



SPOTLIGHT INSTALLATION PROCEDURES FOR INSIDE "A" PILLAR INSTALLATION

4392
Orig. Date: 12/14/94
Rev. G
Date: 08/01/02

1. PREPARATION

- Level your vehicle, open the front door and roll down the window.
- Remove the weather seal from "A" pillar.
- Remove the inside "A" pillar garnish molding.

2. DRILL SPOTLIGHT SHAFT HOLE (FIG. 1)

- Position bracket pattern with masking tape on the *inside* of the "A" pillar as indicated on the bracket pattern.
- Lay bracket over pattern to make sure that mounting holes on bracket are approximately lined up with pattern and that shaft hole axis on bracket is approximately horizontal. If mounting holes are slightly off (less than half hole), line up the lower mounting hole with pattern, and mark upper hole location on pattern. The new location should be approximately on the same line with two existing locations on pattern.
- Remove bracket. Spot mounting holes and remove pattern. Then, drill 1/8" dia. holes. Check the holes with self-tapping screw **U** provided. If the holes are too small, open up them to 9/64" dia. to ease the difficulty for tightening screws.
Note: proper mounting hole size varies with the material type and thickness and never drill over-sized mounting holes.
- Insert drill bushing **C** into bracket **F** and tighten bracket set screw **K**. If bracket **F** has a flat on the shaft hole, the drill bushing with a flat will be provided. If the threaded hole on a bracket (see **B**) for clamping screw intersects with bushing hole, insert clamping screw **D** before inserting drill bushing. Attach bracket to "A" pillar with self-tapping screws **U**.
- Close door.
- From inside the vehicle, drill a 1/2" diameter shaft hole through the "A" pillar and the outer door frame. After drilling through the first surface, check for wires. Move them out of way (if any) and continue drilling. **Be sure to check bracket mounting screws from time to time to be sure that they have not loosened during drilling.**

