Figure 1

Installation and Service Manual

M² Sync Room Slideout System without Room Lock Connectors on Control Box

CONTENTS

Introduction	1
Installation	1
Program Mode	2-3
Installation Problems	3
Operation Mode	4
Preventative Maintenance	4
Fault Diagnostics	5
Troubleshooting	5
Override Modes	6-7
Wiring Diagram	7
Warranty	8

1217 E. 7th Street
Mishawaka, IN 46544
powergearus.*com*

Introduction

SYSTEM DESCRIPTION

Your Power Gear Slideout System is a rack and pinion design operated by a 12 Volt DC electric motor.

MAJOR COMPONENTS

· Inner rail assemblies are designed to support the room weight.
· The 12 Volt DC gearmotor will operate the room using power from the battery.
· Slideout systems are equipped with a manual override that allows you to extend / retract the room in the event of a loss of power.
· A specially designed control that gives the user full control of room movement, in or out. The control has programmable stops that stop the motor when the room is fully extended or retracted and the ability to detect faults for ease in troubleshooting.

Installation

• Refer to 'Electric Motor Driven Slide-Out OEM Installation Manual (Power Gear P/N 81-1291) for proper installation of rail assemblies.
• If using room locks, refer to Power Gear drawing #907100112GA for proper installation of room locks.
• **Control and touchpad Installation.** *Refer to proper wiring diagram in back of manual*

1. Mount control box (Fig 1) in a location that will protect the components from the elements and being hit, but is easily accessible for service.
2. Determine location to mount touchpad (Figure 7). Location needs to be in view of slideout room and have a minimum depth of 1" inside the wall. Cut 3 1/8" wide x 2" high rectangular opening in wall paneling to mount the touchpad.
3. Route and attach touchpad harness to where touchpad will be mounted. Mount touchpad with (2) screws after system has been programmed.
4. Route and attach the motor and sensor harness from the control box to the slideout room motors.
5. Route and attach the proper gauge wire from the control to the chassis battery.

CAUTION

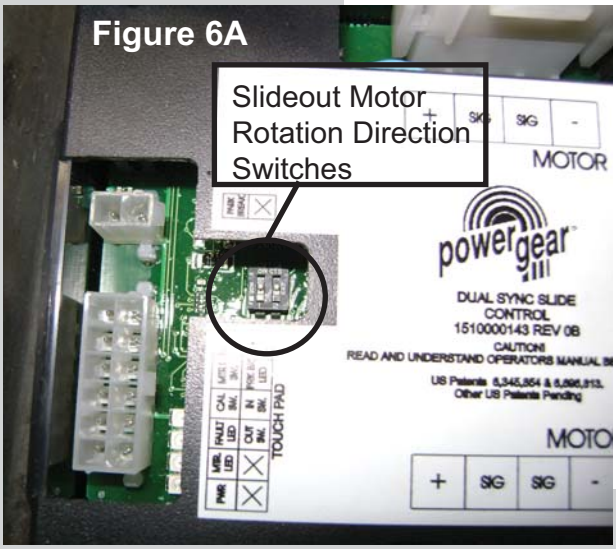
During Program mode the control has no stop locations and the user must teach the control where to stop.

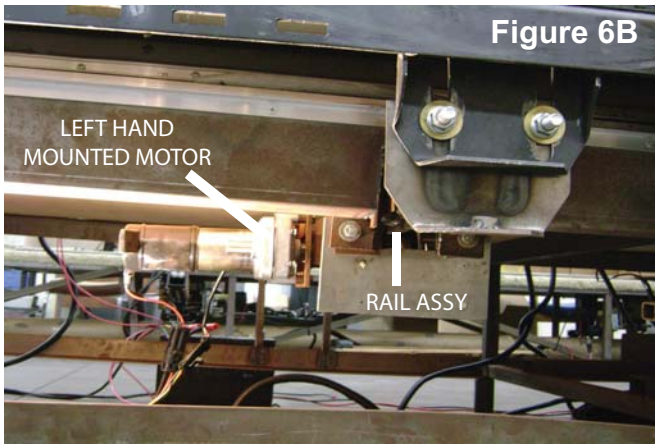
Program Mode

Use this procedure to initially set the IN and OUT stops or to change the current stop settings

NOTE:

° At anytime during the program procedure, the unit will exit program mode if the the room had not been moved for 2 minutes or if a fault is detected during programming, the LED will flash rapidly for 10 seconds to indicate that the programming procedure failed. After the 10 seconds of flashing, the control will automatically default to fault code 1 (stops not programmed) and the program mode must be re-done.





