

Maintenance

WARNING

To reduce the risk of SEVERE INJURY or DEATH:

- **READ AND FOLLOW ALL INSTRUCTIONS.**
- **TEST THE GATE OPERATOR MONTHLY.** The barrier arm **MUST** reverse on contact with an object, or by hand. Barrier arm must reverse when noncontact sensors are activated. After adjusting the force, speed, or the travel, retest the gate operator. Failure to adjust operator properly can increase the risk of INJURY or DEATH.
- ANY maintenance to the operator or in the area near the operator **MUST NOT** be performed until disconnecting the electrical power (AC or solar and battery) and locking-out the power via the operator power switch. Upon completion of maintenance the area **MUST** be cleared and secured, at that time the unit may be returned to service.
- Disconnect power at the fuse box **BEFORE** proceeding. Operator **MUST** be properly grounded and connected in accordance with national and local electrical codes. **NOTE:** *The operator should be on a separate fused line of adequate capacity.*
- For continued protection against fire, replace **ONLY** with fuse of same type and rating.
- **KEEP GATES PROPERLY MAINTAINED.** Read this manual. Have a trained gate systems technician make repairs to gate hardware.
- **ALL** maintenance **MUST** be performed by a trained gate systems technician.
- **NEVER** let children operate or play with gate controls. Keep the remote control away from children.
- Activate gate **ONLY** when it can be seen **clearly**, is properly adjusted and there are no obstructions to gate travel.
- **ALWAYS** keep people and objects away from the gate. **NO ONE SHOULD CROSS THE PATH OF THE MOVING GATE.**
- To reduce the risk of FIRE or INJURY to persons use **ONLY** LiftMaster part 29-NP712 for replacement batteries.
- The entrance is for vehicles **ONLY**. Pedestrians **MUST** use separate entrance.
- If **forecasted** wind speeds are greater than 60 mph, the gate arm should be uninstalled to minimize the risk of damage.
- Call 1.800.528.2806 with any questions.

SAVE THESE INSTRUCTIONS.



CAUTION

- **ALWAYS** wear protective gloves and eye protection when changing the battery or working around the battery compartment.

Maintenance (continued)

Maintenance Chart

Disconnect all power (AC, solar, battery) to the operator before servicing.

NOTE: Avoid servicing the operator, main control board, motor board, and electronics during rain to avoid damage from water.

| Description | Task | Check at least once every | | |
|------------------------|--|---------------------------|--------|---------|
| | | 6 Months | 1 Year | 2 Years |
| Safety Devices | Check and test inherent (built into the operator) and external devices for proper operation. Replace any safety devices that are not working properly. See "Accessories" on page 59. | X | | |
| Warning Signs | Make sure they are present and replace if worn or broken, see "Repair Parts" on page 58. | X | | |
| Spring Module | Inspect for wear or damage. Replace any broken springs or the complete module. Replace complete spring module after 1.5 million cycles of operation. | X | | |
| Arm Bracket System | Inspect for wear or damage. Replace any broken or damaged parts if necessary. | | X | |
| Arm | Inspect arm for excessive bends, dents or other damage; replace arm when damaged. | X | | |
| Accessories | Check all for proper operation. Replace any broken, damaged or missing parts. | | X | |
| Electrical | Inspect all wire connections. Secure any loose connections and replace any broken or damaged components. If error code is present check "Diagnostic Codes Table in Appendix." | | X | |
| Chassis Mounting Bolts | Check for tightness. Secure as required. | | X | |
| All Bolts | Check for any loose bolts. Secure as required. | | X | |
| Operator | Inspect for wear or damage. Replace any worn or damaged components. | | X | |
| Diagnostic History | Review diagnostic history for identification of intermittent problems. | | X | |
| Batteries | Inspect and test batteries. Replace if needed. | | | X |

NOTES:

Each time the unit is inspected spray the springs with a dry lubricant such as WD-40 dry lube with PTFE.

