DETAILED INSTALLATION & MAINTENANCE GUIDE
Freight Elevator Doors / Goods Lift Doors

REFER TO GUIDE 210
QUICK REFERENCE INSTALLATION GUIDE

05/26/2010
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1 INTRODUCTION

1.1 This manual will cover the installation of freight elevator vertically sliding type doors for both manual and power-operation. This manual will also cover slide-up car gates (car doors) that are usually installed in conjunction with vertically sliding, hoistway landing doors.

1.2 HANDING

1.2.1 Hands (LEFT HAND & RIGHT HAND) of door hardware are determined by standing in car facing door. See Figure 9 (PLAN OF SHAFT)

1.3 EXPECTATIONS OF FREIGHT HANDLERS / OPERATORS

1.3.1 Freight Handlers / Operators are the only personnel permitted to ride a freight elevator and should follow the following guidelines:

- Be trained for this responsibility.
- Make sure the freight is safely loaded and unloaded.
- Never allow other persons to ride the elevator.
- Should not attempt to act as an elevator mechanic.
- Should never use the door unlocking device mounted on the wall or door jamb.
- If auto close is desired, for doors/gates, that person should notify the building owner.

1.4 ITEM CHECK

1.4.1 Check Following Items before Uncrating Material

- Must have a running elevator car platform.
- Open Peelle box #1 to obtain installation Instruction envelope which contains Installation Manual 0, drawings and a Material List.
- Compare material (panels, rails) and numbered boxes of hardware to the Bill of Lading, to ensure you have received the correct number of pieces. Report any differences immediately.
- Using Door Layout Drawing Peelle #L-1, check each installed Door Frame. Refer to "Manual 208 Frame Installation Sheet."
- An installation tools kit is available for purchase from the Peelle Company

1.4.2 Make sure that door floor heights are adequate so that all doors can be opened without interfering with closed doors at floors above or below. If the height is not adequate at a particular floor or floors, it will be necessary to install a “pass-type” door. This should have been noted on the layout and the appropriate materials provided.

1.4.3 The door frames for a freight elevator door are generally installed by others. The accurate location and alignment of door frames are of prime importance and should be carefully checked before door guide rails are installed! Door rails run almost continuously from bottom to top of shaft and are attached to door frames. Door frames must be installed one directly above the other in proper relation to the car guide rails, and be square and plumb.

1.4.4 The frame and door panels are not manufactured as a unit. The frame consists of two (2) jambs, a head of frame, and a sill. The jambs must be wide enough to accommodate the thickness of the hoistway shaft wall and the head of frame strong enough to help support the section of the hoistway shaft wall above. A freight elevator entrance our-sided door frame must support the door panels and the loads trucked over the door panel trucking sill.

1.4.5 The entrance frames are usually in place first then the hoistway entrance walls are built and then the doors are installed. If the entrance walls are drywall instead of masonry, jamb-extensions-to-beam-above must be supplied, and drywall interface material supplied.

2 FREIGHT DOOR FRAME AND SILL INSTALLATION

2.1 DOORS WORK BETTER IF FRAMES ARE INSTALLED PRECISELY

2.1.1 FOR VERTICALLY SLIDING FREIGHT DOORS, STRUCTURAL STEEL FOUR-SIDED FRAMES MUST BE SET EXACTLY PLUMB ONE ABOVE THE OTHER AND SQUARE WITH HOISTWAY SHAFT. FOR DRYWALL ONLY: JAMBS MUST EXTEND FROM SILL TO STRUCTURE ABOVE WITH JAMB-EXTENSIONS-TO-BEAM-ABOVE. WHERE FRONT AND REAR DOOR ENTRANCES ARE REQUIRED, THE DISTANCE BETWEEN FRONT AND REAR DOOR FRAMES MUST BE MAINTAINED EXACTLY. SILLS MUST BE LEVEL AND PLUMB. NO WALL BULGES PERMITTED BELOW SILL, IN SHAFT.

2.1.2 Structural (channel) steel frames are used for fastening and installing Peelle freight elevator doors. Channels are usually a minimum 200mm/8 in. Jambs should have minimum 65mm/2.5 in. return flanges for mounting of door rails. For drywall, channels are usually 150mm/6”. For drywall only, jambs should extend almost the full height between floors to accommodate secure mounting of door rails and for
Many times in steel structures it is necessary to run lines between building columns, and then extend a level line across the front of the hoistway at each landing. In this way the finished floor vertical location is established. On masonry structures you will generally find that the builder has marked the guide line on the wall at each landing.

It is suggested that the floor level lines be established at as many landings as possible before beginning work on the sills.

It is general practice to set hoistway entrance sills on some form of sill support bracket. These may be termed, “Z” brackets, “clip” brackets or may have a name peculiar to its individual design. The brackets are secured to steel beams by welding or bolting. They are fastened to concrete beams by masonry anchors or grouting. [For horizontal slide entrances, –they are set to align with the holes in the sill which fasten the two parts together.] They are set with their tops about level. Some arrangements allow for a small

Mount of packing between the bracket top and sill bottom. It is often necessary to shim under brackets to get their tops level when installing them on rough concrete beams.

A mark should be placed on the hoistway edge of each sill to indicate the center of the opening of the door. These marks should be plumb with each other hopefully by using a center mark on the car platform if operating.

Once the sill brackets are installed, the sill itself is laid on them. The template is placed into position against the guide rails and then the sill set to it. Shims or packing are slid between the brackets and sill, if needed. (For horizontal slide entrances, the bolts are installed and tightened.)

It is most important to recheck the level of the sill in both post wise and front-to-back directions. The vertical distance from the bench mark down to the sill top must also be confirmed again and, in addition, the alignment of the marks for horizontal centers of door openings. Also refer to paragraph 2.1.3.23.

These checks will permit the car and hoistway doors to align properly when door work is completed.

Where, for any reason, the sills are not bolted or grouted to a firm foundation, they must be securely braced so that they cannot move when they are grouted or bricked in during the
completion of the walls. Some mechanics use temporary flat steel braces and mounting angles for this purpose. They clip the angles to the sill and flats, and the flat steel to the elevator rail back. The braces can be made up in the shop from the layout.

2.1.3.14 Use packing at “A” or “B”, if required. Offset brackets can be used on some installations. Point “E” can be used to locate the head of the frame and jambs when that material is to be installed. See sketch #2.

2.1.3.15 Be sure to check the alignment of the sill with those sills of the other cars, if it is in a group installation. If the elevator rails are aligned and the sill template is the same, all sills should be perfectly aligned. Therefore, test check all sills. If errors are found, discuss the problem with the superintendent before correcting them, as a great loss of time or use of materials would be involved when making necessary changes.

2.1.3.16 All floor sills are set consecutively at the earliest possible moment. Fasten sill to sill support brackets.

2.1.3.17 Before sills are grouted, place something as concrete stop between sill angle and floor edge next to hoistway shaft! Keep concrete from bulging into the shaft, past the edge of the sill angle, especially in the pit, otherwise the vertically sliding doors will scrape against the bulge!

2.1.3.18 Sills are grouted in completely by the building contractor.

2.1.3.19 JAMBS PLUMB BOTH WAYS TO ± 5mm/1/4 in ON TOP OF SILL. Bolt jambs to sills. Erect walls.

2.1.3.20 JAMBS ONE ABOVE THE OTHER in vertical alignment.

2.1.3.21 JAMBS ARE 90° ± 5° SQUARE WITH HOISTWAY SHAFT ENTRANCE WALL also square with elevator car platform (if already installed). If poured concrete walls rather than block/brick, prop the wall anchor brackets on outside of each jamb to horizontal position if necessary by drilling and tapping a bolt underneath each wall anchor bracket.

2.1.3.22 FOR DRYWALL ONLY, JAMBS SHOULD EXTEND TO STRUCTURE ABOVE (extend up past the head of the frame) (Jamb-Extensions-To-Beam-Above). For drywall only, jambs must include jamb extensions above head of the frame and be fastened on bottom to the sill and fastened on top to the structure above (building beam or floor slab above) to provide proper support for door guide rails. Drywall mounting angles (struts/angle clips) are also required (from Peelle). Request drywall installation details from Peelle if necessary. These details include frame-to-wall interface details per ASME A17.1/CSA B44 Rule 2.11.18. Sheet rock contractors will add J fasteners / struts.

2.1.3.23 MAINTAIN CAR TO BUILDING SILL DISTANCE (CAR CLEARANCE), OR DISTANCE FROM ELEVATOR RAILS TO BUILDING SILL, OR DISTANCE BETWEEN REAR AND FRONT FRAMES. This is to ensure bi-parting doors space and for car-to-door-trucking-sill clearance (running clearance). Running clearance is 25mm/1 in. Door space dimension is 125mm/5 in. regular-type doors or 170mm/6-3/4 in. pass-type doors. Hoistway shaft face of jambs, sills, heads and extensions must be smooth on hoistway shaft side (in one plane). If two-section slide-up doors are planned instead of bi-parting doors, a projection-building-sill is required rather than leaving space for the doors; running clearance is 25mm/1 in.

2.1.3.24 If there are rear line entrances, the dimension between front and rear frames must be maintained.

2.1.3.25 NO WALL BULGES PERMITTED BELOW SILL IN SHAFT. No part of the masonry wall should be in the hoistway shaft, extending beyond a vertical plane of the face of the vertically sliding door. Do not allow concrete bulging! This ensures the door panels when opened do not get scratched especially in the pit.

2.1.3.26 DOOR RETURN SPACE BOTH SIDES. Check door return space on both sides, at each floor (hoistway shaft side): ± 330mm/13 in. minimum return space for power doors [250mm/10 in. minimum for manual doors]. More space than minimum provides a door installation advantage, and to upgrade from manual to power operation. If two-section slide-up doors are planned instead of bi-parting doors, refer to return dimensions required on door layout drawing.

2.1.3.27 LEVEL HEAD OF FRAME. Set level ± 1/4" (6 mm) should be a channel. Keep jambs same distance apart at the top as at the bottom. Bolt head of frame to both jambs. It is recommended to have an intermediate horizontal building beam from column to column above the head of frame, as a lintel to support the wall load above.

2.1.3.28 Door frames should be set from the elevator car platform or a set distance from the elevator main
guide rails. The elevator car platform reference point is probably better; assuming the car platform is operating and is not sloppy in the main rails. Check if there is a rear entrance at some floor or floors. Frames should be 200mm / 8 in. structural steel channels or larger. Jambs should have 60mm / 2-1/2 in. return flange to mount door rails. Sills should be structural steel angles with 100mm / 4 in. legs or larger. (Refer to Figure 1, 2 & 3)

2.1.3.29 Door guide rails are attached to the channel steel door frames. It is essential that the frames be installed directly above each other in proper relation to the elevator car platform (or in relation to elevator main rails). Refer to Guide 208 Frame Installation.

2.1.3.30 Doors should be installed in UL fire rated door frames, in order to provide the protection indicated on the UL fire rated door label. Fire rated door frames are available from The Peelle Company. UL Fire rated frames require UL fire rated doors.

3 FREIGHT DOOR MATERIALS

3.1.1 Materials constituting a vertically sliding freight door:

- Door guide rails (with sill stops)
- Door panels (with guide shoes)
- Power or Manual Door sheaves
- Door chains and chain rods
- Door side tension latches
- Door interlock (door locking device)
- Door tamper resistant device for interlock
- Pull straps (required for manual doors)
- Hardware - various bolts, nuts, cotter pins, etc.
- Door unlocking devices (when required)

3.1.2 The upper door panel contains a neoprene resilient astragal that acts as a cushion strip. Transport and store panel with the astragal up. The upper panel often contains a wire glass vision panel, and should be located on the same side of the elevator as the landing station. The wire glass vision panel size is 100mm x 230mm / 4 in. x 9 in., guarded with protective grill covers.

3.1.3 The lower door panel is furnished with a trucking sill, the trucking sill is the bridge between the landing sill and car platform. For safe storage and transport of the lower panel, keep the trucking sill down. Trucking sill loading is classified by the Elevator Code. Refer to Figure 4. The Loading Classes for freight elevators are:

- Class A: General Freight
- Class B: Motor Vehicles
- Class C: Industrial truck and other concentrated Loading

4 TYPES OF VERTICALLY SLIDING FREIGHT DOORS

4.1.1 Vertical slide (bi-parting) freight doors are divided into three general types:

- Regular-Type Door with regular sill
- Pass-Type Door with wide (extended) sill and offset upper panel
- Extended Sill Door with wide (extended) sill

4.1.2 Regular-Type Door is shown in Figure 5. Regular doors are used where there are adequate floor-to-floor heights at all openings. This allows doors to open fully without interfering with one another.

4.1.3 Pass-Type Door is shown in Figure 5. Pass-Type doors are used when the floor height is not sufficient for the doors to open without interference with closed doors above or below. The upper panel, at the short floor height, is offset into the hoistway shaft so when it opens it will slide behind the lower panel of the door for the floor above. With this type of (offset) passing door, the trucking sill is wider than for a regular door. If other floors in the line do not have short heights, they will be Extended Sill type doors, with regular door upper panel and a pass-type door lower panel (with extended sill).

4.1.4 Fire lintel (fire stop lintel, movable flame guard) as shown in Figure 7 is necessary on all pass-type doors. This movable fire lintel is a device that closes the gap between the top section of a pass-type door and the door frame, on hoistway shaft side. This fire lintel is hinged so that it moves out of the way when the doors are by-passing. The fire lintel is part of the fire resistant door and, therefore, must block the opening completely when in the closed position.

4.1.5 An Extended Sill-Type Door is a regular-type door with a wide trucking sill. This door is used when the floor height conditions will allow a door similar to a regular door to be installed in the same line with a pass-type door. In this case, the regular door must have an extended sill to match the sill size of the pass-type doors in that line of doors. The same running clearance is thereby maintained between the car platform and the door trucking sills.

5 HOISTWAY LANDING DOOR INSTALLATION
5.1.1 Install hoistway landing doors before the car gate(s). If possible, install doors before the freight car enclosure (cab) is installed.

5.1.2 Use the moving elevator car platform for door installation. A full kit of hand tools will be required, including open-end wrenches, socket wrenches, screwdrivers, and various types of pliers. In addition, a good supply of drills (especially 9mm / 11/32 in.) will be needed since these become dull rapidly from contact with concrete which is unavoidable when drilling into the channel steel entrance frame for door rail installation.

5.1.3 A heavy duty drill will be required. An electric impact wrench can be used for installing the self-tapping rail bolts.

5.1.4 Hoisting equipment will be required. Chain falls (500 kg / 1/2-ton hand hoist) are needed for large door panels. Make sure hoists and slings are in good condition.

5.2 DOOR GUIDE RAILS (WITH SILL STOPS)

5.2.1 The doors ride in parallel door guide rails on each side of the opening. Refer to Figure 8 for types of door rail construction and whether single or double track. Single track rails are for regular type doors. Double track rails are for pass type doors.

5.2.2 Rail description may be broken down further into three categories: upper guide rails, intermediate guide rails and lower guide rails. Refer to Figure 10.

5.2.3 Intermediate rails are one-piece rails, from slightly below the centerline of the door opening on one floor to slightly below the centerline of the opening at the floor above or below. Intermediate rails are used on most installations.

5.2.4 Upper rails and lower rails are always used. Refer to Figure 10.

5.2.5 Be sure to install the correct rails for each floor.

5.2.6 Each rail will have an identifying number. For example, rail 101098.3A is for Job # 101098. Second and third floor door, Line A (front). The rail immediately above it (third and fourth floor doors) will be 101098.4A. This is different from other door manufactures.

5.2.9 Figure 11 illustrates a typical freight elevator hoistway. The left and right hands (LH and RH) of door/gate hardware are viewed from inside the car looking out.

5.2.10 Line “A” Front and Line “C” Rear/Opposite are used by Peelle. Where there is more than one line of doors, the front is usually the side with the most doors.

5.3 DOOR GUIDE RAILS - LOCATION

5.3.1 The first step in the installation of freight elevator doors is the determination of the best horizontal location for rails on the flange of the vertical jambs. Take a survey of the actual jamb positions compared to the Peelle L-1 layout drawing requested positions. This can be done by (a) using the moving platform as a plumb mark if the car is operating, refer to Figure 9, or (b) dropping a plumb line.

5.3.2 For (a), a mark is made on the movable platform to simulate a plumb line. Take a measurement from that line as you would from a plumb line. Or, for (b), a plumb line (wire) may be dropped near one side of the door frames. It is to extend from above the top door head jamb to within a few inches of the pit floor.

5.3.3 Check the vertical alignment of the vertical jambs. Take measurements at each floor to both jambs from the car platform mark or from the plumb wire. Using these measurements and a comparison to the Peelle L-1 layout drawing, get an average guide rail setting for all floors in that line. Rails are to be set one above the other (in vertical alignment) from the bottom to the top of the hoistway. Hold the required distance between guides (DBG) of the doors. A DBG “rail gauge rod”, made from steel angle, is provided.

5.3.4 It may be necessary to shift the entire line of door guide rails to one side or the other in order to allow for frames that are out of alignment while maintaining the required DBG. Misaligned frames may be used by welding steel bar (10mm by 50mm / 1/2 in. by 2 in. by the height of opening) to the vertical jamb utilizing some of the clear opening space.

5.3.5 If more than 6mm (¼ in.) of rail shims is be required, weld a steel flat / bar (min. 6mm x 50mm / ¼ in. x 2 in.) to the full length of the jamb flange, in order to make up the space. Remember to hold the required car-to-sill clearance (car platform to frame sill clearance) so the door will fit in that space. If frames are not parallel with the elevator platform use the rail shims to keep the rail straight and plumb.

5.3.6 Doors require that the “rail gauge rod” (door DBG) dimension be 3mm / 1/8 in. longer than the dimension between the base of the throats of the guide shoes. This should be checked on two or more door panels. Care in using the “rail gauge rod” is important because at the same time the rails must be set exactly plumb. If you are careful with this procedure, you will install free running doors as the overall side-to-side play movement (left-right) will be 3mm / 1/8 in. as recommended.

5.4 DOOR GUIDE RAILS – INSTALLATION

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THE PEELE COMPANY
FREIGHT DOORS | CAR GATES | CAR ENCLOSURES
TECHNICAL SUPPORT 1-800-787-5020 ext 275

215.V5
DETAILED INSTALLATION & MAINTENANCE GUIDE
5.4.1 Install the door rails, beginning with the rails in the pit or at the top landing.

5.4.2 **NOTE: THE ENDS OF THE RAILS ARE NOT SET TO VERTICAL CENTERLINE OF OPENING. RATHER, SET THE SILL MARKS ON THE RAILS LEVEL WITH DOOR FRAME SILLS.** If the floor heights are in accordance with the door layout drawing, there will be approximately 25mm / 1 in. vertical gap between rails slightly below the centerline of the openings. This gap accommodates floor height variations. The gap is eventually stiffened by the interlock plate on one side and a splice plate on the opposite side.

5.4.3 Check the frame sill for level across each opening. The sill mark on the rail is to be placed even with the sill. If the sill is not level, the lowest side establishes the trucking sill position for both sides of the door trucking sill. The top of the rail is usually 50mm / 2 in. down from the vertical center line of the opening above/below. Set it plumb. Set it in vertical alignment with rail above/below.

5.4.4 For each door opening, hold the rail from one side in place. Preferably this is the interlock side rail. Securely clamp it in place with two 800mm / 30 in. steel carpenter clamps, as shown in Figure 12 and 13. Set it plumb. Set it in vertical alignment with rail above/below. Position the sill mark even, vertically, with the building sill. The top of the rail is usually 50mm / 2 in. down from the vertical center line of the opening above. See Figures 12 and 13. Drill and bolt the rail using the special self tapping, locking, washer head bolts.

5.4.5 If the rail is at the proper vertical position, the interlock mounting holes in the rail will then be in the proper position. The interlock has 50mm / 2 in., of initial installation vertical adjustment.

5.4.6 The opposite rail, at each opening, should be located with the Rail Gauge Rod to maintain the proper door DBG (Distance between Guides) and setting its sill mark. Use the Rail Gauge Rod at the top and bottom of the opposite rail. Check the opposite rail with a level or plumb line. Fasten the rail with bolts.