CAUTION

Use caution when initially programming the control as the correct motor rotation must be determined and programmed with the control (Ref. Step 2). Damage to the room or system may result. Once control has been programmed correctly, this step will not need to be repeated.

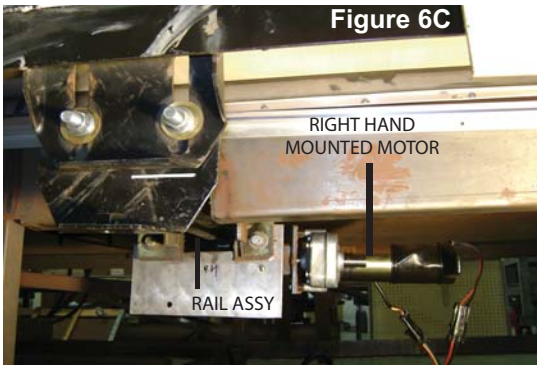
WARNING

Always make sure that the slideout room path is clear of people and objects before and during operation of the slideout room.

Always keep away from the slide rails when the room is being operated. The gear assembly may pinch or catch on loose clothing causing personal injury.

1. Locate the control (Fig 1) and verify which location the SLIDEOUT motors are plugged into (Motor 1, Motor 2) on the control and write this information down you will need it later.

2. This step will only need to be set when initially programming the slideout motor rotation on the control. If you are resetting stop locations or the control has already been programmed, skip to the next step.



•For initial programming of the slideout motors rotation, you need to determine each slideout motor mounting orientation and locate the dip switches on the left hand side of the control. (Figure 1 and 6A)

•Motor mounting orientation is determined by which side of the rail assembly the motor is mounted on when viewed. from the outside of the unit. (Figure 6B and 6C).

•(Figure 6A) Switch 1=Slideout Motor 1, Switch 2=Slideout Motor 2, etc. Position the dip switch in the down position for a left hand mounted slideout motor or in the up position for a right hand mounted slideout motor.

•If during programming, a motor runs in the opposite direction, locate the corresponding dip switch and move to other position.

Program Mode, continued....

3. Remove the touchpad (Fig 7)
4. Press and hold the “Set Stops/Clear Fault” button on the back of the wall touchpad for 5 seconds. (Fig 4). The “Fault Code” and “Room Movement” LED’s will light while the button is held down. (Fig 7)

   NOTE:

   •After 5 seconds, the GREEN LED will begin flashing and the RED LED will remain lit.
5. The unit is now ready to set the retracted or IN stop. Referring to the information you wrote down in step 1 above,

   a. Press and hold the SLIDEOUT room motor buttons (Motor 1, Motor 2) on the back of the wall touchpad (Figure 5) that correspond to the SLIDEOUT motors you want to move. These buttons correspond to the slideout room motors.

   b. Press the IN or OUT button on the front of the wall touchpad depending upon direction of rail movement you desire.

   c. Move the room to the fully retracted position.

   d. Press and release the “Set Stop/Clear Fault” button on the back of the wall touchpad to program the retracted stop position.

   NOTE:

   •The RED LED will now begin flashing and the GREEN LED will remain lit.
6. The unit is now ready to set the extended or OUT stop. Referring to the information you wrote down in step 1 above:

   a. Press and hold the same SLIDEOUT motor buttons (Motor 1, Motor 2) as you did in the prior step.

   b. Press the IN or OUT button on the front of the wall touchpad depending upon direction of rail movement you desire.

   c. Move the room to the fully extended position.

   d. Press and release the “Set Stop/Clear Fault” button on the back of the wall touchpad to program the extended stop position.

   NOTE:

   •The control must be programmed correctly before it will operate in normal mode.

   •If both LED’s flash rapidly for 1 second and turn off, the control has been programmed correctly and is now in normal operation mode.

