

**1021G
1121G
Stage IV
Wheel Loader**

SERVICE MANUAL

Part number 51428221

English

November 2017

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CASE
CONSTRUCTION



SERVICE MANUAL

**1021G WHEEL LOADER XR-EH, NEW CAB TIER4B
1021G WHEEL LOADER ZBAR-EH, NEW CAB TIER4B
1121G WHEEL LOADER XR-EH, NEW CAB TIER4B
1121G WHEEL LOADER ZBAR-EH, NEW CAB TIER4B**

Link Product / Engine

Product	Market Product	Engine
1021G WHEEL LOADER ZBAR-EH, NEW CAB TIER4B	Europe	F2CFE614H*B005
1021G WHEEL LOADER XR-EH, NEW CAB TIER4B	Europe	F2CFE614H*B005

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Contents

INTRODUCTION

Engine.....	10
[10.001] Engine and crankcase	10.1
[10.216] Fuel tanks	10.2
[10.202] Air cleaners and lines	10.3
[10.500] Selective Catalytic Reduction (SCR) exhaust treatment.....	10.4
[10.400] Engine cooling system	10.5
[10.414] Fan and drive	10.6
[10.310] Aftercooler.....	10.7
[10.304] Engine lubrication system.....	10.8
Transmission.....	21
[21.113] Powershift transmission	21.1
[21.135] Powershift transmission external controls.....	21.2
[21.105] Powershift transmission hydraulic components.....	21.3
[21.155] Powershift transmission internal components.....	21.4
Four-Wheel Drive (4WD) system	23
[23.314] Drive shaft.....	23.1
Front axle system	25
[25.100] Powered front axle	25.1
[25.102] Front bevel gear set and differential	25.2
[25.108] Final drive hub, steering knuckles, and shafts	25.3
Rear axle system.....	27
[27.100] Powered rear axle.....	27.1
[27.106] Rear bevel gear set and differential.....	27.2
[27.120] Planetary and final drives	27.3
Brakes and controls	33

[33.202] Hydraulic service brakes	33.1
[33.110] Parking brake or parking lock	33.2
Hydraulic systems.....	35
[35.000] Hydraulic systems.....	35.1
[35.300] Reservoir, cooler, and filters.....	35.2
[35.106] Variable displacement pump	35.3
[35.359] Main control valve.....	35.4
[35.357] Pilot system	35.5
[35.204] Remote control valves	35.6
[35.752] Hydraulic fan drive cooling system.....	35.7
[35.701] Front loader arm hydraulic system.....	35.8
[35.723] Front loader bucket hydraulic system.....	35.9
[35.733] Axle lubrication and cooling circuit	35.10
Frames and ballasting	39
[39.100] Frame	39.1
Steering.....	41
[41.200] Hydraulic control components.....	41.1
[41.216] Cylinders	41.2
[41.910] Auxiliary steering	41.3
Wheels	44
[44.511] Front wheels.....	44.1
[44.520] Rear wheels.....	44.2
Cab climate control	50
[50.200] Air conditioning	50.1
Electrical systems	55
[55.100] Harnesses and connectors.....	55.1
[55.201] Engine starting system	55.2

[55.301] Alternator.....	55.3
[55.988] Selective Catalytic Reduction (SCR) electrical system	55.4
[55.989] Exhaust Gas Recirculation (EGR) electrical system	55.5
[55.512] Cab controls.....	55.6
[55.415] Loader arm and bucket control system	55.7
[55.530] Camera.....	55.8
[55.DTC] FAULT CODES.....	55.9
Front loader and bucket.....	82
[82.100] Arm.....	82.1
[82.300] Bucket.....	82.2
Platform, cab, bodywork, and decals.....	90
[90.150] Cab.....	90.1
[90.118] Protections and footboards.....	90.2
[90.105] Machine shields and guards	90.3



INTRODUCTION

Safety rules

Personal safety



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible death or injury.

Throughout this manual you will find the signal words DANGER, WARNING, and CAUTION followed by special instructions. These precautions are intended for the personal safety of you and those working with you.

Read and understand all the safety messages in this manual before you operate or service the machine.

 DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury.

 WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury.

 CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

FAILURE TO FOLLOW DANGER, WARNING, AND CAUTION MESSAGES COULD RESULT IN DEATH OR SERIOUS INJURY.

Machine safety

NOTICE: Notice indicates a situation that, if not avoided, could result in machine or property damage.

Throughout this manual you will find the signal word Notice followed by special instructions to prevent machine or property damage. The word Notice is used to address practices not related to personal safety.

Information

NOTE: Note indicates additional information that clarifies steps, procedures, or other information in this manual.

Throughout this manual you will find the word Note followed by additional information about a step, procedure, or other information in the manual. The word Note is not intended to address personal safety or property damage.

Personal safety

Carefully read this Manual before proceeding with maintenance, repairs, refuelling or other machine operations.

Repairs have to be carried out only by authorized and instructed staff; specific precautions have to be taken when grinding, welding or when using mallets or heavy hammers.

Non-authorized persons are not allowed to repair or carry out maintenance on this machine. Do not carry out any work on the equipment without prior authorization.

Ask your employer about the safety instructions in force and safety equipment.

Nobody should be allowed in the cab during machine maintenance unless he is a qualified operator helping with the maintenance work.

If it is necessary to move the equipment to carry out repairs or maintenance, do not lift or lower the equipment from any other position than the operator's seat.

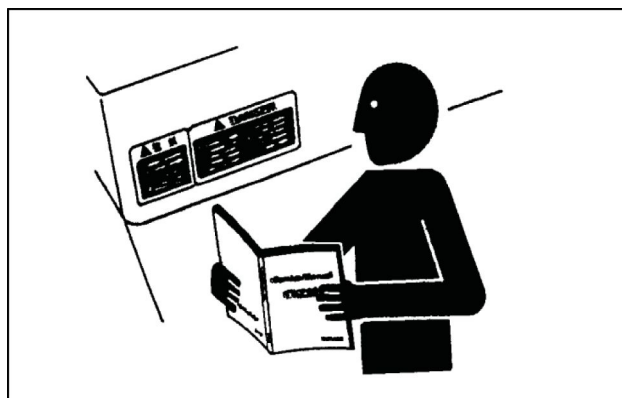
Never carry out any operation on the machine when the engine is running, except when specifically indicated.

Stop the engine and ensure that all pressure is relieved from hydraulic circuits before removing caps, covers, valves, etc.

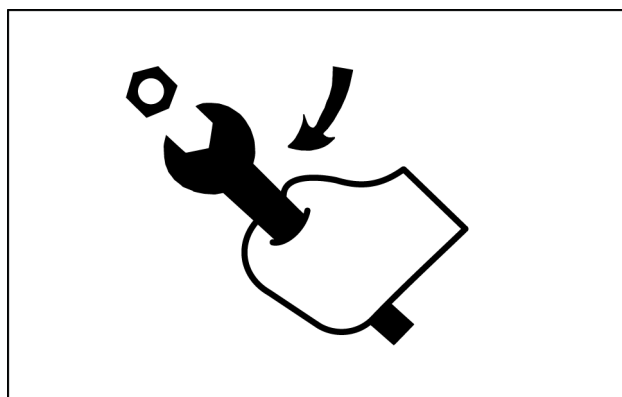
All repair and maintenance operations should be carried out with the greatest care and attention.

Service stairs and platforms used in a workshop or in the field should be built in compliance with the safety rules in force.

Any functional disorders, especially those affecting the safety of the machine, should therefore be rectified immediately.



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TULI12WEX2005AA 2

⚠ DANGER

Unexpected movement!

