

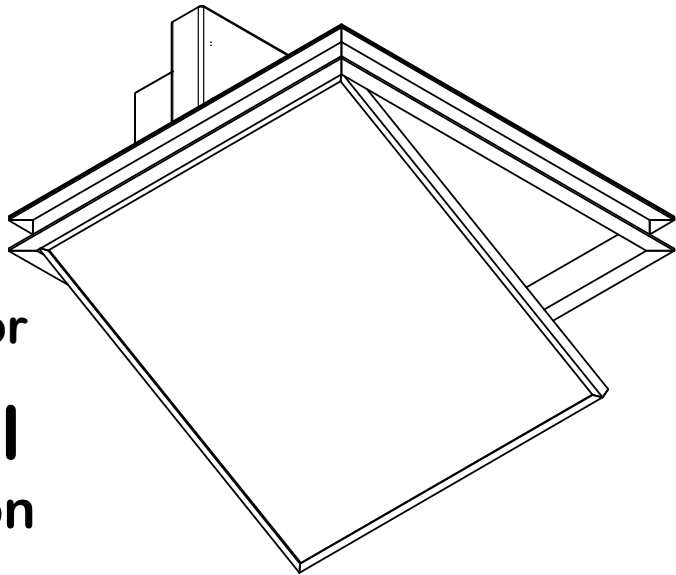
READ AND SAVE THESE INSTRUCTIONS



LDM-100

**Ceiling Mounted
Labor and Delivery Mirror**

Owner's Manual Installation & Operation



Summary of Features

The LDM-100 brings new convenience and functionality to the patient suite. Mounted overhead, the Labor and Delivery Mirror is out of the way yet instantly ready for use. It provides patients with a clear view without distracting or interrupting the professional staff.

It is concealed as a ceiling panel, reducing clutter in the Patient Suite. It is operated by a handy wireless remote control.

Using the remote control, the mirror is easily adjusted for a clear and steady view. It does not obstruct the surgical lighting and only takes a few seconds to position for use.

The LDM-100 is designed to deliver dependable service and trouble-free operation. It utilizes an acrylic mirror for added safety in the Patient Suite.

Overview of Operation

The LDM-100 consists of a positionable mirror operated by a hand-held RF Remote Control. The Remote Control unit has two push buttons that control the up/down position of the mirror. The mirror will continue to pivot as long as either control button is held.

A tally light on the Remote Control confirms when a control signal is transmitted to the Mirror Unit.

The Down Button pivots the mirror to a viewing position. Fine adjustments of the mirror angle are accomplished by momentarily pressing either the Up or Down Button.

When the mirror is no longer needed, it is easily stored by pressing and holding the Up Button. When the mirror reaches the stored position, it automatically stops flush with the ceiling.

Technical Specifications

120 VAC, 1.0 Amp

RF Remote Control –
FCC certified

Internal Circuit Protection -
1.0 A 3AG fuse

Net Weight: 23 Lbs.



SERIAL NUMBER:

The SN of this unit is on the Product Label. (See Fig. 3, page 7.) The SN is also on the Remote Control Label. (See Fig 9, page 9.) Record this number for future use.

LIMITED WARRANTY

HARDWARE

Adroit Industries, LLC ("Adroit" or "the company") warrants, to the original purchaser ("Customer") of a new product that is not sold "as is," that this product will be free from defects in workmanship and materials, under normal use, for a period of one (1) year which starts at the original purchase date.

EXCLUSIONS

This limited warranty ONLY COVERS failures due to defects in materials and workmanship, and DOES NOT COVER normal wear and tear or cosmetic damage. The limited warranty ALSO DOES NOT COVER damages or failures which result from accidents, misuse, abuse, neglect, mishandling, misapplication, alteration, faulty installation, set-up adjustments, misadjustment of consumer controls, improper maintenance, power line surge, lightning damage, modification by anyone other than a Company Authorized Servicer, or damage that is attributable to acts of God. THERE ARE NO EXPRESS WARRANTIES EXCEPT AS LISTED HEREIN.

This limited warranty is void if the factory model/serial number label has been removed or defaced.

EXCLUSIVE REMEDIES

Should a covered defect occur during the limited warranty period and you notify Adroit, your sole and exclusive remedy shall be, at Adroit's sole option and expense, to repair or replace the product. Replacement products or parts may be new or reconditioned or comparable versions of the defective item. Adroit warrants any replaced or repaired product, or part for a period of ninety (90) days from shipment, or through the end of the original warranty, whichever is longer.

OBTAINING WARRANTY SERVICE

Customer must contact Adroit Customer Service within the applicable warranty period to obtain warranty service authorization. Products or parts shipped by Customer to Adroit must be sent postage-paid and packaged appropriately for safe shipment. Adroit is not responsible for Customer products received without a warranty service authorization and may be rejected. Repaired or replacement products will be shipped to Customer at Adroit's expense. All products or parts that are replaced become the property of Adroit.