5.4.7 The holes to fasten the rails should be drilled using a 8mm / 1/1/2 in. high speed drill bit for the self tapping bolts. Holes are drilled with the rails clamped in place. Bolts may be driven with an electric impact tool. The self-tapping bolts supplied have a washer head with locking. Additional washers are never used with rail mounting bolts. Rail mounting holes are slotted vertically and the bolts should be located at the top of these vertical slots.

5.4.8 The intermediate rails for the next opening are to be placed in exact vertical and horizontal alignment with the rails already installed, using each sill mark as the vertical positioning point. The same rail installation process is then repeated up (or down) the hoistway with all pairs of guide rails.

5.4.9 In between landing openings, the door rail passes beyond the jamb and there is no steel on which to bolt. In this section fasten the rail to the wall with angle brackets by using masonry anchors. Refer to Figure 14.

5.4.10 In the pit, where the door rail passes below the jamb, secure the rail with angle brackets and masonry anchors. In the case of a water-proof pit where you cannot drill into the sealed pit wall, steel spreaders are to be used. These spreader flats are bolted to angle brackets attached to the rails and tie the two rails together, as shown in Figure 15.

5.4.11 If the doors are heavy (capacities above 10,000 pounds / 4500 kg.), there may be extra holes in the rails for fastening the rails near the building sill.

5.5 **MANUAL DOOR SHEAVES**

5.5.1 A pair of door sheaves (pulleys) is necessary at each opening to support the chain (and thus the doors). The sheaves allow movement for opening and closing. Holes are provided in the door rails above the head-of-frame to bolt the sheaves in place. Refer to Figure 14.

5.5.2 One installation method is to install at all floors: sheaves first, then chains and rods, then door panels, then tension latches and then interlocks. Power door operators have a combination sheave and motor.

5.6 **DOOR PANELS - LOWER AND UPPER PANELS**

5.6.1 There is an upper and a lower door panel for each opening. Refer to Figure 16. Door panels for most openings are too heavy to move into place by hand and will require the use of a dolly to move about. They will have to be set in place with a chain fall (hand hoist). If door panels are bowed from shipment, straighten before installing. Handle with care and protect fascia surface until completion. To check if the door panels have been twisted during shipment, place panel on hoistway side of door rails, check if all four corners touch (not twisted).

5.6.2 Door panels are identified by the same system of factory markings as the rails.

5.6.3 Before installing a door panel, be sure that no excess concrete mortar protrudes from the hoistway shaft wall that could scrape the door face.
and slow it down. Break off any suspected pieces with a hammer.

5.7 LOWER PANELS

5.7.1 Unbolt the shoes opposite the interlock side.

5.7.2 Peelle door guide shoes are solid, malleable, fire-rated shoes.

5.7.3 The side of the panel with the largest (extended) shoe bar is the interlock side. The shoes are to be removed from the side opposite the interlock in order to install the lower panel.

5.7.4 You are now ready to pick up the lower panel. The chain hoist must be securely placed high enough in the hoistway shaft to prevent being hit by the top landing upper panel when opened. Use a sling around each end of the top of the lower panel. Refer to Figure 18. Hoist the lower panel. Push the lower door panel into its approximate position, allowing the shoes to enter the guide rail. Push the other side (with the shoes removed) into position. Holding the lower panel in its correct location, slide the removed shoes along the rail into their positions on the lower panel. Bolt shoes onto the door panel. Use the hoist to lower the lower panel to its full open position, resting upon the sill stops.

5.7.5 The lower panel includes the “trucking sill”. It is built strong to permit freight to be moved over it on pallet trucks in and out of the elevator. The trucking sill rests on adjustable sill stops when the door is open. Refer to Figure 19.

5.7.6 These sill stops are adjustable to permit the trucking sill to be level from one side to the other when resting on the stops. While the stops should already be level, the stops are adjustable to obtain a level door trucking sill that is at the same vertical position as the door frame sill low point. The trucking sill must be level even if the building sill is not level! Peelle has 8 adjustable sill stop positions. There are 8 possible adjustments using the stop casting along with the small angle spacer provided.

5.8 UPPER PANELS

5.8.1 Take the shoes off either side of the upper panel. Move the upper panel under the chain hoist. Using the chain hoist, start to pick up the upper panel with a sling and a door shovel pan hook assembly (Figure 48). Take the slack out of the hoisting chain and sling. Use a securely fastened “C” clamp on the top part of the panel to prevent panel from tipping over. Refer to Figure 20. Push the upper panel into the rails. Reinstall the shoes.

5.8.2 Hoist the upper panel to its full open position. Do not stand underneath the panel being hoisted. Remove the “C” clamp. Hoist the panel slightly above its full open height to install chains. Refer to paragraph 5.9.

5.8.3 With the upper panel hoisted, install the side tension latches onto the pivots at each side and lock in place with the spring pins. Refer to Figure 21.

5.9 DOOR CHAINS AND CHAIN RODS

5.9.1 A pair of chains and chain rods are provided for each opening. Their function is to couple the door panels together so they will be counterbalanced. This coupling will relate the motion of the upper panel with the motion of the lower panel. One end of each chain is connected to a side tension latch, which is attached to the upper door panel. The other end of each chain is connected to a chain rod, which is connected to the lower panel. The chain rods are threaded to allow for chain adjustment, when needed later.

5.9.2 Put the threaded end of rod into the chain rod holder. Put one nut, a lock washer and second nut onto the threads, then cotter pin; move nuts and lock washer down to cotter pin. Refer to Figure 19. Hold rod up temporarily with vice grips. Refer to Figure 20. Attach one end of chain to rod using chain connector link. Point clip legs downward. Pull the chain up through the sheave cover to thread the chain over the sheave. Then fasten chain to the side tension latch pivot of the upper panel with a chain connector link. Some links of chain may have to be removed. Refer to Figure 21.

5.9.3 Use the hoist to lower the upper panel until it is held up by the chains. Make sure that all chain connecting links are properly connected. Chain connector clip should have legs pointing downward. Wrap connecting links and connector clips at each end of the chain with the nylon tie-wraps provided. As shown in Figure 21, Peelle door and gate chains are lubricated by the manufacturer. NO OIL or GREASE is required.

5.9.4 To adjust door chains for “A Properly Adjusted Door” (in this order):

5.9.5 After the chains are connected, the door panels must be properly adjusted. Most of the adjustment, if necessary, is accomplished by moving the nuts up on the chain as rod shown in Figure 19. Some links of chain may have to be removed.

5.9.6 Position panels for full opening. With the lower door panel resting evenly on both stops and the trucking sill level from side to side and at the same height as the door frame sill low point, the upper panel should be fully open (including the astragal cushion strip). Adjust chains. Remove some chain links if necessary. No portion of the astragal should project below the head-of-frame when the doors are fully open. Do not judge
chain adjustment solely by the door frame sill or head-of-frame. They might not be level (do not use a level on the astragal of upper panel). Stand on lower panel; the upper panel should be the same distance from the lower panel, measured at both ends of the opening width.

5.9.7 Eliminate gap between panels in closed position to within 6mm / 1/4 in. If necessary, with the doors fully closed and with the side tension latch hooks loosened and positioned temporarily out of the way, adjust the nuts on the chain rods to eliminate the panel gap across the opening. Move nuts up on the rod of the side of the door that tends to stay apart. This provides a closed meeting between panels in the closed position. Doors properly sized for an opening must overlap the head-of-frame and the sill by 50mm / 2 in.

5.9.8 Keep the door panels in the same closed position (with no opening at the sill or at the head-of-frame). Move nuts on both rods downward the same distance each side. Make sure the nuts are almost touching the cotter pin near the bottom of at least one chain rod! This allows for the easy future chain stretch adjustment. If there is slack in the chain, remove chain links to remove slack. To remove chain links: Reseat the lower panel on the sill stops, use a chain fall to get the upper panel fully open, make sure the nuts are almost touching the cotter pins near bottom of each chain rod, clamp the rods with vice grips positioned on top of the rod holders, disconnect the chains at the latches, remove links from both chains with a chain breaker.

5.9.9 Carefully reconnect the chains. Carefully remove the chain hoist from the upper panel and remove the temporary clamps (vise clips) from the chain rods.

5.9.10 Allow 3mm / 1/8 in. overall side-to-side play. Side-to-side play should be 3mm / 1/8 in. at the top shoes and at the bottom shoes of each panel to make sure the doors operate freely. There should be little need for chain adjustment if the rails are plumb and the panels are an equal distance apart vertically, both sides, when fully open (step a). Only if necessary, adjust the "adjustable" shoes inward or outward to achieve 3mm / 1/8 in side-to-side play. The shoes can be hammered inward; or the shoes can be pried outward by twisting a steel flat held by vice grips between the door frame and shoes. This can be done with the door panels in the rails.

5.9.11 Door panels, when opening and closing must also have their weight in balance. Do not leave the doors in an open position without a barricade. Bolt the doors closed or lock them with an interlock.

5.10 TO CLOSE DOORS

5.10.1 To close doors see Figure 53

5.11 DOOR SIDE TENSION LATCHES

5.11.1 Side tension latches, provided on each side of the doors, minimizes separation of the door panel meeting edges when closed.

5.11.2 For wide doors, Peelle may supply a Side-Opposite-Lock (Mechanical Lock) for the side opposite the interlock. The Side-Opposite-Lock device, the mechanical portion of a Peelle interlock, refer to paragraph 6, is adjusted the same way as the interlock, and is operated by a fixed cam or retiring cam. The side tension latches keep the door panels pressed together ("latched"); the interlock and side-opposite-lock keep the doors locked.

5.11.3 Side tension latches are important and must be set with enough tension to keep the doors from separating when closed. The latch must pivot freely. Remove any paint or burr from the pivot area and lubricate with grease or oil. Set the pivot stop bolt. To set the pivot stop bolt, the tension hook must be loosened and tightened temporarily out of the way. Loosen, but do not remove the tension hook mounting bolts. Set the stop bolt. Then reposition the hooks to pressure the door panels closed. The roller keeper should be in the proper horizontal position for the tension latch hook to be plumb when the doors are closed. If not, the upper panel and lower panel rails might not be meeting properly. Adjust if necessary. The roller keeper should also meet the latch hook in the proper vertical location. It should be snug in the lower curve of the latch. The tension hooks on both sides should be positioned to pressure the door panels closed.

5.11.4 If it is difficult to open the doors (with the tension latches installed), do not remove tension from the latches. First check for proper rail installation and properly adjusted doors (paragraph 5.9), then remove debris from the rails and lubricate the rails. Only as a last resort, remove some tension from the tension latches!

6 DOOR INTERLOCK (DOOR LOCKING DEVICE)

6.1 DOOR INTERLOCK DEFINITION

6.1.1 The Peelle UB type interlock and retiring cam prevent opening a hoistway landing door from the landing side, unless the elevator is within 300mm / 12 in. of the landing and is either stopped or being stopped.

6.1.2 The interlock is an electromechanical device also designed to prevent operation of an elevator unless the
hoistway landing doors are locked (mechanically) in the closed position.

6.1.3 An individual interlock is required for each freight elevator hoistway landing door. Bi-parting freight door interlocks differ in installation and appearance from those used on passenger elevator doors.

6.2 DOOR INTERLOCK CIRCUITS
There are two electrical contacts on each Peelle UB type bi-parting hoistway landing door interlock:

6.2.1 The (lower) DC “door closed” contact “makes” when the door is closed. This DC contact, when completing the series connection of all door and gate closed contacts, signals allowable retiring cam pick up. Note: The “door closed” series circuit also includes a car gate contact that “makes” when the car gate is closed.

6.2.2 The (upper) DL “door lock” contact “makes” when the interlock locking arm extends to lock the closed door (as a result of the retiring cam pick up).

6.2.3 This DL contact, when completing a series connection of all “door lock” DL contacts plus the “door close” DC contacts, signals an allowable elevator ‘run’ condition.

6.3 DOOR INTERLOCK INSTALLATION

6.3.1 Make sure that the interlocks (and retiring cam) are mounted on the side (LH or RH) of the door as shown on the door layout drawing (Peelle L-1). The hands (left hand, right hand) of bi-parting door hardware (including interlock) are viewed from inside the elevator car looking out! The interlock is bolted to the door rails on one side of the opening. The interlock has slotted mounting holes so that it can be adjusted 50mm / 2 in. vertically and set to the proper height. The top of the interlock ratchet must be set 8mm / 5/16 in. below the lower panel keeper hook when the door is in the fully closed position. (This locks the door once properly set during installation, the interlock plate is not moved later for the purpose of maintaining the 8mm / 5/16 in. setting as the chains stretch! Instead, the chains must be adjusted as per Maintenance Manual instructions. The keeper hook for the interlock must be bolted to the hanger bar on the lower panel. This lower panel lock keeper hook and the upper panel lock keeper, prevent the door panels from being opened when the interlock roller is not pushed in, as shown in Figure 24.

6.3.2 Attach roller arm to interlock without a final adjustment setting. For final interlock roller arm adjustment, refer to paragraph 7.9, Retiring Cam.

6.3.3 Attach/adjust upper panel lock keeper to side-tension-latch on interlock side! As shown in Figure 24. There is one style keeper for regular doors (066975) and another for pass-type doors (066976). If (wide) door has side-opposite-lock (mechanical lock) on the side opposite the interlock, attach/adjust an upper panel lock keeper also on that side, in addition to a lower panel keeper hook.

6.4 DOOR INTERLOCK ADJUSTMENT

6.4.1 Set the interlock ratchet 8mm / 5/16 in. below the lower keeper hook with the doors closed, chains adjusted and side-tension-latches working; set the 8mm / 5/16 in. dimension by moving the interlock plate up or down in the slots, then securely tightening the bolts. Refer to Figure 24 add pinning bolts.

6.4.2 For pinning bolts, drill 8mm / 21/64 in. holes (through the holes supplied in the rail) into the interlock plate, near the middle. Then tap interlock plate 10mm / 3/8 in. Insert pinning bolts 10mm / 3/8 in. by 3/4in. roundhead. Refer to Figure 22 the interlock vertical position should never change.

6.4.3 Ensure Keeper Hook has ample locking engagement with the top of the Ratchet. Refer to Figure 24.

6.4.4 Ensure Keeper Hook clears the Ratchet teeth while opening the door. Use hook shims to obtain clearance if necessary.

6.4.5 Make sure Locking Arm Spring is in place and working

6.4.6 Ensure Locking Arm falls forward, easily and fully and rests on the Mechanical Stop. See Figure 28.

6.4.7 Stop block (located on the contact shaft, in the upper interlock box) should just touch the bottom fixed guide block, when the locking arm is fully dropped. Refer to Figures 26 and 27.

6.4.8 Contact shaft should drop enough to allow the locking arm to fall forwards fully and rest on the Mechanical Stop. See Figure 28. Adjust the stop block and / or raise the upper interlock box to hold the factory 60mm / 2-1/2 in. dimension. Refer to Figure 28.

6.4.9 Stand on landing side and make sure the door panels cannot be jiggled open when they are closed and locked (retiring cam held up or elevator away). Try again while you are pushing the lower panel toward the elevator (retiring cam held up or elevator away).

6.4.10 Electric Contacts portion of Interlock – adjustment and factory settings.

6.4.11 ‘Door Closed’ Contact DC (normally open contact in lower box). (Adjust ‘door close’ cam on interlock arm)

6.4.12 Set the door closed cam to open the DC contact when the door panels are more than 20mm / 3/4 in. apart (10mm / 3/8 in. downward movement of the lower
For installations with a staggered rear line of doors

6.5 DOOR INTERLOCK MISCELLANEOUS

6.5.1 Make sure the door is closed and locked before you move to the next door. Lock the door. If there is no unlocking device, leave off the interlock “hook” and set up a locked barricade.

6.5.2 At the time of installation final adjustments, completely recheck all the interlock mechanical adjustments for possible chain stretch. The settings described above allow for some chain stretch over a 10-15 year period. As a safety measure, the Peelle interlock will usually not allow the elevator car to operate after the chains have stretched that allows 9mm / 3/8 in. lowering of closed position of door panels. After that, the “Door Closed” contact should break and the car should not operate.

6.6 DOOR TAMPER RESISTANT DEVICE FOR INTERLOCK

6.6.1 Interlock accessory. Install Tamper Resistant Plugging Rod as shown in Figures 23 and 29.

6.6.2 The plugging rod is cut to the proper length for the door from the factory. It should be installed before the lock is pinned. Thread the plugging rod into the plugging trigger for proper adjustment.

6.6.3 The trigger portion of the device is actuated by the opening movement of the lower door panel, the trigger then pushes the rod into the DC contact (lower box). The rod movement keeps the DC contact open which prevents the DC contact from being closed until the lower panel is returned to the closed position. The rod should be set to lock the contact arm immediately after the contact arm moves to the full open position. The rod should hold “Door Closed” DC contact “open” as soon as the contact opens.

6.7 DOOR EMERGENCY UNLOCKING DEVICES

panel from closed position). A handy guide for the 20mm / 3/4 in. apart setting is to put the hook in the “first” step (refer to Figure 25, Illustration A); the DC contact should be slightly open. At that same cam position setting, the contact should be definitely made (closed) when the doors are closed, even when the door is pushed toward the hoistway shaft from the room side approximately 3mm / 1/8 in. The cam should have 2mm / 1/16 in. horizontal free movement away from the hanger arm when the doors are closed. Refer to Figure 25, Illustrations B and C. Then adjust kick-out arm separately to positively open contact when the door panels move more than 20mm / 3/4 in. apart. The DC contact should never be set to make when the door keeper in an unlocked position. Set 8mm / 5/16 in. apart, the DC contact is to be held mechanically open by tamper resistant plugging device as described in paragraph 6.6. Put DC contact cover back on the contact box as soon as possible to make sure the insulating paper does not get torn.

6.4.13 ‘Door Locking’ Contact DI (normally closed contact in upper box)

6.4.14 Check roller arm adjustment for full 22mm / 7/8in. locking arm throw by retiring cam action. Push in the roller fully by hand as if to unlock the door. The DI contact should open approx. 10mm / 3/8 in. Release the roller. The DI contact should make and the black plastic block should then be 3mm / 1/8 in. below the contact bar. Reset the block to hold the dimension if necessary. Refer to Figure 26 or 27. The 60mm / 2-1/2 in. dimension in Figure 28 must be held. If the doors are less than 20mm / 3/4 in. apart, DC contact will be made. If DI is also made, the elevator may run.

6.4.15 Power Door ‘Zone” contacts Z (normally open contacts in the upper box supplied with power doors)

6.4.16 Zone contacts, while not a part of the interlock circuit, are mounted in the upper interlock box and electrically connect the controller to the motors for the landing door where the elevator has stopped.

6.4.17 With the roller arm extended out, all zone contacts should be 6mm / 1/4 in. open. Refer to Figure 27. Reset all zone contact plastic blocks to this dimension if necessary. Push in the roller by hand to maximum travel and check that all zone contacts make simultaneously and the black plastic blocks allow 6mm / 1/4 in. over-travel.

6.4.18 For installations with a staggered rear line of doors allowing a single line controller, zone contact assemblies have an additional contact switch assembly at the top of the zone contacts. For this type job, a single line controller is used for both front and rear door lines. The additional switch is a micro switch type of contact and is operated by the vertical movement of the contact shaft in the box. Set the normally open contact of this switch to make at the same time as the other normally open zone contacts are made.
6.7.1 Door Emergency Unlocking Devices are provided for each landing per ASME A17.1/CSA B 44. Check local code and Peelle layout Drawing L-1. The unlocking device is used to unlock a hoistway landing door for access to the hoistway shaft by authorized personnel. It is mounted on the wall next to the door. It is operated by a key that unlocks a box and exposes a chain. Then the chain is pulled to unlock the door.

6.7.2 To install the unlocking device, a hole must be drilled through the building wall for the pipe and chain. Use an electric hammer drill. Make sure the hole is drilled so that the unlocking device pull chain will meet the interlock roller. Attach the chain to the interlock roller arm with a 1/2 in. bolt mounted in the hole in the roller arm. Refer to Figure 28. When releasing the unlocking device chain and cover, the chain should have enough tension to pull the chain back through the hole. When the device cover is locked in closed position, there should be enough slack in the chain to let the locking arm rest in its locked position.

