FATA AUTOMATION

Gravity Roll Stands

Maintenance Manual

FATA Automation Project #C25106 | Rev. March 2026

FATA Automation - About the Company

FATA Automation Headquarters, Auburn Hills, MI

FATA Automation has been a pioneer in providing cutting-edge material handling and conveyance solutions for manufacturing companies across the globe since 1936.

Over the decades, the company has transformed numerous challenges into success stories, establishing a reputation for innovation and reliability in the industry.

We have experience in:

- Automated Parking Systems
- Automated Storage and Retrieval Systems (ASRS)
- Carrier/Skid Design
- Electrified Monorail Systems (EMS)
- Geo Pallet Conveyor
- Pendulum Conveyors
- Process Conveyors
- Skid Conveyor Systems
- Skillet Conveyor Systems

FATA Automation's Headquarters is located in Auburn Hills, Michigan - an ideal location at the center of the automotive industry. We also have satellite offices in Mexico and Italy.

Our Mission

FATA strives to be the industry's premier automated materials handling supplier. We evaluate and implement new technologies and best practices to deliver solutions catered to our customers' needs in order to give them a competitive advantage. Our goal is to provide quality, economical products and services on a schedule that satisfies or exceeds our customers' expectations.

Safety

This section describes safety precautions and practices recommended by FATA Automation, Inc. Fata Automation is not and does not represent ourselves as experts in safety systems, safety equipment or the specific safety aspects of your company and its workforce. In this manual we will convey guidelines and best practices regarding safety and general safe protocol for accessing and servicing our Conveyor systems. All plant specific safety rules, regulations and procedures must be followed.

Safety should be a primary concern for all personnel working in an industrial environment. Industrial machinery is capable of causing serious injury or death when operated improperly or when personnel are unaware of equipment status or are distracted.

Many safety features are built into controlling automated equipment. While safety features can minimize risk, the best way to prevent accidents is for everyone to be alert, safety conscious, knowledgeable about the equipment, and use common sense.

⚠ WARNING ⚠

Under no circumstances should anyone be authorized or feel pressured to defeat, circumvent, remove, or tamper with access gates, guards, interlock devices, or other system safety features.

ⓘ NOTICE ⓘ

This manual supplements but does not replace and/or supersede any company, industry, or government safety guidelines.

Manual Advisory Labels - Key

Advisory labels appear in various locations throughout this manual to alert the user to important safety information. Observe all warnings and cautions to minimize the risk of personal injury. Avoid improper service methods that can damage the machine line or render it unsafe.

The symbols included in this manual have the following explanations:

ⓘ NOTICE ⓘ

The presence of this symbol indicates a precaution to be taken during an operation or procedure. It may also include information that makes an operation easier to complete.

⚠ CAUTION ⚠

The presence of this symbol indicates that the procedure or item being described may cause damage to the machine, assembly, or component. Follow all instructions to prevent this from occurring.

⚠ WARNING ⚠

The presence of this symbol indicates that the operation, procedure or item described has the potential to cause severe injury or death. Use extreme caution and follow all safety guidelines when encountering this symbol. Failure to observe warnings may result in severe injury or death.

WARNING

The presence of this symbol warns of electric shock hazard that may cause severe injury or death. Ensure that work on electrical equipment is done by trained and authorized personnel only, and that all instructions are strictly followed to prevent injuries and damage from occurring.

General Safety Instructions

FATA Automation, Inc. strongly recommends that the following measures be taken to promote the safety of all personnel:

- To avoid injuries or damage, plant personnel should have access to this manual to understand proper use of the system.
- Before attempting any maintenance or service operation, ensure that:
  - Machines are at stop and safety lockout guidelines are followed.
  - The system is de-energized and the main electrical switches are open.
- Prior to system start-up, make sure that all safety devices are properly installed and working.
- Make sure that proper safety equipment (e.g., overalls, glasses, gloves, boots, and slings) is at hand and that the equipment is in good condition.
- Carefully follow the plant's safety regulations and signs posted on or near the system.
- Be aware of the signals when malfunction or danger occurs within the system, such as blinking lights or alarm horns. Inform maintenance whenever an alarm occurs.

ⓘ NOTICE ⓘ

When making repairs, be sure to take all necessary precautions to prevent personal injury from loosened or unsupported machine parts.

