

False Car

This Continuing Education article discusses the main components of the False Car system and its uses and specifications.

by Rob Wurth

The Wurtec False Car is designed to be used as part of a system providing a temporary work platform for use during installation of hoistway equipment, specifically and most commonly the elevator rails. Manufactured of aluminum in the U.S., the False Car is available in three different models, with ranges of adjustability in the distance-between-guides (DBG) dimension, from 3 ft., 3 in. to 13 ft., depending on model.

Learning Objectives

After reading this article, you should have learned about:

- ◆ The uses and specifications of the False Car system
- ◆ The four main safety systems/components in the False Car system
- ◆ How often repair and inspection must be performed on the False Car system
- ◆ What to inspect and replace/repair on the False Car system if deemed necessary
- ◆ How to increase safety redundancy in the False Car system

This article will focus on the standard and most common model in North America, which ranges from 5 ft., 6 in. to 9 ft. Payload capacity on the standard model is approximately 800 lb., which will vary depending on the final size of platform, as well as other factors.

The main components of the False Car system include its frame, an adjustable platform, a traction hoist motor for two-rope (primary and secondary rope) setup, overhead protection with handrails and a power cord. When calculating the effective working payload of the False Car, remember that the hoist itself (standard model) is rated at 1500 lb., and all other contributing factors must be considered against this rating to determine the correct payload capacity. This includes the overhead

protection/handrails, hoist motor itself, False Car frame and platform, and power cord. When these weights are taken into account for an average DBG, the payload is approximately 800 lb., which will roughly allow for two men and their tools. It should also be noted that when calculating payload, friction does occur between the rails and side stiles (guides) on the False Car, which will affect payload capacity, depending on the amount of friction. When payload is at or near the maximum allowable, and the motor is consistently overloading, it is prudent to check the friction occurring. For best setting, adjust False Car guides to 1/16 in. of clearance from the blade of the rail.

When working with any equipment in the field, it is important to understand the implications of the tool on jobsite safety, and the False Car is no exception. As recommended by Wurtec, the False Car system allows for four different safety mechanisms, which, when used in conjunction with overall proper working conditions and methods, allows for safe working conditions. First, the primary rope passes through the hoist motor. In most hoists (and in all those Wurtec recommends), there are overspeed governors that will lock the rope in the event of an overspeed. Wurtec always recommends a secondary rope, as well, which (depending on hoist model) will either pass through the main hoist case or through a separate block-stop-style device, which also includes an overspeed governor. When installing the False Car system, it is recommended and good practice to rig each rope to independent hoist points, so as to further enhance safety and redundancy in the event of failure of one rigging point.



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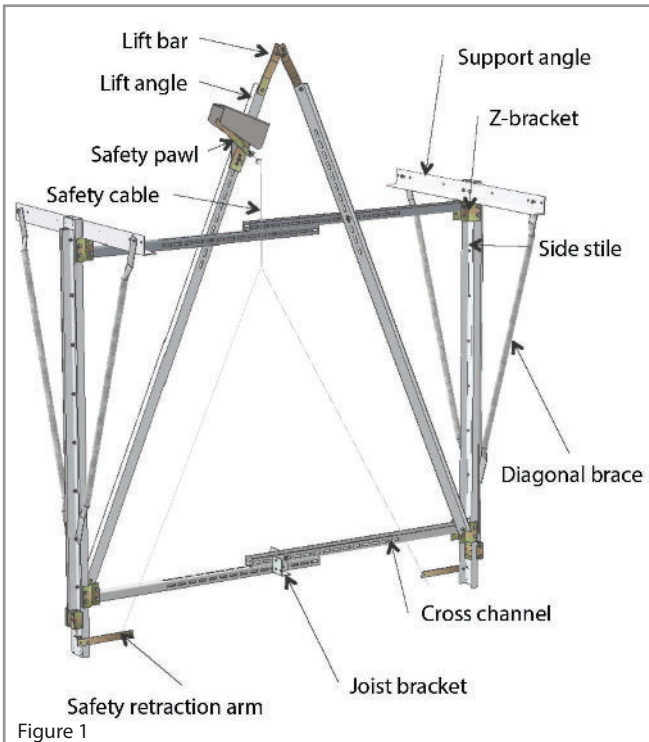


Figure 1

upward slightly, thereby reducing pressure on the brakes, then releasing the brakes, ultimately traveling downward. The brake lever is engaged when traveling upward, which allows the wedge-style safeties to constantly “trail” the False Car, ready for engagement in the event of failure of the other systems and safety mechanisms. It is extremely important that these Type-A safeties are set correctly for the rail, clean of debris and regularly inspected.

