

# electrical connectors



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## electrical connectors

### Q1 TRACTOR-TRAILER CONNECTORS

Heavy duty sockets, plugs and assemblies that withstand the rigors of trucking thousands of miles in dust and dirt, rain and snow, heat and cold, yet maintain the all-important electrical continuity between tractor unit and trailer. With the increased need for more circuits on the trailer comes the need for more poles in the connectors. The 13-pole connector contains added circuits, yet is able to link up with standard 7-pole trailers when necessary. Green connectors clearly indicate dedicated ABS plugs and sockets, yellow identifies a 13-pole connector. Tractor-trailer connectors are also employed in agricultural vehicles.

### 13-Pole Connectors

*Provides six additional tractor-trailer circuits within the dimensions of traditional 7-pole connectors. Adaptable to a wide variety of wiring combinations, including multiplexed circuits. Surpasses SAE J560b performance standards. Conforms to this standard for interchangeability between 7-pole and 13-pole connectors. Distinctive bright yellow identifies 13-pole connectors. Robust glass-filled plastic housings cannot rust or corrode. Ground terminals accept up to 8AWG wire, 7 pole terminals up to 10AWG, smaller 6 pole terminals up to 14AWG.*

### 12300 Socket ★

Gasket-sealed socket door is spring-loaded and locks onto the plug. Solid brass contact pins. Rain hood extends beyond the pins to protect the interior. The 5° downward pitch drain channel inside the socket reduces water retention. Three mounting holes on the flange: .33" (8.4mm) diameter, 2.93" (74.6mm) on centers. Includes six 31784 crimp-on connectors to mate with the six smaller pole terminals. See page 148.

81356 Rubber Boot gives added protection to the terminals. Not included. See page 147.



### 12301 Plug ★

Plug locks into the socket, utilizing the spring-loaded socket door. Spring-grip contacts have self-adjusting spring bands to maintain long-term uniform electrical contact with socket pins. O-ring at the plug end prevents water from reaching the contacts. Strain relief and grommet seal isolates the contacts from mechanical strain, and provides extra moisture protection. Cable retainer maintains secure cable connection. Replaceable interior. Includes six 31784 crimp-on connectors to mate with the six smaller pole terminals. See page 148.



### Cable

See page 147.

### Interiors

See page 143.

★ Rapid ship item. **BP** Available in retail clamshell pack. ★ Minimum order quantity may apply. Part numbers needed in BOX require a -BX suffix on the purchase order.

### 7-Pole Connectors

Sockets and plugs conform to ATA, RCGC (RP-102), SAE (J560b), FMVSS-121, FIEI TTMA (RP 40-73) standards or recommendations, and are compatible with other standard (J560b) connectors.

### Sockets

Ground terminal accepts wires up to 8AWG, other terminals up to 10AWG. Solid brass contacts are aligned to assure proper contact and minimal voltage drop. Wiring codes are embossed on the insulator. The door is spring-loaded and fits over a mating ridge on the socket face to minimize penetration of dirt and moisture. Housings are constructed from corrosion-resistant diecast metal or rugged glass-filled plastic. Contacts are either self-grounding or insulated. See Section Q3 for socket interiors.

### 3 Mounting Holes

#### 12310 High-Performance Socket

Surpasses SAE J560b performance standards. Accepts all seven-pole plugs conforming to SAE J560b or Cole Hersee 13-pole plug 12301. Superior environmental protection gives extended product life. Glass-filled plastic housing cannot rust or corrode.

Gasket-sealed socket door is spring-loaded and locks onto the plug. Solid brass contact pins. Rain hood extends beyond the pins to protect the interior: drain channel inside the socket has drain channel at 5° downward pitch to reduce water retention. Three mounting holes on the flange: .33" (8.4mm) diameter, 2.93" (74.6mm) on centers.

81356 Rubber Boot gives added protection to the terminals. Not included. See page 147.



### 2 Mounting Holes

#### 12080-11 ABS ★

Color-fast green glass-filled plastic insures quick identification. Spring-loaded door is marked 'Trailer ABS' to further lessen any chance of misconnection. Mounting holes on the flanges are oval, .488" x .328" (12.4 x 8.3mm), 2.93" (74.6mm) on centers. Mounts through 2" (50.8mm) diameter hole.