- Visually locate power disconnects, emergency stop pull cords and push buttons before attempting to operate or repair any portion of the machine system.
- Be alert and safety conscious during operation.
- Obey all federal, state, or local safety laws, regulations, and guidelines.
- Never reach into operating equipment.
- Never attempt to perform any cleaning while equipment is in motion.
- Report any hydraulic oil or coolant leaks immediately. Correct any fluid leaks immediately and do not allow fluid to accumulate which will cause an area to become unsafe for working.
- Be sure that all protective guards are in place before the equipment is started.
- Never climb on equipment. This may damage the equipment, or cause a slip and fall accident resulting in bodily harm. Use only safety approved ladders.
- Be aware of conditions that may be a fire hazard, such as volatile liquids and machining materials with a low flash point.

Electrical Safety

In order to safely work on the system, it should be electrically locked out. The main lockout point on the system is the main disconnect at the control panel. This only shuts off devices powered by this panel. Make sure any interlocked panels are shut down as well.

During maintenance, electrical power should be shut off and locked out unless it is specifically required for the maintenance activity being performed. Even then, power should be locked out until the specified step(s) where power is needed is reached. When power is no longer needed, lock it out again.

WARNING

Always check for voltage before commencing work. Circuits may be powered from multiple sources.

WARNING

Always use electrically insulated tools and other shock avoidance techniques. Do not allow your body to complete an electrical circuit.

⚠ CAUTION ⚠

Remove brushes from rail before welding. Welding when brushes connected to ems system ground will damage the carriers control box.

⚠ WARNING ⚠

USE THE PLANT REQUIRED LOCKOUT INSTRUCTIONS AND REFER TO THE LOCKOUT PLACARDS LOCATED ON THE FRONT OF THE PANEL DOORS TO DE-ENERGIZE THE PANEL AND EQUIPMENT CORRECTLY.

- Only qualified personnel shall perform electrical installation and maintenance.
- Ensure the performance of electrical work conforms to National Electrical Codes and local regulations.
- Disconnect electrical power before working inside control enclosures and refer to the lockout placards located on the front of the panel.
- Equipment required to be energized for testing shall have an electrician present and all operators or personnel involved with the equipment must be aware of the testing.
- Bypassing a Safety Circuit in any manner will cause a hazardous condition and is prohibited.

General Panel Lock-Out Procedure

You should lockout and tagout equipment…

- Anytime a guard or a safety device is removed.
- When a person must place any part of their body where it could be caught by moving parts.
- Before performing maintenance.
- Before making repairs.
- During troubleshooting procedures.
- During installation new equipment.
- During removal or rework of existing equipment.

ⓘ NOTICE ⓘ

Always follow plant internal regulations along with any state, federal, or provincial regulations when locking out any machinery.

1. Alert operator(s), affected employees, and supervisors that the system / equipment is to be locked-out.
2. Perform an End of Cycle Hold procedure for an automatic system to bring the system to an idle state before power is removed
3. Turn off the point of operation by pressing system E-stop push button.
4. Turn off the main disconnect switch or switches for the specific machine(s).
5. Secure a lockout bar, safety lock and danger tag on the disconnect switch. Retain the key. Each person working on the equipment must place their own lockout bar, safety lock and danger tag on the disconnect switch.
6. Test the disconnect switch. Make sure it cannot be moved to the ON position.
7. Test the point of operation switch. Make sure power is really OFF. Ensure that the equipment is at a zero energy state.
8. Try to use a master start to ensure power is really OFF. Always check any high voltage connections with a voltmeter before handling wiring or changing fuses.
9. Where there is more than one point of power entry, apply an appropriate, separate lockout bar, safety lock, and danger tag at each point.
10. Lockout all mechanical equipment capable of sudden and unexpected movement. Ensure all mechanical equipment is at a zero-energy state before performing any checks or work on the equipment.

