# Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Safety</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Operating Instructions</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Site Preparation</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Installation</td>
<td>11</td>
</tr>
<tr>
<td>6</td>
<td>Tower Splitting</td>
<td>29</td>
</tr>
<tr>
<td>7</td>
<td>Commissioning and Trouble-Shooting</td>
<td>35</td>
</tr>
<tr>
<td>8</td>
<td>Maintenance</td>
<td>42</td>
</tr>
<tr>
<td>Appendix A</td>
<td>Assembly Drawings</td>
<td>43</td>
</tr>
<tr>
<td>Appendix B</td>
<td>Maintenance Log</td>
<td>45</td>
</tr>
</tbody>
</table>
Section 1: Introduction

Thank you for selecting the STRATUS elevator. When operated properly the STRATUS elevator is designed to provide years of trouble free service. This manual is provided to show you how to operate the elevator safely and efficiently. Please read this manual thoroughly before installing and operating your elevator for the first time. We recommend your elevator be installed and serviced by a qualified service technician. If you are having problems installing the elevator call our tech support line at 1-800-563-4382.

Section 2: Safety

- Read all instructions thoroughly before installation or use of this elevator. Failure to do so could result in serious injury or death.
- Refer to local building codes, elevator codes and elevator authorities to ensure installation is safe and meets your local regulations.
- We recommend your elevator be installed and serviced by a qualified service technician.
- Do not override any of the safety devices provided with the elevator.
- The elevator is intended for use to a maximum of 800 lb. (DO NOT OVERLOAD THE ELEVATOR).
- Make sure that passengers are completely inside the car before raising or lowering the elevator.
- This list may not be exhaustive, due care around mechanical equipment should be observed. If uncertain, please contact the manufacture or a qualified installer.

For product updates and bulletins, please refer to our website www.trustram.com
Section 3: Operating Instructions

• A key switch is provided to prevent unauthorized use of the Elevator. The key is removable in both positions. When you wish to use the elevator, insert the key and turn the switch to ON, and remove the key. It is recommended that you have the key readily available whenever operating the elevator.

• Go inside the car and close the landing door and car door if provided or make sure the light curtain is clear if provided.

• Press button of your destination floor (1, 2 or 3) once. The elevator will move automatically and stop at the selected floor.

• If you need to stop the elevator any time by pressing the red STOP button (See Figure 1). To release, simply pull out the button.

• An object blocking the light curtain or opening of the carriage gate will also cause the elevator to stop, it will automatically proceed to the selected floor once the light curtain is clear or the carriage gate is fully closed.

![COP Overview](image)

Figure 1: COP Overview
MANUAL CRANK OPERATION

If a power outage occurs while the elevator is in use and a passenger is stranded between landings, the car can be manually lowered or raised using the Hand Crank Tool provided. First verify manual cranking is required, ensure;

- all landing doors are fully closed
- light curtain path is clear (if provided)
- carriage gate is fully closed (if provided)
- the COP stop button is pulled out
- the control key is turned on
- breakers are in the ON position
- panel disconnect is in the ON position
- manual crank is disengaged

If manual cranking is still required follow these steps:

![Warning](image)

All passengers inside the car must keep away from the car entrance when the car is moving.

Figure 2: Manual Crank Overview

- Insert the hand crank tool (3/8” drive extension and ratchet) into the manual crank access hoistway located outside the hoistway on the top landing
- Push in and rotate to engage the crank and raise or lower the car until the landing floor.
- Open the landing door and car gate (if provided) to evacuate the passengers.
- To disengage the crank reverse the cranking for approximately 5 rotations until the shaft springs back into the neutral position
Section 4: Site Preparation

