

GEM Remotes

GRP1 6/25/15

356 Capri Blvd. Naples, FL 34113

Phone Number: **Read Troubleshooting Section First!**

Email: info@gemremotes.com WWW.GEMREMOTES.COM

Read All Directions Prior to Installation! Installation should be done by a qualified technician and be wired to the NEC codes.

Customer user instructions are printed on the yellow sticker on the GEM box make sure they read them before use! Use of other wiring directions could result in damage to your GEM unit and/or the lift.

Step by Step Wiring Procedures:

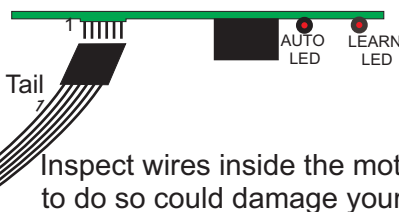
To ensure proper installation of your GEM Controller, use our directions in lieu of all others.

Tools: Philip's #2 and a flat head screwdriver, wire strippers, volt meter and wire cutters and wire nuts.

1. **Turn off power at the circuit breaker. Check with a volt meter before wiring that you have 0 volts.** Overload and GFI protection is not provided inside the unit. **Do not increase recommended breaker size use wire chart below** for properly sized circuit breaker and wire size based on horsepower of motor. If breaker trips check wire size vs run length.
2. Remove two screws on motor inspection cover **you may have to move wires inside the motor even if the motor worked with a drum(hand) switch.**
3. Cut off drum(hand) switches, GEM units are not designed to be used in conjunction with them. Strip main feed and motor wires inside the GEM unit. If your drum switch had a corded GFI, you may use it as the main feed. The Main feed black goes to the Lug on bottom left side of the contactor marked L1. **The GEM PWC unit is wired for 120VAC (2 wires + ground). The transformer yellow is on L2**(for 240 VAC remove this wire from L2). Check to see that you have 110-125 VAC between incoming white and black wires. GEM recommends that excessively long electrical runs be wired at 240VAC. See the next page for confirmation of motor wire configurations. If you use the wrong size wire, you could damage your motor and/or the GEM unit. If you hear a grinding sound in the contactor during use then you have a voltage drop greater than 5%.
4. Connect Motor #1 wires to Lugs on bottom right side of the contactor as labeled: Motor #1 Red(top), M#1 Black(middle), M#1 Org(bottom). When wiring at 120 VAC Connect **Motor white wires to GEM White wire on L2.**
5. Connect green or bare wires to green wire on the transformer. Green or bare wires must only be used as a ground. It is unsafe to use a ground as a neutral. **Caution:** Bonding(grounding) between conduits is not automatic, it must be provided upon installation. Use type 3 conduit hubs only.
6. When wiring the unit at 240VAC: Remove GEM supplied white wire and transformer Yellow from L2 hook up your other main feed to L2. If you have a neutral hook it up the the yellow transformer wires. If you don't have a neutral you will need to rewire the transformer. Cap off the GEM's motor white wire see page 4 line 13.
7. Test to make sure the unit goes up for up and down goes down. Screw down cover lid making sure no wires stick out or are pinched in the hinge.
8. This unit is not an Auto-Run unit even though the membrane switch on the front says Auto-Run.
9. **Turn off power to unit when not in use.** Test corded GFI(if equipped) once every month and or before each use.
10. GEM units have a 3 second delay before switching directions this ensures that the motor goes in the right direction.
11. A replacement or spare 3 button transmitter (# 7240) can be bought online www.gemremotes.com. Loss of range or unit hiccup check battery, 2: 3 volt (Cr2032). Old 2 button transmitters (# 6230) will not work with this unit.