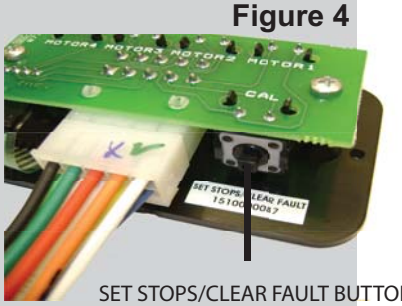
   •If both LED’s flash rapidly for 10 seconds, the control has NOT been programmed correctly or the system is wired incorrectly. The touchpad will flash the fault code that occurred during programming. Fix the fault and repeat the **Programming Mode** procedure starting with Step 3 above. If the “Set Stops/Clear Fault” button on the back of the wall touchpad is pressed and released, the control will default to Fault Code 1 indicating you must program the control.
7. Re-install the wall touchpad. Done.

Installation Problems

The control is also equipped to help troubleshoot the system during installation. Count the number of LED flashes and refer to **Fault Diagnostics** section previous.

If you are still having difficulties programming the system and prior to replacing the control, verify the system has been wired correctly and the “in” stop location was programmed before the “out” stop location was programmed.

Figure 4



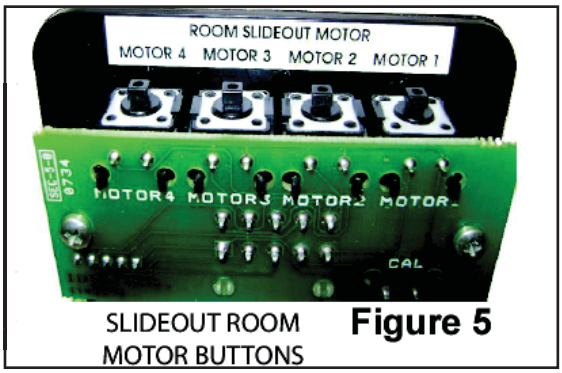


Figure 5

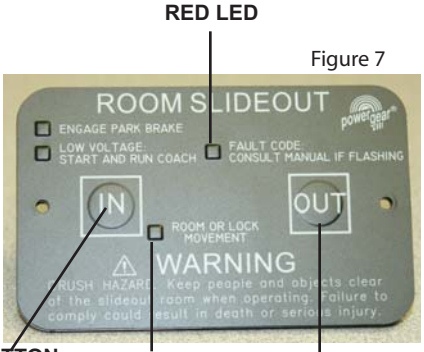


Figure 7

WARNING

Always make sure that the slideout room path is clear of people and objects before and during operation of the slideout room.

Always keep away from the slide rails when the room is being operated. The gear assembly may pinch or catch on loose clothing causing personal injury.

CAUTION

Do Not work on your slideout system unless the battery is disconnected.

Operation Mode

NOTE:

•The system will not work until stops are properly set or faults are cleared.
•The GREEN LED indicates system operation. (Figure 7)
°A solid GREEN LED indicates room movement

•The RED LED indicates a fault or a problem with the system (Figure 7). Refer to the Fault Diagnostics in this manual for additional information.
•Prior to moving the slideout room, make sure the engine or generator is running to ensure ample voltage to the motors and the parking brake is set.

Extending the Room

1. The engine or generator must be running or apply shore power.
2. Set the park brake and level the unit.
3. Remove transit bars (if so equipped).
4. Turn “ON” the ON/OFF switch or key (if so equipped).
5. Press and hold the OUT button (figure 7).
6. Release the button when room is fully extended and stops moving.
7. Turn “OFF” the ON/OFF switch or key (if so equipped).

Retracting the Room

1. Follow steps 1-4 above and then continue below with step 5.
2. Press and hold the IN button (figure 7).
3. Release the button when room is fully retracted.
4. Turn “OFF” the ON/OFF switch or key (if so equipped).
5. Install the transit bars (if so equipped).

Preventative Maintenance

Your Power Gear slide-out system has been designed to require very little maintenance. To ensure the long life of your slide-out system read and follow these few simple procedures.

- When the room is out, visually inspect the inner slide rail assemblies. Check for excess build-up of dirt or other foreign material; remove any debris or items that may be present.

- If the system squeaks or makes any noises it is permissible to apply a light coating of silicone spray or lithium grease to the roller and bearing sleeve I.D., removing any excess lubricant so that dirt or debris do not build-up. DO NOT lubricate the slide-out drive gears, gear racks, or roller OD as this will attract dirt / debris.

IF YOU HAVE ANY PROBLEMS OR QUESTIONS CONSULT YOUR LOCAL AUTHORIZED DEALER.

Fault Diagnostics

This control has the ability to detect and display several faults. When a fault is detected, the room movement will stop, and two different LEDs will flash in a pattern.

