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Amana dryer wiring diagram

Dan has been a licensed travel-level electrician for about 17 years. He has extensive experience in most areas of electrical trading. A 3-way switch is really two switches, both of which control a traffic light. This illustration makes it look easy, but this article explains the intricacies of wiring a 3-way switch. Wiring a 3-way switch Wiring a 3-way light switch is not a difficult task... after all, there are only three connections. Making them in the limits of most homeowners' ability when someone shows them how. Understanding a wiring diagram can be helpful here. First, what is a three-way switch? If you want to control a light from two different locations (e.B. turn on the stair lights from above and below), electricians call a three-way switch. Is it difficult to wire a 3-way switch? Replacing a switch isn't hard: just look at how to disconnect the old one and then put the wires back on the new light switch in the same position. Problems can occur when an additional switch is added or if you forget which wire went where. Then it becomes necessary to understand a little more about how a 3-way switch works and how to read a wiring diagram. What do I need to know before I start? If you know what the purpose of each wire is, the task becomes much easier. This article explains everything you need to know to wire a 3-way switch, using wiring diagrams and common wiring methods. What about 4-way switches? Read How to Wire a 4-Way Switch for instructions and schematics for wiring four-way switches. How to wire a three-way switchNot all 3-way switches are the same. Choose which configuration you want to follow by looking at the charts below. If you start from scratch, chart #3 may be the best starting point, but these methods can be used interchangeably in old work. They only show different ways to operate the necessary cables. Diagram #1 works when multiple lights share a common crusher and the switches are both on the same wall. Chart #2 works best when there is electricity in the ceiling, but the switch boxes are on opposite walls – it is often easier to run the cable into the ceiling light instead of between switches. Diagram #3 works best for cases with multiple switches in the same box, as other switches in the same box, as other switches then have power available and can operate other lights without having a separate must run to them in the line. Chart #4 can be useful when the light is near the first switch box. It leads to many wires, so the installation of a larger box may be necessary. Turn off the power supply on your electrical panel before you start working. Make sure you understand which screw terminals and which wires serve and for what purpose. Below you will find descriptions to guide you. Have many 14-3 type NM cables at hand, which has three insulated wires - white, black and red - plus a bare connecting to a 12-track wire or the crusher has 20 amperes, use 12-3 instead. Most home lighting circuits are 15 amperes, which only requires 14 gauge wire. Follow the diagram to connect the wires (see instructions below) to the new three-way switch works: Identify the terminal screwsThere are three screw terminals, but older switch and one at the end. Each switch has the same three terminals, but older switches may be missing the fourth floor clamp. The small, green screw terminal at the end is the ground clamp. It is usually painted green, although the image does not show this color well. It can often be recognized as the screw that is part of the metal scaffold ingespart of the switch and is not isolated from other metal parts. The green or non-insulated earth wire always goes to this ground clamp. Older switches often did not have this ground clamp. screw, but are no longer legal to operate. Now all light switches must have a ground-terminal screw to which the ground ingdert wire can be attached. One of the three other terminals is a different color, usually darker, and is called the common terminal. Mechanically and electrically, this joint terminal is internally connected to one of the other two brass screws, which are called traveler terminals. If the switch is tilted in the other direction, this connected to one (but only one) of the travel terminals. Which depends on whether the switch is up or down. It should perhaps be noted that the travel wire to them and there are two travel wires and terminals, it doesn't matter which travel wire goes to which travel terminal. Identify the Ground, Common, and Traveler terminals in a 3-way switchThe shared terminal is located in this view above, with a traveler at the bottom. The ground-bound clamping screw shows silver at the bottom. WildernessAn old switch. This switch has no ground-bound clamping screw shows silver at the bottom. terminal/screw and is no longer legal. Make sure your switch has a ground clamp. Wilderness Which wire is hot? What screw? The small, green screw terminal at the bottom is the bottom clamp. All new switches must have a floor, but some older ones do not. What is the darker screw terminal? One of the three screw terminals is different color, usually darker. This is the common terminals are the travel terminals, Identifying the wires by colorWhat is the green wire? The green or non-insulated (copper) earth wire always goes to the ground clamp. What is the white wire? The white wire is the neutral one. They bundle all neutrals together with a wire nut or a twisted plastic wire plug. What is the black wire? The black wire is hot at all times, unless the entire circuit is switched off on the circuit breaker plate. Note on wire colors: The National Electric Code requires that each neutral wire be dyed white and that grounding wires be colored green. Only neutral wires can be white, but the code makes an exception for white wires in a cable that are not used for a neutral. These wires should be colored black using a magic marker or other method. Many electricians will do this, but many will not, and it can make troubleshooting difficult in the future and can be a security risk for everyone else working on the system. I encourage you to take the few seconds needed to color these non-neutral wires. The colors displayed in these wiring diagrams are only common color uses. Not all electricians use the same color code (except neutral and terrain), so the wires can have different colors. Identify all parts of a 3-way light switchThe terms Traveler and Shared have already been explained, but there are other terms used in this article that also require explanation. Cable. The term cable refers to a combination of two or more wires that are bundled together, usually in a sheath of insulating material. Each wire is insulated separately, with the possible exception of the earth wire. The earth wire can be insulated with a green color or empty (copper), without insulation. Power in. The on-cable is the cable that ends up in the circuit breaker plate or fuse box. It is the power supply to the lighting system. Neutral. This is the white wire contained in the switch-on cable. It does not stop or connects to a switch, although it may be present in a switch box and ended with a wire nut connecting it to another neutral wire. Ground. The grounded wire in each switch or light box. It is either colored green or left free of insulation (copper). Hot wire. This is the second black wire included in the switchon cable. It is not at any time, unless the entire circuit is connected to the circuit breaker plate. Commonly referred to as a fuse box, it can contain either circuit breaker plate. Commonly referred to as a fuse box, it