#### 12080 Glass-Filled Plastic, Insulated ★

Mounting holes on the flanges are oval, .488" x .328" (12.4 x 8.3mm), 2.93" (74.6mm) on centers. Mounts through 2" (50.8mm) diameter hole. Black plastic.



#### 12080-01 Glass-Filled Plastic, Insulated, Split Pins

Same as 12080, but with split-pin contacts.

#### 12063 Diecast, Self-Grounding ★

Mounting holes on the flanges are oval, .488" x .328" (12.4 x 8.3mm), 2.93" (74.6mm) on centers. Mounts through 2" (50.8mm) diameter hole.



#### 12063-01 Diecast, Self-Grounding, Split Pins ★

Same as 12063, but with split-pin contacts.

#### 12075-01 Diecast, Insulated, Split Pins

With four mounting holes (two are knockout). Brass split-pin contacts.

#### 12077-01 For ISO Type (24V) ★

Diecast housing, polarized ground terminal, insulated. Replacement for ISO 3731-1976 (E) road vehicles, type 24S (supplementary). Contact pins: one spring-grip female, and six solid male. Mounting holes on the flanges are oval, .488" x .328" (12.4 x 8.3mm), 2.93" (74.6mm) on centers. Mounts through 2" (50.8mm) diameter hole. Mates with Cole Hersee 11100-02 and 11100-01 plugs.



**Q1** TRACTOR-TRAILER CONNECTORS

## Plugs

*Ground terminal accepts wires up to 8AWG, other terminals up to 10AWG. Cable protectors are constructed of plated steel, and provide strain relief and protection against abrasion.*

### With Quick Release Plug Interiors

Interiors can be readily removed by loosening the single set screw in the cable clamp, and then depressing on the spring clip release with a screwdriver. The interior then readily slides out. The interior slides back into the housing and locks securely into place with a high-tension metal clip. After the cable clamp is tightened, the plug is ready for use.

#### 12091 Diecast ★



#### 12092 Diecast, With Cable Protector ★



#### 12081 Glass-Filled Plastic ★



#### 12082 Glass-Filled Plastic, With Cable Protector ★



### With Spring Grip Electrical Contacts

Cole Hersee spring grip contacts contain a self-adjusting spring band that maintains contact pressure from socket to pin. Greater contact pressure not only gives greater electrical efficiency, but also makes coupling and uncoupling uniform, and minimizes buildup of dirt. In competitive plugs, conventional contacts tend to widen after repeated use; the Cole Hersee plug has individually sprung sockets to insure maximum contact year after year.

Diecast metal housing. Replaceable interior. Wiring codes are identified on the insulator. Cable clamp holds all wires securely.

#### 1222 ★



#### 1255 With Cable Protector ★

Same as 1222, except with cable protector.



#### 11100-01 ISO Type (24V)

Diecast housing, polarized ground terminal, insulated. Replacement for ISO 3731-1976 (E) road vehicles, type 24S (supplementary). Contacts: six spring-grip female, and one solid male pin. Mates with Cole Hersee 12077-01 ISO socket.



#### 11100-02 ISO Type (24V), With Cable Protector

Same as 11100-01, except with cable protector.



★ Rapid ship item. BP Available in retail clamshell pack. \* Minimum order quantity may apply. Part numbers needed in BOX require a -BX suffix on the purchase order.

### 12311 High-Performance Plug

Surpasses SAE J560b performance standards. Superior environmental protection gives extended product life. Black glass-filled plastic housing cannot rust or corrode. Plug locks onto opening on spring-loaded socket door. Spring-grip contacts have self-adjusting spring bands to maintain long-term uniform electrical contact with socket pins. O-ring at the plug end prevents water from reaching the contacts. Strain relief and grommet seal isolates the contacts from mechanical strain, and provides extra moisture protection. Cable retainer maintains secure cable connection. Replaceable interior. Connects with all SAE J560b sockets, and Cole Hersee 13-pole sockets.