4.1 Tools and Hardware for Installation

Tool list for elevator installation

- 1” x 48” lifting belt 2 pcs
- Hoisting Tool 1 unit
- Electric Hand Drill and Drill bit 3/8” x 12” 1 set
- Phillip Screw driver 1 pc
- #2 Robinson Screw Driver 1 pc
- Socket Ratchet Wrench 1 set
- 3/8” – ¾” Hand Wrenches 1 set
- Drywall Saw 1 unit
- 25’ x 1” Measuring Tape 1 pc
- 48” Level 1 pc
- Broom and Dust Pan 1 set
- 24ft Extension Ladder 1 unit
- 60” Step Ladder 1 unit
- Trouble Light 1 pc
- Utility Knife 1 pc
- Combination Wire Stripper/Crimper
- Concrete Drill with 3/8” x 12” concrete bit (for concrete wall only)
- 90 Ft. 14Ga. extension Cord

Hardware and additional parts for elevator installation (included with elevator package)

- Wood Studs 2” x 4” x 8’ 5 pcs
  (can use crate material)
- # 10 x 3 ½” wood screws 50 pcs
- Carriage bolt 3/8”-16 x 8” 2 pcs (Top Tower Anchor)
- 3/8” nut, flat & lock washer 2pcs each
- # ¼ x 3” lag bolt w/washer 20 pcs (for wood frame only)
- 3/8 x 1-7/8” Conc. Block Anchor 20 pcs (for concrete wall only)
- Steel Shims for bottom tower 6 pcs (UG166)
- Wood Shims for back tower 1 bundle (for wood frame only)
- Steel Shims for Back tower 20 pcs (for concrete wall only)
4.2 Layout and Hoistway Measurement

Measure all dimensions of the hoistway and check with layout drawing (Refer to: Installation Details drawing).

Check inside hoistway dimensions on all floors. Check hoistway height and overhead clearance. Check door opening positions. All dimensions should be within the tolerance +1/2” and -0”.

<table>
<thead>
<tr>
<th>No.</th>
<th>Car Size</th>
<th>Hoistway Size (inside, Width x Depth)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>36” x 48” x 84”</td>
<td>50 ½” x 53 ½”</td>
</tr>
<tr>
<td>2</td>
<td>40” x 54” x 84”</td>
<td>54 ½” x 59 ½”</td>
</tr>
<tr>
<td>3</td>
<td>40” x 60” x 84”</td>
<td>54 ½” x 65 ½”</td>
</tr>
</tbody>
</table>

Table 1: Hoistway Size

<table>
<thead>
<tr>
<th>No.</th>
<th>Max. Travel</th>
<th>Tower Height</th>
<th>Bottom Tower Height</th>
<th>Min. Overhead Clearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Up to 9’ (108”)</td>
<td>164” (13’8”)</td>
<td>80” (6’8”)</td>
<td>92”</td>
</tr>
<tr>
<td>2</td>
<td>Up to 11’ (132”)</td>
<td>188” (15’8”)</td>
<td>104” (8’8”)</td>
<td>92”</td>
</tr>
<tr>
<td>3</td>
<td>Up to 14’ (168”)</td>
<td>224” (18’8”)</td>
<td>140” (11’8”)</td>
<td>92”</td>
</tr>
</tbody>
</table>

Table 2: Tower Height & Min. Overhead Clearance

- Make sure the area where you are working is clean. Sweep out the pit if necessary, and clean the area where your parts are going to be placed.
- Check installation drawing for hoistway dimensions and guide rail locations.
- Measure the hoistway along its full length at 24” intervals making sure that all four walls are parallel, square and plumb, and the dimensions match the installation drawings.
- Measure distance to each landing from the bottom of pit to the top of the finished floor, the distance from the pit floor to the finished top floor is the most critical.
- Measure clearance from the finished top floor to the hoistway ceiling, a minimum of 92” is required.
Determine which wall will support the guide rails and locate the center of the wall. Place a mark at 16” on either side of the centerline. This will be the position that you will lag the tower on the wall.

Figure 3: Guide Rail Position
4.3 Installation Clearance Checking

- Check the installation clearance in front of the existing hoistway entrance (Entrance Cut-out of entrance: min. 35” x 81 1/5”). Compare with the dimension of tower or bottom tower height (Refer to: Table 2)
- If the clearance is enough, go to Section 5: Installation.
- If the clearance is not enough, go to Section 6: Tower Splitting.