WARRANTIES EXCLUSIVE

THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, CORRESPONDENCE WITH DESCRIPTION, AND NON-INFRINGEMENT, ALL OF WHICH ARE EXPRESSLY DISCLAIMED BY Adroit AND ITS SUPPLIERS. ALL THE EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTY OF MERCHANTABILITY, ARE LIMITED TO THE PERIOD OF THE LIMITED WARRANTY.

LIMITATION OF LIABILITY

NEITHER ADROIT NOR ITS SUPPLIERS SHALL BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL, OR PUNITIVE DAMAGES OF ANY KIND, OR FINANCIAL LOSS ARISING OUT OF OR IN CONNECTION WITH THE SALE OR USE OF THIS PRODUCT, WHETHER BASED IN CONTRACT, TORT (INCLUDING NEGLIGENCE) OR ANY OTHER THEORY, EVEN IF Adroit HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

THE EXTENT OF THE COMPANY'S LIABILITY UNDER THIS WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT PROVIDED ABOVE AND, IN NO EVENT, SHALL THE COMPANY'S LIABILITY EXCEED THE PURCHASE PRICE PAID BY THE Customer FOR THE PRODUCT.

DISCLAIMER

Some states do not allow the exclusion or limitation of implied warranties or the limitation of incidental or consequential damage so the above limitations or exclusions may not apply to you. When implied warranties may not be excluded in their entirety, they will be limited to the duration of the applicable written warranty. This Warranty gives you specific legal rights and you may also have other rights which vary from state to state.

PARTS AND SERVICE, WHICH ARE NOT COVERED BY THIS LIMITED WARRANTY, ARE THE RESPONSIBILITY OF THE CUSTOMER.

Manual Contents

This owner's manual provides information for the correct installation, operation, maintenance and troubleshooting of the LDM-100.

Getting Started

1

- General Installation Instructions
- Required Materials

Mechanical Installation

2

- Location Considerations
- Unit Location
- Ceiling Grid Arrangement
- Unit Mounting
- Mooring Supports
- Clearance Considerations

Electrical Installation

3

- Electrical Considerations
- Conduit Connection
- Electrical Connection
- Verify Operation

Mirror Operation

4

- Operation Overview
- Using the Wireless Remote
- Wireless Remote Features
- Remote Replacement

Maintenance





5

- LDM-100 Unit
- Remote Control
- Replacement of Remote Control Battery
- Replacement Remote Control
- Programming Controller

Troubleshooting

6

- Troubleshooting Guide.
- Parts List
- Contact Information

 WARNING	 AVERTISSEMENT	 CAUTION	 MISE EN GARDE
Before installation of your Labor and Delivery Mirror, refer to instructions on the proper method of wiring.	Avant l'installation de votre travail et Mirror livraison, se référer aux instructions sur la bonne méthode de câblage.	Keep Remote Control and associated Mirror Unit together, identified by their common Serial Number.	Gardez unité de miroir associé ensemble, identifiés par leur numéro de série commune télécommande et.

The information contained in this document is believed to be correct but Adroit Industries LLC accepts no liability for any errors or omissions it contains, and reserves the right to alter specifications without notice.

General Installation Instructions

The LDM-100 is designed to be easy to install. For best results, we recommend the following installation order/steps.

1. Location of the Mirror Unit in the ceiling.
2. Mounting the unit in the ceiling.
3. Electrical connection of the Mirror Unit.
4. Verifying that the unit operates properly.

Additional materials are required to complete the installation of the LDM-100. These materials are provided by others. The Required Materials list is intended as a guide so that all materials will be available for use at the time of the installation.

Required Materials

Mechanical Components:

1. 4 lengths of anchor chain, cable or threaded rod and associated terminations.
2. Anchor Hardware, such as Unistrut and associated fasteners.

Electrical Components:

1. ½ inch flexible conduit of sufficient length to reach from the Mirror Unit to the user's service panel.
2. ½ inch flexible conduit fittings, 2 required.
3. 3 lengths of 12 or 14 Ga copper wire to reach from user's service panel to the LDM-100 unit, for power, neutral and ground.
4. Branch circuit disconnect device to be mounted in the user's service panel.



WARNING

To avoid fire, shock, and serious personal injury, follow these instructions.



AVERTISSEMENT

Pour éviter un incendie, un choc, et des blessures graves, suivez ces instructions.

The LDM-100 is for commercial use only.

Safety Instructions

1. Read your owner's manual carefully and keep it for future reference.
2. Before servicing, switch power off at service panel and lock the service panel disconnect to prevent power from being switched on accidentally. When the service disconnect cannot be locked, securely fasten a warning device, such as a tag, to the service panel.
3. Clean the mirror surface only with a soft, clean cloth. Do not use abrasive or strong detergents as the mirror surface may be scratched.
4. Do not impede the motion of the mirror as it lowers or retracts.

