INSTRUCTIONS

-J01101 REV. 5-1-86

Kit Number 28805-87

XLH EVAPORATIVE EMISSIONS CONTROL KIT

General

This kit is for 1987 and later XLH model motorcycles sold in the state of California.

It is the responsibility of Harley-Davidson Motor Co., Inc. to supply a complete and approved evaporative emissions control system with each vehicle sold in the state of California.

It is the responsibility of Harley-Davidson dealers, whose dealerships are in the state of California, to ensure that the evaporative emissions system as furnished with each vehicle, is installed correctly. Therefore, it is of the utmost importance that all specified parts in the kit are installed and all procedures carried out, as covered in these instructions, for the system to be properly operative.

California Warranty

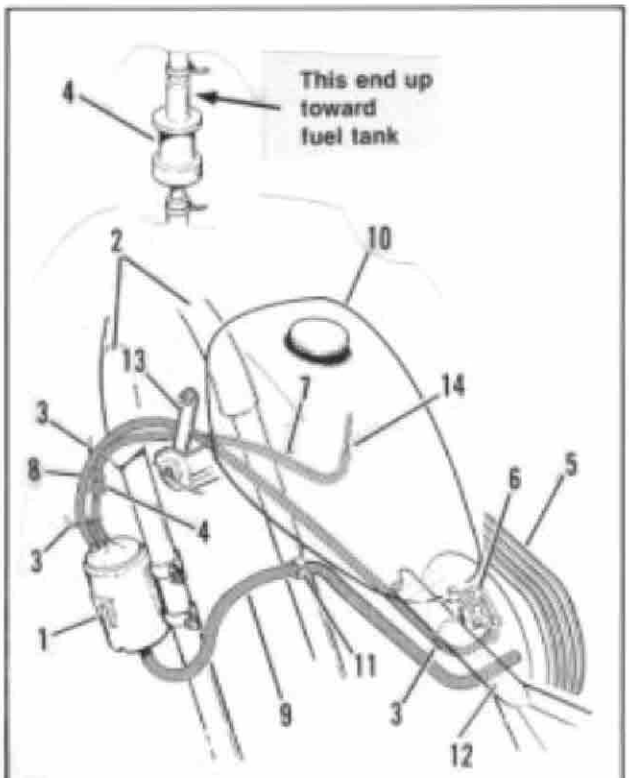
A copy of the California Emissions Control warranty is attached to the back of this Instruction. Please detach it and give it to the new owner.

Description (See Figure 1)

The purpose of the evaporative emissions system is to prevent fuel hydrocarbon vapors from escaping into the atmosphere. When the engine is not running, any pressurized build-up of hydrocarbon vapors are directed through the vapor valve and stored in the charcoal canister. At engine start-up, a vacuum line from the carburetor will purge or draw off the vapors in the canister and direct them to the engine combustion chambers. The vapor valve prevents gasoline from escaping through the vapor vent when the vehicle is tipped at an abnormal angle. A large diameter hose purges the canister with fresh air from the air cleaner through the air cleaner backing plate.

This kit contains the following parts:

QTY.	DESCRIPTION
1	Canister
1	Hose (can. to carb 0.235 ID)
1	Hose (tank to can 0.190 ID)
1	Vapor valve
1	Cap, carb. overflow
4	Ty-wrap
1	Bracket canister



1. Canister	8. Hose, 0.235 ID
2. Down tube	9. Hose, 0.500 ID
3. Ty-wrap (4)	10. Gas tank
4. Vapor valve	11. Hose clip
5. Air cleaner	12. Backbone tube
6. Carburetor	13. Coil bracket
7. Hose, 0.190 ID	14. Gas tank vent tube

Figure 1. Evap. System

4	Nut
2	Clamp, canister downtube
4	Washer, canister bracket
2	Mount, rubber canister
1	Clip hose
1	Hose (can. to A/C 0.500 ID)
1	Label
2	Clamp hose (fuel line)
1	Main jet (XLH 1100 only)
1	Label, carb. part no.

Removal

AIR CLEANER

1. Remove air cleaner and air cleaner backplate as follows:

2. See Figure 2. Remove screws (1) from air cleaner cover (2). Remove cover from backplate (4).

3. Remove filter element (3) from backplate (4).

4. Remove screws (5) and washers (6) from backplate.

5. Turn captive screws (7) out of carburetor a couple of turns each, in sequence, while pulling the backplate away from carburetor. Remove backplate from carburetor.