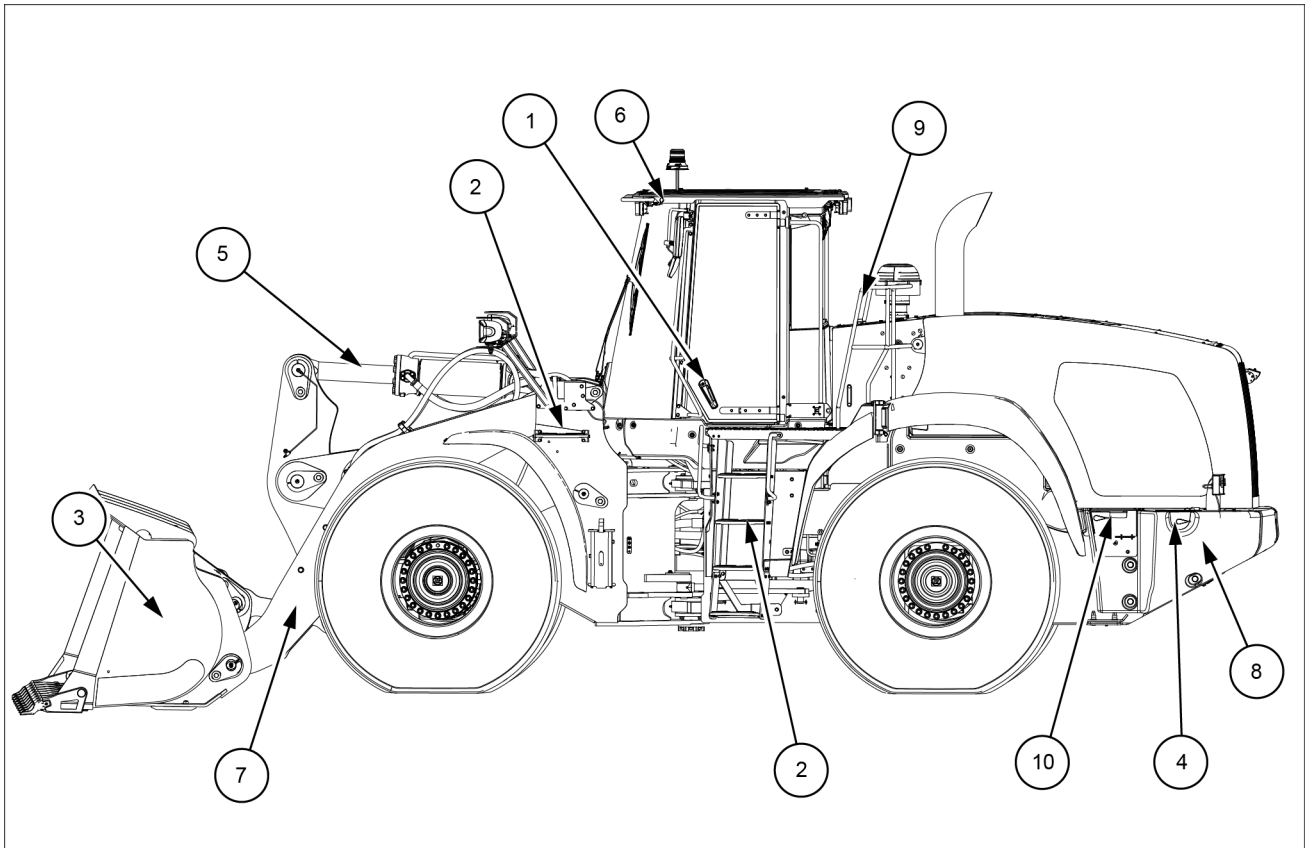
Make sure parking brake is applied. Secure machine with wheel chocks.

Failure to comply will result in death or serious injury.

D0013A

Before performing any work on the machine, attach a maintenance in progress tag. This tag can be applied on the left-hand control lever, safety lever or cab door.

