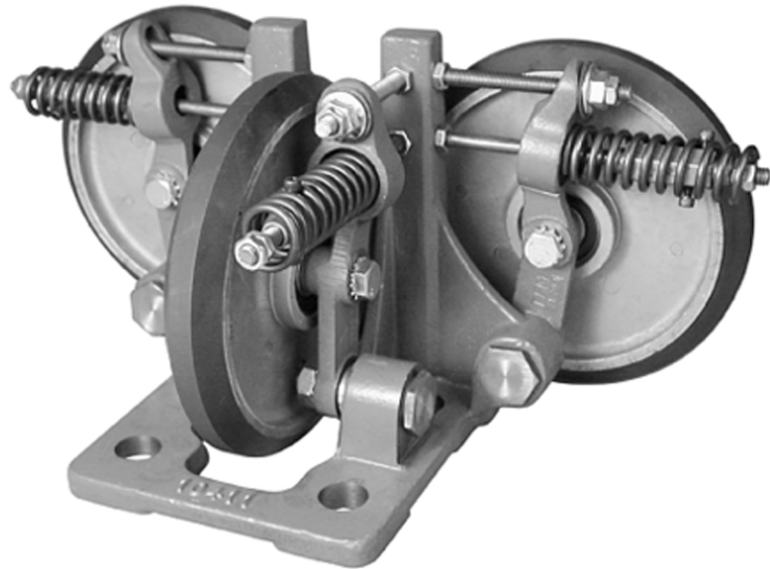




VERTICAL EXPRESS

Roller Guides



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Safety Precautions

Read this page before any work is performed on Elevator Equipment.

Important!

The procedures contained in this manual are intended for the use of qualified elevator personnel. In the interest of your personal safety and the safety of others, do not attempt any procedure that you are not qualified to perform.

All procedures must be done in accordance with the applicable rules in the latest edition of the National Electrical Code; the latest edition of ASME A17.1; and any governing local codes.

Terms in This Manual



CAUTION statements identify conditions that could result in damage to the equipment or other property if improper procedures are followed.



WARNING statements identify conditions that could result in personal injury if improper procedures are followed.

General Safety



CAUTION Before applying power to the controller, check that all Factory wire connections are tight on relays, contactors, fuse blocks, resistors, and terminals on cards and DIN rail terminals. Connections loosened during shipment may cause damage or intermittent operation.

Other specific warnings and cautions are found where they apply and do not appear in this summary.

Refer to the *Accident Prevention Program Manual* and the *Elevator Industry Field Employees' Safety Handbook* for mechanical equipment safety information on installation and service.

Electrical Safety

All wiring must be in accordance with the National Electrical Code and be consistent with all state and local codes.

Use the Proper Fuse

To avoid fire hazards, use only a fuse of the correct type, voltage and current rating as specified in the parts list for the product.

Electrical Hazards

Electric shocks can cause personal injury or loss of life. Circuit breakers, switches and fuses may not disconnect all power to the equipment. Always refer to the wiring diagrams. Whether the AC supply is grounded or not, high voltage will be present at many points.

Printed Circuit Cards

When printed circuit cards are involved, do not remove connections or cards from the equipment while power is applied. This can damage equipment.

Always store and ship printed circuit cards in separate static bags.

Mainline Disconnect

Unless otherwise suggested, always Turn OFF, Lock, and Tag out the mainline disconnect to remove power from elevator equipment. Refer to the *Accident Prevention Program Manual* for the required procedure.

Test Equipment Safety

Always refer to manufacturers' instruction book for proper test equipment operation and adjustments.

Meggering or buzzer type continuity testers can damage electronic components. Connection of devices such as voltmeters on certain low level analog circuits may degrade electronic system performance. Always use a voltmeter with a minimum impedance of 1M Ohm/Volt. A digital voltmeter is recommended.

When Power Is On

Dangerous voltages exist at several points in some products. To avoid personal injury, do not touch exposed electrical connections or components while power is ON.

Refer to the *Accident Prevention Program Manual* and the *Elevator Industry Field Employees' Safety Handbook* for electrical equipment safety information on installation and service.

Arrival of the Equipment

Receiving

Inspect all units of the Roller Guide Assembly for damage, and promptly report all *visible* damage to the carrier. All shipping damage claims must be filed with the carrier.

Handling

The roller guide assembly is packaged in sets of cardboard boxes, which are strapped to a skid. With some jobs the sets may be placed in the master shipper with other hoistway components. Take care when uncrating the assembly, and place them in a designated location to prevent damage or loss.

Storing

During storage in a warehouse or on the elevator job site, precautions should be taken to protect the roller guide assembly from dirt, moisture, and temperature extremes.

Overview

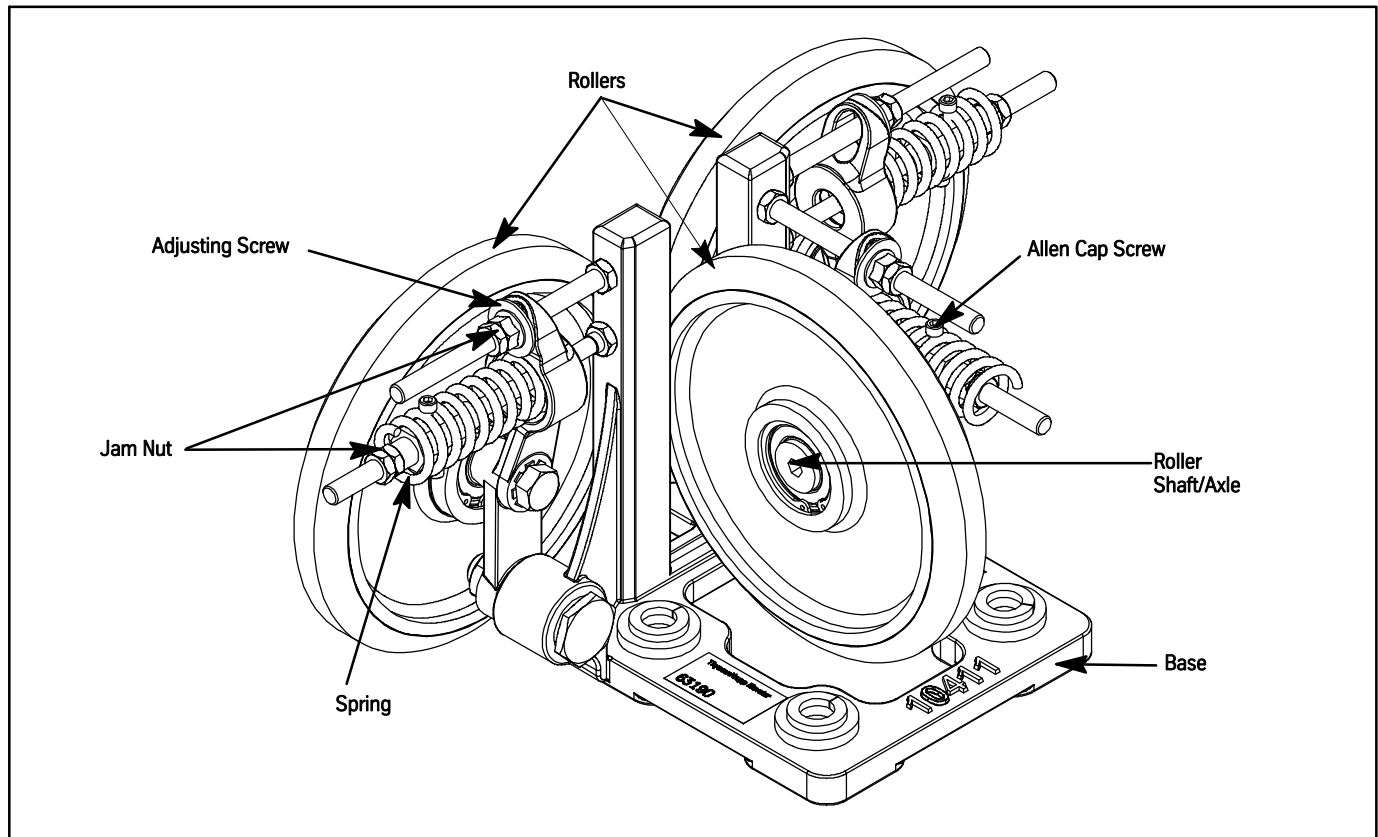
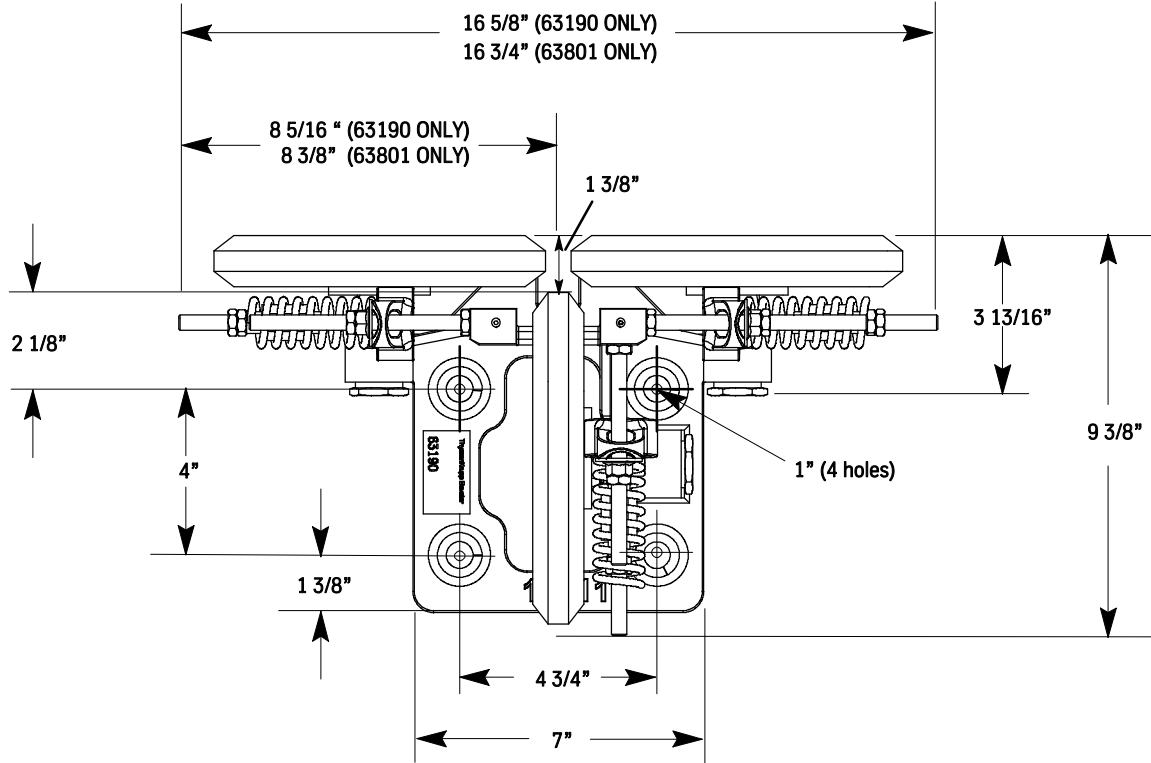