Additional Safety Instructions for Installation

1. To avoid possible shock, be sure electricity is turned off at the service panel before wiring.
2. All wiring must satisfy National and Local Electrical Codes. Use the National Electrical Code if Local Codes do not exist. The Labor and Delivery Mirror must be grounded with the connection provided as a precaution against possible electrical shock. Electrical installation should be made or approved by a licensed electrician.
3. The Labor and Delivery Mirror must be anchored to structural members of the building. Use the four eye-bolts provided with the unit to secure the device to the building structure.

This product is designed to use only those parts supplied with this product and/or any accessories designated specifically for use with this product by Adroit. Substitution of parts or accessories not designated for use with this product by Adroit could result in personal injury or property damage, and voids the warranty.

Location Considerations

The LDM-100 is positioned in the ceiling to provide the patient an unobstructed angle of view. The unit should be located in the ceiling along a projection of the centerline of the bed, and on a line 25-30 degrees from vertical from a spot on the patient bed corresponding to the Perineal Area. This configuration allows the mirror to be adjusted to a comfortable viewing angle while limiting the likelihood that the view might be obstructed.

The height of the ceiling affects the proper location of the unit. Although the exact location is not critical, locating the mirror within specified limits is important to provide optimum viewing.

Unit Location

Fig. 1 shows the location of the mirror with respect to the viewing target and the ceiling height. Location Constraints are specified for three ceiling heights, allowing flexibility in mounting the LDM-100 in an existing ceiling grid with little or no rail adjustments. The measurements are from a vertical line through the Perineal Area on the bed to the centerline of the LDM-100.

Note: the hinge side of the LDM-100 should be mounted so that it is closest to the head end of the patient bed.

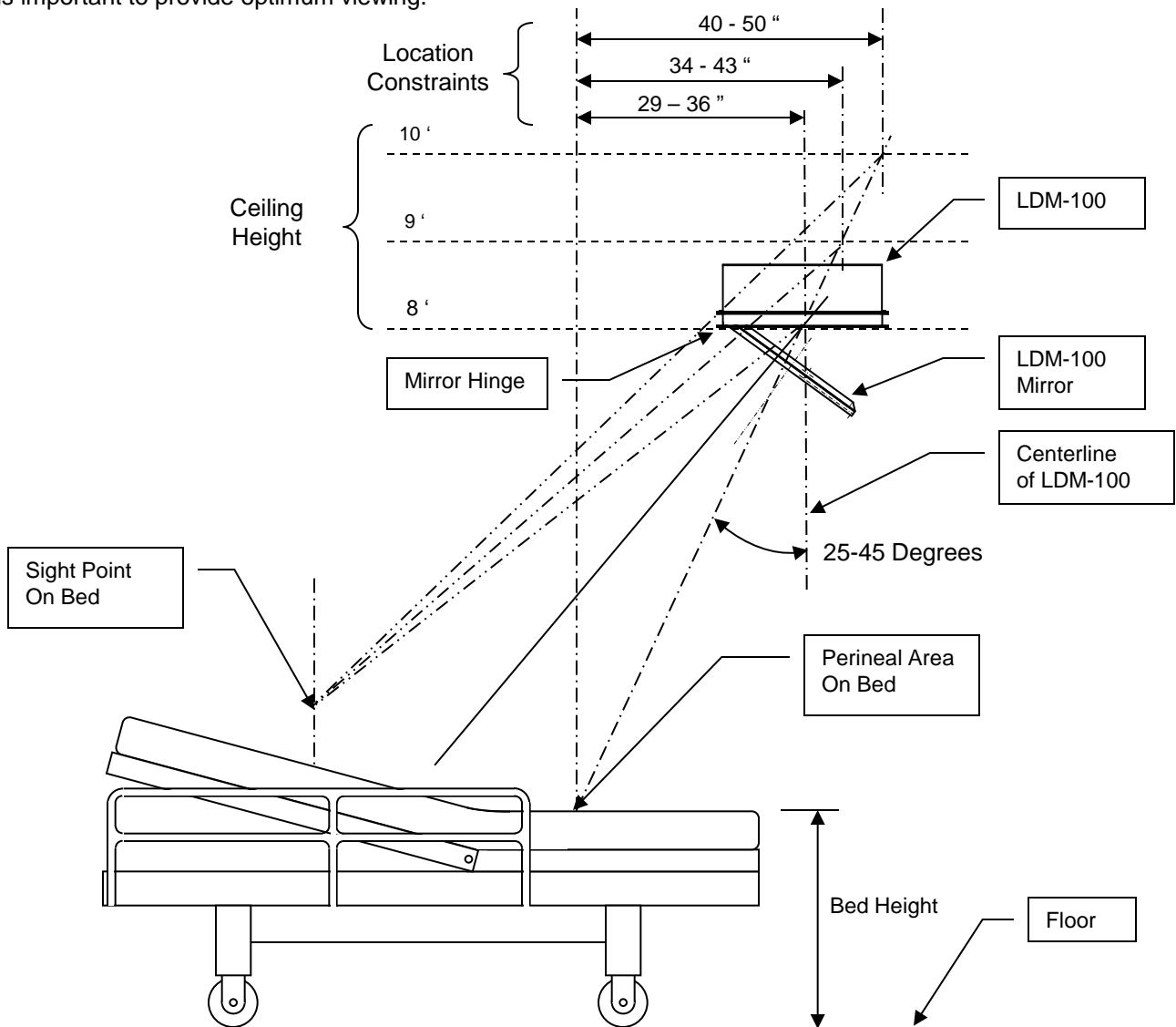


Fig. 1

Ceiling Grid Arrangement



Once the position of the LDM-100 unit has been determined relative to the ceiling grid, the unit can be mounted. The unit will fit exactly in a 2x2 ceiling grid configuration.