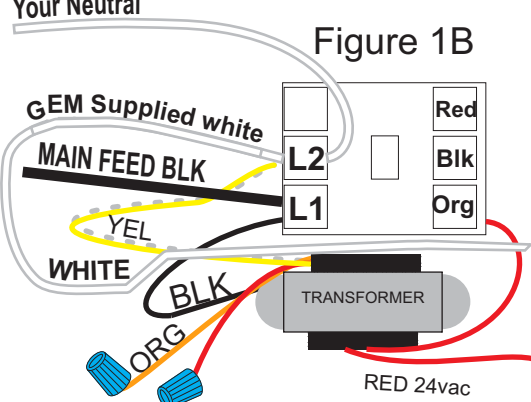
# of Motors	Motor HP	120 Volt AC Main Feed							240 Volt AC Main Feed						
		Amps to run	Breaker Size	50 Feet	100 Feet	200 Feet	300 Feet	400 Feet	Amps to run	Breaker Size	50 Feet	100 Feet	200 Feet	300 Feet	400 Feet
1	1/2	8.8	10 Amps	14	12	8	6	6	4.4	5 Amps	14	14	12	12	10
1	3/4	10.8	15	14	10	8	6		5.4	10	14	14	12	12	10
1	1	12.8	15	12	10	6			6.4	10	14	14	12	12	10
1	1 1/2	17.0	20	12	8	6			8.5	10	14	14	10	10	8

Breakers size is our recommendation. 5 and 10 amp breakers may not be available. Please see motor label for proper size and code compliance.



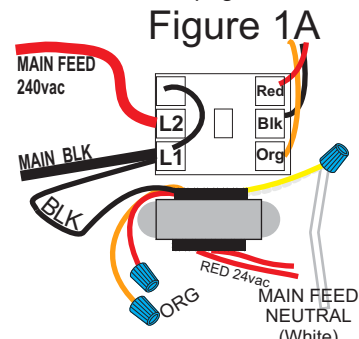
Inspect wires inside the motor to ensure proper wire connections. Failure to do so could damage your motor. Do not **wire color to color inside the motor!** You may have to move wires inside the motor even though the hand switches worked. Inside the motor you will have numbered wires, colored wires or terminals. One of the three diagrams below will cover 90% of all motors. If you have an A.O. Smith (Regal Boloit 120/240 VAC motor and it has terminals use the third drawing on the right. If your motor is not an AO Smith motor and it has terminals then use one of the drawings on the next page. If you have an AO Smith 120 VAC only motor then see the 120 only drawing on the next page. To reverse motor starting direction, swap wires **inside the motor!** Some motors have circuit protection and output wires from have different color wires. Also, some motor manufacturers pre-wired their motors with wires that don't match exactly to the GEM unit. Some use blue for ground and yellow for white wires as a substitutes. Note: A.O. Smith motors with hand switch wiring might have the orange wire pre-wired to Motor Blk*. The GEM orange wire needs to go to pin 2 inside the motor.

Main Feed Wire Connections Wired at 120VAC (2+ground)



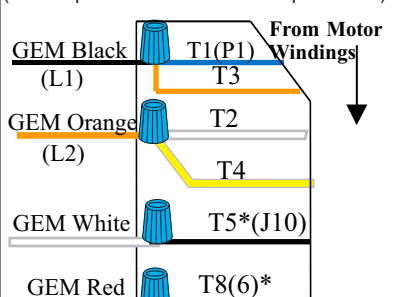
Main Feed Wire 240VAC WIRING (3+ground)

Remove white & yellow wire from L2. Hook your Main feed wires to L1 and L2. If you don't have a Neutral (only 2+g) rewire transformer. See page 4 line 13.



Standard "T#" or # Wires Wired at 120 VAC. wire inside the motor!!!!

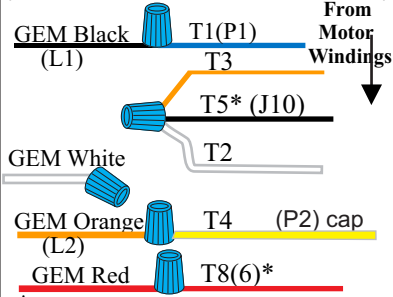
AO Smith, Baldor, Dayton, Deco GE, Electorgear, Emerson, Iron horse, Leeson, Lincon, Marathon, SMC, WEG & other "T#" motors (P1 is input for thermal overlaod protection)



*To change motor direction, switch T5 & T8 motor wires.
To change from 120 to 240VAC:
1. Cap GEM White wire (not used).
2. Attach 3 motor wires together T3, T5* and T2.
3. FYI: GEM Blk to T1(P1), GEM Orange to T4, GEM Red to T8(6)*.

