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SAE J895 APR86

**Five Conductor
Electrical Connectors
for Automotive Type
Trailers**

SAE Recommended Practice
Reaffirmed April 1986

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FIVE CONDUCTOR ELECTRICAL CONNECTORS FOR AUTOMOTIVE TYPE TRAILERS

1. **SCOPE:** This SAE Recommended Practice covers the wiring and connector standards for nonpassenger carrying trailers, SAE Classes 1-3¹, with circuit loads not to exceed 7.5 amp per circuit. It provides the lighting circuits of these trailers with a universal connecting device, standard circuit coding and protection for the wiring from hazards and shorts.

2. **RECEPTACLE:** The receptacle shall be of the design as shown in Fig. 1 and shall be attached to the towing vehicle as follows:

- (a) White - Ground to frame
- (b) Brown - Spliced to tail and license light circuit
- (c) Yellow - Spliced to left turn and stop circuit
- (d) Green - Spliced to right turn and stop circuit
- (e) Blue - Auxiliary

The receptacle leads shall be attached to the vehicle wiring harness in a workmanlike manner, mechanically and electrically secure. Further, a well insulated strain relief shall be provided between the receptacle and the towing vehicle wiring harness connections so that there will be no strain on the vehicle harness in the event of an abnormal pull on the receptacle. The receptacle shall be placed in a location where it will not be exposed to road hazards either when connected or loose. The receptacle leads must be properly routed and protected against damage from cutting and pinching where they leave the vehicle body. No receptacle leads shall be smaller than 16 gage (single) or smaller than 18 gage (in multiconductor cables) heavy duty SAE insulated automotive primary wire.

3. **PLUG:** The plug shall be as shown in Fig. 2, and wiring, shall be attached to the trailer so that the wires have the maximum protection against road splash, stones, abrasion, grease, oil, and fuel. The wiring shall be secured to the trailer frame at intervals not greater than 18 in so that the wiring does not shift or sag. The circuits used shall be color coded as follows:

¹See SAE J684

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3. PLUG: (Continued)

- (a) White - Ground
- (b) Brown - The tail and license light
- (c) Yellow - Left turn and stop light
- (d) Green - Right turn and stop light
- (e) Blue - Auxiliary

No plug leads shall be smaller than 16 gage (single) or smaller than 18 gage (in multiconductor cables) heavy duty SAE insulated automotive primary wire. Extra insulation should be provided between the strain relief at the trailer hitch and the wiring assembly so that an abnormal pull on the plug will not damage the wiring.

