

WIRE-IN RECEIVER INSTALLATION



(North America version)

Lightning Switch® Wire-In Receivers can be a convenient and flexible way to provide wireless, batteryless remote control of any electrical device. The Wire-In Receiver's small size, many features, high power rating, and ease of installation makes them ideal for this use. **The Lightning Switch RMW120P4 120V Wire-in Receiver can be used with lighting, fans, motors, compressors, resistive heating and any other electrical devices that require up to 1800 Watts of power (Up to 15 Amps or 2.4 HP)** If you need to control more than 1800 Watts (15 Amps), please download the document "Using a Relay with your Lightning Switch Receiver" from our Web site at www.LightningSwitch.com. Features:

- The Receiver can be used to turn any electrical device up to 1800 Watts (15 Amps/2.4 HP) "On" or "Off";
- It can "learn" the ID codes from up to 40 different Lightning Switch® Transmitters;
- It can be set to recover from a power outage either "Off" or in whatever state it was in when the power was shut off;
- It can be used as a timer to run an appliance for a specified period of time, then shut off. The Receiver comes from the factory with the timer feature turned off. If you want to use the timer feature, you will need to turn it "on" as described on later pages;
- Even if you lose or break your Transmitter, you can always turn the Receiver "On" manually;
- It has additional features that allow it to be used in an environment that contains many Receivers, many Transmitters, and many System Extenders.
- Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

First, we'll explain how to install it, then we'll cover the additional features in detail.

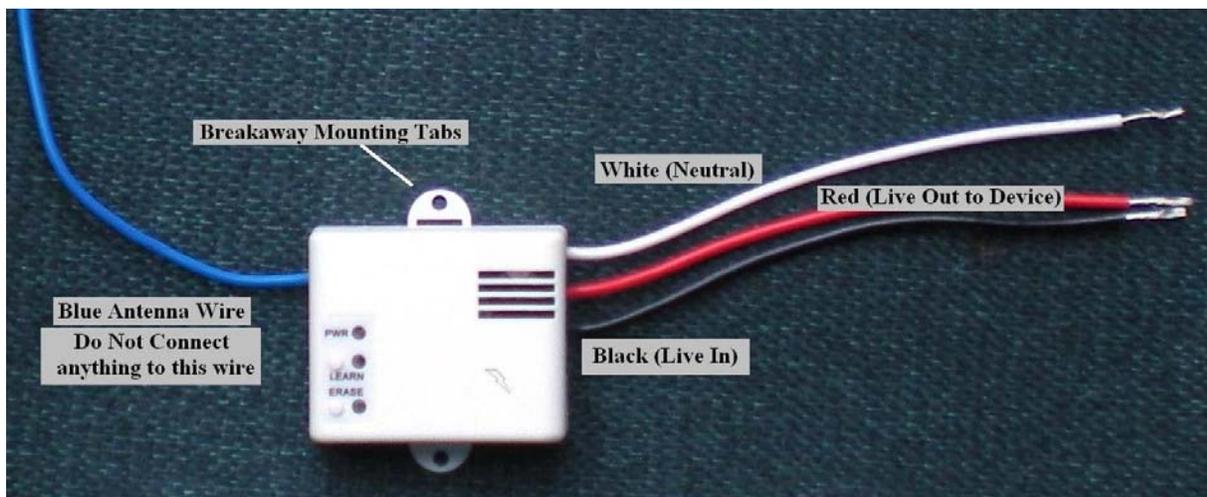
Installing Wire-In Receivers

Mounting the Wire-In Receiver in an Electrical (Junction) Box in the Ceiling

(To control a ceiling light fixture, chandelier, etc.)

The Wire-in Receiver must be connected between the power supply to the fixture and the lamp (or other device) that the Receiver is to control. While most people choose to locate the Wire-in Receiver in the electrical junction box located next to the device being controlled, you can install the Wire-In Receiver anyplace in your electrical system between the power supply and the fixture. Note: Electrical codes vary widely from location to location. You should follow the electrical code for your particular location.

The RMW 120P4 120V Wire-In Receiver is small (2.2" x 1.8" x 1.1") and easy to fit within most standard electrical junction boxes. If you have a choice, a plastic box will provide better reception for the radio signal, but a metal box will work if you pull the Antenna outside the box. The receiver's wires are color-coded for your convenience. The Black and White wires provide power to the Receiver and should be connected to 110-120V AC power (Black is the "Live" wire, and White is the "Neutral" wire.) The Red wire is "Switched Out"; this is the wire that is connected to the "Live In" connector on your electrical device. Note that the Blue wire is NOT an electrical lead. It is an external antenna for the Receiver. Never connect the Blue wire to anything.



