TECHNICAL TIPS #25
JUNE 1991
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ALL MODELS

TIRE RETROFIT -- DUNLOP 401's

Dunlop 401 tires became OEM tires on all 1991 Sport Models. However, exercise caution when retrofitting FRONT tires to earlier models. The increased height of these new tires do not permit their fitment to all earlier motorcycles!! This is important for vehicles originally equipped with Dunlop 181 tires and short sport fenders; pn 59031-83. This includes the following vehicles:

1983 - 1985	XLX
1986 - 1990	883cc
1987	1100cc

Harley-Davidson is completing testing of another Dunlop 401 tire. It has a slightly different profile, 90/90 vs the OEM, 100/90 and will present no problems with fender to tire clearance. This tire will be available soon through Parts & Accessories.

TIRE RETROFIT -- 21 inch Elite

The 21 inch Front Rib front tire, pn 43100-83A, has been replaced with the 21 inch Elite tire, pn 43100-91. It is OK to mix this tire with older tire combinations that originally used the 21 inch Front Rib.

CARBURETORS

A new float bowl needle valve is now available for all vehicles. This new valve, part number 27886-78A, has a four-sided design which will maintain a more consistant float level and reduces the possibility of fuel overflow. It is VERY IMPORTANT that you follow the instructions for correctly setting the float level when retrofitting this part!!! --instructions come with the new part.

The earlier three-sided needle valve, part number 27886-78 can only be used in earlier "fixed jet" carburetors, NOT CV CARBURETORS!!!

BATTERY LIFE

Recently, a customer wrote and asked "How long should a good battery last in a Harley?" One major benefit for our customers is the low-maintenance battery, the best battery you can buy. The low-maintenance battery provides 10% more cranking power than a conventional battery. This is important because our V-twin design uses large pistons and a long stroke with an unusual firing order.

THERE ARE FOUR FACTORS THAT DICTATE BATTERY LIFE ONCE IN SERVICE:

1) Proper set-up
2) Proper level maintenance
3) Vehicle inactivity (sulphation)
4) Riding habits

95% of new H-D battery failures are due to a problem in one or more of these four areas. The remaining 5% of battery failures are due to factors that we have control over. These factors are being investigated. The factors we listed are items that both the dealer and the customer have control of. Let's look at these four factors in more detail.

1) Proper set-up. Improper set-up will limit the batteries performance and allow it to sulphate more easily. Charging time is the most critical on low-maintenance batteries. Charging time will depend on the age of the battery and the type of charger you use.

Trickle charger or Christie charger.....24 Hours
Tapered rate charger(automotive 4,6,8,10 amp)...12 Hours

A trickle charger (1 amp or less charging current) works fine but could take a long time for the 100% initial charge (24 hours). Lately we are recommending, especially for the low-maintenance battery, a variable/tapered rate automotive style charger rated at 4,6,8, or 10 amps. These type chargers initially might put 2-8 amps (depending on the model used) into your battery, however, after an hour or two the ammeter might read close to zero. At this point the battery has probably attained a charging voltage of 14 plus volts. We should then, at this point, continue charging, even though we may acheive the proper hydrometer readings before we complete the 12 or 24 hour charge time. The additional time is necessary to set the plates which is highly recommended on this style of battery.

The low-maintenance battery we use is a lead-calcium battery that provides 10% more cranking power and uses 1/8th as much water during maintenance when compared to a conventional battery. Our competitors use a conventional lead-antimony battery that doesn't require near as much charging time (only 3-5 hours). Many dealers have noted a considerable increase in battery life by using the longer charge time.

2) Proper fluid level maintenance. This is necessary for the electrolyte to cover the plates. If the plates are exposed, they will sulphate. The level should be checked at least once a month.