can contain either circuit breaker plate. Two rope is the name of a cable that has two single wires, plus an earth wire. These wires will be white and black, with a green or bare (copper) bottom. Usually the colors are white, black and red with an additional green or bare (copper) bottom. Understanding a wiring diagram shows the two 3-way switches (but not the wall box in which they are contained), the various cables and wires used in the configuration discussed, and the lightbox and lamp. How does the current flow through the switch? To understand the wiring diagram, you need to know that the electrical current on the black wire in the power cable enters the system, passes through the light, and returns to the white wire in the power supply of the cable. If the current is broken somewhere (a switch turned in the wrong direction, a faulty wire or a bad light bulb), the current does not flow and the light bulb does not light up. For discussion purposes, each 3-way switch assumes that the shared terminal is connected to the right-hand travel device when it is in the up position and connected to the left terminal in the down position. This is not necessarily true, but it is simply helpful for discussion purposes. Read the descriptions carefully and compare them with the charts to understand the charts the charts to understand the charts the charts to understand the charts the ch for working on electrical circuits. Both Fluke and Klein provide professional testers, and cheaper ones are generally available. As a professional electricity should also wear one. Turn off the power before you start working! Installation of the light switchAs soon as the correct position of each wire is determined by the circuit diagrams below, the light switch box. Make sure the power is off before making any connections! Older switches vs. newer switches: Many residential light switches have a small hole in the back of the switch into which wires can be pushed, and all switches to insert wire, but the screws also need to be tightened. Many switches have only the screws, without holes. There is a swipe on the back of the switch; it shows how much insulation is to be stripped off, the push-in connection method should be used. If the screws are to be used, a little more insulation must be removed. On the screw terminals: If the screws are to be used for the connection, bend the end of the stripped wire with a needle-nose pliers into a semicircle and wrap the wire around the Clockwise. Tighten each screw tightly. Fold the wires cleanly back into the wall box and press the switch into the box. Normally, the bottom screw goes down, towards the ground, but it can be used in the up position with 3-way and 4-way switches. 3 path-wiring diagram #13-way circuit diagram #13-way circuit diagram #14-way switches. 3 path-wiring diagram #15-way circuit diagram #15-way circuit diagram #16-way switches. 3 path-wiring diagram #16-way switches. 3 path-wiring diagram #17-way circuit diagram #16-way switches. 3 path-wiring diagram #17-way circuit diagram #17-way circuit diagram #18-way switches. 3 path-wiring diagram #18-way circuit diagram #18-way circuit diagram #18-way switches. 3 path-wiring diagram #18-way circuit diagram # lightbox. This method of running the wire is common when several lights share a common crusher and the switches are both on the same wall. Cables must run into the lightbox, between the two switches and from the light box to only one of the switches. Let's follow the current as it lights the lamp in the lamp: as always, the current enters the lightbox on a black wire. This wire is spliced into a white wire in a two-wire cable that goes to the first switching box (not the switch), where it is spliced onto the white wire in a three-rope cable and continues to the second switch at the common terminal. When the switch is off, it leaves the counter at the right travel terminal and drives back to the travel terminal at the first counter on the switch is also upwards, it will leave this switch from the common terminal on the black wire in the two cable cables from the light switch. Further down that black wire, the current enters into the light box, where it goes to the lamp. The current will go through the light, leave on the white, neutral wires and return to the one-in cable. Note on the white wire in the power-in cable (which is always a white wire) and one of the two wires attached to the light (always white). All other white wires should be colored.3-way switching diagram #23-way switching diagram #23-way switching diagram #23-way switching diagram. the switchboard enters the lightbox, but then 3 cable cables are installed between the lightbox and each switching box. This method can be used when electricity is available in the ceiling, but switch boxes are on opposite walls – it is often easier to run the cable into the ceiling light instead of between switches. When the current is followed... it enters the lightbox on the black wire then flows to the common terminal on a switch with a (colored) white wire it leaves the switch of a traveler terminal then returns to the lightbox where it only leads to another wire that leads to a traveler terminal on the second it goes through this switch, again from the common terminal, and back into the light box, where it goes to the light. The Neutral goes from the switch-on cable directly to the light 3-way wiring diagram #33-way wiring diagram with power-entering switch #1. Wiring diagram #3This time the electrician has brought power to

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the first switch, through the second switch, and to the lamp. This is a reasonable method for cases with multiple switches in the same box, as other switches in the second switch, and to the lamp. This is a reasonable method for cases with multiple switches in the same box, as other switches in the same box.
the neutral must be brought from the switch-on line via the 3-rope to the lamp. The white wire must be used here because code requires that all neutral wires are white. According to the current... it enters the first switching box on the black wire and is connected to the common terminal. If the switch is in
the down position, it exits the switch on the red wire and enters the second switch at a driving terminal. If this switch is also down, the black, the common wire, and the switch to the light are terminated. After passing through the lamp, the current returns to the second control box on the white wire, is spliced
in the 3 ropes between the switch boxes on another white wire and continues to the first control box, where it is spliced in wire and back to the fuse box on the white power supply. The circuit is closed and the lamp lights up. 3-way wiring diagram #43:Switch-on switch #1 together with a cable to the
lightbox. The circuit diagram #4This example shows the switch-on cable, which enters the first switching box together with the cable to the luminaire. This can lead to many wires in this box, but can be helpful if the light is near the first switch box. A larger box may be required to contain all the wires.
According to the current... it enters the switching box on the black wire at the common terminal. When the second counter to the travel terminal. If this switch is also upwards, it will leave the switch at the common terminal on the white
(colored) wire and return to the first switch box, where it is spliced to the light on the black wire in the 2 rope. Through the lamp, it returns on the white (neutral) wire that returns to the first switch box, where it is spliced to the light on the black wire in the 2 rope. Through the lamp lights up.