### Assemblies

*Available with one or two plastic or diecast metal plugs. Conform to ATA, RCCC, SAE and TTMA standards. Superior coil memory minimizes snagging, small diameter coil reduces tangling with other lines. Temperature-resistant coil will not crack or stiffen at -70°F (-57°C). Cable jacketing is abrasion- and cut-resistant, repels oil, gas and chemicals. 100% electrical copper conductors give maximum conductivity. Six 12AWG and one 10AWG wires. 12ft working length of coiled cable.*



#### 11247

With two 1255 plugs: metal housings, spring grip electrical contacts and cable protectors.

#### 11247-01

With two 12092 plugs: metal housings, quick-release plug interiors and cable protectors.

## Recommended Wire Sizes

Fire can result when a wire gets overheated because there's too much current flowing through it. It is important to use the correct wire size that's appropriate to the amperage and length of the wire that you're using. Use the wire rating next above the amperage needed.

Both fuses and circuit breakers stop dangerous overcurrent by rapidly shutting down an overloaded circuit. Fuses are one-use devices; circuit breakers can be re-set.

Wire Size	Ohms per 1000ft	Ampacity inside the engine compartment	Ampacity outside the engine compartment
18AWG 0.8mm <sup>2</sup>	6.385	20	17
16AWG 1mm <sup>2</sup>	4.016	25	21.3
14AWG 2mm <sup>2</sup>	2.525	35	29.8
12AWG 3mm <sup>2</sup>	1.588	45	38.3
10AWG 5mm <sup>2</sup>	0.9989	60	51
8AWG 8mm <sup>2</sup>	0.6282	80	68
6AWG 13mm <sup>2</sup>	0.3951	120	102
4AWG 19mm <sup>2</sup>	0.2485	160	136
2AWG 32mm <sup>2</sup>	0.1563	210	178.5
1AWG 40mm <sup>2</sup>	0.1239	245	208
0AWG 50mm <sup>2</sup>	0.09827	285	242.3
2/0AWG 62mm <sup>2</sup>	0.07793	330	280.5
3/0AWG 81mm <sup>2</sup>	0.06180	385	327.3
4/0AWG 103mm <sup>2</sup>	0.04901	445	378.3

You can calculate the voltage drop (volts) across a length of wire (ft) at a given amperage (amps)... Voltage drop = wire length x amperage divided by 1000 x ohms per 1000ft.

**Q2** 1-TO-6 POLE CONNECTORS

Normally used with a trailer where limited functionality (taillights, brake lights) is needed. Ideal for boat trailers, or RVs towing a car on a flatbed trailer. See also Section Q4 Automotive Connectors' for a different kind of connector. Diecast metal housings. Screw terminals accept up to 12AWG wire. Replaceable interiors.

## Sockets

Brass split-pin contacts are aligned to assure proper contact and minimal voltage drop. Spring-loaded socket doors, plug locks securely into the opening. Wiring codes are identified on the insulator. Two mounting holes on the flange 17/64" (6.7mm) diameter, 2 15/16" (74.6mm) on centers. Mount through 1 3/8" (34.9mm) diameter hole.

### 1258 6-Pole

Exposed terminal screws.



### 1268 6-Pole, Self-Grounding

Same as 1258, but self-grounding, and with recessed terminal screws.



### 1235 6-Pole, Protective Housing ★

Same as 1258, but with special housing that protects terminals from road splash.



### 1232 4-Pole, Protective Housing BP ★

With special housing that protects terminals from road splash.



### 1257 4-Pole

Same as 1232, but with exposed terminal screws.

## Plugs

Contacts float for best alignment and connection. Cable clamps hold all size cables firmly in place. Cable protectors (where present) are constructed from plated steel, and provide strain relief and protection against abrasion.

### 1236 6-Pole ★



### 1254 6-Pole, Cable Protector ★

Same as 1236, but with cable protector.



### 1233 4-Pole BP ★



### 1253 4-Pole, Cable Protector ★

Same as 1233, but with cable protector.



## Cable

See page 147.

## Interiors

See page 143.

★ Rapid ship item. BP Available in retail clamshell pack. \* Minimum order quantity may apply. Part numbers needed in BOX require a -BX suffix on the purchase order.

