HOW-TO BOOKLET #3077

INSTALL TRACK LIGHTING

TOOL & MATERIAL CHECKLIST

- ❑ Circuit Tester
- ❑ Offset Hanger Bar (Plaster)
- ❑ Romex Cable
- ❑ Adjustable Hanger Bar (Wallboard)
- ❑ Fish Tape
- ❑ Insulation Stripper
- ❑ Lineman's Pliers

Read This Entire How-To Booklet for Specific Tools and Materials Not Noted in the Basics Listed Above.

Track lights are adjustable fixtures that are plugged into prewired channel-like devices, called tracks, which install on a ceiling (**Fig. 1**). Use track lighting to highlight a family portrait, a work of art, a piece of furniture, or any other object.

Track lighting is not recommended over a chair, couch, or bed to read by, or over a desk or counter-top to work by. The light given off by one fixture is only 50 watts or less, which is not sufficient for reading or close work. If using track lighting in such situations, increase the light output by grouping two or more fixtures on a track and aiming beams directly at the reading or work area.

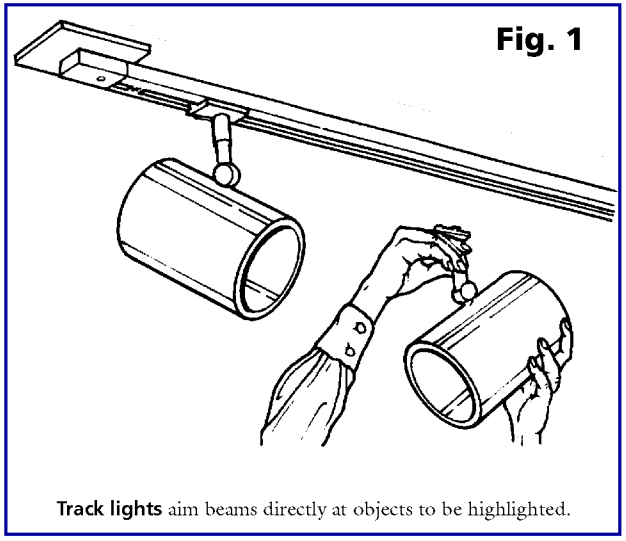


Fig. 1

Track lights aim beams directly at objects to be highlighted.

SELECTING A KIT

A track lighting kit normally includes the track, end cap, cover plate, fixtures(s), and toggle bolts. Consider the following before purchasing a kit:

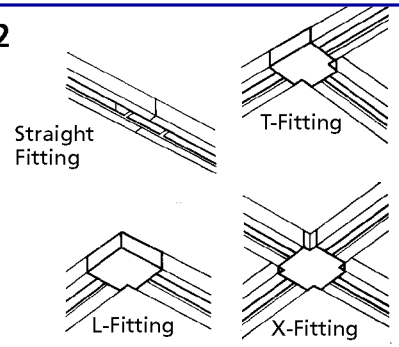
- Electric components should bear the Underwriters Laboratories (UL) mark of certification.
- Select a kit that provides a sufficiently long track to permit the installation of the desired number of fixtures. Tracks come in lengths of 2', 4', and 8' (12' by special order). Without crowding fixtures, one can be placed every 12".
- If you are installing more than one track in a room and want to interconnect them, find out if the manufacturer of the kit offers fittings for the desired straight, L-, T-, or X-shaped configuration (**Fig. 2**).
- Fixtures are marked to accept 25-, 40-, or 50-watt incandescent bulbs. Exceeding the specifications can cause damage to a fixture. By wiring a 60-watt, 12-volt transformer between the 120-volt household circuit and the track, it is possible to convert a track system to operate on 12 volts and use low-wattage tungsten-halogen bulbs. Although the beam spread of a low-wattage tungsten-halogen bulb is very narrow, the light is intense enough to read by.