- Replace complete spring module after 3 million cycles. Can replace single springs if broken.
- High cycle usage may require more frequent maintenance checks.
- Limits may need to be adjusted after any adjustments to the arm bracket.
- It is suggested that while at the site, voltage readings be taken at the operator. Using a digital voltmeter, verify that the incoming voltage to the operator is within ten percent of the operator's rating.
- Anytime the arm bracket needs to be removed or adjusted, the spring tension must be removed first to safely disengage the counterbalance spring assembly from the gearbox. See REMOVING SPRING TENSION in the Pre-Installation section of the manual. Then follow the Installation instructions to Install the Barrier Arm.

BATTERIES

Batteries degrade over time depending on temperature and usage. The operator alarm beeps 3 times with a command if the battery is low. Batteries do not perform well in extremely hot or cold temperatures. For best performance, the batteries should be replaced every 2 years. Use only LiftMaster part 29-NP712 for replacement batteries. The batteries contain lead and need to be disposed of properly.

The operator comes with two 7AH batteries. Two 33AH batteries (A12330SGLPK), with battery harness model K41-0102-000 (not provided), may be used in place of the 7AH batteries.

Troubleshooting

WARNING

For continued protection against fire:

- Replace ONLY with fuse of same type and rating.

Diagnostic Codes

TO VIEW THE CODES

1. On the LCD display, navigate to "Maintenance > Event Log > ENTER".
2. Scroll down the list to see the Event Log list.
3. Press Enter to view the details of the highlighted Event Code.

TO SCROLL THROUGH THE SAVED CODES

The operator will only keep track of up to 50 codes, then will start saving over the oldest codes as new codes occur.

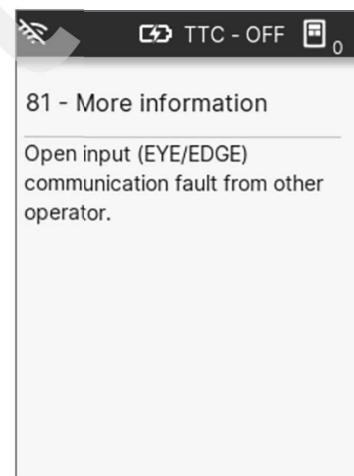
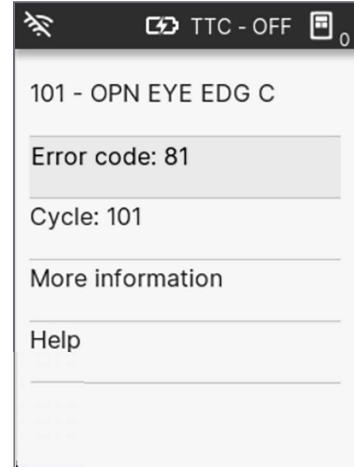
See "Diagnostic Codes Table" on page 64.

TO EXIT

Press the STOP button to exit. The display will also time out after two minutes of inactivity.

TO CLEAR THE EVENT LOG HISTORY

1. On the LCD display, navigate to "Maintenance > Event Log > Clear All - ENTER".
2. Press Enter to confirm.



Solar

Solar Setup

SOLAR PANEL(S)

SOLAR PANELS ARE NOT PROVIDED. SEE ACCESSORIES.

NOTE: The use of photoelectric sensor heaters (model LMTBUL) is NOT recommended in solar applications.

