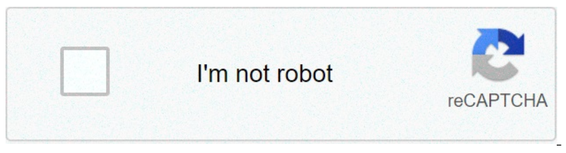

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Cable testing pdf

The role of cable is to carry an audio or video signal from one device to another. Cables carry signals between DVD players and TVs, stereo receivers and speakers, and computers and video projectors. Cables don't change the nature of the audio or video signal they carry. They don't convert or process signals in any way. That's the job of the devices on either end. The cable itself is just the messenger.Cables are made up of three basic parts: conductor, shielding and connector [source: Graves]. The conductor is the wire that actually carries the signal. One or more layers of shielding prevent the wire from acting as an antenna that picks up radio frequency interference (RFI) and electromagnetic interference (EMI) [source: Graves]. The connector is the plug at the end of the cable that connects to your device.Cables are important components of any home stereo or home theater setup. If you don't use the right cables for the right job then you could end up with subpar sound or picture quality. And if you use cables that are damaged or otherwise junky, you could really end up with a lousy experience. For audiophiles, using low-end cables with a $5,000 plasma HDTV is like putting crappy tires on a Ferrari.Some audio/video experts argue that consumers should spend 20 percent of their total system cost on cables alone [source: Rushing]. The truth is that many cheaper cables offer a listening/viewing experience that most consumers could never tell from the really high-end cables [source: Rothman].To keep things simple, we're going to break down the overwhelming amount of cable types into three categories: audio-only, video-only and audio/video cables that carry both sound and picture. Data cables are used to transmit information between systems such as servers, personal computers and other hardware. There are three main types of data cables used to transmit data: twisted pair, coax and fiber optic cables. These three types of cables are used in different environments. These data cables have different characteristics that make them identifiable. Twisted pair cables are used in telephony and computer networking. Most cable networks are wired using shielded twisted pair, which is a type of data cable that has a covering to eliminate the amount of signal degradation from other sources. Twisted pair gets its name from the twists in the wires that span throughout the cabling. The twists in the cables also help protect the data communications from signal degradation. Twisted pair cabling have a limit to how far they can stretch before the signal becomes corrupted. The average length for a twisted pair wire before signal degradation is 300 feet. Coaxial (coax) cable is used in older computer networks. Coax cable was replaced by shielded twisted pair as a standard for computer networking. Coax is still used for cable networks to provide television communication data. Coax cable is a large, round cable with an inner core wire that transmits the data. Surrounding the core is an insulator and shield to protect the data communication signal. Surrounding these parts is the casing. Coax cabling requires a special connector called a BNC connector. Network cards for computers are purchased with these connectors to cable this type of network. Fiber optic cable is the preferred option for fast data connections. Fiber is used by cable and telephony companies to provide fast connections to the Internet. Fiber optics uses light and glass as the mechanics for data communications. Fiber optic cable is very fragile due to the glass parts of the cable. Fiber optic cable is light weight, and it does not have the signal degradation problems that the other two data cables suffer. However, fiber optic networking is more expensive and requires special network cards and hardware to transmit the signal. By Bryan Roberts A crossover cable is a special type of Ethernet cable designed for communication between two devices rather than a device and a modem. In the event that you need to test the signal of a crossover cable, you can do so easily with the help of an Ethernet cable tester. Turn your cable tester on. Connect one end of your crossover cable to one of the Ethernet ports on top of the tester. Connect the other end of your crossover cable to the other port on top of the cable tester. Press the "Test" button on your tester, and a signal is sent from one end of the cable to the other. If the signal is sent intact, you will receive a "success" message. By Jordan Baughman Dealing with wired network issues can be incredibly frustrating when you aren't sure why your computer won't connect to the Internet. It's always a good idea to check out networking hardware like your Ethernet cables first, as decayed cords are a very common reason for connectivity issues. Checking out the most