Standard "T#" or # Wires Wired at 240 VAC.

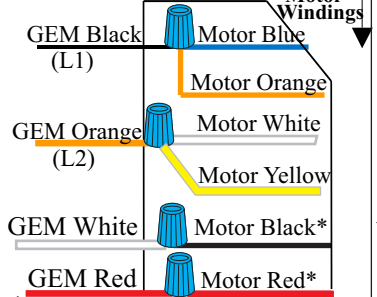
AO Smith, Baldor, Dayton, Deco GE, Electorgear, Emerson, Iron horse, Leeson, Lincon, Marathon, SMC, WEG & other "T#" motors (P1 is input for thermal overlaod protection)



*To change motor direction, switch T5 & T8 motor wires inside the motor!!!!

Standard Colored Motor Wired at 120 VAC. wire inside the motor!!!!

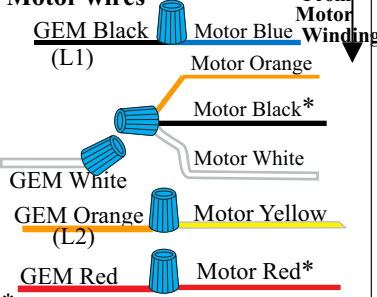
A.O. Smith, Baldor, Dayton, Electorgear, Emerson, Elite, Iron horse, Leeson, Lincon, Marathon and other Colored Motor wires



*To change motor direction, switch Motor Red and Motor Black wires.
To change from 120 to 240VAC:
1. Cap GEM White wire (not used).
2. Attach 3 motor wires together M Orange, M Blk* and M White.
3. FYI: GEM Black to Motor Blue, GEM Orange to Motor Yellow, GEM Red to Motor Red*.

Standard Colored Motor Wired at 240 VAC.

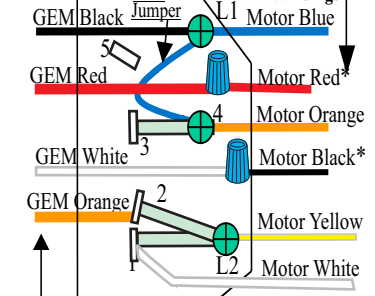
A.O. Smith, Baldor, Dayton, Electorgear, Emerson, Elite, Iron horse, Leeson, Lincon, Marathon and other Colored Motor wires



*To change motor direction, switch Motor Red and Motor Black wires inside the motor!

Regal Boloit's A.O. SMITH 120/240VAC Wired at 120 VAC.

Note: drum switch Orange might be pre-wired to Motor Black*. GEM Orange needs to be on pin 2. Also move White wires. See below.

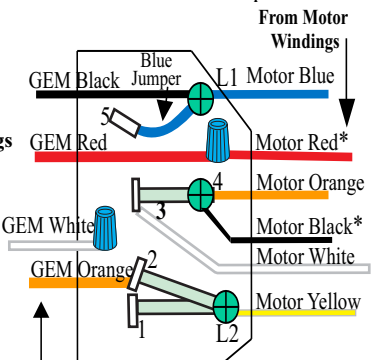


Wiring From GEM Unit
*To change motor direction, switch Motor Black & Motor Red wires.

To change from 120 to 240VAC:
1. Cap GEM White wire (not used).
2. Place Motor Black on pin 4.
3. Move Motor Blue jumper from pin 4 to pin 5.
4. **GEM Orange is on pin 2!!!!!!**
5. Move Motor White from pin 1 to 3.

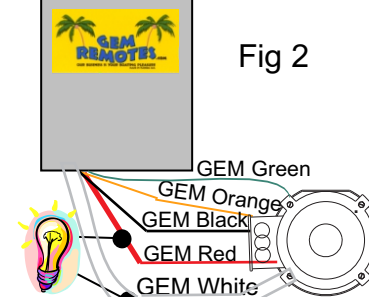
Regal Boloit's A.O. SMITH 120/240VAC Wired at 240VAC.