INSTALLATION CHOICES

There are three installation options:

- If there is an existing ceiling fixture or chandelier where the track will be hung, first turn off the power. Then take down the fixture or chandelier, install the track, and connect it to the wires left vacant by the fixture or chandelier.
- If there is a switched wall outlet below where the track will be hung, buy a track design to be used as a portable fixture. This will come with a cord attached or will specify a proper cord to use. This cord is not to be nailed or stapled in place as a substitute for permanent wiring. It is not manufactured to the same standards as building cable. You can hide the cord in place with a cover that slips over it.
- If the above options don't apply or aren't possible or desirable, wire the track to a wall outlet that is not served by a switch and install a switch, or wire the track to an existing end-of-the-run switch. Either method requires fishing wire form the power source through the wall to above the track, and installing a junction box in the ceiling so the track can be wired to the power source. If the area above the track isn't an unfinished attic, this can be difficult and thus might make option 2 more desirable.

Fig. 2



For a track network, be sure the equipment manufacturer offers fittings for networking.

For the purpose of describing how to install track lighting, this Booklet assumes that: (1) there is an open, unfinished attic above the room, and (2) there is an end-of-the-run wall switch that can be tapped for power.

If the second point doesn't apply, use the information that follows as a guide, but vary the wiring steps to meet the specific requirements.

CAUTION: If the wiring steps described below must be varied because there is no end-of-the run wall switch, hire a licensed electrician if you are not experienced in doing electrical work.

LAYOUT

1. Decide where the track is to be located. You can simplify the wire fishing process by devising a plan that places the track along the wall with the switch.

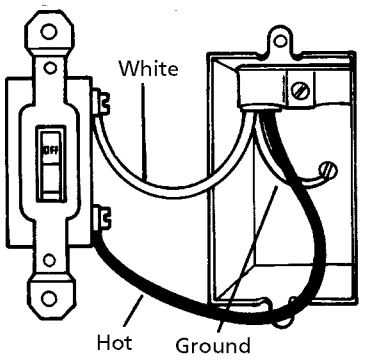
CAUTION: Turn off power to the switch before proceeding.

2. To determine if you are dealing with an end-of-the-run switch, unscrew the switch plate and pull the switch out of the wall. An end-of-the-run wall switch has two wires — hot and neutral (normally black and white, respectively) — connected to terminal screws (**Fig. 3**). Assume the switch also has a ground wire attached to a screw that is fastened to the switch box. When the inspection is complete, leave the switch just the way it is and leave the power off.

CAUTION: Don't touch wires or terminal screws before using a circuit tester to make certain the switch is dead.

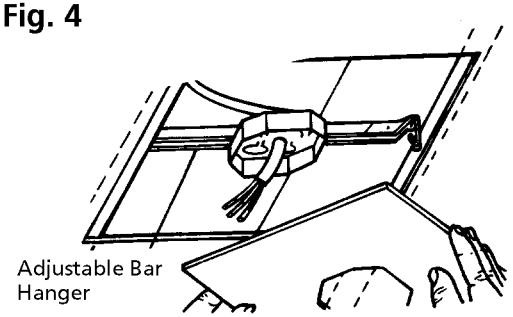
3. Using a tape measure, measure out from the wall no less than 12" and no more than 24". Make a reference mark every 12" or so along the ceiling. Then draw a straight line to connect the reference marks. It's along this line that the track will be hung.

Fig. 3



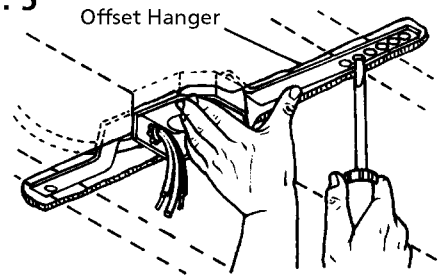
Typical end-of-the-run grounded switch

Fig. 4



Cutaway view of the junction box after installing Romex cable in gypsum wallboard

Fig. 5



Cutaway view of the junction box after installing Romex cable in plaster

4. Hold a junction box on the ceiling at the spot where the end cap of the track will fall and use a pencil to draw an outline of the box perimeter on the ceiling. The end cap is the part of the track to which wires are connected. It usually comes as a separate component in the track lighting kit.

   Make sure that the spot selected for the junction box falls between joists, which can be found with a stud locator. If a joist is in the way, shift the position for the track the few inches that are needed to provide the necessary space.

5. Knock a hole in the gypsum wallboard where the junction box is to go, and use a keyhole saw to cut out the opening for the box. If the ceiling is plaster and lath, a 1" chisel and hammer must be used to cut a channel in the plaster; then, use a keyhole saw to cut away the lath between the two joists. Widen the opening for the junction box.