3) Vehicle inactivity (sulphation). If the vehicle has been left inactive for an extended period the battery can sulphate. Even though the ignition switch is turned off, the battery is still chemically active. This creates a certain amount of self discharge, at a rate of approximately .5%-1.0% which can be accelerated in warmer temperatures. After one month, a new battery can lose up to 30% of its charge! Radio memories, alarms, and other accessories can further aggravate the situation by causing it to drain faster. If the battery was low when the motorcycle was parked, the time for it to discharge to the point it won't start will be much shorter. Customers should plan on charging the battery at least once a month when not in use, and more frequently if equipped with accessories. THIS IS THE NUMBER ONE REASON FOR BATTERY FAILURE!

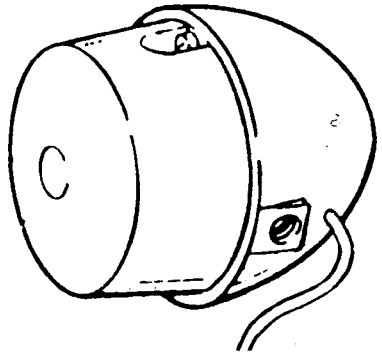
4) Riding habits. Stop and go traffic can cause the vehicle current draw to exceed the output of the charging system, especially if the idle is set below 1000 rpm. Parking it now with a low battery will cause it to sulphate in a much shorter time.

Frequent starts and short trips can also shorten battery life. The draw of our starter is much greater than that of our competitor's, therefore, it would require a longer riding period for it to recover. Police motorcycles will literally wear out a battery in just a few months due to their riding habits. Frequent starts and short trips, and use of the emergency accessories will drain the battery. The battery will require more frequent charging as a result. Deep cycling the battery like this will wear out the plates inside the battery at a faster rate. The suggestion here would be to modify the rider's habits (if possible) or expect to buy a battery more often.

How long should a good battery last? Under <u>ideal</u> conditions a battery could last 2-3 years. These facts are a result of an exhaustive investigation between Harley-Davidson and our battery vendor. Follow these suggestions and both you and your customer will both be much happier!

WATER (H2O) IN YOUR TURNSIGNAL ASSEMBLIES

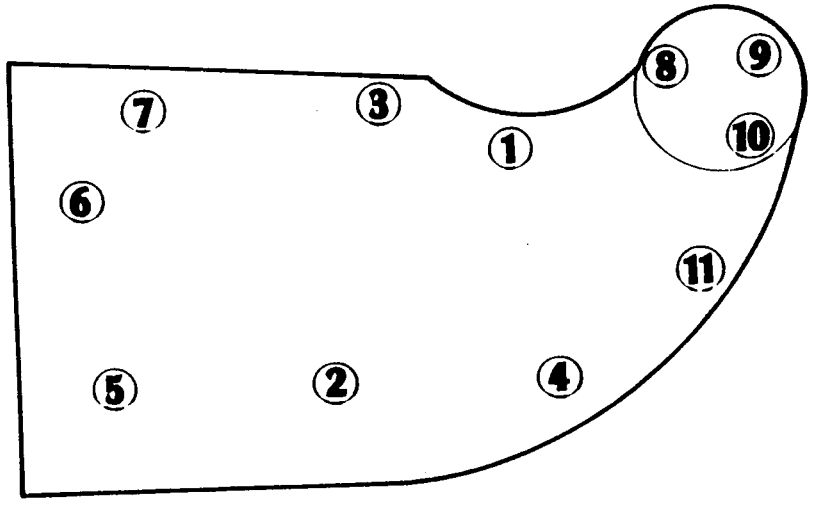
Are your customer's turnsignal assemblies beginning to resemble a goldfish bowl or are there just localized heavy rainshowers taking place in there? Moisture retention can be eliminated by discarding the lens O-ring and adding two washers, pn 6717, between the lens and body.



XL MODELS

GEARCASE COVER TORQUE SEQUENCE

It is important that the gearcase covers on Sportster models be drawn to the crankcase as evenly as possible. Not only will this ensure sealing to the crankcase, but our testing has shown that it can have a positive impact on cam gear noise. During the initial assembly of the engines, Harley has begun using a new sequence for torquing the cover fasteners. It is recommended that field technicians also utilize this torque sequence. The fastener torque remains unchanged at 80-110 in/lbs.

