

MICANAN SYSTEMS INC.

INSTALLATION AND INSTRUCTION MANUAL

MODEL: PRO-LT



2 YEAR WARRANTY

Model :_____

Serial #

Installation Date:

Wiring Diagram:

Feb. 2009

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WARNING

DO NOT CONNECT TO ELECTRICAL POWER DURING INSTALLATION OR SERVICING OF OPERATOR

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VERIFICATION OF OPERATOR AND HARDWARE

Upon delivery of your MICANAN SYSTEMS limited-duty trolley door operator, please inspect the unit carefully for damage. Verify that operator horsepower, voltage, phase and amperage correspond to available power supply and door application. Check that along with your operator you have received the following standard hardware.

1 x OPEN/CLOSE/STOP 3-button control station:



- 1 x Set of trolley tracks (door height + 2'6'')
- 1 x Drive chain package (door height x 2 + 5' 6" (1.65m) c/w connecting link)

1 x Trolley carriage and 3/8 take-up bolt assembly

- 1 x Trolley track end bracket
- 1 x Front idler
- 2 x Trolley spreader bars
- 1 x Set of Warning Signs



PRO-LT SPECIFICATIONS

PRO-LT medium duty trolley operator is designed for standard lift overhead sectional garage doors with low duty cycles.

STANDARD OPERATOR WEIGHT: 40-45 Lbs.

MOTOR: Intermittent duty 1000 RPM motor with high starting torque.

- Thermally protected by a built-in thermostat that cuts power to the motor and control circuit when overheating.
 - Horsepower: 1/2HP Voltage: 115V, 220V 1-phase

IMPORTANT NOTE THIS MEDIUM DUTY OPERATOR IS DESIGNED TO OPERATE <u>A MAXIMUM OF 15 COMPLETE CYCLES PER HOUR</u>.

<u>REDUCTION</u>: Primary: (4L) V-belt and pulleys (1.5" to 7" diameter) Secondary: #41 chain and sprockets

OUTPUT SHAFT SPEED: 90 RPM DOOR SPEED: 9"/second

SOLENOID BRAKE (OPTIONAL): Solenoid Brake system available for model PRO-LTB

- WIRING TYPE (STANDARD): C-2 Wiring constant pressure on close, momentary contact on open and stop. Wired to accept reversing edge, radio control, photocells, loops and OPEN/CLOSE devices. NOTE: If momentary contact on close (B2) wiring is desired: Re-install the purple wire onto terminal #5.
- TRANSFORMER: 24VAC control circuit, supplies power to drive control relays with 15VA power available for external devices.
- **LIMIT ADJUSTMENT**: 4 micro switches that control door travel. These limit switches are activated by fully adjustable screw type cams.
- **EMERGENCY DISCONNECT**: Quick release disconnect door arm to allow person to disengage operator drive chain from door for manual operation.

CLUTCH: Adjustable friction clutch to minimize damage to door operator, door or vehicles.

OPERATOR DIMENSIONS:



SAFETY INSTRUCTIONS

WARNING

TO REDUCE THE RISK OF INJURY OR DEATH:

READ AND FOLLOW ALL INSTRUCTIONS

- Do not allow children to play with door.
- Before installation, be sure that operator is suited for type of door and application
- Connect a reversing device to prevent entrapment if door is located near pedestrian traffic.
- Place control device within clear sight of the door but at a minimum distance from the door so that user cannot reach moving door parts when operating.
- Outdoor external devices should have security features to prevent unauthorized operation of the door.
- Never cross under a moving door.
- Press the "OPEN" device or activate quick release disconnect device if a person is trapped under the door.
- Do not use disconnect mechanism or manually operate door unless power has been electrically disconnected.
- Keep doors properly maintained. Test door and service regularly. Have a qualified service person make repairs. An unmaintained door system could cause injury or death.
- The owner or users must understand the safety and operation of door system. Insure that this
 installation manual be located close to the door system.

INSTALLATION INSTRUCTIONS

WARNING

DO NOT INSTALL THIS OPERATOR BEFORE READING THIS MANUAL CAREFULLY.

- Note: Installation of operator must be done by a qualified installer. Door must be properly installed and working smoothly. Remove all door locks prior to installation.
- 1. Install control station away from all moving door parts, within sight of the door and a minimum of 5 ft (1.5 m) from the ground.
- 2. Install entrapment warning sign next to control station.