### 2-Pole Power Take-Off Connector

*Provides a high-integrity two-circuit path for on- and off-road vehicles and in agricultural applications. Plug latches solidly with the socket cover. Suitable replacement for connectors in tarping applications. Vertically-aligned machined brass contacts, diecast zinc plug and socket housings, engineering-grade plastic. Terminations accept 6AWG wire. Polarized.*

#### 11041-06 Socket

Gasket-sealed socket keeps out dirt and moisture when plug is not in use.



#### 11042-05 Plug

For use with 2-pole socket 11041-06. Durable, flexible spring coil protects the cable.



#### 11250-01 Plug and Socket

Set of 11041-06 and 11042-05.

### 1-Pole Power Take-Off Connector

*Provides power to auxiliary equipment. Accepts up to 0AWG cable. Diecast metal housings. Electrical conductors and connections are designed for maximum efficiency and long life.*

#### 11041 Socket ★

Self-grounding. Solid brass 3/8" (9.5mm) diameter male contact, with insulated tip to prevent short circuits. Rubber boot protects the terminals and connections from moisture and dirt. Fits 2" (50.8mm) diameter hole. Two mounting holes on the flange 2 1/64" (8.6mm) diameter, 2 5/16" (74.6mm) on centers.



#### 11042 Plug ★

With ground return terminal. Brass female contact with spring grip tension provides solid engagement with the mating socket. Cable clamp holds cable firmly in place.



## Tarping Apps

Photo: RollRite LLC.



The two-pole power take-off is perfect for tarping applications... but it's also used in liftgate connections and to supply power to a broad range of auxiliary equipment that's part of the truck or utility vehicle. It also finds use in powering on-site equipment.

## Super-Bright LEDs

New 58312 series rocker switches have long lasting LED lights and high-visibility wrap-around lenses. See page 1.



**Q3** SOCKET AND PLUG INTERIORS

*Impact-resistant insulators repel oil and water. Permanent molded-in wire codes provide easy identification. Contacts and connections are carefully designed to ensure maximum electrical efficiency. Terminal screws, socket mounting or plug mounting screws are provided.*

## 7-Pole

### 1286 Plug Interior

Accept up to 8AWG and 10AWG wire. Spring-grip contacts have self-adjusting spring bands that ensure uniform contact with socket pins. Contacts float for best alignment and connection. Bumper construction protects the end of the plug housing.

For plugs 1222, 1255, 12081 and 12082.



## 6-Pole

*Accept up to 12AWG wire.*

### 1296 Plug Interior

For 1236 and 1254 plugs.



### 1158 Plug Interior, Straight Body

For 1236 and 1254 plugs, and many other makes of plug.



### 1159 Socket Interior

For 1235 socket. Split contact pin



## 4-Pole

*Accept up to 12AWG wire.*

### 1295\* Plug Interior

For 1253 and 1233 plugs.



## Keep Plugs Clean

For 7-pole plugs. Stainless steel wire brush cleans corroded contacts in seconds. See page 148.



## Build Your Own Rockers



Five handy kits cover all the electrical types and pilot light combinations. Each kit comes with a set of snap-in pilot light lenses, so it's easy to make up a switch with the lens color you need.

The five kits are individually retail-packed in clamshell BP units.

### 58328-100BP On-Off SPST, dependent

With one each Amber, Clear, Green, and Red lens.

### 58328-101BP On-Off SPST, independent

With one each Amber, Clear, Green and Red lens.

### 58328-102BP On-On SPDT, dependent

With two each Amber, Clear, Green and Red lenses.

### 58328-103BP On-Off-On, dependent

With one each large Amber, Clear, Green, Red and one each small lenses.

### 58328-104BP On-Off SPST, one dependent, one independent

With one each large Amber, Clear, Green, Red and one each small lenses.

★ Rapid ship item. BP Available in retail clamshell pack. \* Minimum order quantity may apply. Part numbers needed in BOX require a -BX suffix on the purchase order.

See also Section Q2 '1- to 6-pole Connectors'.