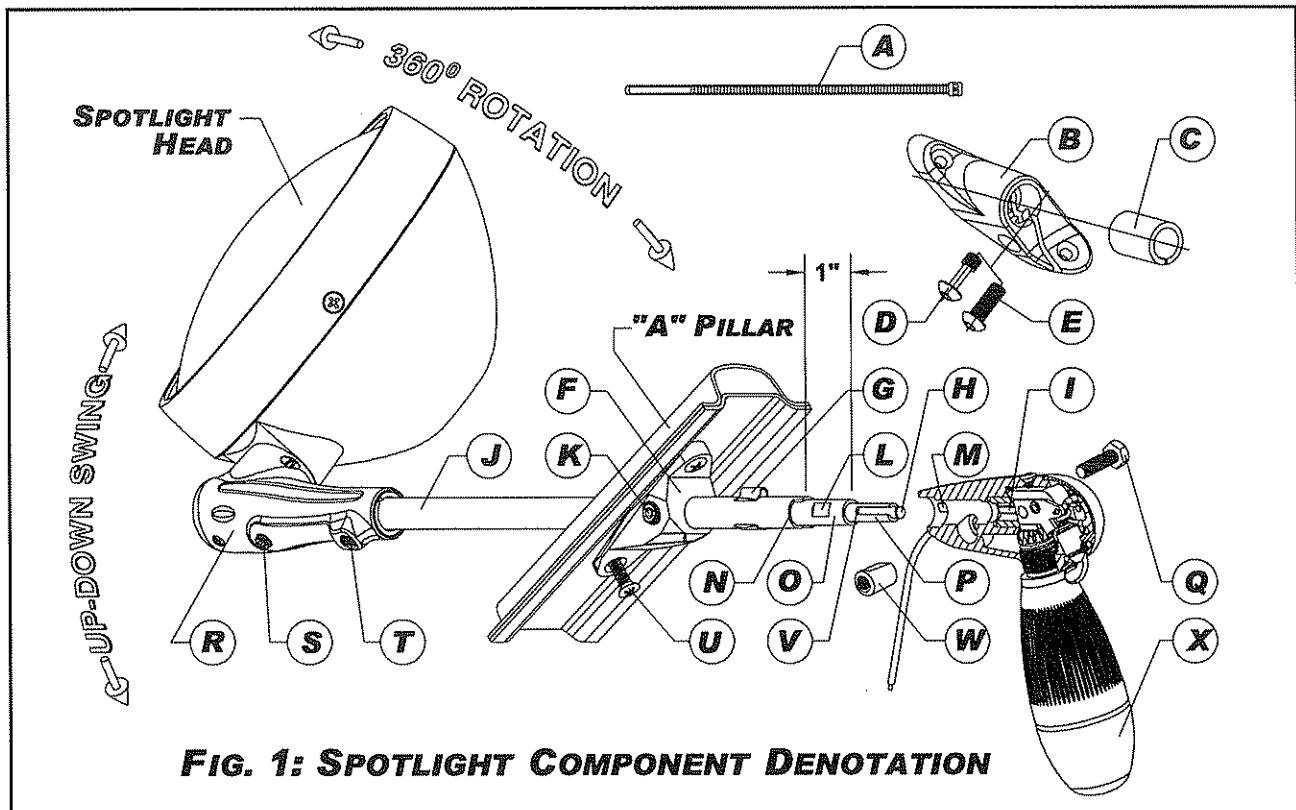


FIG. 1: SPOTLIGHT COMPONENT DENOTATION



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3. GARNISH TRIM

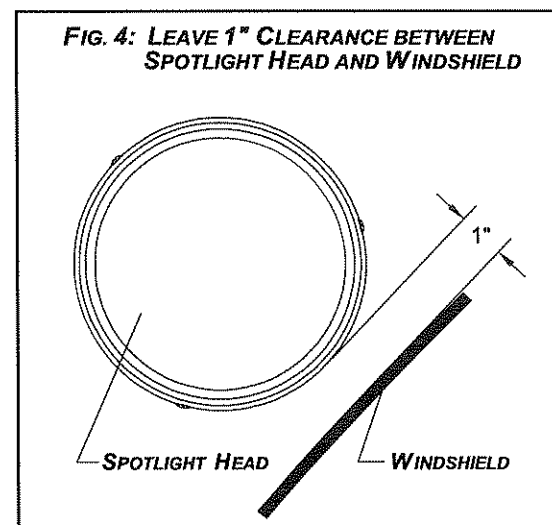
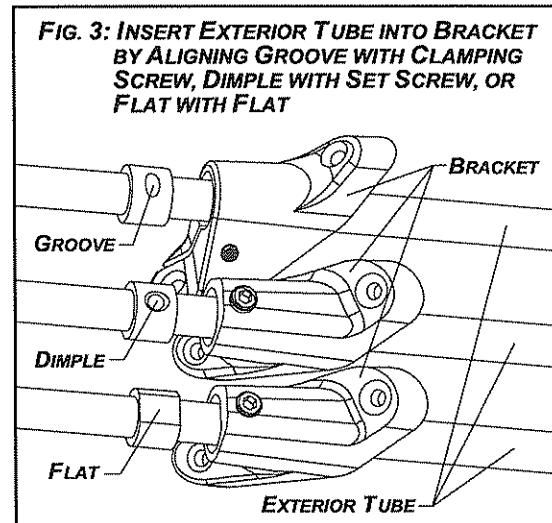
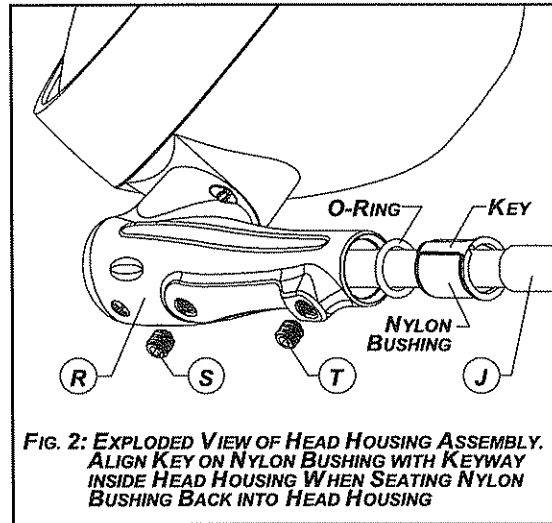
- Remove the bracket *F* and carefully discard the drill bushing *C* as it may be very hot. Open door. In order to properly locate the shaft hole in the garnish trim, it must be attached and held firmly in place on "A" pillar. Now, from outside of the vehicle, drill through the garnish trim using the 1/2" hole in "A" pillar as a guide.
- Remove the garnish trim from "A" pillar. If there is the cushion material inside the garnish trim, cut some of them away around the 1/2" shaft hole to clear the bracket. If bracket interferes with the garnish trim, open up the 1/2" hole until it is just large enough to clear the bracket. Use the garnish trim hole pattern as a guide when it is provided. Trim hole and cover with the short piece of edge guard provided.