common possibilities first will save you the trouble of running through all of your other software and networking hardware looking for the reason for your problem. If the Ether cord is the issue, replacing it is fairly inexpensive. Restart your router or modem by unplugging it, waiting a minute and then plugging it back in. Test out your Internet speed with a free online speed test application (see Resources). Unplug your Ethernet cable and replace it with a new one. Test the internet speed of the new Ethernet cable with a free online speed test application (see Resources). Contact your ISP if there is no discernible difference between either Ethernet cable. Battery cables are often an overlooked component but they play a crucial role in connecting your vehicle’s battery to the starter, alternator, and consequently powering all the electrical components of your vehicle. So if you can’t start your car and find that the voltage of your battery is okay, then the next culprit could be the battery cables. Replacing the battery cables is the only way to fix this problem since they may be too worn out to conduct any current. At that point, you may find yourself in the market for the best aftermarket replacement. This is where we come in with the advice. You will need a positive and negative cable. The positive (power cable) typically powers the starter while the negative (ground cable) is installed in the firewall of the vehicle. Our buying guide will help you find the best battery cables on the market and give tips to follow when you’re buying one.Why You Need a Battery CableBattery cables help to conduct power to your vehicle's electrical system. If yours are faulty, you may have issues cranking the engine or it may produce some clicking sounds. In the worst-case scenario, there will be no power in your vehicle, meaning that you can’t run basic accessories such as the radio. Replacing the cables is the only way to ensure that everything in your vehicle starting from the engine to the electronics are in top shape. If you tried cleaning the corrosion from the battery terminals but are still having issues starting your vehicle, then you need to buy new battery cables. Installing them is fairly easy, and you can learn how to do it in the comfort of your home following a few online tutorials. Power various electrical components in your vehicle such as the radio and AC unitAffordable solution to your battery’s connection needsInsulated against the elements, acids, and oilsCan be used in almost any application including solar power systems, boats, trucks, cars, and other electrical systemsThe Most Common Types of Battery CablesThe two main battery cables for automotive applications are PVC and cross-linked insulation. The main difference between the two is the temperature range. The latter can withstand a higher temperature range. Here’s a deeper look into the differences. Cross-Linked Wire Insulation Cross-linked polythene or XLPE cables are made through a process of cross-linking to prevent slippage and, as a result, do not shrink or soften at high temperatures. They have a high working temperature range of -59.8 to 257 degrees Fahrenheit. Therefore, they can be used to power parts of the engine components where higher heat resistance is necessary. In addition, cross-linked cables are more resistant to stress cracking, aging, and corrosion under polluted environments. There are two common types of cross-linked cables: SXL and STX. STX has the thinnest walls and is the best choice for vehicles with limited space. SXL wire has the thickest insulation for enhanced temperature resistance. PVC Insulation PVC insulation is available in multiple insulation sizes including GXL, GPT, TWP, and HDT. Most automotive batteries come with GXL wiring since it has a small diameter, and can fit in tighter spaces in trucks and trailers. GPT features extruded insulation and is typically used for general circuit wiring. Its recommended working temperature range is -40 to 176 degrees Fahrenheit. TWP is a small, lightweight, and lead-free option with a maximum temperature rating of 221 degrees Fahrenheit. Lastly, HDT is the least common option but offers the best physical protection since it features the thickest walls. It can be used in automotive and marine applications. What to Look for When Buying a Battery CableBattery cables are exposed to harsh conditions including heat, corrosion, moisture, and constant vibration. Therefore, you need a set that can withstand these conditions while performing at their best. Here are some guidelines for getting the best battery cables that will last you a lifetime. Durability Since battery cables are used frequently, it’s easy for them to wear out. They will last for about 50,000 to 100,000 miles, depending on the quality. This is why you need to choose a cable that’s resistant to cuts and abrasion to slow down the wear process. In addition, it