The final safety system is the personal safety harness with lanyard required for any worker, which must fully comply with OSHA and any and all company policies.

In preparation for the assembly and installation of the False Car system, there are several important points to remember and note. These include, but are not limited to, the following:

- ◆ All rules, regulations and guidelines as per OSHA and the *Elevator Industry Field Employees’ Safety Handbook*, as well as applicable company policies are strictly adhered to.
- ◆ Entrances to the shaft at each floor are barricaded, and safety netting is dropped in divided hoistways to prevent falling debris.
- ◆ Separate and proper rigging points for the two cable-climbing ropes
- ◆ The rope diameter should be appropriate for the climber. (Many issues with “birdcaging” have been traced back to using rope of a lesser quality or not as recommended by the hoist manufacturer.)

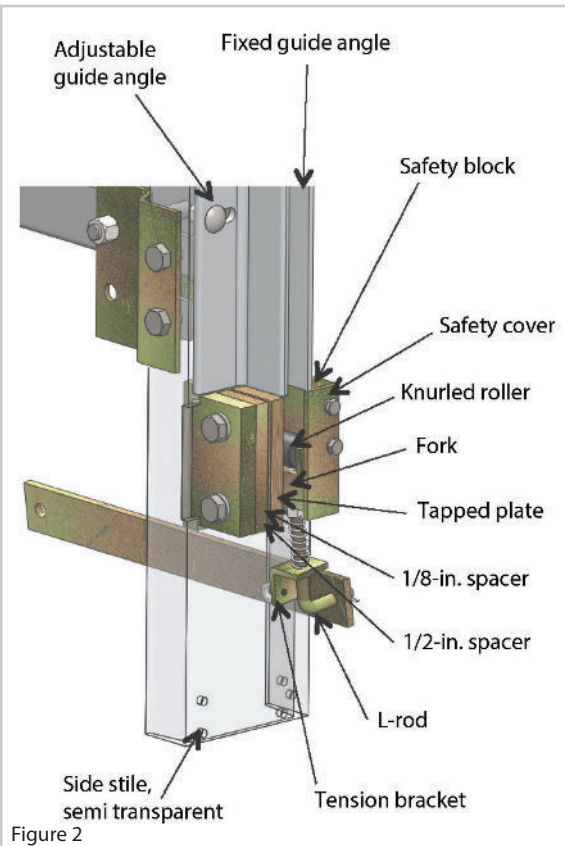


Figure 2

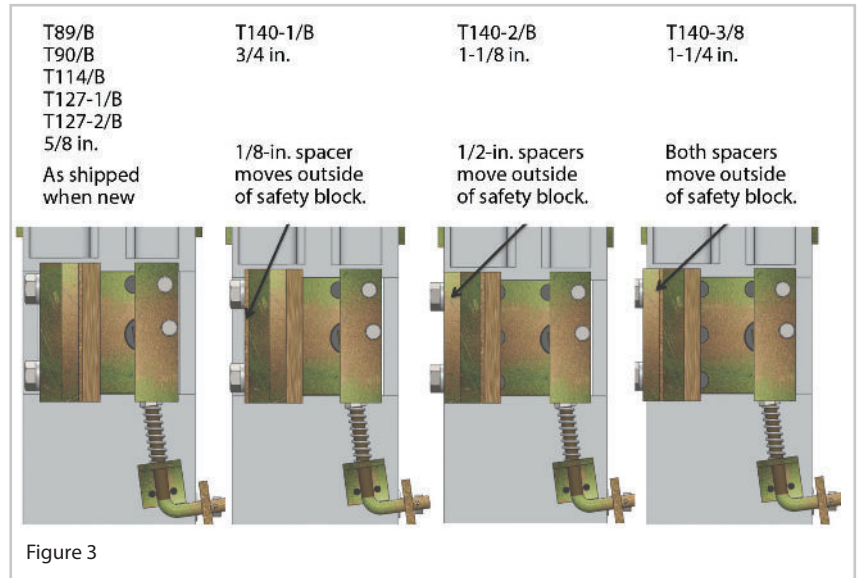


Figure 3

Secondly, the False Car is designed with a wedge-style safety that rides at the bottom of the side stile and rolls along each rail. These are typically Type-A safeties intended to instantly stop the False Car on the elevator rails. These safeties are released via a brake lever at platform height.

Before traveling downward after working on the False Car platform at a stationary position, it is very important to travel

- ◆ Unroll the ropes; do not uncoil them, as this will add twists that can cause adverse effects. Ropes should also not be connected to a swivel at their rigging point.
- ◆ Install a pair of rail blocks level with each other at the bottom of the hoistway on each rail, which will provide a suitable point for the False Car to rest upon during assembly and installation.