After making the connections as shown on the next two pages, "train" the Receiver to respond to your Transmitter(s), then cover the box and hang the fixture (or other device). "Training" the Receiver is described in detail on page 3. Note: The flexible Blue Antenna wire can be coiled inside the junction box or pulled outside for better reception.

Most Lightning® Products can be installed by anyone, but please read **Prevent Unsafe Acts!** On the last page of these instructions for the precautions everyone should take when working around electricity. L-INST-WI 7/8/10

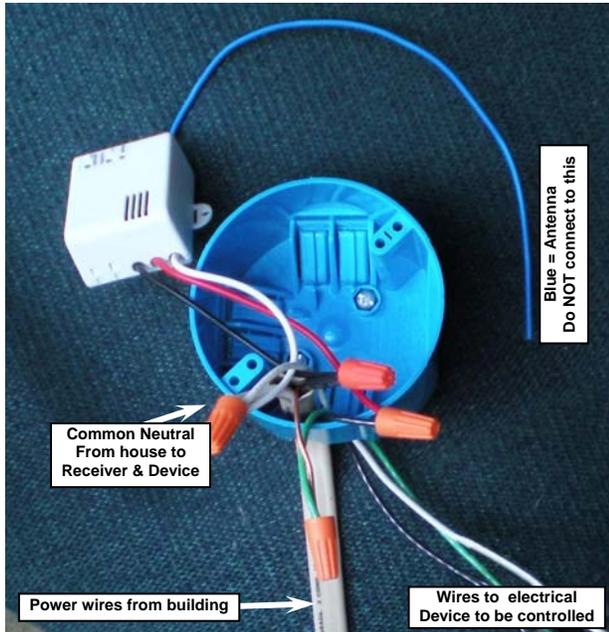
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It is important to note that the power to the Receiver must always be "On," so that the Receiver can control when the lamp (or other device) goes "On" and "Off." If you are renovating an existing system, any conventional wall switches must be removed and the power wires permanently connected.

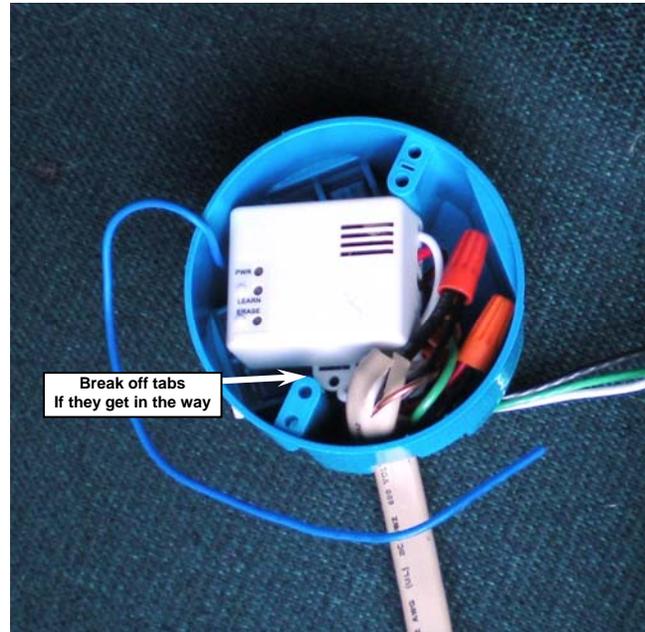
The Receiver's "Live In" Black and "Neutral In" White wires are connected to the 110-120V power supply.

The Receiver's "Switched Live Out" Red wire is connected to the lamp or device, along with a common Neutral wire.

Many electrical devices are designed to be connected to a Ground wire. If your device requires a ground wire, you must provide this connection with the ground wire from the building. The Lightning Switch 120V Wire-In Receiver does not require a ground.