3. Do not remove emergency release tag attached to disconnect handle.



PREPARATION:

- 1. Lay out operator and trolley tracks on ground in front of door with door operator motor facing away from door.
- 2. Install track spacers evenly to track assembly.
- 3. Install 3/8" take-up bolt to carriage using two 3/8" hex nuts and lock washer provided.
- 4. Slide trolley carriage through end of tracks towards operator with take-up bolt facing operator.
- 5. Install front idler assembly to the second set of holes end of trolley tracks.
- 6. Bolt rail assembly to operator frame using four 3/8" x ³/₄" bolts and 3/8" serrated hex nuts provided.



7. Attach one end of drive chain to carriage using connecting link provided. Run chain around front idler, over the track spacers, around drive sprocket and connect to take-up-bolt using connecting link provided. Adjust take-up-bolt so that chain sags approximately 3" (7.5 cm) at midpoint of tracks. Remove links from drive chain if necessary to make proper adjustment.



WALL MOUNTING BRACKET AND OPERATOR INSTALLATION:

NOTE: Trolley type operators should generally be mounted directly over the center of the door and the trolley tracks should clear the tracks by 2-1/2" (6.5 cm). However, if interfering structures or other reasons do not allow for centered mounting, it is possible to install it up to 18" off-center for torsion spring doors.

- 1. Locate the center of door by measuring door width and mark a vertical line above the door.
- 2. Determine the highest point of door travel by manually opening the door. Using a carpenter's level, project a line from where the top section of door reaches its highest point. Mark the spot where this line (high arc) intersects with the vertical line drawn earlier.



3. Mount a wood block or angle iron to the wall above the door opening as shown below. The wall mounting bracket has 3 holes for anchoring to wood block or angle iron. Bracket should be centered with door and positioned so that these holes are 2-1/2" (6.5 cm) above the high arc line of door. Secure wall mounting bracket using suitable hardware.



 While allowing motor to rest on floor, raise front end of track assembly and secure (but not tighten) to wall mounting brackets with 3/8" bolts and nuts provided.



5. Swing the operator and track assembly above the level of the door tracks and temporarily secure in place with rope or chain. Carefully open door. Align operator and rails with center of door. Using the door as support, shim the operator so that there is 3" (7.5cm) clearance between door and bottom of operator. Tighten wall mounting bracket bolts.



 Install hanging brackets (braces) from ceiling or structure to any of the 3/8" holes located on operator frame. For tracks over 14' long it is recommended to install braces to the tracks at 4'(1.2m) to 5' (1.5m) from operator.



TROLLEY ARM INSTALLATION

- Manually close door to fully closed position. Slide trolley carriage towards front idler and latch trolley
 arm to carriage spring pin by pulling on rope. When installed the open side of notch should face the
 door.
- 2. Using 3/8" bolts and nuts provided, align the mounting holes of straight arm and curved arm so that pivot bolt on door bracket is in line with the top rollers of the door. Align door bracket with centerline of door and secure to door using suitable hardware.



3. When properly installed the door arm should lean slightly away from door when door is fully closed.



4. At this time, check all bolts for tightness.

LIMIT SWITCH ADJUSTMENT

Adjustment of door travel is done by moving the limit cams on the threaded shaft. The position of the 4 limit switches are factory adjusted and should not be altered. The limit switches are:

- "Open" limit switch: End of door travel in the fully open position
- "Closed" limit switch: End of door travel in the fully closed position
- "Advanced Open" limit switch: Used for open/close devices or timer to close features
- "Advanced Closed" Limit switch: Used to prevent reversing device from reversing door when door is almost fully closed.

WARNING

TO REDUCE THE RISK OF INJURY OR DEATH:

DO NOT ATTEMPT TO MAKE LIMIT SWITCH ADJUSTMENTS UNLESS POWER HAS BEEN ELECTRICALLY DISCONNECTED

To adjust door travel:

- 1. **Open cycle**: Depress cam plate and spin "Open" limit cam away from "Open" limit switch to increase door travel or spin "Open" limit cam towards the "Open" limit switch to decrease door travel. After each adjustment ensure that cam plate fully engages in slots of both limit nuts.
- 2. Adjust "Open" limit cam so that door stops at the desired fully open position.
- Close cycle: Depress cam plate and spin "Close" limit cam away from "Close" limit switch to
 increase door travel or spin "Close" limit cam towards the "Close" limit switch to decrease
 door travel. After each adjustment ensure that cam plate fully engages in slots of both limit
 nuts.
- 4. Adjust "Close" limit cam so that door stops at the desired fully closed position.