should have good water and oil resistance to prevent corrosion of the wire. You also need to think of the heat resistance and temperature tolerance of the cable. The last thing you want is for the cable to melt when the ambient temperature is too hot or when the engine is heating up. Size Battery cables are sized according to the American Wire Gauge (AWG). The sizes from the smallest to the largest include 6, 4, 2, 1, 1/0, 2/0, 3/0, and 4/0. Your choice depends on the amperage and length you need. As far as standards go, a 6-gauge AWG cable has a 50-amp capacity and is 11.8 feet long. A 4-gauge AWG cable has a 100-amp capacity and is 9.4 feet long. A 2-gauge AWG cable has a 150-amp capacity and is 10 feet long. A 1-gauge AWG cable has a 200-amp capacity and a cable length of 9.4 feet. The foregoing options can be used to power small vehicles.A 1/0-gauge cable is 8 feet long and can handle 300 amps. A 2/0-gauge cable is 15 feet long and can handle 200 amps. A 3/0-gauge cable is 15 feet long and can handle 300 amps. A 4/0-gauge cable is 9 feet long and can handle 600 amps. Since these options can handle a higher amperage, they can be used on larger vehicles such as trucks, RVs, SUVs, and even boats.CompatibilityYou cannot just slap any battery cable on your battery. Even if the length or the amperage handling capacity is impressive, you need to consult your owners manual or the battery manufacturer’s website on the appropriate gauge to use for your vehicle’s battery. It should also be compatible with your engine’s power needs. For instance, a four-cylinder engine may use a 2-gauge battery cable. You can also upgrade from a 4-gauge to a 2/0-gauge battery cable so long as it’s compatible with your vehicle’s power needs. When incorrectly matched, your engine may not crank or may experience slow cranking when you turn the key. Tips for Using Battery CablesThe presence of a white, powdery substance on the battery cable ends is an indication that your battery cable is corroded. This is often caused by battery acid, which travels up the connectors. You can use a battery terminal cleaner to remove the coating and prevent further corrosion. If that doesn’t work, consider buying a new battery cable and connectors. When attaching the cables, it’s important to wear safety gloves and glasses to protect yourself from accidental acid spills from the battery. The battery can leak acid or explode if you hook up the cables incorrectly, and the mixture can splash into your eyes. You should have the appropriate personal protective equipment in case that happens. When disconnecting the older cable, be careful not to let the positive and negative terminals come in contact. It could spark and ignite the explosive gases in the battery. Removing the battery is the easiest way to ensure that the terminals don't touch. If the bolt securing the cable is rusted and won’t budge, use a rust remover to make it come loose. Consider buying color-coded cables so that you can easily differentiate between the positive and negative terminals.Typically, red cables are positive while black cables are negative. Before installing the cables, turn off your car and engage the parking brake to avoid electrocuting yourself. Best Battery Cables FAQsWe have done the legwork and have given you almost everything you need to know about battery cables. However, we understand that you may still need clarification on a few issues about battery cables. That being said, here are some answers to a few of the questions you may have. Q. How do I test a battery cable?Use a multimeter to test the voltage on the positive and negative battery cable. Have someone crank the engine and note the reading before and after the engine cranks. Replace the positive cable if it registers a reading of more than 0.3 volts, and replace the negative cable if it shows 0.3 volts or less. Q. Who makes the best battery cable?We have to give credit to TEMco Industrial. It’s a California-based company that has had more than 50 years of experience making some of the best industrial power products. Q. Where can I use the battery cable?You should only use battery cables with batteries and electrical systems. This could be in boats, vehicles, solar power systems, and any other engine-driven equipment with a battery. Our Top Pick Our top pick is the TEMCo WC0180-50' 2-Gauge AWG Car Battery Cable mainly because of its size and high-quality construction. Both the positive and negative cables are 25 feet long, and are insulated against elements that can cause fast wear. Final ThoughtsIf you are looking for a more affordable option than the TEMCo WC0180-50' 2-Gauge AWG Car Battery Cable, then you can opt for the Nilight 6 AWG 20-Inch Battery Power Inverter Cables. They are almost as good, and you get both the positive and negative cable with terminals at each end at an affordable price.

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