



Dan has been licensed at the level of the electric flight for about 17 years. He has extensive experience in most areas of electrical trade. 3. Direction switch wires. Wiring 3-Way SwitchWiring 3-direction light switch is not a difficult task... There are only three connections to be made, after all. Making it in the right place is a little more difficult, but still within the capabilities of most homeowners, if someone shows them how. This is where understanding the wiring scheme can help. First, what is a triple switch? When you want to be able to run stair lights from both up and down), this is what electricians call a triple switch. Is it difficult to switch 3-way wire? To replace the switch in the same position. Problems can arise when you add an additional key or if you forget which wire went where. This is when it becomes necessary to understand a little more about how the 3-way switch works and how to read the wiring chart. What do I need to know before I start? If you know what the purpose of each wire is, the task will become much simpler. This article will explained. What about the 4-way keys? Read how to connect the 4-Way key for instructions and wire diagrams for four-way wire keys. How to switch wires triangularbut all 3-way switches are the same. Choose the configuration you want to follow by looking at the diagrams below. If you start from the beginning, #3 chart may be the best place to start, but these methods can be used interchangeably in the old work. They only indicate different ways to run the necessary cables. The #1 chart works when many lighting fixtures share one common breaker, and switches on the same wall. The #2 chart works when many light box rather than between the keys. The #3 chart works best for cases with multiple keys in the same box, as other keys then have power available and other light is near the first switch box. It leads to a lot of wires, so it may be necessary to install a larger box. Turn off power in the power board before you start working. Be sure to understand any of the screw stations and wires that serve the purpose. Below, you'll find Descriptions for your guidance. You have a lot of 14-3 NM type cable at hand, which has three isolated wires - black, black and red - plus copper ground wire. If you're connecting to a 12-gauge wire, or a 20-amp crusher, you'll use 12-3, instead. Most home lighting circuits are 15 amps, which requires only 14 gauge wires. Follow the wire connection chart (see instructions below) with the new triple switch. All white wires used as travelers between the 3-way keys must have their ends wrapped in a black electric tape or in a walnut plastic wire. How the 3-Way switch works: Select ing station screws are three screw stations on either side of the switch one on the end. Each key has the same three stations, but the old keys may be missing at the fourth ground station. Small, green screw that is part of the metal frame can often be recognized for switching and not isolated from other metal parts. The green or unshaved ground wire always goes to this ground end. The old keys often did not have the ground station screw, but are no longer legal for use. Now, all the lighting keys must have the ground station screw, but are no longer legal for use. Mechanically and electrically, this joint tip is connected internally to one of the two other copper screws called traveler stations. When the key is flipped in the other passenger terminal is always connected, and the shared terminal is then connected, and the shared terminal is then connected, internally to one (but only one) of the passenger terminal. terminals. Whichever depends on whether the switch is up or down. It may be worth noting that passenger terminals are essentially interchangeable. Given that each one is to have the traveler's wire attached to it, there are two passenger terminals are essentially interchangeable. stations at 3-way switching us a common station on top of this view, with the traveler on the lower end. The ground station screw station and is no longer legal for use. Make sure that your switch has a ground station. Which wild wire is hot? Which screw is the ground? Select the screw stations of ColorWhat is the green plant screw? Small, green screw station at the bottom is ground station. All new keys must have land, but some old keys don't. What is a dark screw station? One of the three screw stations will be Different color, usually darker. This is the shared terminal. What are copper screws? The two copper screw stations are traveler stations. Select wires by ColorWhat is the green wire? Green or non-specific ground wires (copper) always go to the ground station. What is a black wire? The black wire colors: The national electric symbol requires that each wire be neutral and white, and that the floor wires be green. Neutral wires may only be white, but the code makes an exception for white wires in a cable that is not used for neutral. These wires must be black in color using a magic mark or other method. Many electricians will do this, but many will not, and can make troubleshooting in the future difficult and can be a threat to the safety of anyone else working on the system. I encourage you to take a few seconds necessary to color these non-neutral wires. The colors displayed in these working on the system. I encourage you to take a few seconds necessary to color these non-neutral wires. The colors displayed in these wire diagrams are only common color uses. Not all electricians use the same color code (except neutrals and land), so wires can be different colors. Select all parts of 3-Way Light Switch the terms traveler and subscriber have already been explained, but there are other terms that will be used in this article that also need some explanation. Cable. The term cable refers to a combination of two or more wires, bundled together, usually in the freeze of insulation material. Each wire is isolated separately, with the possible exception of ground wire. The floor wires may be isolated in green or left naked (copper), without insulation. Power to the lighting system. Neutral. This is the white wire contained in the power cable in. It doesn't end when you connect to any switch, although it may be located in a switch box and ends with a wire nut connecting it to another neutral wire. Earth. The wire is based on each switch box or light fixture. It is hot at all times unless the entire circuit is stopped in the circuit breaker panel. Circuit cutter plate. Usually called a fuse box, it may contain either circuit breakers or valves. This painting controls all the power in the building, and it is where that power can be closed. Two ropes is the label given to a cable with three wires, in addition to a ground wire. These wires are going to be Black and white, with green or bare ground (copper). Three rope is a cable with three wires, in addition to a ground wire. plus the ground. Normally the colors are black, black and red with extra green or bare (copper) floor. Understand the wire chart, you should know that the electrical current enters the system on the black wire in the power cable in, passes through the switches, through the switches, through the switches, through the light fixture, and returns to the white wire in