

**BULB REQUIREMENTS****8.1****BULB CHART****Table 8-1. Bulb Chart**

LAMP DESCRIPTION (ALL LAMPS 12 V)	NUMBER OF BULBS REQUIRED	CURRENT DRAW (AMPERES)	HARLEY-DAVIDSON PART NUMBER
Headlamp, high beam (domestic)	1	2.7	68096-04
Headlamp, low beam (domestic)	1	4.3	68881-01
Headlamp, high beam/low beam (HDI)	1	4.58/5.0	68329-03
Position lamp (HDI)	1	0.32	53438-92
Tour-Pak lamp (LED assembly)	1	0.06	54359-06

## GENERAL

See [Figure 8-1](#). The FLHTCUSE headlamp assembly contains two headlamp bulbs; a low beam bulb (3) and separate high beam bulb (4).

### WARNING

See [Figure 8-2](#). The headlamp bulbs contain Halogen gas under pressure. Wear adequate eye protection and handle the bulb carefully. Inadequate safety precautions could result in death or serious injury.

### CAUTION

See [Figure 8-2](#). Never touch the bulb with your fingers. Fingerprints will etch the glass and cause premature bulb failure. Always wrap the bulb in paper or a clean dry cloth during handling.

## REMOVAL

1. Place a clean shop cloth or fender protector over front fender.
2. See [Figure 8-1](#). Remove screw (1). Pull straight out gently on bottom of headlamp door (2). When bottom of door clears headlamp lens, lift up on door slightly and remove from vehicle.
3. See [Figure 8-3](#). Support glass headlamp shell (2) and remove three phillips head retaining ring screws (1). Remove retaining ring (3). Lay headlamp shell on fender protector.
4. See [Figure 8-4](#). Pinch latches (4) together and remove connectors from headlamp bulbs.

### NOTE

See [Figure 8-2](#). Sockets on back of headlamp shell are part of bulb assemblies.

5. Grasp bulb socket, turn counterclockwise approximately 1/8 turn and pull straight out to remove bulb from headlamp shell. Discard bulb.