### In-line Trailer Connectors

Flat profile design provides a robust 7-pole or 12-pole connection. Housings are molded thermoplastic material, resistant to ultraviolet solar radiation. Nickel-plated brass terminals with split contact pins give a positive connection. Insulators between each terminal provide protection from short circuits. Spring-loaded socket lid protects the terminals when not in use. Insulated cable clamp secures the cable, minimizing vibration and strain. Terminal covers are easily removed for access to terminals.

#### Circuit Identification:

- |  |               |
|--|---------------|
| 1. Left turn signal                      | 8. Accessory  |
| 2. Accessory                             | 9. Accessory  |
| 3. Ground                                | 10. Ground    |
| 4. Right turn signal                     | 11. Accessory |
| 5. Accessory                             | 12. Accessory |
| 6. Brake lights                          |               |
| 7. Rear, clearance and side marker lamps |               |

7-pole connectors have circuits 1-7 only.

### 7-Pole

Connectors accept up to 14AWG wire.

#### 12400 Socket



#### 12401 Plug



### 12-Pole

Pins 1-7 accept up to 14AWG wire, pins 8-12 accept up to 8AWG wire.

#### 12500 Socket

Accepts 12-pole plug or 7-pole plug.



#### 12501 Plug



### Universal Trailer Connectors

Weatherproof connectors & wire lead assemblies. Polarized to assure proper mating of circuits. Molded bodies. Color-coded 16AWG wire, 6" long (152.4mm). Conductors are properly aligned and bonded into the insulation, to assure minimal voltage drop, and for ease in connecting.

#### 11135 5-Pole Pair



#### 11134 4-Pole Pair BP ★



#### 11134-08BP 4-Pole Pair, with Splicers BP

Retail pack with 11134 and eight 30223 Quick-Tap wire splicers.

#### 11173 3-Pole Pair BP



#### 11172 2-Pole Pair BP ★



## Connectors with Screw-On Caps

*Molded insulator bodies. Precision-machined contacts. Knurled caps unscrew for easy connection of wires, and protect against weather and dirt. Terminal ID .110" (2.8mm) accepts up to 12AWG stranded wire.*

### 1107-F\* 2-Pole Female Plug



### 1107-M\* 2-Pole Male Plug



### 11076 1-Pole Female Plug

Mates with 11075 socket on page 146.



### 1107\* 2-Pole Pair

One 1107-M (male) and one 1107-F (female).



### 1102\* 2-Pole Pair, Polarized

Same as 1107, except polarized.

### M-118 2-Pole Pair, Polarized, Brass Screws BP

Same as 1107, except polarized, and with brass terminal screws.

### 1102-F 2-Pole Plug, Polarized

Female polarized plug.



### 1238 2-Pole Polarized Plug and Socket

Screw-on cap protects the socket from dirt and moisture when not in use. Polarized for proper mating of circuits. Includes one 1102-F plug. Mount in 45/64" (17.9mm) diameter hole in panels up to 3/8" (9.5mm) thick. Plated steel cap and housing.



### 1292\* 2-Pole Socket with Variable Spacer

Mounting nut, lockwasher and spacer are adjustable for different panel thicknesses. Mounts flush in 11/16" (17.5mm) diameter hole. Polarized for proper mating of circuits. Mates with 1102-F plug (not supplied).



## Connectors with Rubber Caps

*Polarized to assure proper mating of circuits. Molded insulator bodies. Precision-machined brass contacts. Rubber caps protect connectors.*

### 1134 4-Pole Pair

Circuit identification printed on the insulator.



### M-115 4-Pole Pair, Brass Screws BP

Same as 1134, but with brass terminal screws.

### M-114 3-Pole Pair, Brass Screws

Brass terminal screws.



### M-121 2-Pole Pair, Brass Screws BP ★

Brass terminal screws.



★ Rapid ship item. BP Available in retail clamshell pack. \* Minimum order quantity may apply. Part numbers needed in BOX require a -BX suffix on the purchase order.

# Q electrical connectors

## Q4 AUTOMOTIVE TRAILER CONNECTORS

### Flush-Mount Flanged Socket Connectors

Corrosion-resistant socket housings. Two .147" (3.73mm) diameter mounting holes, 1/19" (30.23mm) on centers.

