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## Fleetwood battery wiring diagrams

Dan has been a licensed electrician at the road level for about 17 years. He has extensive experience in most areas of electricity trade. Using 4-way switches4-way switches are always wired in conjunction with two 3-way switches. This means that whenever you find a 4-way switch, there will also be two 3-way switches controlling the same luminaire. Four-way switches are used only when 3 or more light switches controlling a single luminaire are available. Additional luminaires do not require additional switches if they are intended for all that are intended at the same time. Each such lighting circuit will contain two three-way switches and one or more four-way switches (the number of four-way switches that can be used in such a switching configuration is unlimited). Since three-piece switches will always be present, it is necessary to understand how to wire before trying to understand and use a 4-digit switch. If you're doing something more than just replacing a faulty 4-way switch, check the link to how to wire the 3-way switch before proceeding; opens in a new window that returns the reader here when it is closed. If, on the other hand, you are simply replacing the four-way switch in the existing circuit, the next part will deal with a simpler task.4-Way SwitchBack side of the 4-way switch. There are 4 places to exit the wire, plus a green screw at the top of the switch for a green or bare grounder. This switch has screws on the sides, as well as holes in the back. Contactless voltage detector from AmazonReplacing 4-Way SwitchYou start your task by turning off the power. Make sure the power is off before proceeding. Turn on the light and turn off the circuit breakers or gradually remove the fuses until the light goes out. It is a good idea to use a piece of tape through the handle of the circuit breaker; the second person who tries to turn the circuit back on to restore the lights in another room realizes that there is a reason why it is turned off and does not turn it back when you are working on the circuit. Remove the two screws in the cover plate and put them together with the cover. There are two other screws that hold the switch in place; unscrew those and set them aside as well. Grab the switch by the ears at the top and bottom and gently pull it out of the electric box and be careful not to touch the wires on the sides. Best practices in the field of electrical safety here require the use of a voltmeter to check that the circuit is actually switched off; either use a contactless voltage detector or a voltmeter with one probe to each side terminal (one by one), while the other touches the green ground screw near one end of the switch. Maybe you turned off the wrong circuit breaker, the light bulb could have died out while you were away on the circuit breaker panel, or someone else might have turned it back on. Make sure that the circuit is before continuing or touching the bare wires. There are four wires that are terminated (attached to) a 4-way switch, plus green or bare earthy wire. Almost in any case, these wires enter the wall box in 2 separate cables. These cables will probably contain at least one additional wire each, but these additional wires are simply connected together in the wall box and do not end on the switch; there is no reason to disturb them at all if you do not want to simply verify that the connections are fixed. Remove the wires from their ends on the switch. If the wires are under the side screws, loosen these screws (they cannot be completely removed) and bend the wire under the screw. If the wires are pushed into a small hole in the back of the switch, insert a small screwdriver or other tool into the groove next to them; this releases the spring tension and allows the wires to be pulled out of the below-the-ground. Occasionally they are frozen in place after years of use; if this happens, cut the wire as close as possible to the switch and separate about 1/2 of the insulation from the end of the wire for use with the new switch. Fold the wires that were on top of the switch up and out of the box, and the wires that were at the bottom down and out of the box. This will be a reminder of where they are to be terminated on the new switch, but if they break and you can't tell where they're going, find out where each wire comes from. Although there may be two multi-wire cables entering the box through the same hole in the electrical cabinet, you will find two wires in each cable that go into the switch. Two wires from one cable end up on the top two screws (it doesn't matter which of the top two screws is used for which wire) and two of the other cable ends up on the bottom two screws. The last wire will be either green or, more commonly, completely bare insulation. This wire goes into the green screw located near the end of the switch and is a ground part. Modern electrical codes require this wire with every switch, but older houses may not have it; if it's missing from the box, leave the green screw empty. Although it is quick and easy to simply push the wires into the new switch, and most electricians do this in order to save time, it is preferable to place them under the screws, because the springs in the holes will loosen over the years and form a bad connection. Using pliers on the nose of a needle or other tool, bend the bare end of the wire into a small circle, release the screws as far as they go, and work with the wire under the head of the screw and around the screw clockwise (if the screw is attached backwards, it will tend to unblock the wire and can get away from the screw). Tighten the screw tightly and repeat for each wire. If there is a grounded wire in the box, stop the ground