power in the cable. If the circuit is broken anywhere (the switches, through the light fixture, and returns to the white wire in power in the cable. If the circuit is broken anywhere (the switches, through the light fixture, and returns to the white wire in the cable. If the circuit is broken anywhere (the switches, through the light fixture, and returns to the white wire in the cable. If the circuit is broken anywhere (the switches, through the light fixture, and returns to the white wire in the cable. If the circuit is broken anywhere (the switches, through the light fixture, and returns to the white wire in the cable. If the circuit is broken anywhere (the switches, through the light fixture, and returns to the white wire in the cable. If the circuit is broken anywhere (the switches, through the light fixture, and returns to the white wire in the cable. If the circuit is broken anywhere (the switches, through the light fixture, and returns to the white wire in the cable. If the circuit is broken anywhere (the switches, through the light fixture, and returns to the switches, through the light fixture, and discussion purposes, each 3-way key will be considered to be a common station connected to the right passenger station when it is in a bottom position. This is not necessarily true, however, it's simply useful for discussion purposes. Read the descriptions carefully and compare them with diagrams to understand diagrams. Each graph will have a description of how the current moves in order to light the lamp. TestersA voltage test is an invaluable tool here to work on electrician for 20 years, there is always one in my pocket, and anyone who works around electricity must carry one too. Turn off power before you start working! Install light SwitchOnce is the correct location of each wire using the wire charts below, the light switch is connected to the appropriate wire and installed in the light switch box. Make sure the power goes out before making any calls! Older keys vs. newer ones: Many residential lighting switches have a small hole at the back of the switch that can be pushed to the wire, and all the keys have screws on the side. The image of the old switch above has both pushing in holes and nails; The other is a crocodile tape on the back of the switch; It shows how isolated it is to strip off if the payment method in the connection is to be used. If nails will be used, more insulation needs to be removed. How to attach wires to screw stations: If the screws to be used for contact, bend the end of the wire stripped in a half circle using the nose needle pliers, wrap the wire around clockwise. Tighten each screw firmly. Fold the wires neatly back into the wall box and push the switch into the box. Usually the ground screw goes down, towards the floor, but can be inserted into the position even with 3-way and 4-way keys. 3 Wire scheme method #13 direction of wire switching diagram with power cable entering the light box. The wiring diagram #1, power in this example BoxIn light, enters the power cable into the light box. This method of wire operation is common when several single-share fractional lamps are common, and the keys, are both on the same wall. Cables must run in the light box to only one of the keys, and from the light box on a black wire, as it always does. This wire is attached to a white wire in a two-rope cable that goes to the first switch box (not the switch), where it is connected to the white wire in the three rope cable and continues to the passenger station on the first switch. If this switch is also up, it will come out of this shift from a common station on a black wire in a two-light switch rope cable. Continuing down this black wire, neutral and return to the power cable in. Note about the color of the wire: In this example, the only neutral wire is the white wire in the power cable (which is always a white wire) and one of the two wires attached to the light box with 3 rope cables to each switch box. Wire chart #2, power in boxIn light this 3-direction wire switch diagram, power line enters the light box, but then 3 rope cables are installed between the light box and each switch box. This method may be used when power is available in the ceiling but the switch box and each switch box on the black wire and then flows to the common station on a single key using a white wire (colored) it comes out of the switch from the passenger station on the second switch it passes through this switch, exits again from the common station, and again enters the light box, where it goes to the light itself. Neutral moves from power cable in directly to light 3-Way wire graph #33 in the direction of wire diagram with power entry switch, and on the light fixture. This is a reasonable method for cases with multiple keys in the same box, as other keys then have power available and other lights can be turned on without having to have a separate power in the line running them. The main difference here is that the neutral power in the line must be taken to a light fixture by rope 3. The white wire and is connected to a shared station. If the key is in the lower position, it comes out of the key on the red wire, it is melted into another white wire in the 3 cord used between the switch boxs, and continues to the first switch box, where it is tied to the wire power in the wire power in enters the switch #1 along with the cable to the light box. The wire scheme #4This example shows the power in enters the switch #1 along with the cable to the light box. The wire scheme #4This example shows the power in enters the switch #1 along with the cable to the light box. The wire scheme #4This example shows the power in enters the switch #1 along with the cable to the light box. The wire scheme #43 the direction of the wire scheme #43 the di cable in entering the first switch box along with the cable to the light fixture. This can lead to a lot of wiring in this box, but it can be useful when the light is near the first switch box. It may be necessary to have a larger box to contain all the wires. After the current... The switch box enters the black wire at the shared terminal. If the key is up, it will exit the box on the red traveler's wire and continue the passenger station in the second switch. If this switch is too, it will exit the switch at the common station on the white wire (neutral) to the light. Passing through the lamp, it returns on the white wire (neutral) to the first switch box, where it is tied to the white wire (neutral) to the light. back to the fuse box. The circuit is complete and the lamp lights up. Commonality in all diagrams common wires for all these wire diagrams is that neutral, white wire of the power cable in without ever finishing the switch. It may or may not be attached to another white wire in a box, but it never ends on a key - just on the lighting device. Black in wire power always goes to the common switch, often changing colors by having to connect to different cables. Regardless of color, one common key will be Directly connected to a black wire in power. The other switch always goes straight (though maybe again) to the light fixture. Do not quit on the other switch. There are two passenger wires; They always go straight from one key to the other. No