#### 11075\* 1-Pole Male Socket

Insulated male contact. Mates with 11076 plug on page 145.



#### 1110\* 2-Pole Male Socket

Mates with 1107-F plug.



#### 1109\* 2-Pole Female Socket

Mates with 1107-M plug.



#### 1214 2-Pole Male Socket, with Cover And Plug

1102-F plug. Polarized.



# electrical connectors

## Q5 FARM EQUIPMENT CONNECTORS

*Two-pole breakaway unit: plug automatically releases at approximately 20lbs pull. Mate with all connectors of comparable design. Polarized. 20A maximum capacity.*

#### 1282 Socket with Mounting Bracket

Plated steel housing. High impact-resistant molded plastic insulator. Brass contacts and brass screw terminals. Stainless steel spring on the cover locks the plug in place. Integral mounting bracket with two .218" (5.6mm) diameter mounting holes, 1.25" (31.8mm) on centers.



#### 12001\* Flanged Socket

Plated steel housing. Molded plastic insulator. Cover locks firmly in place when not in use. Two .20" (5.2mm) diameter mounting holes, 1.87" (47.4mm) on centers.



#### 1283-325\* Plug

Plated brass housing. Threaded cable grip.



### Ag. App.

Several of the 'tractor trailer' plugs are also useful in agricultural applications. Two of the most popular are the 7-pole connectors 12080/12081/12082 and 12310/12311 as well as the 13-pole connectors 12300/12301.

See Section Q1.



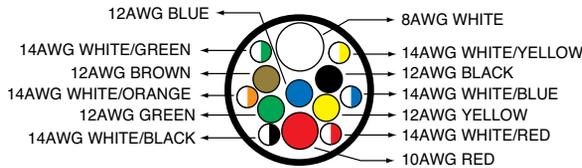
★ Rapid ship item. BP Available in retail clamshell pack. ★ Minimum order quantity may apply. Part numbers needed in BOX require a -BX suffix on the purchase order.

## Cable

*Straight cable, available by the foot. Conductor wires are color-coded for easy recognition. Durable insulation resists abrasion.*

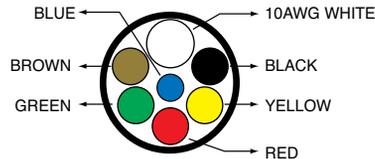
### 98647 13-Conductor

Will not crack or stiffen at -70°F (-57°C). One 8AWG, one 10AWG, five 12AWG and six 14AWG wires, 100% electrical copper for maximum conductivity.



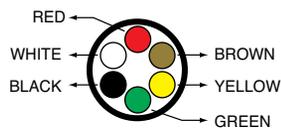
### 4077 7-Conductor

Six 12AWG wires and one 10AWG white wire.



### 4076 6-Conductor

Six 14AWG wires.



## Cable Protector

### 81192 Cable Protector

Protects against strain and kinking. Plated steel. For Cole Hersee plugs: 11042-05, 12081, 12082, 12091, 12092.



## Trailer Connector Adapter

*These adapter assemblies are useful to conveniently connect a 6-pole system to a 7-pole system, and eliminate makeshift jumpers. Connect the appropriate adapter to your existing cable assembly to link a vehicle with a 6-pole male socket to a vehicle with a 7-pole male socket. Brass pins, brass female contacts.*

### 11017 For Use with a 6-Pole Cable Assembly

Consists of a 6-pole male plastic plug connected by a 12" cable to a 7-pole female diecast plug. This adapter assembly is useful for connecting a 6-pole to a 7-pole system, eliminating makeshift jumpers.



## Protective Boots

*Protect against road splash, dirt and moisture.*

### 81356 Boot for Sockets

Fits over the back of the flange, and covers the terminal connectors. Protects against road splash, dirt and moisture. For 12310 7-pole socket and 12300 13-pole socket.



### 11178 Boot for Plugs ★

Inner ridge locks over the heads of the terminal screws and to the edge of the casting. For Cole Hersee sockets 12063, 12063-01, 12080, 12080-01, 12080-11, 12077-01 and other 7-pole sockets of comparable design.