wire on the ground screw. Insert a switch into the box, neatly folding the wires. Try to keep all the wires behind the switch, not next to it. Fix the switch with both supplied screws, remount the cover plate using the same screws that you carefully stored, and you're done.3-Way and 4-Way Switch Wiring Diagrams3-way switch diagramSame diagram, but with 4-way switch added. Connecting the new 4-way switchIn the risk of repetition, make sure that the power is turned off before connecting to an existing circuit. While some of the work will be with wires that can't be carrying power yet, there must come a time when they are connected to what could be hot wires-be absolutely sure that this circuit is dead. For those readers who will install a completely new circuit and are not familiar with the physical acquisition of wire from one place to another, the article on how to add a socket contains valuable tips and instructions on the process. The process of pulling wire through walls, ceilings and attic is the same, whether for lights or containers. The two wiring diagrams above are the 3-way switch setting and the same basic setting with the 4 way light switch added. While the physical location of the 4 way switch can be anywhere, the electrical location of the switch is always between two 3-way switches. If four more four-way switches are needed, they will also be between three-way switches. Electrically, three-way switches are always the first and last in a series of switches. If you are not familiar with the 3-way switches the link listed near the top can be valuable and is recommended reading. While other methods of physically obtaining the necessary wires for each switch are possible (see article on cabling three-way switches), the national electrical code 2011, Article 404.2.C, has been changed to require a neutral (white) wire in each location of the switch, whether it is actually used or not. In general, the above scheme is most often used and is a good guide for wiring the new 4-way switching circuit. When plugging in the 4 way switch, it is most simply described as simply cutting two travel wires (two wires that go between two 3 way switches and ending on each switch) and putting two wires from one switch on the top two terminals of the 4 way switch, while the other two wires from the other switch to the bottom two terminals. The first of the two diagrams is taken directly from the above article; the second is only the same diagram extended to allow you to add a 4-way switch in the middle. Each of the diagrams in article 3-way switch can be treated in the same way; Just add a 4-way switch between the other two and terminate the passenger wires on the 4-way switch while making sure it is neutral in each box. Be careful - some of these diagrams almost make it impossible to have a neutral wire in the box and have been included people working in older people's lives. The new work, unlike simply replacing the switch, must have a neutral conductor in each switchboard. Any additional wires passing between two switches (usually one additional wire) are simply connected to a 4-way switch to continue without interruption. Make sure that the green or bare ground cable is always pigtailed and terminated on all switches. Using the diagram shown here, the Romex two-wire cable (black and white wires) is used to power the first switch. From there, 3 wire cables (black, white and red) are used between the switches, with the final 2 wire cable switching from the last switch to the luminaire. As you can see, the neutral from the power in the cable simply passes through each electrical cabinet, connects as needed and ends up in the luminaire; in this way, the NEC is satisfied with the neutral code in each box. When finishing the wires on each switch has the first, 3 way, the switch has a black power wire terminated on the common terminal (the screw is slightly different color from the two travel screws) and two travel wires (black and red from the 3-wire cable) on the other two terminals. Plus, of course, grounder; grounding wires are pigtailed at each switch and finished on the green ground screw of the switch. White, neutral wires from both cables are connected to the wire nut; strip insulation from the last 1/2 and turn the wire nut. Pull firmly on each wire and hold the nut in the other hand; if it will crumble much better it does so now, rather than later, back in a box where you can't see it. The second (4-way) switch has two travel wires (black and red) from the first switch terminated to the top two terminals and two wires (again black and red) from the final (3-way) switch terminated at the bottom two terminals. Plus the ground. Again, the white neutral wire is simply braided directly with a wire nut. The final (3-way) switch has two passengers from the 4-way terminated to the travel terminals and a black switch leg from the luminaire to the common terminal. Exit the grounding wire and reassociate the neutral conductors without ending them anywhere. The last word of caution; when purchasing switches, make sure that the current of the switch is dimensioned at least as much as the circuit breaker that turns off the power supply of the circuit you are working on. The 20 amp switch can be used on a 15 amp circuit, but never put a 15 amp switch on a 20 amp circuit. Be careful when reusing older switches, as some do not have a ground terminal; the current NEC code requires each switch to be grounded. Similarly, each new wire used must correspond to an existing wire. A 20 amp circuit requires 12 wire gauges (either 12-2 or 12-3), while a 15 amp circuit can use 14 wire gauges (14-2 or 14-3). 