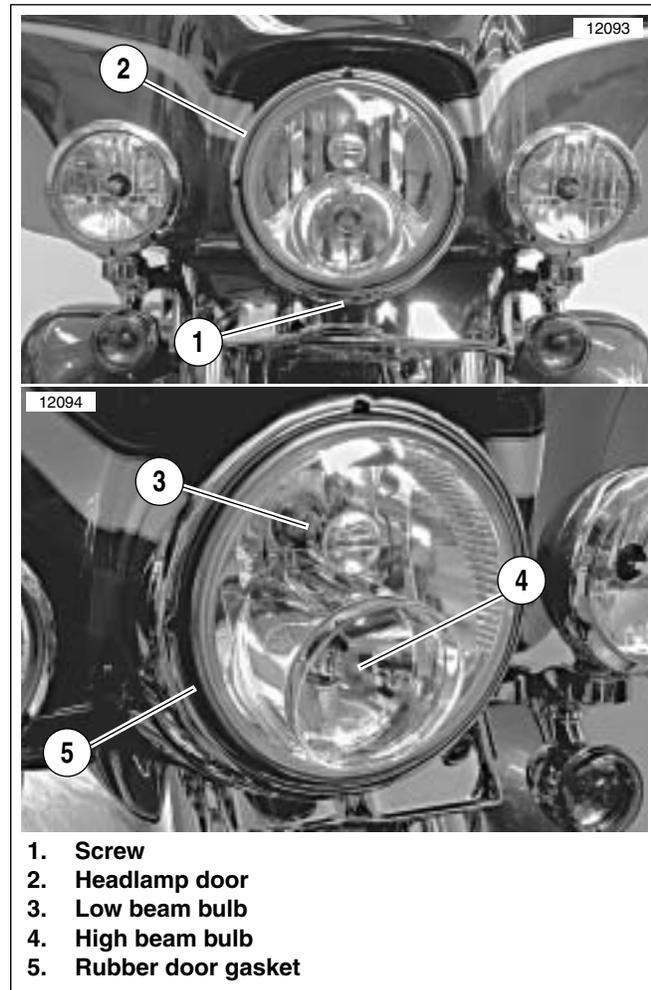


Figure 8-1. Headlamp Assembly



Figure 8-2. Headlamp Bulb

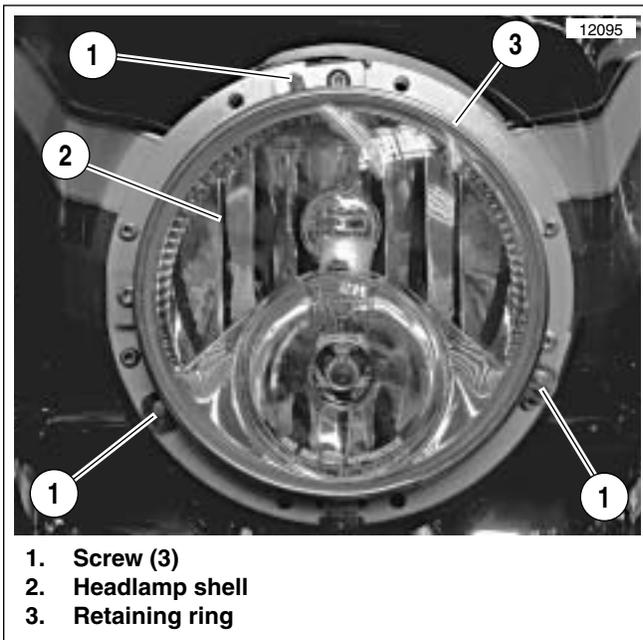


Figure 8-3. Headlamp Mounting

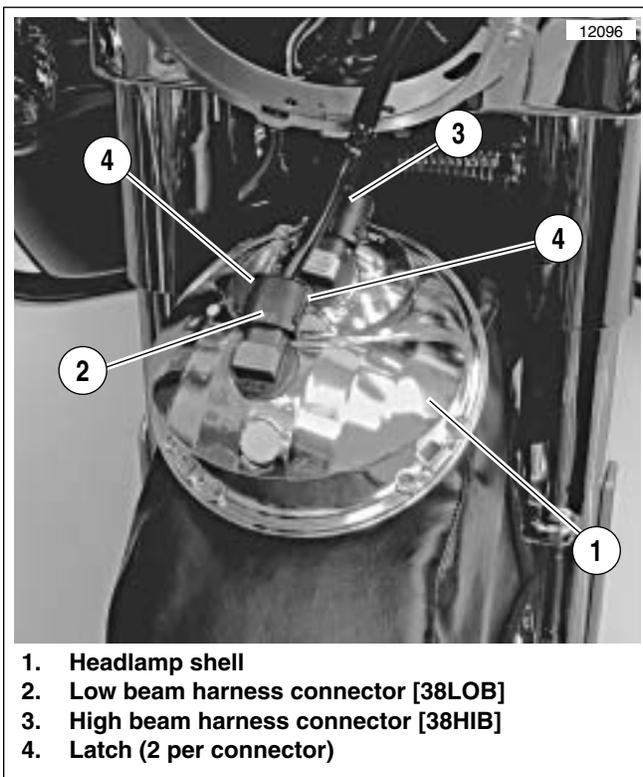
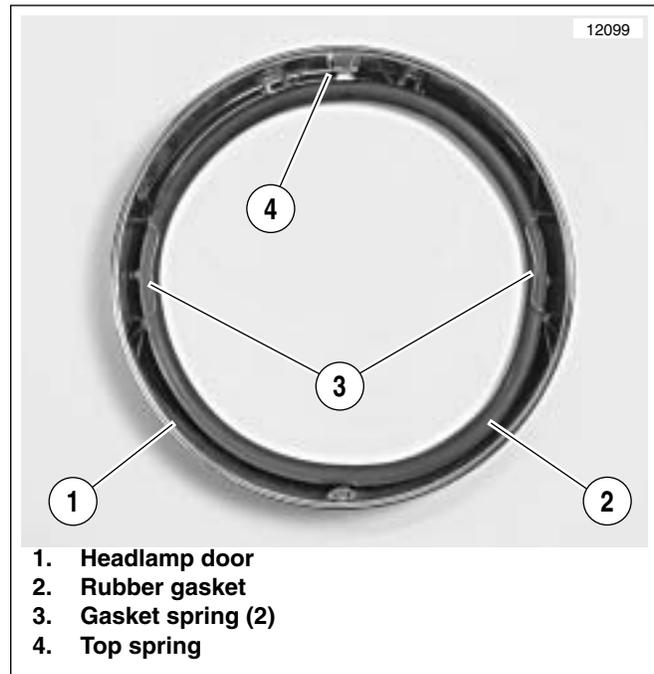


Figure 8-4. Headlamp Bulb Connectors

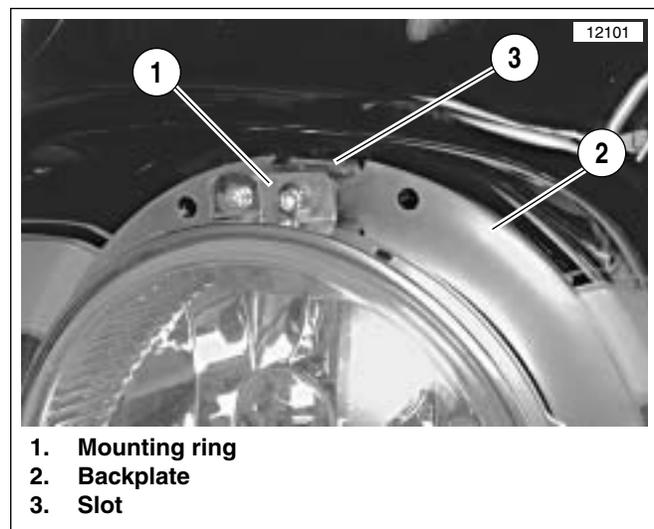
## INSTALLATION

1. See [Figure 8-1](#). Install **new** bulb(s) (3, 4) into headlamp shell.
  - a. Hold headlamp shell upright. Insert bulb into appropriate hole in shell with bulb socket hanging down at approximate 4 o'clock position. Insert low beam bulb (green label) on top, high beam bulb (yellow label) on bottom.
  - b. Turn bulb clockwise approximately 1/8 turn to lock in place.
2. See [Figure 8-4](#). Attach harness connectors to bulb sockets.
  - a. Attach connector [38LOB] (2) (labeled "LOW") to the low beam (top) bulb.
  - b. Attach connector [38HIB] (3) (labeled "HIGH") to the high beam (bottom) bulb.
  - c. Push connectors onto sockets until they click in place.
3. See [Figure 8-3](#). Position headlamp shell (2) into mounting ring. Hold in place with retaining ring (3). Secure retaining ring with three screws (1). Tighten to 23-28 **in-lbs** (2.6-3.2 Nm).

4. See [Figure 8-5](#). Make sure rubber gasket (2) is in place in headlamp door (1) and not deformed or otherwise damaged. Make sure gasket springs (3) are holding gasket in place. Make sure top spring (4) is in place and located at top center of door.
5. Install headlamp door.
  - a. Angle top of door in over top of headlamp assembly.
  - b. See [Figure 8-6](#). Fit square-shaped portion of top spring into slot (3) at top of backplate (2).
  - c. Carefully press door down around headlamp lens. See [Figure 8-1](#). When finished, equal amounts of gasket (5) should be visible between door and headlamp shell.
  - d. Secure door at bottom with screw (1). Tighten to 9-18 **in-lbs** (1.0-2.0 Nm).



**Figure 8-5. Headlamp Door Assembly**



**Figure 8-6. Headlamp Support**

# AUXILIARY LAMPS AND BRACKETS

## 8.3

### LAMP REMOVAL

#### NOTE

Use a flare nut socket (Snap-on® Part No. FRX181) to remove and install auxiliary lamps.

1. Remove outer fairing. See UPPER FAIRING/WINDSHIELD REMOVAL in Touring Models Service Manual.
2. Locate front auxiliary lamp connector.
3. Depress button on socket terminal side of connector and pull apart pin and socket halves.
4. See Figure 8-7. Remove nut (13), lockwasher (12) and clamp block (22) from bottom of auxiliary lamp housing (6).
5. Remove auxiliary lamp assembly and rubber isolator (21) from bracket (19 or 20) while slowly pulling wires through bracket.