★ Rapid ship item. BP Available in retail clamshell pack. \* Minimum order quantity may apply. Part numbers needed in BOX require a -BX suffix on the purchase order.

## Surface Mounting of Sockets

*For attachment of 4-, 6-, and 7-pole sockets of standard design (without integral circuit breakers).*

### 11167 Adapter Plate

Heavy duty adapter provides secure seating for attachment of sockets, and permits installation of fuse/breaker block or terminal block in the rear. Mounting holes 5/16" (7.9mm) diameter, 4 1/2" (114.3mm) on center. Mounting hardware included.



### 11165 Mounting Bracket

Eliminates the need for cutting a hole in the trailer to accept a socket. Mounting hardware included. Center hole is 2" (50.8mm) diameter. Mounting hardware included.



### 11164 Mounting Gasket for Sockets

Neoprene gasket for plastic or metal sockets. For Cole Hersee sockets 12063, 12063-01, 12080, 12080-01.



### 11187 Plug Cleaner Brush

For 7-pole plugs. Durable plastic body with snap-on cover. Stainless steel wire will not rust. Brush cleans corroded contacts in seconds, and with regular use extends the life of connectors.



### 11750 Stor-A-Way Plug Holder ★

Cole Hersee patent. Keeps plugs clean when not in use, and extends life, by protecting electrical contacts from dirt and roadsplash. For all SAE J560b 7-pole plugs and 13-pole plugs. Spring-loaded for secure locking. Heavy duty glass-filled plastic housing. Fits 11100-02, 12311, 1222, 1255, 12091, 12092, 12081, 12082, 12301 and 11042-05.



### 31784 Female Pin Terminal

Crimp-on brass connector mates with the 6 smaller pins in the 12301 13-pole plug and 12300 13-pole socket. Pre-tinned brass. 6 required for each 13-pole plug.

### 1160 License Holder Tube

Weatherproof tube protects important papers. 5" x 1 1/8" (127.0 x 28.6mm). Captive brass screw-on cap. Brass flange, aluminum body. Three 3/16" (4.8mm) diameter mounting holes in the flange.



## Super-Bright LEDs

New 58312 series rocker switches have long lasting LED lights and high-visibility wrap-around lenses. See page 1.



## Wiring Colors

*Colors are not universal, so it's wise to check proprietary instructions, and to make an electrical test.*

*The following colors are very commonly used.*

### 4-Pole

- Green - Right turn and brake lights
- Yellow - Left turn and brake lights
- Brown - Taillights and clearance lights
- White - Ground

### 5-Pole

*In addition to the above.*

- Red - Backup lights

### 6-Pole

#### Typical Coding Convention for 6-Pole Circuits

Wire Color	Conductor Number	CH Terminal Marking	Function
White	1	GD	Ground return to towing vehicle
Brown	2	TM	Clearance, side and tail marker, and identification lamps
Yellow	3	LT	Left turn signal and hazard lamps
Red	4	S	Stop lamps and antilock device
Green	5	RT	Right turn signal and hazard lamps
Black or Blue	6	A	Continuous ABS power/Auxiliary

*Tail lamp load goes with marker circuit 2.*

### 7-Pole

#### SAE Coding Convention for 7-Pole Connectors

Wire Color	Conductor Number	CH Terminal Marking	Function
White	1	W	Ground return to towing vehicle
Black	2	BK	Clearance, side marker, and identification lamps
Yellow	3	Y	Left turn signal and hazard lamps
Red	4	R	Stop lamps and ABS device
Green	5	G	Right turn signal and hazard lamps
Brown	6	BR	Tail and license plate lamps
Blue	7	BL	Continuous ABS power/Auxiliary

## AWG Conversion

*American Wire Gauge (AWG) is a US standard set of non-ferrous wire conductor sizes. Non-ferrous usually implies copper, but it includes aluminum and other metals and alloys.*

The "gauge" refers to the diameter. Typical household wiring is AWG number 12 or 14. Telephone wire is much thinner at 22, 24, or 26. The higher the gauge number, the smaller the diameter and the thinner the wire and the less current it will safely carry. Thicker wire carries more current because it has less electrical resistance over a given length. Thus larger wire is used with high currents and when the voltage drop along its length must be minimized. For example: High output alternator wiring might be 2 AWG and the starter cable for a mid-sized engine 1 or 0 AWG.