Step 1
Make connections



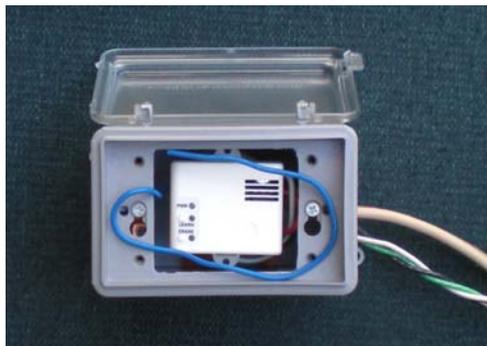
Step 2
Tuck wires and connectors into the box

Tuck the wires neatly into the junction box and "train" the Receiver to respond to your Transmitter(s) before the box is covered. The Blue Antenna wire can be coiled inside the box or pulled out of the box to give better reception. All overhead junction boxes and all wall sconce junction boxes contain both "Live" and "Neutral" wires, so you can always mount the Wire-In Receiver there. Subject to your local building codes, you can mount the Wire-In Receiver wherever you have both Live and Neutral power wires. **Please note that most Light Switch Boxes do NOT have a Neutral line inside the box, so you will not be able to place the Receiver inside your switch box.** "Training" Receivers to respond to Transmitters is covered on page 3.

Mounting the Wire-In Receiver Outdoors (To control an outdoor lighting fixture)

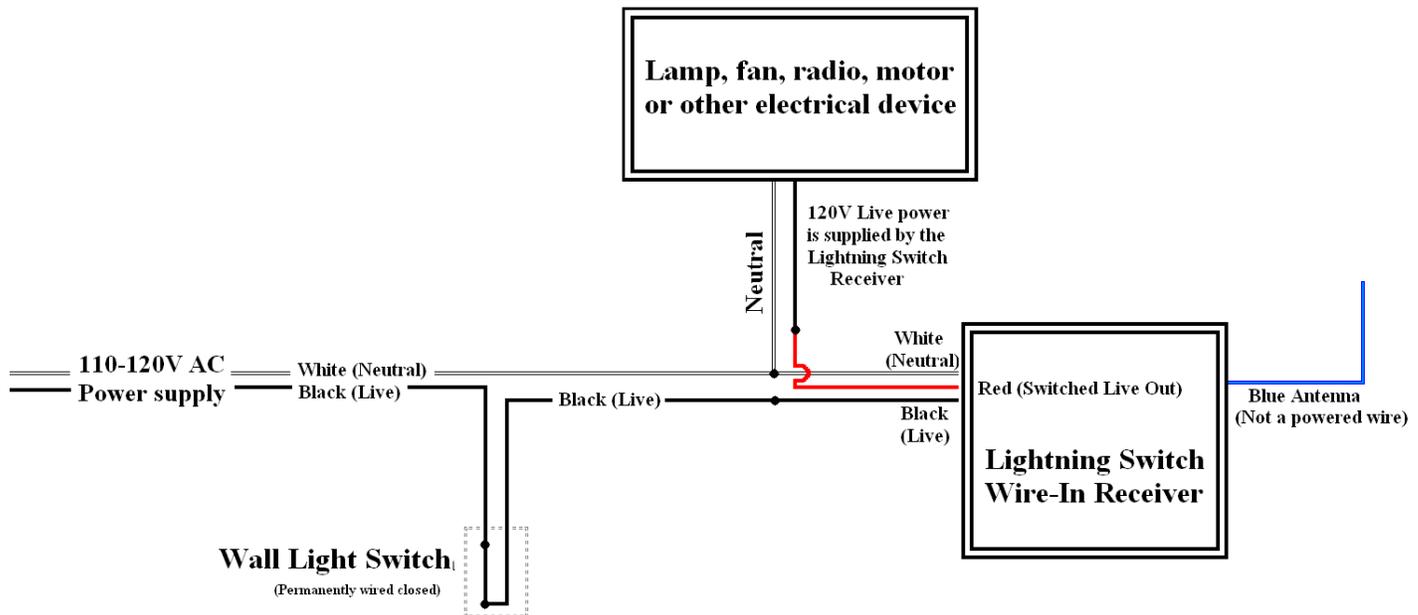
You need a special electrical box for damp or wet areas. There are many sizes and styles available. The installation procedure is the same as for indoors, except that you will be using a junction box suitable for use in wet areas. Again, the Receiver must be connected inside the electrical box between the power supply to the device and the device itself. To do this, place the Receiver inside the damp-proof junction box and connect the receiver's "Live In" Black and "Neutral In" White wires to the power supply, then connect the receiver's "Switched Live Out" Red wire to the device you want to control. You must also provide a Neutral wire for the device being controlled. The receiver's wires are color-coded for your convenience. The Blue Antenna wire can be coiled inside the box as shown or can be pulled outside the box for better reception. Seal the box per the instructions that came with the box.