Figure 1 - 8-Inch Roller Guide Assembly

The following is a list of the major components of a roller guide assembly for 4-Inch and 8-Inch rollers, and for 4-Inch rollers on a counterweight. See the *Overview* and *Installation* sections for more details.

- Roller Guides - Rollers that rotate on guide rails (rather than sliding on the rails) to guide the car and counterweight along the path of the guide rails.
- Roller - The rubber coated wheel that rotates along the length of the guide rail.
- Adjusting Screw - Adjusts the tension or distance from the roller to the rail.
- Spring - Works with the adjusting screw to adjust the tension from the roller to the rail (functions as a shock absorber for the roller).
- Grease Fitting - A one-way valve that allows grease (with the aid of a grease gun) to be injected directly into the axle shaft housing.
- Base - The major component (attached to the car) of the guide shoe. All of the other components are attached to, and work from, the base.
- Safety Slot - A slot in the base which prevents the rail from jumping outside the shoe (should there be a roller failure).
- Roller Shaft/Axle - The rollers are attached directly to the guide base, onto an arm, which attaches to the base.
- Roller Guide Guard - Attaches to the top of the roller guide to keep debris from getting into it. (Not Shown.)

8-Inch Roller Guide Assembly Ratings



Specifications

Speed: Up to 1000 fpm

Load: Front to back, 400# running, empty car balanced.
Unbalanced load not to exceed 70#,
35# for car speeds > 500 fpm.
2000# loading

Side to side, 400# running, empty car balanced.
Unbalanced load not to exceed 70#,
35# for car speed > 500 fpm.
2000# loading

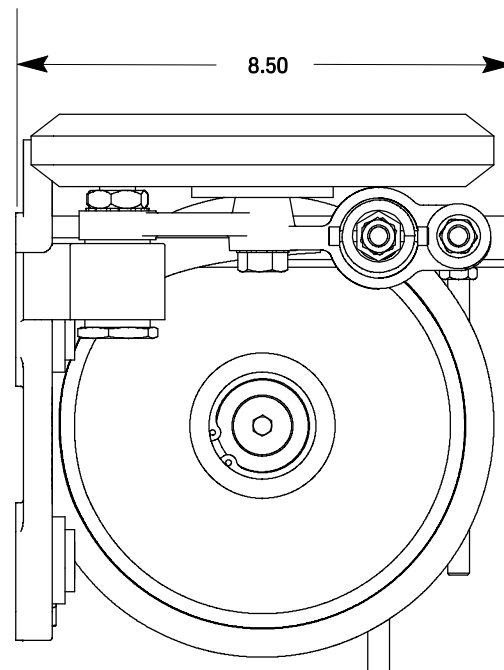


Figure 2 - 63190 and 63801 Roller Guide Assembly Load and Dimensional Data

4-Inch Roller Guide Assembly Ratings

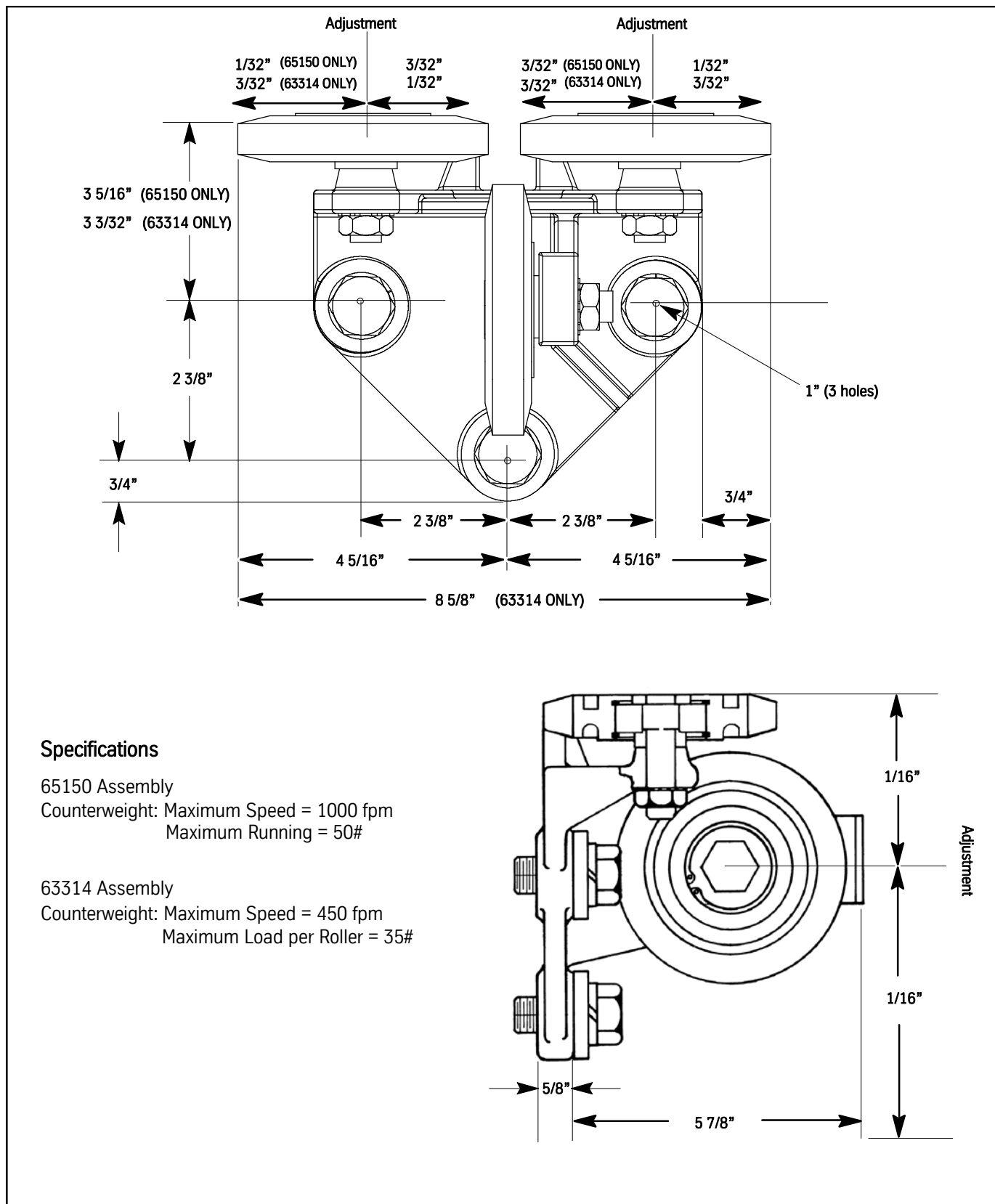
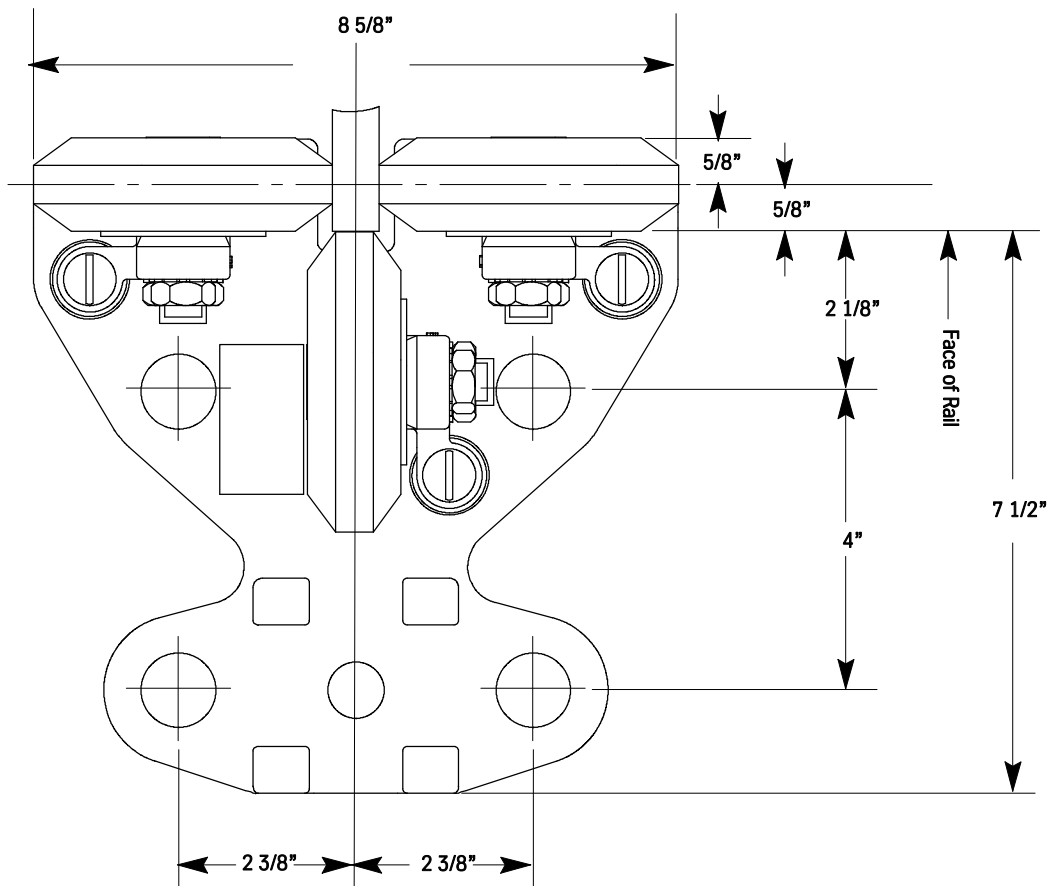