Solar Application Requirements

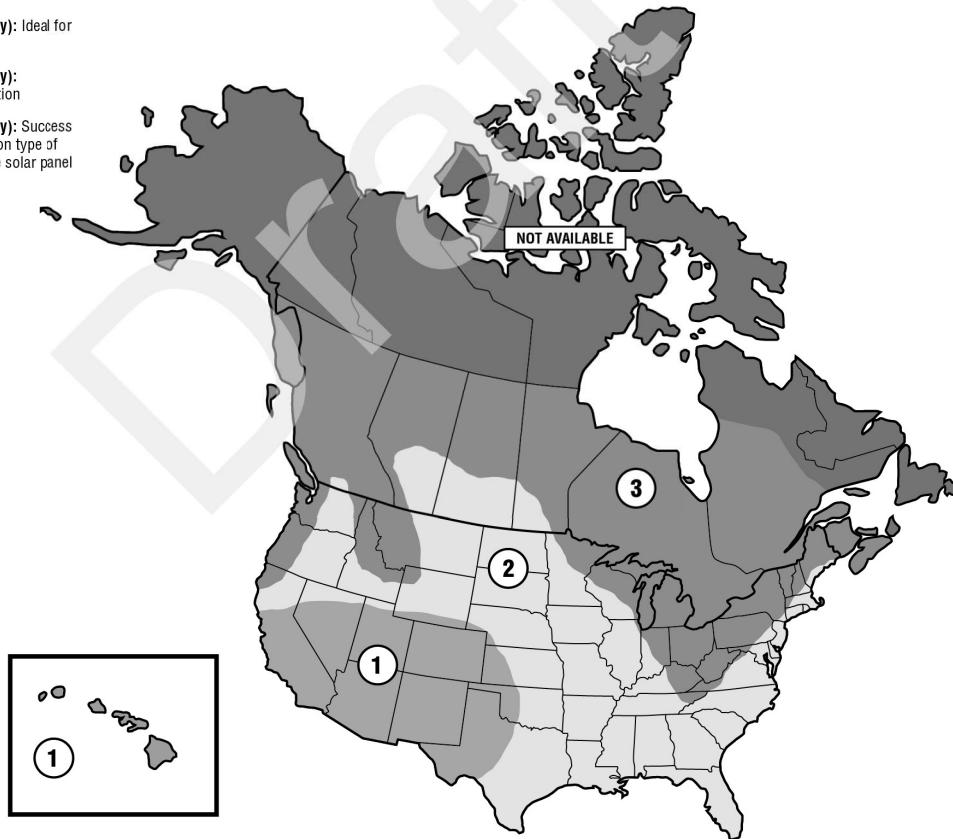
Solar rating: 20W MIN - 60 Watt MAX, 24V

- A minimum of two 10 Watt solar panels in series (Model SP10W12V).
- A maximum of six 10 Watt solar panels (Model SP10W12V).
- A heater cannot be used with a solar application.

SOLAR ZONES

Solar panel recommendations are based upon the average solar radiation and the temperature effects on batteries in the given zones as shown on the map below. Local geography and weather conditions may require additional solar panels. Solar powered gate operator installations are not supported in northern climates due to cold weather and a reduced number of hours of sunlight during the winter months. The cycles/day ratings are approximations. Ratings vary based on gate construction, installation, and temperature. Solar panels cannot be installed in areas that experience long periods of heavy fog, lake effect

- 1 **ZONE 1 (6 Hours of Sunlight/Day):** Ideal for solar application
- 2 **ZONE 2 (4 Hours of Sunlight/Day):** Recommended for solar application
- 3 **ZONE 3 (2 Hours of Sunlight/Day):** Success of solar application will depend on type of gate operator and location of the solar panel
- NOT AVAILABLE



Solar (continued)

Solar Current Draw

SOLAR USAGE GUIDE

All performance metrics are estimates and are subject to change at any time. Actual results vary due to variables specific to the site.

NOTE: For additional details and specifications on solar usage, please refer to liftmaster.com.

NOTE: The use of photoelectric sensor heaters (model LMTBUL) are NOT recommended in solar applications.

| PBG24DC & CBG24DC ESTIMATED SOLAR CYCLES PER DAY 12ft arm, Medium Speed | | | | | | |
|--|--------------------------------|----------------|--------------------------------|----------------|--------------------------------|----------------|
| | Zone 1 (6 Hrs Sunlight/Day) | | Zone 2 (4 Hrs Sunlight/Day) | | Zone 3 (2 Hrs Sunlight/Day) | |
| | 7AH batteries | 33AH batteries | 7AH batteries | 33AH batteries | 7AH batteries | 33AH batteries |
| 20 Watt Panels | 86 | 131 | | 15 | | |
| 40 Watt Panels | 335 | 568 | 121 | 253 | | 9 |
| 60 Watt Panels | 470 | 1000 | 197 | 532 | | 103 |