- The Fault Code LED (Fig 7) will flash a number of times corresponding to a specific fault code. Refer to the Troubleshooting chart below to best determine what caused the fault.
- The Green Room Movement LED (Fig 7) will flash a number of times corresponding to which motor had the associated fault (or with battery Voltage faults, will flash once to signify the start/end of the flashing fault code).

For example, if you are seeing 5 red flashes and 2 green flashes, it means there is no signal on the sensor wire on motor 2.

There are 2 types of faults (Minor and Major) and a fault must be cleared in order for the room to operate.

- MINOR faults can be cleared by pushing and releasing the IN or OUT buttons on the wall touch pad.
- MAJOR faults must be cleared by pushing and releasing the Set Stops/Clear Faults button located on the back of the wall touchpad (Fig 4). This is done to alert the user that there is a major problem with the system and to prevent damage to the slideout room.
- **NOTE:** For major faults, the control must be overridden by following the Emergency Retract Mode in the Override Modes section of this manual, and the control must then be programmed by an authorized dealer when the problem is fixed.

Troubleshooting

Fault Code	Fault Type	Description	Probable Cause	Possible Solutions
1	Major	Stops not programmed	No stop locations have been set for the control	Stops need to be reprogrammed by an authorized dealer
2	Minor	Slideout motor drawing excessive current	Excessive system/room drag, obstruction, improper stop locations or damaged component	Remove obstruction, re-adjust room, reset stops, or replaced damaged component
3	Minor	Slideout Motor Short	Shorted wiring or motor	Inspect motor harness wires and motor for shorts. Replace shorted component.
4	Minor	Slideout Motor Open	Bad connection, motor or blown fuse	Repair bad wire connection, replace motor or fuse
5	Major	No signal on sensor wire	Bad wire connection or sensor	Repair bad wire connection or replace motor
6	Minor	Excessive Battery Voltage (above 18V when room movement is requested)	Bad battery	Replace battery
7	Major	Rail did not re-sync with opposing rail	Excessive system/ room drag, obstruction, improper stop locations or damaged component	Reset stops, remove obstruction, re-adjust room, or replace damaged component

WARNING

After the room has been moved in the desired direction, the brake levers on each motor MUST be returned to the "engaged" position. When the motor brake is disengaged the slideout room will not lock into place; therefore, the room will not be sealed. When the room has been manually retracted, be sure to install the transit bars (if so equipped) and return the motor brake lever to its normal engaged position in order to seal and lock the room into position. Do not travel unless each motor brake is in the "engaged" position!

WARNING

If the room has been moved while the motor sensing control harness has been unplugged, do not attempt to use the room again until a service center has reprogrammed the computerized controller according to the service manuals instructions. Failure to reset the controller may cause damage to the system or coach.

CAUTION

During override mode the control has no stop locations. Use another individual to assist in determining when the room is retracted. Damage to the room can occur during over travel.

Override Modes

In the event of component failure or loss of system power, your system can be manually overridden.

NOTE: At anytime during the override procedure, the unit will exit override mode if the room had not been moved for 2 minutes or if a fault is detected during overriding, the Fault Code and Room Movement LED's will flash rapidly for 10 seconds to indicate that the override procedure failed. After 10 seconds of flashing, the control will automatically default to fault code 1 (stops not programmed) and the override mode must be re-done.

NOTE: The room control will need to be re-programmed by an authorized dealer after the system has been overridden.

A. **Emergency Retract Mode** - use this procedure when there is NO loss of power or electrical problem with the system.

1. Remove the touchpad (Fig 7) from the wall
2. **Prior to clearing the major fault,** write down the number of flashes that you are seeing in the table below. This information will help your dealer/ service center in the troubleshooting of the slideout system.

# of RED flashes	# of GREEN flashes

3. Press and hold the "Set Stops/Clear Fault" button on the back of the wall touchpad for 5 seconds (Figure 4). Both LED's will light while the button is held down.

NOTE: After 5 seconds, the GREEN LED will begin flashing and the Fault Code LED will remain lit.

4. The unit is now ready to retract the room. Press and hold all SLIDEOUT motor buttons (Motor 1, Motor 2) on the back of the wall touchpad. (Figure 5)

NOTE: During override mode, the control has no stop locations. Use another individual to assist in determining when the room is retracted. Damage to the room can occur during over travel.