4. NOTCH DOOR

- In order for the door swing to properly clear the spotlight, a notch must be cut in the door frame. Using the door notch pattern, center about the drilled hole on door frame and scribe a line around the outer surface of the pattern onto the surface of the door frame.
- Remove the pattern and cut out the door notch, being careful to stay within the scribed line. Be careful not to chip or burn the paint. Remove burrs and sharp edges.
- Clean the notch area thoroughly with a non oily cleaner such as isopropyl or rubbing alcohol. Cover the notch area with the long piece of edge guard provided. This provides a cleaner look and also helps to cover any damage which may have occurred when cutting the notch. Press edge guard into place. Rub hard, at least 6 times to ensure a maximum bond is made.

5. INSTALL SPOTLIGHT (FIG. 1-4)

- Remove handle assembly from the spotlight by loosening and removing screw *Q* and wedge *W*. Save them for Step 6.
- Loosen set screw *T*, and remove exterior tube *J* of spotlight. Under any circumstances, if nylon bushing is pulled out of head housing, **align its key with the keyway inside head housing *R*** to seat it back into head housing (Fig 2). If the key does not align with the keyway, exterior tube *J* cannot be re-inserted into head housing properly later on.
- Inspect bushing on tube to determine if it has a flat, a dimple, or a groove (Fig. 3). Insert tube in bracket with flat on bushing in alignment with bracket flat, dimple in alignment with set screw *K*, or groove in alignment with screw *E*. Tighten bracket set screw *K* or clamping screw *E*.
- Attach bracket *F* and tube assembly to "A" pillar.
- Attach garnish trim.
- Install the spotlight by inserting the intermediate tubing *O* through the exterior tube *J*. This should be performed gently so that the electrical contact *H* at the end of inner rod *P* is not damaged.





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- g) Make sure that set screw *T* is loosened and then seat exterior tubing *J* completely into head housing *R* so that intermediate tubing *O* extends at least 1" (Fig. 1) beyond the end of exterior tube *J*. Otherwise, the flat on wedge *W* will not engage with the flat *L* on intermediate tube *O* and handle assembly cannot be installed properly at Step 6.
- h) Rotate the spotlight head and position the outermost edge about 1" from the windshield (Fig. 4). Tighten set screw *T* to create just enough friction between the nylon bushing and exterior tube *J* to keep the spotlight head in position. **Do not overtighten set screw *T*** because overtightening can make the spotlight hard to turn.

6. INSTALL HANDLE ASSEMBLY (FIG. 1)

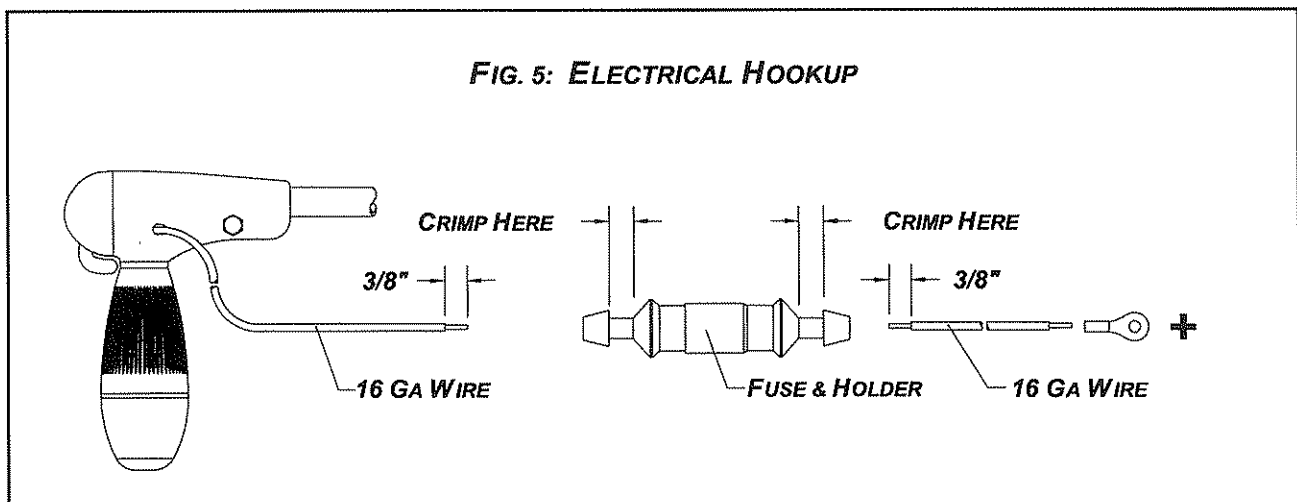
- a) Find the flat *L* on intermediate tube *O* and make a mental note of the flat location.
- b) Gently slide handle assembly onto spotlight shaft, at the same time turn handle grip *X* to engage gear key *I* with rod slot *V*, and rotate the whole handle assembly to engage handle housing key *M* with exterior tube notch *N*. Then rotate the entire handle assembly to the position where the handle grip is approximately perpendicular to the flat *L* on the intermediate tube so that the flat on wedge *W* can be easily aligned with flat *L*. In general, at this position, the handle grip is pointing approximately toward 9 o'clock for left hand installation or 3 o'clock for right hand installation.
- c) Apply pressure to the handle assembly along the spotlight shaft, insert wedge *W* into the handle housing, and wiggle the handle assembly slightly left and right so that the flat on wedge *W* will engage with the flat *L* on the intermediate tube *O*. Insert and tighten screw *Q* to 65 ± 5 inch pounds of torque.