Figure 4: Installation Clearance
4.4 Upper Junction Box Cut-out in the Hoistway

Make a cut-out (Refer to Figure 5: 13 1/4"x 21 1/2") on the top of tower wall for Upper junction Box. Refer to the location shown below. The cut-out should be between middle studs and right side studs and the cut-out start from either side of the studs by 13 1/4” wide. The bottom of the cut-out is about 12 1/2” higher above the top of the Tower.

If alternate location for the Upper Junction Box, please contact RAM manufacturing for detail.

![Figure 5: Cut-out for Upper Junction Box](image-url)
4.5 Preparation for Hoisting Tower

Step 1: Install 1 - 2” x 4” wood stud on both side of the hoistway approximately 12” below the ceiling using 6 wood screws #10 x 3-½” (catch 3 studs- 2 screws/stud). (Note: Use alternate anchoring means for non-wood stud walls. Fix another 3 pcs (hoisting beam Item 4) in center position on top the installed studs. Refer to the drawing below.

Figure 6: Hoisting Beam Installation

1  Hoistway
2  2” x 4” Wood Stud (1 pc)
3  2” x 4” Wood Stud (1 pc)
4  2” x 4” Wood Stud (3 pcs) Hoisting Beam
Section 5: Installation

5.1 Tower Hoisting

**WARNING**

Use safe lifting practices such as a block and tackle or cable winch to move the tower into place.

Move the Tower in front of the entrance. Hang the hoisting tool on the hoisting beam. (see Figure 7). The hoisting tool should be moved close to the back wall for lifting. Wrap the lifting belts (1” wide x 48” long) on each side of top tower angle and hang on the lifting hook and raise the tower.

![Figure 7: Tower Hoisting](image)

- 1 Hoistway
- 2 Tower
- 3 1” x 48” Lifting Belt
- 4 Lifting Tool
- 5 Pulling Rope
5.2 Tower Attachment

Position tower on tower wall according to the dimension “G” (surface of Guide Rail Tube to surface of hoistway entrance wall) on the layout drawing. Check this dimension on each floor and adjust the tower accordingly. If it is a through car, make this dimension equal on both entrance sides.

- Put shims on bottom of tower if necessary, so that tower is relaxed in correct position.
- Begin lagging to wall starting from the second bracket from the top and working down using ¼” ex lag screw (or use 1/4” anchor bolts for concrete wall)
- Shim wall brackets by wood shims to prevent pulling tower

![Diagram of Tower Attachment (Top)](image)

**Figure 8: Tower Attachment (Top)**

1. Top Tower
2. Carriage Bolt 3/8”-16 x 8”
   (for Top Attachment only)
3. Washer/Lock washer/Nut
Figure 9: Tower Attachment (Bottom)

1. Bottom Tower
2. Hoistway Wall
3. Wide Washer 1/4”
4. Hex Lag Screw ¼”-20 x 3”

Figure 10: Tower Attachment (with Wood Shim)

1. Tower
2. Lag Bolt ¼”x 3”
3. Wide Washer ¾”
4. Wood Shim
5. Hoistway Wall
5.3 Electrical Wiring

Step 1: Install the upper junction box in the cut-out on the hoistway wall. Set the surface of the junction box to protrude 3/4” past the wall exterior and check the door of the junction box opened freely.

Figure 11: Upper Junction Box Installation
Step 2: Upper Junction Box Connections

- Connect travelling cable - Plug
- Connect door Teck-cables – Plug
- Connect Motor – Plug
- Connect Manual Crank & Belt Switch - Plug
- Connect 220V/1PH/20A power - Hardwired by Others

Figure 12: Upper Junction Box Connections

1 Tower
2 Hoistway
3 Travelling Cable
4 Upper junction Box
5 Door Teck-Cable
6 Motor Flex
7 Manual Crank and Belt Switch
5.4 Manual Crank Installation
- Install the manual crank on top of tower, refer to installation detail below. Mark the manual crank hoistway position on the wall and drill a hole (DIA. 1”) through the wall. *Hint* Install the support plate in the opposite hole set to aid in finding hole center.