Note: PVC pipe to and from junction box is not shown.



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Power On Display

When 110-120V AC power is first applied to the Wire-In Receiver, the red LED will glow for about 3 seconds to indicate that power has been applied. From this point on, the red LED will only glow when the Receiver has received a command to turn the appliance "On". The red LED will stay on as long as power is being supplied to your electrical device.

Training the Receiver

Before a Receiver will respond to commands from a Transmitter, it must be "trained" to respond to the Transmitter. Press and release the "Learn" button on the Receiver. Just tap the button. The green LED will glow for ~10 sec. During this time, press the Transmitter that you want the Receiver to respond to. The green LED will turn off when the Transmitter ID Code is learned or when the 10 sec period expires. The Receiver will automatically return to the normal operating mode when the green LED goes off. Note: If the Transmitter ID Code is already in the Receiver's memory, the green LED will blink off and then turn on until it times out. This is your notice that this Receiver has already been trained to respond to this Transmitter.

Erasing a Transmitter from memory

If you want the Receiver to stop responding to a Transmitter, press and release the "Erase" button on the Receiver. The yellow LED will glow for ~10 sec. During this time, press the Transmitter that you want the Receiver to ignore. The yellow LED will turn off when the Transmitter ID Code is erased or when the 10 sec period expires. The Receiver will automatically return to the normal operating mode when the yellow LED goes off. Note: If the Transmitter ID Code you are trying to erase is not in the Receiver's memory, the yellow LED will blink off and then turn on until it times out. This is your notice that this Transmitter ID Code has already been erased from this Receiver.

Erasing all Transmitters from memory

If you want the Receiver to stop responding to all Transmitters, press *and hold* both the "Learn" and "Erase" buttons on the Receiver. Hold them both down for ~4 seconds until the green and yellow LED's start to blink. They will both blink for about 3 seconds. While they are still blinking, release both buttons, then press *and hold* both the "Learn" and "Erase" buttons again until the green and yellow LED's turn off. When the green and yellow LED's turn off, all Transmitter ID codes have been erased. The Receiver will automatically return to the normal operating mode when the green and yellow LED's turn off, or if the 3 second time period expires.

WIRE-IN RECEIVER INSTALLATION

Special Features

Adjustable Time Delay

If the Time Delay feature is implemented, the Receiver will turn itself "Off" after a set period of time.

The factory default position is not to use the Time Delay feature. If you want to use the Time Delay option:

- Press **and hold** the "Erase" button for ~3 seconds until the yellow LED stays "On". After you release the "Erase" button, the green LED will blink to tell you the present setting. (see the chart below to interpret the blinking green LED)
- If you want to change the Time Delay settings, press **and release** the "Erase" button to increment to the next higher setting on the chart below. You must press the "Erase" button within 10 seconds. If you do not press any other buttons within 10 seconds, the Receiver will return to normal operating mode.
- Each time you press **and release** the "Erase" button, the Receiver will change to the next setting on the chart and then the green LED will blink to indicate the present status. Repeat this process as needed to get to the desired time "On" setting. When you reach the maximum time delay, the next press of the "Erase" button will turn the Time Delay feature off. Pressing the "Erase" button once more will start the process over.
- Once you have reached the desired time delay, press **and hold** the "Erase" button until the yellow LED turns off.
- To return to the factory default (no time delay) at any point while in this mode, press **and release** the "Learn" button. The green LED will blink rapidly for 5 seconds indicating that the Time delay Function is disabled.
- Once again, to return to the factory default (no time delay) at any point while in this mode, **press and release the "Learn" button**. The green LED will blink rapidly for 5 seconds indicating that the Time delay Function is disabled.

Adjustable Time Delay	
Time ON	Green LED Blink Cycle
0.5 sec	2 short blinks
1 sec	1 long blink
3 sec	1 long blink & 2 short blinks
1 min	2 long blinks
2 min	2 long blinks & 2 short blinks
10 min	3 long blinks
30 min	3 long blinks & 2 short blinks
1 hour	4 long blinks
4 hours	4 long blinks & 2 short blinks
Time Delay Function Disabled	Fast blinks for 5 seconds

Note: You must choose from among the available time delays shown on the chart. You cannot set your own time delay.