It is important to know and understand the various parts involved in the makeup of the False Car (Figures 1 and 2). Additionally, as noted earlier, setting the safeties on the False Car is extremely important, and Figure 3 can greatly assist in proper installation and setting. Bolts should be torqued to 50 ft./lb.

After properly setting the safety configuration completing general assembly, the side stiles can be placed inside the hoistway over the guide-rail surface on the rail blocks. The Safety Retraction Arm will need to be lifted to allow the safeties to slide over the

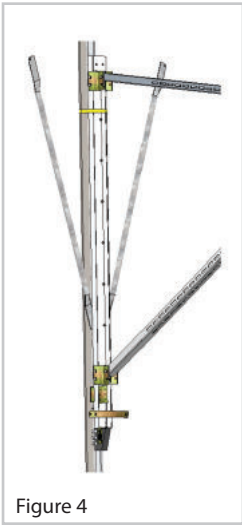


Figure 4

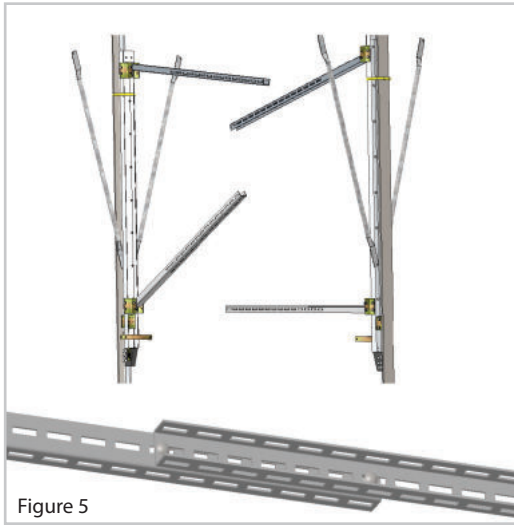


Figure 5

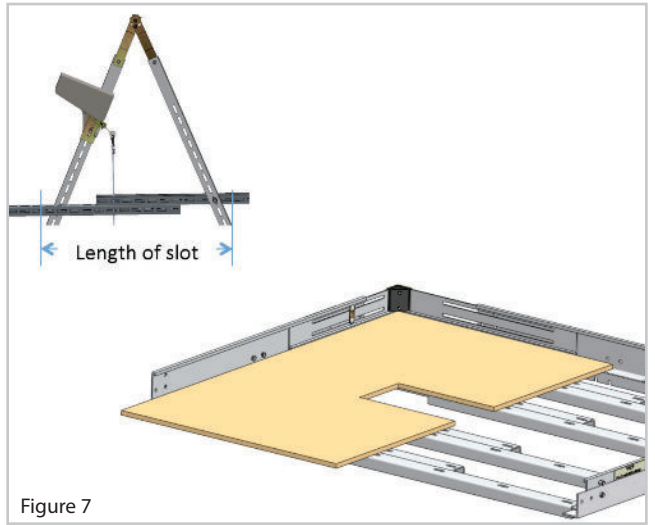


Figure 7

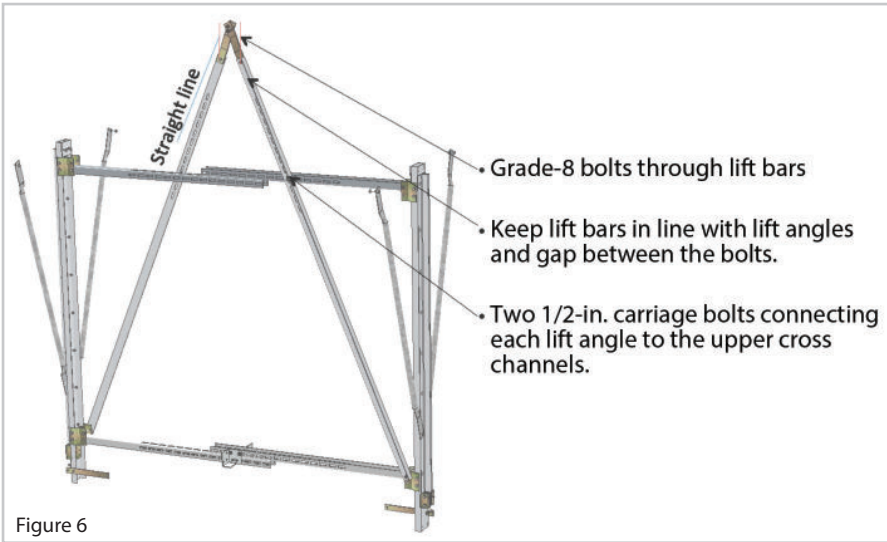


Figure 6

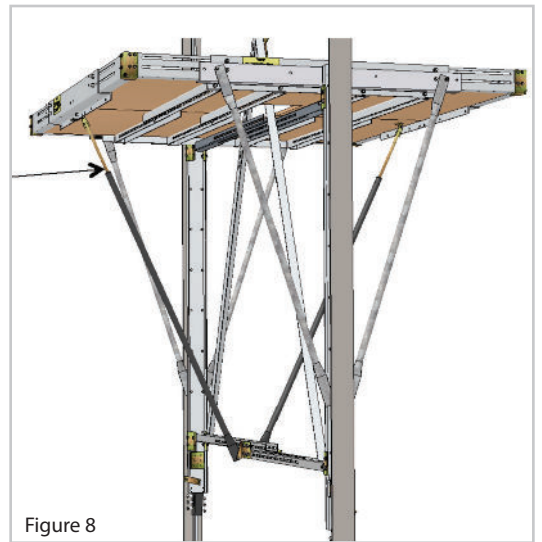


Figure 8

guide rail. Do not attempt to force the safeties onto the guide rail; if there are issues, check the adjustment of the safeties for proper spacing. Shims can be used as needed to properly space the side

stiles from the guide rails. After the first side stile is installed, it can be wire tied to the rail to hold it in place, while the other is installed in the same manner.

Continued

wurtec FALSE CAR

Safety Checklist

False Car Install Date / / Rated Load lbs

Safety Adjusted to Rail Size Safety Tested

Today's Date / /

The following checks must be performed daily.

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Move Car in Down Direction Checking That Safety Applies & Holds.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check That Barricades Meet OSHA Requirements And Are In Place & Secure.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check Overhead Supports & Rigging.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check Overhead Safety Net is In Place.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check All Bolts Are In Place & Tighten.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check Fat Grips (Not Crosby Clamps) Are Installed Properly.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check All Attachments. Use Grade 5 Hardware.

***** Installation, removal and safety test of False Car should be performed at, or as close as possible, to the lowest landing.*****