![Figure 13: Manual Crank Installation](image)

1. Manual Crank Assembly
2. Tower
3. Drive Screw
4. Brake
5. Hoistway
• Manual Crank Installation Detail

Figure 14: Manual Crank Installation Detail

1. Support Plate
2. Hex Bolt/Nut
3. Reducer
4. Crank Assembly
5. Hex Nut
6. Universal Coupler
7. Bracket Assembly
8. Guide Plate
9. Screw
10. Spring
11. Collar
12. Guide Plate
13. Screw
14. Manual Crank Hoistway
• **Manual Crank Activated**

  Use 3/8” wrench and extension to connect it with manual crank shaft, push and rotate it to lower the car up or down.

![Figure 15: Manual Crank Activated](image)

1. Manual Crank Assembly
2. Spring
3. Support Plate
4. Drive Screw
5. Hoistway
- Manual Crank Released

In the normal working status of the elevator, the manual crank is released. The support plate #3 will rotate about 15 degree by the force of the spring #2. The crank must be rotated in the reverse direction approx. 5 revolutions to fully disengage.

![Figure 16: Manual Crank Released](image)

1. Manual Crank Assembly  
2. Spring  
3. Support Plate  
4. Drive Screw  
5. Hoistway
5.5 Platform Installation

Step 1: Slide the platform into place and lower the guide frame into position using the manual crank. Attach the platform to the Guide Frame by Hex Bolt ½”-13 x 1 ½”.

![Platform Installation Diagram](image)

**Figure 17: Platform Installation**

1. Platform  
2. Guide Frame  
3. Hex Bolt ½”-13 x 1 ½”  
4. Nut on Guide Frame
Step 2: Level the deck

Manually crank the platform up so that you can access the bottom side of the platform. Adjust the level of the platform using the tilt bolts (Item 3 – Figure 19) 3/8”-16 x 1” on both side of the platform until the outside edge of the platform is approx. 1/4” above level when car is empty. Balance the tension on each levelling bolt to ensure a rigid platform.

![Platform Levelling Diagram](image)

**Figure 18: Platform Levelling**

1. Platform
2. Guide Frame
3. Hex bolt 3/8”-16 x 1”

5.6 Car Installation

The car has been pre-assembled and all wall panels will be marked with number tapes that were cut prior to being disassembled and packaged.

Step 1. Assemble wall panels to Platform and Roof Frame matching corresponding number tapes. All bolts are to be finger tight only.

Step 2. Place the four 2x4 pre-cut and marked studs vertically in the four corners of the carriage to set the car height. These studs will be packaged with the car panels. Note: it is important to set the correct carriage height to ensure easy removal of the Control Wall Panel for maintenance.

Step 3. Tighten car panel bolts beginning from the bottom taking care to line up the number tapes.
Figure 19: Car Structure Detail (In/Out-TR with Light Curtain)

1. Platform
2. End Wall
3. Control Wall Back
4. Control Wall Front
5. Side Wall Back
6. Side Wall Front
7. Front Wall
8. Roof Frame
9. Header Angle
10. Sill
11. Roof Panel
12. Control Wall
5.7 COP Installation

- Install the COP on control wall: connect the COP plug and attach COP plate through control wall to guide frame by screws.

![Diagram of COP installation]

Figure 20: COP Installation

1  COP
2  Stainless Steel Screw #10-32 x 2”
3  Control Wall
4  Guide Frame
5.8 Door Interlock Installation

For Honeywell interlocks, there are LH and RH configurations. Check the door opening direction before the installation.