CAUTION

Do not allow the captive screw threads to catch in the backplate threaded inserts during removal or backplate may be damaged.

NOTE

Do not remove screws (7) from the backplate.

6. Remove gasket (8).

7. Disconnect crankcase vent hose (9) from backplate.

FUEL TANK

1. Check that fuel tank is empty — if not empty, turn fuel supply valve to OFF.

2. Remove fuel line clamp and fuel line from carburetor.

3. If fuel tank contains gasoline, open fuel supply valve to RES and drain gasoline into clean, proper container.

4. Remove fuel tank.

WARNING

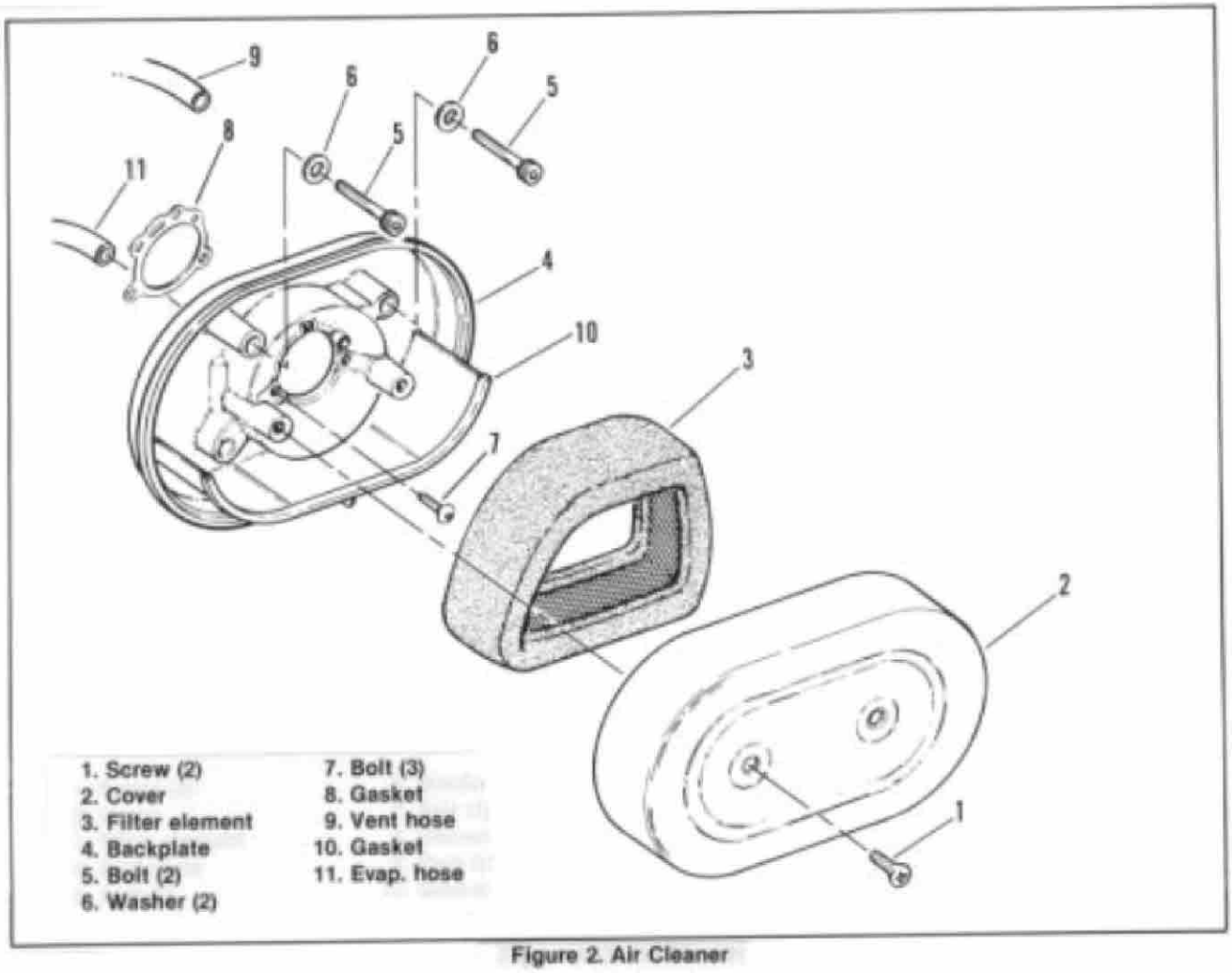
Gasoline is extremely flammable and highly explosive under certain conditions. Do not smoke or allow open flame or sparks anywhere in the area when refueling or servicing the fuel system.