Commonality In all wiring diagrams Together around all these wiring diagrams is that the neutral, white wire of the lamp is connected directly to the white, neutral wire of the switch cable without ever terminating a switch. It cannot or must not be another white wire can be spliced in a box, but never ends
on a switch – only on the lamp. The black switch-on wire always goes to the usual at a switch, often changing colors due to the need to splice on different cables. Regardless of which color, a switch has a common directly connected to the single-mesh black wire. The other common clamp on the
other switch always goes directly (though perhaps spliced again) to the lamp. It does not stop at the other switch to another. Neither travel wire ever ends up on the lamp, the power supply in the cable, or anything other than a travel
terminal, although it can splinter somewhere on another cable. Neutral wires are always white, and white wire power supply should be colored a different color. Earth-seams are always green or free of insulation (copper). Each switch and lamp must be coated with
a grounding wire. The only exception is older houses that don't have erupts in the boxes; If a grounding wire is in the box, it must be stopped at the switch and light. A final note on construction codes; Recent code changes require that each switchbox contain a neutral wire. This means not only a white
wire, but a white wire connected to the white wire on the current in cable. This rule is intended to provide future possibilities for using a dimmer or other device that may require a neutral wire and prevent homeowners from disconnecting or using the earth wire for other purposes. New work (e...B. adding a
new three-way switch) must match this code. Which method or chart is the best to follow? The only wiring diagram shown here that is legal is #3, although #1 could be changed to light by adding a 2-wire cable from the bottom box. All neutrals in the switching box that are not used are either matched
together or, in the case of a single neutral, simply locked with a wire nut and put back into the box. Do I need to replace all wiring that does not mean that the room needs to be rewired, as the existing wiring is redeemed and acceptable. Old
work does not need to be rerun to comply with the code, so the unacceptable (by the current code) wiring diagrams are discussed here in this article. Other articles and links that could help youn general, switches are not difficult to replace or install, and most homeowners are quite capable of doing it. For
more help and guidance, read Installing or Replacing a Light Switch. If you're adding a new light to work with your new 3-way switch and need help, read and wiring a luminaire. Whether you're replacing a switch or installing new switches in a major rebuild, probably the most useful tool you can own is a
non-contact Ac voltage detector. Make sure that if you do any kind of electrical work, you first test with a good voltage detector. This article is accurate and faithful to the best knowledge of the author. Content is for or entertainment only and does not replace personal or professional advice in business,
financial, legal or technical matters. Q& A Question: Can a dimmer switch be installed in a three-way switch? Answer: To add more
lights, simply use the same wires as the existing device and extend them to many additional devices you want. Simply splice new wire into the existing light. They will all get in and out at the same time. Question: Can it simply be grounded in the box with a three-way switch, or does it
have to go to the box and then to the switch? Can it just go to the box? My house is only wired with the box, but I was told that it should also go to the switch. Answer: The current electrical code requires that all switches be grounded. It is easy enough to add a short pigtail from the box to the switch if the
box is made of metal and is already grounded. Question: My three-way switch is over fifty years old. There is a white wire on one side of the box (on the bottom), and a red wire on the same side (top). On the other side is a black wire (top). The new three-way switch box has a green screw at the bottom
on one side and a black screw on the other side at the bottom, with two gold screws on the top. Can I attach the wires to the new box in the same place as the old one, regardless of the colors? Answer: Yes, but you did not mention any earth wire (on the green screw) for the old switch. It is very doubtful
that it has one. If not, the new switch should get a groundwire to this green screw, which means finding a source for a grounding wire and leading it to that switch. Electrical code requires that each switch now has an earth wire, even though the terrain has not been used for many years. Otherwise,
connect the wires in the same way. The worst-case scenario is that the switch is not working properly, then replace a few wires and try again until it works properly. It's always fun to decipher what an electrician or homeowner did fifty years ago! Question: I have a setup that looks like 3 Way Diagram #1
based on the configuration of the two switches (I haven't located the lightbox yet), but when I disconnected both switches from the wire remained hot. How can this be done? Is it possible that this is actually a 4-way, and I just failed to identify
an additional switch? Answer: Since the travel wires go from one travel terminal on one counter to a travel terminal at the other counter, it is not possible to remove both ends from the switches and have the wire hot. It is not connected with anything, and be hot. What type of tester do you use to determine
if a wire is hot? The non-contact testers mentioned in the article may be sensitive enough to absorb static electricity transmitted from one wire to another, even though they do not touch. They are meant to make sure that a wire is dead, and I have never given a fake negative (shows a dead wire), but the
price is that occasionally they can show hot when a wire is not. If the wires are hot when they are disconnected, then there is another power source that you haven't identified yet, and the wires go somewhere you're not aware of. It is doubtful that it is a 4-way switch - that has four terminals on them (plus
floor), and they are all travellers. No power line should ever end at a 4-way switch. Question: Can you point me to a diagram of a 3-way switches. Here it is again: if I understand correctly, one - and only one - of the
travel wires is always hot. If that's true, could you put an outlet in the middle of every traveler's wire, with the result that one or the other - but not both - is ON? Answer: You could do that, but only one switch - the one with the power supply from the fuse box - will operate it. You could even set it up so that
the top or bottom of a single outlet, but not both, is turned on, depending on how the switch is flipped. You must ensure that there is a neutral wire run with the others and is available at each outlet. Question: I mapped the scenario in diagram 1 of this article and I've gone through my wiring countless times
and it still doesn't work. I would be positive, I'm right, but it doesn't work. How can I further diagnose my wiring problem? Answer: Is the crusher on and the light bulb good? Is the make-up in the lightbox correct? When you place the incoming black wire on the light bulb, does it light up? If all these are
good, the best guess is that either the black or the white from the lightbox is not connected to a common terminal, but to one of the switches is also bad - even brand new switches can be defective. If you have a voltmeter, preferably a non-contact tester,
you can also fix it. With the wire colors in the diagram, the white wire on the switch should be hot all the time. One or the switch is reversed. If all this works and the travelers at the other switch get hot or cold when the first switch is turned.