6.7.3 For power doors, both power door operation and elevator operation are not available when the door unlocking device is in the unlocked position with the chain pulled. Make sure power for door operation is not available: (a) when the door unlocking device is in use (pulled) or (b) after the doors are opened a 100mm / 4 in. with the unlocking device chain not pulled. If power is available at this time, check the electrical connection of the wires to the unlocking device and the door zone contacts.

6.7.4 The door unlocking device is not to be confused with an access switch, as elevator operation must be completely unavailable when the door unlocking device is in use. Unlocking devices are used instead of access switches when certain requirements are met.

7 CAR GATE INSTALLATION

7.1.1 Install car gates after the landing doors are installed. Car gates may be provided in one or two sections. Car gates are counterweighted with a counterweight traveling on the outside of the gate rails. A typical single-section car gate is shown in Figure 30. Where the overhead space is limited, the gate is made in two sections.

7.1.2 Overhead/headroom height is the area of a hoistway shaft extending up from the sill of the highest landing to the nearest obstruction above in the hoistway shaft. A two-section (telescopic) car gate is used when overhead space will not allow a single section car gate. Refer to Figure 32. The sections are coupled, with the lower panel traveling twice as fast as the upper panel. This enables both sections to reach the open position simultaneously. In rare cases, a differential car gate is used when there is extremely limited vertical overhead height. The two gate sections are the same size. The special differential car gate power operator is designed to achieve simultaneous full open of the gate panels by providing differing speed ratios for each gate panel section (equal height panels).

7.1.3 Car Gate Types (vertical-slide-up type):
  - Single-section - available overhead space.
  - Two-section (Telco) - limited overhead space.
  - Two-section (differential) - extremely limited overhead space (two sections exactly the same size).

7.1.4 Panel Construction
  - Wire Mesh
  - Solid Panel

7.1.5 If installing both a front gate and a rear gate, make sure they are installed at proper front or rear locations to allow the retiring cams to operate the door interlocks. Do not switch the front and rear gates. The hands (LH & RH) of a retiring cam, gate counterweight and all hardware are as viewed from inside the car looking out. The retiring cam is on one side (either right or left hand) of the gate and the counterweight is on the other side (the other hand).

7.2 GATE RAILS & BRACES

7.2.1 When the gate is to be installed, refer to Peelle Guide 210 Quick Reference Installation Guide.

7.2.2 Before installation of the rails, measure the distance from the front of the elevator platform to the car enclosure angles. If not enough space has been provided between the front of the platform and the car enclosure angles, it will be necessary to cut back the cab side walls and relocate the car enclosure angles. Be sure of your measurements before you do any cutting. The car enclosure angles are usually (50mm by 50mm by 5mm) 2 in. by 2 in. by 3/16 in. steel angles and should have holes to attach the gate rails.

7.2.3 Install the gate rails. Bolt them to the platform and to the car enclosure angles. Make sure the rails are plumb and square (do not use a level it is not accurate enough). Hold the correct distance-between-guides so the gate will fit. Use “Distance Between Guides” (DBG) dimension located on the Gate Material List (GML).

7.2.4 After installing both gate rails, attach the top spreader brace angle and brace diagonal flats. The top of the gate rails is held in place by a system of braces connected to the elevator crosshead. The distance...
"Between Gate Rails" must be constantly maintained between the gate guide rails when spreader and braces are installed. The rails must remain plumb in two directions. Bolt braces tightly after gate panel is installed and adjusted (paragraph 7.3).

7.2.5 Check the overhead / headroom space for interference, then run the car up slowly on inspection to the top floor and check overhead / headroom for code clearance of gate rails and braces, and run by.

7.3 GATE PANEL
7.3.1 To install the gate panel, remove the shoes on either side, move the gate into its guide tracks while sliding on the platform. Then reinstall the shoes.

7.3.2 When overhead space is limited and a two-section gate is to be installed, there will be two parallel guide tracks on each gate rail (LH and RH).

7.4 MANUAL GATE SPROCKETS (SHEAVES)
7.4.1 Bolt the gate sprockets to the gate rails at the pre-drilled rail locations. The double sprocket assembly is mounted inside the counterweight rail and the single sprocket is mounted inside the opposite rail. Power gate operators have a combination sheave and motor.

7.5 GATE COUNTERWEIGHT
7.5.1 The counterweight travels on the outside of the gate rail. The counterweight requires two supporting chains. Lay the counterweight on the floor. Attach the two counterweight guide shoes with hex-head thread-locker bolts provided.

7.5.2 The counterweights may be counterweight boxes with small weight flats for balance adjustment or may be solid steel.

7.6 GATE CHAINS AND CHAIN STUDS
7.6.1 Attach the two counterweight chain-studs 100mm / 4 in. long to the counterweight. Attach the chains to these chain-studs, short chain to the front stud and long chain to the rear stud. Wrap connecting links and connector clips at each end of the chain with the nylon tie-wraps provided. Wipe any excess oil off the chains. Carefully hoist the counterweight to the top of the car. Lower the counterweight gently into the guide track so that it rests on the temporary support angle near the top of the guide track.

7.6.2 Loop the short chain over the front of the double sprocket. Loop the long chain over the rear of the double sprocket and then over the idler sprocket. Remove extra links from end of chain and connect the longer chain studs 180mm / 7 in. long to the loose ends of the chains and then connect these chain studs into their hangers on the gate panel. Secure the master chain connecting links with nylon tie wraps. Each chain stud gets 2 nuts, a lock washer and a cotter pin. Make sure the nuts are almost touching the cotter pin near the bottom of the chain stud. This allows for the easy future chain stretch adjustment.

7.6.3 After attaching the chains to both the counterweight and gate panel, remove the temporary support angle. Manually lift the gate to full open. Have it touch the upper bumper stops. At this position, the bottom edge of the gate should be even with or slightly above the car enclosure ceiling. If the gate was not fully open due to the counterweight bottoming out, the chains are too long and must be adjusted at the studs or some links must be removed to shorten the chains.

7.6.4 Finally adjust the chain studs with just slightly more tension (less slack) on the long chain to allow for greater long chain stretch. The gate must move smoothly in the guide rails during its entire travel. Adjust the shoes (inward-outward) only if the gate panel is not square in the guide rails or if there is no side-to-side play. With the gate raised 3 in off the platform, check to see if gate panel hangs level. Adjust the chains to level the gate panel.

7.6.5 The gate panel should balance the counterweight at half-travel position. With the gate at half-travel open, manually push it further open and from the same position push it closed. Weight differential can usually be detected by this method. Add or remove the counterweight flats to achieve balance of the counterweight and the gate panel.

7.6.6 The gate panel must be exactly balanced (at half-travel position) by the counterweight to prevent the gate drifting open when the elevator car is in motion or from drifting closed at an inappropriate time.

7.7 GATE RUBBER BUMPERS
7.7.1 Bumpers are important to reduce noise and reduce gate wear and tear. The gate bottom bumpers can be adjusted by adding flat washers as spacers for proper positioning if the car platform is not level.

7.8 GATE CONTACT
7.8.1 The gate contact must close an electrical contact when the gate is closed and open as the gate is opened. It should be positioned to remain “made” even if the counterweight is jiggled while the gate is closed. The gate contact is mounted at the top of the gate rail on the counterweight side. Refer to Figure 31. The gate contact is activated by a roller attached to the gate counterweight. Check that the gate electric contact stops the elevator when the car gate/car door is lifted.
Pull strap(s) may be provided for each door and gate. If there are two car gates on an elevator, the gate contacts must be wired in series.

### 7.9 RETIRING CAM

#### 7.9.1 Freight door interlocks are designed to be operated by a retiring cam. The retiring cam is mounted on the car. There is a connecting rod between the cam face and the retiring cam motor. Figure 33 shows the retiring cam.

#### 7.9.2 The cam motor is mounted above the car top height. The cam face assembly is mounted on the side of the car, vertically near the door opening centerline. Both have pre-drilled holes in the Peelle car gate rail. If there is no Peelle car gate, a long Peelle supplied mounting angle is used. Follow the installation drawings when you are installing the retiring cam. The retiring cam face should be mounted to the center of the interlock rollers horizontally and vertically when the car is at each floor. The interlock rollers must be adjusted so that when the cam is extended (by gravity), it unlocks the interlock. The cam must be set to fully unlock the interlock with over-travel. This is different from the operation of a Passenger Elevator Door retiring cam with passive contacts.

#### 7.9.3 Adjust the roller to touch the cam face when the locking arm is fully depressed (interlock unlocked). If the door is caught on the lower panel lock hook while opening, first check the interlock roller adjustment, then check the rotation of the interlock ratchet teeth, and then check to see if the keeper hook shims are sufficient. When the cam is in the retired (lifted up) position, it must clear (not touch by approximately 20mm / ¾ in. all the interlock rollers in the elevator shaft.

#### 7.9.4 Roller arms are adjustable sideways. Roller arms are normally furnished with Peelle #035527 filler pieces, each 15mm / 5/8 in. thick, for adjustment.

#### 7.9.5 The cam face is weighted so that the cam will drop while in the “no power” condition and unlock the door. The doors can be manually opened if the car is at a landing and there is no power to the retiring cam. When the cam motor is energized, it lifts (retires) the cam face to allow the interlock to lock the door.

#### 7.9.6 The cam large pulley should be operated by hand to make sure that it does not bind or hang-up. The V-belt deflection should be set at 13mm / ½ in. Adjust the motor position to achieve 13mm / ½ in. deflection.

#### 7.9.7 The effective length of the connecting rod between the crank pulley and the cam face must be adjusted so that the rotation of the crank is limited. To adjust the cam rod length: manually hold the cam face fully up (retired); while held in this position, rotate the crank arm towards the center of the car; tighten the rod nuts with the crank held 70 degrees back (towards the center of the car) from the down direction. When powered the cam motor must then pick the cam rod toward the center of the car. If the direction of the lift is toward the front of the car, reverse the motor rotation by switching any two of the three motor power leads. The cam rod must pick toward the center of the car. The motor must pick up and stall when the cam is retired (picked up) under power. The cam face must drop easily when not under power.

#### 7.9.8 At an appropriate time, run the car through the hoistway and double check each interlock roller. Check or reset each interlock roller: (1) for horizontal center and vertical center position on the cam face, (2) to provide maximum throw of the interlock locking arm (22mm / 7/8 in.) travel measured at the roller arm connection bolt), (3) and then to clear the retired cam by at least 19mm / ¾ in.

#### 7.9.9 Fixed cams are sometimes used instead of retiring cams with side-opposite-locks. Mechanical door locking must take place as the car travels away from the floor.

#### 7.9.10 After installing the cam(s), run the car up slowly on inspection to check any retiring cam obstacles in the hoistway shaft.

### 7.10 PULL STRAPS

#### 7.10.1 Pull strap(s) may be provided for each door and gate. Pull straps are mounted on the slide-up panel and hang down so that the operator may pull the doors/gates closed. Limiting the length of the straps ensures that they do not become a hazard during operation of the car. Straps are required for manually operated vertically sliding doors/gates to ensure they can be conveniently closed, two straps per door. Refer to Figure 34.

#### 7.10.2 If supplied on power operated doors/gates, the straps will be tucked away behind a clip, and still be accessible in case of a power failure. Where pull straps have been provided on car gates conforming to ASME A17.1/CSA B44, 2008 addenda, a pull strap contact is provided and should be wired in series with door stop button contact to the Peelle door controller.

### 8 POWER OPERATION OF DOORS / GATES

#### 8.1.1 Power doors will have two door operators per door. A power gate will usually have one gate operator per gate.
8.1.2 The combination of the door controller control circuits and the setting of the motor limit switches is to provide initial high speed power to the high speed motors which start the door or gate. Then at final travel this combination applies the slow speed power to control or override the inertia and slow the panel(s) down.

8.1.3 The doors must operate freely by hand, otherwise the power door operators will not operate efficiently and create maintenance problems.

8.2 DOOR CONTROLLER

8.2.1 The door controller is located in the elevator machine room and mounted on the wall.

8.2.2 A 220V, 3-phase, 50/60 Hertz power supply is required for the door controller. Voltages other than 208/220/240 volts require a Peelle transformer (for example, 480V to 220V). This transformer is usually mounted inside the door controller. For power operated doors, it is required that a separate 30 ampere, 3 phase, fused disconnect switch or circuit breaker dedicated to the door controller be provided in the machine room by others. It should be mounted near the machine room entrance door and be labeled “Door Controller Disconnect”. The door controller power should be connected directly to the disconnect switch and not to the elevator controller. The power circuit of the motors is 220 volts AC. The control circuit of the door controller is 24 volts DC.

8.2.3 If there is a rear line of doors with landings at different levels (staggered) than the front line of doors, a single line controller is used to operate all doors and gates. Since the front line car gate and the rear line car gate each has its own limit, proper operation of the gates can only be achieved if the gate opposite to the gate and door being operated is kept in the closed position.

8.3 POWER DOORS - INITIATION CIRCUITS AS REQUIRED (refer to Manual 202)

8.4 CONTACTS NOT FURNISHED BY PEELLE

- Auto open initiating contact
- Door open and door close push buttons
- Inspection circuit contact and access switch contacts
- Retiring cam initiating contact
- Auto close hold open-contact
- Fire service contacts

8.5 CONTACTS FURNISHED BY PEELLE:

- Fire service “Door Open” signal contact
- Interlock circuits contacts:

8.6 POWER DOOR OPERATORS (MOTORS)

8.6.1 Two power door operators (motors) per door, bolted to each door rail. Each motor has a high-speed and a slow-speed winding to provide a two-speed drive. Refer to Figure 35. The right hand side high-speed must be connected (“teamed”) to the left side high-speed motor winding and right hand side slow-speed must be connected (“teamed”) to the left side slow-speed. Motors on each side must rotate (“phased”) so that they both either open or both close a door. Hoistway landing door operators are shipped as a pair (one left hand and one right hand operator). The operators are reverse-phased from each other to produce the same door travel direction. The motor leads are appropriately numbered to maintain phasing when connected. In the event that travel direction of all hoisting doors is opposite to the open or close power applied, then at the controller terminal block, reverse wires T2 and T3 for high speed and/or T4 and T5 for slow speed. Or if any single motor is improperly phased, at the motor, reverse at the motor the red wires R2 and R3 for high speed and/or the black wires R4 and R5 for slow speed. Do not connect red and black wires together. Refer to wiring label shown in Figure 36.

8.6.2 The door motors will normally be ready to operate when the car is within the unlocking zone and the (door) zone switch has been operated by the retiring cam, “making” (closing) all Z contacts at that floor.

8.6.3 Emergency Manual Operation of Power Doors/Gates:

8.6.4 In the event of power failure or motor burnout, immediate emergency manual operation is possible without disconnecting the Peelle power operators either mechanically or electrically. In the case of a motor burnout, it is possible to operate all other doors by electric power until a replacement motor is purchased. Only if a 10-ampere fuse on the door controller is blown will it be necessary to electrically disconnect the burned out motor until a replacement arrives.

8.7 POWER GATE OPERATOR (MOTOR)

8.7.1 On power car gate installations, the operator on one side and the idler on the opposite side take the place of the manual gate sprockets. Bolt the operator to the
counterweight rail and the idler to the opposite rail. The operator consists of a motor, and a double-groove sheave.

8.7.2 The gate operator will be wired to the door controller. The door controller supplies power to the power door operators and to the power gate operator(s). Each gate motor (high and slow-speed windings) must be phased to open the gate when the landing doors open and close when they close. If necessary, interchange any two wires of the same color, red wires for high speed and black wires for slow speed.

8.7.3 A power car gate will have a gate contact, the same as a manual car gate would have. This contact makes up when the gate is closed, indicating to the elevator controller that it is safe for the car to run.

8.7.4 **CAUTION: TO AVOID SLIPPAGE ON MOTORIZED CAR GATES, PLEASE NOTE THE FOLLOWING.**

8.7.4.1 Do not lubricate the chain. It comes lightly lubricated to protect against rust, but further application could result in chain slippage.

8.7.4.2 Ensure the car gate and gate panel are equally balanced. Additional counterweight flats are provided if additional weight is needed for balancing during installation.

8.7.4.3 If experiencing chain slippage, when the gate is moving in the open direction, the gate counterweight may be too light. Add additional counterweight flats that are provided for proper balancing.

8.7.4.4 If experiencing chain slippage when the gate is moving in the closed direction, the gate counterweight may be too heavy. Remove necessary counterweight flats for proper balancing.

8.8 **DOOR / GATE LIMIT SWITCHES**

8.8.1 Each Peelle power-operated car gate is supplied with a car gate limit arrangement and a hoistway landing door limit arrangement. Both are mounted to the car gate rails. These limits are composed of proximity sensors (actuated by detecting a steel cam face) to control “slowdown” at the beginning of the slow speed zone. Limit switches (actuated mechanically by a steel cam face) indicate the final open position (end of travel in the open direction).

8.9 **HOISTWAY LANDING DOOR**

8.9.1 The hoistway landing door limit arrangement is composed of two square proximity sensors that are shared by all hoistway landing doors on a single line. The sensors are set at a pre-determined height to provide 200mm [8in.] of slowdown in both directions. One adjustable steel cam face mounted to the Hangerbar of the hoistway landing door actuates both sensors. Cam face adjustment is required at all hoistway landing doors to ensure 13-20mm [0.5-0.75in.] clearance from sensor face to steel cam face. When bi-parting hoistway landing doors are used, the optional Auto-Stay-Open (ASO) feature requires a limit switch (provided at each hoistway landing door) to reopen the door should it rebound or not open completely. The limit switch is mounted to the landing door rail below the sill mark on the interlock side and is actuated by the hanger-bar at 25mm [1in.] before resting on the lower panel stop plates (final open position). See Figures 37, 38 & 39.

8.10 **CAR GATE LIMIT**

8.10.1 The car gate limit arrangement is composed of two barrel (cylindrical) proximity sensors. The sensors are set at a pre-determined height to provide 400mm [16in.] of slowdown in both directions. A fixed steel cam face mounted to the side of the gate panel actuates the open slowdown sensor and the steel gate counterweight actuates the close slowdown sensor. Sensor adjustment is required to ensure 13-20mm [0.5-0.75in.] clearance from sensor face to steel cam face and gate counterweight. The car gate is supplied with a limit switch to provide a gate fully open signal to the customer. The limit switch is mounted to the car gate rail below the slowdown proximity sensor and is actuated by a fixed steel cam face (same cam that actuates the open slowdown sensor) at 25mm [1in.] before final open position. See Figures 37, 38 & 39.

8.11 **DOOR OPERATING PUSHBUTTONS**

8.11.1 “Door Close” Button: A door operating pushbutton located in the car station and may also be located in landing stations. Operation is usually continuous pressure (hold button to close doors) for freight doors. If the close pushbutton is released before the door/gate close fully, there will be an automatic reopening of the doors and gates.

8.11.2 “Door Open” Button: A door operating pushbutton located in the car station and may also be located in landing stations. Operation is usually momentary pressure (touch button once to open doors).

8.11.3 “Door Stop” Button (if supplied): A door operating button located in the car control station, not in the landing/hall stations. When pushed, it removes electrical power from the door operators and gate operator(s). Refer to Manual 201, 3.1.5 (Emergency Stopping of doors/gates section).
8.11.4 To test the landing/hall buttons hook-up: position the elevator car at a floor with the landing doors closed. Walk to another floor and push “Door Open” and “Door Closed” at the same time. Then repeat this with landing door open at floor where car is. No doors, other than door at that landing, should operate on this test. Repeat this test at each floor.

8.11.5 This is to ensure that a door cannot be operated by landing/hall pushbuttons at another floor (with the elevator at the floor and under normal operation).

8.12 GATE REVERSING EDGE (OPTION)

8.12.1 On a power door installation, the car gate is often equipped with a protective reversing edge (reopening device).

8.12.2 A reversing edge is an electric contact covered by a neoprene flap. The electrical contact is actuated by bottom or side pressure on the reversing edge, such as would occur if the reversing edge is touched by an object in the way.

8.12.3 Hold out your hand to test reopening device. Physical contact is required by the reversing edge. A closing gate should re-open. Check gate reversing edge operation for contact at all points along the reversing edge. Older gate installations are designed not to reverse after the gate has changed to slow speed (final 400mm 16 in. of travel).

8.12.4 Gate reopening devices are required with automatic time closing or any momentary pressure door/gate closing.

8.13 LIGHT CURTAIN(S)

8.13.1 Depending on the version of the code to which the equipment is manufactured there is a single light curtain or two light curtains. In both cases the light curtain consists of a transmitter and receiver.