Rework

AIR CLEANER BACKPLATE

1. See Figure 3. There is an evaporative vent tube nipple on the carburetor side of the air cleaner backplate. A countersunk depression is cast in the thin layer of material at the closed end of the vent tube.

2. Drill a 7/16 in. hole through the thin layer from the countersunk side.



1. Screw (2)
2. Cover
3. Filter element
4. Backplate
5. Bolt (2)
6. Washer (2)
7. Bolt (3)
8. Gasket
9. Vent hose
10. Gasket
11. Evap. hose

Figure 2. Air Cleaner

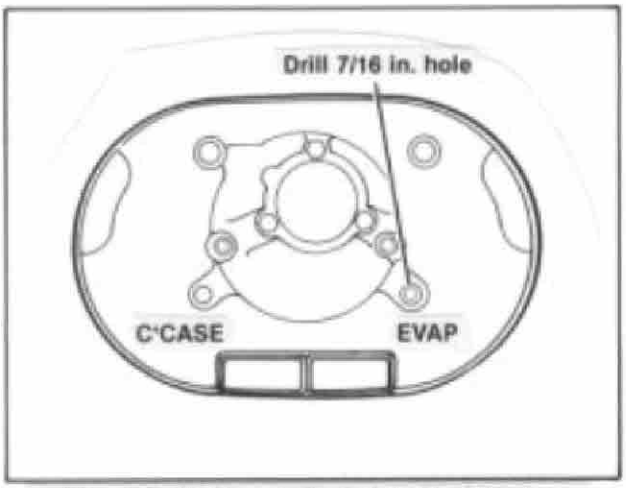


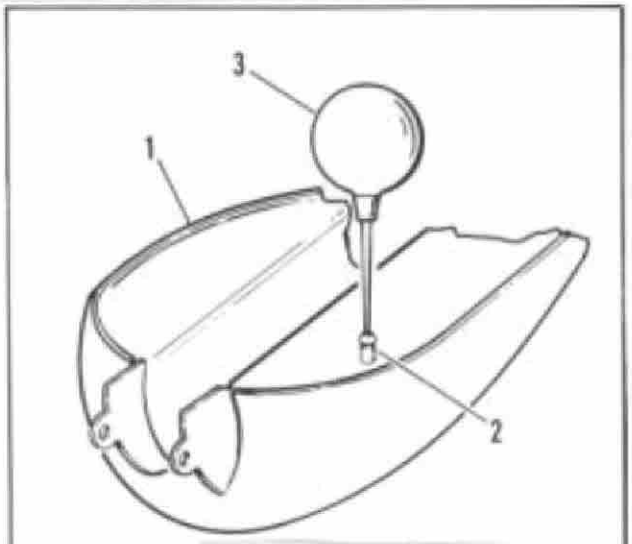
Figure 3. Air Cleaner Backplate Modification

FUEL TANK

WARNING

If all traces of gasoline are not purged, an open flame may result in a tank explosion. Extreme caution should be taken when performing the following steps.

