

Light Duty VDL with CDLR Preventive Maintenance



- Before attempting any maintenance on this equipment all involved personnel should follow plant internal regulations along with any state, federal, or province regulations.
- The maintenance inspection, checks, and procedures listed in the preventive maintenance tables are assumed with the gated area electrically locked out.
- Before attempting any maintenance or service operation, make sure that:
 - You do not begin any repair procedure until the proper shutdown procedures and the appropriate power lockout procedures have been applied.
 - The system is de-energized; main electrical switches are open.



The maintenance inspection, checks, and procedures listed in the preventive maintenance tables and corrective procedures should be performed when the equipment is immobilized and locked out.

This section contains preventive maintenance schedules with recommended lubrication intervals. Assemblies in this section include:

- **VDL Assembly**
- **Mobile Carriage Frame**
- **Cat Track Assembly**
- **Floor Level Drive Assembly**
- **Counterweight Assembly**
- **Upper Sprocket Assembly**
- **Arrangement Position Measuring**

Daily Checks

Observe

- Obvious signs of damage to the equipment. Listen to the conveyors - an unusual sound like screeching, grinding, or whining, are indicators of a problem.
- Damage or noticeable wear on the carrying and guide rollers.
- Signs of oil leaks on the equipment or on the floor below any gearbox.

Evaluate

- If you notice any of the above issues, evaluate the cause and the risk involved.

Act

- Schedule or perform necessary maintenance repairs as appropriate.

Mechanical Preventive Maintenance - key

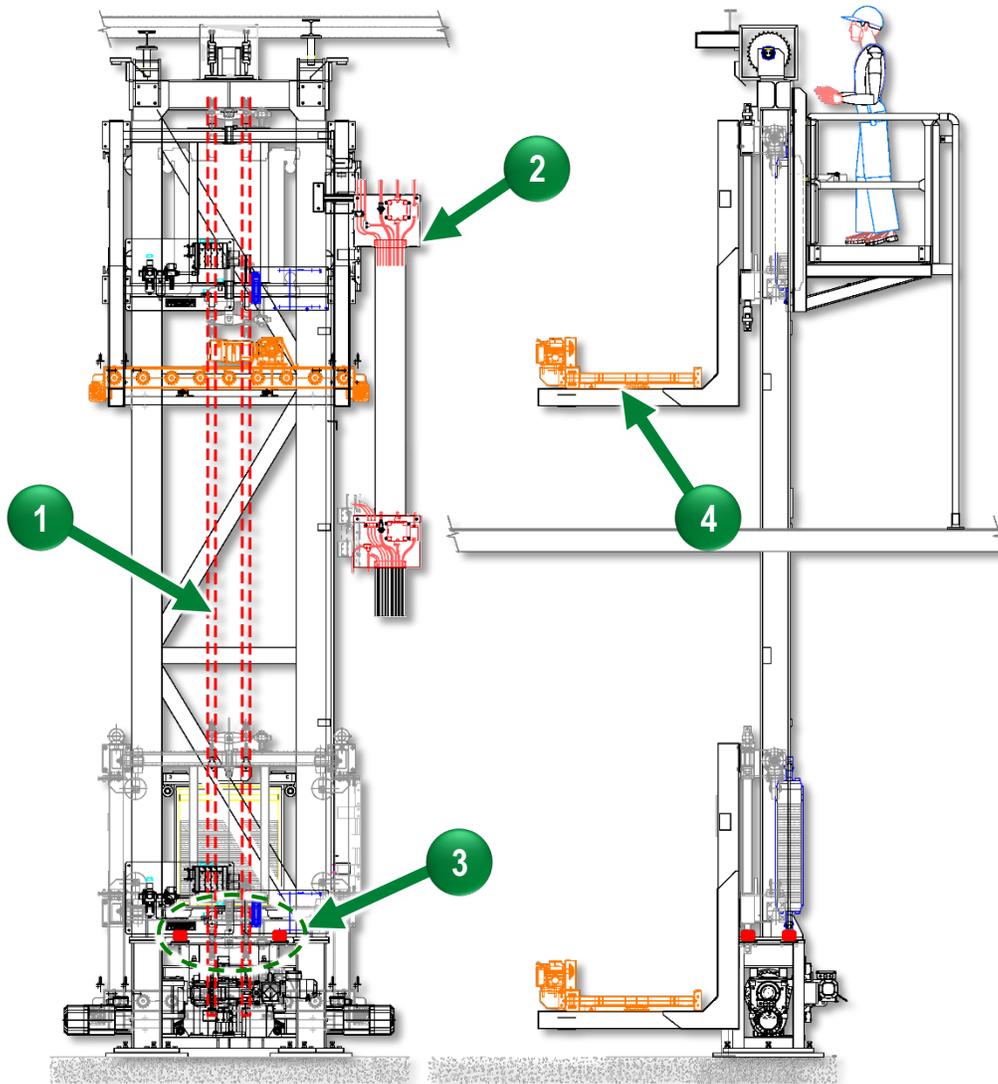
Preventive Maintenance tables consists of:



Item No.	Item Name	Required Operation	Description	Interval
1	Gearmotor	Inspection	<ul style="list-style-type: none"> Visually inspect gear unit for oil leakage. Check for oil film or grease deposits – clean if necessary. Check mounting hardware, check paint marks... 	6 Months

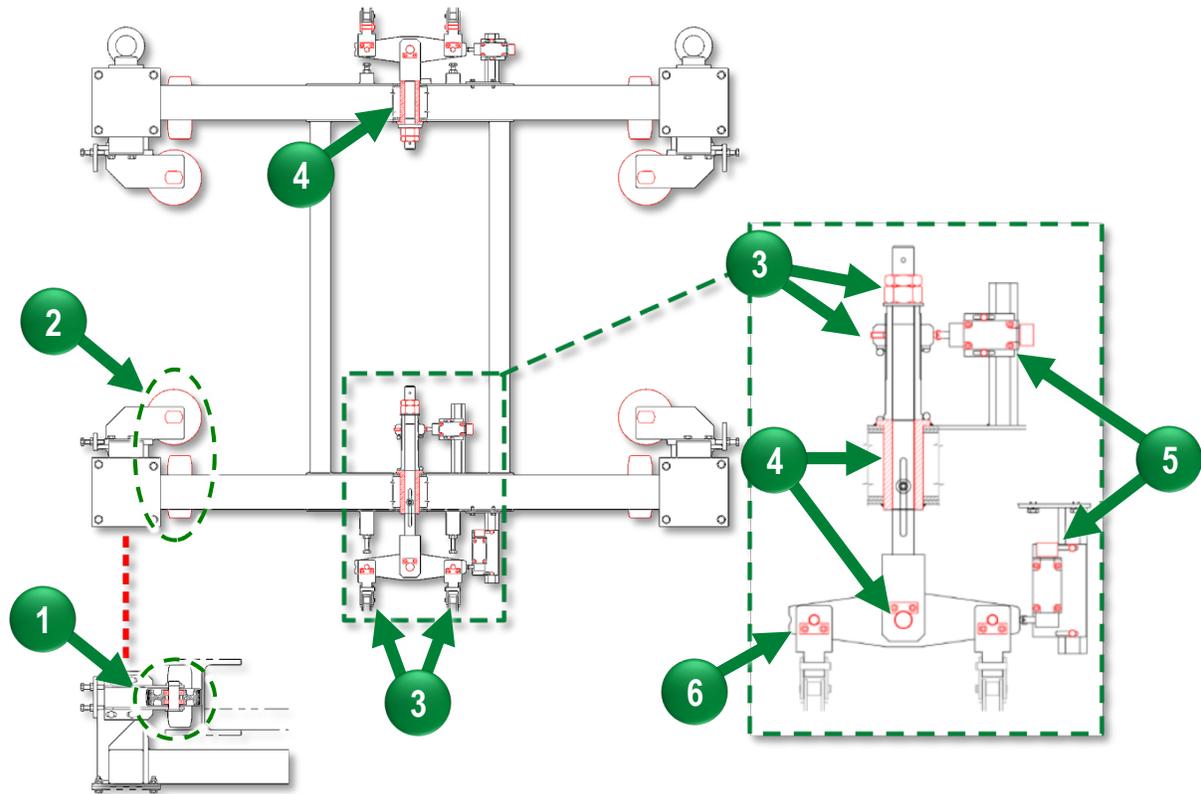
- A. Indicates the callout number associated on the schematic drawing, image or figure.
- B. Component name within the assembly.
- C. Required preventive maintenance operation - i.e., inspection or lubrication.
- D. Detailed description of the operation(s) to be performed.
- E. Recommended frequency of PM task.