passenger wire ever ends up in the light fixture, power in the cable, or on anything but the passenger station, although it may paste to a different cable somewhere. Neutral wires are always white, and the white wire is not connected to the white power in the vire some other colors must be colored. The floor wires are always green or bare of insulation (copper). Each key, as well as a light fixture, must have a ground wire finished for it. The only exception is old houses that do not have a neutral wire in the box it must be finished for it. The only exception is old houses that do not have a neutral wire in the box it must be finished for it. The only exception is old houses that do not have a neutral wire in the box it must be finished for it. switch in it. This means not only a white wire, but a white wire connected to white wire on the power in the cable. This rule aims to provide the future capability to use a faded device or other purposes. The new work (such as adding a new triple switch) must comply with this code. What is the best method or diagram to continue? The only wire graph shown here is legally for #3 use, although #1 can be adjusted by adding a 2-wire cable from the bottom box to the light. Any neutrals in the switch box that are unused either divided together or, in one neutral case, simply crowned off with wire nut and stomped back into the box. Am I required to replace all wires that do not meet the current code? Simply replacing the switch does not mean that the room needs to be rewired, as the existing wiring is very in and acceptable. The old work does not mean that the room needs to be rewired, as the existing wiring is very in and acceptable. YouIn public, not difficult to replace or install keys, most homeowners are perfectly able to do so. For more help and guidance, read install or replace Light Switch. If you add a new light fixture to work with new 3-way keys and want some help, read install and light fixture wires. Regard whether you are replacing the switch or installing new keys in a major reconfiguration, perhaps the most useful tool to possess is the non-connection AC voltage detector. Make sure that whenever you do any kind of electrical work you first tested with a good voltage detector. This article is accurate and honest to the author's knowledge. The content is for Or for entertainment purposes only and does not replace personal counsel or professional advice in commercial, financial, legal or technical matters. Question answers: Can a faded key be installed in a triple key? Answer: Yes, but you should use a three-way baht key. Most of the faded keys won't work. Q: Is there a 3-way to change the diagram with three lights in the circle? Answer: To add more light games simply use the same wires that to the existing fixture and expand it even further to but many additional games you want. Simply paste a new wire into the wire going to the box, or does it need to go to the box, or does it need to go to the box, or does it need to go to the box, or does it need to go to the switch? Can you go to the box? My house is wired only to the box, but I was told that it should also go to the switch Answer: The current electric code requires all keys to be based on. It is easy enough to add a short pigtail from the box to the switch, if the box is metal and already confirmed. Question: The triple switch, if the box to the switch l've replaced is more than 50 years old. There is a black wire on one side of the box to the switch l've replaced is more than 50 years old. (top). The new three-way switch box has a green screw at the bottom on one side, and a black barlow on the other side at the bottom, with two golden-colored screws at the top. Can I attach wires to the new box in the same old place, regardless of colors? Answer: Yes, but you did not mention the ground wire (on the green screw) for the old switch. It is very doubtful that she has one. If not, you should get a new key to the ground wire to be a green screw, which means finding the source of the ground wire key now although the reasons have not been used for many years. Otherwise, hook the wires the same way. The worst case scenario is that the switch will not work properly, then it will swap a few wires and try again so it doesn't work properly. It's always fun trying to decipher what an electrician or home did fifty years ago! Question: I have a setting that looks like a 3-way diagram #1, based on the composition of two keys (I haven't fallen in the light yet), but when I separated both the keys from the wires, both of the traveler's hot lines went. The power white wires in the cable remained hot as well. How could this happen? Is it possible that this is actually a 4 way, and I have just failed to select an additional switch? Answer: As the passenger station to one key to the passenger station on the other switch, it is not possible to remove both ends of the keys and have the wire be hot. not associated with anything at all, and Be hot. What kind of lab do you use to determine if the wire is hot? The offline test mentioned in the article can be sensitive enough to capture static electricity transmitted from one wire to another even though it does not touch. They are meant to ensure the wire is dead, and I did not have one give a false negative (showing a dead wire), but the price is that sometimes they can appear hot when the wire is not. If the wires are hot when you disconnect, then there is another source of energy that has not yet been identified, and the wires are going somewhere you are aware. It is doubtful to have a 4-way switch - those have four stops on them (plus the ground), and they are all travelers. No power line should ever end on the 4-direction switch. Q: Can you direct me to a diagram to configure 3-way keys? Answer: There is a link near the beginning of the article on 3-way keys. Here again: If you understand correctly, one - only one - of traveler's wires is always hot. If this is true, one can put an outlet in the middle of each passenger wire with the result of one port or the other - but not both - being 'ON'? Answer: You could do it, but only one key - one with the power of the fuse box - will work on them. You can even set it up to the top or bottom of a single port, but not both, on, depending on how the switch flips. You will have to ensure that there is a neutral wire running with others and available at each port. Question: I have the switch flips. You will have to ensure that there is a neutral wire running with others and available at each port. my wire countless times and it still doesn't work. I'll be positive I have correct but it doesn't work. How do I diagnose my wiring problem? Answer: Is the crusher on the light bulb, does it light up? If all these are good, the best guess is that either black or white from the lightbox is not connected to a shared station, but one of the traveler's stations. It is always possible that one of the keys is bad as well - even the new brand keys can be defective. If you have a voltmeter, preferably a non-contact test, you can explore it too. Using wire colors in the diagram, the white wire in the key should be hot all the time. One passenger or the other in the same key must be hot, changing with the switch coup. If all