Note: Drum switch Orange might be pre-wired to Motor Black*. GEM Orange needs to be on pin 2. Also move Motor White and Motor Black wires to pin 4 and 3.



*to change motor direction, switch Motor Black & Motor Red wires.
Wiring From GEM Unit

Run Light or Electric Brake Connections



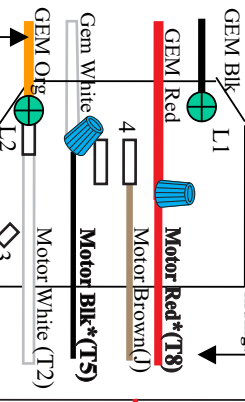
Attach the run light onto the GEM Red & GEM White for 120VAC or 240VAC system that has 120VAC neutral.

To run a 120VAC brake attach wires to GEM Orange and GEM Blk when main feed is at 120VAC. If 240VAC brake is used, use GEM Orange and Blk. If you have 240VAC system and you only have a 120VAC brake then you must use GEM White & GEM Red. (The GEM white wire will be used at 240VAC).

MOTOR WIRING CONFIGURATIONS CONTINUED

BALDOR

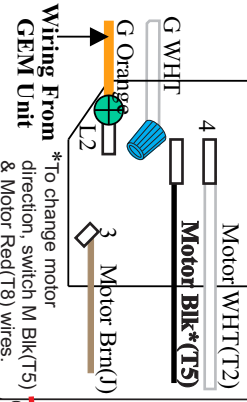
BALDOR "T" NUMBERED WIRES
SEE NUMBERED WIRE DRAWING
Wired at 120VAC



- To change from 120 to 240VAC:**
1. Cap GEM White wire (not used).
 2. Place M Blk*(T5) on pin 4.
 3. Move M Brn(J) from pin 4 to pin 3.
 4. Move M WHT(T2) from L2 to pin 4.

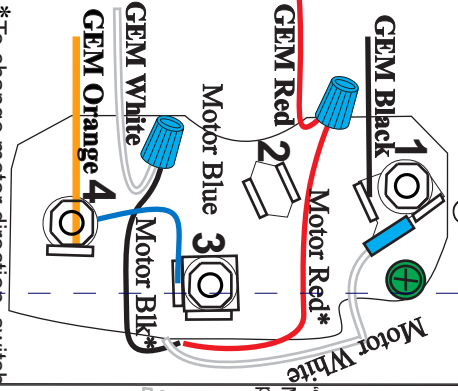
BALDOR

BALDOR "T" NUMBERED WIRES
SEE NUMBERED WIRE DRAWING
Wired at 240VAC



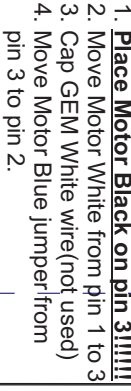
- To change motor direction, switch Motor Blk(T5) & Motor Red(T8) wires.**

Elite Wired @120 VAC



- To change motor direction, switch Motor Black & Motor Red wires.**

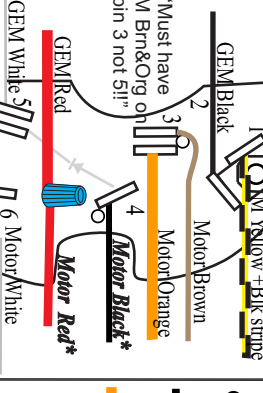
Elite Wired @ 240 VAC



- To change motor direction, switch Motor Black & Motor Red wires.**

Century A/C/A.O. SMITH

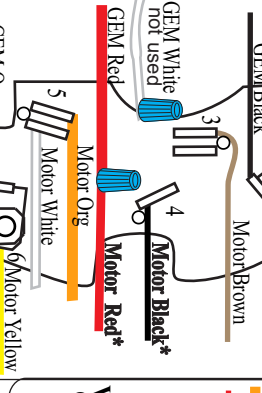
C412, C426 AND C523
Wired @ 120 VAC



- To change from 120vac to 240:**
1. Cap GEM White wire (not used).
 2. Move Motor Orange from 3 to 5.
 3. Attach M Whit & M Org on pin 5.
 4. FYI: GEM Org & M Yellow on 6.