VDL Assembly Maintenance Items



Item No.	Item Name	Required Operation	Description	Interval
1	Chain	Inspection	<ul style="list-style-type: none"> Index the lift. Check lift chains run freely and without excessive noise Check for chain wear: With equipment locked out check inside of chain link plate and roller treads for wear. 	1 Month
2	Cat Track Assembly	Inspection	<ul style="list-style-type: none"> Check flexible cables for secure connection, for wear, excessive cracks, exposed wire or burnt jacket. 	3 Months
3	Bumpers	Inspection	<ul style="list-style-type: none"> Check bumpers for wear and excessive cracks. 	12 Months
4	CDLR		Refer to Lathrup’s documentation that accompanies this manual for preventive maintenance procedures.	

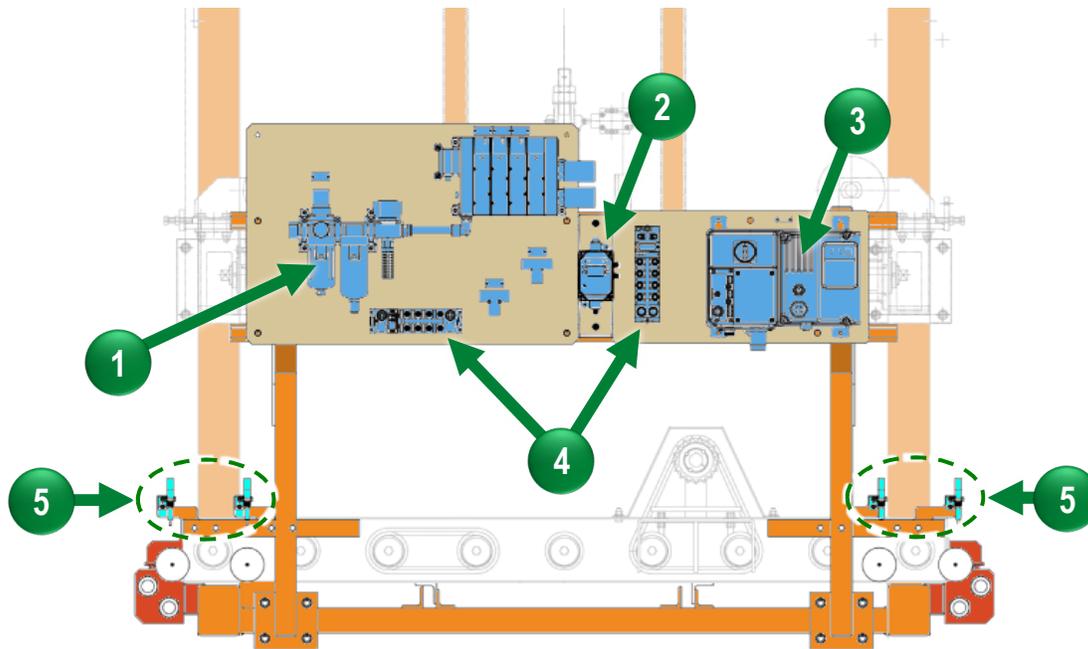
Internal Mobile Carriage Maintenance Items



Item No.	Item Name	Required Operation	Description	Interval
-	Cords	Inspection	<ul style="list-style-type: none"> Check cords for secure connection, for wear, excessive cracks, exposed wire or burnt jacket. 	3 Months
1	Guide Roller Assembly	Inspection	<ul style="list-style-type: none"> Check guide roller for ease of movement and for bearing noise. Check that the guide roller is properly secured to roller bracket weldment. 	
2	Guide Roller Wheel	Inspection	<ul style="list-style-type: none"> Check wheel for abnormal wear, and/or cracks. Examine for side and face cracks. Replace wheel if cracks are greater than 1mm or if worn down more than 2% of the original diameter. 	
3	Chain Termination Connections	Inspection	<ul style="list-style-type: none"> Check the M30 lock nuts are secure. Check the M12 set screw is secure. See <i>Appendix</i> for torque values 	
4	Chain Termination Bushing	Inspection	<ul style="list-style-type: none"> Check bushing for wear. Lube free. 	