CAUTION: Wear eye protection when cutting gypsum wallboard or plaster.

6. If working with gypsum wallboard, attach the junction box to an adjustable hanger bar. Then screw the bar to the joists from the attic side so the junction box falls in the hole (**Fig. 4**). If working with plaster, screw the junction box to an offset hanger bar and screw the bar to the bottom of the joists from the room side (**Fig. 5**).

WIRING

1. Use a hammer and awl to knock out a plug in the top of the switch box.
2. Run a fish tape up through the hole in the switch box until a helper hollers down that the tape has reached the attic.
3. Strip the insulation from the ends of the Romex cable. Don't skimp on the length of the cable; better that it be too long than not long enough.
4. Drop one end of the Romex cable down through the junction box in the ceiling.
5. Tape the other end of the Romex cable to the fish tape in the attic. Then, at the switch, draw the fish tape in the attic. Then, at the switch, draw the fish tape and cable into the switch box. Untape the two. Next, the Romex cable wires must be connected to the switch as described in steps 6 to 9.
6. Unscrew the neutral (usually white) wire from the switch terminal screw. Attach the black wire of the Romex cable to this screw.
7. Make sure that the ends of the disconnected neutral wire and of the Romex white (neutral) wire are straight and meet evenly when held next to each other. If they aren't, use lineman pliers to correct them. Holding the two side by side, connect the wires together with a twist-on connector (**Fig. 6**).

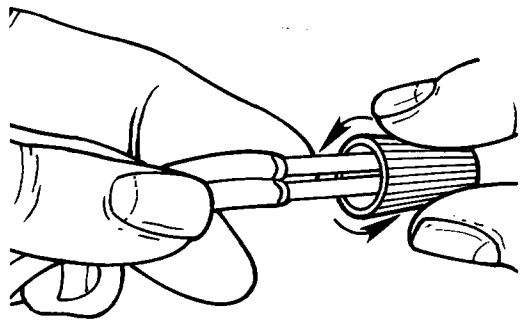
   NOTE: Unless the instructions accompanying the wire connectors say differently, do not twist the wires together before installing the wire connector. Turning the wire connector as tightly as possible will insure a secure and proper connection.
8. Disconnect the ground (green or bare copper) wire by loosening the screw from the switch box. Wrap a pigtail wire around the screw and tighten it.
9. Connect the removed ground wire, the installed pigtail wire, and the green or bare copper wire of the Romex cable with a wire connector by following the instructions above.

CAUTION: Do not restore power and do not put the switch back into the switch box as yet.

TRACK INSTALLATION

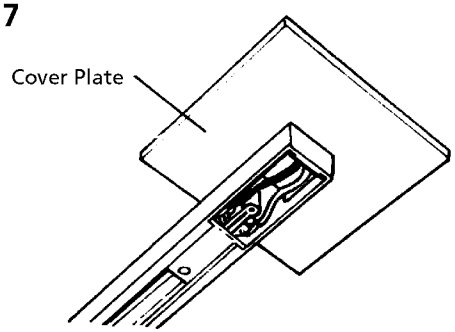
1. If not already in place, slide the end cap into one end of the track and tighten the attachment screw to secure it.
2. Remove the bottom plate of the end cap, the one that will face into the room, and set it aside.
3. Unscrew the back cover from the end cap (if there is one) and screw the plate from the kit onto the cap. This plate is designed to cover the hole and junction box in the ceiling (**Fig. 7**).