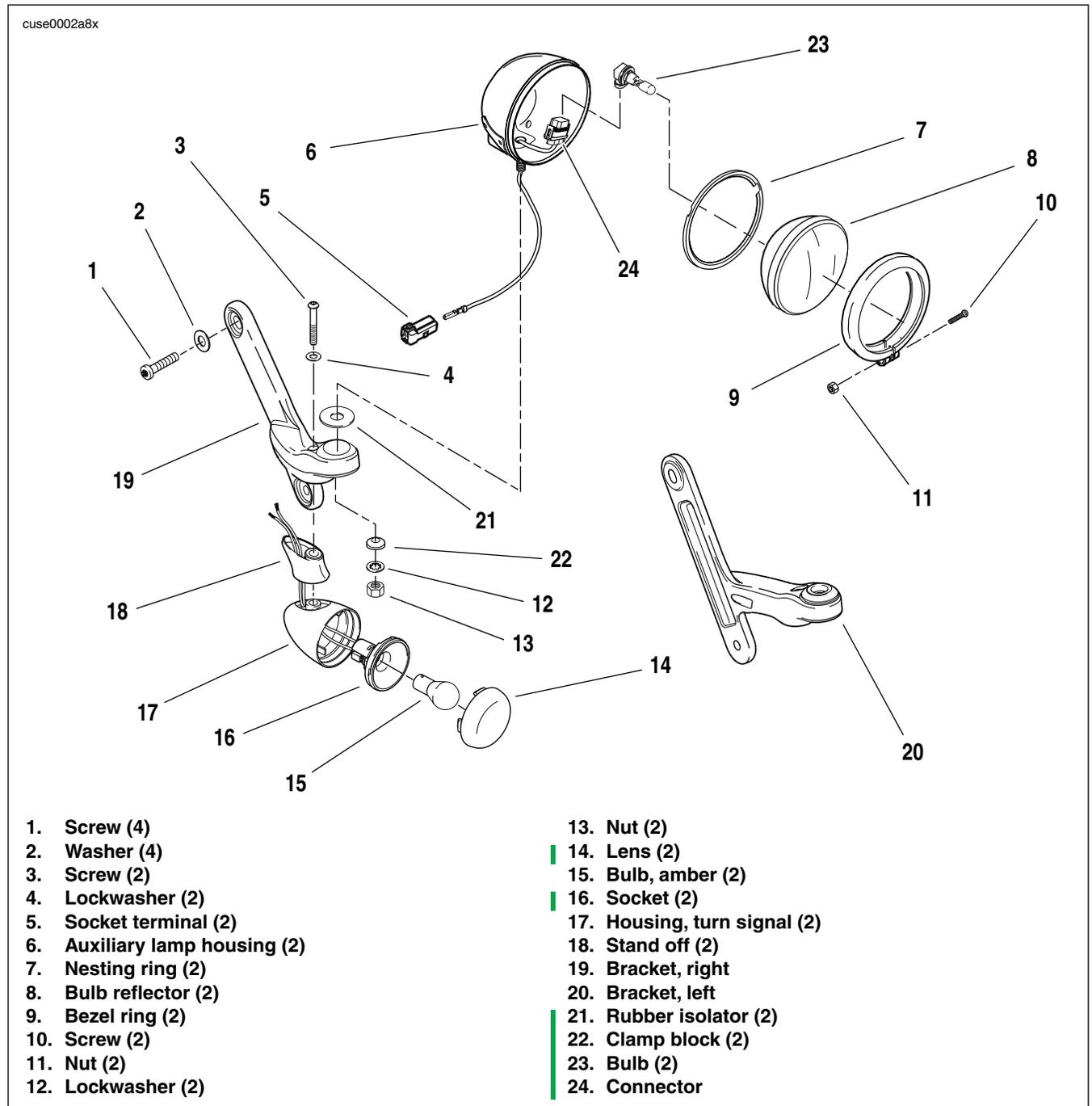


Figure 8-7. Front Turn Signal and Auxiliary Lamp Components

## LAMP BRACKET REMOVAL

1. Remove turn signal assembly. See [8.4 FRONT TURN SIGNALS](#).
2. See [Figure 8-7](#). Remove two screws (1) and washers (2).
3. Remove bracket from motorcycle.

## LAMP BRACKET INSTALLATION

1. See [Figure 8-7](#). Align bracket (19 or 20) with mounting holes on front fork assembly.
2. Install washers (2) and screws (1).
3. Tighten screws to 15-20 ft-lbs (20.3-27.1 Nm).

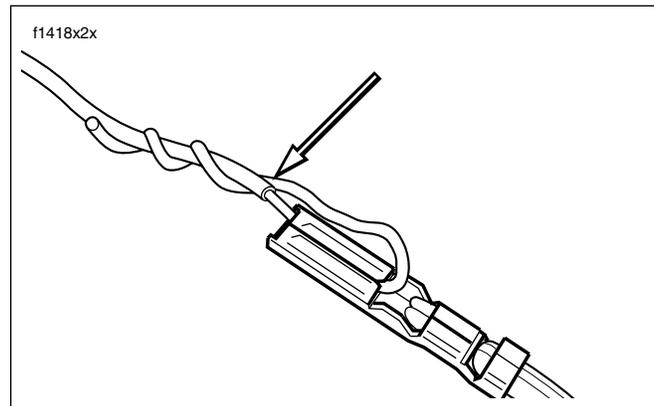
## LAMP INSTALLATION

### NOTE

For instructions on properly installing wire terminals, see [APPENDIX B.2 AMP MULTILOCK ELECTRICAL CONNECTORS, INSTALLING SOCKET/PIN TERMINALS](#) in *Touring Models Service Manual*.

## Mounting Lamp

1. See [Figure 8-8](#). Attach mechanic's wire to socket terminals and carefully pull ends of mechanic's wire to draw socket terminals back through mounting bracket and conduit.
2. Carefully remove mechanic's wire to avoid damage to terminals.
3. See [Figure 8-7](#). Position rubber isolator (21) and auxiliary lamp assembly onto auxiliary lamp bracket (19 or 20).
4. Install clamp block (22), lockwasher (12) and nut (13). Tighten nut fingertight only at this time.
5. Install terminals into proper location of socket housing
6. Mate pin and socket halves of auxiliary lamp connector.



**Figure 8-8. Fix Mechanic's Wire to Socket Terminals**

## Lamp Alignment

1. Position motorcycle on level floor (or pavement) in an area with minimum light, 25 ft. (7.62 m) away from a screen or wall.
2. With a rider seated on the motorcycle and the front wheel pointed straight ahead, turn on the headlamp high beam.
3. See [Figure 8-9](#). Mark the center of the headlamp high beam by marking vertical and horizontal lines (1) on the wall in the center of the beam.
4. Turn the headlamp off. Move to the front of the motorcycle and measure the distance from the headlamp horizontal centerline down to the horizontal centerline of the auxiliary lamp to be aligned. Now measure the distance from the headlamp vertical centerline out to the vertical centerline of the auxiliary lamp.
5. From the headlamp high beam centerline on the wall, perform the measurements taken in the previous step to locate the centerline (2 or 3) of the auxiliary lamp to be aligned, on the wall.

6. Turn on the headlamp high beam again, and with a rider seated on the motorcycle, verify that it is still aligned with the headlamp horizontal and vertical centerlines on the wall.
7. Turn on the headlamp low beam. Cover both the headlamp and the auxiliary lamp opposite the lamp to be aligned. Adjust the auxiliary lamp as necessary so that the entire high intensity zone (4 or 5) is both below and to the right of the corresponding auxiliary lamp centerlines.
8. Tighten auxiliary lamp nut to 15-18 ft-lbs (20.3-24.4 Nm).

## Final Assembly

1. Install turn signal assembly. See [8.4 FRONT TURN SIGNALS](#).
2. Install outer fairing. See UPPER FAIRING/WINDSHIELD INSTALLATION in Touring Models Service Manual.