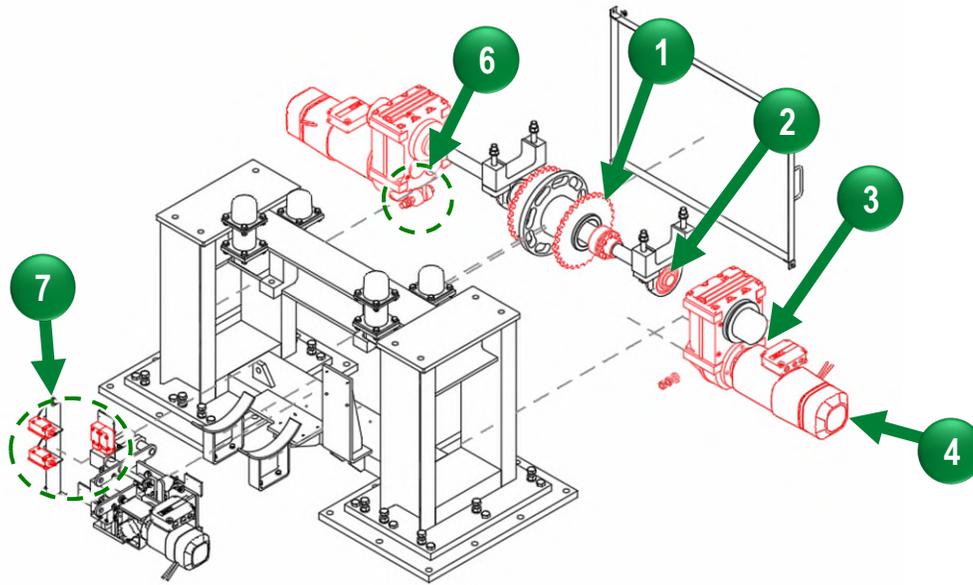
Item No.	Item Name	Required Operation	Description	Interval
5	Chain Termination Slack/Break Detection Switches	Inspection	<ul style="list-style-type: none"> • Check the slack/break detection switch roller plunger for wear and functionality. • Check that the switch and switch bracket is secure. Tighten the switch M5 screws and mtg. bracket M6 screws if loose. • See <i>Appendix</i> for torque values 	3 Months
6	Pin Retainer Plate	Inspection	<ul style="list-style-type: none"> • Check that the chain termination assembly pins are secure. Tighten M8 SHCS if loose. • See <i>Appendix</i> for torque values. 	6 Months

External Mobile Carriage Maintenance Items



Item No.	Item Name	Required Operation	Description	Interval
1	Valve Board	Inspection	<ul style="list-style-type: none"> Check fittings and connections to make sure they are tight and secure. Make sure hoses are secure and leak free. 	6 Months
2	Gateway Box	Inspection	<ul style="list-style-type: none"> Check that antenna is secured tightly. 	
3	Lense Drive (IDC)	Inspection	<ul style="list-style-type: none"> Check the drive for wear and functionality. Check electrical connections are secure. 	
4	IO Blocks	Inspection	<ul style="list-style-type: none"> Check that all unused ports are plugged Check all potting for cracks, damage, or burn marks 	
5	Photo Eye Stop Switches	Inspection	<ul style="list-style-type: none"> Check the stop switches for wear and functionality. Check electrical connections are secure. 	
Misc.	Magnetic Vibration Sensors	Inspection	<ul style="list-style-type: none"> Check that any attached magnets are in their proper places. 	

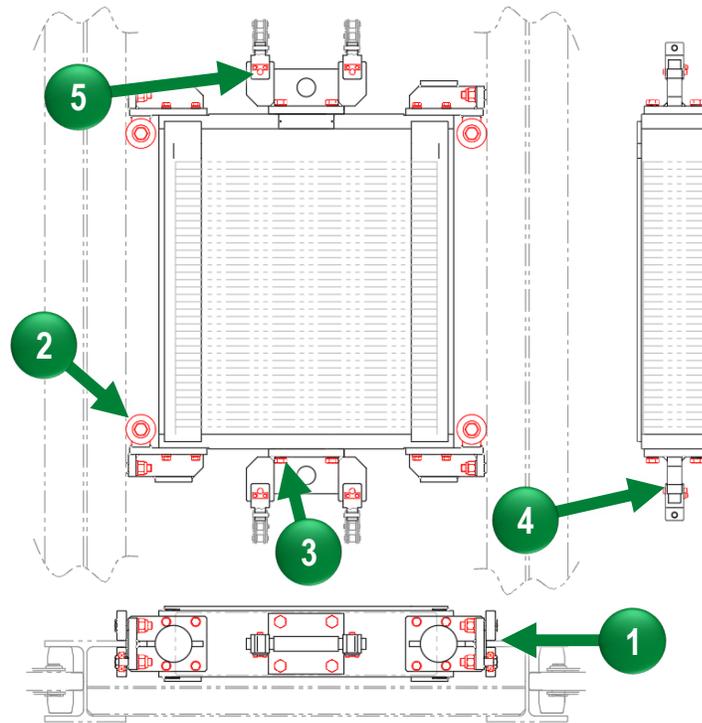
Floor Level Drive Assembly Maintenance Items