1. See Figure 4. Remove fuel tank filler cap and turn tank upside down on clean cloth.



1. Fuel tank
2. Standpipe hose nipple
3. Awl

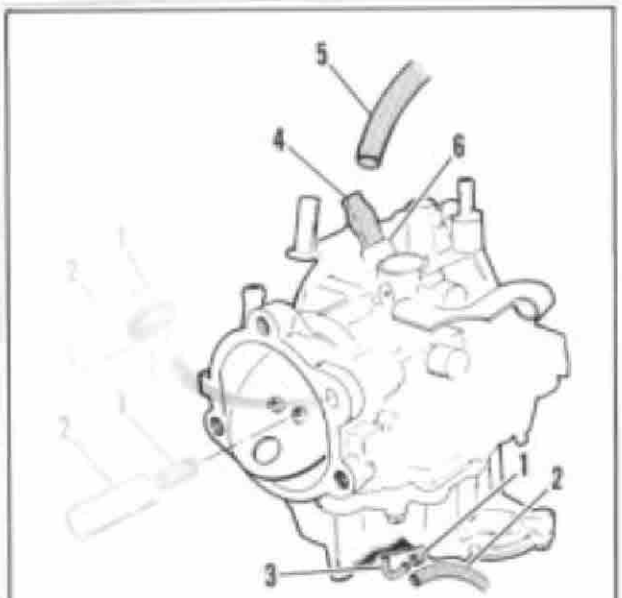
Figure 4. Standpipe Hose Nipple Modification

2. With a very sharp, long tapered awl and a light hammer, pierce a hole through the copper cap at the standpipe hose nipple. Tap the awl through the cap as far as the nipple opening permits. Install fuel tank filler cap.

CARBURETOR

ALL MODELS

1. See Figure 5. Remove carburetor overflow hose (2) and discard. Place overflow cap (1) on fitting (3).



1. Overflow cap
2. Overflow hose
3. Overflow fitting
4. Vacuum fitting cap
5. Hose (carb. to can.)
6. Purge fitting

Figure 5. Carburetor Modification

WARNING

After capping overflow fitting make certain fuel supply valve is closed. The supply valve should always be closed when engine is not running to ensure against accidentally flooding engine.

2. Remove vacuum fitting cap (4).

XLH 1100

1. Refer to 1986 to 1987 XLH Service Manual and remove carburetor.
2. Remove carburetor float bowl.
3. Remove main jet. Replace with #155 main jet from kit.
4. Attach new part number label over original label.

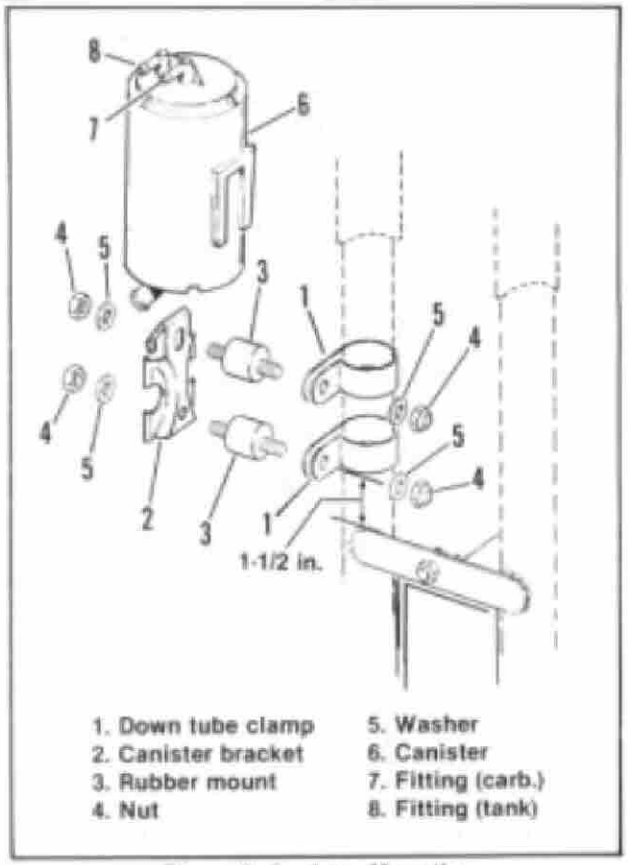
NOTE

Area where label is to be attached must be clean and dry.

5. Install carburetor. Refer to 1986 to 1987 XLH Service Manual.

Canister Installation

1. See Figure 6. Place two clamps (1) around left down tube.
2. Place the rubber mount stud ends (3) through clamps (1) and bracket (2).



1. Down tube clamp
2. Canister bracket
3. Rubber mount
4. Nut
5. Washer
6. Canister
7. Fitting (carb.)
8. Fitting (tank)

Figure 6. Canister Mounting

3. Place washer (5) over each stud and loosely thread nut (4) onto each stud.

4. Position the assembly so that the canister bracket (2) is at the outboard side of the down tube and lower clamp (1) is 1-1/2 in. above the voltage regulator. Tighten mounting nuts.