- Make a hole Dia. 1” on elevator side of dry wall
- Strip the metal back on the Teck-cable and install 90 deg flex fitting
- Mark the line for interlock location (at the upper section of door jamb)
- Drill a ¾” hole on through the side of door jamb to run interlock cable
- Install the Door Interlock (Honeywell Interlock) on the door jamb

![Diagram of Door Interlock Installation (LH Door Interlock)]

**Figure 21: Door Interlock Installation (LH Door Interlock)**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Door Jamb</td>
</tr>
<tr>
<td>2</td>
<td>Door Interlock</td>
</tr>
<tr>
<td>3</td>
<td>Wires for Interlock</td>
</tr>
<tr>
<td>4</td>
<td>Hall Call</td>
</tr>
<tr>
<td>5</td>
<td>Door Teck-Cable</td>
</tr>
<tr>
<td>6</td>
<td>Dry Wall</td>
</tr>
</tbody>
</table>
- After installing the interlock, locate the beak location and mark the position on the door panel
- Install the Beak for the door lock on the door panel
- Drill ¾” Dia hole thru door panel to line up with interlock emergency access
- Install Emergency access cover plate on outside of door

**Figure 22: Door Beak Installation**

1. Door Jamb
2. Door Panel
3. Beak
4. Wood Screw
Figure 23: Door Emergency Access

1 Door Jamb
2 Door Panel
3 Interlock
5.9 Hall Call Installation

- Make cut-out on landing side of drywall large enough to allow button and key switch to fit thru wall. Note: Hall Call installation height is typically 36” but can vary based on user preference.
- Pull door teck cable thru opening and cut wires leaving approx. 12” coming out of opening.
- Connect wires as per wiring diagram
- Install the hall call plate on the wall using drywall anchors

**Figure 24: Hall Call Installation**

1. Dry Wall (Door Frame) Front
2. Hall Call
3. Door Teck-Cable
4. Elbow
5.10 Tower Safety Bolt Installation

Drill a hole Dia. 3/8” through the wall from inside hoistway based on the hole in the top back plate on both side of the tower. Insert the carriage bolt through the wall from outside wall and tighten the bolt by washer and nut.

Figure 25: Tower Attachment Detail (Top)

1. Top Tower
2. Carriage Bolt 3/8”-16 x 8”
4. Dry Wall inside
5. 2” x 6” Wood Stud
6. Dry Wall outside
Section 6: Tower Splitting

6.1 Splitting the Tower

Splitting the tower is only necessary if the assembled tower cannot be stood up in the shaft in one piece.

Step 1: Remove the Guide Frame

- Remove upper travelling cable clamp

Figure 26: Remove Upper Travelling Cable Clamp

1 Travelling Cable 3 Screw #10-32 x ¾"
2 Clamp 4 Tower
- Remove rear slider pins and reed switch bracket on both sides

Figure 27: Remove Slider and Bracket from Guide Frame

1. Guide Frame
2. Slider Assembly
3. Slider Shaft
4. Cotter Clip
5. Reed Switch Bracket
6. Screw # 10-24 x ¾”

- Remove Back Bushing

Figure 28: Remove Back Bushing from Guide Frame

1. Guide Frame
2. Back Bushing
3. Hex Bolt ¼”-20 x 1 ½” (with Flat Washer ¼”)

RAM Manufacturing Ltd.
1-800-563-4382
• Remove the 4 hex bolts and nuts on the drive nut

![Diagram of Guide Frame removal](image1)

**Figure 29: Remove Guide Frame**

1. Guide Frame  
2. Drive Nut MT015  
3. Hex Bolt 5/16”-18 x 4”  
4. Nut 5/16” (with Flat Washer 5/16”, Wide Flat Washer 5/16”, Spring 71509)

• Release the spring loaded slider tension.

![Diagram of Spring Loaded Slider](image2)

**Figure 30: Spring Loaded Slider**

1. Guide Frame  
2. Moving Slider Assembly  
3. Spring 1791  
4. Hex Bolt ½”-13 x 1”

• Remove Guide Frame from tower
Step 2: Remove Drive Screw with Stabilizer

- Remove one side of the bottom guide rail for stabilizer

![Diagram](image1)

**Figure 31: Remove one Guide Rail of Stabilizer**

1. Back Plate on Tower
2. Guide Rail of Stabilizer
3. Drive Screw

- Remove the clip pin and clevis pin between drive screw and shaft. Pull down the drive screw by 1 inch to separate from Drive shaft.