it works, travelers in the other switch is flipped, and the black wire in the other switch is flipped, and the black wire in the other switch is flipped. Check these should tell you where the problem is. Q: Can I use a 3-way key with only two wires? Answer: No. There must be three wires between the two. You can use the switch with only two hires? wires, but it will act as a regular switch, not a three-way switch. Ouestion: I want to switch from a regular light switch to a vibrator light switch to a vibrator light switch. I have two black wires and one red wire. Answer: If you just replace the regular light switch to a vibrator light switch to a vibrator light switch. I have two black wires and one red wire. some of the insulation from the wire? Answer: Preferably with a wire stripping tool. If one is unavailable a knife can even be used as a sharp cooking knife. Cut around the insulation, being very careful not to touch the copper wire, and then using them to push off the insulation you want to remove. Again you should take a great deal of caution not to damage the wire inside. Either way, if the wire is stolen it must be cut and the process begins over © 2010 Dan Harmon (author) of Boise, Idaho on August 30, 2019: You are welcome, Marius. Thanks for the comment - it's always nice to hear I've been helping someone Marius Theodore on August 30, 2019: Mr. Dan thank you for making time to be on this blog and on the comprehensive answers are always in front of us... We just need guidance sometimes. This is where I will check periodically in the future. Dan Harmon (author) of Boise, Idaho, May 12, 2019: @Pierre: Use none of the diagrams above, and simply connect the wires together. Black to black, white to white and earth to earth for as many lights as you like. Dan Harmon (author) of Boise, Idaho on January 21, 2019: @George: You have one key 4 ways, one with four wires. It must be two more, three way, keys with three wires each on the circle. When more than 2 keys are needed, it requires 2 triple road keys and all the rest 4 road switches. Help on how to wire 4 road keys can be found in: on January 21, 2019:1 3 light switch keys have one has 3 wires attached to four screws on the switch,, the other has 3 wires attached. WhyDan Harmon (author) of Boise, Idaho on December 5, 2018: @Bill: You can't do this using only 2 connector cable (12-2), unless you run two cableinstead of one. As shown in the charts and as shown, you must have 3 wires between keys, meaning 12-3. Bill on 05 December 2018: I I'm wanting to put 3 3way switch es in my garage using 12 2 wires no I just run a wire between two Simon keys on September 14, 2017: I Such a page, Marshall was very useful on 04, 2017: Thank you Dan for your response again. This is a cheap metal roof mounted one type fixture bulb that is surrounded by a round ball. It now has LED light in it, and I don't use the light until it's fixed. The switch has been disconnected. Today I left a message for an electrician claiming that a friend recommended. I expect that i will call again on Monday. The reason I guit all my DIY work is that I hope that the electrician will alert our homeowners council if he agrees that the building was illegally miswired (with no reasons on the floor. I therefore think that this entire apartment complex was built on cheap (for other reasons too). What I want is for the homeowners association to send messages to other apartment owners that each of their units should be electrically inspected and based on (if necessary). I don't think the Homeowners Association will act unless they received such a message. This makes me wonder if I should go to town about this if necessary. Am I making a lot of work to do about nothing? The way I see it, there are nearly 400 apartments and condominiums in our complex that have unfounded lighting switches. One can get electrocuted when he changes a light bulb or touches metal screws on the light key cover, if the fixture or switch short into it. Dan Harmon (author) of Boise, Idaho, August 4, 2017: Maybe not. I do not know what kind of fixture this is, but the lamps are designed with the heat of the glowing bulb. Of course, if you mean you have removed the fixture and left the box open behind it, then yes it is fine to cover it with plastic. Marshall on August 03, 2017: Hi Dan, today I opened my 8-foot-high ceiling light fixture with a triple problem. I found out he's not on earth. Having found so many lighting switches in my apartment that we are not grounded, I have come to the possible conclusion that the original contractor never linked the foundations! I think this ceiling light fixture had not been opened before a short long story, so I stopped my DIY work and will be calling an electrician tomorrow. My question is this: because this light fixture is very close to the bathroom and because it will be difficult for me to close it again, I have put a plastic cover over it to prevent the bathroom moisture from short of this ungrounded fixture, An electrician comes to fix it. Is that the right thing to do? Dan Harmon (author) of Boise, Idaho, July 30, 2017: Ok. It seems to me like your two switch contains a hot wire, or with Statement 2 but - I don't quite understand what you see for some reason. At this point, I would cut all the wires (other than the wiring floor) from the keys (somehow mark them to where they went, just in case) and re-examine what is only hot with the crusher on. At the switch point with hot in it can be wired with hot go to the common and both travelers connect. Then check the other switch; These are travelers and the only remaining leg switch that goes to the joint on this switch and one switch to light, but something may be missing. Marshall on July 28, 2017: Thank you for your response again Dan. I've done some sorting and here's my notes.1... The light is only on when both switch one (hallway through the front door) and two switch is down, the two switch is down, the two switch either up or down, and the light is off. That's why I identified the one switch entrance switch, and the bedroom key switch two. But the strange thing is that the second switch (bedroom) is practically next to the plate box. Is the switch closest to the plate box. Is the switch? Here are some AC test notes on the two telecommunications switches. (One key was closed until only two switchs were opened up.) But first, a few notes: Note: One switch is a three-way switch with a hot connected common terminal, and the non-missing traveler connected to one of the travelers. Note 2: The second switch is an old single pole key (I will replace it with three pole switches) with a piece of black electric tape on the hot wire, not tape on the missing traveler. 