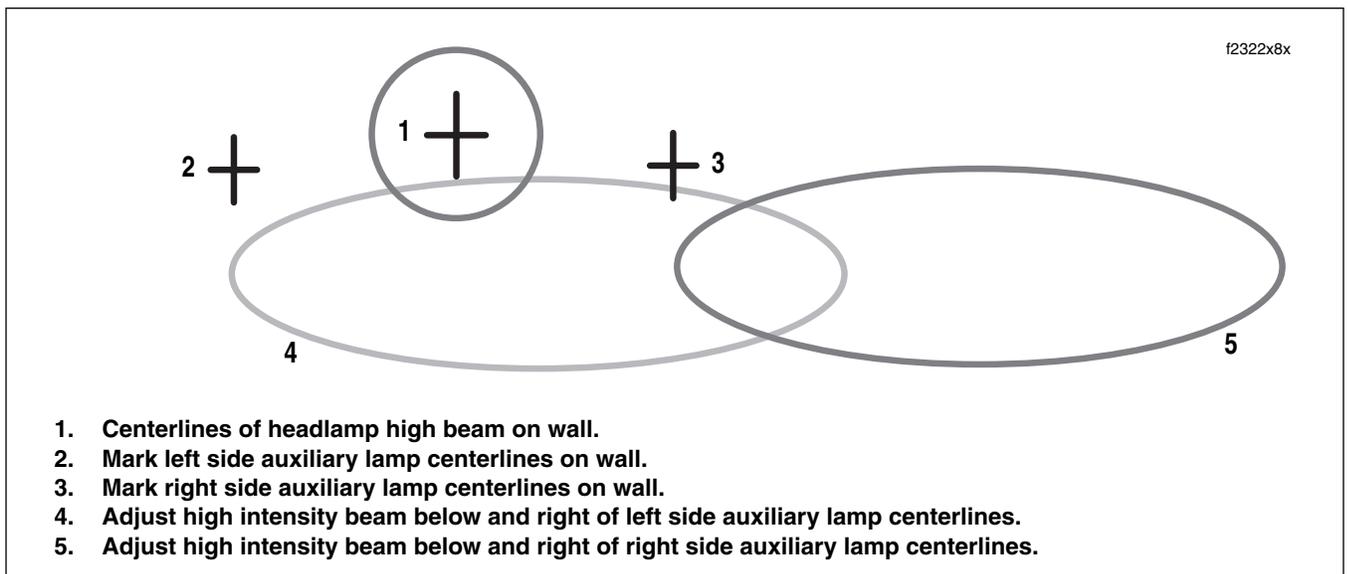


Figure 8-9. Properly Aim Auxiliary Lamps

## BULB REPLACEMENT

### ⚠ WARNING

See [Figure 8-10](#). The auxiliary lamp bulb contains Halogen gas under pressure. Wear adequate eye protection and handle the bulb carefully. Inadequate safety precautions could result in death or serious injury.

### CAUTION

See [Figure 8-10](#). Never touch the bulb with your fingers. Fingerprints will etch the glass and cause premature bulb failure. Always wrap the bulb in paper or a clean dry cloth during handling.



Figure 8-10. Auxiliary Lamp Bulb

1. See [Figure 8-7](#). Holding bulb reflector (8) in place, loosen screw (10) enough to remove bezel ring (9) from lamp housing (6).

#### NOTE

See [Figure 8-10](#). Socket on back of reflector is part of bulb assembly.

2. See [Figure 8-7](#). Unplug connector (24) from socket on back of bulb reflector. This socket is part of bulb assembly (23).
3. Remove nesting ring (7) from reflector.
4. See [Figure 8-11](#). Hold reflector so that socket is facing you. Grasp socket, turn counterclockwise approximately 1/8 turn and remove bulb assembly from reflector. Discard bulb assembly.
5. Install **new** bulb assembly into reflector housing, being careful not to touch glass bulb. Turn assembly approximately 1/8 turn clockwise to secure.

6. See [Figure 8-12](#). Place nesting ring (2) onto reflector (1) so that concave surface of nesting ring faces away from reflector, nesting ring index tab (5) is at the bottom, and reflector index tabs (3) fit inside nesting ring slots (4).
7. See [Figure 8-7](#). Plug connector (24) into socket in reflector (8).
8. Mount reflector into lamp housing (6), fit bezel ring (9) onto assembly and secure with screw (10) and nut (11).

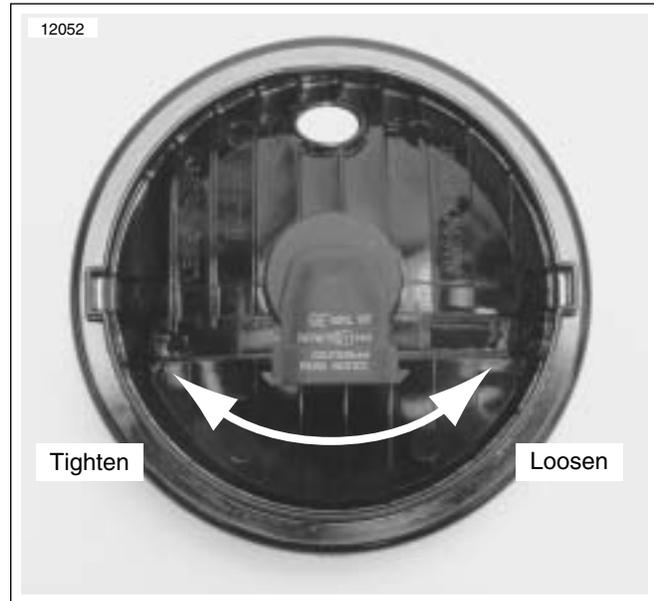


Figure 8-11. Replacing Bulb in Reflector

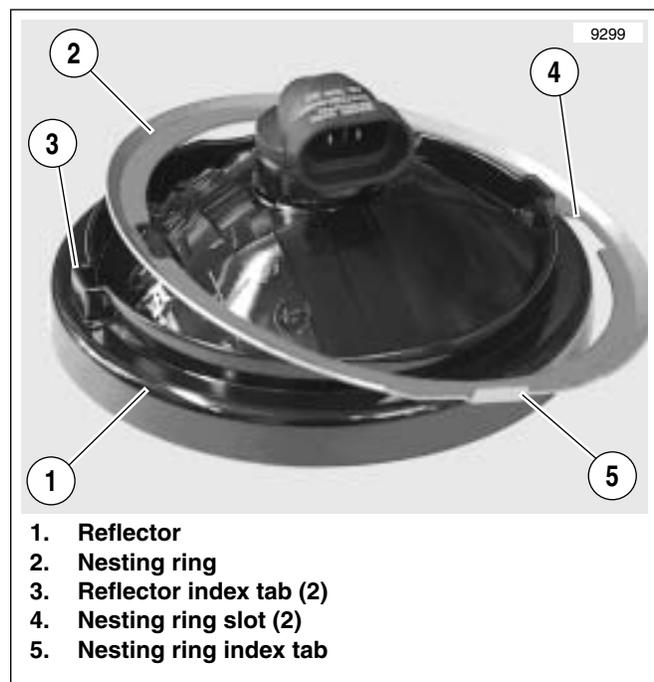


Figure 8-12. Assembling Reflector and Nesting Ring

# FRONT TURN SIGNALS

## REMOVAL

1. Remove outer fairing. See UPPER FAIRING/WIND DEFLECTOR, REMOVAL. Locate front turn signal connector (6-place Multilock) on inboard side of left fairing bracket.
2. Depress button on socket terminal side of connector and pull apart pin and socket halves.
3. Remove appropriate terminals from socket housing.