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Figure 9

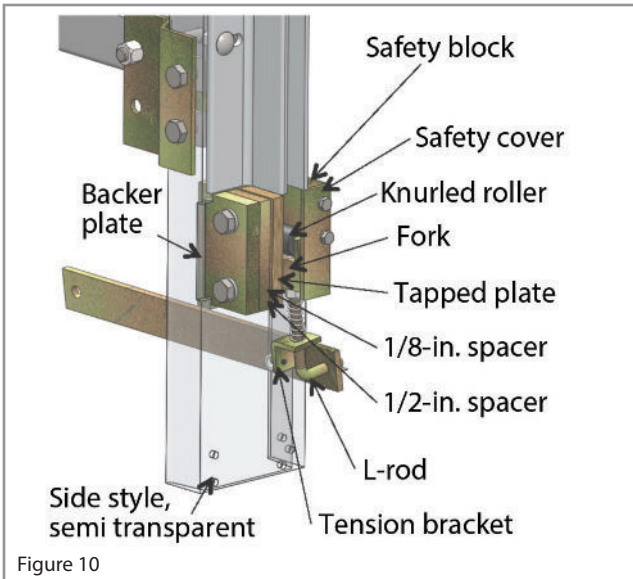


Figure 10

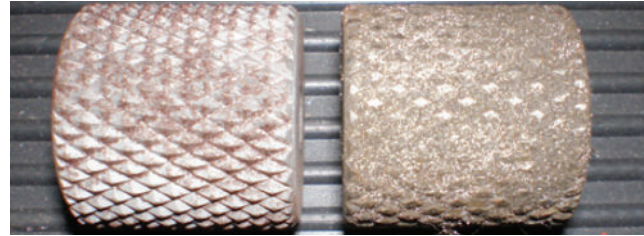


Figure 11

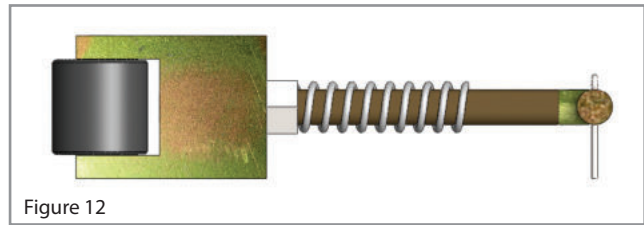


Figure 12

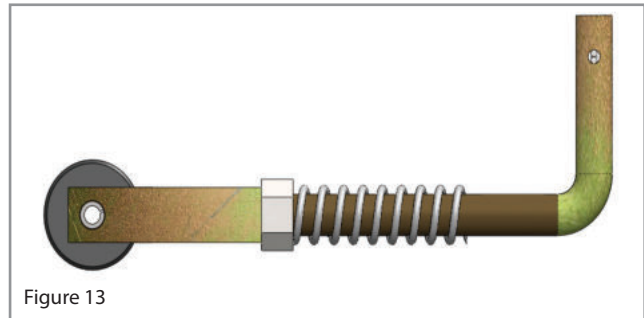


Figure 13

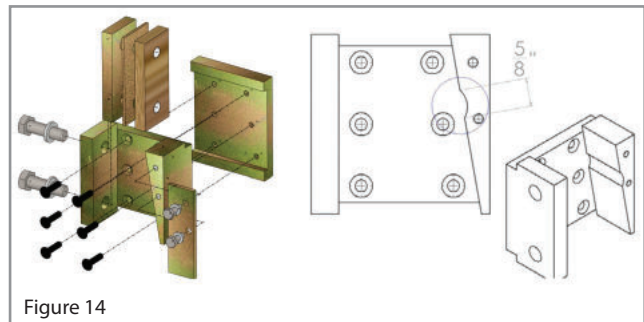


Figure 14

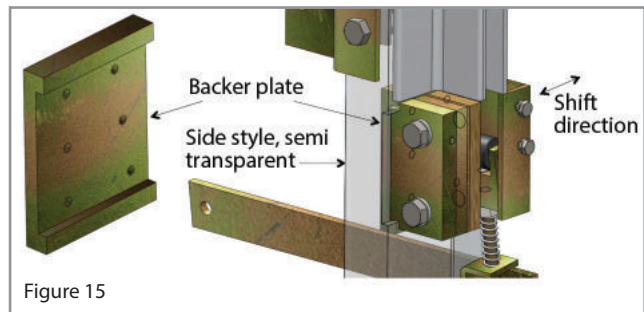


Figure 15

With both side stiles installed, the upper and lower cross channels can be swung together. Carriage bolts can then be used to loosely attach the cross channels together. When installing the carriage bolts, it is important to position them as far apart as possible (Figure 4). With the carriage bolts installed, check for approximately 1/8 in. (1/16 in. per side) of total gap between the nose of the guide rails and False Car, then tighten the carriage bolts on the lower, then upper cross channels.

Next, the lift angles can be installed: note that only grade 8 or superior bolts be used when attaching the lift bars. Additionally, keep the lift bars as much in line with the lift angles as possible, as there should always be a gap between the bolts.

The False Car platform has been designed to be adjustable along with the False Car, and is engineered and rated for the payload calculations as described in this article. When installing the platform on the False Car frame, measure the distance between the

lift angles at the upper cross channels, and cut a slot in the center of the plywood panels for the lift angles' width, approximately 10 in.

After the platform has been installed, the additional platform supports can be installed as necessary. These supports are intended to provide additional stability and support and are strongly recommended any time the depth exceeds 84 in.