8.13.2 Light curtain #1 is to be mounted on the counterweight guard (counterweight side) and on the light curtain mounting bracket (opposite counterweight side).

8.13.3 Light curtain #2 (where required by ASME A17.1/CSA B44, 2008 addenda) is located on the car side of the car gate inside the rail to a bracket affixed by the gate rail mounting clips. Additionally there are Beam Blockers connected by the lower guide shoes of the car gate. The Beam Blockers function as a positive means of muting the trailing beams of light curtain #2. For details of the muting function refer to the Light Curtain Installation Guide.

8.13.4 Both the transmitter and the receiver are attached with screws (provided) at the top, bottom and middle of the units. Secure all wires to the gate rails with the tie-wraps that are provided.

8.13.5 Refer to Light Curtain Installation Guide provided by Peelle.

9 HOISTWAY SHAFT / PIT

9.1.1 The pit should be clear of water, debris, and oil, to allow full door-open-travel by the lowest landing door (vertically sliding).

10 PIPING / CONDUIT AND WIRING

10.1.1 Manually operated doors and/or gates, are supplied with appropriate interlocks and/or contacts that must be electrically connected to the elevator controller. Retiring cams must be electrically connected to the elevator controller and provided with appropriate relays (contacts) and power supply.

10.1.2 Power operated doors, and/or gates are electrically connected to the door controller, which is then connected electrically to the elevator controller. Power operated doors are supplied with a detailed electrical system schematic, and an interconnection (hoistway shaft) wiring diagram.

10.1.3 For power operated doors, depending on purchase arrangements, Peelle may or may not supply electrical materials for wiring the hoistway doors, car gates, retiring cams, and associated equipment. Or, Peelle may supply a recommended Wiring Package.

10.2 Wiring Packages

10.2.1 Wiring Packages are available to meet either NEMA 1, 4, 7, 9 or NEMA 12 conditions, or IP 10, 52, 54, 56. Hoistway wiring must conform to NFPA 70 National Electric Code or other Electric Codes having jurisdiction, per ASME A17.1/CSA B44 Rule 2.8. When wiring power operated doors / gates, it is important to make interconnections in accordance with the Peelle schematic diagram, for doors / gates to operate properly. Each Peelle controller is tested prior to shipment. If there is a power door miss operation, first check field wiring and equipment adjustments before suspecting the door controller.

10.2.2 Wiring routine is a matter of individual choice, however, the Peelle Hoistway Wiring diagram shows how the equipment is to be field connected and lists wire numbers keyed to the schematic. Where floor-to-floor repetition occurs, the diagram will show typical connections. Be sure to follow the A, B, C markings starting with A at the lowest landing and note that the top landing is sometimes designated as Y.
10.2.3 Motor leads are factory numbered with wire tags to maintain “team” and “phase” relationships. Note that “teaming” hoistway landing door operator motors means that the “R” labeled conductors of one door operator must run from a riser on one side of the hoistway shaft to the matching operator on the other side. Those wiring conductors are protected by a horizontal cross conduit and offside riser conduit.

10.2.4 Wiring Packages consist of the following...
- Pre-marked wire bundles
- Travel Cable
- Conduit and Fittings
- Wiring / Piping Layout Diagrams
- Junction Boxes / with marked terminal strips

10.2.5 Please contact our sales department for more information regarding Wiring Package Options.

10.3 WIRING NOTES
- Strip wires carefully for insertion in terminals with no loose strands or excess bare wire. Use stakon-type connectors where applicable.
- If they are installed, wire the landing door operating pushbuttons at the same time as the adjacent interlock to help with wire identification.
- Keep DC and DI interlock (series) circuits separated by using different color wires when practical.
- Use adhesive number wire tag strips on all individual wire ends to maintain wire identity for connection at proper terminals.
- Where a rear line of doors (line C) is included, keep Front (Line A) and Rear (Line C) wiring bundles separately identified as the same numbering is used for both lines.
- Use flexible metal conduit (Greenfield, flex cable) to motors or other devices that may have their position subsequently adjusted.

10.4 NATIONAL ELECTRIC CODE REMINDERS

10.4.1 General
- Maximum voltage in the hoistway is 300 volts.
- All electrically alive parts must be enclosed.

10.4.2 Conductors

10.4.3 Interlock DC and DI contact (wiring) conductors to the hoistway door interlock from the hoistway shaft wiring riser must be 200 degrees C. wire (glass braid type SF or equivalent) (high temperature insulated wiring) (minimum No. 18 gauge wire).

10.4.4 Approved type traveling cables (ETT) are required between the hoistway shaft and the car. Minimum conductor size is No. 18 gauge wire.
- Use min No. 18 gauge conductors in the traveling cables for Peelle motor power circuits. Where two gate operators are supplied to run a single gate due to size, use No. 16 gauge motor power conductors.
- Use supports at each end of the traveling cable approved for the cable type and length.
- Travel cable can run unprotected 6 feet before cable reaches the hoistway shaft support point or after the car, without insertion in a raceway or conduit.

10.4.5 Minimum conductor size for operating control or signaling circuits is No. 20 gauge wire, except traveling cable minimum conductor size is No. 18.

10.4.6 Wiring
- Hoistway shaft and on-car conductors shall be enclosed in wireways, such as; rigid conduit, tubing, or raceways, except:
- Flexible metal conduit (Greenfield) between risers and limit switches, interlocks, pushbutton, etc. is permitted.
- Flexible metal conduit (Greenfield) of short runs (not defined in the code) is permitted on cars when securely fastened and free from oil.
- SJ-type cord between fixed wiring on car and the car doors/gates is permitted. A grounding conductor must be included.
- Flexible metal conduit of 10mm / 3/8 in. nominal trade size shall be permitted in lengths not in excess of 1800mm / 6 ft.
- ETT traveling cables.

10.4.7 Installation
- Up to 50% of interior area of “wireways” and 40% of “raceways” may be filled with conductors.
- A clear workspace extending at least 900mm / 36 in. from the front of the controller and a minimum of 760mm / 30 in. wide and reaching from the floor to the top of the controller is required in front of the controller.
- All grounding and bonding requirements to provide a connected system shall be met.

10.4.8 Interconnections will be needed for safety circuit, automatic door opening, retiring cam operation, etc., between the door controller and the elevator controller. Other optional features may require elevator controller
10.4.9 A separate power disconnect switch is required. Refer to paragraph 8.2 Depending on the power supply voltage, a transformer may be required as Peelle door equipment operates on 220-Volt, 3-phase 50/60 Hertz power. Run a voltage check at the door controller fuse blocks, L1, L2 and L3 to ascertain incoming voltage. If a transformer is not supplied, voltage should read approximately 220 Volts +/- 10% and if a transformer is supplied, the reading should be 220 Volts, +/- 10%. After wires are hooked up and continuity of the circuits is checked, turn on power.

11 PHASING CHECK OF THE MOTORS (Direction and Speed)

11.1.1 With hoistway shaft equipment cleaned of debris, check if doors and gates manually operate smoothly for all travel. Then, with power available, proceed to check door power operator direction and speed. Station one person in the machine room and one person on the elevator.

11.1.2 Manually open the car gate fully. Open the hoistway door to halfway position and clear the opening. On the door controller, manually push relays O (open) and DH (door high speed) momentarily. The door should move open at high speed. If the door moved close, reverse wires T2 and T3 on the controller, reset the door to half position and recheck. When open (high speed) direction is correct, operate C and DH to confirm close direction is operational. Follow the same procedure with O and DL (door slow speed) for direction and speed and reverse wires T4 and T5 if necessary. Check close by operating C and DL. If any speeds are still reversed, check that the T wires from the controller to the zone switch contacts and the R wires from the zone switch to the door motors are connected “same number to same number”.

11.1.3 Manually close the hoistway landing door all the way. Set the car gate half open and repeat the above phasing check using O and GH, C and GH, and O and GL, C and GL in the same fashion with wire numbers T6 and T7 and T8 and T9.

11.1.4 Next check the operation of the retiring cam(s) by carefully pressing the RC relay and reporting the direction of operation of the cam lifting pulley. Refer to paragraph 7.9 for the retiring cam setting, adjustment and rotation. If rotation is reversed on a single cam or two cams of a double-end car, switch any two “Y” wires at the controller terminals. If one retiring cam of two-cams has reversed rotation, switch any two “Y” wires at the motor of the cam having reversed rotation.

12 CONTROL OPERATION CHECK

12.1.1 With power circuitry above checked out, the next step is to check the control circuitry operation. Turn power on. Ascertain that the purple jumpers for the inspection circuit are in place to allow the door control to function without an elevator controller tie-in. If door operating buttons are not available or are not wired in, use jumpers at the control panel terminals across the “door open” or “door close” car pushbutton connection points, per the schematic drawing.

12.1.2 Manually set door and car gate to the halfway position and clear the opening. Momentarily operate “door close” pushbutton and confirm close direction for door and gate. If the gate moved and the door did not, manually close the car gate to within its slow speed zone and again momentarily operate the “door close” pushbutton and confirm door close direction of travel (sequence operation). If prior phasing was correct and field installed wiring was correct, the direction of travel should be correct. Reset the door and car gate to the halfway position and operate the “door close” pushbutton and hold until the hoistway door is in slow speed and then release the pushbutton. The gate should be at full closed and stalled, and the door should continue to travel to full close.

12.1.3 From full closed position, operate the “door open” pushbutton momentarily. The door and car gate should open fully, starting (sequence) with the door, first to open, until its slow speed zone, and then the car gate opens. Or if simultaneous operation, door and gate open at the same time; this is a slight reduction in time needed to open.

13 LIMIT SWITCH ADJUSTMENT

13.1.1 Try the open and close operation several times to determine if limit switch adjustments are necessary (refer to Door/Gate Limit Switches, paragraph 8.8). Adjust limit switches, both open and close, door and gate, as necessary to allow sufficient slow-speed travel, so as to achieve a steady slow speed, minimum amount. Refer to Figures 37, 38 & 39. Confirm that the original 25mm / 1 in. setting of open final limits (limit switch) for the door and gate positively engage when door and gate reach the final limit position.

13.1.2 Automatic Stay Open (ASO) (when provided as an option): Check the for re-open direction by manually pulling the door toward close from the full open position. Pulling the door to the point of “breaking” the open final limit (25mm / 1 in. from full open) should
reinitiate power to drive the door back to full open position.

13.1.3 All installations have a final close limit timer and a final open limit timer in the controller. Timing starts when the last of either the door or gate reaches the slow speed zone. The timer is adjustable up to approximately 6 seconds. Set sufficient time (approximately two seconds) (mid range) to power the door and gate in slow speed mode to full open/closed and to stall with approximately one half second to spare.

13.1.4 Adjustment is made on POT #0 (OPEN) and POT #1 (CLOSE) on the front of the PLC.

13.2 REOPENING DEVICE OPERATION
13.2.1 With the car gate partially open, activate the reopening device (break the light curtain beam or physically contact the reversing edge) to confirm that the input on the controller de-energizes and energizes.

13.3 DOOR CLOSE BUTTON
Continuous pressure operation
13.3.1 Open the door and car gate to full open position. Use the “door close” button to operate the door and gate and then release the “door close” button and check that gate, or the gate and the door, return to the full open position.
13.3.2 With a “door close” button release at three different positions:
- car gate in high speed,
- car gate in slow speed, and
- car gate in slow speed or closed and landing door in high speed.
13.3.3 Note: Release of the “door close” button with gate in slow speed or closed and door in slow speed should allow the close operation to continue to full close.

13.4 DOOR STOP BUTTON
13.4.1 When pushing the Door Stop Button, the door panel will coast slightly before stopping.

13.5 LIGHT CURTAIN OPERATION
13.5.1 During continuous pressure closing with the gate traveling in high speed, breaking the beam or contact with the reversing edge should reverse the motion of the gate to full open. With standard jobs, this reversal should also take place with the gate in slow speed, up to the full close position.

13.6 RUNNING THE HOISTWAY
13.6.1 Run the elevator to each floor and operate the doors. No changes should be necessary to the gate limits or the retiring cams, but the individual hoistway door limit cam may need to be adjusted in the same procedure as (paragraph 8.8 and Limit Switch Adjustment above). Be sure each hoistway door opens and seats into the stops without bounce. To keep the gate from operating while the doors are being worked on, safely disconnect those motor feeder wires.

13.6.2 At each floor recheck the zone switch setting (refer to paragraph 6.4) under power operation and landing/hall door operating button operation.

14 POWER OPERATION NOTES
14.1.1 Sequence Operation or doors and gates is standard.
14.1.2 The car gate closes to at least two thirds of its travel before the adjacent hoistway landing door starts to close.
14.1.3 Simultaneous Operation of the doors and gates should only occur during Firefighters Emergency Operation.
14.1.4 Sequence Operation (opening and closing) is required when the freight elevator is permitted to carry passengers (see ASME A17.1/CSA B44 Rules 2.13.6 and 2.16.4).
14.1.5 Sequence Close Operation closing is required when the door/gates are power-closed by the activation of a momentary pressure switch (pushbutton) or a timing device (Auto Time Closing). Auto time closing is the Wait Time, before gates and doors automatically close. A warning buzzer must also be furnished for both of the above options. Strobe light is optional.

15 FINISHING UP
15.1.1 Replace covers on all limit switches, zone switches, etc.
15.1.2 Replace covers on all conduit fittings and boxes, on duct (if used) and on all junction boxes.
15.1.3 Clean trucking sill stops.
15.1.4 Hook up interconnection wires mentioned in Section 10 Piping/Conduit and Wiring.
15.1.5 Lubricate as per paragraph 16 Lubrication.
15.1.6 Electrical Drawings that will be needed for later service are to be kept with the door controller.

15.2 OPTIONAL FEATURES TO BE AWARE OF DURING INSTALLATION
15.2.1 Further details on controller installation see Guide 200
15.2.2 For equipment with ratings other than IP10 / NEMA 1 contact The Peelle Company.
15.2.3 Automatic Time Closing System. Sequence Operation (Closing) and a Gate Reversing Edge (Reopening Device) are required. Refer to those sections in this manual and refer to Guide 200. The purpose of Automatic Time Closing is to keep all doors closed, making elevator available for a call from a remote floor. Electrical “Override” and “Hold-open” are additional options.

15.2.4 Fire Service, when required, can be applied to power operated doors. Phase I and / or Phase II options. If necessary, call Peelle Engineering. Use ASME A17.2.1 or A17.2.2, item 6 acceptance test checklist.

15.2.5 Two Section Slide-Up or Single Section Slide-Down Doors. Vertically sliding freight doors other than bi-parting type use the same installation techniques from this manual as those used on bi-parting doors. Vertical slide-up or slide-down doors require properly installed door frames on which to attach. Similar to freight car gates, vertical slide-up/down doors require counterweights. The door and counterweight are suspended high on their associated guide rail. It is necessary to connect the two rail sections above the head-of-frame together with a spreader flat and rails should be securely fastened to the jamb or wall. Door interlocks for vertical slide-up doors are mounted inverted and have an extra return spring. Vertical slide type doors are also fire-resISTive. Slide-down to open doors have trucking sills. Slide-up to open doors require projection building sills or a poured building sill underneath the door panel(s).

15.3 ADDITIONAL EQUIPMENT AVAILABLE FROM PEELLE

- Freight Elevator Car Enclosures (cabs).
- Freight Door Entrance Frames and Sills (UL approved).
- Freight Door Transformers (e.g., 480V to 220V).
- Freight Door Electrical Material Package.

16 LUBRICATION – DOORS / GATES / RETIRING CAMS

16.1.1 RAILS - Lubricate rails with elevator hydraulic oil, #10 oil, silicone spray or dry lubricant. Lubricate rails with a dry lubricant in atmospheres containing dust. In food/drink environments, use non-toxic, multipurpose Teflon lubricant. Okay to leave on factory paint. DO NOT GREASE RAILS.

16.1.2 CHAINS - NO LUBRICATION: NO OIL (rust inhibitor only). NO GREASE. Drives are traction type. Lubrication will cause slippage. Do Not Lubricate Car Gate Chains.

16.1.3 CONTACTS (interlock and zone) – Turn off power. Clean with contact cleaner (turn off power). Do not file contacts.

16.1.4 RETIRING CAM - may lubricate pivot points.

16.1.5 POWER DOOR/GATE OPERATORS – Sealed bears are used. No Grease is necessary.

17 RECOMMENDED TOOLS

- Voltmeter
- ¼" Drive Socket Set – S.A.E. & Metric
- 3/8" Drive Socket Set – S.A.E. & Metric
- Chain hoist (500 kg / 1/2 ton / 1000lb)
- Door Dolly Assembly (Figure 43)
- Screw Driver Set
- Hammer
- Chisel
- Hacksaw
- Assorted Pliers
- Vise Grips
- Rail Drilling Clamp for Drilling & Tapping Rails (Figure 45)
- Drills & Taps
- (2) 15mm by 3000mm (½ in. by 10 ft.) wire slings with shackles
- Wrench Set from 10mm to 22mm / 3/8" to 7/8"
- Grinder
- 1000mm / 4'-0" Level
- Tape Measure
- Plumb Bob
- (2) 80mm / 30 in. steel carpenter clamps (Figure 44)
- Shoe spreader for Peelle shoes (Figure 47)
- Slings (Used to Lift Door Panels) (Figure 41)
- Chain pin extractor for #25 through #60 roller chains (Figure 50)
- “Un-Do-It” Screw Tool (Figure 51)

18 JOB SAFETY

18.1.1 Refer to Elevator Industry Field Employees’ Safety Handbook, latest Edition and Safety Video.

- Available from: ELEVATOR WORLD, INC. PO Box 6507, Mobile, Alabama 36606.

19 MAINTENANCE
19.1.1 Follow these maintenance instructions, in section See figure 52 for maintenance schedule.

19.1.2 More frequent maintenance may be necessary where doors are subject to high wear or corrosive effects of dust, lint, abrasives, moisture, grease, chemicals, abnormal temperatures or other conditions.

19.1.3 JUMPERS (not recommended) remove all door lock jumpers before putting the elevator back in normal operation. Refer to the Elevator Industry Field Employee’s Safety Handbook, latest edition, available from Elevator World.

19.1.4 Hoistway door and car door bypass switches on the elevator controller must be open before putting the elevator back in normal operation (ASME A17.1/CSA B44 sec 2.26.1.5)

19.2 MAINTENANCE DEFINITION
A process of routine examination, lubrication, cleaning, adjustment, and replacement of parts. Maintenance serves the purpose of ensuring performance in accordance with the applicable Code requirements. Where any alteration, replacement of parts, repair or maintenance is made, it should not diminish the level of safety which existed prior to the change. Check with local enforcing authorities. To update equipment as near as possible to the latest code, refer to Peelle Modernization Manual 0 and Modernization Guide 312.

19.2.1 The maintenance plan for each and every unit should be adjusted for: hours of operation, environment and age of equipment.

19.2.2 Maintenance for elevators is expected once a month. Maintain the doors also; they are part of the elevator. Inspect at least every 6 months per (ASME A17.1/CSA B44 sec 8.11.2.1)

19.2.3 Maintenance should be performed by persons with elevator and elevator door training. Doors over 3000mm / 10ft. wide require two or more elevator maintenance persons. Be careful.

19.2.4 Use Elevator Worlds’ Safety video and handbook, as well as their booklets; Elevator Maintenance and Elevator Field Maintenance. Also, safety portions of ASME A17.2. Be Careful. Even with power locked out, hydraulic elevator cars can still move downward.

19.2.5 DO NOT LUBRICATE GATE CHAINS

19.3 LANDING DOORS

19.3.1 Lubricate rails lightly with elevator hydraulic oil, automotive #10 oil or lubricate rails with a dry lubricant in atmospheres containing dust. Avoid silicon based lubricants. (NO GREASE)

19.3.2 Door guide rails should be kept free of grease and dirt. Rails with an accumulation of grease, oil and dirt should be scrubbed clean with a degreaser and putty knife. Clean with non flammable kerosene and then use 5-30 synthetic oil, use paint brushes. Do not let lubricant get on chains or inside contacts.