Item No.	Item Name	Required Operation	Description	Interval
1	Drive Sprocket	Inspection	<ul style="list-style-type: none"> Check the drive sprocket for wear (teeth having a hooked appearance) or contamination. Replace as needed. Check drum sprocket clamping set is secure. 	3 Months
2	Pillow Block Bearings	Lubricate	<ul style="list-style-type: none"> Add all-purpose /NLGI 2 grease until new grease displaces the old. 	
		Inspection	<ul style="list-style-type: none"> Check mounting hardware for proper tightness. Look for paint mark alignment on hardware – retighten if necessary. Check for housing damage. Check for binding or sticking in the bearing housing. Check alignment of the shaft between bearings. 	
3	Gearmotor	Inspection	<ul style="list-style-type: none"> Use the oil sight glass or remove the oil level plug to check the level of oil. Check that all electrical connections are secure. If loose, tighten. Check the electrical connections for evidence of arcing. If evidence of arcing has occurred, replace the damaged connection. 	36 Months
		Lubrication	<ul style="list-style-type: none"> Replace the oil in the gearbox after 3 years of use 	

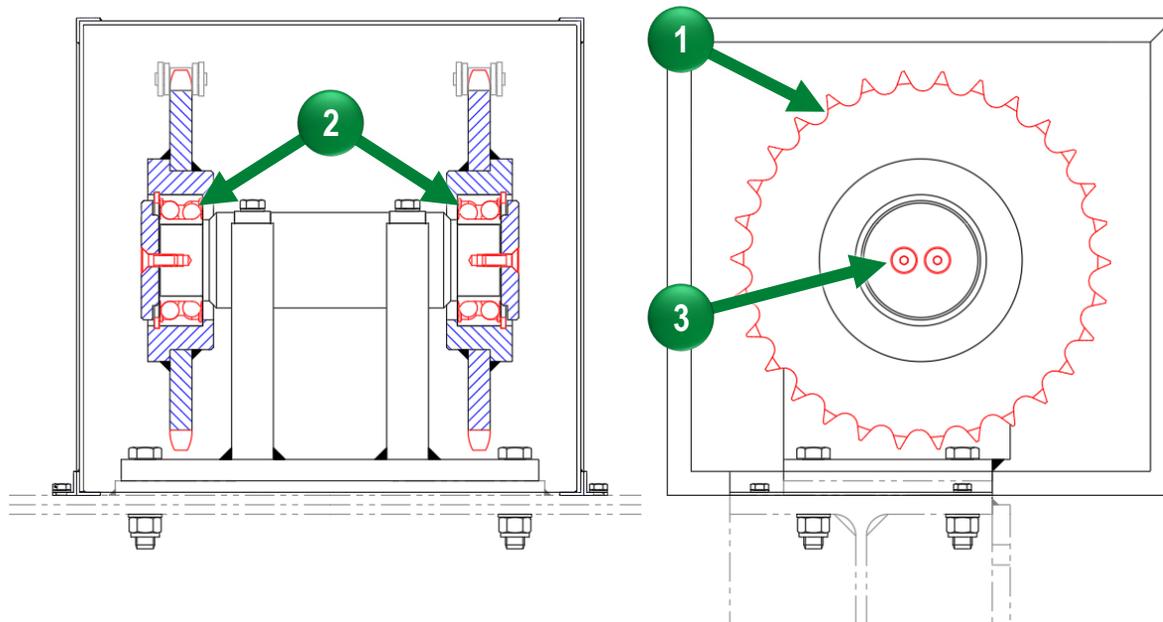
Item No.	Item Name	Required Operation	Description	Interval
4	Gearmotor Brake	Inspection	<ul style="list-style-type: none"> Check brake air gap per recommended manufacturer settings. 	6 Months
6	Gearmotor Torque Arm Mounting Bolt	Inspection	<ul style="list-style-type: none"> Check that the gearmotor mounting bolts are secure. Tighten ¾" HHCS if loose. Tighten screw until the rubber bushings reach a pretension of 1.5mm (FH87 Gear reducers). 	
7	Shot Pin Extend/Retract Limit Switch	Inspection	<ul style="list-style-type: none"> Check the extend and retract limit switch roller plunger for wear and functionality. Check electrical connections are secure. 	6 Months