Fig. 6



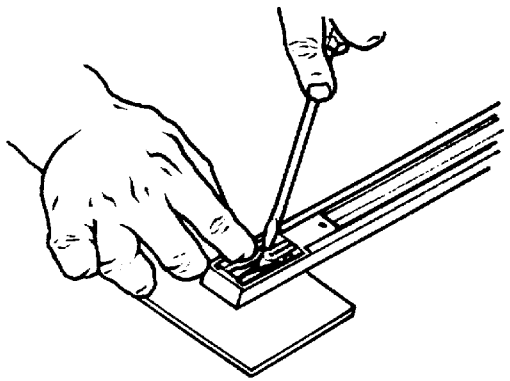
Connecting wires with wire connectors

Fig. 7



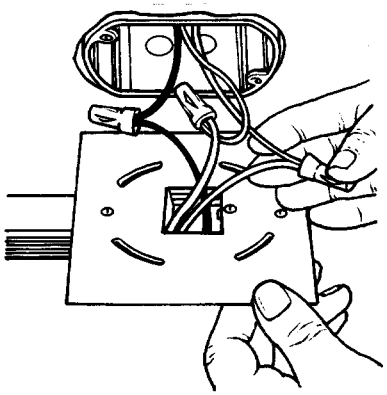
The cover plate conceals the junction box.

Fig. 8



If necessary, screw the wires to the terminal screws in the end cap.

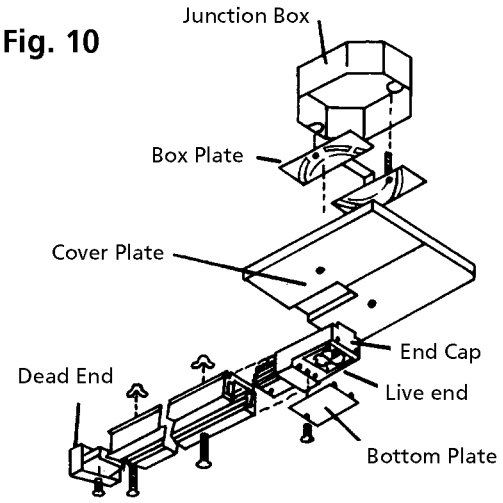
Fig. 9



Alternate method of connecting wires

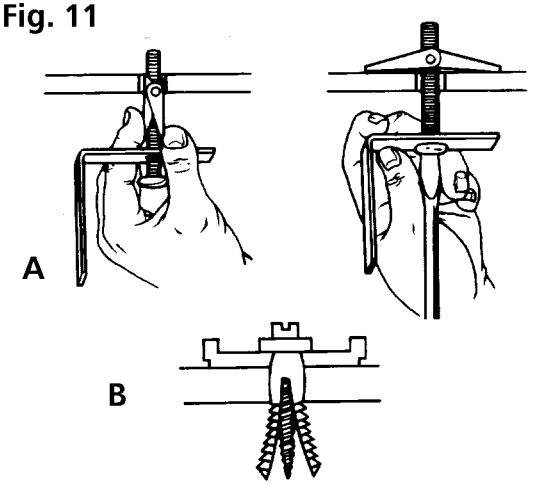
4. While a helper holds the track to the ceiling, mark off locations for toggle bolts (for a gypsum wallboard ceiling) or anchors and screws (for a plaster ceiling). Tracks are usually predrilled with holes for fasteners.
5. Drill holes in the ceiling for toggle bolts or anchors. Insert the fasteners.
6. With help, run the wires from the junction box to the end cap. The kit will contain information about attaching wires that should be followed for specifics. Generally, what will be done is to connect the Romex cable hot (black) wire to the hot (gold) terminal screw in the cap or to the black track wire extending from the cap (**Figs. 8 and 9**). Use a wire connector to attach two wires if that's the setup.
7. Connect the Romex cable neutral (white) wire to the neutral (silver) terminal screw in the cap or to the white wire extending from the cap. Then connect the Romex cable green or bare (ground) wire to the center (ground) screw, or to the green or bare wire in the end cap. **Fig. 10** illustrates these connections.
8. Using toggle bolts or anchor screws, attach the track to ceiling (**Fig. 11**).
9. Slide a fixture onto the track and twist it so it makes contact. Screw in a bulb, restore power, and flip on the switch to test for light. If there is none, turn off the power and inspect the work to find the improperly made or loose connection.
10. To complete the job, turn off the electricity. Then make sure that the track is firmly secured to the ceiling, screw the bottom plate to the end cap, insert the switch into the wall, install the switch plate, and turn the power on.
11. If working with a plaster ceiling, fill the channels with plaster compound and paint the ceiling.

Fig. 10



Exploded view of assembled track parts

Fig. 11



(A) Toggle bolts and **(B)** anchor screws are commonly used to attach the track to the ceiling.