The metric equivalent is simply the diameter expressed in millimeters, and thus can be easily measured with calipers.

AWG	mm	AWG	mm	AWG	mm
26	0.128	16	1.308	6	13.292
25	0.162	15	1.652	5	16.755
24	0.205	14	2.088	4	21.137
23	0.255	13	2.629	3	26.653
22	0.322	12	3.302	2	33.606
21	0.411	11	4.156	1	42.384
20	0.516	10	6.271	0	53.454
19	0.653	9	6.626	00	67.399
18	0.823	8	8.350	000	84.004
17	1.039	7	10.544	0000	104.091

## Trailer Tail Light Converter

Electronic unit permits a towing vehicle with two lighting circuits for each side to operate lights on a trailer with a single circuit each side. Eliminates the need to rewire the trailer or to add additional lights. US laws require stoplights, turn signals and tail lights on trailers. See page 102.



★ Rapid ship item. BP Available in retail clamshell pack. \* Minimum order quantity may apply. Part numbers needed in BOX require a -BX suffix on the purchase order.

## Inline Trailer Connectors

12400, 12401, 12500, 12501

**Not supplied with wire, but the terminals are identified by numbers.**

### 7-Pole Connectors

Accept wire up to 14AWG

1. Left turn signal
2. Accessory
3. Ground
4. Right turn signal
5. Accessory
6. Brake lights
7. Rear, clearance and side marker lights

### 12-Pole Connectors

Pins 1-7 accept wire up to 14AWG, pins 8-12 up to 8AWG.

1. Left turn signal
2. Accessory
3. Ground
4. Right turn signal
5. Accessory
6. Brake lights
7. Rear, clearance and side marker lights
8. Accessory
9. Accessory
10. Ground
11. Accessory
12. Accessory

### 13-Pole Connectors

Pins 1-7 accept wire up to 14AWG, pins 8-13 up to 8AWG.

Pins 1-7 as for 7-pole connector, pins 8-13 auxiliary.

## Best Practice for Assembly of Plugs and Sockets

Properly installed tractor-trailer connectors are critical to the safe performance of a rig, which are routinely subjected to vibration, extreme weather conditions, as well as mechanical forces.

We highly recommend that a trained technician performs the installation. It is the responsibility of the end-user to take into account the mounting location and environment, conductor type, size, flexibility and other installation parameters.

Review the assembly procedure before assembly. A common error is to not slide a clamp, boot or housing onto the cable before connecting the wires. Recommended tools: screwdriver (preferably with torque limiter); soldering iron (preferably a solder pot), solder and flux; wire stripper and cutter; and ruler.

Cut the cable, and strip the jacket to the recommended length.

Strip the wires to the recommended length, and tin them. Maintain a tight strand bundle before tinning, so that there are no loose strands. Re-tin if necessary. This makes it easier to insert the wires into the terminal, and helps to properly position the tinned strands at the right depth.

Slide the housing, spring coil or boot over the cable.

Properly insert and position the tinned conductor into each terminal. Locate the tinned portion under the terminal screw before tightening the screw. Tighten the termination screws to the appropriate torques.

Inspect the terminated connection for cut or loose strands, fragments of wire insulation between the terminal/conductor connection, bent terminals, loose or stripped terminal screws and other visible problems.

Check that the correct connections have been made, by re-checking that the conductor jacket color matches the insulator coding.

Carefully slide the insulator into the connector housing, making sure that the insulator is fully seated. Don't twist or lever the terminated conductor after it has been inserted and locked into the insulator. This may damage the terminal and put stress on the terminated connection.

Finally tighten the housing screw or cable clamp.

In order to keep a plug clean when not inserted in a socket, we recommend the use of the 11750 Stor-A-Way Plug Holder – see Section Q6.

## Keeps Plugs Clean

When the plug is not in use, keep it secure in the Stor-A-Way housing. Accepts all SAE 7-pole plugs and 13-pole plugs. See page 148.