CONNECTION OF POWER SUPPLY AND CONTROL STATION

WARNING

COMPARE AVAILABLE POWER SUPPLY VOLTAGE TO OPERATOR NAMEPLATE PRIOR TO ELECTRICAL CONNECTION. FAILURE TO CONNECT APPROPRIATE POWER SUPPLY VOLTAGE MAY CAUSE SERIOUS DAMAGE TO OPERATOR.

Refer to electrical diagrams inside control box cover or at the end of this manual prior to connection of power supply or control station.



POWER WIRING: Use 1-1/8" (2.85 cm) diameter holes for all power wiring.



Connect single phase power supply to terminals L (line) and N (neutral) on three-pole power terminal strip.

CONTROL WIRING: Use 7/8" (2.22 cm) diameter holes for all control wiring. Note: Do not run control wires and power wires in same conduit.

- Install control station within clear sight of door but away from all moving parts of door or hardware. Install Entrapment warning sign next to control station. Connect 3-button (open/close/stop) push button station to terminals 2, 3, 4 and 5. Refer to electrical diagram for connection of two 3-button stations.
- **NOTE**: After electrical connections are made, manually move door to mid-position and, using the control station press the "Open" button for several seconds and then press the "Stop" button. If door did not move in correct direction verify wiring control station.

CONNECTION OF A REVERSING EDGE DEVICE AND CONTROL ACCESSORIES

1. Reversing Edge device (must be normally open contact):

Note: If the door is controlled by any device or wired in such a manner that the door is not controlled by constant pressure on close then an appropriate reversing edge must be installed.



2. External interlock: Remove jumper between terminals 1 and 2 and wire interlock between these two terminals.



3. Radio control receiver: Wire standard radio receiver to separate radio strip on side of control box or to terminals 7, 8 and 9 on control terminal strip inside control box.



4. Single button open/close device: Wire to terminals 7 and 8 on control terminal strip.



5. Loop detectors, photocells and other reversing devices: Wire to terminals 3 and 6 on control terminal strip.



6. 24 Volt power: Wire to terminals 1 and 9 on control terminal strip



CLUTCH ADJUSTMENT

- 1. Remove cotter pin tapped to pulley.
- Rotate clutch nut counterclockwise (loosen) until there is insufficient tension to permit clutch to drive door.
- Gradually tighten clutch nut until the tension on belleville washers is sufficient to permit clutch to drive door smoothly but will allow clutch to slip if door is obstructed. It should be possible to stop moving door by hand if clutch is properly adjusted.
- 4. Lock clutch nut in place by inserting cotter pin.



BRAKE ADJUSTMENT (For PRO-LTB only)

- The brake adjustment is factory set and should only require minor adjustment after extensive use.

- Verify brake adjustment by manually holding in solenoid plunger. When brake is properly adjusted, the brake shoe pads should make complete contact with brake drum with sufficient brake spring tension to stop and maintain door when solenoid is de-energized. When solenoid is energized, brake shoes should release from drum with sufficient clearance to avoid contact between shoes and drum.

- To adjust brake tension, tighten (to increase) or loosen (to decrease) nylon lock nut on brake spring bolt. Observe solenoid during electrical testing of brake. Brake spring tension must be adjusted so that solenoid should pull and release smoothly and quietly. Too much or too little tension on brake spring may cause solenoid to burn out.

- To adjust individual brake shoes, loosen nut on brake shoe adjustment bolt and adjust bolt. When properly adjusted, there should be a small clearance between adjustment bolt and solenoid bracket when solenoid is de-energized. When solenoid is energized, brake shoes should move away from drum with sufficient clearance to avoid friction between brake shoe pad and drum. After adjustments are made be sure to tighten nuts on brake shoe adjustment bolts.