1 ... When both one switch and two switch are up (light), then both the hot wires and the traveler is missing is cold = dead.3 ... When one switch is higher, the two switch is down (light off), again, just hot hot, the traveler is missing is cool / dead.4... But when one switch is down, the two switch is up Then both the hot wire and the non-missing Traver are hot.5... Nonmissing traveler (on two switches) goes up the same romis (2-rope) cable the same romis (2-ro two keys) is a hot stimulation that is a tail with four other black hot wires. (But this saying is supposed to be directly connected to the light, and never hooked with multiple wires/other combination). So, I have MISCONNECTION! Could I have misidentified one key and the second switch? Marshalldan Harmon (author) of Boise, Idaho on July 28, 2017: You're right - in a wired set correctly can't be hot. One will be, but the other is going to light, and therefore can't be hot all the time or be light all the time or be light all the time. Sounds like a serious mix-up, perhaps with one of the travelers going to where. Marshall on July 23, 2017: I You have another question about my 3 road keys. Re: Black wires that connect to the common station on each of the keys, should only one, or should all of the wires be hot when cutting from the common screw? The wire is as hot as I understand it, is a wire that is engergized even when cut, unless the crusher is turned off to that circle. What I'm getting is if all of the black wires that connect to the common screw? on each of the 3 road keys are hot (even when disconnecting, that means the power comes from both power in the cable and from the light fixture, that is, the power coming from both directions at once.) Note: both keys are not partially installed for this reason). Did I miss something here? or that this is a serious bad connection? Remember, I said that both of the original 3 road keys have been replaced with 1 way at once. (I know it's supposed to be a 3 rd road connection) and I wonder if that might be the reason for it. Can some unfamiliar witty with 3 road wires have installed 1 road keys after having problems? Dan Harmon (author) of Boise, Idaho, July 21, 2017: I hope it all helps. No, I didn't give any print. But the host company, HubPages.com has decided that this is not something they want to see. I'm not sure - I've never tried printing comments and haven't heard any other complaints about it. Could it be something about avatars? Marshall on July 21, 2017: Thank you Dan for your second response! I think it would be very useful. I was able to print your article re: 3-way keys, but I can't print any of the comments (either all of them, or just my, as well as your selected answers). Has print been disabled Comments? Dan Harmon (author) of Boise, Idaho on July 21, 2017: It's ok to paste 4 hot with a pig's tail (your spore) to switch. I think you have an idea: use one black traveler. (already in place) and white wires that are not included in with other whites as neutral as the other traveler after making sure the other end is where you think it is and that it does nothing else in between squares. I'm assuming that the second switch has the switch leg going to the light, along with neutral - if so using extra white as a traveler (after recording black on both ends) is fine. Just don't paste any additional wires for this traveler (or any other traveler). No nut wire should ever be on the traveler more than 2 wires in it, simply hold the same wire without adding any more. All reasons must always be together, besides braids to any key, port or other device. (Only a matter of terminology, but the 3-WAY switch is not 2 or 3 pole switch. Technically it is a double THROW switch, connecting one wire to one or two other wires, not just one at a time. Marshall on July 21, 2017: Thank you for your response Dan, I asked: But are you sure that someone in the past did not use what was traveling to run something else? An outlet or something? I don't think so here is what I'm sure of... 1...I have wooden studs and plastic boxes. 2... In the bedroom 2 ring switch box, one of the Romys neutrals of the other three Romes neutrals was cut, with a piece of electric tape covering the white electric tape covering the naked end.3... In the lobby 2 box ring switch, two neutrals had a white masking tape on them to mark them (I'm since replacing the white electric tape). The other two neutrals had a white masking tape on them to mark them (I'm since replacing the white electric tape). pole connection, but both keys as I found them were one pole keys for some reason. Why replace 3 pole keys with one pole keys? Since I replaced the single pole entrance with 3 new pole, I intend to do the same in the bedroom.5... An inherited tenant said he was an electrician who lived in the unit in 2000 (i got the apartment in 2000, and rented it until 2014, when I moved). He installed track lighting in the living room (different circle) which was different from the lighting fixture that was installed when I lived in that unit before from 1985 to 1987. I think it might be messing around with pole 3 connection for some reason. Anyway, the track lighting went off in 2013 when my sister was renting the unit from me, according to my sister (I now live in the unit as an

occupier).6...two outlets in the neighborhoods It is part of the same circle as all bedroom outlets. Is this unusual?7...one of the bedroom, which is the original construction.8 ... When I lived there before, I had no electrical problems of any kind. Since I moved into the unit in 2014, not only does the pole connection 3 not work properly, but the 2 ring box in the living room has a bad key on/off and/or a bad dimmer switch that is used to control the track lighting that exploded (since it was replaced with a pull chain roof fan Two years ago that always worked fine), I replaced all the ports (some were loose), And I had a glitch in the design pfe stab lock (which I still have and I would get tested, but where? definitely not UL!) the painting box was replaced in 2015. I also link the causes in 2 ring boxes in the bathroom and hallway (the bedroom is next).9...all four black hot wires are pigtailed together in the bathroom and hallway (the bedroom 2 ring box, with black wire spears connected to the keys. Is this kosher?10...all four black hot wires are pigtailed together in the bathroom and hallway (the bedroom 2 ring box, with black wire spears connected to the keys. But I originally found them with only one connected one (2 times). All four floor wires in the bedroom 2 ring box are properly connected together, but are not based on swit; ches (which I intend to correct soon)11...one traveler that is plugged into the bedroom 2 ring box is a black catalytic that is plugged into all four black wires romis (see #9). So, if you hook one of the 4 neutral roms for it, you will have to relabel it with a black electric tape to indicate that it is now hot. But first, I have to do a continuity test to determine the other end of that same wire in the other (lobby) 2 ring switch. You may have said that the traveler's wire should connect directly from one 3 pole switch to 3 other pole switch (but connect the broken connections in between OK). But I think you said that under no circumstances, connecting travelers indirectly stimulates all four white neutrals, or black hots that are pigtailed together inside the box, if you understand you correctly. Anyway, I hope this will help me in my situation. Thank you very much for what you have said to me so far. Dan Harmon (author) of Boise, Idaho on July 20, 2017: I'm sorry, but I can't answer the guestion about the 1977 code - that was before my time. If you have 2 14-2 wires running between the keys, and have wooden studs (almost certainly) and plastic boxes (probably) then you can make it work with what you have. You will have to figure out which cable is in each switch box and then color the ends of one white wire. Make it any color but white or green. At this point you have all the wires you need to make 3 road keys and light work. But are you sure that someone in the past didn't use what was to be To run something? Marshall on July 20, 2017: I He lives in an old apartment building in 1977 in the United States. The entry light in my bedroom is controlled by two triangular road keys that are housed inside two separate double ring light switch box. The way it is now, one key must be left in position even all the time, in order to switch the other. There is no cable 14-3 used for triple communication. There are only 14-2 cables available for this connection. Black wires are used for the common one of the passengers on the three pole keys, but the other passenger is missing. But I suspect it was originally a neutral wires all tied together in each of the double ring boxes. I know this does not meet the current code, but did you meet the newest code back in 1977? My real question is do I ever have a new wire 14-3 add to the circuit that has a safe 3 pole connection switch? Dan Harmon (author) of Boise, Idaho on March 22, 2017: Hello Angela: You seem to have a very old house and this could be a problem. If the wires are romex (two or three insulated wires encased in the outer hold) you could replace the box with old work or cut into a plastic box - this is not a difficult thing to do and it's very inexpensive. If the wires are not Romex, but the old door handle and tube, it is not something you really want to deal with, so if you can not see that all these wires are closed together in the outer gland, or each wire enters the box separately, do not try it. Outside of that, the only thing left is to protect those bolts on the side - I'm not aware of any keys available for the day with screws on the back. One possibility is to use the electric tape and wrap the entire switch, go to the side, across and around the top completely, complete the circuit several layers of tape. Many electricians will do this as a matter of course. But if the nails are already touching, this is probably not a real good solution, and movement over the years can wear a hole in the tape. Best have to cut a rigid piece of plastic (not a piece of plastic (not a piece of plastic bag), as thick as possible, slide along with the switch. There are also insulating materials available, similar to what is made of circuit board, which will work as well and very thin. Angela Schmidt on March 21, 2017: We have a three-way key in our bathroom for light, fan and night light. We decided to put in a new one had metal screws on the back of it, but the new one had metal screws on the back of it, but the new one had metal screws on the back of it, but the new one as we did re-bath and wanted colors to match. The old switch had screws on the back of it, but the new one had metal screws on the back of it, but the new one had metal screws on the back of it, but the new one as we did re-bath and wanted colors to match. do? (Hopefully that makes sense -- I don't know anything about wiring.) Thank you! Dan Harmon (author) of Boise, Idaho, January 11, 2017: You can't do this with the keys to three ways. What you can do, though, is set them so that they are either up or both to be on - when they are opposite each other the light is out. Wire them, try it and see what happens. If it's not what you want, either flip one or reverse the traveler's wires on just one of the them.ddevol47@gmail.com on January 1, 2017: this is no more than a comment of a question. I think I got a few years back a coworker showed me a way to wire three way turned so that you'll always have two triangular road keys in the bottom position up when on. If he did that he looked at the time as he did, I would like to know how I think it is not possible. I'm right I just wasn't so trying to. Your article was a thank you for all your insight and knowledge. Dan Harmon (author) of Boise, Idaho on November 10, 2016: The best you will be able to do is wire port to a shared terminal from switch instead of passenger terminals. If the next power in the port will be on all the time, if the light will port go and off. But there is another problem as well. Unless you can fully guarantee that the white wire is neutral (and it may not be) the wire may be a port in a chain with light and it will not work properly. If you understand it correctly, this white wire is finished on the switch: if this is not neutral, what you are trying to do will not work as you wire and light in the chain port. It is dangerous in this way and it must not be done. Unless there are additional wires of the three mentioned, all in one cable, you can not make a work port. There must be an extra cable, with white and black wire in it, in the box to make the port work at all. Rick on November 10, 2016: Hi Dan, I have a light key on my stairwell wall at the top (level two of the house) and at the bottom (1st level of the house). Works as a key 2.2. Turn on the ascent, turn off once or turn on the top floor to get off and stop once down. Any way... I put the dopling port on the other side of the wall of the light key at the bottom of the stairs, intended to power the light switch. The light switch has 3 wires and a ground connection. One red, one hot black, one neutral white (all wired from the back of the switch) and floor wires to screw box. I'm wired double expecting to work but it has some When I turn on the light switch, the power on the doblog explodes. When I turn off the light switch, the power turns on to the doblog. I've turned the wires around but still hasn't had success. I didn't notice but if I touch the neutral switch light to screw the ground everything works like I expect. Can you help shed some light on this? Dan Harmon (author) of Boise, Idaho on March 27, 2016: Pete, you'll have a power line in this box, plus at least 3 wires out. One for each light. It will be possible to put two of them on one 3 romis wire, though, using black and red as switching legs (one for each light) and neutral. Does this question answer on March 27, 2016:I 3 Light Switch in box 2x4 and I want all its switching so its question answer on March 29, 2014:Article 404.2 (C) is what you're looking for. For the lighting control controlled by the general purpose branch circuit on the ground, the circuit connector must be provided on the ground for the controlled lighting circuit at the replacement site and thanks to pat; 3 Keys to the Road isn't really that tough, just a little different than most people used to think about switches.donald on March 29, 2014:I He was just looking to see if the code was called for a specific wire color for travelers and happened on your site. I am pleased to see that there are individuals out there who take the time to describe the work of the triangular circle in as understandable detail as you have. Patons on the shoulder. I have a question what article calls for there to be neutral in each switch box? I haven't to be able to show customers they have to pay more for a job! Thank you. Dan Harmon (author) of Boise, Idaho on March 05, 2014: You will need