Counterweight Assembly Maintenance Items



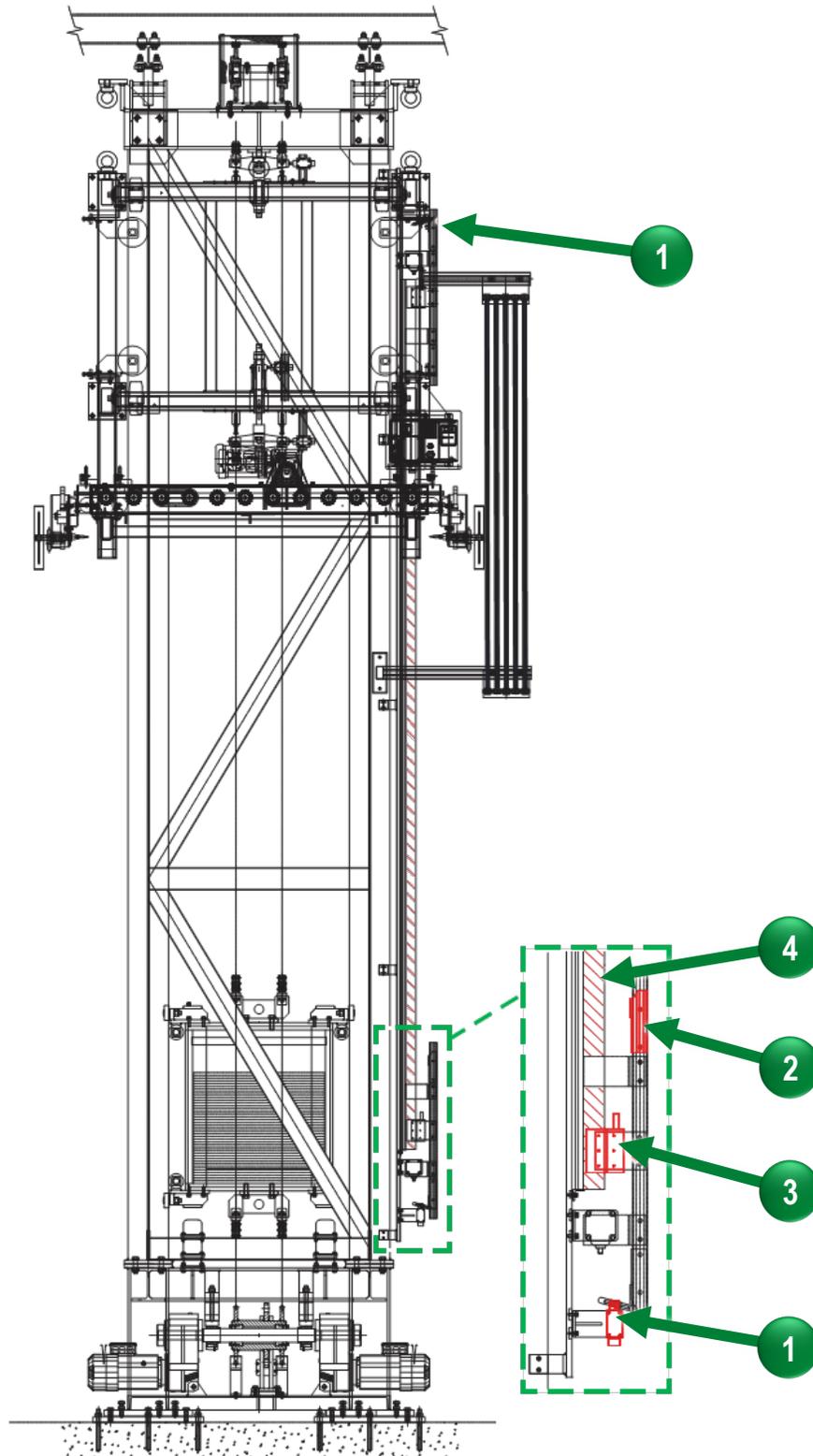
Item No.	Item Name	Required Operation	Description	Interval
1	Guide Roller Assembly	Inspection	<ul style="list-style-type: none"> Check guide roller for ease of movement and for bearing noise. Check that the guide roller is properly secured to roller bracket weldment. 	3 Months
2	Guide Roller Wheel	Inspection	<ul style="list-style-type: none"> Check wheel for abnormal wear, and/or cracks. Examine for side and face cracks. Replace wheel if cracks are greater than 1mm or if worn down more than 2% of the original diameter 	
3	Chain Termination Assembly Mounting Bolts	Inspection	<ul style="list-style-type: none"> Check that the chain termination assembly bolts are secure. Tighten M16 HHCS to 180Nm if loose. 	6 Months
4	Chain Termination Assembly Pin	Inspection	<ul style="list-style-type: none"> Check pin mechanical integrity. Check for wear spots and stress fractures. 	
5	Pin Retainer Plate	Inspection	<ul style="list-style-type: none"> Check that the chain termination assembly pins are secure. Tighten M8 SHCS if loose. See <i>Appendix</i> for torque values 	

