Maintenanse Manual
HYBEKO Shore Power Machine

First edition: First edition, June 2022

Introduction

Important

Read, understand and obey the safety rules and operating instructions in the appropriate Operator's Manual on your machine before attempting any maintenance procedure.

This manual provides detailed scheduled maintenance information for the machine owner and user.

Basic mechanical, hydraulic and electrical skills are required to perform most procedures. However, several procedures require specialized skills, tools, lifting equipment and a suitable workshop.

Personal Safety

Any person working on or around a machine must be aware of all known safety hazards. Personal safety and the continued safe operation of the machine should be your top priority

Read each procedure thoroughly. This manual and the decals on the machine, use signal words to identify the following:

Safety alert symbol—used to alert personnel to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER Indicates a imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION Indicates a potentially hazardous situation which, if not avoided, may cause minor or moderate injury.

NOTICE Indicates a potentially hazardous situation which, if not avoided, may result in property damage.

Be sure to wear protective eye wear and other protective clothing if the situation warrants it.

Be aware of potential crushing hazards such as moving parts, free swinging or unsecured components when lifting or placing loads. Always wear approved steel-toed shoes.

Workplace Safety

Any person working on or around a machine must be aware of all known safety hazards. Personal safety and the continued safe operation of the machine should be your top priority.

Be sure to keep sparks, flames and lighted tobacco away from flammable and combustible materials like battery gases and engine fuels. Always have an approved fire extinguisher within easy reach.

Be sure that all tools and working areas are properly maintained and ready for use. Keep work surfaces clean and free of debris that could get into machine components and cause damage.

Be sure any forklift, overhead crane or other lifting or supporting device is fully capable of supporting and stabilizing the weight to be lifted. Use only chains or straps that are in good condition and of ample capacity.

Be sure that fasteners intended for one time use (i.e., cotter pins and self-locking nuts) are not reused. These components may fail if they are used a second time.

Be sure to properly dispose of old oil or other fluids. Use an approved container. Please be environmentally safe.

Be sure that your workshop or work area is properly ventilated and well lit.

Maintenance Schedule

	Main structure	Quarterly	Annual
MS-1	Check for visible damages	x	
MS-2	Check tire for damage	x	
MS-3	Test the Emergency Power System	x	
MS-4	Grease the Turntable Rotation Bearing and Rotate Gear		x
MS-5	Grease the Platform Overload Mechanism		x
	Electric Power Unit		
EPU-1	Check for visible damages	x	
EPU-2	Check coolant tank 1 (battery)	x	
EPU-3	Check coolant tank 2 (components)	x	
EPU-4	Check fuses	x	
EPU-5	Check charging unit	x	
	Electrical system		
ES-1	Check for visible damages	x	
ES-2	Check 12V battery	x	
	Hydraulic systems		
HS-1	Replace the Hydraulic Filters		x
HS-2	Check Hydraulic Oil level	x	
HS-3	Replace the Hydraulic Oil		Every 2000 houer
HS-4	Check the Drive Hub Oil Level		x
HS-5	Replace the Drive Hub Oil		Every 1000 houer
	Vinches		
W-1	Check winch-ropes for visible damage	x	
W-2	Check electrical cables for visible damage	x	
	Main cable		
MC-1	Check main cables for visible damage	x	
MC-2	Check e-chain, triflex and deutchclamp	x	
MC-3	Check conectors for damage	x	
	Emergency system		
EM-2	Test emergency stop switches	x	
EM-3	Check the Free-wheel Configuration	x	

⚠ MS-1 Check for visual damage

Check for cracks in the steel structure. cylinders, bolts, covers and brackets

⚠ MS-2 Check tires for damage

visual inspection. check for damage, tears, etc. in tires

⚠ MS-3 Test the Emergency Power System

Testing the emergency power system regularly is essential to safe machine operation if the primary power source fails.

1 remove the green plate from the ground control panel which is attached with 4 screws

2 Turn the key switch to ground control and pull out the red Emergency Stop button to the on position at both the ground and platform controls.

3 Simultaneously hold the emergency power switch on and operate each boom function through a partial cycle.
Result: All boom functions operate.

4 Close the emergency power switch cover and secure the cover with a security tie (if equipped).

5 Turn the key switch to platform controls.

6 At the platform controls, break the security tie and lift the emergency power switch cover (if equipped).

7 Press down on the foot switch and simultaneously hold the emergency power switch on and operate each boom function through a partial cycle.
Result: All boom functions operate.