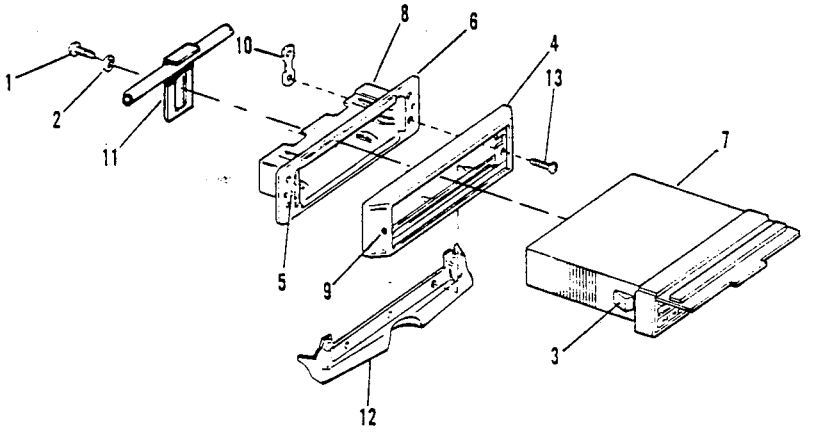


FL/FX MODELS

SOUND SYSTEM -- RADIO REMOVAL

Exercise extreme caution when removing radio assemblies for replacement. To access the spring clips on FLHT models, it is necessary to puncture the rubber seal at the index dimple, see picture- #9, with a #0 Phillips screwdriver. Failure to do this will scratch the sides of the nosepiece. If the radio nosepiece is damage or marred you will be billed for the damage!!!

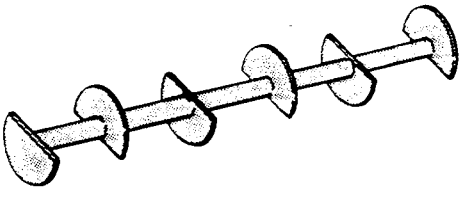
NO EXCEPTIONS !!!



1. Rear mount screw
2. Washer
3. Spring latch (2)
4. Seal
5. U-shaped notch
6. Mounting plate
7. Radio
8. Front bracket
9. Index dimple
10. Nut plate (2)
11. Fairing crossbrace
12. Handlebar cover
13. Screw (4)

OIL SEPARATOR

A new oil baffle has been added to the steel tube in the gearcase cover. This labyrinth type baffle aids in the separation of oil mist from the crankcase air and further reduces the likelihood of oil carryover to the air cleaner. The separator was implemented as a running change, on April 16, 1991, starting with crankcase number 1591 107 025. The part number is 25329-91.



FORK LOCKS

If a replacement fork lock assembly is needed for a Dyna model, it will be necessary to purchase a LOCK SET, p.n. 71421-90. This set includes both the fork lock and ignition switch. The fork lock cannot be purchased separately. The ignition switch is can be purchased individually; p.n. 71428-90.

If those same locks are hard to work, the reason may be that the lock tumbler is pinched by the retaining screws. The fix is to drill out the lead slug and back off on the double set screws. Then, carefully, reseal with silicone sealer.

For FLT's that have problems with the operation of the fork lock make sure the the Teflon bushing in the fork clamp is retained from moving up and down with the pin. Use Super glue if necessary. Please follow the Service Manual to adjust the pin travel. The HD- 96315-80, Ignition Lock Gauge can be very helpful in performing this job.

PRE-DELIVERY & SET-UP

Please observe the changes regarding windshield assembly to the fairings of FLHT models. The washers must be installed between the outer fairing and the windshield to prevent deformation. The spring lock washer can also be omitted at this time.

HARLEY-DAVIDSON TECHNICAL SERVICE DEPARTMENT
PHONE STAFF
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Our Technical Service Department staff has had some changes and additions recently. We thought you might like to see some pictures to match our voices so we've included our photos in this Tech Tips.