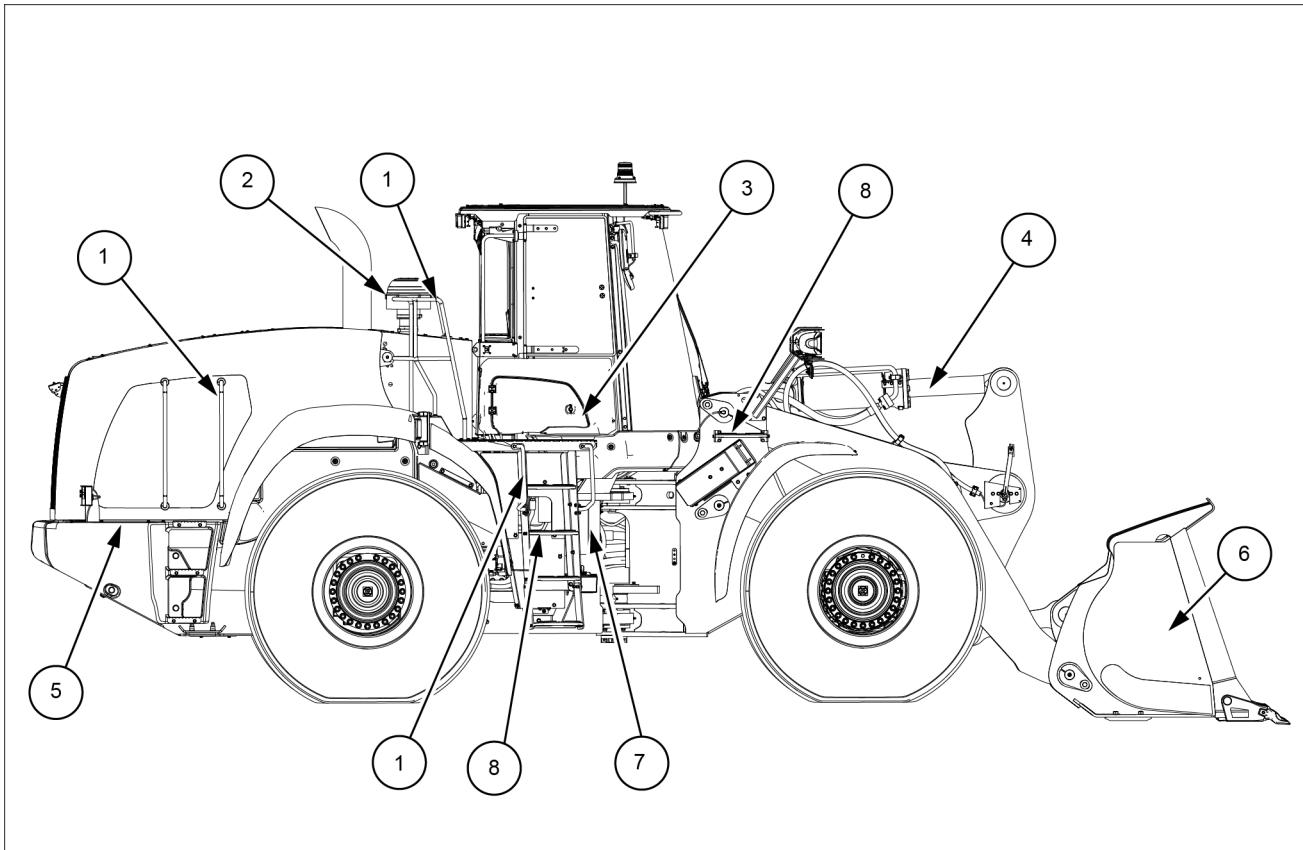
Product identification



LEIL17WHL1742FB 1

- | | |
|--|---|
| 1. Cab door and hand holds | 6. Roll Over Protection System (ROPS) cab |
| 2. Steps | 7. Loader lift arms |
| 3. Bucket (Z-bar version) | 8. Battery access |
| 4. Timed disconnect switch and battery jump post | 9. Hand rails |
| 5. Bucket cylinder | 10. Fuel/ DEF/AdBLUE® fill tanks |

INTRODUCTION



LEIL17WHL1743FB 2

- | | |
|--------------------------|--------------------------------|
| 1. Hand rails | 5. Battery access |
| 2. Pre-cleaner | 6. Bucket (Z-bar version) |
| 3. Cab air filter access | 7. Windshield washer reservoir |
| 4. Bucket cylinder | 8. Steps |



SERVICE MANUAL

Engine

**1021G WHEEL LOADER XR-EH, NEW CAB TIER4B
1021G WHEEL LOADER ZBAR-EH, NEW CAB TIER4B
1121G WHEEL LOADER XR-EH, NEW CAB TIER4B
1121G WHEEL LOADER ZBAR-EH, NEW CAB TIER4B**