In the simplest case, the unit can directly replace an existing ceiling tile. If the unit position does not fit within the Location Constraints, the grid structure may have to be altered to accommodate the correct position of the unit.

Unit Mounting

After confirming the location of the grid opening, or adjusting the grid to accommodate the correct unit position, the unit can be mounted in the grid.

After the unit is mounted in the 2x2 grid, make sure that there is clearance between the grid frame and the mirror to allow it to move freely.

 WARNING	 AVERTISSEMENT
<p>Failure to assure clearance for the moving mirror can cause damage to the mirror and its mechanism and void the warranty.</p>	<p>Échec pour assurer un dégagement pour le miroir mobile peut causer des dommages au miroir et de son mécanisme et annuler la garantie.</p>

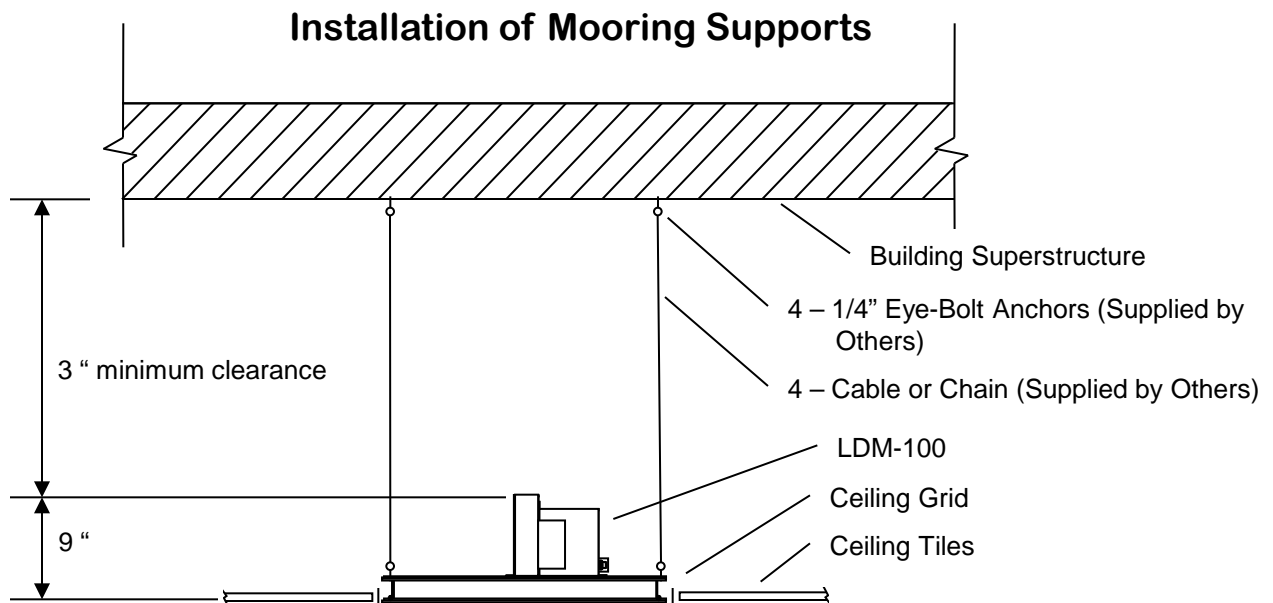


Fig. 2

Mooring Supports

Although the LDM-100 is light-weight, building codes may require that the unit be secured to the superstructure of the building. Fig. 2 depicts how the unit can be secured to the superstructure. Codes may require different attachments.

Four eye-bolts are supplied with the LDM-100 that can be used to secure the unit to the superstructure. Anchors to the superstructure are provided by others.

Clearance Considerations

The LDM-100 is only 9 inches in overall height. As a general rule the unit should be installed with a minimum of 3 inches of overhead clearance.

Unistrut can be used for mounting to the superstructure. See:

www.unistrutohio.com/standard-details

Electrical Considerations

The Labor and Delivery Mirror requires a grounded electrical supply line of 120 volts AC, 60 Hz, 15 amp circuit.

The LDM-100 is provided with a 3AG 1.0 amp fuse as a circuit protection device. Internal power to the unit can be turned off by removing the Fuse Holder Screw Cap and the attached fuse.