![Diagram](image2)

**Figure 32: Uninstall the Screw**

1. Drive Screw
2. Drive Shaft
3. Bushing
4. Clevis Pin 5/16” x 1 3/8”
5. Hitch Pin Clip #16

- Lift screw out and keep stabilizer intact to prevent drive screw from bending
Step 3: Remove Tower Connection Bolts

- Remove the bolts and nuts between top tower and bottom tower
- Separate top tower from bottom tower and move them into hoistway one by one.

Figure 33: Separate the top Tower from bottom Tower

1  Top Tower  4  Hex Nut
2  Bottom Tower  5  Angle
3  Hex Bolt
6.2 Tower Re-Assembly

Reassemble the tower into the shaft following the above steps in reverse order. Take care to align the top and bottom tower sections with smooth joint transitions.

Note: There must be \( \frac{3}{4} \)" gap between upper and lower drive nut when assembled to the guide frame.

When attaching the travel cable check to make sure that it goes below the 2" tube on guide frame when the guide frame is at the lowest position.

**Figure 34: Travelling Cable Length Setting**

1. Tower
2. 2" Tube on Guide Frame
3. Travelling Cable
Section 7: Commissioning and Trouble-Shooting

7.1 Controller operation

Wiring

The Controller runs on 24vdc. The inputs are all 24vdc. The outputs are all relay out, dry contact, except for the Floor indicating and door Solenoid outputs. The Floor indicator and door Solenoid outputs are 24vdc current limited and short circuit protected.

Parameter setting

There is a four digit display to read the parameters and settings. Underneath the display are five push buttons. Four directional, UP, DOWN, LEFT, RIGHT and one labeled E for ENTER. The Parameters are scrolled through using the UP and DOWN buttons while the values can be adjusted with the UP and DOWN buttons. To save the changes push the ENTER button. Make the appropriate parameter settings before running the lift for the first time.

Figure 35: LED Display in Controller

1. Tower  
2. Guide Frame  
3. Controller Box  
4. LED Display on PCB
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Display</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>*P1</td>
<td>run</td>
<td>Machine will run in this mode.</td>
</tr>
<tr>
<td>P2</td>
<td>FL x</td>
<td>Top floor x = 2 to 5</td>
</tr>
<tr>
<td>P3</td>
<td>t cP</td>
<td>Constant Pressure</td>
</tr>
<tr>
<td></td>
<td>t Au</td>
<td>Automatic Residential</td>
</tr>
<tr>
<td></td>
<td>t AL</td>
<td>Automatic LULA</td>
</tr>
<tr>
<td>*P4</td>
<td>ctxx</td>
<td>xx = counter value display. 0 on 1st Floor and 8 on 2nd floor. Add 8 for every floor.</td>
</tr>
<tr>
<td>*P5</td>
<td>5Lxx</td>
<td>xx = Solenoid monitoring voltage display.</td>
</tr>
<tr>
<td>P6</td>
<td>t0</td>
<td>Lift will not run.</td>
</tr>
<tr>
<td></td>
<td>t1</td>
<td>Lift will run for 15 days.</td>
</tr>
<tr>
<td></td>
<td>t2</td>
<td>Lift will run for 45 days.</td>
</tr>
<tr>
<td></td>
<td>t3</td>
<td>Lift will run for 90 days.</td>
</tr>
<tr>
<td></td>
<td>T4</td>
<td>Lift will run indefinitely</td>
</tr>
<tr>
<td>P7-11</td>
<td>Fx n</td>
<td>Floor x no Gate.</td>
</tr>
<tr>
<td></td>
<td>Fx 1</td>
<td>Floor x GT1 Gate.</td>
</tr>
<tr>
<td></td>
<td>Fx 2</td>
<td>Floor x GT2 Gate.</td>
</tr>
<tr>
<td></td>
<td>Fx 3</td>
<td>Floor x GT3 Gate.</td>
</tr>
<tr>
<td>P11</td>
<td>LocH</td>
<td>Honeywell door solenoid. Maintained output at floor.</td>
</tr>
<tr>
<td></td>
<td>LocE</td>
<td>Euchner door solenoid. 1 minute time out at floor.</td>
</tr>
<tr>
<td>P12</td>
<td>tE5t</td>
<td>Used to enter test mode.</td>
</tr>
<tr>
<td>*P13</td>
<td>Er 1</td>
<td>Solenoid Reed Switch welded.</td>
</tr>
<tr>
<td></td>
<td>Er 2</td>
<td>Solenoid power on when it should be off.</td>
</tr>
<tr>
<td></td>
<td>Er 3</td>
<td>Motor on for more than 2 minutes. Sheave protection.</td>
</tr>
<tr>
<td></td>
<td>Er 4</td>
<td>Gate monitor fault.</td>
</tr>
<tr>
<td>*P14</td>
<td>Pd 0</td>
<td>Run Timer is active.</td>
</tr>
<tr>
<td>*Display Only</td>
<td>Pd 1</td>
<td>Run Timer is inactive.</td>
</tr>
</tbody>
</table>
Gate Safety