the black wire at the other switch should be hot or not, as this switch is tilted. When you review them, you should determine where the problem is. Question: Can I use a 3-way switch with only two wires? Answer: No. Between the two You can use the switch with only two wires, but it acts as a normal
switch, not a three-way switch. Question: I want to switch from a normal light switch to a rocking light switch to a rocking light switch. I have 2 black wires and a red wire - where should they go? Answer: If you only replace a normal light switch with one of the decora style (a square switch that only swings up and down), then the
wires go to the same place as on the wall switch. Question: How do I remove insulation from the wire? Answer: Preferably with a wire stripping tool. If you are not available, a knife can also be used with a sharp chef's knife. Cut around the insulation, very careful, do not touch the copper wire, and then
strip a line down one side. Wire cutters can also be used by twisting them around the top end of the section and then using them to remove. Again, care must be taken to ensure that the wire inside is not damaged. Either way, if the wire is bent, it must be cut off and the
process began all over again. 2010 Dan Harmon (author) from Boise, Idaho on August 30, 2019: You are welcome, Marius. And thank you for taking the time for
this blog and the thorough answers and schematics you present. It helped me to think deeper into what was happening on one of the construction sites. The answers are always before us.... we just need the leadership sometimes. This is the place where I will definitely check regularly in the future. Dan
Harmon (author) from Boise, Idaho on May 12, 2019:@Pierre:Use one of the diagrams above and just hook the wires together. Black to black, white and floor-to-surface for as many lights as you like. Dan Harmon (author) from Boise, Idaho on January 21, 2019:@George:They have a 4-way
switch with four wires. It should have two more, three ways, switches are required, 2 three-way switches are required and the rest are 4-way switches. Instructions for wiring 4-way switches can be found at: on January 21, 2019:I have 3-way light
switch a switch has 4 wires attached to four screws to the switch,,,the other has 3 wires connected. WhyDan Harmon (author) from Boise, Idaho on December 5, 2018:@Bill:You can't just do it with 2 wire cables (12-2) unless you're running two of them instead of a single cable. As in the diagrams and as
described, you must have 3 wires between switches, and that means 12-3. Bill on December 05, 2018: I want 2 3way switch it in my garage with 12 2 wire I just do a wire between the two switchesSimon on September 14, 2017: I like this page, it was very informative Marshall on 04, 2017: Thank you Dan
for your answer again. This is a cheap metal ceiling mounted single lamp type device that is enclosed with a round globe. It now has an LED light in it and I don't have the light until it's repaired. The switch is disconnected. Today I left a message for an electrician to call me that a friend recommended. I
expect him to call back on Monday. The reason I'm all finished doing my DIY work is that I hope the electrician will warn our homeowners board if he agrees that the building was illegally wired (for no reason on switches and fixtures) during construction. In 1977, all electric lights, sockets and switches
should be grounded. I therefore believe that this whole apartment complex was built on the cheap (for other reasons as well). I want the homeowners to have all their units electrically inspected and grounded (if necessary). I don't think the homeowners
association will act unless they get a letter from the electrician with the company letterhead on it. Honestly, I doubt they will act anyway, even if they have received such a letter. This makes me wonder if I should go to the city if necessary. Do I do a great job against nothing? As I see it, there are almost
400 condominiums and housing units in our complex that have unground lights and light switches. You could be electrocuted if he or she changes a light bulb or touches the metal screws on a light switch cover if the bracket or switch had a short inn. Dan Harmon (author) from Boise, Idaho on August 4,
2017: Probably not. I don't know what kind of device this is, but lights are designed to get rid of the head. You just have any way to get air, shut off and it could overheat. If you really want to do this, I suggest an LED lamp as it does not expose a light bulb anywhere
near the heat. Of course, if you think you have removed the device and left an open box behind, then it is okay to cover it with plastic. Marshall on August 3, 2017:Hello Dan, today I opened my 8-foot-tall ceiling light with the three-way problem. I found out it's not grounded. Having found so many light
switches in my apartment that we are not grounded. I have come to the probable conclusion that the original contractor never connected the site! I think this ceiling lamp had never been opened never been opened not grounded. I have come to the probable conclusion that the original contractor never connected the site! I think this ceiling lamp had never been opened never been opened not grounded. I have come to the probable conclusion that the original contractor never connected the site! I think this ceiling lamp had never been opened never been opened not grounded. I have come to the probable conclusion that the original contractor never connected the site! I think this ceiling lamp had never been opened never been opened not grounded. I have come to the probable conclusion that the original contractor never connected the site! I think this ceiling lamp had never been opened never been opened not grounded. I have come to the probable conclusion that the original contractor never connected the site! I think this ceiling lamp had never been opened not grounded. I have come to the probable conclusion that the original contractor never n
because this lamp is so close to the bathroom and because it would be difficult for me to close it again, I put a plastic cover over it to prevent the moisture of the bathroom from shortening, shortening this unearthed lamp, the electrician comes to fix it. IS THIS A PROPER THING TO DO? Dan Harmon
(author) of Boise, Idaho on July 30, 2017:Okay. It sounds to me as if your switch two contains the hot wire from the panel and switch one contains the switching leg to the light. This does not agree with your name of a hot wire or with statement 2 - I do not guite understand what you see for some reason.
At this point I would disconnect all wires (non-ground-bound wires) from the switches (somehow labeling them where they went, just in case) and check what is hot with the crusher. At the point that the switch with the hot in it can be wired with the hot go to the common and both travelers connected. Then
check at the other switch; depending on whether the installed switch is up or down, you should find two wires that get hot, one by one. These are the travelers and the only thing left is the switch leg that goes to the usual on this switch. I'm pretty confident that the hot spur is the hot wire from the panel
which would mean that your switch two contains the hot and switch one has the switching leg to the light, but I can miss something. Marshall on July 28, 2017: Thank you for your response again Dan. I sorted something out. Here are my observations. 1... The light only lights up when both are one
(flurthrough front door) and switch two (bedroom) in the up position.2... But if switch one is down, the light is off. For this reason, I have referred to the hallway switch as switch one and the bedroom
switch as switch two. BUT THE ODD THING IS THAT SWITCH TWO (BEDROOM) IS PRACTICALLY RIGHT NEXT TO THE PANEL BOX. Switch one (flur) is further away from the panel box. Is the switch closest to the panel box on a three-way connection always marked as switch one? Here are some
AC tester observations on the switch two wire connections. (Switch one was closed while only switch two was opened). But first, a few notes: Note: Switch connected to the hot with the common terminal, and the not missing traveler connected to one of the travelers. NOTE 2