	WARNING
All wiring must be in accordance with National and Local codes. The LDM-100 must be grounded properly to avoid shock hazard.	
	AVERTISSEMENT
Tout le câblage doit être en conformité avec les codes nationaux et locaux. En outre, la LDM-100 doit être correctement mis à la terre par mesure de précaution contre les risques de choc électrique.	

It is recommended that a dedicated circuit-breaker be provided for the electrical service to the LDM-100 as a disconnect device. If provided, the circuit-breaker shall be marked to indicate this function. The circuit-breaker shall not interrupt the ground conductor.

Conduit Connection

The LDM-100 comes with provisions to connect an appropriate flexible conduit directly from the unit to the user service panel. The Conduit and Conduit Connector are provided by others.

The Electrical Service Bracket on the unit is identified by the Fuse Holder and a mounting hole for a nominal 1/2 inch Conduit Connector, shown in Fig. 3.

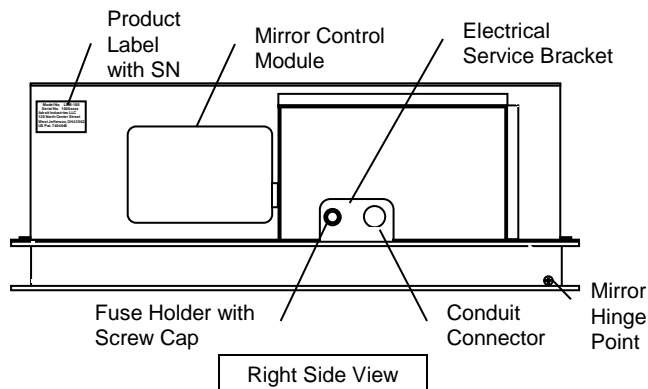


Fig. 3

Detach the Motor Cover, shown in Fig. 4, by removing the screws that are located on its flanges. Removing the Motor Cover exposes the Electrical Service Bracket.

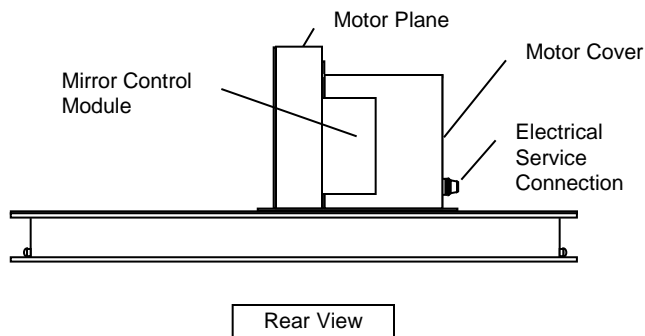


Fig. 4

Attach the User-supplied Conduit Connector to the Electrical Service Bracket, shown in Fig. 5, using the 7/8 inch hole provided.

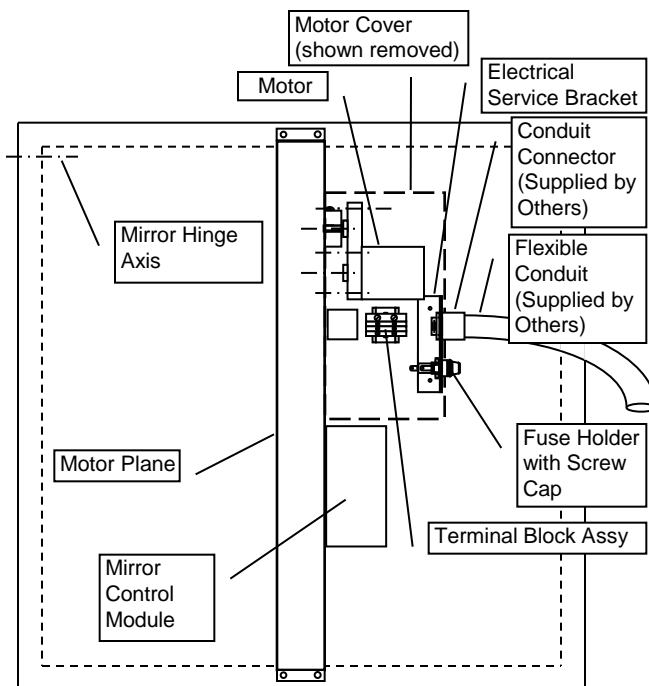


Fig. 5

Attach the other end of the flexible conduit with an appropriately installed conduit fitting on the user's service panel.

Electrical Connection

Use 14 Ga copper wire to supply power from the user's service panel to the LDM-100. Provide wires for Power, Neutral and Ground, supplied by others.



WARNING

Make sure that power is off while making connections. Failure to follow this instruction could result in electrical shock and/or damage to the unit.



AVERTISSEMENT

Assurez-vous que l'alimentation est coupée lors des connexions. Le non-respect de cette instruction pourrait entraîner un choc électrique et / ou endommager l'appareil.