Figure 3 - 65150 and 63314 Roller Guide Assembly Load and Dimensional Data

4-Inch Roller Guide Assembly Ratings *(continued)***Specifications**

Speed: Maximum 250 fpm with 5000# maximum load per roller

Load: Front to back, 350# running, empty car balanced.
2000# loading

Side to Side, 400# running, empty car balanced.
2000# loading

Figure 4 - 67960 Roller Guide Assembly Load and Dimensional Data

8-Inch Roller Guides 63190 and 63801



Roller Guides **MUST NOT** be used during building construction or temporary service. Use temporary sliding blocks (Part Number 9825575, available from the Parts Warehouse). See Figure 5.



Figure 5 - Temporary Sliding Block

Preliminary Check

- Verify the following:
 - The rails are smooth, free of rust, clean, and dry.
 - The rail splice joints and gouges have been filled and filed smooth.
 - The car frame is square and plumb.
 - The car is balanced. Use the weight frame as necessary.

Adjustment

- Position the car at lower end of travel; leave room for access to the pit beneath the car.
- Place the car on Inspection Operation.
- Turn OFF, Lock, and Tag out the mainline disconnect.
- From the pit, post-wise center the car on the rails and clamp in place with the safety jaws.

- Set the spring adjustment sleeves. See Figure 7.

Net Lifting Capacity	*Number of Working Coils
2750 lbs. or less	8
2751 lbs. to 3750 lbs.	7
3751 lbs. to 5000 lbs.	6

*From the flat end of the spring (not including it) to the first allen set screw.

Table 1 - Spring Adjustment

- Lightly fasten the guides to the bottom of the car.

NOTE: Special (thick) washers go on top of the base between the base and the lockwasher.

- Shift the base (as required) to center the slot on the rail. See Figure 7.

NOTES:

- The distance from the face of the rail to the back of the slot should be approximately $\frac{1}{4}$ ". See Figure 6.
- The base must be square to the rail within $\pm 2^\circ$
- Shim the base (as necessary) so the rollers are perpendicular to the rails

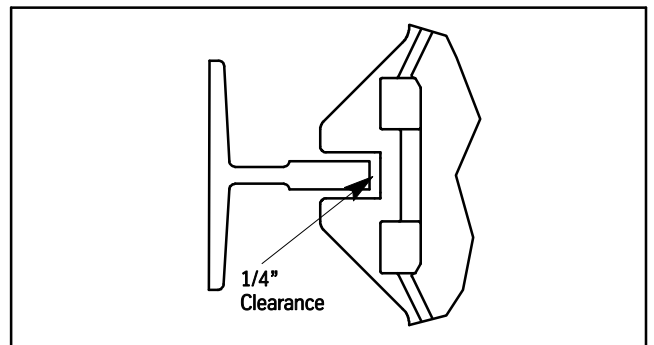


Figure 6 - Rail to Guide Throat Clearance

- Tighten the mounting bolts firmly.
- Hold the face roller lightly against the rail.

NOTE: To hold this position, tighten the stop by hand.

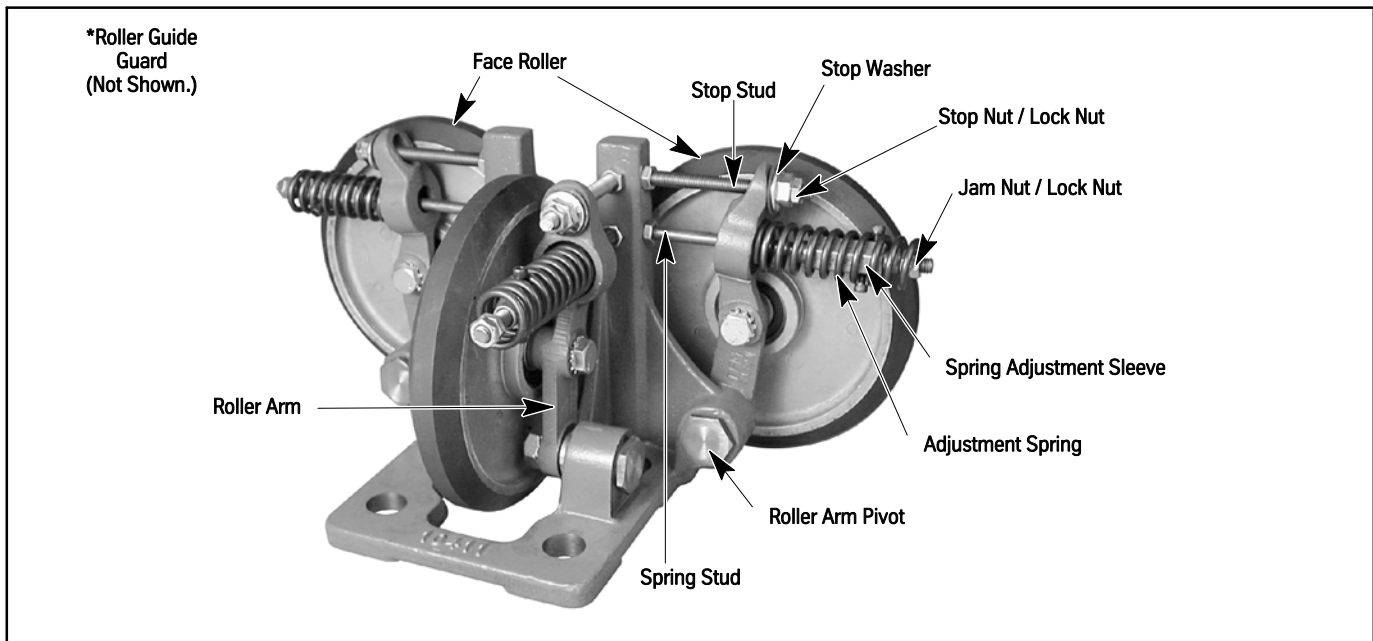


Figure 7 - 63190 or 63801 Roller Guide Assembly

Spring Tension and Stop Clearance Adjustment

1. Place the springs and adjustment sleeves (for the face rollers) over the studs. Make sure the studs are straight and tight. For this and all remaining steps in this procedure, See Figure 8.
2. Put on the jam nuts and the lock nuts and tighten until they come into contact with the adjustment sleeve; then turn two (2) more times. Verify that the allen set screws are set vertical, and then tighten the locknut.
3. Adjust the roller arm stops for a clearance of $\frac{1}{8}$ " between the roller arm and the stop washer.

4. Assemble the post roller springs and adjustment sleeves See Step 1.
5. Adjust the roller stops. See step 3.
6. Adjust the roller guide assemblies on top of the car.
NOTE: The stiles must be centered on the rails.
7. Turn ON the mainline disconnect.
8. Release the safety device.
9. Run the car at slow speed up and down the length of the hoistway to check general clearances, the leveling devices, door equipment, etc.