Century A/C/A.O. SMITH

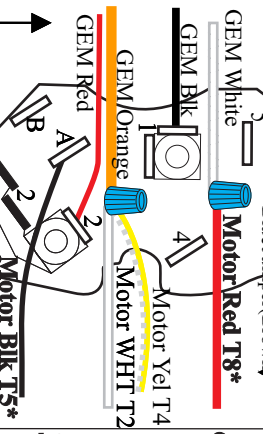
C412, C426 AND C523
Wired @240 VAC



- To change motor direction, switch Motor Blk & Motor Red wires!**

Marathon/GE

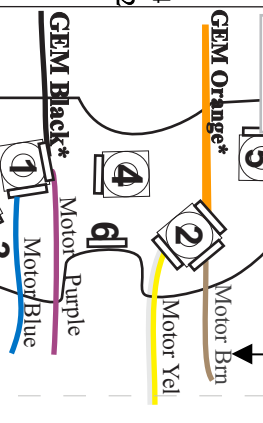
Wired @ 120 VAC



- To change from 120vac to 240:**
1. Cap GEM White wire (not used).
 2. Move Blue Jumper from 5 to 4.
 3. Attach M Wht & M Red*(T8) on pin 5.
 4. FYI: GEM Org & M Yellow together.

LEESON/Ace

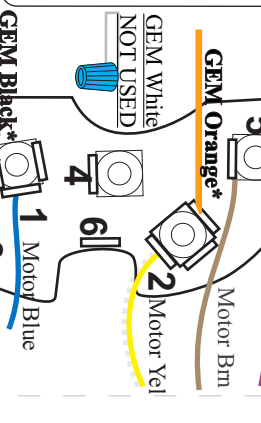
Wired at 120 VAC



- To change from 120vac to 240:**
1. Move GEM White from pin 5 to 6.
 2. Move motor Purple wire from 1 to 5.
 3. Move motor Brown wire from 2 to 5.
 4. *To change direction of the motor switch GEM Org & GEM Black wires.

LEESON/Ace

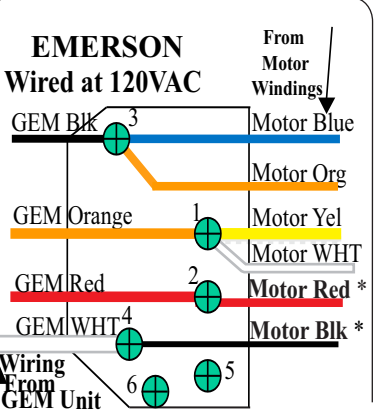
Wired at 240 VAC



- To change motor direction, switch Motor Blk & Motor Red wires.**

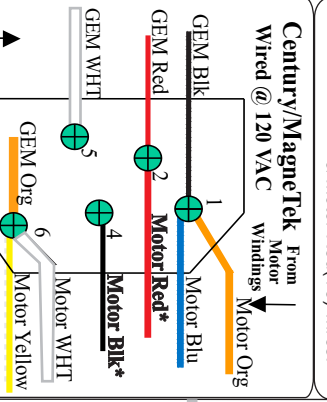
EMERSON

Wired at 120VAC



- To change from 120vac to 240:**
1. Cap GEM White wire.
 2. Attach 3 m wires on 4 M WHT, M Blk* & M Org.
 3. FYI: GEM Blk & Motor Blue on 3, GEM Org & Motor Yellow on 1 GEM Red & Motor Red* on 2.