Solar (continued)

Solar Installation

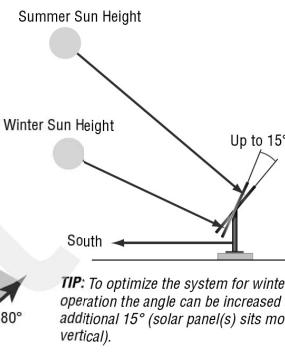
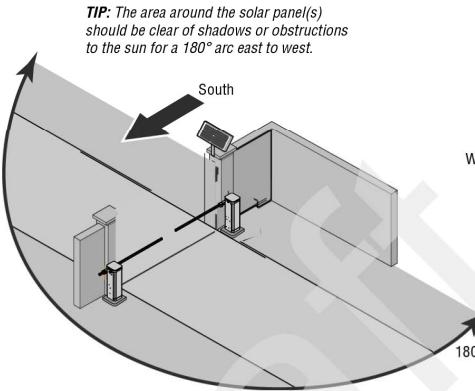
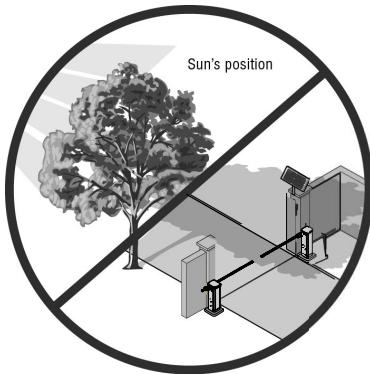
POSITION

The location of the panel(s) is critical to the success of the installation. In general, the panel(s) should be mounted using the provided angle bracket facing due south. The solar panel(s) should be mounted in an area clear of all obstructions and shade from buildings and trees. If the panel(s) is not casting a shadow, the battery is not being charged.

NOTE: Tall trees or buildings that do not shade the solar panel(s) in the summer could shade the solar panel(s) during the winter months when the sun sits lower in the sky.

| MAXIMUM WIRE LENGTH | | | |
|---------------------------|-----------------|-----------|----------|
| AMERICAN WIRE GAUGE (AWG) | WATTS OF PANELS | | |
| 16 | (71.6 m) | (35.1 m) | (24.4 m) |
| 14 | (114.3 m) | (57.9 m) | (38.1 m) |
| 12 | (182.9 m) | (91.4 m) | (61 m) |
| 10 | (286.5 m) | (144.8 m) | (96 m) |

Chart assumes: copper wire, 65°C, 5% drop, 30V nominal



INSTALLATION

Solar panel(s) MUST be installed facing south. Use a compass to determine direction. Below are general instructions for installing the solar panel(s). Your installation may vary slightly depending on the solar panel purchased.

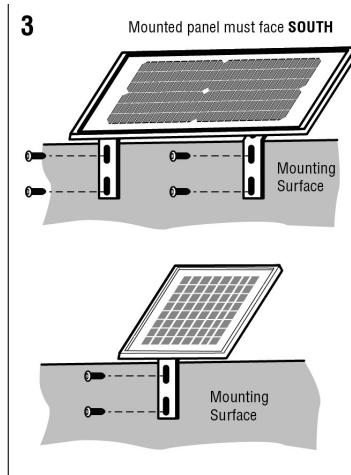
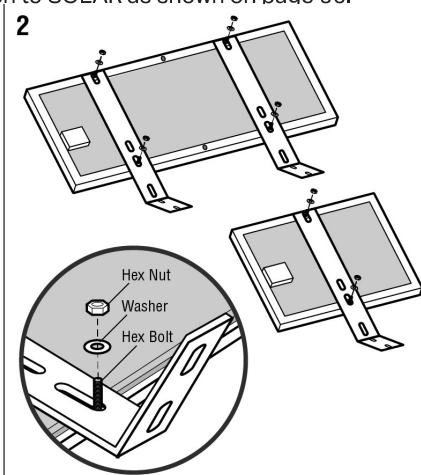
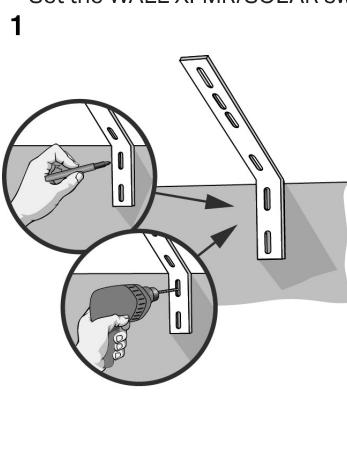
1. Position the mounting bracket on the mounting surface. Mark and drill holes.
2. Secure the solar panel to the mounting bracket using the hex bolts, hex nuts and washers provided.
3. Secure the solar panel to the mounting surface using lag screws provided.