19.3.3 Tighten rails, masonry anchors, bolts, rivets to secure rails; replace rails if necessary.

19.3.4 Door rails usually do not need replacement or upgrading. If a door rail is bent or broken at the interlock plugging trigger hole (just below the sill) on a job with heavy use, order a replacement rail with a Peelle #067110 stiffener.

19.4 MANUAL DOOR SHEAVES
No lubrication required

19.5 DOOR PANELS

19.5.1 Check door panels at least once a month. Examine panels and note any broken, bent or sprung members. Examine for structural defects. Repair or replace damaged or missing toe guards, fire lintels (pass type doors), or vision panel glass as necessary. Check door panels for damage and corrosion; door panel replacements are available. Use Modernization Guide 312. The clearance between the bi-parting door trucking sill and the elevator car must be 25mm / 1 in, along the entire elevator car, even with a load on the elevator car.

19.5.2 Operate doors to verify that they operate freely. Make sure the weight of the upper door panel is equal to the weight of the lower door panel. The doors should not start to move open or closed by themselves. If so, check for missing panel parts (fire lintel, toe guard, balance weights). If a Metal Clad panel was replaced by a Steel Plate panel, the weights of the panels must be equalized.

19.5.3 Doors prior to 1935 should be replaced with new complete doors.

19.6 DOOR GUIDE SHOES

19.6.1 Door guide shoes are extremely important. Check at least once every three months. SHOES MUST BE REPLACED WHEN NECESSARY. Shoes-with-inserts may require more frequent replacement. 3mm/1/8 in. overall side-to-side play (left-right) is normal, both at the top shoes and at the bottom shoes of each panel. Push panel all the way to the left, then measure side-play as panel is pushed all the way to the right. Shoes must be replaced if overall side-play is 8mm/5/16 in. or more, use 5/16 in bolt to measure. Adjust new shoes for 3mm/1/8 in. panel side-play after adjusting chains. The shoes can be adjusted with the panels in the rails.
Pry to adjust outward or hammer to adjust inward. Or alternatively, to adjust the shoes, slam the doors closed with a block of wood between the panels, first left side, and then the right side. Make sure the shoes are not worn enough to permit the door panels to come out of the door rails at any position of their travel.

19.6.2 Too much side-to-side play can allow the door to become unlocked, or can allow the panels to not be pressed together when closed. When in doubt, replace the shoes.

19.6.3 GUIDE SHOES MUST BE SECURELY FASTENED TO DOOR PANELS. For doors with heavy use (forklift trucks, etc.), check for loose guide shoes, loose shoe bars, or loose door rails. Refasten as necessary. Use lock washers and flat washers with bolt-on shoes. Thread locker on bolts is helpful. Do not tap and bolt the shoe bolts directly into shoe bar without adding Peelle #065812 threaded grommets. Some doors have shoes fastened with rivets instead of bolts; rivets do not require threaded grommets.

19.6.4 To add Peelle #065812 threaded grommets to shoe bar for guide shoes: Take panel out of rails, clamp each shoe against shoe bar, drill pilot hole centered in shoe slots, remove shoe, carefully drill 16mm/5/8 in. holes, hammer in grommet from side opposite shoe, weld grommet to shoe bar; attach shoe with 5/16 in. x 7/8 in. (8mm x 20mm) bolt, flat washer, lock washer and thread locker.

19.7 DOOR RESILIENT ASTRAGAL (CUSHION STRIP)

19.7.1 Check neoprene resilient astragal for wear and tear. Refasten or replace as necessary. Check that the resilient astragal fills the gap between panels when closed.

19.8 DOOR SILL STOPS

19.8.1 Clean debris from the door sill stops. If missing, replace! Sill stops are important. Check all sill stops for missing bolts, etc. When resting on the sill stops on both sides, the lower door panel trucking sill must be level especially if the building sill is level. If chains are properly adjusted and one side lands first, lower that sill stop or raise the opposite side sill stops to make trucking sill level. The door trucking sill must always be level with or be slightly lower than the building sill! There are 8 adjustable positions on each sill stop; there are 4 major adjustments and there are 4 minor adjustments if you use the small angle spacer provided.

19.9 DOOR FIRE LINTEL (PASS-TYPE DOORS)

19.9.1 Replace damaged or missing fire lintels. They are necessary. Add additional rub strips if the fire lintel is catching on the door above!

19.10 PULL STRAPS (IF REQUIRED)

19.10.1 Replace as necessary. Used on all manual landing doors; occasionally kept as a backup on power doors. Manual doors require two pull straps per door; one on landing side and one on shaft side of door! Limiting the length of straps ensures that they do not become a hazard during operation of the car. Add Peelle safety labels available from Peelle Parts Department.

19.11 VISION PANELS

19.11.1 Doors installed after 1990, check that the required vision panel grill is in place. A vision panel grill is a good idea for all doors.

19.12 FRAME SILLS

Check for damage to sills as well as loose sills.

19.13 DOOR CHAINS / CHAIN RODS

No lubrication required

19.13.1 When attaching chains be sure to wrap connecting links and connector clip at each end of the chain with the nylon tie-wraps provided. As shown in Figure 21.

19.13.2 Peelle chains (after 1968) require no lubrication: no oil, no grease. REPLACE THE CHAINS AND RODS EVERY TIME THE SHOES ARE REPLACED OR WHEN NEEDED. While little chain stretch is normal, replace chains if worn or stiff! Chains worn on one side, elongated rivet holes and worn rivet heads suggest the need for new chains. Links should move freely. 24 links of the Peelle door chain measures approximately 15 in / 381 mm when chain is new. If 24 links measure 1/8 in / 3 mm longer than that, replace the chain.

19.13.3 Replace Peelle #0166 cable chains (lubrication required) with Peelle #01807 chains (built-in lubrication). Adjust chains using the following instructions:

19.13.3.1 Replace both door chains at the same time. When attaching chains be sure to wrap connecting links and connector clip at each end of the chain with the nylon tie-wraps provided. As shown in Figure 21.

19.13.3.2 To adjust door chains for a properly adjusted door (FOLLOW THIS ORDER):

19.13.3.3 Position panels for full opening (clear access). Remove some chain links if necessary. With the lower door panel resting on both stops and with a level trucking sill (left to right) and with the
19.13.3.4 Eliminate gap between panels in closed position. With the doors fully closed and with the side-tension-latches loosened and positioned temporarily out of the way, adjust the nuts on the chain rods to fill the gap between panels, equally across the opening. Move nuts down on the rod of the side of the door that tends to stay apart. Make sure the door panel edges overlap the head of frame and sill by 50mm / 2in or more.

19.13.3.5 Adjust chains to set keeper hook 8mm/5/16 (6mm for BS655) above ratchet: With the side-tension-latches in normal positions to pressure the door closed, adjust the nuts equally on both chain rods to have the interlock keeper hook (on the lower door panel) positioned 6mm/5/16 in. above the top of the ratchet on the interlock. THIS IS IMPORTANT. If necessary, take some links out of the chains. It is not necessary to move the interlock mounting plate from its initial installation position! Make sure the closed door panels still overlap the head of frame and sill. Make sure a gap does not develop between closed panels while adjusting.

19.13.3.6 Allow 3mm/1/8 in. overall side-to-side play: Panel-side-play should be 1/8 in./3mm, both at the top shoes and the bottom shoes of each panel, to make sure the doors remain locked and that the doors operate freely. There should be little need for chain adjustment to achieve 3mm/1/8 in. play if the rails are plumb and if the panels are already square at 90 degrees with the rails as a result of the three adjustments steps above. If necessary, adjust the shoes in or out to achieve 3mm/1/8 in. panel-side-play.

19.13.3.7 Peelle bi-parting doors use two door chains that are both the same lengths. This greatly reduces maintenance adjustments. Chain adjustment should be checked at least once a year.

19.14 DOOR SIDE TENSION LATCHES

Check tension

19.14.1 Latches are located on both sides of the door. Pivots usually do not require lubrication. Pivots may be lubricated. Check stop bolt position. The pivot must hang vertically. To set the stop bolt, the long tension hook must be loosened and positioned temporarily out of the way. Set stop bolt. Then, reposition and ADJUST THE TENSION HOOKS TO KEEP DOOR PANELS TIGHTLY CLOSED. If this cannot be accomplished, replace the door guide shoes (see paragraph 19.6).

19.15 DOOR INTERLOCK

DOOR LOCKING DEVICE / ELECTRIC CONTACTS

- NOTE: door interlocks are extremely important, if door interlock is not working in safe manner take door out of service immediately.
- CHECK LOCK KEEPERS
- CHECK RETURN SPRING FOR INTERLOCK ARM
- CLEAN CONTACTS

19.15.1 Replace lower panel lock keeper hook if any wear on tip. Replace upper panel lock keeper if necessary. Replace the return spring for each interlock arm if necessary. REPLACE KEEPER HOOK AND RETURN SPRING EVERY TIME THE SHOES ARE REPLACED OR WHEN NEEDED. The malleable iron locking arm usually does not require lubrication. Arms must pivot freely. May lubricate arms with oil or insert grease fitting in hole. Turn power off and remove covers to clean contact points with contact cleaner.

19.15.2 Check the operation of the interlocks and retiring cam at least once a month. Make sure that they are functioning properly. First check for closed position of the panels. The panels are considered to be in the closed position when the astragal of the upper panel is within 19mm / ¾ in. of the lower panel. Make sure for each elevator that, in order for that car to operate, the doors must be closed and locked at every opening. Follow these mechanical and electric interlock adjustments:

19.16 MECHANICAL LOCK PORTION OF INTERLOCK

19.16.1 ADJUSTMENT - ADJUST CHAIN RODS TO POSITION KEEPER HOOK 8mm/5/16 in. (6mmBS655) above the top of the ratchet of the interlock (Refer to paragraph 19.13 Door Chains/Chain Rods adjustment).

19.16.2 Make sure the keeper hook has ample horizontal locking engagement. Use the full 22mm/7/8 in. horizontal locking movement of the locking arm (adjust roller arm if necessary) and also make sure the keeper hook clears the ratchet teeth while opening the door.
Only if necessary, adjust the three electrical contacts DC (a normally open contact in INTERLOCK CONTACTS ADJUSTMENT With older-car-switch operation elevators and manual determination of closed position of each hoistway landing.

Check for proper operation of the upper-panel-lock doors 000mm / 0 ft. and wider should have Peelle contact DI (a normally closed contact in Z (several normally open contacts supplied with power doors): With the roller arm extended, all zone contacts should be 6mm/1/4 in. open. Reset zone contact plastic blocks to this dimension if necessary. Push in the roller by hand to maximum travel and check that all zone contacts make at the same time and that the black plastic blocks have 6mm/1/4 in. over-travel. When panels are less 19mm/3/4 in. apart, the DC contact should be made, and then the interlock circuit allows the elevator to run.

Check interlock roller arm for correct alignment on the Peelle retiring cam face. For correct alignment the roller should be in the middle (horizontally & vertically) of the cam face when the elevator car is level with the landing. Peelle interlocks are designed for a 22mm/7/8 in. horizontal movement of the locking arm to unlock the doors and to operate the “door locking” contact. Set each roller arm accordingly. Peelle retiring cams have 54mm 2 1/8 in. horizontal movement that is enough for Peelle interlocks.

Move elevator away from one opening at a time. From the landing side, try to jiggle open each door closed and locked. YOU SHOULD ONLY BE ABLE TO OPEN A DOOR IF THE CAR IS AT THAT LANDING. Determine the closed position of each hoistway landing door ASME A17.1/CSA B44 Rule 2.12.3.2. In order to check the correct interlock settings: with caution, with the car gate in the closed position and with the hoistway door fully open, close the hoistway door slowly from the landing side until the maximum clear opening is reached at which the car will start. Measure the distance between the meeting edges of the door panels. Verify that from this position the door cannot be reopened from the landing side. The distance is satisfactory when the astragal of the upper panel is within 19mm / ¾ in. of the lower panel.

Remember, interlock contacts are in series. Any one bad contact will knock out the entire circuit; such as a burned contact, dirty contact or a water shorting problem. Clean or replace contacts. Keep silicone lubricant far away from these contacts. Do not use emery board. Replace any missing contact covers.

Check for proper operation of the upper-panel-lock portion of the interlock. If missing, refer to Modernization Manual 205, Section 6, and Modernization Guide 312, Section 5.

Doors 3000mm / 10 ft. and wider should have Peelle #0354 Side Opposite Lock. If the distance between panels exceeds 25mm / 1 in. after shoes have been adjusted / replaced, add Peelle #0354 Side Opposite Lock to lock both sides of the door.

To test, with the door locked in closed position with elevator car away, apply a force of 135N / 30 lb in the opening direction using a door test scale at the leading edge of the panel at the furthest point furthest from the interlock.

With older-car-switch operation elevators and manual doors, Peelle #RO type interlocks may have been installed. Check the operating side bar-latches for proper entry into the Peelle #RO lock housing and proper making of the contact when the door is closed. There must be a 5mm / 3/16in. operating bar overthrow when the contact is made. The operating bar guides on...
the door panel should be securely fastened. Use two Peelle #035019 guides per bar. Carefully check parking devices (a mechanical device) for car-switch-operation-elevators-only. Any manual door that has an #RO interlock, make sure any unlocking hole in the panel is permanently closed unless there is a Parking Device (#0354 I #2354); the door must not be able to be unlocked and opened using the parking key when the elevator car is away from that floor. The Peelle #RO type interlock system can be modernized. Refer to Modernization Manual 205, Section 6, and Modernization Guide 312, Section 5.

19.18 DOOR TAMPER RESISTANT PLUGGING PLUG PROOF TRIGGER DEVICE – REQUIRED ON ALL BI-PARTING DOORS

19.18.1 This interlock accessory, installed in conjunction with an interlock to make it tamper resistant, must be installed and working properly. The trigger pivot may be lightly oiled. The trigger assembly is located on the door rail just below the building sill. The trigger is actuated by the opening movement of the lower door panel. The trigger pushes a rod into the lower contact box housing the DC contact. The rod locks the DC contact open, preventing it from being closed until the lower panel is in closed position. Refer to Figure 29. Watch for wear on the trigger face. Whenever door guide shoes are replaced, it is a good idea to replace the plugging device (Peelle assembly #23561).

19.19 DOOR UNLOCKING DEVICES EMERGENCY RELEASE

• not necessarily every door

19.19.1 This interlock accessory is accessible from the hall side. Check local codes for requirements. Check at least once a month. It is used to unlock a door for access to the hoistway shaft by authorized personnel. The door unlocking device is not to be confused with an access switch, as elevator operation is unavailable when the door unlocking device is in use. There is an electrical switch in the unlocking device for the interlock. You may not realize there is a switch there. Unlocking devices are used instead of access switches when certain requirements are met. Unlocking device is mounted on the wall next to the door on the landing side. Use the key to unlock the box. Then, pull the chain to unlock door. Make sure the locking device has not been knocked off the wall. If the unlocking box is missing, the unlocking device must be replaced! Do not leave pull chain exposed.

19.19.2 For power doors, both power door operation and elevator operation are not available when the door unlocking device is in the unlocked position with the chain pulled. Make sure power for door operation is not available: (a) when the door unlocking device is in the unlocked position with the chain pulled or (b) after the doors are opened a few inches with the unlocking device chain returned. If power is available at this time, check the electrical connection of the wires to the unlocking device and the door zone contacts. Refer to paragraph 19.35 of this manual to also test pushbutton wiring at the same time a chain is pulled, at each door with an unlocking device. If any door is able to be power opened by pushing any door open button, the wiring of the pushbuttons must be corrected. Request a Hoistway Wiring diagram for that job from The Peelle Company.

19.19.3 For two manual doors (with lock and contacts), the doors must be partially open to break the DC contact in order to render the elevator inoperative.

19.19.4 After the unlocking device is working properly, use tamper resistant screws to affix the unlocking device cover. The general public should not be able to remove the cover with common tools after job has been turned over for acceptance.

19.19.5 Check that unlocking device parts are intact, securely fastened in place and not deformed. The unlocking device key is to be kept on the premises by a person responsible for the maintenance of the elevators and only accessible to qualified persons. Unlocking device keys shall not be accessible to the general public. If the key is mounted on the prong holder within view of the public, remove the key and give it to the building owner.

19.20 UNLOCKING HOISTWAY DOORS

19.20.1 Warning: The doors should be manually unlocked and opened only in emergency situations. The elevator and door disconnect switches in the machine room must be turned off before manually unlocking a door using the door unlocking device

19.21 CAR GATE BY PEELLE

• Make sure there is a car gate/car door at each elevator car enclosure opening.

19.22 GATE RAILS

• LUBRICATE WITH #10 OIL (NO GREASE)

19.22.1 Clean gate rails. Lubricate with elevator hydraulic oil, automotive #10 or use a dry lubricant in atmospheres containing dust. Avoid silicon based lubricants where possible. Lubricate retiring cam face pivots at the same time.
19.22.2 If counterweight guide track on gate rail is damaged, replace complete gate rail assembly as counterweight guide track is permanently welded to gate rail.

19.23 GATE PANELS
   • REPAIR AS NEEDED

19.23.1 Openings, if any, in the car gate panel must reject a 50mm / 2in ball. Panel replacements are available. Refer to Modernization Guide 312, Section 8.

19.24 MANUAL GATE SHEAVES
   • NO LUBRICATION REQUIRED

19.25 GATE COUNTERWEIGHT
19.25.1 A floppy gate counterweight is not desirable.
19.25.2 Replace or refasten counterweight guide shoes if necessary. If there are no holes in gate rail to reach bolt head, drill hole in rail at a location above the car top, file smooth then tighten shoe bolts. (See Figure 31) use Peelle 02325 bolts with built in thread locker.
19.25.3 If counterweight is bottomed out and if the chain adjustment at the chain connector studs on the gate panel is used up, the two gate chains must be shortened.

19.26 GATE CHAINS
   • REPLACE CHAINS OFTEN ADJUST CHAINS OFTEN

19.26.1 The car gate gets more use than any landing door. The longer chain will require more frequent adjustment than the shorter chain. Secure the chain connecting links with nylon tie wraps. Check chains and nylon tie wraps at least once every six months. Gate panels must have two means of suspension (two chains) if not contact Peelle. For power gates, wipe oil off both gate chains. 24 links of the Peelle door chain measures approximately 035mm / 12in when chain is new. If 24 links measure 3mm / 1/8in longer than that, replace the chain. When attaching chains be sure to wrap connecting links and connector clip at each end of the chain with the nylon tie-wraps provided. As shown in Figure 21.

19.27 GATE RUBBER BUMPERS
19.27.1 Bumpers are important. Replace if missing or worn. Bottom panel bumpers reduce noise while closing and top rail bumpers reduce noise while opening. The bottom bumper heights can be adjusted, if necessary, by adding flat washers as spacers. The top bumper on 1960-1980 gates wears too quickly. Bumper retrofit kit Peelle #014651 is available. There is also a bumper to stop counterweight over-travel when the gate is slammed closed.

19.28 GATE CONTACT
19.28.1 Jiggle counterweight and gate panel (in closed position) to make sure gate contact remains “made.” Use continuity tester. Check counterweight for excessive play as the gate contact is activated by the counterweight. Replace counterweight guide shoes often. Turn power off to clean gate contacts. Replace missing contact covers. Check that the gate contact opens (stops the running elevator) when the car gate / car door panel is lifted up 50mm / 2 in. from the car floor. Check at least once a month.

19.29 RETIRING CAM
19.29.1 Check at least once every three months. Check retiring cam dropping action. See Figure 33. Check V-belt for wear. Adjust V-belt for 13mm / 1/2 in. deflection. Motor crank must lift towards center of car. Maximum lift of crank should be 4 or 8 hr. (70 degrees from 6 o’clock position).
19.29.2 Check pivots of cam face for wear. May lubricate pivot points with oil used for the gate rails.
19.29.3 Check the retiring cam face for a label with horizontal force and horizontal movement.
19.29.4 Check that the controller retiring cam relay contacts are clean and that the cam may be powered to lift only after the landing doors and car gate are closed and an elevator run signal has been registered. Check that the cam remains powered only while the elevator is running. With manual doors, the retiring cam is usually powered from the elevator controller instead of from the door controller. Wipe up any oil spilled on elevator car floor.