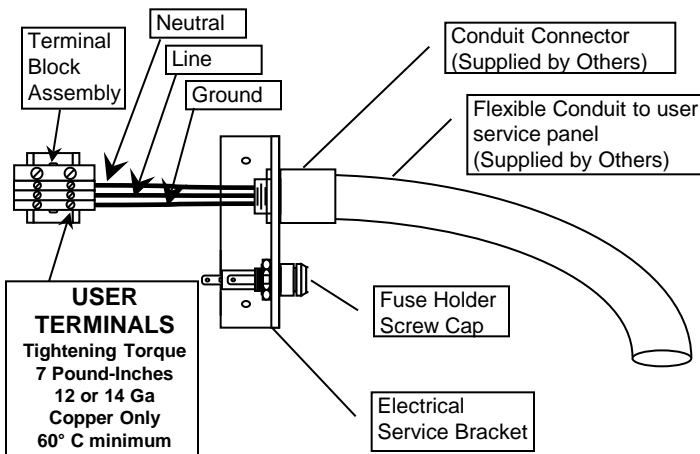


Fig. 6



WARNING

User's service connections are to be made ONLY to the Terminal Block Assembly, at the User-side connection terminals. Do not alter or make any connections to the internal wiring of the unit.



AVERTISSEMENT

Les connexions de service de l'utilisateur doivent être effectuées uniquement à l'Assemblée Bornier, aux bornes de connexion côté utilisateur. Ne pas modifier ou effectuer des connexions au câblage interne de l'unité.

Connect the wires for the Unit by terminating at the User-side of the Terminal Block Assembly, as shown in Fig. 6.

Connect the other end of the wires at the Users service panel. Check wiring for correct connections.

Verify Operation

Replace the Motor Cover and secure with the screws provided. See Fig. 4.

Apply power to the unit. Make sure that the Fuse Holder Screw Cap and a workable fuse are installed in the unit.



WARNING

Do not operate the unit with the Motor Cover removed as there is the potential of electrical shock from the internal wiring.



AVERTISSEMENT

Ne pas faire fonctionner l'appareil avec le capot moteur retiré car il est le potentiel de choc électrique du câblage interne.

The Remote Control is programmed at the factory to operate only its corresponding Mirror Unit. Verify that the serial numbers on both the Remote Control and the Mirror Unit match.

Press the Down Button on the Remote Control. The mirror will begin to pivot down.

Should the unit not respond to the Remote Control Unit, refer to Section 6, Troubleshooting.

As the mirror moves, check to see that the mirror is not obstructed by the ceiling grid members.



WARNING

Failure to assure clearance for the moving mirror can cause damage to the mirror and its mechanism and void the warranty.



AVERTISSEMENT

Échec pour assurer un dégagement pour le miroir mobile peut causer des dommages au miroir et de son mécanisme et annuler la garantie.

(See the Operation section for a complete description of the operation of the mirror.) If the mirror does not move, see Troubleshooting, Section 6.)

Press the Up Button and the mirror will pivot up. Hold the Up Button until the mirror returns to its stored position. It will stop automatically. (The stored position is set at the factory and does not need adjustment.)

Operation Overview

The LDM-100 is operated by a wireless RF Remote Control. Each LDM-100 is programmed to respond ONLY to its assigned Remote Control.

	CAUTION
Each Mirror Unit and associated Remote have identifying serial numbers. Keep them together.	
	MISE EN GARDE
Chaque unité Miroir et à distance ont associé l'identification des numéros de série. Gardez-les ensemble.	

The wireless RF Remote Control is an FCC approved device and does not require a user license.

Remote, Tether and Bracket



Fig. 7

The Remote is supplied with a coiled tether and storage Bracket. The Bracket should be mounted on a flat, vertical surface near the head of the bed. (e.g. head wall or monitor cart.) The Bracket is supplied with a self-adhesive mounting pad. When not in use, the Remote is stored in the Bracket. When needed, the Remote can be accessed to adjust the mirror. The tether extends approximately 6 feet from the Bracket to allow visual adjustment by the nurse near the patient's head.

Remote Replacement

Should the Remote Control become damaged or defective, a replacement unit can be ordered from Adroit Customer Service by providing the following information:

- Unit Model Number
- Unit/Remote Serial Number

Wireless Remote Features

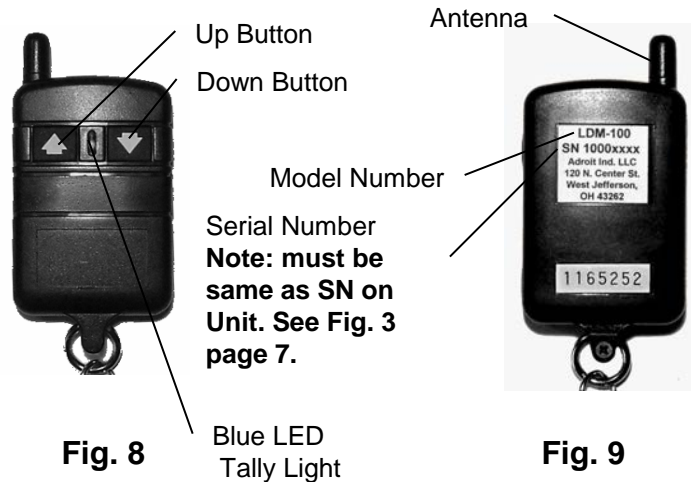


Fig. 8

Fig. 9

Using the Wireless Remote

The Remote Control has two motion control buttons. It also has a tally light that indicates when a control signal is transmitted to the unit.