EMERGENCY MANUAL OPERATION

The operator is equipped with a quick release disconnect system to manually operate door in case of emergency. This feature should not be used to manually operate a malfunctioning door.



- 1. Pull the release cord downwards to disconnect trolley arm from carriage and manually operate door.
- 2. To reconnect door arm to carriage, pull emergency release cord and re-insert trolley arm to trolley carriage spring pin.



OPERATOR MAINTENANCE

WARNING

TO REDUCE THE RISK OF INJURY OR DEATH:

DO NOT ATTEMPT TO SERVICE THE OPERATOR UNLESS POWER SUPPLY HAS BEEN DISCONNECTED

 Inspect manual function of the door every 3-months. Make sure that door runs smoothly. If door does not manually open or close freely, have a qualified service person make repairs. Do not attempt to electrically operate a malfunctioning door.

Every 3 months:

- 1. Verify that door area is kept clean. Remove any obstructions that would prevent proper door operation.
- 2. Check for any excessive slack in chains. If chain adjustment is required verify and adjust limit switches, if necessary.
- 3. Verify and adjust clutch and brake (Do not lubricate).
- 4. Lubricate chains, bearings and limit shaft.
- 5. Verify that motor and operator runs smoothly and quietly. Verify that carriage runs smoothly on tracks.
- Every 6 months:
 - 1. Verify tightness of all fasteners and set screws.
 - 2. Verify that operator is properly secured.
 - 3. Inspect manual disconnect.
 - 4. Verify tension and condition of V-belt

- Every 12 months:

- 1. Perform a complete service check.
- 2. Verify that inside of control box is clean and that grounding wires, terminations and power terminations do not show signs of corrosion.
- 3. Verify tightness of all terminal strip screws and electrical connections.
- 4. Verify power supply, voltage of input terminals during operation.
- 5. Verify that current consumption of operator corresponds to nameplate information