The handrail/canopy can be of several configurations, including slant top, flat top, and either mesh netting or wooden hard top. Slant-top wooden canopies are recommended for maximum protection from falling debris, while flat-top mesh canopies offer a transparent view above the canopy but not the same ability to deflect falling debris. Because of the variation in canopy size, wood composition and angle of canopy, these are unable to be given one rating across all types, sizes and styles. Finally, there is a breakaway option for all canopies, which allows the roof to come off in the event of a falling car with a worker tied to a lifeline.

With canopy installed, initial inspection can commence. Attach the provided sheet (Figure 9) to the False Car, which will provide a checklist for daily inspection of the most commonly inspected items. Always follow company policy and any appropriate additional standards or work rules.

Climbers with single sheaves work best if there is no slack in the rope below the climber. The excess rope is typically coiled and hung. In some cases, a light (approximately 10-lb.) weight can be attached to the wire rope to ensure proper rope contact with the sheave. The safety rope should be run through the appropriate climber or block-stop location so that if the primary rope fails the climber, the

block stop will grab the secondary safety rope. A slightly heavier (approximately 25-lb.) weight is used at the bottom of this rope.

To ensure the False Car provides the necessary level of safety and security, the following repair and inspection must be performed after either every use or 30 days, whichever comes first. Note that for proper inspection, where possible, each part must be removed from the assembly and thoroughly inspected. Also, be aware that there may be multiple instances of each item on a False Car, all of which must be inspected as specified in the following sections.

Safeties

The first parts of any False Car that should be inspected are the safeties. Their correct operation is critical, as these are the devices that will hold the False Car securely to the elevator guide rails while work is taking place in the hoistway. The safeties consist of numerous components (Figure 10).