The Controller monitors the Gate Safety Switch. If the Gate Safety Switch welds closed the lift will not allow a call to be made. Once the gate has cycled proving the Gate Safety Switch integrity a new call can be made.

Door Lock Monitoring Safety.

The controller monitors the Door Solenoid Reed Switch. If the Reed Switch fails closed the lift will stop. The problem must be solved before the lift will move.

Floor Counting

The controller clears the count to 0 on the Lower Terminal Switch. The count is increased by 4 when the counting magnet passes the encoder reed switches. This causes a count of 8 between landings. The Upper terminal switch also sets the count to the top floor count.

Homing the Lift

The lift will Home at the first level on the first cycle after power up using slow speed. In constant pressure mode the lift travel to the bottom no matter which call is pressed. Once the bottom floor is reached the lift will travel to the desired call. In automatic mode, when any call is made the lift will travel to the bottom first. Then a new call can be made to any level.
7.2 Setting the Floor Positions

*Note* Prior to setting the floor positions, set the operation of the car to constant pressure (P3=t cP) on the carriage control board to control the car movement.

**Lower Floor Setting**

- Position one magnet vertically on inside face of left 1” SQ vertical tube so that car stops flush at bottom landing. For pit depth less than 2” lower landing should be set with ½” clearance between bottom of platform and building floor. Position a second magnet vertically on inside face of right 1” SQ vertical tube so that car slows to the slowest speed before it reaches lower terminal switch. Both sensors should travel 1.5” past magnet when stopped flush at bottom landing.

**Upper Floor Setting**

- Position one magnet vertically on inside face of left 1” SQ vertical tube so that car stops flush at top landing. Position a second magnet vertically on inside face of right 1” SQ vertical tube so that car slows to the slowest speed before it reaches upper terminal switch. Both sensors should travel 1.5” past magnet when stopped flush at top landing.

**Mid Floor Settings**

- Position two magnets vertically on inside face of right 1” SQ vertical tube so that car stops at mid floor level. Start with the magnets 6in apart and move closer until the car stops at floor level when approaching the landing from both directions.

**Door Reed Switch Settings**

- Position one magnet for each floor vertically on outside face of 1” door reed switch angle so that sensor is positioned at the midpoint of the magnet. Note doors will open unless the corresponding door reed switch is in magnet zone.

**Upper Final Switch Setting**

- Activated automatically by the upper mechanical stop. Will only activate if car runs past top landing.
Lower Final Switch Setting

- Activated automatically by the red back-up nut safety bracket when the carriage makes contact with the pit floor or lower mechanical stop. (see installation manual for switch setting)

Upper Mechanical Stop Setting

- Move the platform level with the top landing floor. Measure the position 5/8” above the top of guide frame and install the mechanical stop plate on the surface of the guide rail tube by ¼”-20 x 1” Hex bolts and lock washers.