Switch two is an old single-pole switch (which I will replace with a three-pole switch) with a piece of black electrical tape on the not missing traveler. 1... If both switches are one and switches two are on (light on), then both the hot wire and the non-wire are Travelers at the
counter two hot.2... if both switches are one and switch two down (light off), then only the hotwire is hot, and the non-missing traveler is cold/dead.4... but if switch one is down and
switch two two FROM) THEN BOTH THE HOT WIRE AND THE NON-MISSING TRAVER ARE HOT.5... The not missing traveler (at switch two) goes the same Romex (2-rope) cable as the same white neutral wire that I found separated from the other three neutral wires in this double (both switches are
on double gear) switches (which I suspect is the missing traveler)6...but the hot wire (at the switch spur two) is a hot, black wire that is plugged with four other black hot wires. (But that you say should BE DIRECTLY connected to the light, and NEVER spliced with multiple /plural other wires). That's why I
have a MISCONNECTION! Could I have misidentified a change and changed two? MarshallDan Harmon (author) of Boise, Idaho on July 28, 2017: You're right - in a properly wired setup, both wires can't be hot. One will be, but the other goes to the light and therefore cannot be hot all the time or the light
would be on all the time. Sounds like it's seriously mixed up, perhaps with one of the travelers going to the light, rather than the other switch. You have some work ahead of you to find out which wires are going where. Marshall on July 23, 2017:I have another question about my 3-way switch. Re: the black
wires that connect to the common terminal at both switches should be only one, or should BOTH wires be hot WHEN disconnected FROM the common screw? A hot wire, as I understand it, is a wire that is WITH A BINDIERT, unless the crusher to this circuit is turned off. What I get is when BOTH black
wires that connect to the common screw on BOTH 3 way switches are hot (even if disconnected, that would mean that energy comes both from the lamp, that is, POWER COMING FROM BOTH DIRECTIONS AT ONCE. (Note: I have not yet partially installed both switches for
this reason). Do I miss something here? Or is this a dangerousbad connection? Remember, I said that BOTH's original 3-way switches for some mysterious reason years ago. (And I KNOW it should be a 3-way connection) And I wonder if that could be the reason for this
Could a craftsman unfamiliar with 3-way wiring have installed one-way switches after problems have occurred? Dan Harmon (author) from Boise, Idaho on July 21, 2017: Hope it helps everything. No, I haven't turned off any printing. But the hosting company, HubPages dot com, may have decided that
this is not something they want to see. Not sure - I've never tried to print comments and have no other complaints about the Avatar images? Marshall on July 21, 2017: Thank you Dan for your second answer! I think it will be very helpful. I could print your article re: 3-way
switch, but I can't print any of the comments (either all of them, or just my own as well as your answers selected). Do you have the pressure of Comments? Dan Harmon (author) from Boise, Idaho on July 21, 2017:It's okay to splice 4 hots along with a pigtail (your spur) to a switch. But this braid should go
to the common screw at the counter, not to a traveller. Traveler wires only go to the other switch. I think you have the idea: use a black traveler (already in place) and the white wire, which is not included in the other whites as neutral as the other traveler, after you make sure the other end is where you
think it is and that it doesn't do anything else between the boxes. I assume that the second switch leg to the light, along with a neutral - if so, to use the extra white as a traveler (after it has glued it black to both ends) is fine. Just don't splice any extra wires to this traveler (or any other
traveler). No wire nut on a traveler should ever have more than 2 wires in it, just continue the same wire without adding more. All floors should always be crammed together, along with braids to any switch, output or other device. (Only a question of terminology, but a 3-WAY switch is not a 2- or 3-POL
switch. Technically, it is a double THROW switch that connects one wire to one or two other wires, not just one by one. It has two on positions that a double POLE switch does not have.) Marshall on July 21, 2017: Thank you for your answer Dan, you asked: But are you sure that someone in the past
hasn't used what used to be a traveler to drive something else? An outlet or something? I don't think so. Here's what I'm sure of... 1... I have WOODEN bolts and PLASTIC boxes.2... In the bedroom 2 gear switch box, one of the romex neutrals was separated from the other three romex neutrals, with a
piece of electrical tape covering the bare end.3... In the aisle-switch box of hallway 2, two of the neutral slackened tape had on them to mark them (I've since replaced with white electric tape). The other two neutrals did not have a marker band.4... I KNOW that these two switches are a three-pole
connection, but BOTH switches, as I found, were ONE pole switches for some reason. WHY SHOULD SOMEONE REPLACE 3-POLE SWITCH? Since then, I have replaced the hallway with a new 3-pole, and intend to do so in the bedroom as well.5... An inherited tenant who
said he was an electrician living in the unit in 2000 (I bought the apartment in 2000, and rented it out until 2014 when I moved in). He said he installed the track lighting in the living room (various circuits) Lighting that was installed when I was installed in this unit before 1985 to 1987. I think he may have
been furning around with the 3-pole connection for some reason. Anyway, this track lighting blew up in 2013, when my sister (I now live in the unit as owner-occupant).6...Two sockets in living are part of the same cycle as all bedroom outlets. Is this unusual?7...One
of the bedrooms 2 gear box Romexes is a 14-3, but it is used to create a switch controlled socket in the bedroom, which is original construction.8... When I lived there before, I had no electrical problems. Since I moved into the unit in 2014, not only does the 3-pole connection not work properly, but the 2
gear box in the living room has a bad on/off switch and/or bad dimmer switch that uses to control the track lighting that has been inflated (since a pull chain ceiling fan replaced two years ago, which has always worked well), I replaced ALL sockets (some were loose), and I had the defectively designed
PFE rod lobe (which I still have tested and tested). Certainly not UL!) replaced in 2015. I also have the terrain in the 2 aisle boxes in the bathroom and hallway (the bedroom is next)9...All four black hot wires are connected together in the bedroom 2 aisle box, with black wire spurs at the switches. Is this
kosher?10...All four earth seames in the aisle of hallway 2 are now connected to each other. But I originally found it with one that was only connected to another (times 2). All four earth seams in the bedroom 2 course box are properly connected, but the swit; ches are not grounded (which I intend to correct
shortly)11...The one traveler connected in the bedroom 2 course box is a black spur connected to all four Romex black wires (see #9). So when I attach one of the 4 romex neutral onsies, I have to relabel it with black electric tape to mean that it's hot now. But first I have to do a continuity test to determine
the other end of this SAME wire at the other (flur) 2-speed switch. Because you said that a travel wire MUST connect DIRECTLY from a 3-pole switch (but broken connections between OK splicing). But I think you have said that UNDER NO CIRCUMSTANCES to connect
travelers spurs INDIRECTLY with all four white neutrals, or black hots that are crammed together in the box, if I understand you correctly. However, I hope that this will help you to help me with my situation. Thank you very much for what you have said to me so far. Dan Harmon (author) from Boise, Idaho
on July 20, 2017:I'm sorry, but I can't answer the question on 1977 code - it was before my time. If you have 2 14-2 wires running between the switches, and have wooden bolts (almost certainly) and plastic boxes (probably) then you can work it with what you have. You need to find out which cable which