5. Press the IN button on the front of the wall touchpad (Figure 7) until the room is fully retracted. If one side of the room needs to retract further in order to get a good seal, press and hold the motor button corresponding to only the motor you want to move. Press the IN button on the front of the touchpad to retract the room the remainder of the way.

6. Re-install the wall touchpad.
7. Take your unit to a certified dealer for repairs.

B. ***-or-*** **Emergency Retract Module (ERM)** - This procedure is an alternate to the above procedure. This kit (P/N 1010001197) can be purchased from Power Gear. The kit contains a module that will bypass the control and send power to the slideout motors.

C. ***-or-*** **Manual Crank Mode** - use this procedure when the above procedures do not work.

(Continued...)

Override Modes, continued

The system has been equipped with ¾" hex override couplers located on the back side of the motors. Due to the size and weight of the room, assistance will be needed and care taken during the process. Use the following steps to mechanically operate the room:

1. Locate each motor and ¾" hex coupler. (Fig 8)
2. Unplug each motor connector. Leave sensor connector attached.
3. With your thumb, depress the spring lock lever on the right hand side of the boot cover. Then, rotate the override lever counter clockwise with your index finger to disengage the motor brake. (Figure 9)
4. If enough people and wrenches for each override coupler are available, the room can be moved in or out quickly as long as all shafts are turned at the same time. Use a wrench or socket and ratchet to turn each override coupler in the direction required.

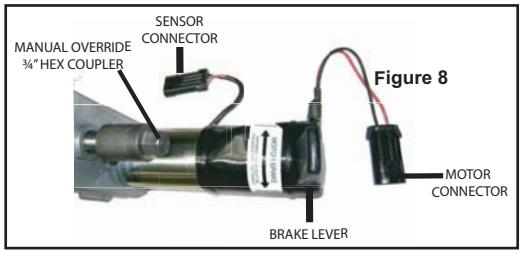
NOTE: If only one or two people are available to move the room the following procedure must be followed:

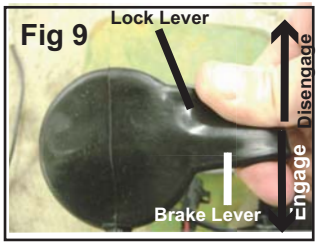
· Start at the front of the coach, release the motor brake, rotate that shaft approximately 1/4 turn, re-apply the motor brake.

· Proceed to the next rail with motor. Release the motor brake, rotate that shaft approximately 1/4 turn, re-apply the motor brake.

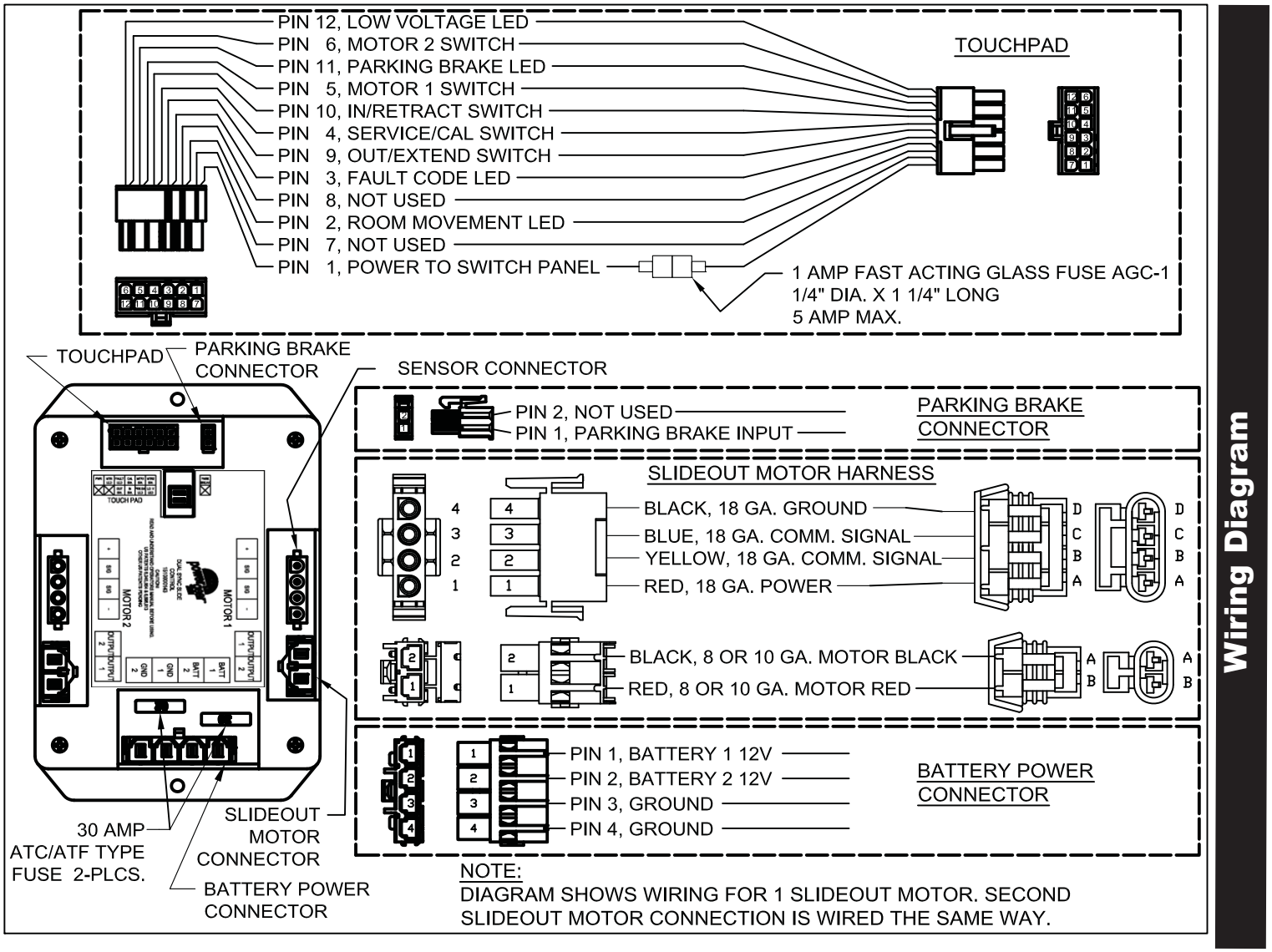
· Repeat this procedure until the room has been fully opened or closed as desired.