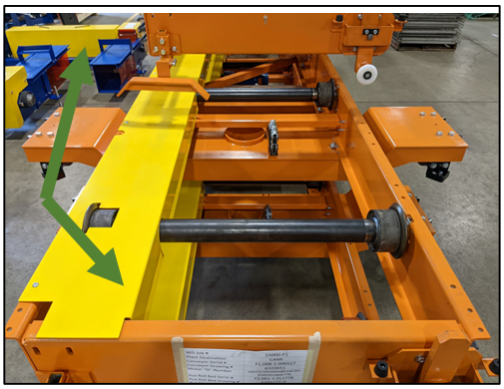
General Release from Lock-Out Procedure

1. Ensure equipment is brought back to its original operational status.
2. Ensure the equipment is safe to operate.
3. Notify affected employees that the equipment is returning to service.
4. Re-install guards and other safety devices to insure proper and safe operation.
5. Remove any mechanical lockouts.
6. Remove lockout bar, safety lock and danger tag.
7. Re-energize the equipment. Always follow plant internal regulations along with any state, federal, or provincial regulations when starting up any machinery.

Sample Safety Devices

Machinery Guards

Machinery guards are used to protect workers from moving parts. Do not remove the guards unless service is being performed. Always replace guards when the service is complete.



Emergency Stop Pushbutton

Emergency Stop (E-Stop) pushbuttons are present on HMIs throughout the system to remove electrical power from the system in the case of an emergency. Do not use an E-Stop to remove power unless it is an emergency, since damage to the system can occur.

Light Curtains

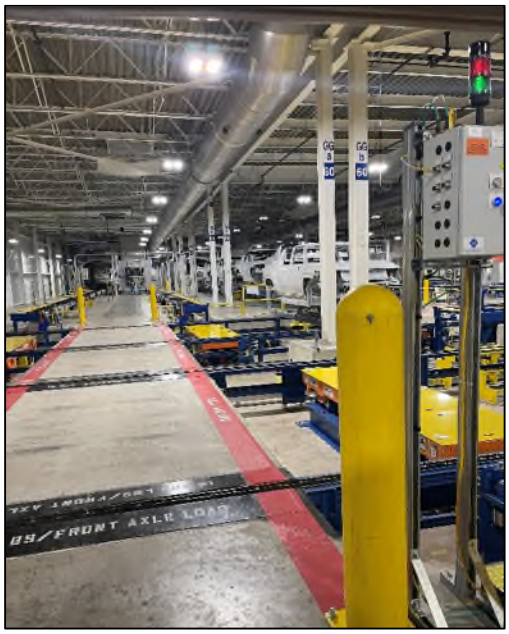
Devices that are used to safeguard personnel in the vicinity of moving machinery with the potential to cause harm. Light curtains can be used as an alternative to mechanical barriers and other forms of traditional machine guarding. By reducing the need for physical guards and barriers, light curtains can increase the maintainability of the equipment they are guarding.

Safety Gate

Conveyor servicing areas or platforms may be restricted with a safety gate. If you attempt to enter the restricted area without properly locking out; an alarm will sound, and the conveyor will shut down.

Request to Cross Paths and Panels

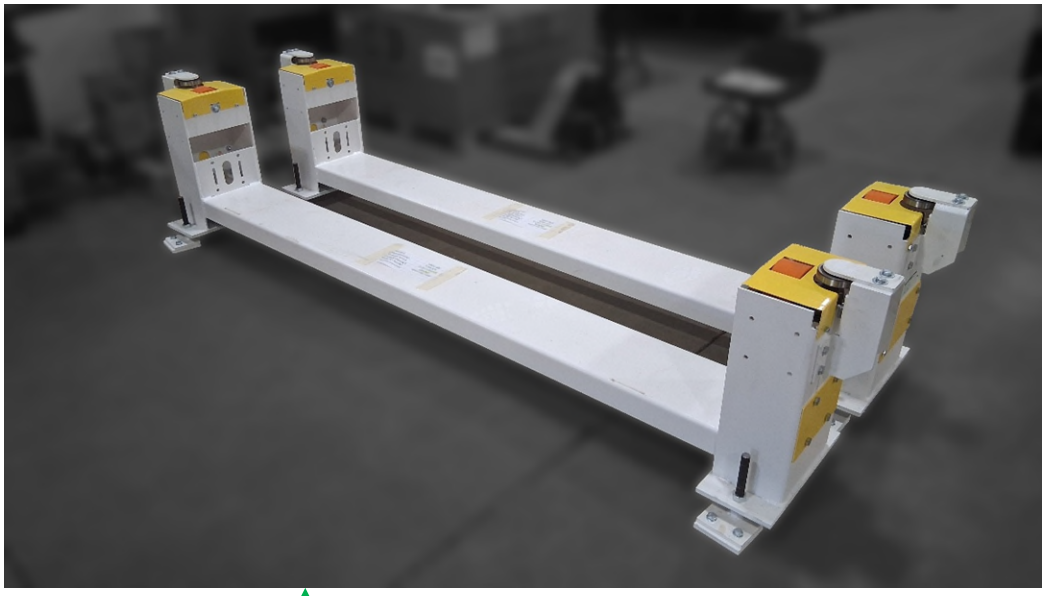
In order to safely cross areas of the plant where conveyor activity and walking areas coexist, personnel have to activate the “Request to Cross” button located on a panel at the entry point of the area. If you attempt to enter the restricted path without being granted access by the safety beacon changing from red to green, an alarm will sound, and the conveyor will shut down.