19.30 POWER OPERATION OF DOORS / GATES DOOR CONTROLLER – (PLC)
19.30.1 Use lockout / tag out safety procedures to turn off all power to controller before working inside the controller. MOTOR PROTECTION TIMERS ARE IMPORTANT. Timers must be working properly! Do not adjust the time adjustment on timers unless absolutely necessary.
19.30.2 If the open timer times out, check the interlock keeper hook position. The keeper hook might be “caught” “nose-to-nose” against the interlock ratchet. The door/gate motors and the car will not operate. With the doors closed, the keeper hook should be reset 6mm / 5/16in. above the interlock ratchet by adjusting the chains/chain rod. Do not move the vertical position of the interlock.
19.30.3 There are 2 motor windings on each door/gate operator: 1 high speed motor winding and 1 slow speed motor winding. Motor burnouts are usually caused by
excessive ON time due to a limit miss-adjustment and/or controller motor-protection-timer failure. Motor burnouts will usually not blow a fuse.

19.30.4 If a 10 ampere fuse is blown, another short circuit other than a door/gate motor is usually the cause. Any short must be corrected and fuse replaced to resume normal operation.

19.30.5 Reversing starters (Peelle #274265 type power contactors) should be carefully examined with the power off. They are mechanically interlocked with moving nylon pivots that might wear out. Check openings at top of each contactor for foreign material. Check the silver contacts. The retiring cam relay (Peelle #274263 type) also has silver contacts. If necessary to clean the contacts, turn power off and clean with contact cleaner and clean cloth. Do not file contacts. Do not use pink erasers. Okay to vacuum as no printed circuit boards. Check above at least once a month.

19.30.6 Check wire connection screws, stakons, pushons as wires loosen with contactor vibration, tighten yearly. Carefully check fuse connectors in humid hot salty environments hoistway wires not covered in plastic or over 25 years old should be considered for replacement, especially inside pipes. Keep controller cover on after servicing controller.

19.31 DOOR CONTROLLER – PRIOR TO 2002 (RELAYS)

19.31.1 Use lockout/tag out safety procedures to turn off all power to controller before working inside the controller. MOTOR PROTECTION TIMERS ARE IMPORTANT. Timers must be working properly! Do not adjust the time adjustment on timers unless absolutely necessary.

19.31.2 The OT and CT 30 second timers protect the door and gate motors.

19.31.3 The TP 3 minute timer protects the retiring cam motor and also is a backup protection timer for the 30 second door/gate motor timers.

19.31.4 If the TP timer circuit needs to be “reset”, check the interlock keeper hook position. The keeper hook might be “caught” “nose-to-nose” against the interlock ratchet, allowing the door operator motors to run for 3 minutes and trip the TP timer. The door/gate motors and the car will not operate. With the doors closed, the keeper hook should be reset 5/16 in./6mm above the interlock ratchet by adjusting the chains/chain rod. Do not move the vertical position of the interlock.

19.31.5 There are 2 motor windings on each door/gate operator: 1 high speed motor winding and 1 slow speed motor winding. Motor burnouts are usually caused by excessive ON time due to a limit mis-adjustment and/or controller motor-protection-timer failure (OT, CT, TP). Motor burnouts will usually not blow a fuse.

19.31.6 If a 10 ampere fuse is blown, another short circuit other than a door/gate motor is usually the cause. Any short must be corrected and fuse replaced to resume normal operation.

19.31.7 Reversing starters (Peelle #07628 type power contactors) should be carefully examined with the power off. They are mechanically interlocked with moving nylon pivots that might wear out. Some nuts on the contactor micro switches might be loose. Check openings at top of each contactor for foreign material. Check the silver contacts. The retiring cam relay (Peelle #07623 type) also has silver contacts. If necessary to clean the contacts, turn power off and clean with contact cleaner and clean cloth. Do not file contacts. Do not use pink erasers. Okay to vacuum as no printed circuit boards. Check above at least once a month.

19.31.8 Check wire connection screws, stakons, pushons as wires loosen with contactor vibration. Tighten yearly. Carefully check fuse connectors in humid hot salty environments hoistway wires not covered in plastic or over 25 years old should be considered for replacement, especially inside pipes. Keep controller cover on after servicing controller.

19.31.9 A door controller manufactured before 1969 should be upgraded with a new, replacement controller to reduce motor burnouts. The cost of a new controller is less than several motor replacements.

19.32 POWER DOOR OPERATORS

19.32.1 MOTOR - Motor bearings are permanently lubricated. No lubrication required. Operators allow motor replacement without removing the sheave. On narrow-return Peelle #0587 door operators, loosen 3mm/1/8 in. but do not remove the bearing shaft bolt in order to remove motor for replacement. Motors will last 15 years if the doors are properly maintained (including maintenance and upgrading of the controller timers). If the sheave does not turn or turns erratically, check for a worn motor pinion (part of motor) or motor burnout.

19.32.2 SHEAVE - Grease the fitting moderately at six-month intervals for heavy use or one year for normal use. This will lubricate the sheave bearing. If you hear or see the grease coming out between the gear and cover, that is sufficient greasing. Do not over-grease. Newer sheave bearings are permanently lubricated. Use open-gear-lube on the open gear teeth and on the open pinion teeth.

19.33 POWER GATE OPERATORS
19.33.1 **MOTOR** - Motor bearings are permanently lubricated. No lubrication required. To install a replacement gate motor, firmly push the motor/pinion toward the sheave gear until the pinion meshes with the gear. Then bolt the motor to its mounting plate hand tight, tap the motor to engage the pinion and the gear with a very small amount of backlash space. Tighten bolts.

19.33.2 **SHEAVE** - Grease the fitting moderately at six-month intervals for normal use. Use open-gear-lube on the gear teeth and the pinion teeth.

19.34 **DOOR / GATE LIMITS**
- Limits are not attached to motors

19.34.1 If door motor action is improper (too long a slow down, slamming, insufficient door travel), adjust limit cams. Usually the initial installation settings are satisfactory, see Figures 37, 38 & 39. Also refer to paragraphs 19.44, 19.45. Gate limit should provide 300mm/12 in. of slow speed (at the end of gate panel travel). Door limits should provide 200mm/8 in. of slow speed (each panel) (at the end of travel).

19.34.2 For Door/Gate Limits provided prior to 2002; tighten cam screws carefully but firmly into plastic gear. If screws strip the tapped holes in the plastic gear: remove cam assemblies, pull the chain away from the sprocket, rotate gear and refasten cams. May use thread locker on screws. Put thread locker on nuts holding the limit micro switches.

19.35 **DOOR OPERATING PUSHBUTTONS AT LANDING** – ("Door Close" & "Door Open")

19.35.1 For doors manufactured prior to 1987, each button must have one normally closed contact separately in addition to one normally open contact, if buttons were supplied by Peelle or by others.

19.35.2 Landing door operating pushbuttons must be wired according to job Electrical Drawing. Pushbuttons must be wired so that with the elevator at the landing, the landing doors cannot be operated by door pushbuttons located at a different landing from the elevator location.

19.35.3 Test: Position the elevator at a floor with the landing doors closed. Have someone else walk to another floor and push “Door Open”, then push “Door Close” and then push "Door Open" and "Door Close" buttons at the same time and continuously hold for 7 seconds. Then return to the elevator landing location and open the landing doors. Again walk back to the other floor and repeat the door button test sequence.

19.35.4 The only time the doors should operate is from the pushbutton station at the same landing as the location of the elevator. Repeat this test at each landing door pushbutton station.

19.36 **REOPENING DEVICE** (LIGHT CURTAIN)

19.36.1 Reopening devices are recommended for jobs with power doors and gates. Inspect at least once a month.

19.36.2 Replace reopening device if damaged or if not fully operative!

19.36.3 The system will be maintained in optimum working condition if the plastic lens filters on the leading edge of the units are periodically cleaned. Extreme build-up of dirt and dust can cause beam obstruction and subsequent false triggering.

19.37 **REOPENING DEVICE** (REVERSING EDGE)

19.37.1 Reopening devices are recommended for jobs with power doors and gates. Inspect at least once a month.

19.37.2 Replace reopening device if damaged or if not fully operative! Check gate reversing edge operation for the reversing action to operate by physical contact at all points along the edge! As a minimum, compress edge 25mm / 1 in. at points 130mm / 5 in. from each side of the car gate/car door opening, or from the gate jamb post. Do this when gate is closing, but not near its fully closed position.

19.37.3 For reversing edges, check reversing edge power-travel-cord (SJ type) for wear; replace if any frayed condition is obvious. Some older installations may not reverse after the gate has changed to slow speed (final 300mm/12 in. of travel).

19.38 **REOPENING DEVICE** (REVERSING BEAM 1994-2001)

19.38.1 Prior to 2002, infrared, non-contact initiation of reversal, Sensor Beams reopening devices (refer to 4696 Protector Light Curtain Upgrade Kit) were provided in addition to reversing edges or instead of reversing edges. Order a conduit tubing Peelle #06845 (need length) at the same time. If no reversing edge is present, an auxiliary controller is necessary. A complete car gate replacement may be necessary or desired. If car gate operates only at slow speed, check to make sure Sensor Beams are operational.

19.38.2 Check sensor beam operation by holding an object 600mm / 24 in. above the car platform, first at 130mm / 5 in. from one side of the opening and then from the other; close the gate and check the reversing action.

19.39 **FIRE SERVICE**

19.39.1 ASME A17.1 – 1973 and later editions and A17.3 require elevators to be provided with fire service. Should be inspected monthly.
19.40 GET ON TOP OF CAR
19.40.1 When entering hoistway, always follow the procedures in the Field Employees' Safety Handbook.
19.40.2 Top of car should be kept free from oil, water, dirt and debris, for safe maintenance conditions.

19.41 ENTER HOISTWAY PIT
19.41.1 When entering hoistway, always follow the procedures in the Field Employees' Safety Handbook.
19.41.2 Pit should be kept free from oil, water, dirt and debris, for proper opening operation of doors.

19.42 LIGHTING
19.42.1 Check for sufficient lighting (5 candles near doors and car gates) if lighting not sufficient notify customer.

19.43 AUTOMATIC TIME CLOSE SYSTEM (Auto Close)
19.43.1 Automatic time close of doors/gates requires Sequence Operation and reopening devices (reversing edges/Light Curtains).

19.44 SEQUENCE OPERATION
19.44.1 CLOSING: The car gate must close at least two-thirds of its travel before the adjacent hoistway landing door can start to close.
19.44.2 OPENING: The hoistway landing door must open at least two-thirds of it travel before the adjacent car gate can start to open.
19.44.3 Sequence Close Operation is required when the landing doors / car gates are closed by the activation of a momentary pressure switch / pushbutton (optional) or a timing device (Automatic Time Closing System optional). Sequence Operation is supplied on all new power operated doors. Sequence Operation (opening and closing) is required on Freight Elevators permitted to carry passengers (ASME A.17.1/CSA B44 sec 2.16.4)

19.45 SIMULTANEOUS OPERATION (Prior to 1993)
19.45.1 Alternate to Sequence Operation
19.45.2 Car gate and landing door start closing or opening at the same time. It is recommended old jobs with simultaneous operation be changed / upgraded to Sequence Operation as per ASME A17.2.1 sec 2.13.6

19.46 IMPORTANT ADJUSTMENTS SUMMARY
19.46.1 3mm / 1/8in. PANEL SIDE-PLAY (left-right).
19.46.2 Adjust or replace shoes if necessary; refer to paragraph 19.6.

19.47 LUBRICATION SUMMARY
19.47.1 All equipment requiring lubrication shall be maintained with lubricants at least once monthly.

- WITH THE EXCEPTION OF CHAINS (DO NOT OIL / GREASE CHAINS)
19.47.2 RAILS USE - #10 OIL DO NOT GREASE RAILS.
19.47.3 CHAINS – NO LUBRICATION: NO OIL, NO GREASE.
19.47.4 CONTACTS – (including interlock zone) – Clean
19.47.5 With contact cleaner (turn power off).
19.47.6 RETIRING CAM- May lubricate pivot points.
19.47.7 POWER DOOR/GATE OPERATORS – sheave
19.47.8 Grease fitting-grease lightly at six-month intervals for heavy use or one year for normal use. DO NOT OVER GREASE.

19.48 MOST IMPORTANT REPLACEMENT PARTS
19.48.1 Door guide shoes, interlock keepers, interlock springs, door side-tension-latch rollers, pass-type door fire lintel, car gate guide shoes, car gate counterweight shoes, reopening device.
19.48.2 Also replace defective parts.
19.48.3 An important item is to make sure the doors cannot be opened, even partially on one side, when the car is away. Check every door. Make sure the operation of the unlocking device(s) is available only to someone authorized to have the unlocking device key.
19.48.4 SAFETY LABEL PACKAGE – available from Peelle parts department. To close manual doors, to operate power doors etc. these should be added to every freight elevator.
19.48.5 JOB NUMBER - Look on the door controller or on the door guide rails for the 6 or 7 digit Peelle job number.
19.48.6 For your total ownership, we have maintenance manuals, genuine parts, service department personal, job records (1918 to present), job locator cards and technical support.

19.49 SET OF ELECTRICAL PRINTS (NEED JOB NUMBER)
19.49.1 Door wiring diagrams must be available in the machine room. Door wiring diagrams are available from Peelle.

19.49.2 Electrical prints package includes the following.

- Controller Schematic drawing
- Controller Panel Layout
- Hoistway Wiring drawing
- Hoistway Piping Drawing (if required)

19.49.3 FREIGHT ELEVATOR PERMITTED TO CARRY PASSENGERS - A freight elevator is not intended to carry passengers other than the material handler. However, passengers are allowed under some conditions (ASME A.17.1/CSA B44 sec 2.16.4)

20 PEELLE PART NUMBER SECTIONS OF PARTS

- 01 Chains, Chain Rods, Chain Studs
- 02 Guide Shoes
- 03 Interlocks, Locks, Contacts, Plugging Devices, Retiring Cams, Springs, Pull Straps, Door Unlocking Devices
- 04 Adjustable Sill Stops
- 05 Sheaves, Operators, Motors, Bearings, Pinions, Stators
- 06 Door & Gate Parts: Shoe bars, Side Tension Latches, Bumpers, Vision Panels, Resilient Astragals, Car Gate Reopening Device (Reversing Edge/Reversing Beam), Door Guide Rails
- 08 Door Operating Pushbutton Stations (Landing and Car)
- 09 Door and Gate Limits, Limit Micro Switches
- 11 Trucking Sills and Toe Guards
- 23 Same as 03
- 24 Same as 05
- 46 Same as 06

20.1 REPLACEMENT PARTS

20.1.1 Replace the parts of a UL approved door with UL approved replacement parts. USE GENUINE PEELLE PARTS. All Peelle parts have limited warranty for one year from date of shipment. Peelle supplies replacement parts for 50 years after the doors are manufactured. Peelle parts are shipped in a quick and orderly fashion. Replacement drawings (Layouts, Electric Schematic, Hoistway Wiring HW, Hoistway Pipe HP, and Electric Inter-connection Data) and Sequence of Operation Manuals are available for purchase from the Parts Department.

21 MANUALS AVAILABLE

21.1.1 CONTROL SYSTEM & INTERFACE GUIDE 200
21.1.2 MODERNIZATION MANUAL 205

- Refer to for proper substitution of outdated center-hook-latches, steel angle astragals, single-speed door/gate motors, noisy equipment, forklift truck usage, etc.

21.1.3 MODERNIZATION GUIDE 312

- Refer to when necessary. Includes survey sheets.

21.1.4 PARTS GUIDE 314

- Refer to for parts replacements.

21.1.5 OTHER LANGUAGES

- Installation manuals available in English, Spanish, and French.
- Installation video. (English only)

21.1.6 QUICK REFERENCE INSTALLATION GUIDE 210
21.1.7 PROTECTOR LIGHT CURTAIN INSTALLATION GUIDE 212
21.1.8 DOOR SAFETY DEVICE INSTALLATION GUIDE 214
21.1.9 SENSOR BEAM INSTALLATION GUIDE 217

22 GLOSSARY OF TERMS

22.1.1 AC AUTO CLOSE - AUTOMATIC TIME CLOSE SYSTEM
22.1.2 Access Switch

Refer to “Hoistway (Shaft) Access Switch.”

22.1.3 Angle Bracket

aka “Angle Knee.” Bracket for fastening door rails to wall between floors and in the pit where there is no steel jamb. Also for fastening car gate/car door rails to car enclosure angles (jambs).

22.1.4 Astragal

aka “Resilient Astragal.” or “Meeting Rail.” For Bi-parting, vertically sliding, hoistway landing doors: A resilient, non-crushing neoprene rubber member on the bottom of the upper panel is a protective cushion and does not perform a reopening function.

22.1.5 Automatic Stay Closed Device (ASC)

Refer to “Side Tension Latch.”

22.1.6 Automatic Stay Closed Feature (ASC)

A control feature that holds the landing door closed until stabilized, eliminating bounce. Power is maintained on door motors for a few seconds after the door has achieved its full closed position. By holding
the panels closed, the tendency to bounce is overcome. Side Tension Latches then ensure the door remains closed until locked by the door interlock.

22.1.7 Automatic-Stay-Open Feature (ASO)
A control feature ensures doors stay fully open. If door panel inadvertently move from full open position, power is applied to move panels back to full open position.

22.1.8 Automatic Time Closing System (ATC System)
“Auto-Close-System”. Optional system. Doors close automatically after a predetermined interval, thereby making the elevator available for a call. Doors provided with sequence operation (see definition). Also, allows doors, open at a landing, to be closed [after the five second warning] by a car call from a remote landing. With elevator at a landing, doors may be closed by holding the close button at that landing or in the car, without waiting for the time period.

22.1.9 Bi-parting Door
A vertical slide door consisting of two counterbalanced panels. The panels are arranged to open away from each other and are interconnected so panels operate simultaneously. The panels are guided in a vertical direction to open or close. A Bi-parting door includes door panels and door equipment; does not include the four-sided door frame. A Bi-parting door gives clear passage as wide as the width of the car opening.

22.1.10 Buck
Refer to “Jamb.”

22.1.11 Building Sill
aka “Frame Sill”. The bottom horizontal member(s) of a landing. A steel sill must be included in the purchase of a freight elevator door frame (four-sided) (vertically sliding doors).

22.1.12 Cab
Refer to “Car Enclosure.”

22.1.13 Cam
A device (retiring or fixed) mounted on the elevator car to actuate hoistway landing door interlocks, or locking systems.

22.1.14 Car Door (solid)
Same function as “Car Gate”. Solid material. Full width. Usually full height (car enclosure height). May have vision panel in order to view hoistway doors.

22.1.15 Car Enclosure
“Cab.” The top and the walls of the car resting on and attached to the car platform.

22.1.16 Car Gate (wire mesh)
The movable portion of the car which closes the opening, providing access to the car or landing, and protects the opening into the car. Usually slide-up style. It consists of one or two panels balanced by a counterweight. The panels are guided in a vertical direction to open or close. 1800mm/6 feet is minimum height; may be full height of car enclosure. In contrast to a car door (solid panel), the car gate has through openings (wire mesh).

22.1.17 Car Lap
The horizontal distance from entrance jamb to side of car platform.

22.1.18 CBH
VERTICALLY SLIDING DOOR, MANUAL (HAND) OPERATION, USUALLY BI-PARTING

22.1.19 CBP
VERTICALLY SLIDING DOOR, POWER OPERATION, USUALLY BI-PARTING

22.1.20 Cill
Refer to “Sill”.

22.1.21 Clearance Between Car and Door-Trucking-Sill
“Running Clearance”. The horizontal clearance between edge of car-platform-sill and hoistway shaft side of vertically sliding door-trucking-sill; minimum is 20mm/0.75in. maximum is 30mm/1.25in. to provide running clearance and prevent a shear hazard.

22.1.22 Contact
The part of a contactor, relay or switch, which completes or opens a circuit.

22.1.23 Controller
An electrical device which controls the apparatus to which it is connected in a predetermined manner.

22.1.24 Corrosion Resistant
Equipment that meets IP56/NEMA 4X requirements.

22.1.25 DBG Distance Gauge
Refer to “Rail Gauge Rod”.

22.1.26 DB
TWO-SECTION SLIDE-UP CAR GATE [DOUBLE BLADE]

22.1.27 DC
DOOR CLOSED CONTACT

22.1.28 DI
DOOR LOCKING CONTACT [DOOR INTERLOCK CONTACT]

22.1.29 Differential Operator
Type of car gate operation designed to achieve simultaneous full open of a differential two-section gate by providing differing speed ratios for each gate panel section (two equal height panels).
22.1.30 **Distance between Car and Building Sills “Car Distance”**.
The distance from the edge of the car platform sill to building sill (actually to the Door Frame). Allows space for the Bi-parting door and for the “running clearance”. 125mm/5 in. for Regular Type Doors; 170mm/6.75in. for Pass and Extended Sill Type Doors.