WIRE THE SOLAR PANELS AND BATTERIES

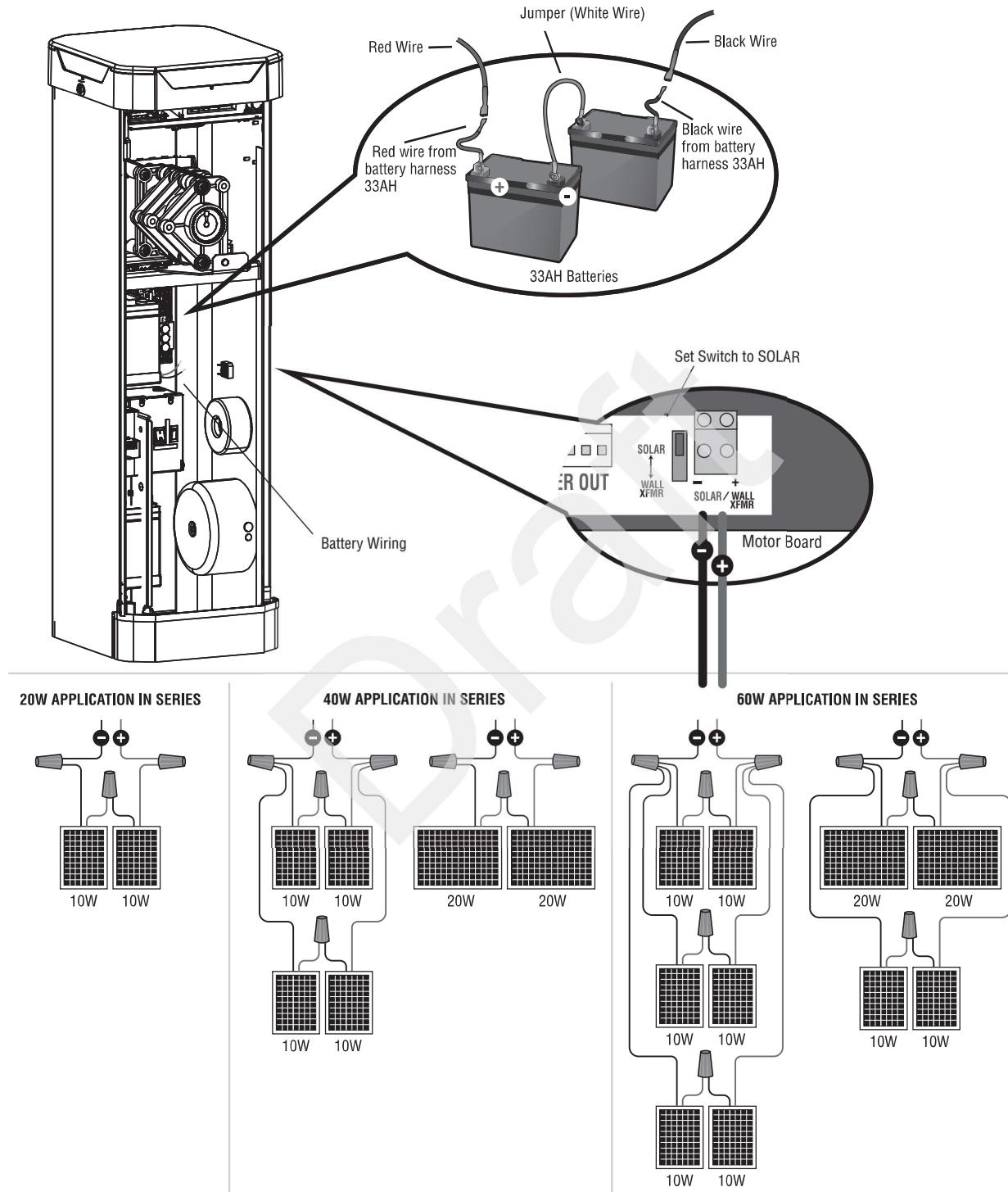
20 Watts min. - 60 Watts max. for solar applications.