Virtual Latching

If the power supply is interrupted, The Receiver can be set to return to one of two states when power is restored:

1. Virtual Latching ON: When Power is restored, the Receiver will return to the status that it was in when the power was interrupted. This is similar to what happens to a lamp when your power goes off in a thunderstorm. When power is restored, the lamp will return to whatever state it was in before the power loss. If it was "On" before the power loss, it will turn back "On" after power is restored. ***This is the factory default setting.***
2. Virtual Latching OFF: When power is restored, the Receiver will stay "Off" until it is commanded to turn "On" by a Transmitter. This is a safety and convenience feature. If your lamps are controlled by a Receiver with Virtual Latching OFF, when the power is restored at 3 AM, your lights (motors, etc) will not come back on until you turn them on with a Transmitter.
 - To set the Virtual Latching Function, press **and hold both** the "Learn" and "Erase" buttons for ~4 seconds until the green and yellow LED's start to blink together for 3 seconds. (similar to "Erase All")
 - To turn Virtual Latching ON, while both the green and yellow LED's are still blinking, release both buttons, then press **and hold** the "Learn" button *until the red LED comes on*. The red LED will stay on for about 3 seconds. This will set Virtual Latching "ON." If you do not press any other buttons within 3 seconds, the Receiver will return to normal operating mode with Virtual Latching "On."
 - To turn Virtual Latching OFF, while both the green and yellow LED's are still blinking, release both buttons, then press **and hold** the "Erase" button *until the red LED blinks*. The red LED will blink for about 3 seconds. This will set Virtual Latching "OFF." If you do not press any other buttons within 3 seconds, the Receiver will return to normal operating mode with Virtual Latching "Off."

Manual Override

If you lose or break your Transmitter, the Receiver can still be turned "On" and "Off" manually.

- To turn the Receiver "ON", just turn the power supply "On" three times and "Off" twice by using the circuit breaker. To implement this feature, turn the power "ON" at the circuit breaker. The red LED will glow for 3 seconds. You must turn the power "OFF" at the circuit breaker before the red LED times out. Then turn the power "ON" once more. The red LED will glow for 3 seconds again. You must turn the power "OFF" at the circuit breaker before the red LED times out. Then turn the power "ON" for the third time, and the Receiver will turn "ON".
 - Recap: After turning the power ON, turn it OFF within 3 sec; Turn it ON a second time; (timing is not critical for turning it "On") Turn it "OFF" within 3 sec; finally turn it "ON" a third time. (Again, time is not for turning it "On") At this time, Manual Override will be implemented and the Receiver will not respond to Transmitters.
 - To make this work, the power must be turned "OFF" within 3 sec after it is turned "ON." However, you do not need to hurry turning the power back on. The "OFF" must be made within 3 sec after the "ON," but the "ON" is not a timed signal.
- While in Manual Override mode, to turn the Receiver "OFF", just turn the power supply "Off" by using the circuit breaker.
- To return to normal operating mode, just turn the power "On" to the Receiver. So long as you do not cycle it off and on three times, the Receiver will be in normal operating mode.

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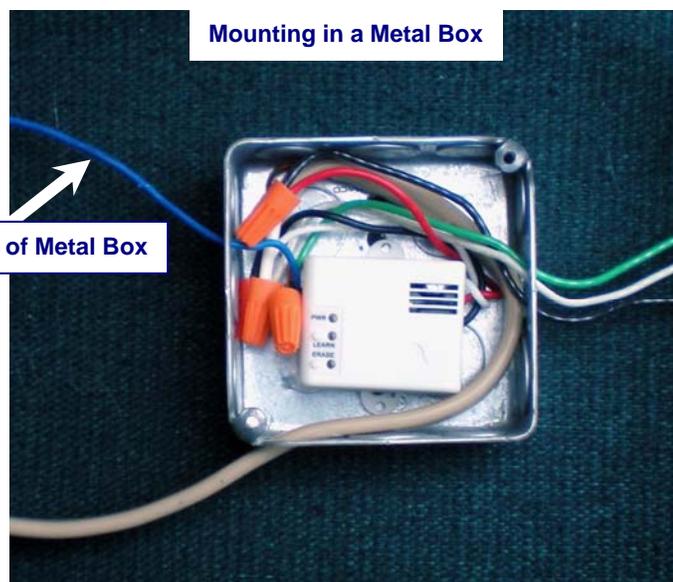
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External Antenna

The blue flexible wire is an external Antenna that enhances reception of the coded radio signals. Whenever possible, pull the Antenna outside the box for better reception. This is especially true if you are using a metal junction box or if the Receiver is behind a metal plate of any kind. This is important to obtain the maximum range of the system.