CAUTION

Be certain to mount the canister in the location specified. The canister must be mounted below the carburetor for the system to be operational.

Hose Routing

CANISTER TO AIR CLEANER BACKPLATE HOSE (9)

1. See Figure 1. Take large diameter (0.500 in. ID) preformed hose (9) and push end with large bend radius on fitting at bottom of canister.

2. Route hose across rear of frame downtubes. Push hose clip (11) around right downtube and attach hose to clip (11).

3. Position hose along right side of engine, (connection to air cleaner backplate will be made later.)

CANISTER TO CARBURETOR HOSE (8)

1. See Figure 1. Take hose (8) and push one end over fitting at top of canister labeled 'carb'. Lead hose up through coil bracket (13) and under backbone tube (12). Secure hose to backbone with two ty-wraps (3) connected end to end. Bring hose up to carburetor purge fitting. Cut hose to lengh. Do not kink hose. See Figure 5. Push free end of hose over carburetor purge fitting.

2. Install fuel tank.

3. Connect fuel line to carburetor and secure with hose clamp from kit.

CAUTION

Do not tighten ty-wraps to the point of collapsing hoses.

CANISTER TO VAPOR VALVE TO FUEL TANK HOSE (7)

1. See Figure 1. Take smallest diameter hose (7) and cut off a 4 in. length.

2. Push one end of 4 in. length hose on canister fitting labeled 'tank.'

3. Route hose upward along hose (8) and insert vapor valve (4) in hose. Check vapor valve insert in Figure 1 for correct valve position.

4. Connect remaining length of hose to top of vapor valve and route hose upward to the fuel tank standpipe hose nipple. Push hose on standpipe hose nipple.

5. Position vapor valve in an upright position and secure to hose (8) with ty-wraps (3) placed above and below the vapor valve.

CAUTION

The vapor valve must be maintained in an upright attitude and the proper end must be towards the top or excessive fuel tank pressures may occur.

Air Cleaner Installation

CAUTION

See Figure 2. Check that captive bolts (7) are threaded all the way into backplate prior to installing backplate to reduce the possibility of cross threading the bolts in the carburetor.

1. Connect the crankcase vent hose (9) and evap. hose (11) to backplate (4).

2. Position gasket (8) and backplate (4) at carburetor. Start each captive screw (7) into carburetor. Turn each screw a couple of turns, in sequence, until backplate is drawn to a loose fit at mounting surface.

3. Loosely install screws (5) with washers (6) through backplate (4) into cylinder heads.

4. Tighten screws (7) to 3-5 ft-lbs torque.

5. Tighten screws (5) to 10-12 ft-lbs torque.

6. Install air cleaner filter element (3) and cover (2) to backplate (4). Install screws (1) securing cover. Tighten screws to 3-5 ft-lbs torque.

7. Place new emissions label over the top of the existing emissions label.

8. Road test vehicle.

HARLEY-DAVIDSON EMISSION CONTROL SYSTEM WARRANTY (CALIFORNIA ONLY)

EMISSION CONTROL SYSTEM WARRANTY

Harley-Davidson warrants to the owner of any Harley-Davidson motorcycle certified and registered in California that it (1) was designed, built and equipped so as to conform at the time of sale with applicable regulations of the California Air Resources Board, and (2) is free from defects in materials and workmanship which cause the failure of a "warranted" part (as listed below) to conform with such regulations for a period of use of 5 years or 18,641 miles (30,000 kilometers), whichever occurs first.

This warranty period starts the date the motorcycle is delivered to the first retail purchaser or, if the motorcycle is placed in service as a demonstrator or company motorcycle prior to sale at retail, on the date it is first placed in service.

The emission control system of each new Harley-Davidson motorcycle was designed, built and tested using only genuine Harley-Davidson parts and with these parts the motorcycle is certified as being in conformity with California emission control regulations.

WE RECOMMEND THAT ONLY GENUINE HARLEY-DAVIDSON PARTS BE USED FOR MAINTENANCE, REPAIR OR REPLACEMENT OF THE EMISSION CONTROL SYSTEM. However, if you are willing to pay for it yourself, you can have maintenance, replacement or repair of your motorcycle's emission control system performed by any qualified repair establishment or individual using non-genuine parts.