to install the new 4 switch in the way between two of the 3 road switches. Between the meaning of electrically, not necessarily naturally. You will need 12-3 of 3 way, to route 4 and on to the other route 3. Instructions and charts are available here: on March 05, 2014: I You have a 12-3 run from switch to switch. The power to the light comes from one key with 12-2. Is that possible without taking Drywall? Dan Harmon (author) of Boise, Idaho on March 02, 2014: It doesn't look as if your motion sensors are 3 way. Are you quite sure they are? In addition, the old keys, if 3 way, had three stations on them, in addition to the ground, to have all the wires. Two black wires are not enough - what are the other wires/colors in the boxes? Jacob on March 02, 2014: I You have 3 way in my My route 2 new motion sensors have 3 red black and ground but the old keys have 2 black wires and I know one witch is common but with only 3 wires how do I connect 4 wireDan Harmon (author) of Boise, Idaho on December 27, 2013: Almost certainly in one or another of the common wire keys has been switched with the traveler. Check the switch where the power arises and check that the first one then the other traveler is powered when the switch is flipped. If not, one of the traveler is hot, to the common wire. If not, one of the wires is exchanged with the common go to the light fixture. From your description, the problem lies in the power switch. This switch must always produce power in one of the two travelers. Jerry Leviner on December 27, 2013: My problem after wiring for a new light with two 3 way swithes is that if all of the keys are down then the light won't come in any of the switch. It loses power in non-power switching! What did I do wrong? Dan Harmon (author) of Boise, Idaho on June 26, 2013: If you put both a black fixture and a wire to the black wire of the circuit cutter the best thing that would happen is that it will blow the breaker. Most likely, in residential construction, it will cause each metal of the fixture to become hot whenever the light is turned on. Touching both the light and the ground source like a sink faucet will be shocking. So, it is not ok at all to put the floor wires to the black wire. If the house does not have the earth wires, simply bend the fixture is to blow up the crusher if the fixture is to touch the metal parts of the fixture somewhere inside the fixture. As long as the fixture is in good shape (presumably a new fixture is) there will be no problem. Philip on June 26, 2013: You have a friend doing work in my bathroom that has old wires coming from the circuit cutter. The new lighting device we add has a ground wire into the black wire. Is that right; Dan Harmon (author) of Boise, Idaho on April 20, 2013: Yes, that would work well. See the article on four road keys for wire diagrams. Just keep adding more than 4 road keys to the chart, always between two 3 road keys. There will have the same light feed cable.14 Guage wire is fine, as long as it is fed from 15 amp valves. Do not use 14 gauge wire on a circuit with 20 amp breaker. ... Article on 4 Road switches.bob on April 20, 2013: I need to power one light of seven or eight different locations using 3 way and 4 road keys using 14/3 wires I can do it manyDan Harmon (author) of Boise, Idaho on November 29, 2012: Amshas, I'm not sure what I'm referring to. If you can be more specific in your needs and what you are trying to achieve, maybe I can help you out.amshad on November 27, 2012: This is useful but I need 3 way 3 switch below the shared terminal is connected to one passenger, when the switch below the shared terminal is connected to the other passenger. There is no stop position. One passenger terminal or the other is always connected to the shared passenger terminal. Wiring charts basically only show different styles of running cables physically; Passenger terminal. Wiring charts basically only show different styles of running cables physically; Passenger terminal or the other is always connected to the passenger terminal or the other is always connected to the shared passenger terminal. sorry, but these four wires all digram seems to me the same thing. That's not an independent connection. If the first switch on the second switch work corectly, if the first switch is off the second switch work corectly, if the first switch is off the second switch work corectly if the second switch work corectly is off the second switch work corectly if the second switch work corectly is off the second switch work corectly is off the second switch the heart is actually very simple. The best thing about them is that they always electrically connect themselves regardless of the physical reality of the running wire. Dan Harmon (author) of Boise, Idaho on February 23, 2012: If you have three white wires to one side then they are either neutral wires or causes. Any hot position to the same side as either neutral or ground will immediately blow the valves or crusher. With more information I may be able to offer more concrete advice. Is this the old (pre-1950s) knob and wires in the box that are tied together? Does this have to be a switch, with half-hot all the time and half a switch? Are the wires old enough to suffer from discoloration, at least to the point that black has become gray or dirty white? So now I see a box with three neutrals and only one wire I can't imagine any application where this would be useful except maybe the knob and tubular wire, where there were no cables. All regular house wires have at least black and white in each cable. Or this is a non-house with wire entering the box via the canal (pipe)?Fee on February 23, 2012:rewiring old 3 white wires to 1 side of port 1 black to the hot side - I can only assume that 1 of the white wire should be hot as well, since the wort port work?thanksDan Harmon (author) of Boise, Idaho on January 03, 2012:@ Stefan - if you're sledding the white wire to the hot, then it's hot, not, and it should be colored at both ends so that no one will mistake the actual neutral. Black ribbon is fine for this purpose. Understand that it is not the color that makes neutral; Those wires or electrons flowing in do not know what color of insulation is. People do, though, that's why the NEC has decided to be all white neutral - when you're scattering this white wire to hot black is no longer neutral and shouldn't be white. Interestingly, the rule is very important that the NEC will not let you color the white wire. You can change the color from white to anything else (except green), but never say, black, to white. The only exception is #4 and large wires, which are so large that the only use in most homes is from the street to your home. Stefan on January 03, 2012: Thanks for chart 4. Any other book I looked at at Home Depot or online showed chart 4. Once I plug everything in, I color a neutral encoding that has been neutral to hot acts like hot when the appropriate combo conversion is performed. Did you do right by marking the hot neutral in the second switch box? Thanks.Dan Harmon (author) of Boise, Idaho on January 02, 2012: First, causes should not be separated. Any and all the reasons in the same box are always to be linked together (exceptions can be made for reasons in the same box are always to be linked together (exceptions can be made for reasons in the same box are always to be linked together (exceptions can be made for reasons of private computer circuits). Let me see if you understand what you're trying to do. Two switches to turn on light (A) and two switches to turn on light (B). The power comes from the valve panel in the box with the first switch, (call it 1A). The same power will then go to switch (1B). From that point, the wires are the same for each control circuit. I'm assuming here that one light is to be wired as in the #3 chart. The other light, with its two own keys is also wired as in the #3 chart. If this is the case, then the power in the wires are the same for each control circuit. neutral (white) and the ground (naked or green) must go to each of the first two keys, one for each light. Simply run the two rope between these two keys, paste on the power in the cable, and handle each set of independent keys. 