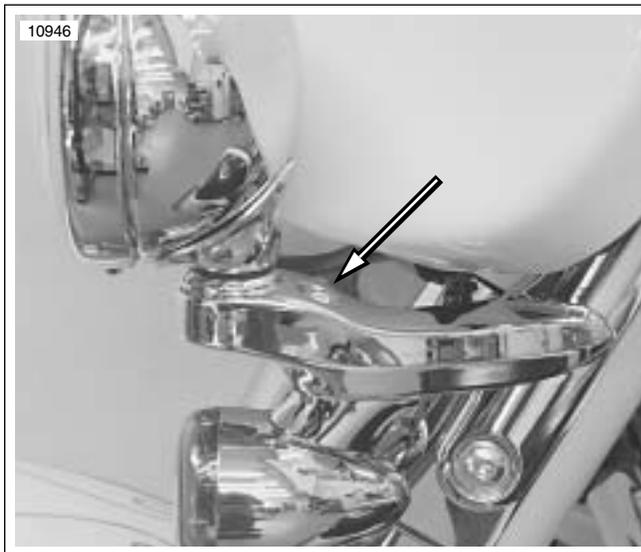
**Table 8-2. Front Turn Signal Lamps [31]**

Left Side		Right Side	
Wire Color	Chamber	Wire Color	Chamber
Blue (DOM)	4	Black	1
Violet/Brown	5	Violet/Brown	2
Black	6	Blue (DOM)	3

### NOTE

For instructions on properly removing wiring terminals, see APPENDIX B.2 AMP MULTILOCK ELECTRICAL CONNECTORS, REMOVING SOCKET/PIN TERMINALS of Touring Service Manual.

4. See Figure 8-13. Remove fastener to release turn signal lamp from mounting bracket.

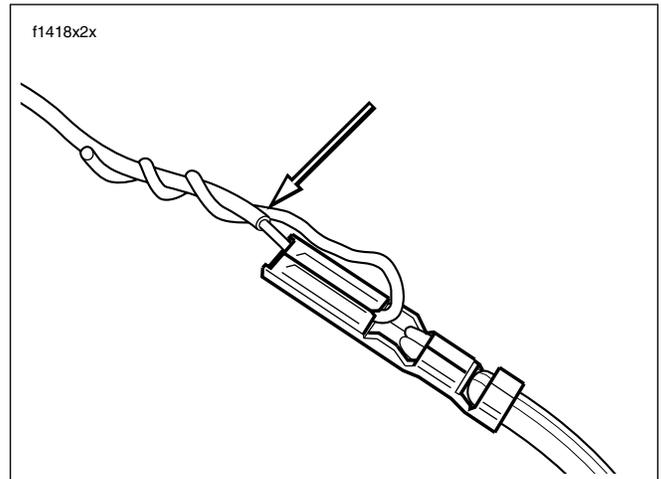


**Figure 8-13. Front Turn Signal Fastener Location**

5. See Figure 8-14. Obtain equal lengths of string flexible wire for use as mechanic's wire. Feed wire through opening in socket terminal and then loop back twisting end until tightly coiled around longer strand. Repeat step with remaining socket terminals.

### NOTES

- Be sure that mechanic's wire is of sufficient strength to pull terminals through conduit without breaking. Wire lengths must also be long enough so that free ends are not lost in conduit when pulled.
- Liquid glass cleaner may be used to aid in pulling wires through conduit.



**Figure 8-14. Fix Mechanic's Wire to Socket Terminals**

6. Carefully pull turn signal wires to draw socket terminals through both sections of conduit and through hole in mounting bracket. For best results, pull one wire at a time.
7. Unravel mechanic's wire to release socket terminals.

## INSTALLATION

---

1. Lay old turn signal lamp next to new turn signal lamp and cut wires to length.
2. Strip 3/16 inch (4.8 mm) of insulation off new lamp wires and crimp on new socket terminals.

### NOTE

*For instructions on crimping wire terminals, see APPENDIX B.2 AMP MULTILOCK ELECTRICAL CONNECTORS, CRIMPING INSTRUCTIONS in Touring Service Manual.*

3. Reattach mechanic's wire to socket terminals and carefully pull ends of mechanic's wire to draw socket terminals back through mounting bracket and conduit.

4. Carefully remove mechanic's wire to avoid damage to terminals.
5. Install terminals into proper location of socket housing.
6. Mate pin and socket halves of front turn signal connector.

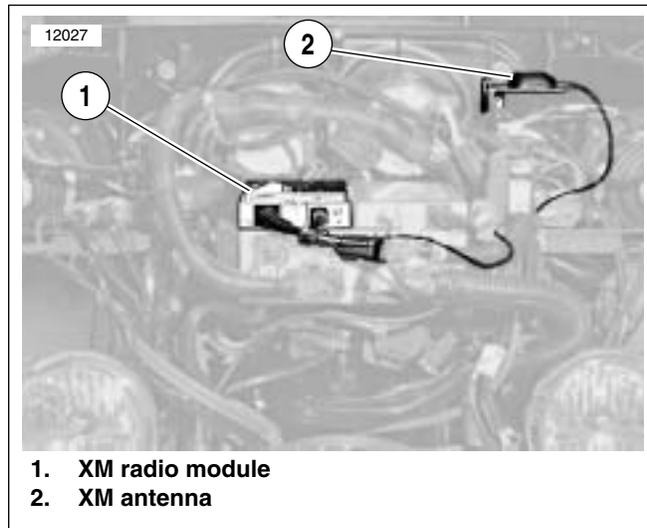
### NOTE

*For instructions on properly installing wire terminals, see APPENDIX B.2 AMP MULTILOCK ELECTRICAL CONNECTORS, INSTALLING SOCKET/PIN TERMINALS.*

7. Install fastener to secure turn signal lamp to mounting bracket. Tighten to 96-120 **in-lbs** (10.8-13.6 Nm)
8. Turn Ignition/Light Key Switch to IGNITION and test for proper operation.

## GENERAL

See [Figure 8-15](#). The XM radio module (1) is mounted atop the AM/FM/WB radio inside the vehicle's fairing. The XM antenna (2) is also mounted inside the fairing.