5. Once room is fully retracted, re-engage brake lever on motor. (Figure 9)
6. Reconnect the motor leads to the connector.
7. Take the unit to an authorized dealer for service. Do not operate room until service is complete as damage to the room may result.





Wiring Diagram



Power Gear Limited Warranty

Power Gear Limited Warranty Policy
(original equipment)

Power Gear warrants its manufacturer installed Power Gear and Kwikee brand products to be free of material and workmanship defects for two (2) years from the date of the original sale of the motor vehicle in which they are installed, provided that these products are installed and operated according to the purpose for which they were intended, designed and specified. This warranty does not cover product that is incorrectly installed, or upon examination has been misused or abused by the vehicle owner.

Warranty coverage includes:

- Repair or replacement of the defective component(s) of the malfunctioning system. Entire systems are not replaced unless either the faulty component is not replaceable or all components comprising the system are defective.
- Labor costs for the diagnosis and repair work associated with the repair or replacement of the defective component(s) by a licensed servicing center.

This warranty does not include payment or reimbursement of:

- Normal system maintenance and preventive maintenance.
- Mobile service or towing expenses related to field repairs and/or the transportation of the vehicle to a repair facility.
- Living or travel related expenses incurred in the repair of the vehicle.

By filing a warranty claim in accordance with Power Gear's Warranty Administration Procedure, service providers agree that the replacement part(s) will be provided to the vehicle owner at no cost and that the total labor charges for the completion of warranty repairs will be billed to Power Gear. Accordingly, under no circumstances will Power Gear reimburse the vehicle owner directly for costs covered under this warranty policy.

Warranty coverage runs concurrently with any vehicle warranty period provided by the manufacturer, and is transferable to subsequent owners. Proof of original date of purchase of vehicle, and if applicable subsequent owner's proof of purchase, is required to confirm coverage.

Power Gear reserves the right to change the terms of our warranty policy at any time. For the most current information on product warranty and our warranty claim procedure, visit our website at www.powergearus.com.

Additional Reference Documents

Additional Reference Documents located at: www.lci1.com.

3010001344:	Owner's Manual For Slide Out Control Boxes 1510000122, 1510000143, and 1510000198
82-S0521:	Encoder Test 1: Dual Sync Slide Controllers (M²) 1510000122, 1510000143 and 1510000198
82-S0522:	Encoder Test 2: Dual Sync Slide Controllers (M²) 1510000122, 1510000143, and 1510000198