Pull Blue Antenna out of Metal Box

Never make any electrical connections to the blue Antenna wire.



Breakaway Mounting Tabs

The Wire-In Receiver housing is equipped with two mounting tabs. These can be used to secure the Receiver on any convenient surface. When space is at a premium, such as in a small junction box filled with many wires and wire nuts, you can simply break off the mounting tabs. They are designed to be snapped off easily when needed.

Manually Adjusting Receiver Sensitivity

When the Wire-In Receiver is shipped to you, it will be pre-set to the default "standard" sensitivity level, which is designed to achieve the greatest range possible, while responding only to your commands. Under certain high-noise RF conditions, the Receiver may experience an unwanted "Turn-On", or an unwanted "Turn-Off". This is very unlikely; but should this ever occur to you, you can tighten the sensitivity for the RF section to prevent this. This will eliminate any chance that the Receiver may respond to random noise. As a consequence, tightening the sensitivity will cause a minor decrease in effective range.

If you ever experience an unwanted turn-on, you can switch to a tighter sensitivity level by simply pressing the "Learn" button 4 times in rapid succession. (tap-tap-tap-tap, with no delay) The "Learn" LED will then blink 4 times to show you that your command has been accepted. If at any time you decide to return the Receiver to the factory default "standard" sensitivity, just press the "Erase" button 4 times in rapid succession. (tap-tap-tap-tap, with no delay) The "Erase" LED will then blink 4 times to show you that your command has been accepted. You can switch between these two levels of sensitivity at any time. Again, it is unlikely that you will ever need this feature, but it is there for you if you do need it.

WIRE-IN RECEIVER INSTALLATION

Prevent Unsafe Acts!

The most common unsafe acts include using tools or equipment too close to energized parts, intentionally using tools that are obviously defective or unsafe, and failing to shut off electrical equipment for repairs, servicing or inspections.

Don't be a victim of unsafe acts.

If you are not knowledgeable or think you are unqualified to work on an electrical installation or repair, do not attempt to do so. Hire a qualified expert such as an electrical contractor and obtain the proper building permits for the work to be done.

- Disconnect power for inspections, servicing or changing accessories.
- Before use, inspect all electrical equipment and electrical outlets. Check cords, plugs and outlets for defects. Use only equipment that is in good condition. Never use equipment that you know is damaged, because no shortcut is worth electrical shock.
- Don't use electrical equipment when your hands are wet or any part of you is touching water. If you must work in damp areas, use a ground fault circuit interrupter (GFCI). Remember that it's best to keep water and electricity far apart.
- Make sure all electrical equipment is properly grounded, and plug power tools into grounded outlets installed with GFCI's. Grounding is one of the most important safety measures you can take whenever you work with electricity. If faulty circuits or equipment allow current leakage, electricity will flow to the ground along the path of least resistance. Grounding ensures you don't become that path by providing an alternate route to the ground. Check ground connections regularly for tightness.
- Keep clear of energized parts. Be aware of the conductive materials and tools around you, and keep them far from sources of electricity. Remember, steel wool, metallic cleaning cloths and some chemical solutions are conductive.
- If you must work with energized parts and lockout/tagout is not possible, always use protective equipment, such as rubber gloves, sleeves, blankets and mats, or nonconducting tools rated for the voltage of the parts. Make sure this equipment is maintained so that it does its job.
- When operating electrical equipment, start and end from "off." Make sure the power switch is off before plugging in equipment. When you are finished, turn the equipment off before unplugging it to protect yourself and the next user.
- Don't kink, cut or crush any electrical cord. Never carry equipment by its cord.
- If equipment has a three-prong plug, use a three-slot outlet or extension cord. Never modify three prongs to fit two slots by removing the third prong. Use an adapter instead, making sure that the metal grounding piece on the adapter is connected to a grounded object, such as the screw on the receptacle cover plate.
- Don't strain equipment. Service equipment regularly and repair or replace as needed.