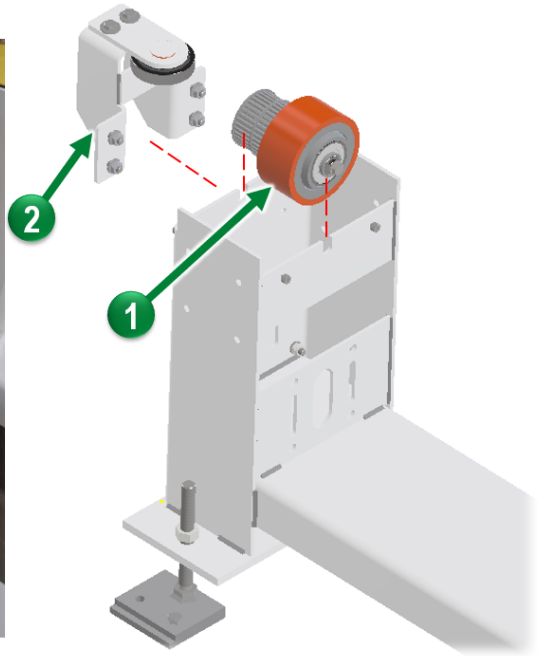
Gravity Roll Stand – Components

Your Gravity Roll Stand (GRS) contains the following major components:

- Industrial Technica Roller
- Side Guide Assembly



Two Gravity Roll Stands side-by-side



1 Technica Roller

2 Side Guide Assembly

3 Safety Cover

Gravity Roll Stand – Preventative Maintenance

Item No.	Item Name	Required Operation	Description	Interval
1	Technica Roller	Inspection	• Check mounting hardware for proper tightness. Look for paint mark alignment on hardware-retighten if necessary. • Check the condition of the wheel surface. It should not have any cracks or breakage. • Visually check for wear on the wheels, look for shavings or flat spots, if not operating properly replace.	**6 Months**
2	Side Guide Assembly	Inspection	• Check mounting hardware for proper tightness. Look for paint mark alignment – retighten if necessary. • Inspect the roller surface for wear or damage. • Check for slop or play, tighten if necessary. • Check that the roller moves smoothly. If it sticks or snags it may need to be replaced.	**6 Months**

Gravity Roll Stand – Maintenance & Service

This section will describe service procedures for major mechanical elements of your Gravity Roll Stand.

⚠ WARNING ⚠

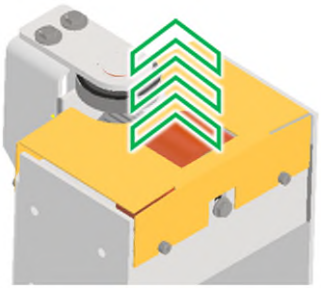
- Only qualified and trained personnel should perform the disassembly and assembly of electrical and mechanical components.
- Before attempting any maintenance on this equipment all involved personnel should follow plant internal regulations along with any state, federal, or province regulations. Do not begin any repair procedure until the proper shutdown procedures and the appropriate power lockout procedures have been applied.

How to Replace a Technica Roller

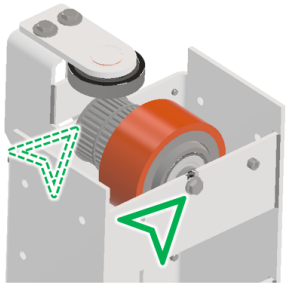
1 Remove any payload from the Gravity Roll Stand.