Replacement parts list PRO-LT/LTB

CODE	PART #	DESCRIPTION (PRO-LT)	PRO-LT	PRO-LTB C/W BRAKE
			QTY	QTY
MB01010	1	MOTOR (Limited duty)	1	1
4M00073	2	FRAME (LEFT) MSI0097	1	1
/M00074	3	FRAME (RIGHT) MSI0098	1	1
/M00076	4	CONTROL BOX (Limited Duty) MSI0092	1	
AM00077	5	CONTROL BOX COVER (Limited duty) MSI0093	1	the second se
MM00024	6	CAM PLATE MSI0013	1	1
ME00035	7	LIMIT SHAFT 3/8-1/2 x 8.436"	1	1
MG00030	8	LIMIT CAM 1/2-20 UNF	2	2
MH00001	9	BRONZE T-BUSHING 3/8" ID	2	2
MK00004	10	LIMIT SWITCH	4	44
MJ00006	11	LIMIT SWITCH DOUBLE SPACER 3/4" LONG		4
MG00003	12	DOUBLE NUT FOR LIM-SW.	4	8
MF00003	13	R.H. PHILLIPS MACHINE SCREW 4-40 UNCx1-1/2"	8	and the second s
MF00004	14	R.H. PHILLIPS MACHINE SCREW 6-32 UNC x1"	2	2
MQ00001	15	CAM PLATE COMPRESSION SPRING (.178IDx.032GX.55L)	2	1
MH00006	16	COLLAR 3/8" ID	1	2
MM00046	18	CONTROL BOX HINGE	2	
MI00018	19	MOTOR PULLEY 4L 5/8 ID	1	1
VE00018	20	KEYWAY 3/16 SQ. x 1-1/4" LONG	1	1
MI00017	21	PULLEY 7" OD c/w BUSHING 3/4" ID	1	1
MI00035	22	V-BELT A-27	1	1
MJ00004	23	CLUTCH PLATE ALUMINUM 3/4" ID	1	1
MQ00007	24	SPRING PIN 1/4" x 2" LONG	1	1
MJ00005	25	ICLUTCH PAD 3/4" ID	1 1	1
MG00014	26	SLOTTED HEX NUT 3/4-24UNF	1	1
MG00004	27	BELLEVILLE WASHER 13/16 IDx1-3/16X1/8	6	6
MQ00002	28	COTTER PIN 1/8 x 2.5" LONG	1	1
MG00007	29	HEX NYLON LOCK NUT 6-32UNC	2	2
MH00008	31	COLLAR 3/4" ID	2	2
MH00007	32	COLLAR 1" ID	2	2
MH00013	33	FLANGE BEARING 3/4" IDx1-3/8 OD	2	2
MH00009	34	FLANGE BEARING 1" IDx2"OD	2	2
MD00004	36	SPROCKET 410B12 X 1"	2	2
MD00004	37	SPROCKET 410B9 X 3/8"	1	1
MD00128	38	#410 ROLLER CHAIN 27 PITCH C/W CONNECTING LINK	1	1
MD00128	39	SPROCKET 41B24 x 1"	1	1
MD00006	40	SPROCKET 41B10 x 3/4"	1	1
MG00036	40	RIBBED HEX NUT 8-32UNF		4
	41	#41 ROLLER CHAIN 37 PITCH DRIVE C/W 1 OFFSET LINK + 1 CONN. LINK	1	1
MD00219	44	FLAT WASHER #10	4	5
MG00016		KEYWAY 1/4" SQ. x 1-1/4" LG	3	3
ME00017	45	SPRING PIN 3/16" x 1-1/4" LONG	1	1
MQ00016	47	LIMITTED DUTY FRAME SUPPORT U-BRACKET MSI0141	1	1
MM00128	40	H.H. SLOTTED SELF ROUNDING WASHER HEAD SCREW 10-32 UNF x 1/2"	7	7
MF00046		H.H. BOLT 3/8"-16UNC X 3/4" LONG	4	4
MF00011	50	SET SCREW 5/16" -18	12	14
MQ00008	51		5	5
MQ00009	52	SET SCREW 1/4" - 20	-	1
MM00078	55	SOLENOID LEVER LIMITTED DUTY MSI0094 R.H. PHILLIPS MACHINE SCREW 10-32 UNF x 5/8"	1	1
MF00005	56			1
MQ00001	57	COTTER PIN 1/8 x 1.5"	1	1 1
MG00008	59	HEX NYLON NUT 10-32 UNF		1
MK00026	61	SOLENOID 120V	1	1
MJ00003	62	BRAKE DRUM	1	1 1
MJ00001	63	BRAKE SHOE LEFT		1
MJ00002	64	BRAKE SHOE RIGHT	- Contraction and the	1 1
MH00002	65	MILD STEEL BUSHING 9/32ID x 13/32OD x1-1/16	-	1
MO00002	66	BRAKE COMPRESSION SPRING (5/16"ID05G-2.50L)		2
MG00006	67	HEX NUT 1/4-20UNC	1	2
MG00009	68	HEX NYLON LOCK NUT 1/4-20UNC		2
MF00028	69	HEX HEAD BOLT 1/4-20UNC x 1-1/4" (Full thread)		1
MF00076	70	HEX HEAD BOLT 1/4-20UNC x 2" (full thread)		1
MF00044	71	HEX HEAD BOLT 1/4-20UNC x 4" (partial thread)	-	2
MG00017	72	1/4" FLAT WASHER	1	1
MQ00020	73	SPRING PIN 3/16" X 1-3/4" Long	8	8
MG00010	74	RIBBED HEX NUT 10-32UNF	4	4
MG00018	75	LOCK WASHER 3/8"		2 .
MG00019	76	FLAT WASHER 13/16" I.D.x1.50D (3/4" SHAFT SIZE)	2	
ME00036	79	INPUT SHAFT PRO-LT 3/4" x 10.875"	1	1
ME00005	80	DRIVE SHAFT TROLLEY 1" X 8.75"	1	1
MF00045	88	H.H. SLOTTED SELF ROUNDING WASHER HEAD SCREW 8-32UNF × 3/8"	1000	4
MG00011	95	RIBBED HEX NUT 1/4" - 20 UNC		6
MG00013	98	RIBBED HEX NUT 3/8" - 16UNC	2	2
MQ00005	115	SPRING PIN 3/16" X 1-1/2" LONG	1	1
ME00050	141	FRAME SUPPORT SHAFT 3/4" X 6" LONG	1	1 1





WARRANTY

This warranty is limited, and in lieu of all other warranty expressed or implied. There is no expressed liability due on the part of the seller.



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