14 gauge wire is easier to use and cheaper as well, if you are tying up to 20 amp circuit, you need to use 12 wire gauge. This article is accurate and faithful to the best of the author's knowledge. The content is intended for informational or entertainment purposes only and does not replace personal legal representatives or professional advice in commercial, financial, legal or technical matters. Questions & AnswersQuest: I have three switching cabinets connected to three wire cables, the middle cabinet has a two-wire cable to the light. The power supply is at one of the end switch boxes. Can I and how can I connect the wires for this four-way switch set up? A: It is possible even if it does not meet the current code. Power black goes into joint first three-way with black and red going to travel terminals. White joints for power neutral (white) with wire nut. Always make sure that the reasons are associated with the pigtail on the switch. In the center box with the four-way switch, the black and red from the first box gets into two terminals with black and red, which goes into the third box to the other two terminals. White neutral joints for white light. In the third box, black and red are passengers with white going into common. It becomes a foot switch, hot when the light is on and should be colored anything other than white. The other end of that white switch leg, in the center of the field, must be colored (magic marker, black tape, some way to indicate that it is not neutral) and the joints on the black go to light. The current code requires neutral in each switch box and you won't have one in the third box, which is why it won't meet the code in most places. Q: I have a switch that has 2, 3-way switches and 1, 4-way. I want to install a timer in the wall, what should I do? A: Three-way timers are available from Amazon or other vendors. Many require neutral wire, so make sure it is available before buying. Q: We have a bedroom overhead LED light that went out at night. After a few minutes, she caught fire once, and then she was out again. The three switches in the bathroom right next to the bedroom also didn't work when the light in the bedroom stopped working. We tried to install a new light switch container and still nothing works. What could be going on here? Answer: It may just be guessing over long distances like this, but I would suspect that there is a poor connection from where power comes from – probably another bedroom. Make sure there are power supplies on one of the switches. If not, open the light clamping boxes (you probably have to remove the luminaires) and check there. If you find power anywhere, try to see how it gets to the switches and make sure there is no wrong connection. If you don't find any power anywhere, it means that either the circuit breaker is tripped over or that it was lost in another room. Repeat the procedure for all other switches or accessories anywhere on this circuit.© Dan HarmonCommentsDan Harmon (author) of Boise, Idaho on August 03, 2017: The only time I had the LED lights lit without the switch on was when used with an electronic dimmer. However, the wire installed next to another wire will catch some voltage. Millivolts are everything I've ever seen except fluorescent light ballasts. Don August 03, 2017:I have 3 separate lights that are powered from the same circuit. Two lights are switched by two three-way switches. One has three switches, two three-way and four-way. The light with three switches and one of the other lights switched on by two or three has a low voltage @ light, when the light is off, they have about 38 volts in light. The last light in the circuit has zero voltage @ light when it is turned off. I had an electrician here investigate & said it's common to have voltage present when the switches are off. Remember that one of the lights powered by two three-way switches has zero voltage @ light. He told me that light without voltage @ it with a switch is unusual. We switched all the LED lights, and after dark the lights only came on with these two lights. Where does the tension come from? Dan Harmon (author) from Boise, Idaho on July 04, 2017: Sounds like you lost connection when you added new lights. Check all connections again and make sure that something did not come out of the wire nut. If you want the switches to control the new lights, they should be tied to the same wires as the old light. Brian Eagan June 30, 2017: Can you help me with the 4 way switch problem? I have a loop light switch with 3 switches after the power goes into the light first (old style I know) and I added 4 more luminaires from HOT and Neutral to the first luminaire – and now only 2 of the 3 switches can control the lights – the third switch has absolutely no AC to go for it at all – really a head scraper for me – I double check all my connections – each of the y'all have an idea of my problem? Dan Harmon (author) of Boise, Idaho on June 21, 2017: Look for loose connections, circuit breakers turned off and light bulbs burned out. Test with the meter that you have power on each switch, since the previous switches are turned on (test, flip switches and check because there is no real on). Finally, check again that everything is properly plugged in - it is really easy to incorrectly wire somewhere in the set of switches 3 and 4. Andy June 21, 2017: As you're doing this, I'm plugged in exactly as you said, and the switches still won't work any other designsDan Harmon (author) of Boise, Idaho on May 23, 2011: I never thought that but yes, understanding the logic of the 4 way switch system would be a great way to start learning about driving and logical circuits. Teresa Schultz from East London, in South Africa on May 23, 2011: Confusing to me but it would come in handy to show your boys when they were learning about electrical circuits and switches at school last year! Good information, and nicely explained. Explained.