2 Remove and lockout all power sources to the area.

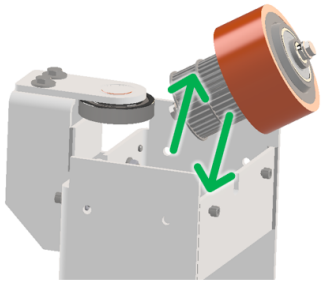
3 Remove safety cover.



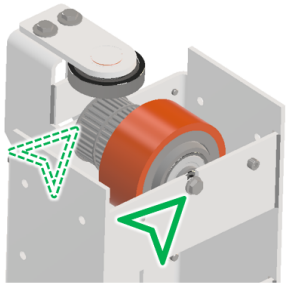
4 Loosen the two bolts securing the roller to the frame.



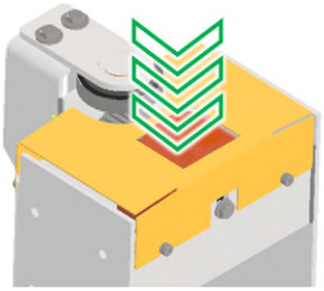
5 Remove old roller and replace with new unit.



6 Re-tighten the two bolts securing the roller to the frame.



7 Return safety cover.



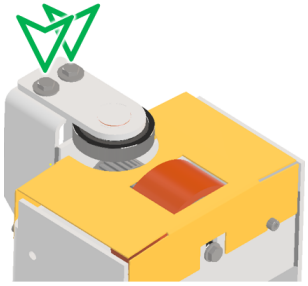
8 Restore power to the area and return GRS to service.
Observe for proper function.

How to Replace a Side Guide Wheel

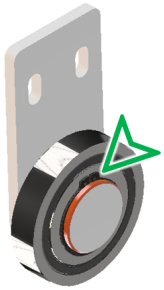
1 Remove any payload from the Gravity Roll Stand.

2 Remove and lockout all power sources to the area.

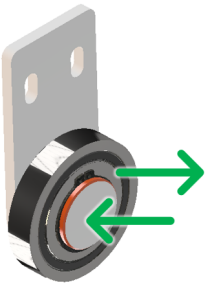
3 Remove the two bolts securing the guide wheel to the frame.



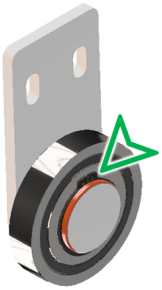
4 Remove retainer ring from old roller.



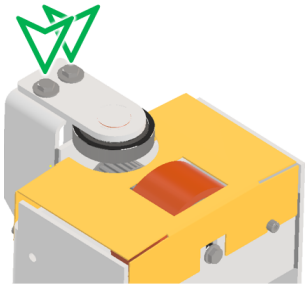
5 Remove old roller and replace with new unit.



6 Mount retainer ring on new roller.



7 Re-tighten the two bolts securing the guide wheel to the frame.



8 Restore power to the area and return GRS to service.
Observe for proper function.

Gravity Roll Stand – Troubleshooting

Problem	Possible Causes	Remedy
Noise with / without vibrations	A roller is out of alignment or defective.	• Check all roller assemblies for loose pieces and foreign parts. • If this is not effective, replace roller assembly.
	Guide Rollers are out of alignment or defective	• Re-adjust rollers/ replace rollers.

General Troubleshooting

Device Type	Typical Devices	Action
Re-settable	• Light screens • Access Gate Boxes/Safety Plugs • E-stops	Visually inspect the protection area devices and reset any tripped devices.
Power Distribution	• Circuit breakers • Contactors/Relays • Connection	Check that power is distributed to the control panels, field devices, and components.
Processing	• PLC Processor • Input/Output Modules	Check the Main Control Panel processors and I/O modules for proper operation.
Communication	• EtherNet Module • DeviceNet Module	Check the Main Control Panel EtherNet and DeviceNet Modules for proper operation.
Machinery	• VFDs • Motors • Switches/Sensors • Connection System (cables/cords)	Follow a clear and logical approach to determining a failed device. Eliminate components that are a quick fix.

FATA AUTOMATION

Do You Have Service Questions or Need Spare Parts?

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