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 just a written word, We can solve it. Bradage on January 02, 2012: Do you have any suggestions for wire 2 3 separate way switch devices (switch-light) from the same power source? I've gone that up and disconnected the neutrals in the second switch but still can't get the power to turn off. Do I need to separate the land too? Dan Harmon (author) of Boise, Idaho on December 07, 2011: It's really hard to diagnose from a distance, but the next power cable) on the traveler. You must have two wires marked by one traveler as common (which will not go hot without that second wired switch). If one T sign never goes hot, I would doubt that it is a subscriber, not a traveler. You can use volt meter, or offline voltage detector to track wires. Make sure that go hot, then cold when the switch is flipped - these are travelers in the second switch. From your description, which leaves two wires, connect one of them to any traveler hot, but if the light running this wire is then the joint and the fourth wire should simply be crowned with wire nut. However, it is possible that previous owners wired in the second switch that did not work properly. If you use a wire scheme #3 above, and use only two rope wire, the switches may work, but not properly. Is this probably what happened?dr on December 06, 2011: Our oldest house had 3 switch #1 to the fan/lights that work. But we're trying to add the switch #2 back in. We had a wire marked as T - the traveler but we can't get the switch #2 to work again - we can't seem to get power for it. There is no modern 3 wire used, two separate double wires were originally used. Can you go from switching power #1 to switch #2? Would we be better off running a new wire 3 to switch #2? Would we be better off running a new wire 3 to switch #2? Would we be better off running a new wire 3 to switch #2 or can we try to get it to work again as it is? Dan Harmon (author) of Boise, Idaho on November 14, 2011: It's actually pretty simple, isn't it? All those wires and colors often on 3 way light switch looks confusing but once you understand what's actually going on it's not too bad. Glad you found it helpful, thanks for the comment. It's always good to hear that I was able to help out.rocco on November 14, 2011: Thank you very much, for multiple ways, I now have a better understanding of the terminology and wiring methodDan Harmon (author) of Boise, Idaho on September 11, 2011: Good. It is certainly tempting to save some time and effort by cutting corners, but this is not the right place. It's just too serious, now and in future.wade on September 11, 2011: Thanks for I wouldn't feel good about doing it that way. But he had turned the wire and had his walls up to add him to his room I thought I might be able to save him time from a setback. Again, thanks, I see it is not worth the risk. Dan Harmon (author) of Boise, Idaho on Sep 09, 2011:Yes, in more than one. Without land there is a potential risk of shock. You will be unable to take advantage of the legally required ground screw on the switch. It is not legal to do what you are proposing and any future problems (a house probably burning) that can follow that the wires will lead to liability to whoever did it. In many states it is illegal to sell a house with known shortcomings like this without notifying the buyer, at which point the sale probably won't go through. In short, don't do it. As an electrician I won't do it. As an electrician I won't do it. As an electrician I won't do it. luck with your project.wade on September 07, 2011: Im helping a friend with wires 3 ways, has already ran 2 wire / with ground to keys, I ask for trouble if we skip the ground? Dan Harmon (author) of Boise, Idaho on September 07, 2011: When we look at connectipons to learn to simplify, thanks to uManna in the wild of Australia on March 06, 2011: Thanks. Dan Harmon (author) of Boise, Idaho on January 25, 2011: Thanks for comment - I hope you find use for information. whitton on January 25, 2011: Thanks for comment - I hope you find use for information. whitton on January 25, 2011: Thanks for comment - I hope you find use for information. Whitton on January 25, 2011: Thank you for this very informative Hub. Dan Harmon (author) of Boise, Idaho on November 29, 2010: Thank you, both on ping and s compliment.tamron on November 29, 2010: I Hey pinged! Well done and a well-written electric article! Dan Harmon (author) of Boise, Idaho on November 17, 2010: That's good to hear. Thanks for the comment - I appreciate it when someone lets me know I helped them. Dan Harmon (author) of Boise, Idaho on October 27, 2010: That's good to hear. Thanks for the comment - I appreciate it when someone lets me know I helped them. Dan Harmon (author) of Boise, Idaho on November 17, 2010: That's good to hear. find it useful in wire 3 way switch.stars439 from Louisiana, Magnolia and Swan State. October 27, 2010: Great information. GBYDan Harmon (author) of Boise, Idaho on October 18, 2010: You're absolutely right that it can be very frustrating. I once tried trouble shooting a friend's work and he had installed method 4 instead of 3 method (which is possible and will work) but it was wired wrong. Looked right if you do not notice screw 4, but will not work properly. Nearly 2 hours of tearing all the keys and 4 lights can be a little away before you notice his mistake! Very frustrating!dgicre from USA on October 18, 2010: This is great! Very common problem and link 3/way keys up The method leads to some interesting and often frustrating experiences. Dan Harmon (author) of Boise, Idaho on October 18, 2010: Thank you for the compliment. Wire 3 road switch is just enough different that a lot of people have even a little experience there. At least I found your problem, but there wasn't anything else. Many end up hiring an electrician to a 5-minute job! Dallas W. Thompson of Bakersfield, California on October 18, 2010: As a licensed California contractor, I thought I knew the basic wiring. I bought what I thought was a triple switch. Imagine my frustration after checking my wires three times, I checked the triple switch to determine that it was a normal single pole, to go out in two directions switch. Great information for those who understand the concept of wiring... Wire...