Knurled Rollers

Knurled rollers must be checked for wear. They should have a constant diameter with sharp points on the tops of all the knurl points. There should be little to no dirt, metal or other foreign material between the knurls or grooves. The roller should not have any dirt in the bore where the spring pin is located and spin freely.

It can be good practice to replace knurled rollers after each use. Figure 11 shows the difference between (l-r) a new product and one that has been used once. The key note about this is that the knurls have been almost completely worn off of the specimen on the right.

Continued

Wurtec uses a Class 1 knurl on its knurled roller. The diameter is not controlled closely during the manufacturing process, since the configuration and sharpness of the knurl points are more important than the diameter of the roller. Thus, it is difficult to use roller diameter as the sole means of retirement criteria. It is recommended to replace the roller if one of the following applies:

- ◆ The points of the knurl are no longer sharp (Figure 11, right)
- ◆ The diameter of the roller is smaller than 1.015 in.

Fork

The knurled roller is contained in the safety assembly by the fork (Figure 12). Inspect the fork to ensure the knurled roller and spring pin fit securely within it. Validate that the L-rod is screwed into the fork and that the threads are not damaged. (If they are damaged to the point where the fork cannot be removed from or screwed onto the L-rod, both parts should be replaced). Make sure the knurled roller is able to rotate freely inside the fork. Replace the fork immediately if the sides of the fork are bent enough to prevent the knurled roller from rotating freely.

L-Rod

Inspect the L-rod (Figure 13) that threads into the fork. If the fork and L-rod are stuck together, both should be replaced. Check for any cracks and/or deformations in any part of the L-rod, mainly near holes, and at the 90° bend and threaded section. The L-rod is bent to an angle of 90°. If this angle deviates more than 5° from 90°, a replacement is required.

Safety Block

The safety block (Figure 14) is located on the side stile and retained in place with a backer plate. If gouges are wider than 1/16 in. or deeper than 1/16 in., replace the safety block. If gouges are on or around angles/corners, replace the part immediately. Check chord dimension of wear on the block. The area of the block where the knurled roller makes contact with it should show deformation/impression, having a chord dimension no larger than 5/8 in. as indicated in the circled section of Figure 14. Make sure the safety block has the correct amount of spacers properly positioned and attached for the size rail. These allow for correct use of the safety on rails of various sizes. Anytime the safety block and backer plate are separated, they must be reassembled with LOCTITE® Threadlocker Blue 242® or an equivalent nut and bolt locker.

Backer Plate

The backer plate (Figure 15) allows the safety-block assembly to shift within the side stile, while still keeping it securely attached to the false car. The backer plate must be checked for gouges. If any are wider than 1/8 in. or deeper than 1/16 in., the part should be replaced. If any gouges appear near interior corners/edges, the part should be replaced immediately. Any modifications on the backing plate may cause problems with the structural integrity of the safeties, and the part must be replaced immediately. If the flathead bolts are removed, make sure to check that the threads on the backer plate are usable. If the backer plate and safety block are stuck together, both will need