NOTE: 33AH batteries are strongly recommended for optimal solar performance.

1. Connect (+) wire from solar panels to (+) pin on CHARGE IN connector on the main control board.
2. Connect (-) wire from solar panels to (-) pin on CHARGE IN connector on the main control board.
3. Set the WALL XFMR/SOLAR switch to SOLAR as shown on page 56.



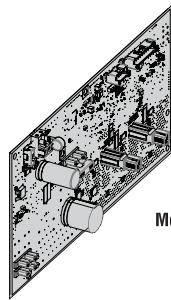
Solar (continued)



Repair Parts

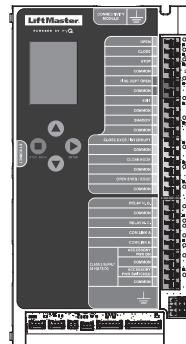
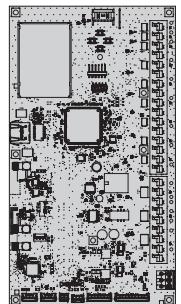


Transformer
K204C0211

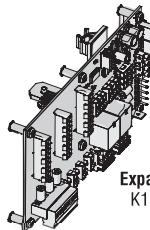


Motor Drive Board
K41-0434-000

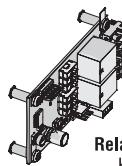
Main Control Board
K41-0431-000



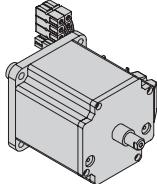
EMI Board
K1D7078



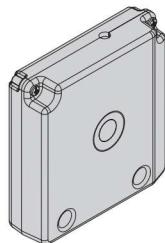
Expansion Board
K1D8387-1CC



Relay Adapter Board
K41-0072-000



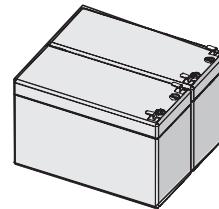
Motor
K41-0435-000



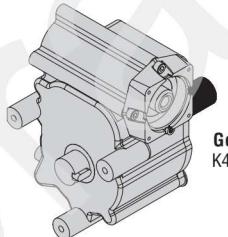
Limit System Encoder
K41-0450-000



Bridge Rectifier
K41-0083-000



Battery, 7AH 12 VDC
K74-30762 (1)
29-NP712 (2)

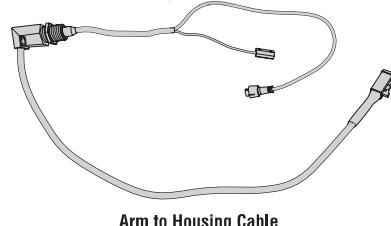
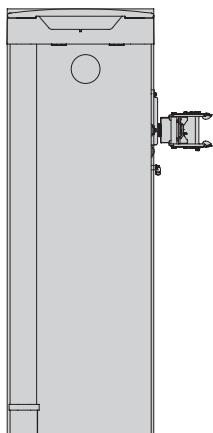