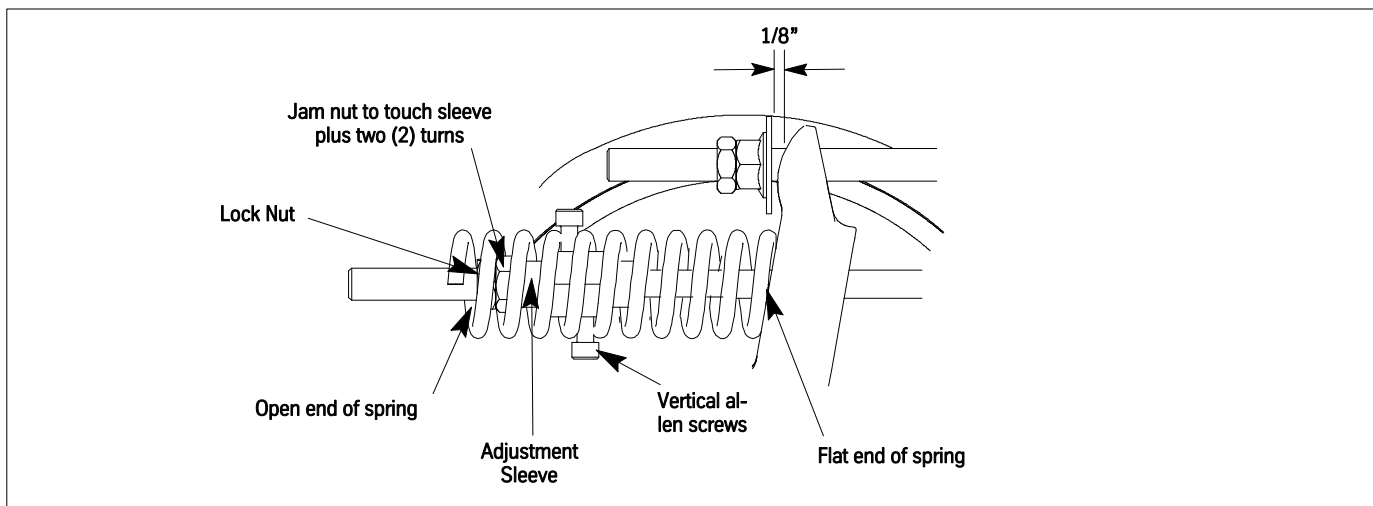


Figure 8 - Spring Tension and Stop Clearance Adjustment

Final Spring Adjustment

NOTE: Make the final spring adjustments with an empty car at the middle of the hoistway.

CAUTION! Make the following adjustments (if necessary) on each roller guide without creating excessive tire pressure.

1. Ensure that the car doors are closed.
2. Increase spring tension on one of any pair of springs to center the slot in the guide base on the rail.

NOTE: Due to the friction between the rubber tires and the rail, it is necessary to move the car a few feet after each spring adjustment is made in order to allow the car to center itself.

Final Stop Adjustment

1. Run the car with eccentric loading up and down for several full trips.

NOTES:

- When there is an eccentric load on the car it is acceptable for the roller arms to hit and ride on their stop washers, but the slots in the guide bases and the safety components must not scrape.
- The amount of eccentric loading depends on the size of the car and also how many people can stand comfortably along each side of the car.

2. Place approximately 75 lbs. for each foot of wall length against the rear wall of the cab.
3. Check for clearance between the rail and the guide throat, and between the rail and the safety jaws.
4. Check to ensure that each and every roller can be turned by hand.

NOTE: If not, determine the cause of the excessive tire pressure and correct the problem before the roller guides are put into service.

5. Install the roller guide guard. See Figure 9.

Lubrication

No lubrication should be used on the roller guide or the rail.

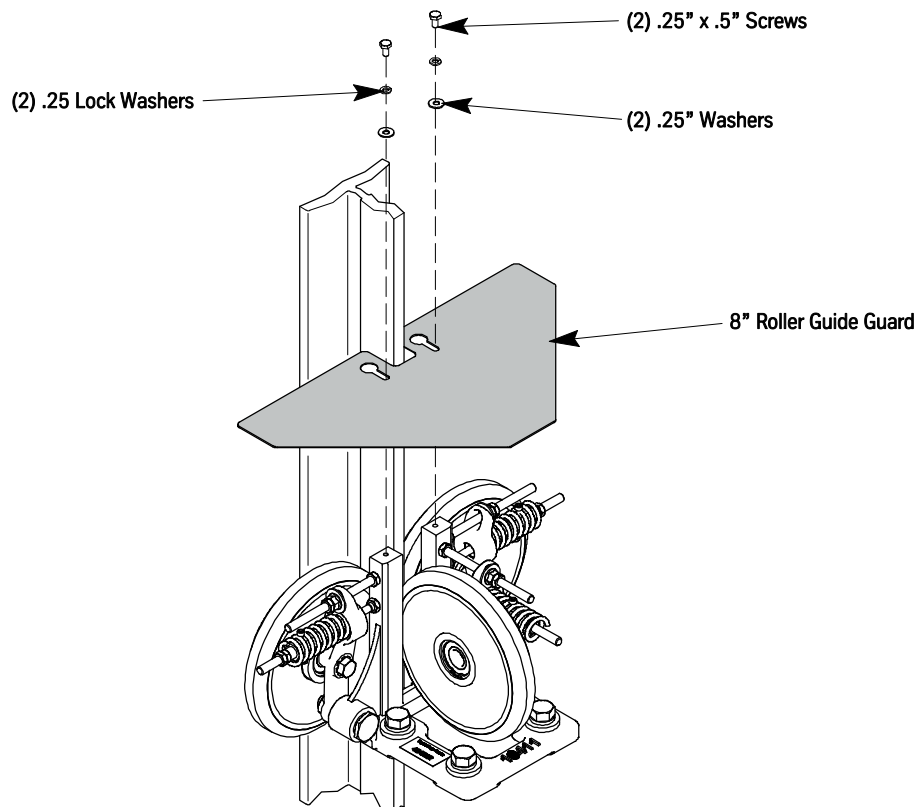


Figure 9 - Roller Guide Guard Installation

4-Inch Counterweight Roller Guides 63314 and 65150

CAUTION! Roller Guides **MUST NOT** be used during building construction or temporary service. Use temporary sliding blocks (Part Number 9825575, available from the Parts Warehouse). See Figure 10.



Figure 10 - Temporary Sliding Block

Preliminary Check

1. Verify the following:
 - The rails are smooth, free of rust, clean, and dry.
 - The rail splice joints and gouges have been filled and filed smooth.
 - The car is balanced. Use the weight frame as necessary.
 - The counterweight is not binding.

Installation

1. Loosen the locknuts and turn the roller shafts until maximum clearance between the rollers is obtained. See Figure 11.
 - a. Mount the roller guides and use the special washers on top of the base, between the guide base and the lockwashers.
 - b. Block the bottom of the counterweight frame so that it is on the centerline of the rails and space between the stile and rail is the same on both sides.

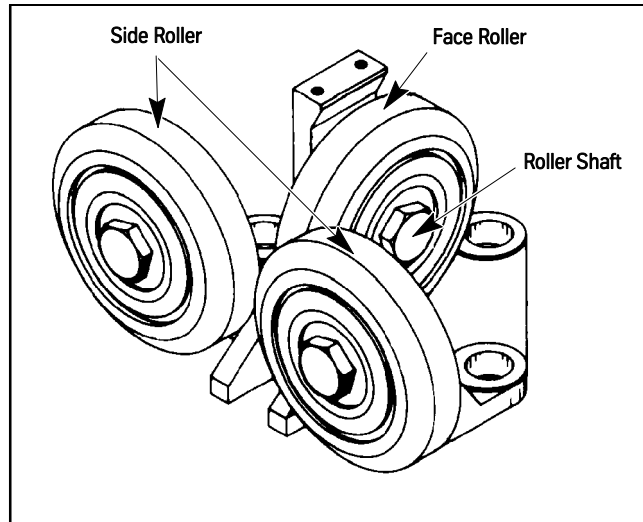


Figure 11 - Roller Guides on Counterweights

2. Fasten the base tightly, and tap the base with a hammer until equal space and clearance is obtained between the rail and the sides of the throat. The face roller should barely touch on the face of the rail.

NOTE: Be sure that rollers are square and plumb with the rail. If necessary, use shims to square up the base.

3. Install the top roller assemblies. See Step 1.
4. Adjust the top face rollers by turning the roller shafts. When adjusted, at least one face roller can be turned by hand with little effort.
5. Adjust the top side rollers by turning the roller shafts. Adjust for equal clearance between the rail and throat. When adjusted, the side rollers should offer the same resistance when turned by hand.
6. Lock the roller shafts without allowing the shafts to turn.
7. Adjust the bottom face rollers by turning the shafts so that rollers can still be turned by hand with little effort. Lock the shafts in place.
8. Adjust the bottom side rollers so that the clearance in the guide throat is evenly divided. Both front and rear rollers should offer the same resistance when turned by hand. Lock the shaft in place.

Lubrication

No lubrication should be used on the roller guide or the rail.

4-Inch Roller Guide 67960



Roller Guides **MUST NOT** be used during building construction or temporary service. Use temporary sliding blocks (Part Number 9825575, available from the Parts Warehouse). See Figure 12.