8 Close the emergency power switch cover and secure the cover with a security tie (if equipped).

⚠ MS-4 Grease the Turntable Rotation Bearing and Rotate Gear

Perform this procedure more often if dusty conditions exist and when operating the machine in high temperature environments.

Frequent application of lubrication to the turntable bearing and rotate gear is essential to good machine performance and service life. Continued use of an improperly greased bearing and gear will result in component damage.

1 Locate the grease fitting for the turntable rotate bearing.

2 Pump grease into the turntable rotation bearing. Rotate the turntable in increments of 4 to 5 inches / 10 to 13 cm at a time and repeat this step until the entire bearing has been greased.

3 **Models with Drive Gear:** Apply grease to each tooth of the drive gear, located under the turntable.

Grease Specification

Chevron Ultra-duty grease, EP NLGI 1 (lithium based) or equivalent

⚠ MS-5 Grease the Platform Overload Mechanism

Perform this procedure more often if dusty conditions exist.

Application of lubrication to the platform overload mechanism is essential to safe machine operation. Continued use of an improperly greased platform overload mechanism could result in the system not sensing an overloaded platform condition and will result in component damage.

1 Locate the grease fittings on each pivot pin of the platform overload assembly.

2 Thoroughly pump grease into each grease fitting.

Grease Specification

Chevron Ultra-duty grease, EP NLGI 1 (lithium based) or equivalent

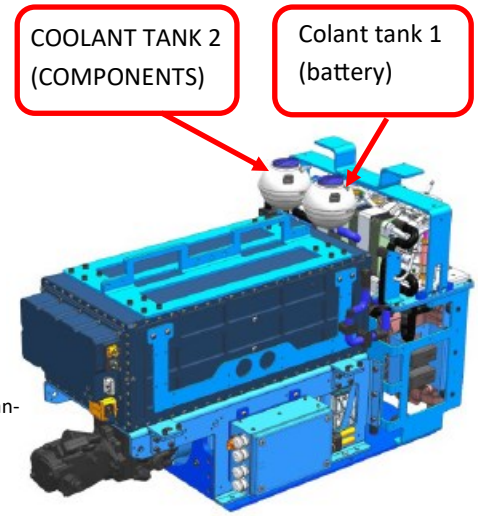
⚠ EPU-1 Check for visible damages

visual inspection. check for visible damage/defects.

⚠ EPU-2 Check coolant tank 1 (battery)

Check tank level. refill if necessary.
Only use coolant with the following specifications or equivalent:

Mixture of Si-OAT coolant medium on ethylene glycol basis and water. The Coolant medium type Glysantin G40 can also be used. Recommended coolant medium content 50%.
Mixture of different types of coolant and additional additives is not admissible. Battery circuit coolant volume is ca. 3,0 liters.



⚠ EPU-3 Check coolant tank 2 (components)

Check tank level. refill if necessary.
Only use coolant with the following specifications or equivalent:

Mixture of Si-OAT coolant medium on ethylene glycol basis and water. The Coolant medium type Glysantin G40 can also be used. Recommended coolant
medium content 50%.
Mixture of different types of coolant and additional additives is not admissible. Components circuit volume is ca. 7,5 liters.

⚠ EPU-4 Check fuses

Check fuses. There are several fuse boxes located on and near the power unit. See external fuse overview located in red box on power unit

⚠ EPU-5 Check charging unit

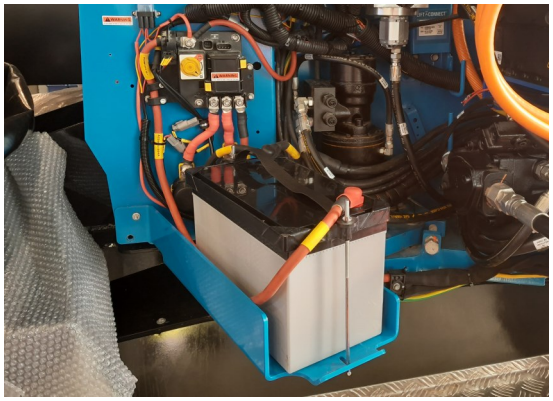
The lithium battery is charged from the Juice-booster charging unit. check connector under control panel and 110V connector for visual damage. Check that the level indicators on the jucebooster work according to the maximum available amps connected

⚠ ES-1 Check for visible damages

Visually check all visible control cables for damage

⚠ ES-2 Check 12V battery

Check the status of the 12V battery. Measure voltage. Check that it is being charged from an external charger and from the power unit. Clean contacts.