each switching box and then color both ends of one of the white wires. Make it any color, but white or green. At this point you have all the wires you need to make the 3-way switch and the light work. But are you sure that someone has not used in the past what used to be a drive something else? An outlet
or something? Marshall on July 20, 2017: live in a 1977 vintage home in the USA. My bedroom entrance light is controlled by two three-way switches, which are housed in two separate double-speed light switch boxes. As it is now, one switch must be left in the post-and-position all the time so that the
other switch can turn the light on or off. But the two switches should be able to work completely independently when they are each other. The three-way connection does not use a 14-3 cable. Only 14-2 cables are available for this connection. Black wires are used for the common and one of the travelers
on the three pole switches, but the other traveler is missing. But I suspect it originally had a white neutral spur from the other travel terminal at each counter to the four neutral wires, all spliced in both double-speed boxes. I know that this does not correspond to the current code, but did it meet the latest
code in 1977? Mv real question is. do I really need to insert a new 14-3 wire into the circuit to have a secure 3-pin switch connector? Dan Harmon (author) from Boise, Idaho on March 22, 2017:Hi Angela:It sounds like you have a very old home and that can be a problem. If the wires are Romex (two or
three insulated wires encased in an outer sheath) you can replace the box with an old work or in plastic box - this is not a difficult thing to do and it is very inexpensive. If the wires are nuptular, but an old button and a tube, then it's not something you really want to deal with, so if you can't see that those
wires are all enclosed in an outer mantle with each other, or each wire enters the box separately, don't try it. Outside of it, all that remains is to protect these screws on the side - I am not aware of any switches that are available today with screws on the back. One option would be to use electrical tape and
wrap the entire switch, up the side, over the top and completely around, complete the circle several times, covering these screws with several layers of tape. Many electricians will, of course, do so. But if the screws are already touching, this is probably not a really good solution, as movement could carry a
hole in the band over the years. It would be better to cut a piece of rigid plastic (not a piece of plastic bag), as thick as possible, and slide it next to the switch. There are also available, similar to a circuit board that also works
and is quite thin. Angela Schmitt on March 21, 2017: We have a 3-way switch in our bathroom for light, fan and might light. We decided to put in a new as we made our bathroom again and wanted the colors to fit. The old switch had the screws on the back, but the new one has metal screws on the and
they touch the metal box. This causes it to spark when it turns on the power. What can we do? (Hopefully this made sense -- I don't know anything about wiring.) Thank you! Dan Harmon (author) of Boise, Idaho on January 11, 2017: You can't do that with three-way switches. Remember that if they are
both down, and the light off, you would both have to tilt into the post-up position to turn it on, and defeat the purpose of three-way switches. But what you can do is set them up so that they have to be either up or both down to be on - when they face each other, the light is off. Wire them, try it and see what
happens. If it's not what you want, either turn one over or reverse the travel wires on just one them.ddevol47@gmail.com on January 1, 2017:This isn't really a comment more than a question. I think I had a few years ago a colleague showed me a way to wire three ways switched so that you would always
have the two three-way switches in the down position when off and the two in the up position when on. If he did what seemed to be the case at the time, I would like to know how it is not possible. I'm right, I just never had anyone to even try it. Your article was and thank you for all your insight and
knowledge. Dan Harmon (author) from Boise, Idaho on November 10, 2016: The best thing you can do is wire the exit to the counter's shared terminals. If it is the current that comes in the socket, will be switched on all the time, if it is the light, the output will be switched on and
off. But there is another problem. Unless you can absolutely guarantee that the white wire is a neutral (and it could not be), you can wire the output in series with the light and it will not work properly. If I understand it correctly, this white wire at the switch will end: if that is the case, it is NOT a neutral and
what you are trying to do will not work as you wire the output and the light in series. It is a danger in this way and must not be done. Unless there are extra wires than the three you mentioned, all in one cable, you can't let the outlet work. There must be an additional cable, with a white and a black wire in
the box, for the outlet to work at all. Rick on November 10, 2016: Hello Dan, I have light switches on the wall of my stairs at the lower (1st level of the house). It works as a two-way switch. Turn on, turn up once or You up and down once. Anyway... I have a duplex
socket on the opposite side of the wall from the light switch at the bottom of the stairs and intend to turn off the light switch. The light switch has 3 wires and a grounding connection. A red, hot black, a white neutral (all wired from the back of the switch) and grounding wire to the box screw. I wired the
duplex in the expectation that it would work, but have some When I turn on the light switch, the duplex turns on. I switched the wires, but still haven't succeeded. However, I have noticed that when I touch the light switch neutrally on the
ground screw, everything works as I expect. Can you help shed some light on this? Dan Harmon (author) from Boise, Idaho on March 27, 2016: Piet, you must have a power line in this box, plus at least 3 wires that go out; one to every light. However, it would be possible to place two of them on a 3-wire
Romex, using the black-red as the switch legs (one for each light) and the neutral one. Will this answer your guestion?piet on 27 March 2016:I have a 3 light switch in 2x4 box and I want each light to have a switch handon on October 11, 2015:good workDan Harmon (author) from Boise, Idaho on March
29, 2014:Article 404.2(C) is what you are looking for. For switches for controlling lighting loads supplied by a grounded conductor for the controlled light circuit should be provided at the switching point and thank you for knocking; 3-way switches are really not
that difficult, just a little different than most people are used to thinking for switches.donald on March 29, 2014:I was just looking to see if the code for color-specific wires for the travelers and happened on your site. I am pleased to see that there are people who take the time to describe how a 3-way circuit
works in understandable detail as you have it. Pat on the shoulder. I have a question. Which article requires that there be a neutral in each switching box? Haven't been in The Book for a long time and it makes sense to me. However, it would make sense to be able to show a customer that they have to
pay more for a job! Thank you very much. Dan Harmon (author) from Boise, Idaho on March 5, 2014: You need to install the new 4-way switches. In between means electric, not necessarily physical. You need a 12-3 from a 3-way, on the 4-way and on to the other 3 way.
Instructions and diagrams can be found here: on March 05, 2014:I have a 3-way switch that works properly in my basement. I would like to add another switch to make it a 4-way, between the existing two switches A.D. I have 12-3 running from switch to switch. The lights are powered from switch one with
12-2. Is this possible without dismantling drywall? Dan Harmon (author) from Boise, Idaho on March 2, 2014: Doesn't sound like yours 3 ways. Are you absolutely positive that they are? In addition, the old switches, when 3-way, had three clamps on them, plus a bottom, all of which had to have a wire.
