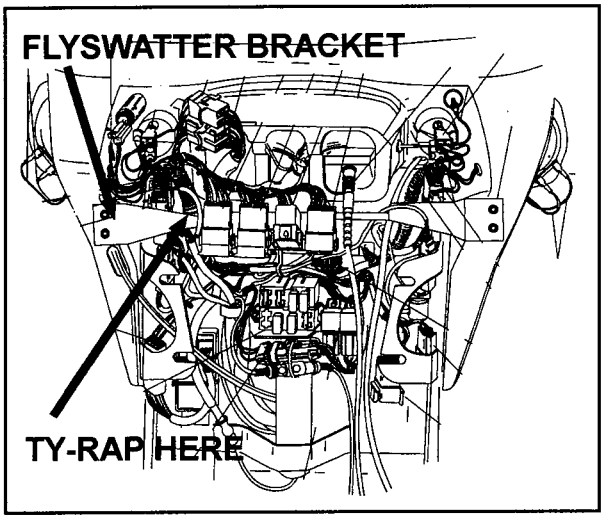


Figure 1

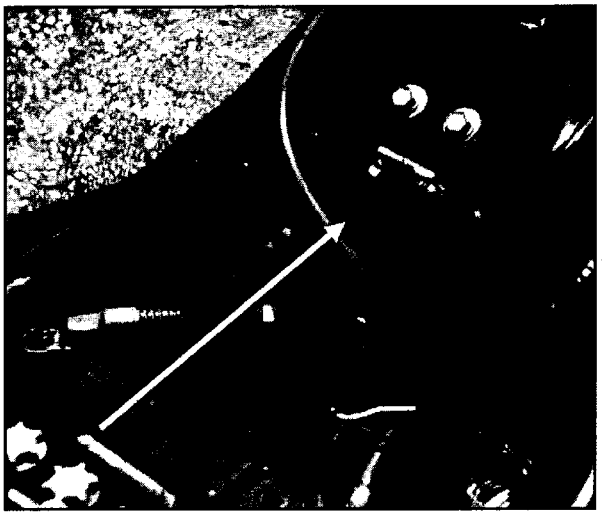


Figure 2

ground directly from the back of the radio chassis. An early 94 Ultra can be updated in the field by following these steps:

1) Remove the black/green wire from the speaker switch's center terminal, tape and secure it, since it will not be reused.

2) Fabricate a black 18 gauge wire, 12 in. in length Strip 3/16" to 1/4' off of both ends. Crimp a terminal, part number 9858, on one end using a Packard 115 crimper, HD-38125-8, and the 20-18 gauge crimp die for the core and insulation crimp. Crimp a terminal, part number 9937, on the other end using a Packard 271 crimper, HD-38125-7, and the "C" die for the core crimp and the "D" die for the insulation crimp. Connect the wire to the center speaker switch terminal and to the lug at the rear of the radio chassis where the chassis's own ground wire resides. Hook it up. You're done.

Note

The radio chassis's own ground wire should lead to the fork bracket's gang ground, and from there via a dedicated wire to the right side of the frame. It is fastened to the frame by the same screw that retains the forward wire loom guide. If that radio ground path is not in place as described, make it so.

2. UP THE FLYSWATTER

This will entail relocating the grey wire which feeds the kill switch 12 volts from the fuse block. Follow these steps:

1) Remove the outer fairing skin and remove the radio. It does not have to be completely disconnected, just pulled out several inches.

2) Remove the two allen fasteners that secure the fuseblock to the inner fairing and pull the block free.

3) Locate the ignition circuit breaker and remove it. Using a small screwdriver, depress the locking tang on the lower of the circuit breaker's two retention clips in the block. This will enable you to withdraw the clip from the rear of the block. It will have two grey wires double lugged to it.

4) Following this pair of grey wires back into the bundle that routes under the radio chassis, cut the securing ty-raps and withdraw the pair from the bundle. Replace the ty-raps as you go. Continue until the grey pair is removed from the bundle. Re-install the radio.