Upper Sprocket Assembly Maintenance Items



Item No.	Item Name	Required Operation	Description	Interval
1	Idle Sprockets	Inspection	<ul style="list-style-type: none"> Check sprockets for wear (teeth having a hooked appearance) or contamination. Replace as needed. 	3 Months
2	Roller Bearings	Inspection	<ul style="list-style-type: none"> Check for noise or misalignment due to wear 	
3	End Cap Bolts	Inspection	<ul style="list-style-type: none"> Check that bolts are tight. See <i>Appendix</i> for torque values 	

Arrangement Position Measuring Maintenance Items



Item No.	Item Name	Required Operation	Description	Interval
1	Over-travel Limit Switch	Inspection	<ul style="list-style-type: none"> Check the over-travel limit switch for wear and functionality. Verify arm is not loose or damaged. 	3 Months
2	Over-travel Limit Switch Assembly	Inspection	<ul style="list-style-type: none"> Check the over-travel switch assembly bracket and switch actuator are secure. 	
3	Coded Rail Reader Head	Inspection	<ul style="list-style-type: none"> Verify functionality. Clean lens with soft cloth. Check reader head assembly is secure. 	
4	Coded Rail	Inspection	<ul style="list-style-type: none"> Verify rail is not damaged and is straight and secure. 	6 Months

Lubrication Requirements - Gearmotor Oil Lubrication

Gearmotor oil can be determined by reading the attached data plates on each gearmotor. The examples below highlight the location to observe the required oil on the data plates. Do not mix oil grades when adding oil. Refer to the manufacturer's instruction manual for additional service requirements and technical data.

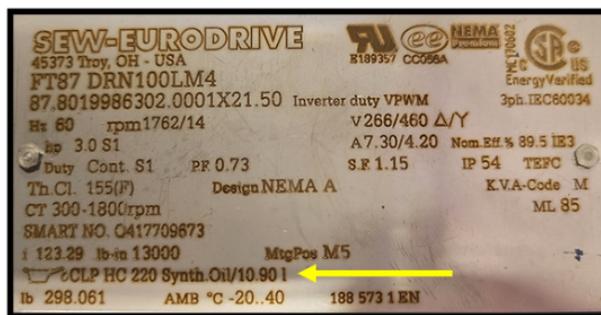
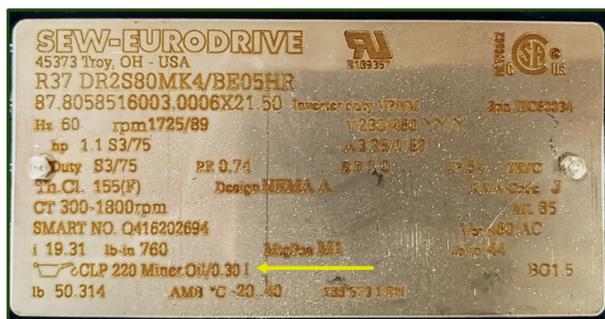
NOTICE

If you are doing a lubricant drain and refill, gearmotor manufacturers typically recommend that you use the same brand of lubricant originally supplied. If you are refilling the gearbox with a non-compatible lubricant, FATA recommends that you first remove any residual with a petroleum solvent or a hot water wash.

CAUTION

Do **not** use trichloroethylene as a washing solvent.

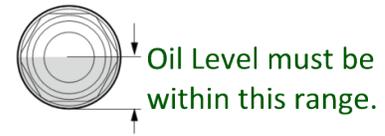
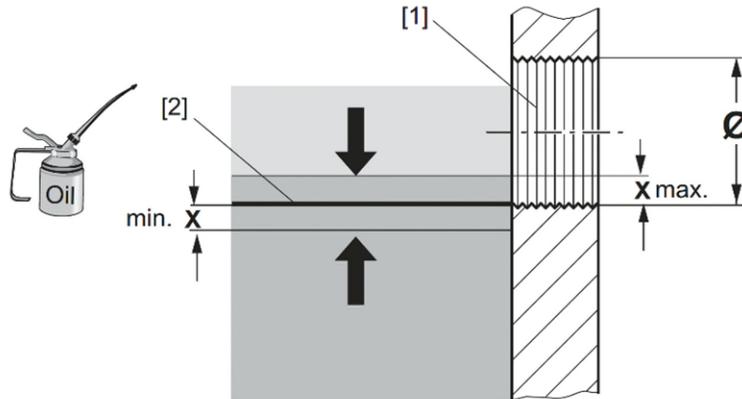
Data plates on the gearmotors identify the oil type and quantity that they use.