Figure 12 - Temporary Sliding Block

Preliminary Check

1. Verify the following:
 - The rails are smooth, free of rust, clean, and dry.
 - The rail splice joints and gouges have been filled and filed smooth.
 - The car is balanced. Use the weight frame as necessary.

Installation

NOTE: Part number 27486 (rail clip) must be used with 8# rails.

1. Verify that the car is centered post-wise, and set the car on the safety.
2. Back off all adjusting screws and flange nuts until the roller arms lean away from the safety slot in the base. For this step and all remaining steps in this procedure, See Figure 13.
3. Install the lower roller guides first, centering each safety slot on the guide rail with the bottom of the slot approximately $\frac{1}{4}$ " from the face of the rail.
4. Hold the face roller in contact with the rail and turn the adjusting screw until it bottoms out lightly on the base.
5. Back off the screw two (2) turns and lock it with the jam nut.

6. Hold each side roller in contact with the rail and turn the screw until it bottoms out lightly on the base. Back the screw off one (1) turn and lock it with the jam nut.
7. Raise the car to release the safety.
8. While the car is centered between the rails and the rails are centered in the slots, turn the flange nuts against the rubber springs to bring each roller firmly in contact with the rail.
9. With the car still balanced, install the top roller guides centering each safety slot on the rail with the bottom of the slot approximately $1\frac{1}{4}$ " from the face of the guide rail.

NOTE: Shim between base and mounting plate, if necessary, to plumb all rollers

10. Keep the car centered between the rails and the rails centered in the slots, and repeat Steps 4, 5, 6, and 8.
11. Place 75 lbs. for each foot of cab width against the rear cab wall and run the car up and down. If the safety jaws/safety slots drag on the rails, adjust the adjacent screws $\frac{1}{4}$ turn at a time until clearance is obtained.
12. Move the weights to the front of the cab and adjust the screws (if necessary).
13. Place 75 lbs. for each foot of cab depth against one cab side wall and, if necessary, adjust screws as above. Adjust face roller screw $\frac{1}{4}$ turn at a time until clearance is obtained. Repeat this step for the other side wall.
14. Remove all weights from the car.
15. Turn each flange nut until the chamfer on the rubber spring is no longer visible under the flange. The car should remain centered between the rails and the rails centered in the slots.

NOTE: The amount of final pre-load on the rubber springs will depend on the size of the car. Deep cars, in general, will require additional pre-load on the side springs as wide cars will require more pre-load on the face springs.

Lubrication

No lubrication should be used on the roller guide or the rail.

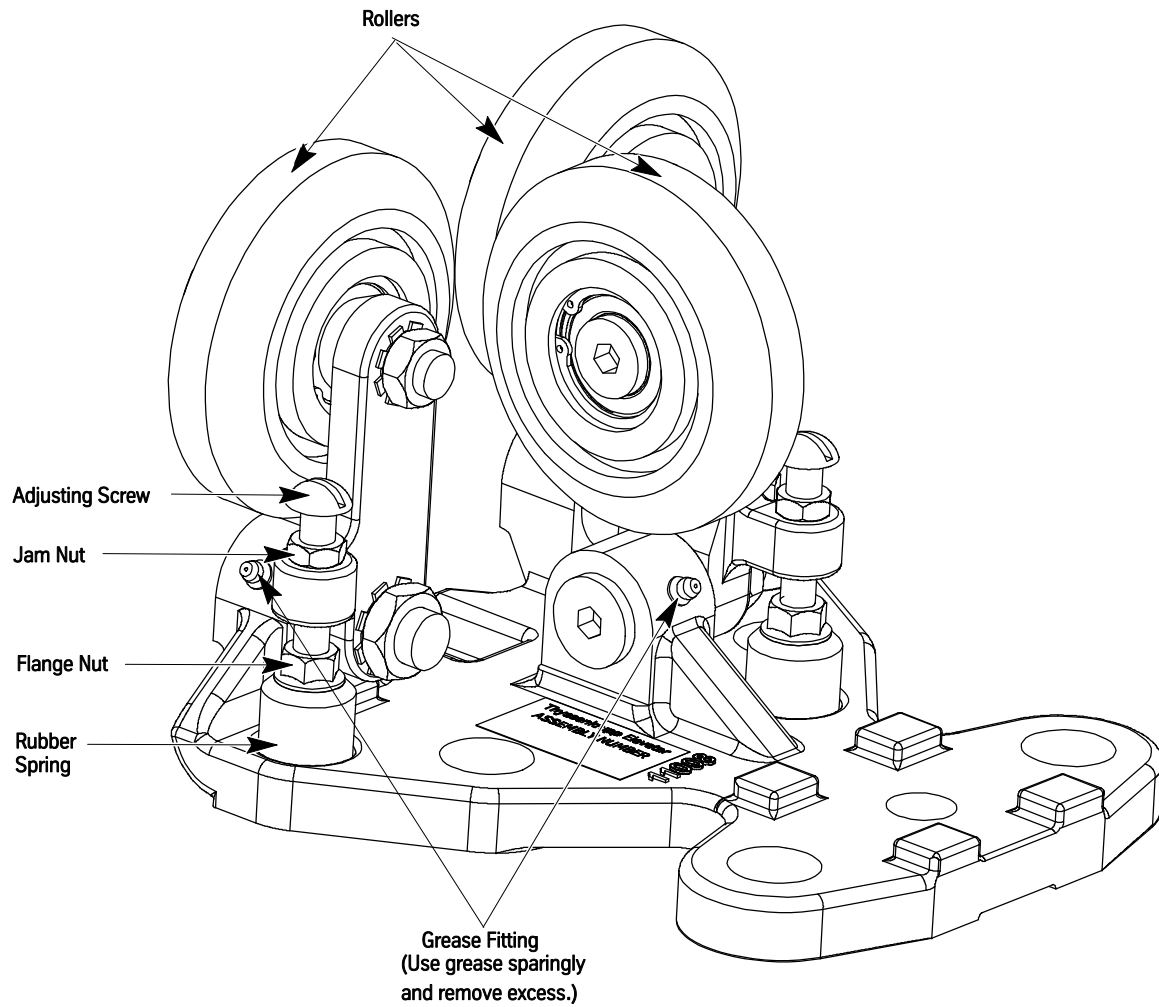


Figure 13 - 4-Inch Roller Guide Assembly 67960

2 5/8-Inch Roller Guide 454BR Formed Omega Rail C12 and C7

Preliminary Check

1. Verify the following:
 - The rails are smooth, free of rust, clean, and dry.
 - The rail splice joints and gouges have been filled and filed smooth.
 - The car is balanced. Use the weight frame as necessary.

Installation

NOTE: The Roller Guide Assembly for the Formed Omega Rails C12 and C7 are used on the counterweight rails for traction elevators.

1. With the counterweight frame centered and in-line with the counterweight guide rails, square the guide shoe assembly to the counterweight frame.
2. Tighten down each guide shoe so that the post-wise roller touches the face of the rail.
3. With the guide shoe mounted, rotate the eccentric on the front and rear rollers until the rail is centered in the retainer base of the guide shoe. Do not over tighten the rollers against the rail.

Lubrication

No lubrication should be used on the roller guide or the rail.

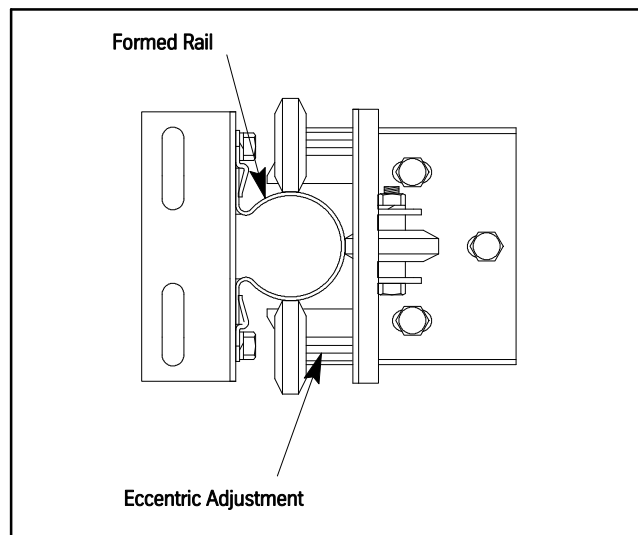


Figure 14 - 2 5/8" Roller Guide Assembly 454BR
Formed Omega Rail - C12 and C7

Troubleshooting Chart

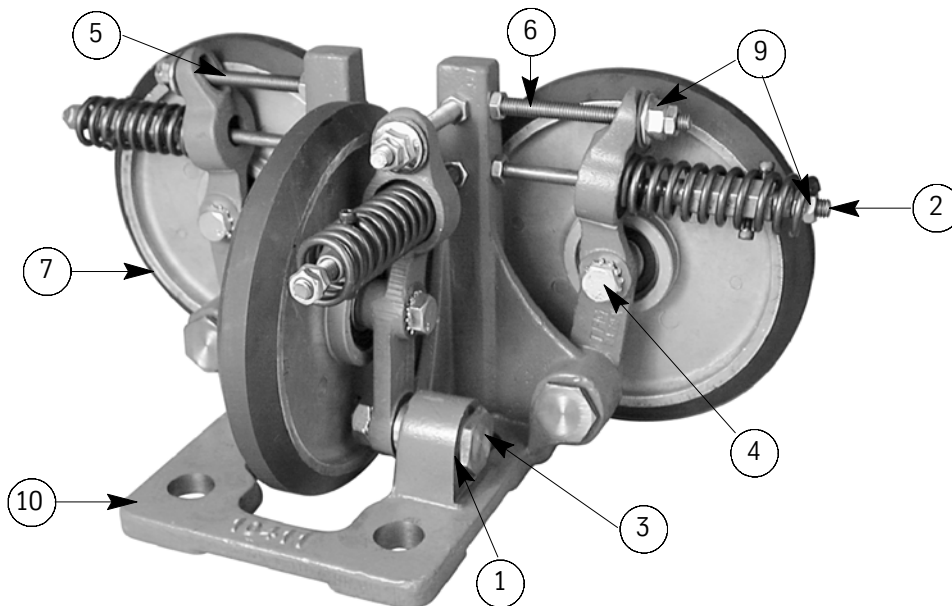
Problem	Solution
Noise	Dirty or Damaged Rail
	Bad Roller Assembly
Rapid Wear	Misalignment to Rail
	Excessive Rail Pressure
Vibration	Dirty or Damaged Rail
	Misalignment to Rail
	Bad Roller Assembly
	Misadjusted