⚠WARNING Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

⚠WARNING Bodily injury hazard. Batteries contain acid. Avoid spilling or contacting battery acid. Neutralize battery acid spills with baking soda and water.

⚠ HS-1 Replace the Hydraulic Filters

⚠WARNING

Replacement of the hydraulic filters is essential for good machine performance and service life. A dirty or clogged filter may cause the machine to perform poorly and continued use may cause component damage. Extremely dirty conditions may require that the filter be replaced more often.

Note: There are tree types of hydraulic filters: tank return filter, medium pressure filter and high pressure filter. The quantity and type of filter(s) may vary by model.

⚠ Medium and high pressure filters

⚠WARNING

Note: The medium pressure filter is for the charge pump and the high pressure filter is for all machine functions except the drive circuit and oscillating axle circuit.

1 Locate the medium and high pressure filters.

2 Place a suitable container under each filter.

3 Remove the filter housings by using a wrench on the nut provided on the bottom of the housings.

4 Remove the filter elements from the housings.

5 Inspect the housing seals and replace them if necessary.

6 Install the new filter elements into the housings and tighten them securely.

7 Clean up and properly dispose of any oil that may have spilled during the installation procedure.

8 Use a permanent ink marker to write the date and number of hours from the hour meter on the oil filter.

9 Inspect the filter housings and related components to be sure that there are no leaks.

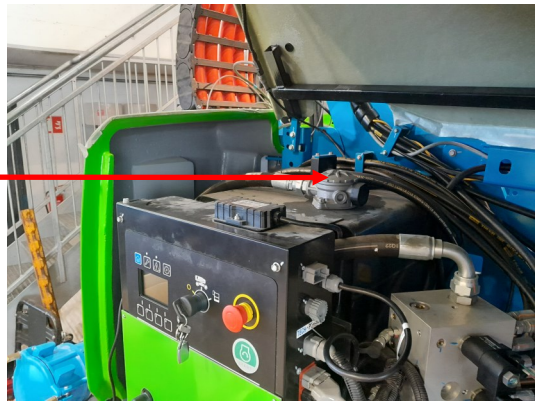
1 Locate the breather filter on top of the hydraulic tank.

2 Remove the filter and install the new hydraulic tank breather filter. Tighten securely by hand.

⚠ Tank breather filter (if equipped):

1 Locate the breather filter on top of the hydraulic tank.

2 Remove the filter and install the new hydraulic tank breather filter. Tighten securely by hand.



NOTICE

⚠ HS-2 Check Hydraulic Oil level

Check level in tank for hydraulic oil. If necessary, refill with hydraulic oil HDZ-32

Located behind control-panel

⚠ HS-3 Replacing the hydraulic oil:

⚠WARNING

1 Remove the drain plug from the hydraulic tank and completely drain the tank into a container of suitable capacity. Refer to Specifications, *Hydraulic Fluid Capacities Specifications*.

2 Fill the tank with the proper hydraulic oil for your machine. Refer to Specifications, *Hydraulic Specifications*.

3 Prime the pump. Refer to Repair Procedure in the appropriate Service and Repair Manual for your machine, *How to Prime the Pump*.

4 Clean up and properly dispose of any oil that may have spilled.

Note: When replacing the hydraulic oil, it is recommended that the hydraulic tank be cleaned using a mild solvent and all hydraulic filters and strainers be replaced.

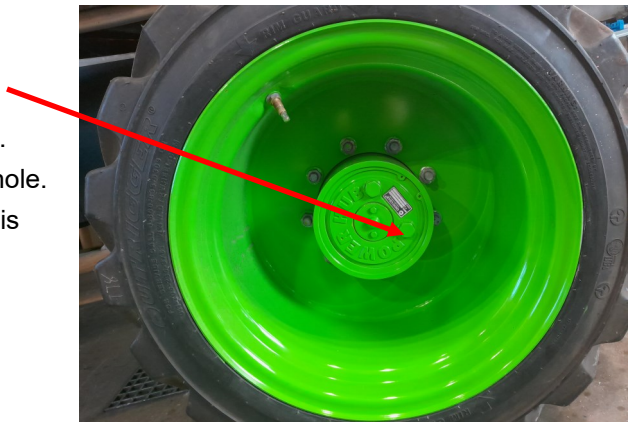
Note: Always use pipe thread sealant when installing the suction hose fittings and the drain plug.