Gearmotor Data Plate Examples

How to Check Oil Level of SEW Gearmotor

1. Locate the positions of the oil level plug and the breather valve.
2. If the gearmotor is equipped with an oil sight glass, you can determine the oil level according to the figure on the right.
3. If the gearmotor does not have a site glass, place a container underneath the oil level plug.
4. Slowly unscrew the oil level plug. Small amounts of oil may leak out as the permitted maximum oil level is higher than the lower edge of the oil level bore.
5. Check the oil level according to the following figure and the corresponding table.

[1] Oil Level Bore [2] Oil Level Setpoint [X] Min./Max. Oil Level

Ø Oil Level Bore	Approved fluctuation "x" of the oil level [mm]
M10 x 1	1.5
M12 x 1.5	2
M22 x 1.5	3
M33 x 2	4
M42 x 2	5

6. If the oil level is too low, proceed as follows:
 - a. Remove the breather valve from the breather bore.
 - b. Fill in fresh oil of the same type via the breather bore, up to the lower edge of the oil level bore.
 - c. Screw in the breather valve again. When doing this, please observe tightening torques.
7. Screw in the oil level plug again. When doing this, please observe tightening torques below for oil level plugs, oil drain plugs, breather valves, and oil sight glasses:

Thread	Tightening Torque (Nm)
M10 x 1	12
M12 x 1.5	15
M22 x 1.5	60
M33 x 2	100
M42 x 2	150

Checking the Oil Consistency of SEW Gearmotor via Oil Drain Plug

1. Locate the positions of the oil level plug and the breather valve.
2. Remove a little oil from the oil drain plug.
3. Check the oil consistency:
 - a. Viscosity (have this carried out by a suitable laboratory if necessary)
 - d. If you can see that the oil is heavily contaminated, it is advisable to change the oil, even if this is outside the specified service intervals.
 - b. Check the oil level according **How to Check Oil Level of SEW Gearmotor** on previous page.

Checking the Oil of SEW Gearmotor via Oil Drain Plug and Breather Valve

1. Locate the positions of the oil level plug and the breather valve.
2. Place a container underneath the oil drain plug.
3. Remove the oil level plug, the breather valve and the oil drain plug.
4. Drain all the oil.
5. Re-insert the oil drain plug. When doing this, please observe tightening torques.
6. Fill in fresh oil of the same type via the breather bore. Do not mix different synthetic lubricants.
 - a. Observe the oil quantities according to the specifications on the nameplate.
 - b. Check the oil level at the oil level plug.
7. Re-insert the oil level plug and the breather valve. When doing this, please observe tightening torques.

Lubrication Requirements - Bearing Grease

The table below lists the plant-approved lubricants for conveyor components that need lubrication.

Plant-Approved Lubrication Chart

Lubrication Name	Manufacturer	Conveyor Asset	Application Points
<p><i>FATA Automation recommends using Castrol Molub-Alloy 860/220-1 or equivalent plant-specific approved lubricant where applicable. Please consult with your facility lubricant specialist for specific requirements.</i></p>			

Re-Lubrication Best Practices:

- Always clean the grease fitting of all dirt before attaching the grease gun. Failure to clean the grease fitting before applying grease could result in introducing contaminants into the component resulting in increased wear or clogging the grease fitting orifice so as not to allow the entry of grease. Inspect and replace damaged fittings. It is helpful to use grease-fitting caps to keep them clean, but still wipe fittings clean before applying grease.
- Always make sure the dispensing nozzle of the grease gun is clean before using. Pump a small amount of grease out of the dispensing nozzle, then wipe the nozzle off with a clean rag or lint-free cloth before attaching it to the grease fitting.
- Do NOT over lubricate or apply excessive amounts of grease. This could lead to ruptured seals and excessive grease outside the fitting, which can attract contamination as well as create a mess on the machine.
- Know that some greases are not compatible with each other. Ensure that the proper grease is used at every grease point. Applying the wrong grease can cause an incompatibility problem which can quickly cause bearing failure.
- Once relubrication service is complete, clean off old grease and contaminants from the boot, grease/zerk fitting and surrounding components.