1. XM radio module
2. XM antenna

Figure 8-15. XM Radio Module and Antenna

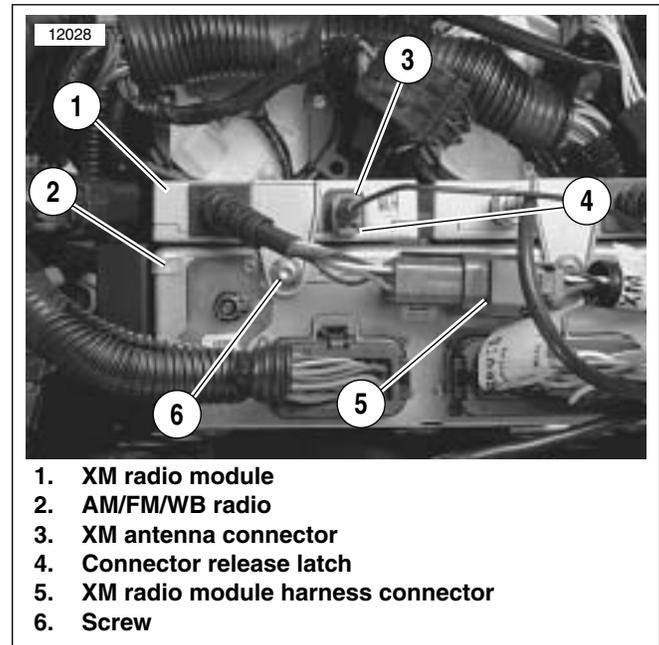
## RECEIVER MODULE

### Removal

1. Remove outer fairing. See Touring Models Service Manual for correct procedure.
2. See [Figure 8-16](#). Lift release latch (4) and unplug antenna connector (3).
3. Unplug XM radio module harness connector (5).
4. Remove screw (6) and gently pull XM radio module (1) straight forward. Remove module from vehicle.

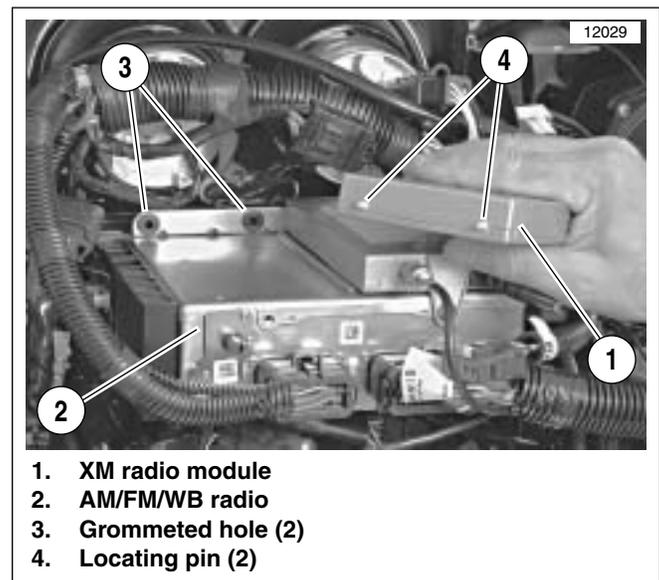
### Installation

1. See [Figure 8-17](#). Slide XM radio module (1) in on top of AM/FM/WB radio (2) so that locating pins (4) engage grommeted holes (3).
2. See [Figure 8-16](#). Install screw (6) and tighten securely.
3. Plug in XM radio module harness connector (5).
4. Plug in XM antenna connector (3).
5. Install outer fairing.
6. Test unit to verify proper operation.



1. XM radio module
2. AM/FM/WB radio
3. XM antenna connector
4. Connector release latch
5. XM radio module harness connector
6. Screw

Figure 8-16. XM Radio Module and Connections



1. XM radio module
2. AM/FM/WB radio
3. Grommeted hole (2)
4. Locating pin (2)

Figure 8-17. Installing XM Radio Module

## ANTENNA

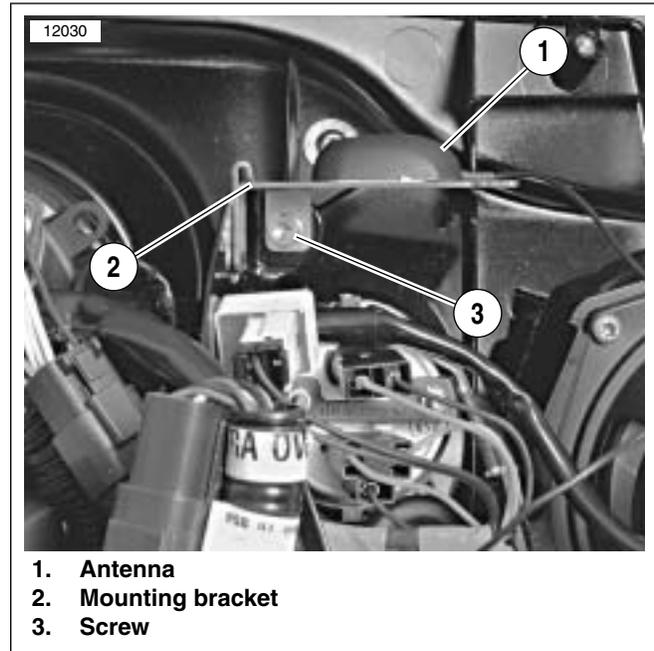
See [Figure 8-15](#). The XM radio antenna is mounted inside the vehicle's fairing, in the upper right corner.

### Removal

1. Remove outer fairing. See [Touring Models Service Manual](#) for correct procedure.
2. See [Figure 8-16](#). Lift release latch (4) and unplug XM antenna cable connector (3).
3. See [Figure 8-18](#). Remove screw (3) and remove antenna mounting bracket (2) from fairing bracket.

### Installation

1. See [Figure 8-18](#). Install antenna mounting bracket (2) onto fairing bracket.
2. Install screw (3) and tighten securely.
3. See [Figure 8-16](#). Plug antenna connector (3) into socket in XM radio module (1).
4. Install outer fairing.
5. Test unit to verify proper operation.



**Figure 8-18. XM Radio Antenna**

## GENERAL

This procedure describes replacement of The Advanced Audio High-Output Sound System amplifier. This procedure can be performed without removing the Tour-Pak from the vehicle.

## REMOVAL

1. Make certain vehicle's ignition switch is turned OFF.
2. Unplug wiring harness connector from amplifier, located under right side of Tour-Pak.
3. Open Tour-Pak. Remove and set aside any items inside.
4. Remove liner from bottom of Tour-Pak.