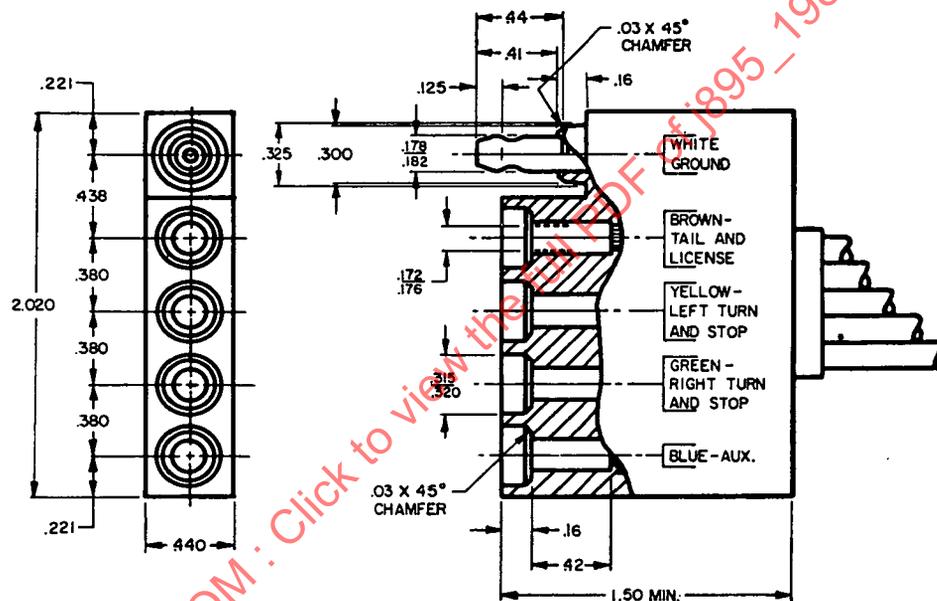


FIG. 1 - RECEPTACLE

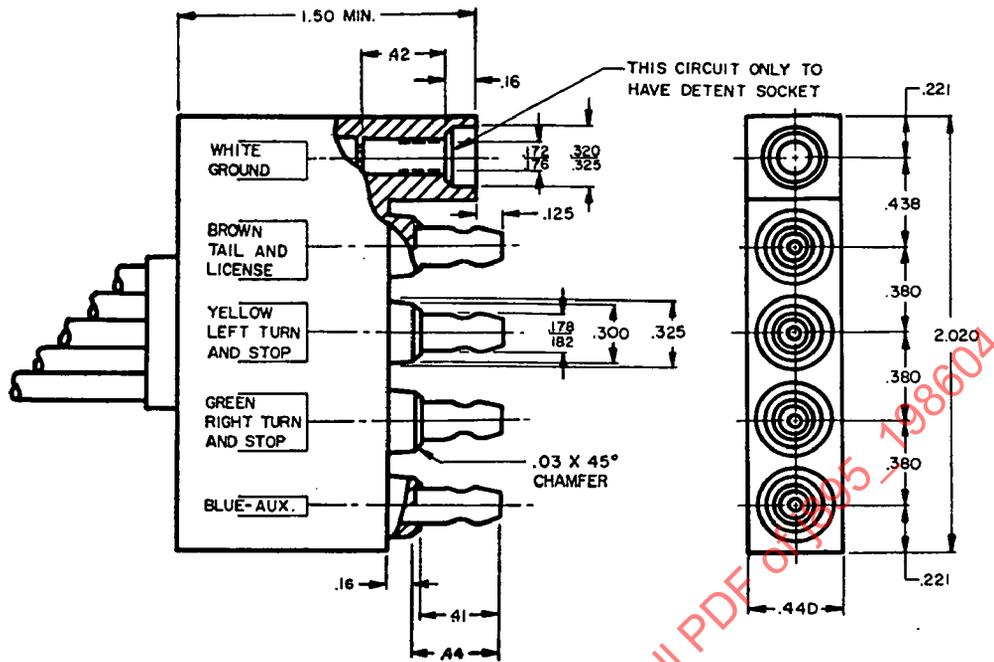


FIG. 2 - PLUG

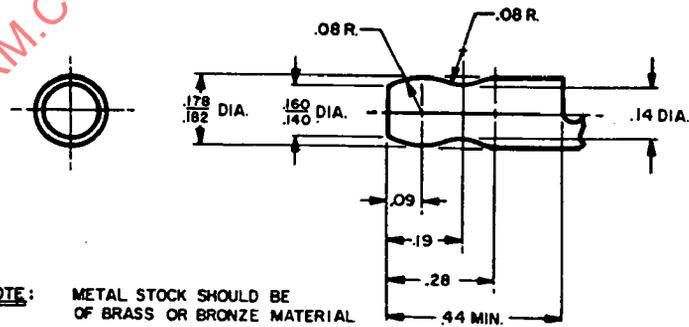


FIG. 3 - PIN

NOTE: THIS SOCKET TO BE USED ONLY ON THE GROUND CIRCUIT OF THE MOLDED PLUG. SOCKETS SIMILAR TO THIS, EXCEPT WITH THE DETENT OMITTED, ARE TO BE USED IN THE MOLDED RECEPTACLE.

METAL STOCK SHOULD BE OF 3/4 HARD TEMPER BRASS OR BRONZE MATERIAL.

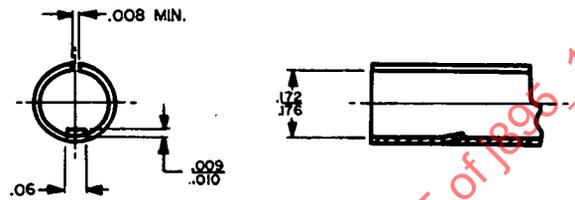


FIG. 4 - SOCKET

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APPENDIX

- A.1 MATERIAL REQUIREMENTS: The receptacle and plug shall be made of an insulating material such that they can be processed to provide the spacing and splash protection indicated in Figs. 1 and 2. The material used shall have a hardness of Shore "A" 50 minimum and shall be compatible with the insulation used on the wire leads and/or jacket over the leads. Where thermoplastic materials are used the hardness shall not exceed Shore "A" 70. The jacket on the leads shall be as deemed necessary to adequately protect the wiring. The metal pins and sockets shall be of the size and type shown in Figs. 3 and 4 made of either brass or bronze and suitably coated to protect against corrosion. The coating shall be smooth so as not to bind when the parts are engaged.
- A.2 ASSEMBLY REQUIREMENTS: The plug and receptacle assembly shall disengage with a minimum force of 3 lb per circuit and a maximum of 7 lb per circuit, except the ground circuit which can be 12 lb max. The mechanical force requirement of disengagement does not preclude the requirement for good electrical connections between the male and female connectors of the circuits.

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