7. ELECTRICAL HOOKUP (FIG. 5)

- a) Cut and strip 3/8" insulation from spotlight lead wire and one end of the additional wire supplied.
- b) Thread wire through each end of fuse holder and crimp through holder as shown in Fig. 5.
- c) Route the wire/fuse assembly to the fuse box. Cut the wire to desired length, strip the wire, and crimp the ring terminal. Connect the ring terminal to the positive (+) terminal at the fuse box.
- d) Hold wire on exterior spotlight tube *J* by wire clip *G* or by wire tie *A* (see Fig. 1).

8. INSTALL WEATHER SEAL

- a) Using RVT silicone or equivalent, seal the shaft hole on "A" pillar around the exterior spotlight tube from the outside of the vehicle to prevent water from entering into "A" pillar.
- b) With the door open, reinstall the weather seal by pressing into place on the "A" pillar. A small notch may be required in the seal to provide proper clearance for the spotlight shaft. To gauge where the notch should be, close the door and cut as required.





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9. ADJUSTMENT

- a) Make proper adjustments (Fig. 1) to set screw *T* which controls the tension for up-down swing of spotlight head, and to set screw *S* which controls the tension for 360° rotation of spotlight head, so that they create just enough tension to hold the position of spotlight head in wind. Over-tightening may cause difficulties to aim spotlight as well as premature wear-and-tear of spotlight components.

10. TEST

- a) To complete the installation a test of both mechanical and electrical functions is required.
- b) The mechanical functions include 360° head rotation in both directions and a check of clearance from the door swing and windshield.
- c) The electrical functions are on/off control and maintaining electrical continuity throughout the mechanical operation.

11. TROUBLE SHOOTING TIPS

- a) **Electrical Trouble-Shooting:** if a spotlight does not light, first read steps 5-7 to understand the spotlight installation process, and then follow the below procedures.
 - a. Check fuse. If fuse failed, replace fuse. If the fuse is good or if light still does not work, go to the next step.
 - b. Disconnect lead wire from power source first, and then remove handle assembly. **Always keep lead wire disconnected from power during the removal and installation process of handle assembly.** Test light by applying 12 VDC power to rod contact *H* (Fig. 1).
If light works, replace the handle assembly with new one, and then install the new handle assembly.
If light does not work,
 - i). Check Bulb. Open spotlight head, disconnect bulb wires, and use a 12 VDC power source to check out bulb. If it lights, replace the spotlight shaft assembly with new one. If it does not, go to the next step.
 - ii). Replace bulb and test light by applying 12 VDC power to rod contact *H* (Fig.1). If light still does not work, replace the spotlight shaft assembly with new one. If light works, reinstall the handle assembly and test light. If light still does not work, replace the handle assembly with new one.
- b) **Mechanical Trouble-Shooting**
 - a. If it is hard to turn handle grip to rotate spotlight head 360° in each direction smoothly:
 - i). Adjust set screw *S* (Fig. 1) and make sure it is not over-tightened. After proper adjustment, if it is still hard to turn, go to the next step.
 - ii). Disconnect lead wire from power source. Remove handle assembly and rotate handle grip 360° about its axis in each direction. If the rotation is not smooth, replace the handle assembly with new one. If it is, replace the spotlight shaft assembly with new one.
 - b. If it is hard to move handle assembly to swing spotlight head about the shaft axis smoothly:
 - i). Make proper adjustment to set screw *T* (Fig. 1). If rotation is still not smooth, go to the next step.
 - ii). Disconnect lead wire from power source. Remove handle assembly, loosen set screw *T*, pull out the spotlight (do not remove exterior tube), clean dirt from intermediate tube by using penetrating oil, apply white lithium grease evenly on intermediate tube, and then install the spotlight by following Steps 5-6.

12. MAINTENANCE

An occasional coat of automotive wax on exposed parts of spotlight will keep it looking new.