3-Stage Jack Roller Guides

See the *3-Stage Jack Installation* manual for instructions.

Replacement Parts

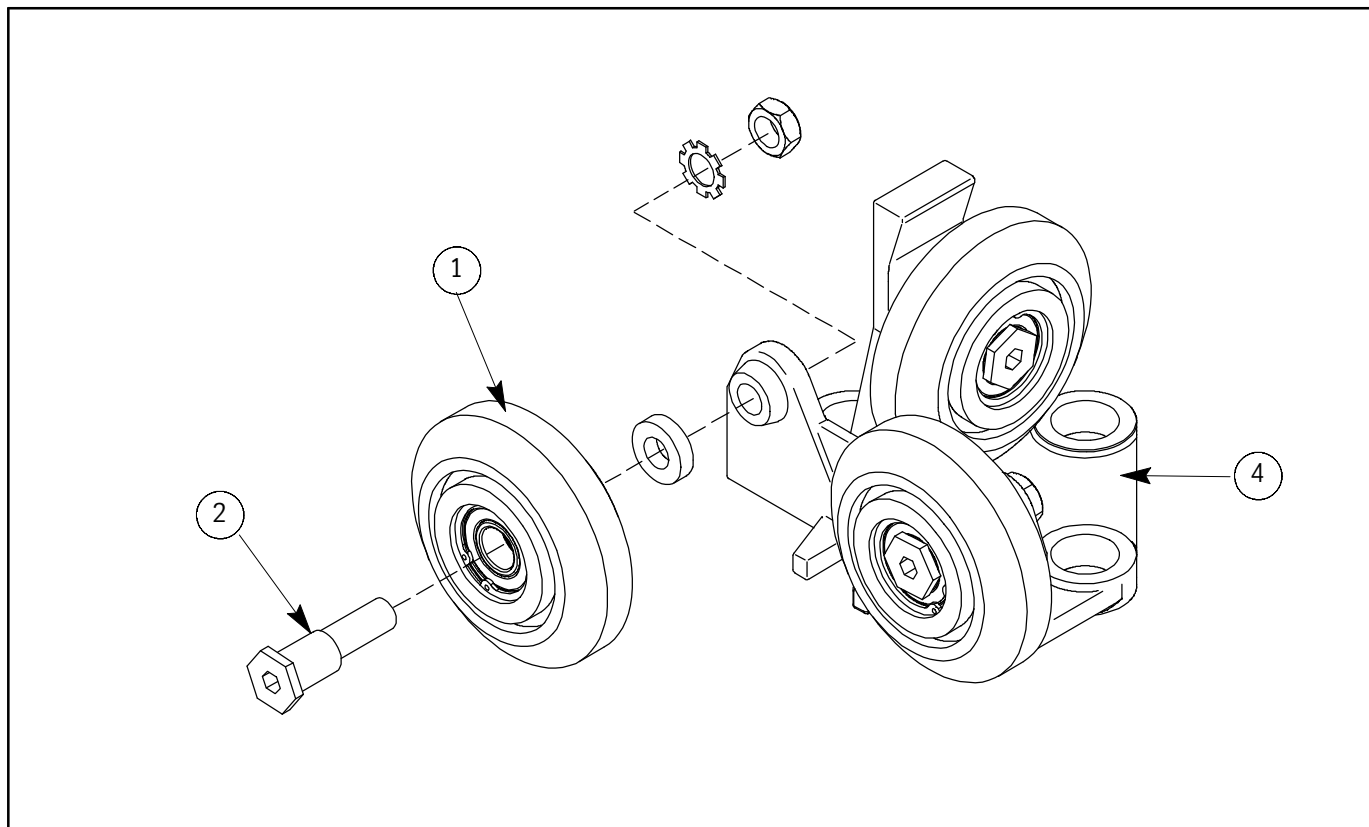
63190, 63801 8-Inch Roller Guide



ITEM	PART NO.	PRINT NO.	DESCRIPTION
1	9747928	75508	Bearing, Bronze, B1418-12
2	718BR1		Rod, Threaded, Ø .375, Zinc, 8"
3	9747424	27727	Shaft, 8" Roller Arm
4	9747620	27728	Shaft, 8" Roller
5	9747722	27729	Arm, Roller, RH 8"
6	9747825	27730	Arm, Roller, LH 8"
7	9831824	63182	Assembly, Roller, 8" Dia
8	9700640	200LG1	Kit, Bolt, Roller Guide (Not Shown.)
9	9700687	700583	Nut, Jam, 3/8"-16
10		27758	Base, Guide, 8"
11		451LR	Guard, Roller Guide, 8" (Not Shown. See Figure 9.)
12		700321	Screw, .250"-20 x .5" (Not Shown. See Figure 9.)
13		700382	Washer, .25" Narrow (Not Shown. See Figure 9.)
14		700405	Lock Washer, .25" (Not Shown. See Figure 9.)

65150

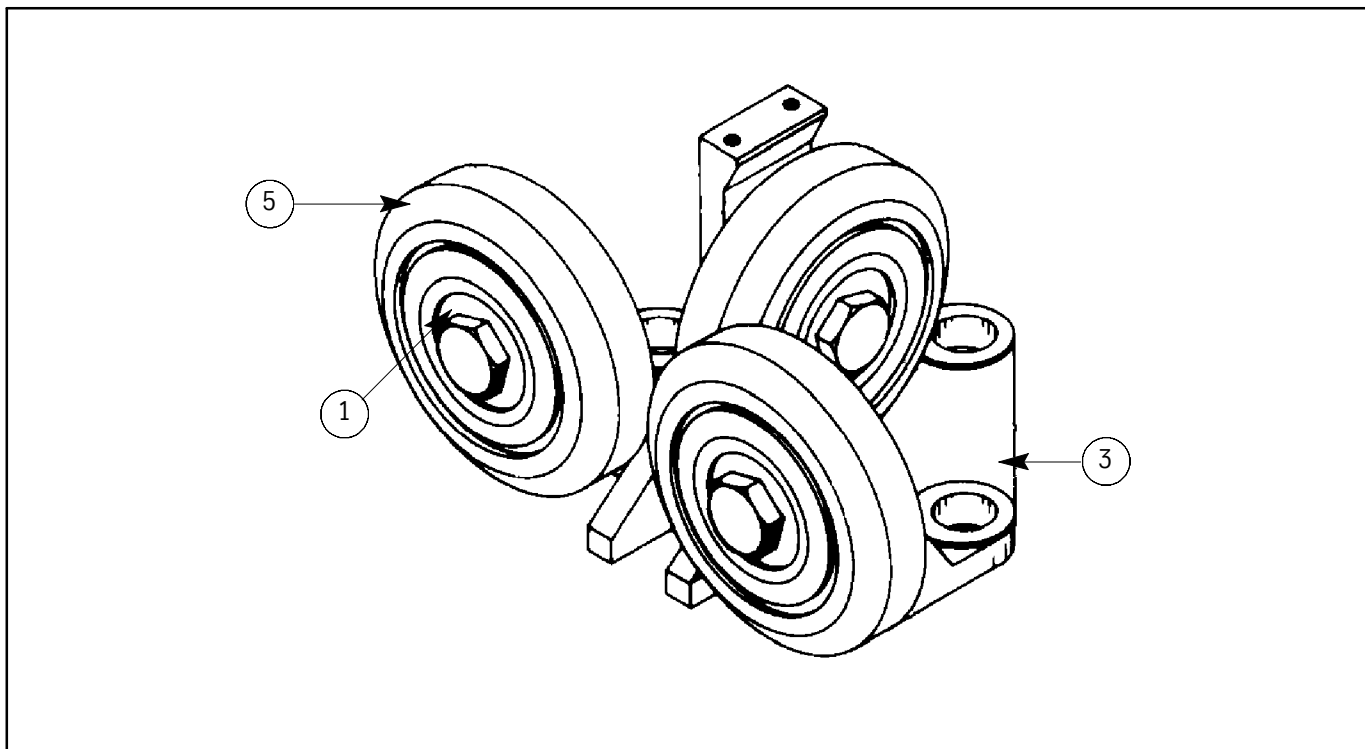
65150, 4-Inch Roller Guide



ITEM	PART NO.	PRINT NO.	DESCRIPTION
1	9832774	63277	Roller, Car Guide, 4" Dia, 1.25" Wide
2	9786600	28660	Roller Guide Shaft
3	9700640	200LG1	Kit, Bolt, Roller Guide (Not Shown.)
4		29244	Base, Guide, 4"