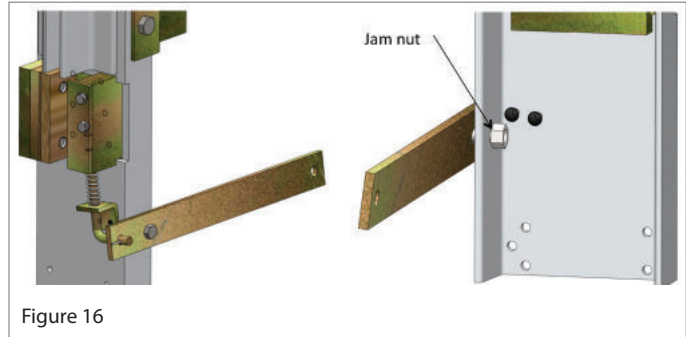


Figure 16

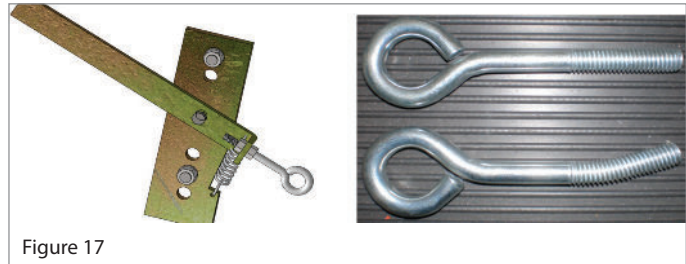


Figure 17



Figure 18

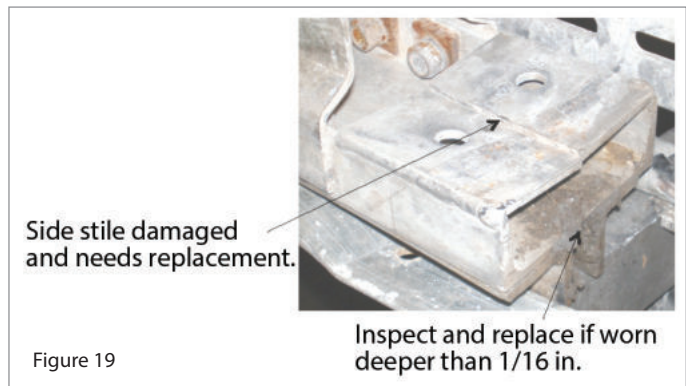


Figure 19

Learning-Reinforcement Questions

Use the below learning-reinforcement questions to study for the Continuing Education Assessment Exam available online at www.elevatorbooks.com or on p. 129 of this issue.

- ◆ What is an important point to remember while setting up the False Car system?
- ◆ What is an important point to remember regarding preparing a site for safe working conditions where a False Car will be installed and used?
- ◆ What is one of the main points to remember before traveling in the downward direction after working on the False Car platform at a stationary level?
- ◆ What are the criteria that would require replacement of a knurled roller?
- ◆ What are the main signs of structural stress that should be caught during inspection of False Car components?

to be replaced if they are unable to be separated. Anytime the safety block and backer plates are separated, they must be reassembled with LOCTITE Threadlocker Blue 242 or an equivalent nut and bolt locker.

Safety Retraction Arms

Look for any bends and/or cracks in the safety retraction arms. If any gouge is deeper than 1/16 in., it is recommended the arm be replaced. Ensure that all the linkage moves freely and does not bind or interfere. This is accomplished by adjusting the threaded fastener to allow the arm to pivot freely, then locking it into position with the jam nut provided (Figure 16). Check that all hardware is in place and in acceptable useable condition. Finally, verify that after retraction is completed, the L-rods reengage to their original state.

Safety Pawl

Check for bent or damaged parts or gouges. Gouges should be less than 1/16 in. deep. Ensure the eyebolt is tight, and not damaged or worn. Orient the eyebolt so it is in the vertical plane. If the safety pawl (Figure 17) is damaged and not tight with the eyebolt, tighten or replace the pawl immediately. Check the spring to make sure it has not been permanently deformed and that it is in a useable condition. The coil length of the spring before extension (free length) is 1-1/4 in. This should be a benchmark for how long the coiled spring should be at the coil. Verify that the arm is able to move freely and does not bind with any surrounding parts.

Tension Bracket

Inspect the tension bracket (Figure 18) for damage, wear, unauthorized modification and bends. Ensure that it is securely fastened to the side stile. The tension bracket is manufactured to an angle of 90°, and safe working conditions allow only a 5° change. If the angle has a bend larger/smaller than allowed, it should be replaced immediately.

In addition to the above, the following components should be inspected visually on an ongoing basis.

Side Stile

The side stile is the main support for the entire False Car and, therefore, should be closely checked for any bends, cracks and/or warps. Ensure that it is not worn where the faces of the rails ride. Anything more than a 1/16-in.-deep groove is unacceptable and warrants stile replacement. Verify that the flat plate is securely welded to the top of the side stile (Figure 19, right).

Cross Channels

Check the cross channels for any bends, warps or other damage. Ensure that no modifications, such as new holes, slots, self drillers, etc. are found on them. Ensure the cross channels were correctly oriented when installed.

Support Angles

Check the platform support angles for any bends, warps or other damage. Ensure no modifications, such as new holes, slots, etc. exist in them. Make sure the holes have not become elongated. If they are elongated, the angle should be replaced.

Continued

Lift Angles

Check lift angles for any bends, warps or otherwise damaged parts. Ensure that the holes are intact and not elongated or broken through. Ensure no modifications, such as new holes, slots, etc. exist in them.

Diagonal Braces

Check for any bends or warps in the round section of the part. Ensure the holes are intact and not elongated or broken through. Check for flat transitions, and cracks or tears in the flat ends.

Safety Retraction Kit

Verify that a safety retraction kit is included with the assembly and that all contents of the kit are present. The safety cable should be replaced if it shows any visible sign of damage.