22.1.31 **Dolly**
A wheeled device for moving heavy material such as freight elevator door panels.

22.1.32 **Door “Hoistway Landing Entrance Door”**
The movable portion(s) of a hoistway shaft entrance that closes the openings. A vertically sliding type door usually has two solid face panels, may have three panels; which can be equipped with a vision panel. A freight elevator door entrance (Bi-parting, slide-up) has a separate, channel frame, usually installed by general contractor.

22.1.33 **Door Bi-parting**
Refer to “Bi-parting Door”.

22.1.34 **Door, Horizontal Slide**
Refer to “Horizontal Slide Door”.

22.1.35 **Door Chain**
A chain that operates over a door sheave connecting upper and lower Bi-parting door panels for simultaneous movement of the panels.

22.1.36 **Door Guide Rails**
The vertical steel guides/tracks used to guide and direct the travel of vertically sliding landing doors; made of a channel shape or an assembly of angles in the shape of a channel. Either lower, intermediate, upper, or unit rail as explained below:

22.1.36.1 **Lower Guide Rails**
A section of landing door guide used for partially guiding the lower door panel only. An intermediate rail is also needed.

22.1.36.2 **Intermediate Guide Rail**
A section of landing door guide rail that extends from near the center of an opening to near the center of the opening above or below. Guides the upper panel of one door and lower panel of adjacent door, or vice versa.

22.1.36.3 **Upper Guide Rail**
A section of landing door guide used for partially guiding the upper door panel only. An intermediate rail is also needed.

22.1.36.4 **Unit Guide Rails**
One-piece rails (no gap) used for: a) single door opening (no door openings above or below) b) door with very high floor heights; may be in line with other door(s). Unit rails, usually two pieces butted together, appear as one-piece when installed (no gap).

22.1.37 **Door Guide Shoes**
Malleable iron castings, mounted on the edge of a vertically sliding freight door panel, which ride on and retain the door in the door guide rails. Four required on each door panel.

22.1.38 **Door Limit Switch**
An electrical contact assembly, which limits the travel, and changes the speeds of a door.

22.1.39 **Door Locking Device**
Refer to “Interlock”.

22.1.40 **Door Close Button**
A push button (electric contact) in the car station and at the landing station. Operation is usually continuous-pressure for freight elevator doors: must hold button when closing.

22.1.41 **Door Open Button**
A push button (electric contact) in the car station and at the landing station. Operation is usually momentary-pressure (“one touch”) (touch button once to open doors).

22.1.42 **Door Operator**
The power mechanism that opens and closes the hoistway landing door.

22.1.43 **Door Stop Button**
A push button (electric contact) usually in the car station, usually not in the landing station. When pushed, it removes electrical power from the door operators and gate operator(s).

22.1.44 **Door Panel Construction**
Peelle F0S: steel plate door; Peelle R10MC: wood core, insulated, metal clad door.

22.1.45 **Door Reopening Device**
A type of device used with power-operated car gate/car door, that detects obstruction to the normal closing of the elevator car gate/car door, and causes the car gate/car door and hoistway landing door, if closing, to stop or stop and reopen. There are two types:

non-contact initiation of reversal (electronic) (Peelle infrared beam)
Contact (mechanical/electrical) (Peelle reversing edge).

22.1.46 **Door Sheave**
A pulley / sprocket device used to support and guide the chain that connects and moves the freight elevator door panels.

22.1.47 Door Sill
Either refers to “Frame Sill” or “Trucking Sill.”

22.1.48 Door Types
Bi-parting freight elevator door types (most common)
Regular door with regular width sill (“Regular-type”)
Pass-type door with wide sill, offset upper panel and hinged fire lintel (Refer to Pass-Type Door)
Extended sill type door is a regular type door with wide sill (refer to Extended Sill Type Door).

22.1.49 Door Zone Switch
An assembly of electrical contacts used to indicate to the door controller that the elevator car is in the proper zone to permit power door operation. Located in the top box of the hoistway landing door interlock

22.1.50 Dual Drive®
Peelle term for two power operators per hoistway landing door, with each operator having a motor that is two-speed.

22.1.51 Entrance
The protective assembly, which closes the hoistway landing openings, used for loading and unloading, includes the door panel(s), door equipment, and frame. For freight elevator entrances, refer to “Door”.

22.1.52 Explosion Resistant
For explosive conditions, use equipment that meets NEMA 7/9 several classes.

22.1.53 Explosion Resistant Device
Apparatus enclosed in a case, that is capable of withstanding an explosion of a specified gas or dust within it and of preventing the ignition of a specified gas or dust surrounding the enclosure by sparks, flashes, or explosion of the gas or dust within, and which operates at such an external temperature that a surrounding flammable atmosphere will not be ignited.

22.1.54 Extended Sill Type Door
A regular-type door with a wide trucking sill, used to provide the required running clearances when the doors inline consist of both regular and pass-type.

22.1.55 F10S
STEEL PLATE DOOR

22.1.56 Fascia
“Laminate”, Panel fascia” Vertically sliding elevator door designation: Extra cover steel sheet added to room side of landing door (for appearance usually).

Horizontally Sliding elevator door designation: A flat reinforced steel plate or plates installed inside the hoistway vertically to extend from the top of the hoistway door hanger header to the sill at the landing above.

22.1.57 Fire Lintel (Movable fire lintel, movable flame guard fire stop.)
A horizontal hinged metal member attached to the upper door panel of a Bi-parting pass-type door. It reduces the space between the upper panel and the hoistway wall when door is closed. Its purpose is to help seal the hoistway in case of fire. It is required on pass-type freight doors since they have offset upper panels.

22.1.58 Fire Service
A device or group of devices which provide: (a) the immediate recall of elevators to a designated landing in order to remove cars from normal use, referred to as Phase I operation; and (b) special operation for firefighters, referred to as Phase II operation.

22.1.59 Flexible Metal Conduit
“Greenfield” A tubular metal raceway, capable of being bent, by hand used for the protection of electrical wire or cables.

22.1.60 Frame
“Entrance Frame,” “Door Frame.” The opening frame through which a person or material enters or leaves an elevator. For vertically sliding doors, the frame consists of two vertical side jambs, one top horizontal head member, and a sill; and, for drywall, includes jamb-extensions-to-beam-above. Door panel rails and panels get mounted to the frame.

22.1.61 Frame Sill
The sill portion of the door frame.

22.1.62 Freight Elevator
An elevator primarily used for carrying freight and on which only the persons necessary for unloading and loading the freight are permitted to ride; not accessible to the general public.
- Class A: General Freight loading.
- Class B: Motor Vehicles loading.
- Class C: Industrial truck and other concentrated loadings.

22.1.63 Freight Elevator - Change in Type of Service
Freight Elevators can be converted to a passenger type elevator or passenger elevators can be converted to freight elevators as an alteration per ASME A17.1/CSA B44 sec 8.7.2.16.1 change in type of service.

22.1.64 Freight Elevators, Carrying of Passengers on
Freight elevators conforming to requirements 2.16.4.1 through 2.16.4.9 of ASME A17.1/CSA B44 shall be permitted to carry passengers provide the elevator is not accessible to the general public.

22.1.65 Front
(a) Freight elevator designation: where there is more than one line of doors, the front is the line that has the most doors, usually the side closest to the main car operating station. Where there is an equal number of doors per line, the front is usually the side of the lowest landing door. (b) Passenger elevator designation: the front of an elevator is the side at which the entrance is located if the car has a single entrance. When there is more than one car entrance, the front is the entrance side closest to the main car operating station.

22.1.66 Gate
“Gate” for freight elevator is always a “car gate”; a protective device located on the car; refer to “Car Gate.”

22.1.67 Gate Chain
A chain that operates over car gate sheaves/sprockets connecting gate panel and gate counterweight, for simultaneous movement of panel and counterweight.

22.1.68 Gate Construction
Wire mesh (WM) or Solid panel (SP).

22.1.69 Gate Contact
“Car Gate Contact,” “Car door/car gate electric contact”. An electrical device (switch) designed to prevent the operation of the elevator driving machine in the event the car door or gate is not closed.

22.1.70 Gate Limit Switch
An electrical contact assembly, which limits the travel, and changes the speeds, of a gate.

22.1.71 Gate Operator
The power mechanism that raises and lowers the elevator car gate/car door.

22.1.72 Gate Panel
Movable portion of a car gate.

22.1.73 Gate Sheave
A pulley/sprocket device used to support and guide the chain(s) that connect and move a car gate. If sprocket is used instead of a flat grooved sheave, then the gate sheave is called a gate drive sprocket, or gate idler sprocket.

22.1.74 Gate Types
- Vertically sliding:
- Single
- Section
- Ample overhead space available at the top landing.
- Two-section (Telco) limited overhead space available at the top landing.
- Two-section (differential ratio type) (two equal height panels) extremely limited overhead space available at the top landing. Also refer to “Differential Operator.”

22.1.75 Goods Lift
European term for “Freight Elevator”.

22.1.76 GP
SLIDE-UP CAR GATE / DOOR POWER OPERATION

22.1.77 Guide Stop / Support
Refer to “Trucking Sill Stop.”

22.1.78 Hangerbar Ratchet (Peelle)
Refer to “Keeper, Lower Panel Lock (Hook).”

22.1.79 Hatch, Hatchway
Incorrectly used to describe an elevator hoistway / elevator shaft. In early elevator usage, a hatch or hatchway was a framed opening in a floor with a hinged or removable cover.

22.1.80 Head Jamb
Refer to “Head of the Frame.”

22.1.81 Head of the Frame
A horizontal steel member spanning the top of an opening/entrance to partially support the load above; for freight entrances must be channel steel; connects to the jambs. In addition to the frame for support there is often a steel lintel to support most of the wall load above the head of the frame.

22.1.82 Header
For freight elevator door frames, refer to “Head of the Frame”.

22.1.83 Hoistway (Shaft)
aka in Europe as “Well.” An opening through a building or structure for the travel of elevators lifts or dumbwaiters extending from the pit floor to the roof or floor above.

22.1.84 Hoistway Access Switch
A key-operated continuous-pressure switch, located at a landing, the function of which is to permit limited operation of the car, with the hoistway landing door open at that landing (and/or with the car gate open) in order to permit access to the top of the car or to the pit. Power door operation is not available when using the access switch.

22.1.85 Hoistway Door Unlocking Device
An electromechanical device the function of which is to permit unlocking and opening of a hoistway landing door from the landing, mounted next to the door, on the room side wall. Usually provided at the lowest landing and one upper landing and may be provided at every landing. For power doors, both power door operation and elevator operation are not available when the door unlocking device is in the unlocked position with the chain pulled. Door unlocking device is not to be confused with an access switch, as elevator operation to move the car is unavailable when the door unlocking device is in use. Unlocking devices may be used instead of access switches when certain requirements are met, typically only freight elevators.

22.1.86 **Hoistway Landing Door**
Refer to “Door.”

22.1.87 **Hoistway Junction Box**
A box that is part of the hoistway riser system, where the traveling cables terminate. Other electrical wires get connected to the traveling cables inside this box. The hoistway junction box is generally located on the hoistway wall just above the center of travel of the elevator car.

22.1.88 **“Hook” (Peelle)**
Refer to “Keeper Hook, Lower Panel Lock”.

22.1.89 **Horizontal Slide Door**
A horizontal slide door consisting of one or more panels. Center opening type has panels so arranged to open away from each other and are interconnected so panels operate in unison. This type of door includes the door entrance frame and sill. For Freight Elevators, this door, if used, usually has more than one panel.

22.1.90 **Interlock**
“Hoistway-landing-door locking device”. An electromechanical device that is designed to prevent operation of an elevator driving machine unless the hoistway landing doors are locked in the closed position. Also prevents opening a hoistway landing door from the landing unless the elevator car is within the landing zone and is either stopped or being stopped or an unlocking device is operated. Interlocks are activated by a retiring cam.

22.1.91 **Interlock Electric Circuits**
There are two, separate electrical contacts on every hoistway landing door interlock:

The Door Closed contact (DC) “makes” when the hoistway landing door is closed. The contact, when completing the series connection of all door and gate closed contacts, allows retiring cam pick up when an elevator call is initiated.

The Door Locking contact (DI) “makes” when the interlock locking arm extends (as a result of the retiring cam pick up, with the elevator at that landing) to lock the closed door (hoistway landing door). The contact, when completing the series connection of all “door locked” contacts and in conjunction with the “door closed” series circuit (including gate contacts), signals an allowable elevator ‘run’ condition.

22.1.92 **Jamb**
Side-member of an entrance frame. The vertical steel channels on either side of an entrance.

22.1.93 **Keeper, Upper Panel Lock (Keeper, Interlock)**
The separate mechanical portion of a door interlock needed to lock the upper door panel. This locking prevents a closed hoistway landing door from being opened when the retiring cam has not depressed the interlock roller. Keeper, Lower Panel Lock (Keeper, Interlock) (Hook) The separate mechanical portion of a door interlock needed to lock the door. The metal part (hook) attached to the lower door and located several millimeters (a fraction of an inch) higher than the interlock ratchet when the door is closed. The keeper hook when located just above the interlock ratchet provides a locking function. This locking prevents a closed hoistway landing door from being opened when the retiring cam has not depressed the interlock roller.

22.1.94 **King Guide Rail**
The door guide rail that is installed first, usually the interlock side. The “opposite-to-king” guide rail is installed in reference to it.

22.1.95 **Landing (elevator)**
That portion of the floor used to receive and discharge passengers or freight.

22.1.96 **Landing Door**
Refer to “Door”.

22.1.97 **Landing Sill**
- a) if part of the building, it is called a “Building Sill” or “Frame Sill”.
- b) If part of the Bi-parting door, it is called a “Trucking Sill”.

22.1.98 **Landing Zone**
A zone extending from a point just below an elevator landing to a point just above the landing.

22.1.99 **Latch**
Has tension does not perform a locking function. Refer to “Side Tension Latch”.

22.1.100 **Limit Switch**
Refer to “Door Limit Switch” or “Gate Limit Switch”.

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**215.V5**

**DETAILED INSTALLATION & MAINTENANCE GUIDE**
22.1.101 **Line A**
Term for Front line of doors; refer to “Front (a)” in this glossary.

22.1.102 **Line C**
Peelle term for Rear line of doors.

22.1.103 **Lintel**
A horizontal steel member, spanning above the head-of-the-frame of an opening/entrance to support most of the wall (load) above. A lintel is required, in addition to the head member of the doorframe.

22.1.104 **Lock**
Locks, may also latch (provides tension). Refer to “Interlock,” or “Side-Opposite-Lock”.

22.1.105 **Lock & Contact**
aka “Mechanical Lock & Electric Contact.” Has some of the functions of an interlock. It is used with fixed cam instead of retiring cam. It allows the hoistway landing door to lock only after the elevator car moves the length of the fixed cam. Used only on manual doors and has limited usage per A17.1 Elevator code.

22.1.106 **Lock Hook**
Refer to “Keeper, Lower Panel Lock (Hook)”.

22.1.107 **Master Limit**
One limit per line of doors rather than an individual limit for each landing door in that line.

22.1.108 **Mechanical Lock**
Refer to “Side-Opposite-Lock”.

22.1.109 **Micro Switch**
An electrical contact which reacts to a very small mechanical movement of the actuator.

22.1.110 **Moisture Resistant**
For dust or slight moisture conditions, use equipment that meets IP54/IP56/NEMA 4 requirements. For water and corrosion/rust resistance, use equipment that meets IP56/NEMA 4X requirements.

22.1.111 **Momentary pressure switch**
a switch that is operated only when pressure is applied. As soon as the pressure is released, the switch returns to its normal state.

22.1.112 **Motorize**
Term used by Peelle to indicate adding/replacing power operators for existing doors.

22.1.113 **Motorized Sheave®**
Discontinued Peelle term for power door operator.

22.1.114 **Opening**
The clear passageway into an elevator.

22.1.115 **Overhead**
aka in Europe as “Headroom”. That portion of a hoistway shaft extending up from the sill of the highest landing to the nearest obstruction above in the hoistway shaft.

22.1.116 **Panel-Side-Play**
The overall distance recommended for side-to-side movement of vertically sliding doors/gates panels between the guide rails.

22.1.117 **Parking Device, Elevator**
The parking device is used only for manual freight elevator doors that have an unlocking hole in the door panel and that also have mechanical bar-operated interlocks (“RO” interlocks). Mechanical bar-operated interlocks (“RO”) are almost out of existence. The cam-activated type interlock (“UB”) replaces the mechanical bar-operated interlock (“RO”) and the parking device. A parking device allows access to the hoistway only when the car is at the landing where the parking device is located. The unlocking device allows access to the hoistway, regardless of the cars' location. A parking device is intended to be used by the elevator operator. The unlocking device is intended to be used only by elevator mechanics. Parking device, is a mechanical locking device the functions of which, are (a) to permit the opening of the hoistway landing door from the landing side, only when the car is within the landing zone of that landing, and (b) to restrict the opening of the hoistway landing door from the landing side unless the car is within the landing zone of that landing. Provides means of return access for the authorized elevator attendant who goes out of the car and closes the door so people will not get into the car. It is only located and used at a designated “parking landing”, usually not every landing. It automatically unlocks when the car is within that landing zone. Then, a key is needed to unlock the mechanical bar-operated interlock (“RO”) in order to open the door and gain access to the car. If key is used to unlock “RO” and gain access without the protection of a parking device, the car may not be there and someone could fall down the shaft.

Every door that has a “RO” interlock and a unlocking hole for a latch unlocking key must have a parking device. Every door that has a “RO” interlock should have a parking device, unless double bar latching or “UB” interlock at every other door. The parking device includes a mechanical door lock and a car-mounted cam, usually fixed cam rather than retiring cam. The mechanical door lock (Peelle 0354/2354) must not have an unlocking device (Peelle 2393 through-the-wall-type).

22.1.118 **Pass-Type Door**
Type of bi-parting door, pass-type doors are used when the floor-to-floor dimension is less than 1-1/2 times the opening height plus 150mm/6 in. required for regular doors. The upper panel, at the short floor height, is offset to slide behind the lower panel of the door for the floor above when opening. With this type of (offset) passing door, the lower panel trucking sill is wider than a regular door.

22.1.19 Pit (elevator)
That portion if a hoistway shaft extending down from the sill of the lowest landing to the floor at the bottom of the hoistway shaft.

22.1.20 P.L.C.
Programmable Logic Controller.

22.1.121 Plugging Rod
A rod used with an interlock to make it tamper resistant.

22.1.122 Pull Strap
straps secured to the bottom, on the inside and outside of the door / gate panel; used to manually close vertically sliding, freight elevator hoistway landing door; used to manually close slide-up car gate/car door.

22.1.123 R10MC
METAL CLAD, WOOD CORE DOOR

22.1.124 Rail
Refer to “Door Guide Rail”.

22.1.125 Rail Gauge Rod
A steel angle the specific length per job, used as a gauge to install the door rails at the proper DBG (distance between door guide rails). This rod is different than rod used for elevator rails, as it does not indicate whether the rails are square with one another.

22.1.126 Reopening Device
Refer to “Door Reopening Device”.

22.1.127 Retiring Cam
A retractable cam used to actuate hoistway landing door interlocks. It is mounted on an elevator car and is in a retracted (retired/lifted) position when the car is moving. When the car is about to stop, the cam drops (extends) to unlock the landing door interlock. It remains dropped (extended) while the car is stopped.

22.1.128 Return
The horizontal distance on the hoistway shaft wall between an entrance frame side jamb and the inner surface of hoistway shaft sidewall. This space is needed for the outer part of a hoistway landing door and its components (sheaves, interlocks, retiring cam).