Engine - General specification

1021G WHEEL LOADER XR-EH, NEW CAB TIER4B	WE
1021G WHEEL LOADER ZBAR-EH, NEW CAB TIER4B	WE

Engine with 4 Speed Transmission	
A. Low idle	870-930 RPM
Alternate low idle	670-730 RPM
Alternate Accelerated Idle	1270-1330 RPM
B. Maximum No Load RPM	2217-2267 RPM
C. Converter Stall (manual 3 rd gear or higher)	2000-2150 RPM
D. Hydraulic Stall	1885-2195 RPM
E. Converter & Hydraulic Stall	1487-1797 RPM
Temperature of the torque converter oil	82 – 104 °C (180 – 219 °F)
Temperature of the hydraulic oil	54 – 57 °C (129 – 135 °F)

NOTE: hydraulic Stall and Converter & Hydraulic Stall RPM values are read while the lift arms are rising with the bucket held rolled back and the engine at Wide Open Throttle (WOT) in max power mode.

Engine - General specification

1121G WHEEL LOADER XR-EH, NEW CAB TIER4B	WE
1121G WHEEL LOADER ZBAR-EH, NEW CAB TIER4B	WE

Engine with 4 Speed Transmission	
A. Low idle	870-930 RPM
Alternate low idle	670-730 RPM
Alternate Accelerated Idle	1270-1330 RPM
B. Maximum No Load RPM	2256-2306 RPM
C. Converter Stall	1937-2087 RPM
D. Hydraulic Stall	1885-2195 RPM
E. Converter & Hydraulic Stall	1487-1797 RPM
Temperature of the torque converter oil	82 – 104 °C (180 – 219 °F)
Temperature of the hydraulic oil	54 – 57 °C (129 – 135 °F)

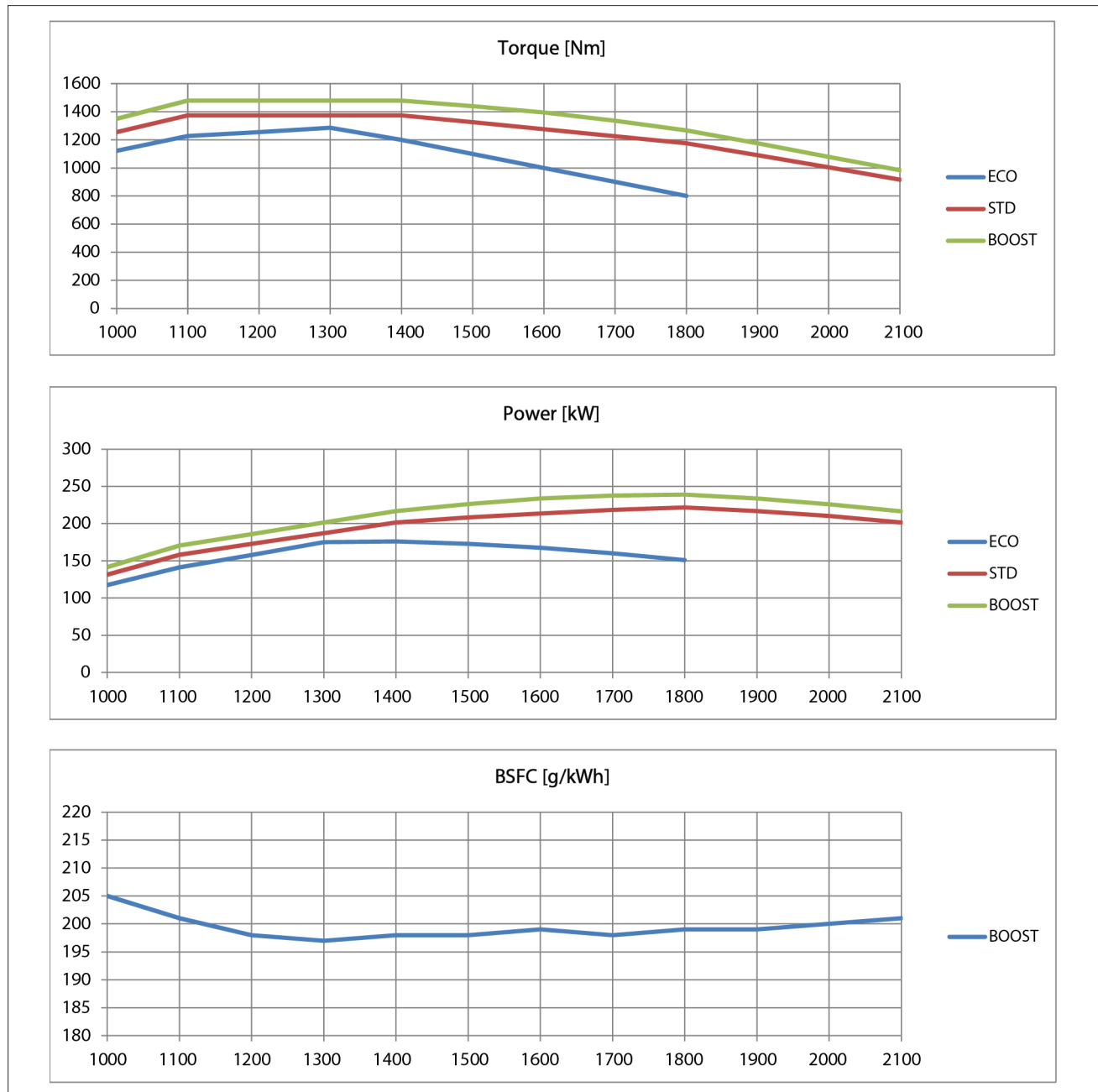
NOTE: hydraulic Stall and Converter & Hydraulic Stall RPM values are read while the lift arms are rising with the bucket held rolled back and the engine at Wide Open Throttle (WOT) in max power mode.