### NOTES

- See [Figure 8-19](#). Do not remove four bolts (1) from the Tour-Pak until you are instructed to.
  - Do not remove or loosen the rearmost locknut (4). This will hold the Tour-Pak in place while you are replacing the amplifier.
5. Place a clean shop cloth over rear fender under amplifier. This will protect rear fender finish as amplifier is being removed.
  6. See [Figure 8-19](#). Remove two nylon cap locknuts (3) and flat washers (2) from two forward Tour-Pak mounting positions. Loosen, but do not remove, nylon cap locknuts from two rear mounting locations. Do not remove rear-most locknut (4).
  7. See [Figure 8-19](#). Remove two forward-most mounting bolts (1) and washers (2) from inside Tour-Pak. Remove two forward-most spacers (6)

### NOTE

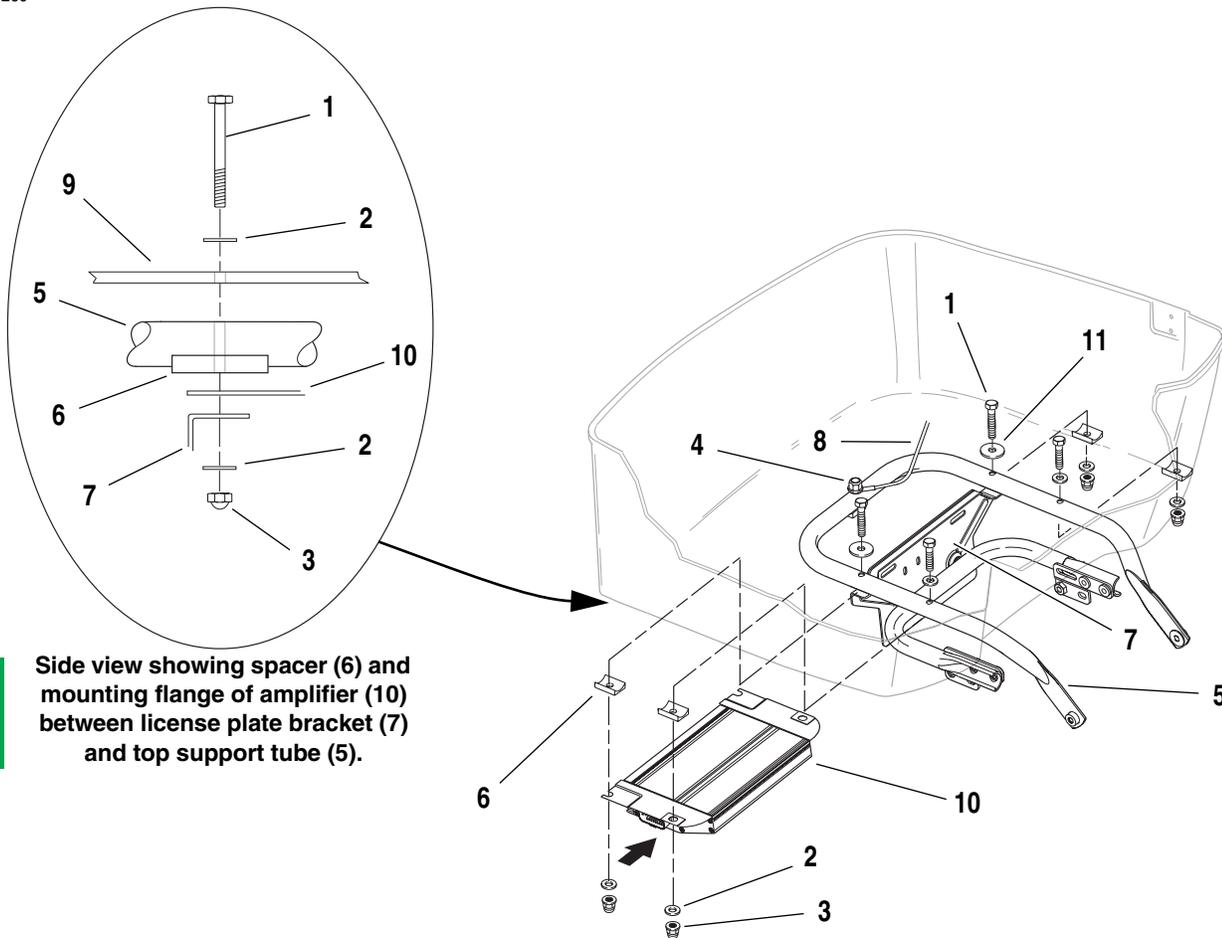
See [Figure 8-20](#). Amplifier has two closed holes (2) in mounting flange toward front of vehicle, and two open slots (3) toward rear. The open slots will facilitate removal in the next step.

8. Carefully slide amplifier toward front of motorcycle enough to clear two rear-most mounting bolts and license plate bracket (7). Slide amplifier out right side of vehicle.

## INSTALLATION

1. See [Figure 8-19](#). Slide **new** amplifier (10) in place under Tour-Pak. Slide amplifier rearward so that open slots in rear of amplifier mounting flange engage rear pair of mounting bolts (1). Make certain amplifier mounting flange is between spacer (6) and license plate bracket (7).
2. Place two spacers (concave side up) between amplifier mounting flange and top support tube (5) in the forward-most mounting locations, lining them up with mounting holes in Tour-Pak bottom.
3. Install bolts (1) with washers (2) through two forward-most holes in Tour-Pak, top support tube, spacers and amplifier mounting flange.
4. Install washer and nylon cap locknut (3) on each front mounting bolt.
5. In a crosswise pattern, alternately tighten mounting bolts and locknuts to 96-108 **in-lbs** (10.8-12.2 Nm). Make sure that concave section of each spacer remains in line with top support tube rail and does not rotate out of position.
6. Plug wiring harness connector into amplifier socket.
7. Install liner in Tour-Pak, replace any items removed, and close Tour-Pak lid. Remove shop cloth from rear fender.
8. Test sound system for proper operation.

pd0260

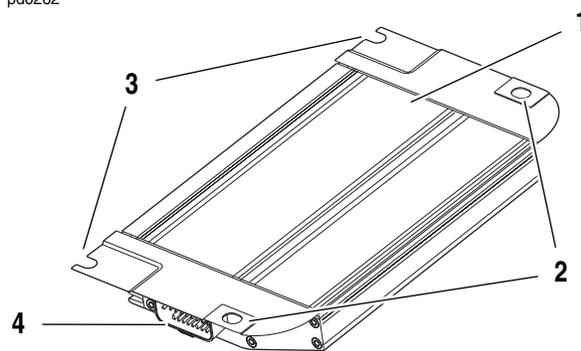


Side view showing spacer (6) and mounting flange of amplifier (10) between license plate bracket (7) and top support tube (5).

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>1. Bolt, 1/4-20, long (4)</li> <li>2. Washer 1/4 in. inside dia. (6)</li> <li>3. Locknut, nylon cap, 1/4-20 (4)</li> <li>4. Locknut, 1/4-20 (part of bolt, 1/4-20, short/spacer/flat washer/locknut assembly: do not remove)</li> <li>5. Top support tube</li> </ul> | <ul style="list-style-type: none"> <li>6. Spacer (4)</li> <li>7. License plate bracket</li> <li>8. Antenna ground lead</li> <li>9. Tour-Pak bottom</li> <li>10. Amplifier</li> <li>11. Large washer, 1/4 in. I.D. (2)</li> </ul> |
|---|--|

Figure 8-19. Amplifier Mounting

pd0262



- 1. Amplifier
- 2. Forward mounting holes (closed)
- 3. Rear mounting slots (open)
- 4. Harness connector

Figure 8-20. Amplifier

## TRANSMITTER

### Removal

1. Remove outer fairing. See Touring Models Service Manual.
2. Locate transmitter on inner left side of fairing.
3. Disconnect wiring harness connector.
4. Remove transmitter from adhesive tape mount.