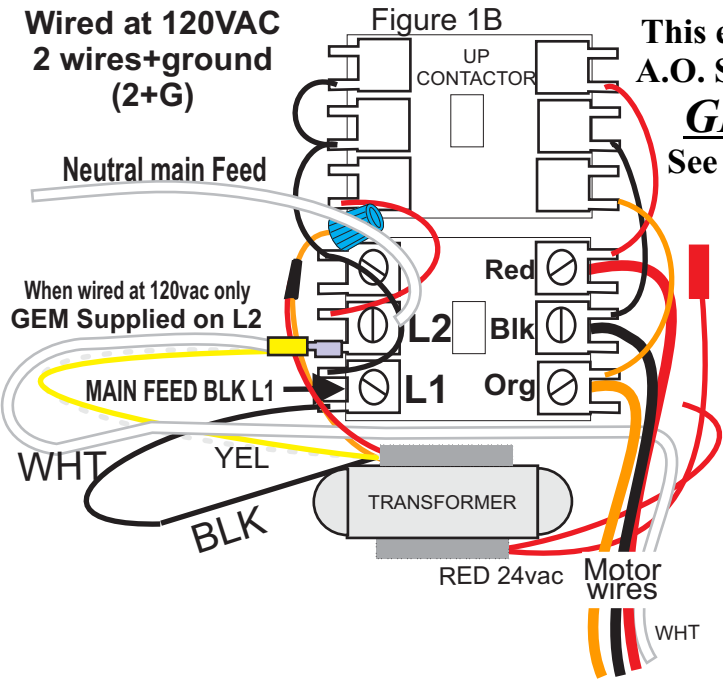
Century/MagneTek
Wired @ 120 VAC



- To change from 120vac to 240:**
1. Cap GEM White wire (not used).
 2. Move Motor Orange from pin 1 to pin 5.
 3. Move Motor White from 6 to pin 5.
 4. FYI: GEM Black and Motor Blue on 1, GEM Orange and Motor Yellow on 6.

For EastBay Motor wiring
Instructions goto
GEMRemotes.com
wire diagram 2000-2008

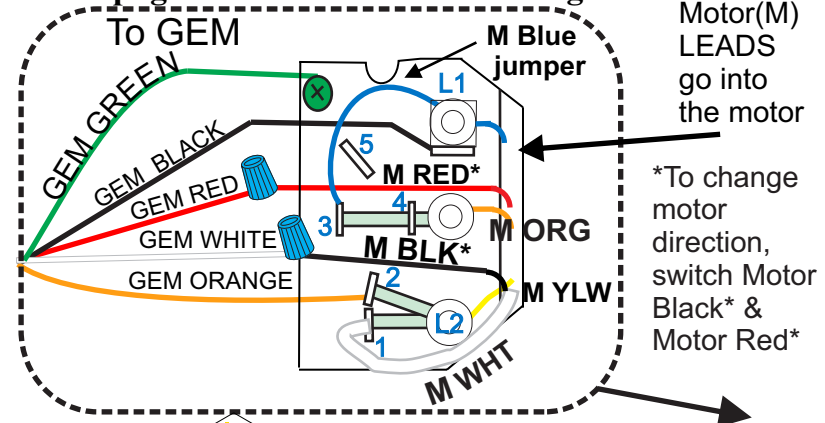
Wired at 120VAC
2 wires+ground
(2+G)



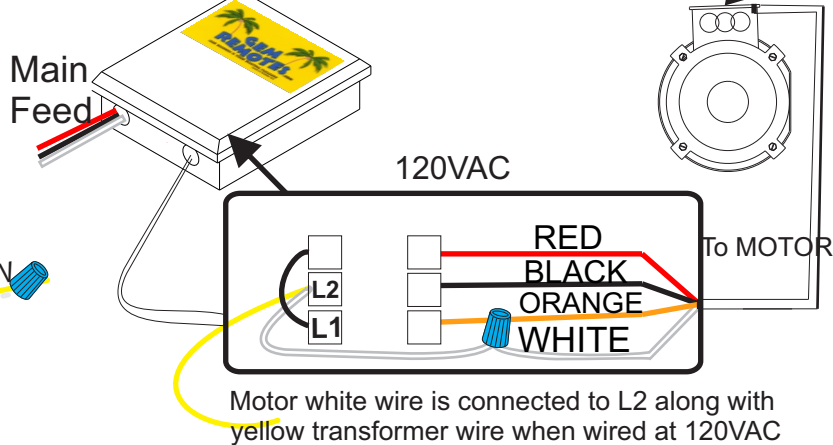
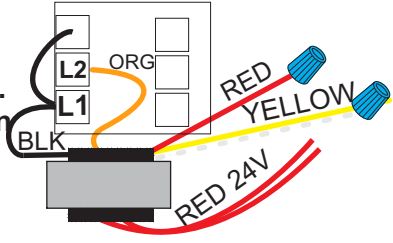
This exploded view is inside the inspection panel of an A.O. SMITH motor wired at 120VAC to a GEM PWC.