63314

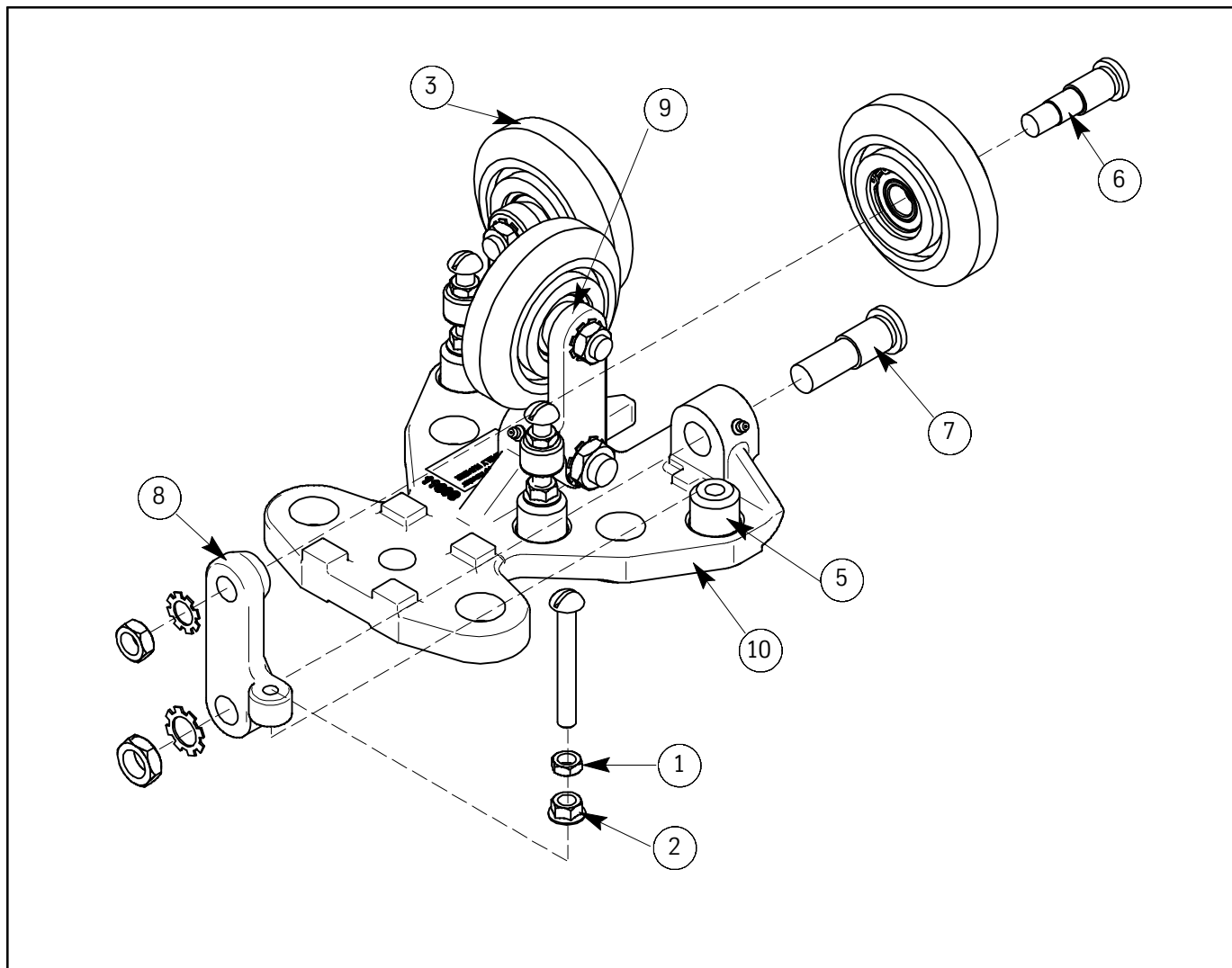
63314, 4-Inch Roller Guide



ITEM	PART NO.	PRINT NO.	DESCRIPTION
1	9758645	29161	Spacer Roller Guide 4" Dia
2	9831873	63187	Roller, 4" Dia, Counterweight Guide
3		29244	Base, Guide, 4"
4	9700640	200LG1	Kit, Bolt, Roller Guide (Not Shown.)
5		63187	Assembly, Roller 4"

67960

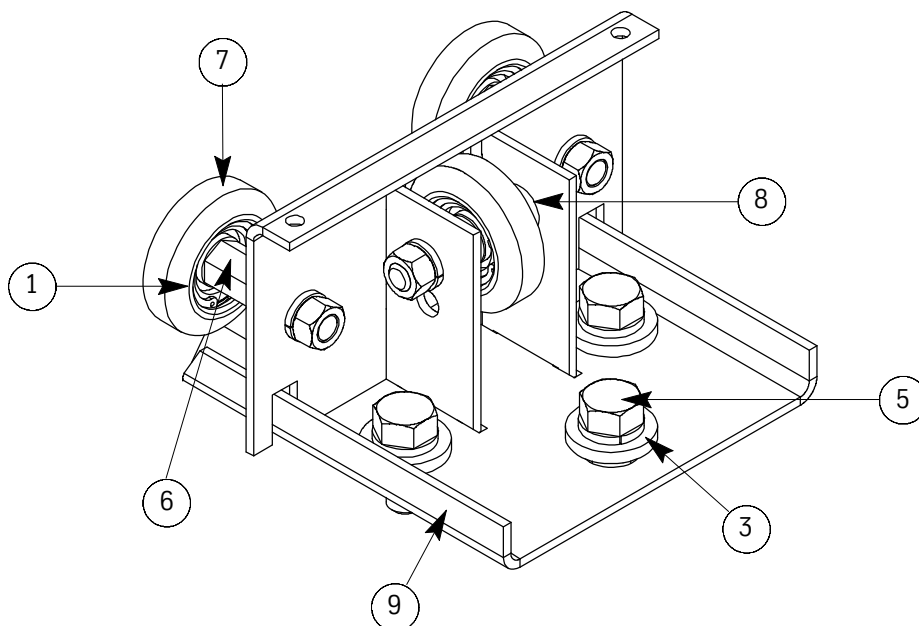
67960, 4-Inch Roller Guide



ITEM	PART NO.	PRINT NO.	DESCRIPTION
1	9700687	700583	Nut, Jam, 3/8"-16
2	9846803	77572	Nut, 3/8"-16 UNC
3	9832774	63277	Roller, Car Guide, 4" Dia
4		130558	Bolts, Roller Guide Package (Not Shown.)
5		77794	Rubber, Spring
6	700034	744GF1	Shaft, Roller
7		45196	Shaft, Roller Arm
8	11007	45198	Roller, Arm, RH, 4" Dia
9	11006	45201	Roller, Arm, LH, 4" Dia
10	11008	45200	Base, Guide, 4"

454BR

Formed Omega Rail, C12 and C7



ITEM	PART NO.	PRINT NO.	DESCRIPTION
1		717BT3	Retainer Ring, External
2	9700640	200LG1	Kit, Bolt, Roller Guide (Not Shown.)
3		70083	Washer, LWHR, 0.500 Z
4		70108	Nut, NH, .500 Z (Not Shown.)
5		70072	Screw, CSH, 0.500
6		744DY1	Shaft, Counterweight Roller Guide, C12
7		454BT1	Assembly, Roller Guide, 2.625
8		781BL1	Spacer, Roller Guide, 2.625
9		114AM1	Base, Guide Shoe, C12 and C73

Appendix A

Car Balancing Frame

NOTES:

- Before car balancing, make sure that the cab, flooring, and door operator installation is complete. After car balancing, complete the final roller guide adjustment.
- This frame is supplied on all jobs using roller guides when the car speed is 400 fpm or higher, when unusual conditions require, or when specified.
- Filler blocks are to be provided by the installer. The frame capacity is 10 blocks.
- Perform all balancing checks with the car doors CLOSED.