5) Route the pair upward and to the left of the radio chassis and ty-rap the grey wires to the flyswatter bracket on the inner fairing.

6) Replace the outer fairing.

The grey wire and it's inherent "noise" from the primary coil winding is now away from the tape head in the radio chassis.

3. REGULATOR DEDICATED GROUND

The easiest way to implement a dedicated regulator ground wire is to install one of the new -88A regulators equipped with the cast in boss designed to accept a T-25 Torx® head self tapping screw. A 12 gauge wire from the boss to a known good frame ground has reduced switching noise on numerous Ultras. These regulators are scheduled to become a running change to all 1340 models on 8/15/94. It may take several weeks to purge P&A stock of the older style. A similar type screw driven into one of the present day regulator's cooling fins is a lot uglier, but will serve the same purpose.

4. REGULATOR DC WIRE RELOCATION

On production vehicles, the regulator's DC output wire is connected to the silver stud on the 50 amp main circuit breaker. Relocating that wire to the copper stud on the 50 Amp circuit breaker has reduced regulator switching noise on several field vehicles. Bear in mind that the entire length of the DC wire is now unfused, a la production 1993 Ultras.

5. DIN CONNECTOR RETAINING CLIP

Install a stick on metal retaining clip (p.n. 10103) to the frame backbone just aft of the fuel tank's rear mounting tab. See Figure 2. Reroute and install the radio to console pod's DIN connector into it as shown. This

install the radio to console pod's DIN connector into it as shown. This modification will reduce regulator switching noise appreciably.

6. FRONT PLUG WIRE REPLACEMENT

Remove the vehicle's front plug wire and replace it with a rear plug wire, part number 31992-91. The additional length and therefore resistance of the rear plug wire further dampens secondary ignition noise. The longer plug wire will need careful routing to prevent chafing or cosmetic complaints. Testing is underway to determine if a dummy load used in conjunction with the stock short wire will produce the same favorable results.

7. DIN CABLE VERIFICATION

This last point applies only to 1993 Ultras that exhibit ignition tick. Any 1993 Ultra built during the period December 1992 to March 1993 could be equipped with a suspect DIN extension cable, part number 76292-92A. **Any sealed type DIN extension cable (sealed referring to the presence of the o-ring and it's groove) that does not have a blue paint dot as shown in figure 3 is suspect.** These suspect cables were manufactured with an ineffective shielding system and may allow electrical noise to enter the console control pod circuits. Replacement of this cable with a "blue dot" cable (76292-92A) from P&A will eliminate the ticking. P&A stock has been purged of any non blue dot cables.