GEM ORANGE WIRE IS ON PIN 2

See previous pages for other motor wire diagrams.



240 Volt hook up using only 3 wires(2+G) Not using a neutral(White) You must rewire the multitap Transformer see #13 below. Only use this diagram when you don't have a neutral.



TROUBLESHOOTING:

1. If your hand held remote works but your buttons don't work, you need to plug in the yellow face card's tail to the receiver board.
2. You must **Cut off drum (hand) switch**: motor worked, but the GEM unit only works in 1 direction; You need to rewire the motor.
3. **Motor turns in the wrong direction**: Switch **motor wires, inside the motor!** See motor name plate for reversing directions.
4. **Chatter or grumble in the contactor**: Check for low voltage, when system is running (override by pushing in contactor).
Check wire size vs. run length all the way from the motor to the main breaker at the house.
5. **Motor not working**: Color-to-Color wiring inside the motor is incorrect. You must use our diagrams. **Regal Belcoits (A.O. Smith) motors: move GEM Orange wire to pin 2.** GEM units works with 120/240VAC single phase, cap. start, **induction run motors.** Three phase motors require special wiring. 1½ horsepower motors and larger may have a start cap. and a run cap. The run cap. might not reverse or the run cap. can explode. It must be removed. This will increase the run amps by 3 amps(Eastbay motors, 2 cap systems are compatible).
6. Transmitter **does not work**: There is a 3 second delay when switching directions. Check that the LED on transmitter lights and check that the Learn button LED lights when receiving from the transmitter. Relearn the transmitter, press the Learn button 1 time and then push the Stop button. The Learn LED should flash.
7. **Short range or lift hiccups**: If the red LED on the transmitter flickers, **replace batteries 2: 3 Volt(Cr2032).** Don't change the length of the antenna wire, this will not help the range. You should have line of sight for the unit to have up to 300-foot range.
8. If the GEM unit is dead check that the LED flashes on power up. If no flash then, check your power. You can also press in the middle of the bottom contactor. If the lift runs, you have main power but your 24VAC transformer is not working(check neutral).
9. **Clearing the memory**: Press and hold the Learn/Clear button (LED will light on pc board) for 7 seconds, then the LED will flash stop pressing and all transmitters will be cleared from the memory.
10. **TROUBLESHOOTING: Wiring at 110VAC-125VAC**: If motors (A.O. Smith) do not work, rewire GEM Org inside the motor to pin #2. 120 VAC motor system problems: **Motor Hum**: Connect the **white motor wire to L2.** See **figure 1B.** Over sizing the circuit breaker can damage your lift, motor and/or the PWC. Use the wire chart for correct size circuit breaker and wire size.
13. **TROUBLESHOOTING: Wiring at 220VAC-240VAC**: If you do not have 3 wires + ground then you will need to rewire the system for 240VAC only (2 wire+Ground). Read the label, on top of the transformer BLK-ORG = 240 VAC Remove white wire and yellow from L2 and cap them off. Find ORG wire. It should be hiding around the base of the contactor. It has a red wire taped to it. Attach the Org wire to the L2. The red wire taped to this wire is used for 208VAC connections.
14. **TROUBLESHOOTING: Wiring at 208VAC**: Rewire the transformer. Read Label BLK-RED = 208 Remove white and yellow wire from L2, and cap them off. Attach Red transformer wire to L2.

Need more help? Call 239-642-0873 M-F 8:30-4:30 EST. The web page also has more information for after hours help.