### Installation

#### NOTE

Be certain to apply pressure to adhesive tape when installing transmitter.

1. Clean surface and apply new transmitter.
2. Connect wires to harness.
3. Verify correct function by verifying that the LED light on transmitter blinks when the high-low beam switch is activated.
4. Install outer fairing according to procedure in Touring Models Service Manual.

## RECEIVER

### Installation

1. Unplug power cord from garage door drive unit to prevent door activation during installation.
2. Find an unswitched 110V power outlet in garage that is located either highest in the garage, or closest to front of garage, or both. Locate the Harley-Davidson remote-control garage-door opener receiver here.

#### NOTE

With some brands of garage door opener systems, it may be necessary to plug in the Harley-Davidson receiver at a location some distance away from the door opener. If the Harley-Davidson receiver is plugged in too close to the original opener receiver, effective transmission range may be significantly reduced on both systems.

3. Find the two garage-door-activation switch terminals on one of these locations:
  - a. The existing wall-mounted, hard wired garage door opener button
  - b. The garage-door drive unit to which the garage-door-opener button is connected.

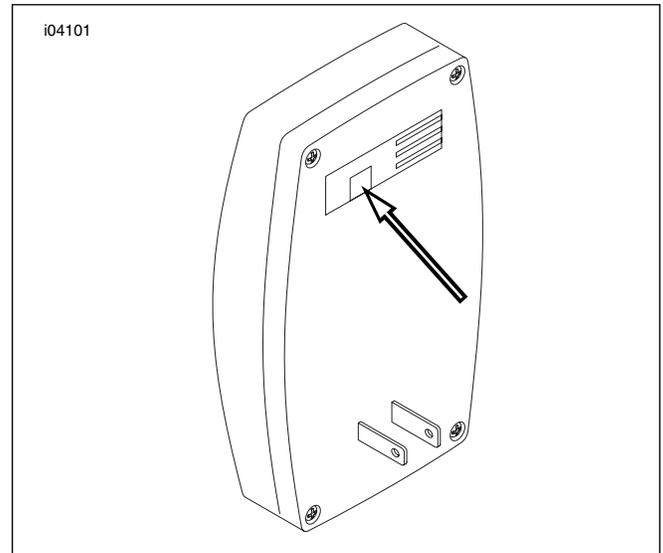


Figure 8-21. Garage Door Opener Receiver, Back View

4. Fasten stripped end of Harley-Davidson garage-door opener receiver wires to door-opener terminals that activate door opener drive unit. Refer to door-opener manufacturer's documentation for terminal locations and connections.

#### NOTE

Do not remove original wires from original connections on the door-opener button or on drive-unit terminals.

5. Assemble and install garage-door opener button in its original location.
6. Route Harley-Davidson garage-door opener wires connected in step 4 to power outlet selected in step 2.
7. See Figure 8-21. Plug connector on Harley-Davidson garage-door opener receiver wires into back of Harley-Davidson garage-door opener receiver.
8. Plug garage-door opener receiver into selected power outlet.
9. Plug power cord from garage-door drive unit into power outlet.
10. Press wall-mounted garage-door-opener button to test button operation.

## REMOTE CONTROL GARAGE DOOR OPENER

### FCC Notices

#### NOTE

*Changes or modifications to this unit not expressly approved by the manufacturer could void the user's authority to operate the equipment.*

This equipment has been tested and found to comply with the limits for Class B digital devices pursuant to Part 15, Subpart B of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

- Reorient or relocate the receiving antenna.
- Increase the distance between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

#### NOTE

*With some brands of garage door opener systems, it may be necessary to plug in the Harley-Davidson receiver at a location some distance from the door opener. If the Harley-Davidson receiver is plugged in too close to the original opener receiver, effective transmission range may be significantly reduced on both systems.*

1. Find the two garage door activation switch terminals on one of these locations:
  - a. The existing wall mounted, hand wired garage door opener button.
  - b. The garage door drive unit to which the garage door opener button is connected.

2. Fasten the stripped end of the Harley-Davidson garage door opener receiver wires to the door opener terminals that activate the door opener drive unit. Refer to the door opener manufacturer's documentation for terminal locations and connections.

#### NOTE

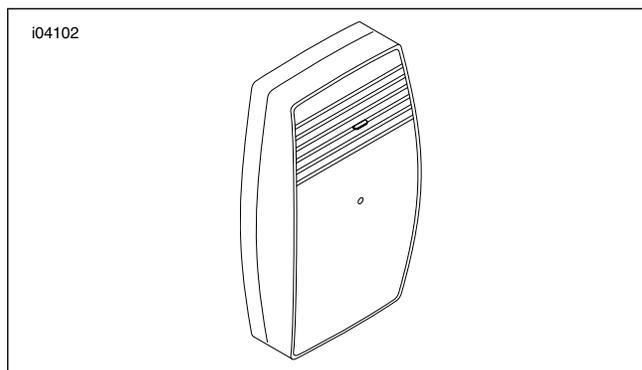
*Do not remove original wires from the original connections on the door opener button or on the drive unit terminals.*

3. Assemble and install the garage door opener button in its original location.
4. Route the Harley-Davidson garage door opener receiver wires connected in Step 4 to the power outlet selected in Step 2.
5. See [Figure 8-22](#). Plug the connector on the Harley-Davidson garage door opener receiver wires into the back of the Harley-Davidson garage door opener receiver.
6. Plug the garage door opener receiver into the selected power outlet.
7. Plug the power cord from the garage door drive unit into the power outlet.
8. Press the wall mounted garage door opener button to set the button operation.

### Program the Receiver and Transmitter

The receiver must be programmed to receive the transmitter frequency. This process may require two people, depending on how far apart the receiver and transmitter are during the programming process.

1. Check that a red light is visible on the front of the Harley-Davidson garage door opener receiver, indicating power to the receiver.



**Figure 8-22. Garage Door Opener Receiver, Front View**

2. See Figure 8-22. Press and hold the Set button the Harley-Davidson garage door opener receiver. The LED blinks continuously while the Set button is pressed.
3. Set the motorcycle ignition switch to IGN. Switch the headlamp beam switch using one of these sequences:
  - a. Starting from Low beam, switch High, then Low
  - b. Starting from high beam, switch Low, then High

*NOTE*

*When the receiver receives a signal from the transmitter, the LED on the transmitter turns off.*

4. Release the Set button on the receiver.

**⚠ WARNING**

**Be sure that all lights and switches operate properly before operating motorcycle. Low visibility of rider can result in death or serious injury. (00316a)**

*NOTE*

*Clear all obstructions away from between the transmitter and receiver before testing the operation of the garage door opener.*

5. Test the garage door opener, high beam, and low beam headlamp operation.

*NOTE*

*When the transmitter is activated by toggling the headlamp switch, the red LED on the transmitter illuminates for one second to indicate that the transmitter is functioning correctly.*

6. Turn the motorcycle ignition switch OFF.

# NOTES

---