Installation and Adjustment

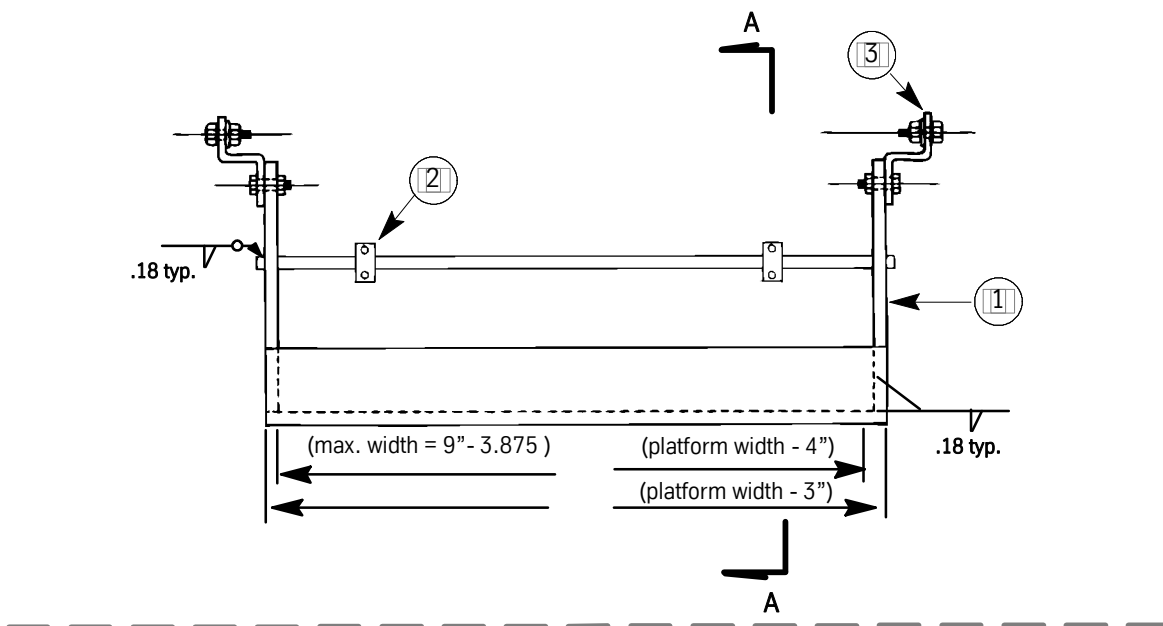
1. Place the car in the center of the hoistway where balanced weights can be loaded inside the car.
2. Turn OFF, Lock, and Tag out the mainline disconnect.
3. Verify that the hitch plate is in the center of the crosshead.
4. Loosen the lock nut and adjustment nut on all springs on the top roller guides.
5. Loosen the lock nut and adjustment nut on all roller arm stops.

NOTE: Rollers should now be free from the rail and allow the top of the car to move until the throat of the roller guide base touches the rail.

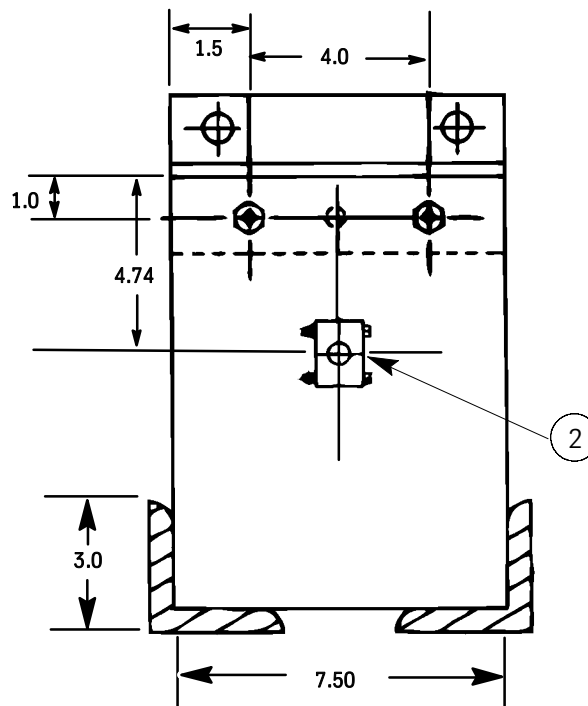
6. With the car suspended from the cables only, and with the doors closed, walk to the front and the back of the car top.
 - a. If the car top swings evenly in the direction of your weight on both sides of the crosshead, the car static balance is correct.
 - b. If the car top remains against one side of the roller guide base while moving from front to back, the balance frame will need to be mounted on the platform on the light end of the car.

NOTE: Do not mount the balance frame at this time.

7. If the weight frame is required, begin placing weights on the car floor directly above where the balance frame will be mounted. After each weight is positioned, perform Step 6 and continue until the the car static balance is correct.
8. Verify the post-wise position of the weights by shifting them until the car moves with equal pressure between the rails.
9. After a complete, balanced condition has been achieved, the car should fall back to exactly the same center position (front to back and post-wise if the top of the car is pushed over in any direction).
10. Record the number and position of weights required to balance the car, and then remove the weights from the car.
11. To allow car movement, temporarily replace the spring adjustment nuts and stop adjustment nuts.
12. Turn ON the mainline disconnect.
13. Move the car down to a position where the weight frame can be mounted.
14. Turn OFF, Lock, and Tag out the mainline disconnect.
15. Mount the weight frame.
16. Install the number of weights (previously recorded), less one weight to compensate for the weight of the frame. Position the weights post-wise according to the location previously recorded.
17. Lock the weights in place with the two clamps provided.
18. Turn ON the mainline disconnect.
19. To adjust the roller guides, see the 8" *Roller Guide Adjustment* section.



Section A-A
(from above diagram)



NOTES:

- All dimensions are for reference only
- Frame capacity = 10 blocks @ 30 lbs.
- Approximate weight of frame in lbs. = $22 + (10.5 \times \text{platform width in feet})$

Figure 15 - Balancing Frame Assembly (66649)

ITEM	PART NO.	PRINT NO.	DESCRIPTION
1		27451	End Plate
2		274CB1	Clamp, Counterweight
3		46342	Bracket, Mounting

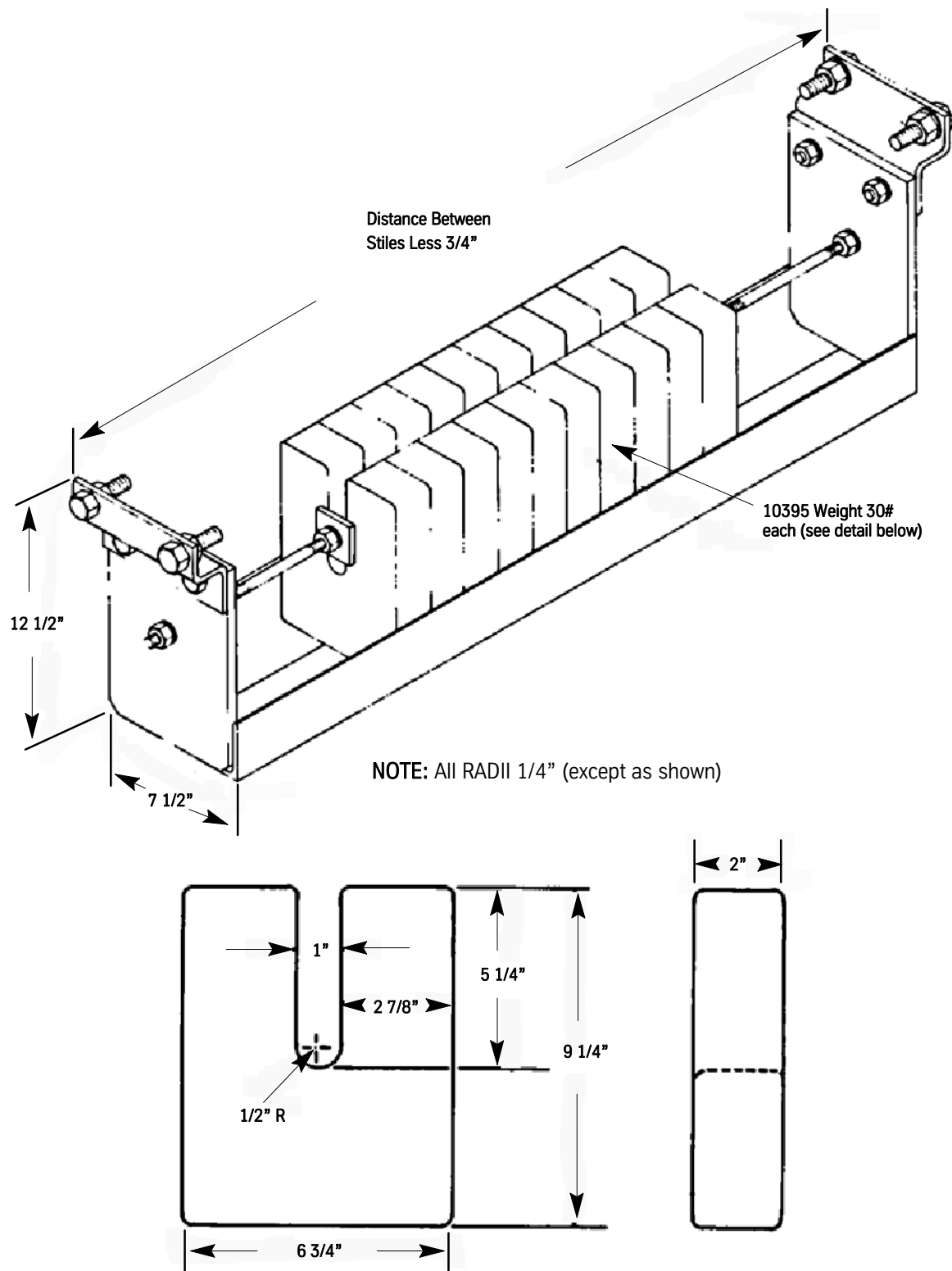


Figure 16 - Balance Frame and Weights

[illegible]

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