

**FEATURED PRODUCT**

**PRIMARY WIRE Assortment**

- Resistant to acids, greases, oils and fuels
- Good abrasion resistance
- Concentric jacketing allows for easy wire stripping
- Soft annealed copper conductors for flexibility
- Operating temperature range -40°F to 150°F (-40°C to 66°C)
- Meets SAE J1128, type GPT



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## Primary Wiring

Did you know that the original electrical cables were 4-way conductors, giving way in the late 1950's to 6-way conductors, and then in the late 1960's the 7-way conductors were finally introduced? The internal wiring of a seven way cable is made up of seven different types of primary wire. The gauges on these wires will vary in size depending on the cable type. Each circuit on the cable is represented by a different color, and per SAE standards, is the same no matter who the cable manufacturer is.

- White – Ground return circuit
- Black – Clearance, marker and ID circuit
- Brown – Tail light circuit
- Yellow – Left turn circuit
- Red – Stop light circuit
- Green – Right turn circuit
- Blue – Auxiliary/ABS circuit

Primary wire is used for more than just electrical cables. It's also used for re-wiring electrical sockets as well as electrical harnesses. When working with the electrical system it is always important to select the proper gauge for the circuit being worked on as well as making all attempts to keep corrosion at bay. Improperly wired electrical systems can lead to failed lighting and auxiliary components as well as corrosion intrusion.

To maintain the electrical system and keep corrosion at bay when re-wiring, incorporate the following suggestions into your routine:

- Check ground power source: Always make sure ground leads directly to the negative battery post. Grounding to the chassis or engine will lead to corrosion, poor contacts and possible faulty electrical operations.
- Rotate electrical assembly plugs: Swap plug ends from tractor to trailer side every six months to safeguard against uneven wear. (Only if plugs are identical on both ends of the cable.)
- Wash away build-up: Significantly reduce magnesium and calcium chloride build-up during cold weather by frequently washing equipment. Do not power wash as water can be forced into areas and cannot escape, leading to corrosion.

- Clean connectors: Every 6 months use a plug and socket brush with water, (NOT SOAP), to clean connectors.
- Grease plugs and sockets: After every cleaning, re-apply dielectric grease on plug and socket pins to keep the connection properly sealed.
- Inspect cables and wires for road hazard damage: Replace or repair any damaged items.
- Be cautious of soaps containing degreasers: When degreasers come in contact with electrical connections, it increases the corrosion reaction. Do not leave soap residue on electrical connections.
- If you must repair wiring harnesses, or any kind of wiring, use heat shrink terminals.
- Avoid probing through insulation to test wiring: This opens up an avenue for damaging chemicals to start corrosion.

### Primary Wiring Glossary

1. **SAE Type GPT (General Purpose Thermoplastic) Wire:**  
There are two types of SAE Type General Purpose Thermoplastic Wiring:
  - **Flexible/Fine Strand** – Very flexible with better memory retention, used for 7-way plugs.
  - **Primary/Stiff** – Used for trailer wiring and is not used where flexible cable is needed - better for cable applications.
2. **Multi-plexing:** Used for transmitting ABS information across the auxiliary wire to send feedback to the tractor.
3. **AWG (American Wire Gauge):** The standard alternative to the metric size of cable diameter. The smaller the number, the larger the wire.
4. **Circular Mils:** Referring to the area of a wire with a circular cross-section.
5. **Voltage:** Amount of "electric pressure" available between two points. (i.e. battery "+" and battery "-")
6. **Voltage Drop:** Amount of voltage that is lost due to conductor size, connections, corrosion and linear to amp draw
7. **Amp Draw:** Amount of current being used to power a circuit/light.
8. **Current:** The flow of electrons to deliver electricity to the load.
9. **Resistance:** Impedes the amount of current flowing to the circuit.



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