By removing the Remote from the bracket, the Nurse can position the mirror while viewing by the patient's head. The mirror can also be positioned while the Remote is in the Bracket. When not in use, the Remote is stored in the Bracket.

To pivot the mirror from its stored position to a viewing position, press and hold the Down motion control button. The mirror will continue to pivot downward as long as the Down button is held. The blue tally LED will flash rapidly while the motion control button is depressed, indicating a control signal is being transmitted to the unit. When the button is released the mirror stops.

Fine adjustments to the mirror angle are accomplished by momentarily pressing either the Up or Down Button.

The mirror is limited in its down and up travel. Reaching either limit, the mirror stops automatically, regardless of continued pressing of the motion control button. Pressing the opposite direction motion control button, the mirror will immediately move in that direction.

To retract the mirror to the stored position, flush with the ceiling, the Up motion control button is pressed and held until the mirror stops..

LDM-100 Unit

The LDM-100 is designed to provide years of reliable service. None of the mechanical or electrical components in the unit require any routine maintenance.

Note: the limit switch that controls the position of the mirror in its stored position, flush with the ceiling, is set at the factory and does not require adjustment.

Periodically, the front surface of the mirror may become dusty and may need to be cleaned. Use a soft cloth with light sweeping motion to remove the dust. If the mirror surface needs further cleaning, use a microfiber cloth and a mild glass cleaning spray without ammonia. Use light strokes to wipe the mirror face dry. Also, window cleaning wipes are also acceptable provided they do not contain ammonia.



WARNING

Never use strong chemical cleaners, solvents or coarse paper towels on the front surface of the mirror as these may permanently scratch or destroy the reflective quality of the mirror.



AVERTISSEMENT

Ne jamais utiliser de nettoyants chimiques forts, des solvants ou des serviettes en papier grossières sur le miroir car ils peuvent rayer définitivement ou détruire la qualité réfléchissante du miroir.

Remote Control

The Remote Control of the LDM-100 is battery operated and requires regular battery replacement. The Remote Control battery will provide 350 to 400 up/down cycles, but yearly replacement is highly recommended.



WARNING

A weak or rundown battery is susceptible to leakage. This leakage can permanently damage the Remote and render it non-functional.



AVERTISSEMENT

Une batterie faible ou déchargée est sensible à la fuite. Cette fuite peut endommager définitivement la télécommande et le rendre non fonctionnel.

Replacing Remote Battery

The Remote Control is powered by an A23 12 volt battery. **This battery should be replaced once per year.**

Access to the battery compartment is achieved by removing the back cover. The back cover is held in place by a screw located on the back side in the ring boss.

Remove the screw and pry gently along the sides of the remote to unsnap the front cover. Use caution to assure that the circuit board remains in the back cover.

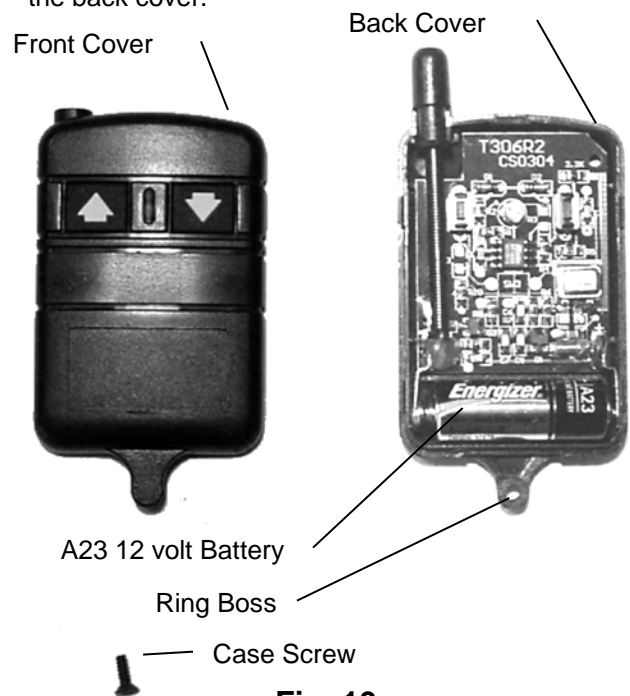


Fig. 10

Carefully remove old battery and replace with a new one. Pay strict attention to battery polarity.



WARNING

Observe correct polarity of the battery. Installing with reversed polarity can damage the remote.



AVERTISSEMENT



Respectez la polarité correcte de la batterie. Installation avec polarité inversée peut endommager la télécommande.