Figure 36: Upper Final Limit Switch and Mechanical Stop

1. Mechanical Stop
2. ⅛” -20 x 1” Hex Bolt/Lock Washer
3. Guide Frame
4. Upper Limit Switch
5. Tower
Lower Mechanical Stop Setting

- Pit or shaft floor. If pit is deeper than 2” install blocking to stop car from travelling more than ½” past bottom landing.

7.3 Auto-tuning the Emerson drive to motor

- Lower the car with no load to the bottom floor.
- Manually hold in M3 to power up the drive.
- Press the “M” button and the display should read the parameter # on the left and the value on the right.
- Using the UP and DOWN arrows get to P41. Press “M”.
- Change the value to “Ur A” press “M” to enter.
- Using the UP and DOWN arrows get to P38. Press “M”.
- Change the value to “2” press “M” to enter.
- Release M3
- Press the top floor selection
- The motor will rotate for about 10 seconds then stop, drive readout=iH000.
- For constant pressure lifts release the floor selection. For automatic lifts press the e-stop.
- If the display reads iH 000 then auto-tune is complete. If not press the reset button and repeat procedure.
- Verify operation by running again, Drive should show motor amperage.
- Auto tuning is now complete.
7.4 Trouble Shooting

Upper Junction Box

Check the status of LED’s on the Upper junction Box to located on the exterior of the hoistway. A red light indicates an open circuit and must be investigated.

![Diagram of Upper Junction Box]

Figure 37: LED on Upper Junction Box

1. Car Stop Switch
2. Manual Crank Switch
3. Belt Switch
4. Door 1 Switch
5. Door 2 Switch
6. Door 3 Switch

Carriage Junction Box

If the problem is not resolved by checking the status of LED’s on the Upper junction, remove the carriage control wall panel to access the PCB controller. You must unplug the COP when removing the panel. The LED indicators on this panel correspond to inputs on the electrical schematics supplied with your elevator. The LED for input “SC” must be brightly lit for the elevator to operate. Any red LED indicates an open circuit or problem that must be investigated.
Section 8: Maintenance

8.1 Monthly Inspection

Inspect all gates/doors and ensure they are locked when the elevator is not at the landing. Also check that the elevator will not run unless the gates / doors are fully closed and locked.

8.2 Annual Maintenance

The STRATUS Elevator should be inspected and maintained annually.

- Inspect the drive nuts – refer to drive nut inspection procedure
- Lubricate Drive Screw (Light lubrication with Teflon-oil based spray lubricant)
- Inspect the drive belt for wear. A small amount of black rubber bits below the belt is normal. If there is any significant sign of wear to the belt, replace it.
- Lubricate the Upper Screw Thrust Bearing (Grease nipple located on underside of bearing plate).

8.3 Maintenance Log

Please keep a record of all maintenance done on the elevator in the maintenance log provided in Appendix C.

8.4 Spare Parts

All parts below are used for maintenance, contact manufacturing for orders.

- Drive nuts
- Ceiling LED fixture
- Drive Belt
- Domed Call Button
Appendix A: Assembly Drawings

1 Drive and Brake System

Figure 38: Drive and Brake System

1 Tower
2 Motor
3 Belt
4 Drive Shaft
5 Brake
6 Belt Monitoring Switch
7 Mechanical Stop
2 Control System

Figure 39: Control System

1 Hoistway Wall
2 Upper Junction Box
3 Main Switch
4 Lock
5 LED
6 UPS
7 PLC

Figure 40: Controller

1 Tower
2 Guide Frame
3 Controller Box with PCB
### Appendix B: Maintenance Log

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>Signed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Notes:**

- The table above is intended to record maintenance activities, their descriptions, and signatures. Each row represents an entry in the log.
- The columns are labeled as Date, Description, and Signed. The Signed column is where the signature of the person responsible for the maintenance activity would be recorded.
- The table can be expanded or contracted according to the number of entries required.

---

**Contact Information:**

RAM Manufacturing Ltd.  
1-800-563-4382

---

**LEADING QUESTION:**

What is the purpose of maintaining an elevator installation and operation manual? How is the maintenance log used to ensure the integrity and reliability of the elevator system?