Gear Reducer
K41-0436-000



Alarm
BGALARM

OVERVIEW



Arm to Housing Cable
K41-0447-000

NOT SHOWN

- K41-0477-000 BG Replacement Spring Set
- K41-0437-000 PBG Spring Module
- K41-0438-000 CBG Spring Module
- K41-0439-000 IBG Spring Module
- K41-0440-000 Arm Bracket Kit
- K41-0441-000 Shaft Output Cover and Seal
- K41-0442-000 Arm Retention Kit
- K41-0443-000 LED Lid (White)
- K41-0444-000 LED Lid (Gray)
- K41-0445-000 Cabinet Door (White)
- K41-0446-000 Cabinet Door (Gray)
- K41-0449-000 Arm Mounting Hardware
- K41-0452-000 Lock and Key
- K41-0461-000 Barrier Gate Warning Sign
- K41-0257-000 Harness Kit
- K41-0432-000 Plastic PCB Tray
- K41-0433-000 PCB Pivot Assembly
- K41-0452-000 Lock and Key
- K41-0451-000 Antenna Kit

Accessories

SAFETY DEVICES



LiftMaster monitored through beam photoelectric sensor

Model LMTBUL



LiftMaster monitored retro-reflective photoelectric sensor

Model LMRRUL



LiftMaster monitored wireless edge kit (transmitter and receiver)

Model LMWEKITU



LiftMaster monitored wireless edge transmitter

Model LMWETXU



Small profile monitored edge (82-ft. roll)

Model S50

Small profile ends kit

Model S50E

REMOTE CONTROLS

LiftMaster offers a variety of LiftMaster remote controls to satisfy your application needs. Single-button to 4-button, visor or key chain. The following remote controls are compatible with all current gate operator models. Contact your authorized LiftMaster dealer for additional details and options.

3-button remote control



The 3-button remote control can be programmed to control the operator. Includes visor clip.

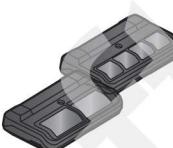
Model 893MAX



3-button mini-remote control

The 3-button remote control can be programmed to control the operator. Includes key ring and fastening strip.

Model 890MAX



Security+ 2.0 learning remote control

One button can control a gate operator and the other(s) can control garage door(s). It can also be programmed to Security+ or Security+ 2.0 code format.

Models 892LT and 894LT



Programmable DIP Remote Controls

Ideal for applications requiring a large number of remote controls.

Models 811LMX and 813LMX



Wireless commercial keypad

Durable wireless keypad with blue LED backlight metal keypad, zinc-alloy metal front cover and 5 year 9V lithium battery. Security+ 2.0 compatible.

Model KPW250



Commercial access control receiver

Access control receiver for up to 1,000 devices (any combination of remote controls and wireless keyless entries).

Model STAR1000

Accessories (continued)

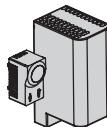
MISCELLANEOUS



3-Phase Converter

Changes input voltage (208/240/480/575 VAC) to an output voltage of 120 VAC.

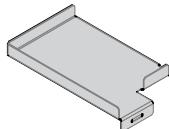
Model 3PHCONV



Barrier Gate Heater

The heater keeps the gearbox and batteries at a suitable temperature when the outside temperature is below -4°F (-20°C). The thermostat MUST be set between 45°F and 60°F (7°C and 15.5°C) to ensure proper gate operation. The heater can be powered by 110 to 250 VAC.

Model HTR



33AH Battery Tray

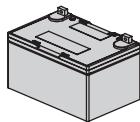
Battery tray, wire harness kit, and fasteners.

Model TRAY33AH

BGARMFOAM

BGALARM

BATTERIES



33AH Batteries Kit

Upgrade 33 AMP-Hour Battery, 12 VDC. Ideal for solar applications and extended battery backup. Two required.

Model A12330SGLPK

Must use TRAY33AH - mounting bracket.