⚠ HS-4 Check the Drive Hub Oil Level

⚠WARNING

Failure to maintain proper drive hub oil levels may cause the machine to perform poorly and continued use may cause component damage.

1 Drive the machine to rotate the hub until the plugs are located one on top and the other at 90 degrees.



2 Remove the plug located at 90 degrees and check the oil level.

Result: The oil level should be even with the bottom of the plug hole.

3 If necessary, remove the top plug and add oil until the oil level is even with the bottom of the side plug hole.

4 Install the plug(s) into the drive hub.

5 Repeat this procedure for each drive hub

⚠ HS-5 Replace the Drive Hub Oil

Replacing the drive hub oil is essential for good machine performance and service life. Failure to replace the drive hub oil may cause the machine to perform poorly and continued use may cause component damage.

Drive Hubs:

1 Select the drive hub to be serviced. Drive the machine until one of the two plugs is at the lowest point.

2 Remove the plugs and drain the oil into a suitable container.

3 Drive the machine until one of the two plugs is at the highest point.

4 Fill the hub until the oil level is even with the bottom of the lowest plug hole. Refer to Specifications, *Hydraulic Specifications*.

winches, cables and guides require visual inspection only.

⚠ **W-1 Check winch-ropes for visible damage**

⚠ **W-2 Check electrical cables for visible damage**

⚠ **MC-1 Check main cables for visible damage**

⚠ **MC-2 Check e-chain, triflex and deutchclamp**

⚠ **MC-3 Check conectors for damage**

⚠ *EM-1 Test emergency stop switches*

test function for emergency stop.
one on chassis control panel.
one on platform control panel.
One on PDM1.
One on remote control for winches.
A main circuit breaker on the power unit.

⚠ *EM-2 Check the Free-wheel Configuration*

⚠WARNING

Hybeko requires that this procedure be performed every 2000 hours.

Proper use of the free-wheel configuration is essential to safe machine operation. The free-wheel configuration is used primarily for towing. A machine configured to free-wheel without operator knowledge may cause death or serious injury and property damage.

Non-steer or Circle-end wheels:

1 Chock the steer/square-end wheels to prevent the machine from rolling.

2 Center a lifting jack of ample capacity (20,000 lbs / 10,000 kg) under the drive chassis between the non-steer tires or tracks.

3 Lift the wheels or tracks off the ground and then place jack stands under the drive chassis for support.

4 Disengage the drive hubs by turning over the drive hub disconnect caps on each non-steer / circle-end wheel hub.

1 brake disengaged position

2 brake engaged position

5 Manually rotate each non-steer / circle-end wheel.

Result: Each non-steer / circle-end wheel should rotate with minimum effort.

Steer or Square-end wheels: 4WD Models

7 Chock the non-steer / circle-end wheels or tracks to prevent the machine from rolling.

8 Center a lifting jack of ample capacity (20,000 lbs / 10,000 kg) under the drive chassis between the steer tires.

9 Lift the wheels or tracks off the ground and then place jack stands under the drive chassis for support.

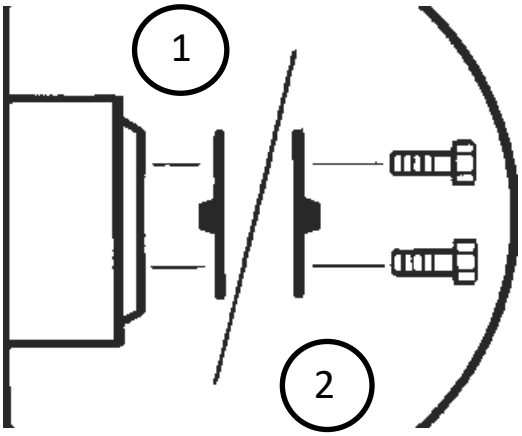
10 Disengage the drive hubs by turning over the drive hub disconnect caps on each steer / square-end wheel hub.

1 brake disengaged position

2 brake engaged position

11 Manually rotate each steer / square-end wheel or track.

Result: Each steer / square-end wheel or track should rotate with minimum effort



⚠ DANGER

Collision hazard. Select a work site that is firm and level.