Overall Assembly

Check to ensure that all hardware is in place, securely fastened and appropriately sized. Verify that when the knurled rollers are retracted, they spring back into their locked (engaged) position. If new parts are required, replacement hardware must be grade 5 or better. Check for labels. There are left and right sides of the side stile assemblies. (The only differences are cross-channel location and orientation.) Make sure the side stiles are correctly oriented before clearing for further use. After final inspection and when all parts have been cleaned or replaced and the assembly is ready to be returned to the field, reassemble the False Car in shipping format.

During reassembly, ensure all the parts are in the correct slots, have the correct orientations, etc. so the False Car will work as specified. Verify that the safeties are free to shift back and forth within the side stiles. After reassembly, ensure that all springs over the L-rods work properly and push all required parts back to their required positions.



Rob Wurth is president of ECL by Wurtec and Top Floor Elevator Store by Wurtec. He is also chair of the National Association of Elevator Contractors NexGen Committee. Wurth graduated from the University of Michigan in Ann Arbor and has been involved in the elevator industry with Wurtec for more than a decade with elevator installation tools, components and, more recently, residential and limited-use/limited-application elevator packages.



ELEVATOR WORLD Continuing Education Assessment Examination Questions

Read the article “False Car” (p. 95) and study the learning-reinforcement questions at the end of the article.

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1. Which is *not* one of the main safety systems/components in the False Car system?
 - a. The overspeed governor/brake on the primary climbing cable.
 - b. The overspeed governor/brake on the secondary/backup climbing cable
 - c. The personal fall protection and lifeline for those working on the False Car.
 - d. Netting installed below the frame of the system.
2. How can safety redundancy when rigging the False Car be increased?
 - a. By attaching the two climbing cables to separate independent rigging points.
 - b. By attaching both climbing cables to the same rigging point.
 - c. Uncoiling the ropes during installation.
 - d. Installing a pair of rail blocks at different levels.
3. What is the recommended clearance dimension between the False Car side stile (guides) and blade of the rail?
 - a. 1/8-in. clearance from the side of the blade to the False Car guides.
 - b. 1/16-in. clearance from the side of the blade to the False Car guides.
 - c. 1/6-in. clearance from the side of the blade to the False Car guides.
 - d. 1/4-in. clearance from the side of the blade to the False Car guides.
4. What is the proper dimension to the blade of the rail in order to allow a satisfactory amount of friction between the False Car and rails?
 - a. 1/16-in. clearance from the nose of rail blade to the False Car safeties.
 - b. 1/8-in. clearance from the nose of rail blade to the False Car safeties.
 - c. 1/8-in. clearance from the nose of rail blade to the False Car side stile.
 - d. 1/16-in. clearance from the nose of rail blade to the False Car side stile.
5. When inspecting the backer and safety plates in the safety assemblies for the False Car, at what minimum depth of gouge in either plate should the part be replaced?
 - a. Anything wider than 1/8 in. and deeper than 1/16 in. on the backer plate, and anything wider or deeper than 1/16 in. on the safety plate.
 - b. Anything wider than 1/8 in. and deeper than 1/16 in. on either the backer plate or safety plate.
 - c. Anything wider than 1/16 in. and deeper than 1/16 in. on the backer plate, and anything wider or deeper than 1/16 in. on the safety plate.
 - d. Anything wider than 1/8 in. and deeper than 1/16 in. on the backer plate, and anything wider or deeper than 1/16 in. on the safety plate.
6. When must repair and inspection be performed on the False Car system?
 - a. After every other use or twice yearly, whichever comes first.
 - b. After every other use or 30 days, whichever comes first.
 - c. After either every use or 60 days, whichever comes first.
 - d. After either every use or 30 days, whichever comes first.
7. Beyond which DBG are the additional platform support arms recommended?
 - a. 78 in.
 - b. 84 in.
 - c. 64 in.
 - d. 93 in.
8. Which factors account for the difference between the hoist capacity and allowable payload of the False Car system?
 - a. Weight of the ropes, safety cable, shims and required tools.
 - b. Weight of the ropes, two technicians and their tools.
 - c. Weight of the motor, False Car frame and platform, overhead protection/handrails and power cord.
 - d. Weight of the motor, False Car frame and platform, two technicians and power cord.
9. During inspection, repair, or reassembly, what is important to remember when reassembling the safety plate to the backer plate?
 - a. They must be reassembled using LOCTITE® Threadlocker Blue 242° or an equivalent nut and bolt locker.
 - b. They must be reassembled with lock washers, with bolts torqued to 50 ft./lb.
 - c. They must be reassembled without tools, to hand tightness.
 - d. They must be reassembled before the False Car is taken out of service.
10. If new parts are required, replacement hardware must be:
 - a. Grade 3 or better.
 - b. Grade 4 or better.
 - c. Grade 5 or better.
 - d. None of the above.

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