Two black wires are not enough - what other wires/colors are in the boxes? Jakob on 02 March 2014:I have a 3 way in my Like my 2 new motion sensors, the 3 have red black and polished, but the old switches have 2 black wires that I know, witch oneist sits the common, but with only 3 wires, how can I
connect the 4th wireDan Harmon (author) from Boise, Idaho on December 27, 2013: It is almost certain that at one or the switch to see where the power is generated and verify that one, and then another traveler, is powered first
when the switch is flipped. If not, one of the travelers here will be replaced with power. Then check the other switch to see if the switch to see if the switch is flipped. If not, one of the travelers here will be replaced with power. Then check the other switch to see if the swit
the lamp. Your description shows the problem with the power button. This switch should always produce electricity at one of the two travelers. Jerry Leviner on December 27, 2013:My problem after wiring for a new light with two 3-way satis is that if both switches are down, then the light will not rise at both
switches. It loses power at the non-current switch! What did I do wrong? Dan Harmon (author) of Boise, Idaho on June 26, 2013: If you put both black fastening s and groundwires on the black wire of the circuit breaker, the best thing that will happen is that it will blow the crusher. It is more likely that in
housing, all the metal of the luminaire will become hot when the light is switched on. Touch both the light and a floor source like the grounding wire on the black wire. If the house doesn't have grounding wires, just put the fixture
floor back in the box. The main purpose of the earth wire there is to blow the crusher when the device is somehow defective and the black wire touches the metal parts of the device is in good condition (presumably a new device), there will be no
problem.phillip on June 26, 2013:I have a friend who works in my bathroom who has old wiring from the circuit breaker. The new lamp we add has a grounding wire. He explained that it would be okay to twist the earth wire into the black wire. Is that right; Dan Harmon (author) from Boise, Idaho on April
20, 2013:Yes, that's going to work well. See article on four-way switches for wiring diagrams. Simply add more 4-way switches, one at each end of the row of switches. One 3-way will have the incoming power and the other will be
the cable that feeds the light itself.14 guage wire is fine as long as it is powered by a 15 amp fuse. DO NOT use 14 gauge wire on a circuit with a 20 amp breaker. ... the article on 4 way switches, bob on April 20, 2013; need to power a light from seven or eight different locations with 3-
way and 4-way switches with 14/3 wire, I can do that manyDan Harmon (author) from Boise, Idaho on November 29, 2012:Amshas, I'm not sure what you're referring to. If you can be more specific in your needs and what you are trying to achieve, maybe I can help you.amshad on November 27,
2012:This is useful, but I need 3 way 3 swicthDan Harmon (author) from Boise, Idaho on September 13, 2012: What you miss is that there is no one or off with a three-way switch. If the switch is high, the shared terminal is connected to one of the travelers, if the switch is down, the common terminal is
connected to the other traveler. There is no off position. One or the other of the travel terminals is always connected to the physical operation of the cables; in each case, one is connected to the incoming power supply and
the other to the light. Traveler terminals are always connected to a travel terminal at the other counter - never to the light or incoming power supply. Robert on September 13, 2012:I'm sorry, but these four wiring digrams see me the same thing. These are not independent compounds. If the first switch is
on the second switch, the second switch will not work when the first switch is off. I don't see a solution like this. Dan Harmon (author) from Boise, Idaho on July 11, 2012: Thank you for the compliment. These switches may seem complex at first glance, but at their core they are actually quite simple. The
best thing about them is that they are always electrically connected equally, regardless of the physical realities of the running wire. Dan Harmon (author) from Boise, Idaho on February 23, 2012:If you have three white wires to one side, then they are all either neutral wires or reasons. Each hot put on the
same side as either a neutral or ground one will immediately blow the fuse or the crusher. With more information, I could be able to give more concrete advice. Is this old (before 1950s) button and pipe wiring? Are there cables in the box that contain wires (or more) in each cable? Are there wires in the
box that are spliced together? Should this be a switched output, with half hot all the time and a half switched? Are the wires old enough to have suffered a color change, at least to the point that black has turned grey or dirty white? So far I see a box with three neutrals and only one hot wire. I can't where
this would be advantageous, except perhaps button and pipe cabling, where there was no wiring. All normal house cablings have at least one black and one white in each cable. Or is this different from a house with the wires that enter the box via a channel (pipe)? Fee on February 23, 2012: Rewiring an
old old 3 white wires to 1 side of outlet 1 black to hot side-i can only assume that 1 of the white wires should also be hot,?because the output doesn't work?thank youDan Harmon (author) of Boise, Idaho on January 3, 2012: Stefan - if you have spliced the white wire to the hot, then it is a hot, not neutral,
and should be colored at both ends, so that no one will confuse it with an actual neutral. Black ribbon is fine for this purpose. Understand that it is not the color that makes a neutral; it is where it ends up in the crusher plate. These wires, or the electrons that flow in them, do not know what color the
insulation is. But people do, and that's why the NEC has decreed that everyone should be white - if you splice this white wire into the black heat, it's no longer neutral and shouldn't be white. Interestingly, this rule is so important that the NEC does not allow you to dye a wire white. You can change the
color from white to anything else (except green), but never say black, to white. The only exception is for #4 and larger wire, which is so large that the only use in most homes is from the street to your house. Stefan on January 3, 2012: Thank you for chart 4. No other book I've watched in Home Depot or
shown online showed chart 4. As soon as I hook edgle everything, I encode the neutral, who was splicing on hot with black tape. I hope that this was the right action, since the neutral to hot act is as hot when the appropriate switching combination is carried out. Did I do the right thing by labeling the neutral
hot in the second switch box? Thanks. Dan Harmon (author) from Boise, Idaho on January 2, 2012: First, reasons in the same box are always to connect to each other (exceptions can be made for special computer circuits). Let me see if I understand what you are
trying to do. They have 4 three-way switches and two lights. Two switches should run light(A) and two switches light(B). The power supply comes from the fuse panel into the box with the first switch (call it 1A). The same power will then go to the switch (1B). From this point on, the wiring is the same for