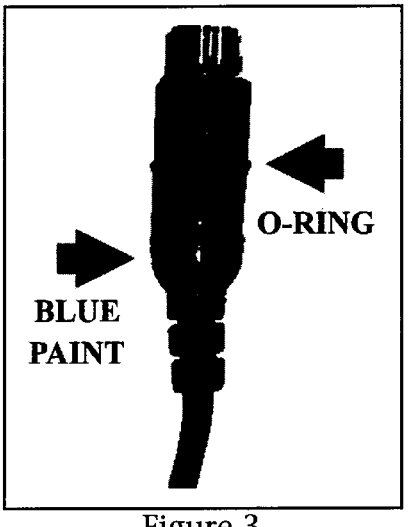
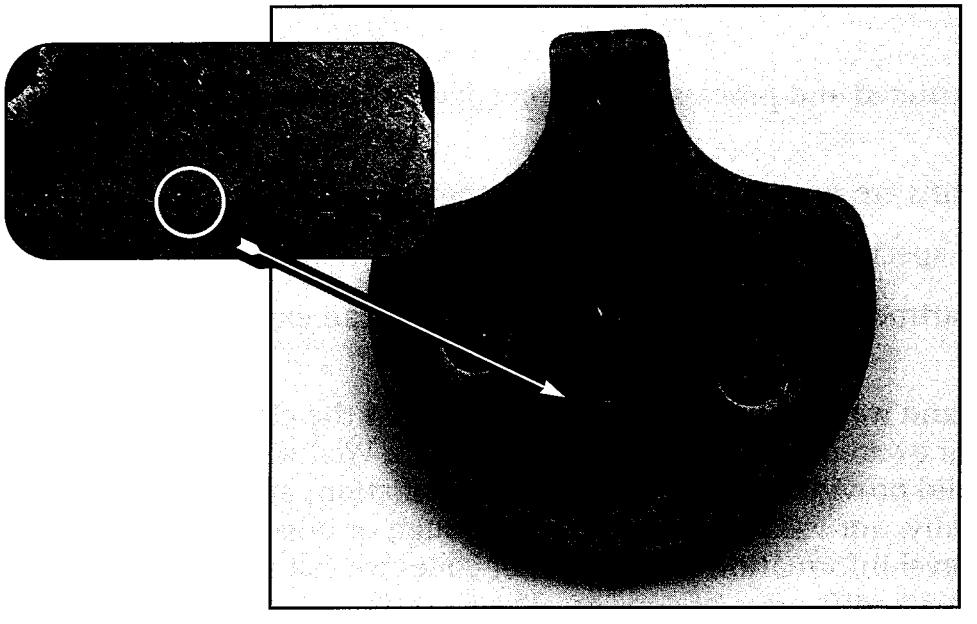


Figure 3

** FX MODELS **

FLOATING DISC RETROFIT

The floating disc rotors, part numbers 44138-95 and 41790-95, used on the 1995 Bad Boy model can be retrofit to the front and rear of earlier vehicles. **It is very important that whenever this is performed to front brakes, the updated brake caliper mounting bracket, part number 44074-88B and the Guide Pin Kit, part number 44053-83B must be used.** If any other bracket and pin are used, there is a possibility that the bracket could contact the rivet heads of the floating rotor. This could produce a great deal of noise and/or damage to the brake components. **If a rotor is retrofit to pre-1992 motorcycles, front or rear, the brake pads must also be updated to the current style.** This is very important in order to maintain compatibility of brake pad and rotor materials. As an easy identifier; all late style pads have the number "56" stamped on the backing plate of the pad set.



** WARRANTY UPDATE **

It has been over 7 months since we implemented the warranty system throughout our dealer network and we felt now was an appropriate time to provide you with some feedback on how the new system is helping us and to thank you for making the transition so smooth.

During 1993, the Customer Service Department worked with focus groups, design and manufacturing engineers, and others to redesign our warranty system. The old mainframe based system was adequate for processing credits, but was not capable of supporting our increased need for more reliable field service data. After many months of interviews and studying the systems of various industries, we developed and implemented Harley's new system.

Some major improvements and changes include:

An end to searching file drawers to find a particular claim or credit memo-- all claims and credit memos regardless of their status are now available on-line. Consequently credit and claim inquiries can now be handled more quickly and accurately.

Manual claims are entered and processed the same day by Warranty Specialists, not Data Processing.

Cycom & Talon claims are processed the same day they are received.

A focus, not just on specific parts, but on customer complaints and parts replaced.

Many different departments, internal to Harley-Davidson, can extract and access warranty data.

Changing the type and way the information is captured on the claim form has greatly increased our awareness of warranty related issues. Well written comments on the claim form did provide us with some good information, but they were not captured electronically, nor were they easy to sift through or organize for analysis. By capturing high level information in the form of codes we can now easily sort the data and quickly identify areas of concern. The Customer Concern code allows us to group claims for engineering analysis by symptom-- that is, what did the customer experience. The Condition code is used to identify the failure mode or actual problem.

The primary reason that this system is providing us with good information, is that you, our dealer network, are taking the time to provide us with this information. We thank you for your support and cooperation during this conversion phase.