ARTICULATING ARMS

BGARM10ART84

10' Functional Length Arm with 84" Clearance

BGARM10ART98

10' Functional Length Arm with 98" Clearance

BGARM12ART84

10' Functional Length Arm with 84" Clearance

BGARM12ART98

10' Functional Length Arm with 98" Clearance

STRAIGHT ARMS

BGARM10

10' Functional Length Arm

BGARM10LED

10' Functional Length Arm w/LEDs

BGARM12

12' Functional Length Arm

BGARM12LED

12' Functional Length Arm w/LEDs

BGARM14

14' Functional Length Arm

BGARM14LED

14' Functional Length Arm w/LEDs

BGARM18

18' Functional Length Arm

BGARM24

24' Functional Length Arm

Warranty

LIFTMASTER® 2 YEAR LIMITED COMMERCIAL WARRANTY

LiftMaster ("Seller") warrants to the first purchaser of this product, for the structure in which this product is originally installed, that it is free from defect in materials and/or workmanship for a period of 2 year commercial installation from the date of purchase [and that the PBG24DCW, PBG24DCG, CBG24DCW, CBG24DCG, IBG24DCW, IBG24DCG are free from defect in materials and/or workmanship for a period of 2 year commercial installation from the date of purchase]. The proper operation of this product is dependent on your compliance with the instructions regarding installation, operation, maintenance and testing. Failure to comply strictly with those instructions will void this limited warranty in its entirety.

If, during the limited warranty period, this product appears to contain a defect covered by this limited warranty, call **1-800-528-2806**, toll free, before dismantling this product. Then send this product, pre-paid and insured, to our service center for warranty repair. You will be advised of shipping instructions when you call. Please include a brief description of the problem and a dated proof-of-purchase receipt with any product returned for warranty repair. Products returned to Seller for warranty repair, which upon receipt by Seller are confirmed to be defective and covered by this limited warranty, will be repaired or replaced (at Seller's sole option) at no cost to you and returned pre-paid. Parts will be repaired or replaced with new or factory-rebuilt parts at Seller's sole option.

ALL IMPLIED WARRANTIES FOR THE PRODUCT, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE 2 YEAR COMMERCIAL LIMITED WARRANTY PERIOD SET FORTH ABOVE [EXCEPT THE IMPLIED WARRANTIES WITH RESPECT TO THE PBG24DCW, PBG24DCG, CBG24DCW, CBG24DCG, IBG24DCW, IBG24DCG, WHICH ARE LIMITED IN DURATION TO THE 2 YEAR COMMERCIAL LIMITED WARRANTY PERIOD FOR THE PBG24DCW, PBG24DCG, CBG24DCW, CBG24DCG, IBG24DCW, IBG24DCG, AND NO IMPLIED WARRANTIES WILL EXIST OR APPLY AFTER SUCH PERIOD. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. THIS LIMITED WARRANTY DOES NOT COVER DAMAGE CAUSED BY IMPROPER INSTALLATION, OPERATION OR CARE (INCLUDING, BUT NOT LIMITED TO ABUSE, MISUSE, FAILURE TO PROVIDE REASONABLE AND NECESSARY MAINTENANCE, UNAUTHORIZED REPAIRS OR ANY ALTERATIONS TO THIS PRODUCT), LABOR CHARGES FOR REINSTALLING A REPAIRED OR REPLACED UNIT, OR REPLACEMENT OF BATTERIES. THIS LIMITED WARRANTY ALSO DOES NOT COVER ANY PROBLEMS CAUSED BY INTERFERENCE. ANY SERVICE CALL THAT DETERMINES THE PROBLEM HAS BEEN CAUSED BY ANY OF THESE ITEMS COULD RESULT IN A FEE TO YOU. UNDER NO CIRCUMSTANCES SHALL SELLER BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES ARISING IN CONNECTION WITH USE, OR INABILITY TO USE, THIS PRODUCT. IN NO EVENT SHALL SELLER'S LIABILITY FOR BREACH OF WARRANTY, BREACH OF CONTRACT, NEGLIGENCE OR STRICT LIABILITY EXCEED THE COST OF THE PRODUCT COVERED HEREBY. NO PERSON IS AUTHORIZED TO ASSUME FOR US ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF THIS PRODUCT.

Some states and provinces do not allow the exclusion or limitation of consequential, incidental or special damages, so the above limitation or exclusion may not apply to you. This limited warranty gives you specific legal rights, and you may also have other rights, which vary from state to state and province to province.