Reassemble the Remote Control. Remember to reattach the clasp. Check function by pressing the Down Button. Correct operation is indicated by the rapidly flashing blue LED tally light.

Programming the Controller

Each Remote Control is configured with a unique code. The Mirror Control Module is programmed at the factory to respond to the Remote Control associated with it.



Each Remote Control is labeled with the Serial Number of the Corresponding Mirror Unit.

	WARNING
Programming requires the power be on and should be done by a licensed electrician.	
	AVERTISSEMENT
La programmation nécessite la mise sous tension et doit être effectuée par un électricien agréé.	

Replacement Remote Control

Before using a replacement Remote Control, the Mirror Control Module will have to be reprogrammed. See procedure, below.

Remove the label from the old Remote and apply it to the new Remote, so that the SN's of the Unit and the new Remote match.

	WARNING
Reprogramming is ONLY required if you replace your Remote Control.	
	AVERTISSEMENT
La reprogrammation est UNIQUEMENT nécessaire si vous remplacez votre télécommande.	

Reprogramming Controller

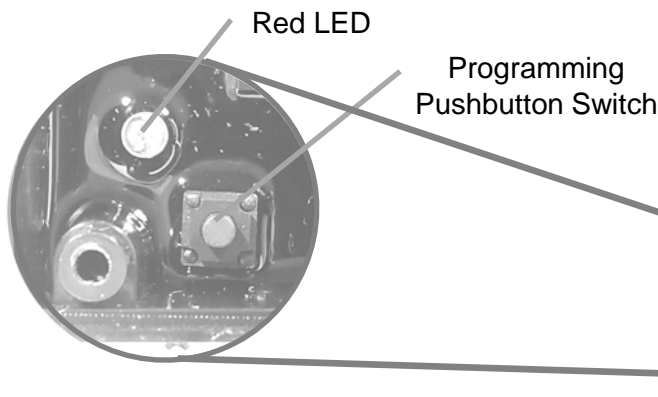


Fig. 11



Mirror Control Module



Remove the four Control Module Cover Screws that secure the cover of the Mirror Control Module. Remove cover and the internals of the Mirror Control Module will be exposed, as shown in Fig. 11.

Have the Remote Control at hand when you begin this programming procedure.

1. Locate the Blue Programming Pushbutton Switch and the Red LED on the Mirror Control Module. See Fig. 11. Depress and hold the Blue Programming Pushbutton Switch (approximately 5 seconds) until the Red LED illuminates, then release the Pushbutton. This indicates that the Control Module is in programming mode.
2. Depress either button on the Remote Control and verify that the Red LED on the Mirror Control Module blinks once.

	WARNING
Live power on terminal strip.	
	AVERTISSEMENT
Risque de choc électrique sur bornier.	

2. After 5 seconds the Mirror Control Module will return to normal operation (if no button is pressed on the Remote Control). The Red LED on the Control Module will blink rapidly for about 1 second, then go out. The Control Module is now in the normal mode of operation. Verify that the Mirror Control Module is programmed for the Remote by pressing the Down Button on the Remote Control and observing that the mirror pivots down.
3. Replace the Control Module cover. Use care not to crimp the antenna lead under the metal cover flanges. Return the mirror to the stored UP position.

Troubleshooting Guide

TROUBLE	DIAGNOSIS	PROBABLE CAUSE	SUGGESTED REMEDY
1. Mirror will not reposition.	1. Blue LED flashes when either button is depressed. 2. Blue LED does not flash when either button is depressed.	A. Mirror is at limit, either up or down. B. Power not available to Mirror Unit. A. Battery in Remote is run down.	A. Depress button for opposite movement on remote. B. Check unit fuse. Check service panel circuit breaker to Mirror Unit. A. Replace battery in Remote Control. (see Section 5, Maintenance)
2. Mirror will not respond to Remote Control	1. Blue LED flashes rapidly when either button is depressed.	A. Remote programming is lost	A. Reprogram the controller. (See Section 5, Maintenance)
3. Mirror not flush with ceiling		A. Mirror not stored properly	A. Hold Up Button until mirror motion stops.
4. Mirror motion is erratic.	1. Blue LED flashes erratically 2. Blue LED flashes rapidly and continuously when either button is depressed.	A. Battery in Remote Control is weak B. Battery in Remote Control is weak	A. Replace battery in Remote Control. (See Section 5, Maintenance) B. Replace battery in Remote Control. (See Section 5, Maintenance)

Parts List

Part	Adroit Part Number	Description	Comments
Battery for Remote Control		A23 12 V	Replace annually.
Fuse	100.06.018	3AG 1.0 Amp Fast-Blow Fuse	Assure that mechanism is not obstructed. <u>Do not</u> substitute with higher amp rating.
Remote Control	100.06.010	Two Button RF Remote Control	Order replacement Remote Control with Unit Serial Number.

Adroit Industries, LLC
 120 North Center Street
 West Jefferson, OH 43162
 Office: 614-571-6176
 www.adroitllc.com