Remember: Use of replacement parts which are not equal in quality to genuine Harley-Davidson parts may impair the effectiveness of the emission control system or otherwise damage your motorcycle. If other than genuine Harley-Davidson parts are used for maintenance, replacement or repair of components affecting emission control, you should obtain written asssurances that such non Harley-Davidson parts are warranted by their manufacturer to be equal in quality to genuine Harley-Davidson parts in both performance and durability. The use of non-Harley-Davidson replacement parts does not invalidate the warranty, if any, on other components unless the non Harley-Davidson parts cause damage to warranted parts. However, HARLEY-DAVIDSON ASSUMES NO LIABILITY UNDER THIS WARRANTY WITH RESPECT TO ANY PARTS WHICH ARE NOT GENUINE HARLEY-DAVIDSON PARTS.

Repair and service covered by this emission warranty will be performed free of charge by any authorized Harley-Davidson Dealer during his customary hours, using genuine Harley-Davidson parts, for any "warranted part" found defective under the terms of this warranty.

We recommend that you go only to your authorized Harley-Davidson Dealer for repairs under this warranty. He has factory-trained mechanics and genuine parts. However, in the case of an "emergency" (as defined below) where an authorized Harley-Davidson Dealer cannot perform emissions control system repairs within a reasonable time, you could have repairs performed at any available qualified service establishment. Harley-Davidson will reimburse the owner for such repairs only if it established that the repairs are covered under this emission warranty. Harley-Davidson's parts reimbursement, however, will **not** exceed our suggested retail price for all warranted parts replaced and our labor reimbursement will be limited to our recommended time allowances for emission system repairs at the geographically appropriate hourly labor rate.

To obtain reimbursement from Harley-Davidson for such emergency repairs, you must keep all failed parts and original receipts, marked "paid," so you can present them to an authorized Harley-Davidson Dealer, along with the motorcycle itself, for his inspection. The motorcycle and the work performed will be inspected carefully by our authorized Dealer to make sure the emergency repairs were covered by the emission warranty and were done properly.

(over)

As owner, it is your responsibility to have all recommended maintenance and repairs performed on your new Harley-Davidson motorcycle. Harley-Davidson will not deny a warranty claim just because you have no written record of performing maintenance; however, Harley-Davidson automatically will deny a warranty claim if your failure to perform maintenance resulted in the failure of a warranted part. You should keep all your receipts (including owner service record stubs) covering the performance of regular maintenance in the event any questions arise concerning maintenance. These receipts should be transferred to each subsequent owner of this motorcycle.

WHAT **IS** COVERED BY THIS EMISSION WARRANTY

The emission control system warranty covers the following "warranted parts" only:

- Carburetor
- Intake manifold
- Spark advance/retard system
- Spark plug (first 5,000 miles)
- Ignition coil
- Ignition wires
- Charcoal cannister
- Cap, fuel tank
- Fuel/vapor separator (fuel tank)
- Vapor valve
- If used on the above systems: hoses, clamps, fittings and tubing

WHAT IS **NOT** COVERED BY THIS EMISSION WARRANTY

The emission control system warranty does **not** cover:

Malfunctions in any "warranted part" caused by any of the following: abuse, misuse, improper adjustments, modification, alteration, tampering, disconnection, or improper or inadequate maintenance.

Damage resulting from accident, acts of nature or other events beyond the control of Harley-Davidson.

The repair or replacement of "warranted parts" which are scheduled for replacement prior to 18,641 miles or 30,000 kilometers (such as spark plugs, which are scheduled for replacement at 5,000 miles) once these parts have been replaced at the first recommended replacement interval as part of regular maintenance services.

Repairs and services performed by anyone other than an authorized Harley-Davidson Dealer (except in case of emergency). The Air Resources Board defines an "emergency" as the lack of availability of "warranted parts" within a reasonable time period not to exceed **30** days.

Loss of time, inconvenience, loss of use of the motorcycle, or commercial loss.

Repairs on any motorcycle of which odometer mileage has been changed so that mileage cannot be readily determined.

CUSTOMER ASSISTANCE

Harley-Davidson wishes to help assure that this California emission control system warranty is properly administered. If you do not receive the warranty service to which you believe you are entitled under this warranty, you should contact the Harley-Davidson Service Department in Milwaukee, Wisconsin. The address is P.O. Box 653, Milwaukee, Wisconsin 53201.