22.1.129 Reversing Edge
Contact-type door reopening device mounted on the leading edge of the car gate/car door.

22.1.130 RO
MECHANICAL BAR ACTIVATED INTERLOCK

22.1.131 Running clearance
- (a) The distance between two moving objects such as the elevator car to its counterweight
- (b) The distance between a moving object, and a fixed object such as an elevator car sill and hoistway entrance sill
- (c) The distance between a moving object and a moving / fixed object such as an elevator car sill and a Bi-parting door trucking sill.

22.1.132 Safety Circuit
A portion of the elevator control wiring that includes relay contacts and mechanically operated switches whose electrical contacts are in a series. It includes, but is not limited to the final limits, elevator stop switches, governor contacts, and safety operated switches, including the Door Closed Contact DC, the Door Locked Contact DI, and the Gate Contact GC. The operation of any one of these contacts indicates a possible hazard to operation of the elevator and, removes power from the elevator driving machine, motor and brake.

22.1.133 SB
SINGLE-SECTION SLIDE-UP CAR GATE [SINGLE BLADE]

22.1.134 Sensor Beams®(Peelle)
Infrared, non-contact initiation of reversal, door reopening device mounted on car gate/car door. Provides initiation of gate reversal.

22.1.135 Sequence Operation
“Sequence gate and door Operation” In closing, the car gate must close at least two-thirds of its travel before the adjacent hoistway landing door can start to close. In opening, the hoistway landing door must open at least two-thirds of it travel before the adjacent car gate can start to open.

22.1.136 Service Elevator
An elevator equipped with all requirements for carrying passengers, which is also used to carry light freight such as a stretcher bed. When vertically sliding doors are used, the requirements for Freight-Elevator-Permitted-to-Carry-Passengers must be met. A “Service Elevator” in North America is different from a Service Lift (dumbwaiter) in UK and Europe.

22.1.137 Sheave, rotating
A wheel having one or more grooves over which a rope or ropes, or over which a chain or chains, may pass.

22.1.138 **Shoe**  
Refer to “Door Guide Shoe”.

22.1.139 **Side Opposite Lock**  
Aka “Hoistway-door separate mechanical lock.” A mechanical device, the function of which is to lock a Bi-parting hoistway door in the closed position, on the side opposite the interlock, after the car leaves a landing.

22.1.140 **Side Tension Latch**  
(Automatic Stay-Closed Device.) A mechanical device. Latches are located on both sides of a Bi-parting hoistway landing door. They operate automatically to press the door panels together when closed.

22.1.141 **Sill**  
Refer to “Building Sill” or “Trucking Sill.”

22.1.142 **Sill Stop**  
Refer to “Trucking Sill Stop.”

22.1.143 **Simultaneous Operation**  
Hoistway landing door and adjacent car gate start closing or opening at the same time. Rarely supplied today.

22.1.144 **Slide-up Door**  
Similar to Bi-parting Door except panels (usually two) slide up to open and the panels are balanced by counterweight(s).

22.1.145 **Spandrel**  
For vertically sliding doors, the vertical space from head-of-frame of one landing door to the building sill (either top or underneath) of the landing door above.

22.1.146 **Spandrel Height (Bi-parting Door)**  
The vertical distance from head-of-frame of one landing door to the building sill (top) of the landing door above.

22.1.147 **Spandrel Height (Slide-up Door)**  
The vertical distance from head-of-frame of one landing door to underneath the projecting-building-sill of the landing door above.

22.1.148 **SS**  
Stainless steel

22.1.149 **Staggered Line**  
An opposite rear line of doors is considered staggered when no rear line floor level elevation is closer than 457mm/18in. to a front line floor level elevation.

22.1.150 **Tamper Resistant**  
An adjective used to describe an interlock equipped with a “Tamper Resistant Plugging Trigger Device”. Together they mechanically prevent the Door Closed Contact (DC) from being “made” when the hoistway landing door is open.

22.1.151 **Tamper Resistant Plugging Tripper Device**  
A door-open-trigger/lock out bar/rod that makes an interlock “tamper resistant.” It mechanically prevents the Door Closed Contact (DC) from being “made” when the hoistway landing door is open.

22.1.152 **Telco®**  
Telescoping, two-section slide-up door.

22.1.153 **Terminal Guide Rail**  
Refer to “Upper Guide Rail” and “Lower Guide Rail”.

22.1.154 **Toe Guard**  
A steel sheet/plate angled to reduce the shearing action between the hoistway landing door or the building projections and the elevator.

22.1.155 **Traction Sheave**  
For door/gate: Type of sheave operation, which permits the chains to slip and allows immediate manual operation in the event of power failure.

22.1.156 **Transom**  
A panel or panels used to close the opening in a hoistway landing enclosure above a hoistway landing entrance (usually for horizontal slide door).

22.1.157 **Traveling Cable**  
“Elevator Traveling Cable-ETT.” A cable made up of electric conductors, which provides electrical connection between an elevator and a fixed outlet in the hoistway shaft or machine room. Multiple individual conductors (wires) bundled within a single outer jacket form an elevator traveling cable.

22.1.158 **Trucking Sill**  
On vertically sliding, Bi-parting, hoistway landing doors, the trucking sill is the top edge of the lower door, which becomes flush with the building sill when the doors are fully open. The door then acts as the sill that forms a bridge between the landing floor/building sill and the elevator platform. The trucking sill is designed to support the load that is moved on and off the elevator.

22.1.159 **Trucking Sill Stop**  
“Door-open stop”. For Bi-parting doors: a support member that is fastened to the door guide rails of the lower panel, and sometimes fastened to the building sill near the center of the lower panel; acts to support the lower door when it is fully open and being used as a trucking sill. Two types are common. Guide rail sill stop is fastened to the door rail that guides the lower panel. Auxiliary center sill stop is fastened to the building sill near the center of the lower panel.

22.1.160 **Unlocking Device**
Refer to “Hoistway Door Unlocking Device.”

22.1.161 **Unlocking Zone**
A zone just above the landing floor level to just below the landing floor level. Also considered part of the landing zone.

22.1.162 **VSD**
Vertically Sliding Doors, sold by Peelle

22.1.163 **Wainscot**
- a) The walls of an elevator car enclosure extending from the car platform to the underside of the car top.
- b) The lower part of the walls when finished in a material different from that of the upper part.

22.1.164 **Well**
Refer to “Hoistway Shaft”.

22.1.165 **Zone Switch**
An assembly of electrical contacts used to indicate to the controller that the elevator is in the proper zone to permit a particular function.
FRAME INSTALLATION
FRAMES AND SILLS MUST BE SET ACCURATELY
1. CHECK DOOR OPENING SIZE EACH FLOOR
2. SET SILL LEVEL BOTH WAYS TO ±1/4 INCH/5mm
   2.1
   2.2
3. SIDE MEMBERS (JAMBS) PLUMB BOTH WAYS TO ±1/4 INCH/5mm
   3.1
   3.2
4. SIDE MEMBERS (JAMBS) ONE ABOVE THE OTHER VERTICAL ALIGNMENT
5. SIDE MEMBERS (JAMBS) SQUARE WITH HOISTWAY SHAFT ENTRANCE WALLS
6. ENTRANCE CROSS SECTION
7. DIMENSIONS FROM DOOR FRAME AND SILL TO ELEVATOR PLATFORM
8. 1/2 IN./15mm FRAME PROJECTION FROM THE HOISTWAY WALL (HOLD NO. 7 DIMENSIONS)
9. DOOR RETURN SPACE BOTH SIDES
10. LEVEL HEAD OF FRAME

FIGURE 2
Class of Load

Biparting and Slide-down doors. Door trucking sills are designed to match the load capacity and load classification of the elevator / lift itself. The following is a condensed explanation of these classifications.

Class A
General Freight Loading
Material is moved on and off the elevator / lift manually or by means of a single hand truck. No concentrated loading is permitted. Minimum capacity is based on 2 Kg per square meter (50 pounds per square foot) of inside net platform area. Single piece loads are restricted to 25% of the rated capacity.

Class B
Motor Vehicle Loading
This is an uncommon classification designed solely to carry trucks or passenger trucks or automobiles. Minimum capacity is based on 1 Kg per square meter (30 pounds per square foot) of the inside net platform area.

Class C
Three variations of this classification are identified.

Class C1
Industrial Truck Loading
The elevator is permitted to carry a forklift along with the load. However, the total of the load and the forklift may not exceed the rated capacity of the elevator / lift.

Class C2
Industrial Truck Loading
For this classification, a forklift truck is normally not carried by the elevator but may be used for loading and unloading. While this classification does not affect the rated capacity, the fact that the elevator does not carry the forklift does permit exceeding the rated capacity during the loading and unloading functions. However, during elevator movement, the rated capacity may not be exceeded.

Class C3
Other Loading With Heavy Concentrations
For this Classification, a truck is not usually used. This has more to do with the movement of items which create concentrated loading (where the weight of a single piece exceeds 25% of the rated elevator capacity.)
FIGURE 5A
**Note:**
Ensure hoistway is clear of all obstructions, including concrete bulges below the sill.

---

**Preliminary Rail Setup**
See how floors 1, 2 and 3 are NOT in-line. Follow the steps below in order to set your Door Rails in line from floor to floor.

---

**Plan of Shaft**
Showing Handling of Peelle Equipment

---

**Elevation of Openings (not in line)**

---

1. **Jambs at each floor**
Mark platform showing the position of jambs at each floor.

---

2. **Average Opening Centerline**
Determine your "Average Opening Centerline". Measure the distance from the 2 farthest points on your platform, then find the center between the 2 points.

---

3. **Gauge Rod Centerline**
Align the centerline of your Gauge Rod with "Average Opening Centerline" you have marked on your platform.

---

4. **Transfer Marks**
Transfer marks from the platform to the Gauge Rod one side only.

---

**Figure 9**
REAR LINE/OPPOSITE LINE

CAR-TO-DOOR TRUCKING SILL CLEARANCE
(TYPICAL) 3/4" / 19mm MINIMUM
1 1/4" / 32mm MAXIMUM

3/4" / 19mm MAXIMUM

FIGURE 11
NOTE:
Set vertical position according to sill mark on rail. Set the sill mark on rail even with the floor sill. Set horizontal position to DBG.
Set plumb in two directions. Clamp in place. Drill and tap jamb at middle of slot for top and bottom slots only. Use figure 13 to install remainder of bolts later.

FIGURE 12
FIGURE 13

- Clamp
- DBG Distance Gauge Angle
- Rail Bolt
- Centerline of Opening
- This distance is 3 in./80mm

**Note:**
Locate bolt on top of slot per detail below to prevent slippage of rail.
Use grade 5 bolts.
Do not use washer.

- Drill hole in jamb at top of slot in rail.
- Important: set sill mark on rail even with floor sill.
- "Opposite-to-King" rail, clamped in position after the "King" rail.
- Rail Bolt

(You may locate top and bottom bolt at middle of slot for possible installation adjustment.)
DO NOT BOLT INTO MASONRY OR BRICK WALL

USE THE CLIP ANGLES PROVIDED AND MASONRY ANCHORS FOR BOLTING INTO MASONRY OR BRICK WALL

STEEL FRAME

OPENING

BOLT RAILS TO STEEL FRAMES BETWEEN FLOORS, IF YOUR STEEL FRAMES SPAN FROM FLOOR TO FLOOR

STEEL FRAME

OPENING

ONE SELF TAPPING RAIL BOLT PER SLOT

SPlice PLATE OPPOSITE INTERLOCK SIDE

1"

FLOOR

DOOR RAIL

SILL MARK

USE THE CLIP ANGLES PROVIDED AND MASONRY ANCHORS FOR BOLTING INTO MASONRY OR BRICK WALL

Figure 14

Fasten rail to wall with brackets and anchors at points where side member jamb does not have sill-to-beam-above extension

Figure 15

Fasten rail with brackets and spreaders at points where anchors are not allowed in walls or will not hold securely in hollow walls
FIGURE 19

CHAIN ROD

BUILDING SILL

DOOR TRUCKING SILL

ELEVATOR CAR

0123 HANGER BAR ROD CLIP

ADJUSTABLE SILL STOP

SILL STOP
(8 ADJUSTABLE POSITIONS)

HANGER BAR

LOWER PANEL

COTTER PIN

SEE DETAIL

CHAIN ROD

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FIGURE 20

CONNECT 2 SLINGS TO STOP PLATES ON THE DOOR RAILS. USE SLINGS TO RELOCATE CHAIN FALL DEVICE.

FIGURE 21

SET STOP BOLT TO KEEP CHAIN VERTICAL

DOOR CHAIN

CHAIN CONNECTING LINK

TIE-WRAP AND CLIP

SIDE LATCH PIVOT

DOOR RAIL

AUX. LOCKING ANGLE
(INTERLOCK SIDE)

SIDE LATCH HOOK

HANGER BAR

ROLLER KEEPER

UPPER PANEL

LOWER PANEL
Figure 22 (Step 1)

- Temporarily mount interlock using slot.
- Rail hole drilled in factory (will be able to use this hole if floor heights match drawings).
- Upper rail.
- Drill clear hole through interlock mounting plate and rail in field for pinning bolts after interlock has been set at proper height to suit door keeper hook.
- Centerline of opening (working point) normally 3"/80mm down from centerline to top of the rail when sill mark is set level with vertical position where finished floor will be.
- Elevation showing mounting holes for Peelle UB-1A 2356-59 and 2356-67 interlocks.
- Lower rail.
- Rail hole drilled in factory.

Section A-A
ASSEMBLY SHOWN IS LEFT HAND. VIEW FROM CAR RIGHT HAND SIMILAR BUT OPPOSITE.

2356 SERIES INTERLOCK ASSEMBLIES (MOUNTED TO BACK OF RAIL)

SEE FIGURE 29 FOR SETTING PLUG ROD

3/8"/9mm DIA. TAMPER RESISTANT ROD ADJUST TO SUIT IN FIELD (CUT TOP OF ROD IF REQUIRED)

TAMPER RESISTANT PLUGGING DEVICE ATTACHED TO BACK OF RAIL

PEELLE #23561 POSITION OF PLUGGING TRIGGER WITH DOOR IN CLOSED POSITION

LOWER DOOR PANEL IN CLOSED POSITION

BUILDING SILL (REFERENCE ONLY)

PLUGGED POSITION OF PLUGGING TRIGGER WITH DOOR IN OPEN POSITION

LOWER DOOR PANEL IN OPEN POSITION

WHEN LOWER PANEL MOVES DOWN APPROXIMATELY 1"/25mm PLUGGING TRIGGER ALLOWS ROD TO MOVE IN PROPER POSITION IN INTERLOCK SWITCH, TO PREVENT CONTACT FROM CLOSING AND KEEP INTERLOCK CIRCUIT OPEN.

FIGURE 23 (STEP 2)
1. DOORS FULLY CLOSED (LOCKED)
2. RETIRING CAM LIFTED
3. LOCKING ARM DROPPED OUT TO STOP POSITION
4. SET INTERLOCK ON RAIL TO VERTICAL POSITION SHOWN. DRILL HOLE FOR PINNING BOLT AS SHOWN IN FIGURE 22.

FIGURE 24 (STEP 3)

1. DOORS FULLY CLOSED (UNLOCKED)
2. LOCKING ARM PUSHED IN TO STOP POSITION BY RETIRING CAM
3. IF REQUIRED, ADD SHIMS TO HOOK FOR 1/8"/3mm UNLOCKED CLEARANCE
4. CHECK CLEARANCE. UNLOCK DOOR BY RETIRING CAM. GENTLY PUSH ON LOWER PANEL WHILE OPENING THE DOOR. HOOK SHOULD NOT HIT RATCHET.
FIGURE 25 (STEP 4)
AT THIS HOOK POSITION:

5/16" 8mm
USE 8/32 BOLT TO MEASURE

PUSH AND HOLD ARM INWARD

FIRST DOUBLE CHECK SETTING (FIGURE 25)

1/4" 6mm
1/16" 2mm

CONTACT ARM

HANGER BAR

THEN SET ROD AT THIS VERTICAL POSITION

PLUGGING ROD

AT THIS HOOK POSITION:
(RELEASE ARM THEN MOVE DOOR TO THIS POSITION)

CHECK THAT ROD MOVES TO THIS VERTICAL POSITION

FIGURE 29 (STEP 7)
FIGURE 31

ELEVATION SHOWING GATE COUNTERWEIGHT, GATE OPERATOR, GATE CONTACT AND BUMPERS ATTACHED TO THE GATE RAIL.

PLAN VIEW SHOWING GATE COUNTERWEIGHT AND GATE CONTACT MOUNTED TO THE GATE RAIL.
Note
V-Belt stretches over time. Re-adjust motor position every 3 months to keep 1/2” of play in the V-Belt.

FIGURE 33
LANDING DOOR PULL STRAP INSTALLATION

FIGURE 34
FIGURE 35

FIGURE 36

OPERATOR MOTORS ARE FACTORY PHASED IN PAIRS AND PACKAGED IN PAIRS. OPEN AND CLOSE DIRECTIONAL PHASING FOR EACH LINE OF DOORS SHOULD BE DONE AT THE DOOR CONTROLLER IN THE MACHINE ROOM BY SWITCHING WIRES IF NECESSARY: "T2" AND "T3" FOR HIGH SPEED, "T4" AND "T5" FOR LOW SPEED. Switch leads at an individual motor only when replacing motors or changing the directional phasing of one motor.

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**FIGURE 38**

**STEP 1**

**PROXIMITY LIMITS**
DOF SWITCH IS OPTIONAL FOR AUTOMATIC STAY-OPEN FEATURE

**OLD STYLE LIMITS**
R.H. DOOR LIMIT

**STEP 2**

**PROXIMITY LIMITS**

**OLD STYLE LIMITS**
R.H. DOOR LIMIT

**STEP 3**

**PROXIMITY LIMITS**

**OLD STYLE LIMITS**
R.H. DOOR LIMIT

**STEP 4**

**PROXIMITY LIMITS**

**OLD STYLE LIMITS**
R.H. DOOR LIMIT
FIGURE 39

STEP 1

STEP 2

STEP 3

STEP 4
SEQUENCE OPERATION (STANDARD)

FIGURE 40

7 SECONDS
TIME (2500mm HEIGHT DOOR)
<table>
<thead>
<tr>
<th>Maintenance Intervals</th>
<th>Item</th>
<th>Inspection Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Door Guide Rails</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Manual Door Sheaves</td>
<td></td>
</tr>
<tr>
<td>Check every 3 Months</td>
<td>Door Panels / Guide Shoes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Door Chains / Chain Rods</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Door Side Tension Latches</td>
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</tr>
<tr>
<td></td>
<td>Door Interlock</td>
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</tr>
<tr>
<td>Check every 1 Month</td>
<td>Door Tamper Resistant Plugging Trigger Device</td>
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</tr>
<tr>
<td></td>
<td>Door Unlocking Device</td>
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</tr>
<tr>
<td>Check every 1 Month</td>
<td>Gate Contact</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gate Rails</td>
<td></td>
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<td>Gate Panels / Guide Shoes</td>
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<td></td>
<td>Manual Gate Sheaves</td>
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<td>Check every 3 Months</td>
<td>Gate Counterweight</td>
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<td>Gate Chains</td>
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<td></td>
<td>Gate Rubber Bumpers</td>
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<td></td>
<td>Retiring Cam</td>
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<td></td>
<td>Pull Straps</td>
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<td></td>
<td>Door and Gate Controller</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Power Door Operators</td>
<td></td>
</tr>
<tr>
<td>Check every 1 Month</td>
<td>Power Gate Operators</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Door and Gate Limit Switches and Cams</td>
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</tr>
<tr>
<td></td>
<td>Door Push Buttons (If Supplied)</td>
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<tr>
<td></td>
<td>Re-Opening Device (Light Curtain)</td>
<td></td>
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<tr>
<td></td>
<td>Gate Reversing Edge (If Supplied)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gate Reversing Beam (If Supplied)</td>
<td></td>
</tr>
</tbody>
</table>

**FIGURE 52**
TO CLOSE MANUAL DOORS

1. STAND WITH BOTH FEET ON THE FLOOR
2. GRASP PULL STRAP CLOSEST TO YOU WITH BOTH HANDS
3. GENTLY PULL DOWN AND TOWARDS YOU AS DOORS CLOSE
   • DO NOT SLAM
   • KEEP HANDS AND BODY AWAY FROM CLOSING PANELS
   • ENSURE DOOR SAFETY LABELS ARE APPLIED TO MANUAL DOORS

FIGURE 53