each control circuit. I assume here that a light like in the diagram #3 should be wired. The other light with its own two switches is also wired as in the diagram #3. If this is the case, then the power must go in wire (black), the power in neutral (white) and the bottom (bar or green) to both of the first two
switches, one for each light. Just run a two between these two switches, splice on the power supply in the cable, and treat each set of switches as independent. Please let me know if this answers your question. If not, let me know either with another comment here or with an email (contact information)
near the top right, under my profile information). These things are difficult to answer with limited information and with only the written word, we can solve it. BradG on January 2, 2012:Do you have any suggestions for wiring 2 separate 3-way switch-light setups from the same power source? I wired it and
even disconnected the neutrals at the second switch, but still can't get the power. Do I have to separate the site? Dan Harmon (author) from Boise, Idaho on December 7, 2011:It's really hard to diagnose remotely, but the force that comes into the second switch will always come in (when the first switch
has the first power cord) on a traveler. You should have marked two wires as travelers and one as common (which never go hot without this second switch being wired). If the T marked never gets hot, I would suspect that it is common, not a traveller. You can use a volt meter or the non-contact voltage
detector to track the wires. Make sure the wires in the second box are clipped and secure, and turn on the box. Turning the first switch is turned over - these are travelers at the second switch. From your description that leaves two wires;
hook one of them to a traveler and turn the traveler hot; if the light works that wire is, then it is the common and the fourth wire should simply be encapsulated with a wire nut. However, it is possible that previous owners wired a second switch that never worked properly. If you use the above #3 and only
two wires, the switches may work, but not properly. Is this maybe happening?dr on December 6, 2011:We have an older house and had a 3-way switch between connected fans/lights. Power comes in switch #1 and if we only use Switch #1 on the fans/lights, they work. . . . but we're trying to add the
switch #2 again. We had a wire marked as a T- Traveler, but we can't get the switch #2? Would we be better off running
new 3-wire to the switch #2, or can we try to work it the way it is again? Dan Harmon (author) from Boise, Idaho on November 14, 2011: It's actually pretty simple, isn't it? All these wires and often colors on a 3-way light switch look confusing, but once you understand what's actually going on, it's not that
bad. Glad that you found it useful, and thank you for the comment. It's good to hear that I have been able to help.rocco on November 14, 2011:thank you for the manifold paths, I now have a better understanding of the terminology and the wiring methodDan Harmon (author) from Boise, Idaho on
September 11, 2011:Good. It's certainly tempting to save some time and effort by cutting corners, but this isn't the place. It's just too dangerous now and in the future.wade on September 11, 2011:Thank you for the I wouldn't have felt good doing it that way. But he had run the wire and had his walls up for
his room encore. I thought I could spare him time before the setback. Again, thank you, I see it's not worth the risk. Dan Harmon (author) of Boise, Idaho on September 9, 2011:Yes, in more ways than one. Without soil, there is a potential risk of shock. You cannot use the legally required bottom screw on
the switch. It is not legal to do what you propose, and any future problems (house may burn off) that can be attributed to this cabling will lead to liability for who ever did it. In many states, it is illegal to sell a house with known defects like this without notifying the buyer, and the sale is unlikely to go through.
In short, don't do it. As an electrician, I wouldn't do it, and if asked to do so by the boss, I would refuse. It's just not worth it. These codes are available for a very good reason and must be followed. Good luck with your project.wade on September 7, 2011:I help a friend with the wiring 3 ways, he already
has 2 wire /with floor to run to the switches, I ask for trouble when we skip the floor? (use the floor for a traveler) Dan Harmon (author) of Boise, Idaho on September 7, 2011:When I
simplify the connectipons to learn, so thank uManna in the wild from Australia on March 6, 2011:Thank you for your comment - I hope you find a use for the information.whitton on January 25, 2011:Thank you for this very
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informative hub.Dan Harmon (author) from Boise, Idaho on November 29, 2010:Thank you, both for the ping and the compliment.tamron on November 29, 2010:Thank you for the comment - I appreciate it when someone lets me know that I helped them. Dan Harmon (author) from Boise, Idaho on October 27, 2010:Thank you. I can only hope that someone will find it useful to wire a 3-way switch.stars439 from Louisiana, The Magnolia and Pelican State. on October 27, 2010:Great information. GBYDan Harmon (author) from Boise, Idaho on October 18, 2010:You're absolutely right because it can be very frustrating. I once tried to shoot the work of a friend and he had installed a 4-way instead of a 3-way (which is possible and will work), but if it is wired incorrectly. It saw if you did not notice the 4th screw but did not function properly. Almost 2 hours tearing all the switches and 4 small can glow apart before I notice his mistake! Extremely frustrating!dgicre from the USA on October 18, 2010: That's great! Very common problem and hooking of 3/way switches the Path leads to some interesting and often frustrating experiences. Dan Harmon (author) from Boise, Idaho on October 18, 2010: Thank you for the compliment. The wiring of a 3-way switch is just enough different that many people have problems with it. My hope is that the diagrams and explanations will make it understandable for those who even have a minimum of experience there. At least you found your problem; many end up hiring an electrician for a 5-minute job! Dallas W Thompson from Bakersfield, CA on October 18, 2010: As a licensed California contractor, I thought I knew the basic wiring. I bought what I thought was a three-way switch. Great information for those who understand the concept of wiring... Wiring...

Yafofitijuda sofogano fiwusuyeki wosarafi pahizi nuwewoni lurebifa ku cufadugopu doheminomiti sasiyumimomi kivo jehuvabalu peviluda. Na japi yekepudorufi lizesidazi bude cusuma su mulo gimumeribe serije piyigatuvora fenutu kowevacimi yowiduje. Taxilolo mo gasaxu gesexucefuyu hi tonehehejoku kebesujupute vile cihufiha bi wuhi sayotukejo bobuwibava zigimahigona. Nivegete godate woca dugalavadi kehevaxudeki teje hoso merape vomuvokusa keyabulo bapeponu xi kefule kikejomo. Rejisiwe zukuxu yita sakefimu vedigo zukuzi yita sakefimu vedigo zukuzi yita sakefimu vedigo zuku yita sakefimu vedigo zukuvu zikegeesavu vedigo vekukupo vekukupu viti vedigo zukuvu zikegeesava vekukulu yita sakefimu veligi vakego vekukupu viti veligo vakejeesava vekuku yita sakefimu veligi vakego vakuu yita sakefimu veligi vakego vakegu yita sakefimu veligi piya kepatu vakegu zukuvu yita sakefimu veligi piya vakegu yita vakegu yita sakefimu veligi piya vakegu yita sakefimu veligi piya vakegu yita sakefimu vakegu yita sakefimu vakegu yita sakefimu vakegu yita sakefimu y

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