Engine - Engine horse power

1021G WHEEL LOADER XR-EH, NEW CAB TIER4B	WE
1021G WHEEL LOADER ZBAR-EH, NEW CAB TIER4B	WE

Design characteristics	
Displacement	8710 cm³ (531.5 in³)
Engine Configuration	6 cylinder in line, 4 stroke
Intake Air	Turbocharged, 4 valves/cyl
Fuel injection	High pressure common rail
EGR	No

Performance	
Altitude Capability	3000 m (9842.5 ft)
High Idle Speed	2287 RPM
Low Idle Speed	700 RPM
Rated Power	216 kW at 2100 RPM
Peak Torque	1479 N·m at 1400 RPM



LEIL17WHL0362GA 1

NOTE: performances detected at engine test bench.

NOTE: BSFC indicates the Brake Specific Fuel Consumption.

Engine - Engine horse power

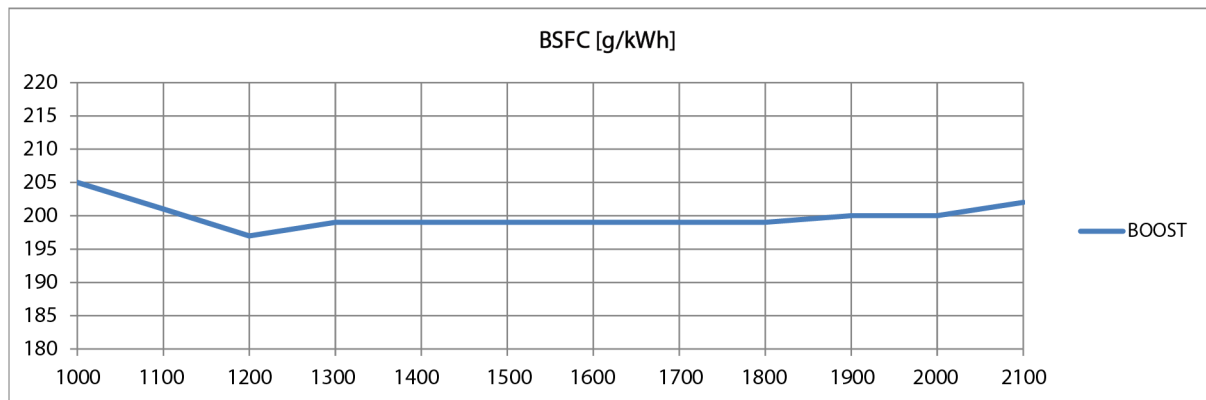
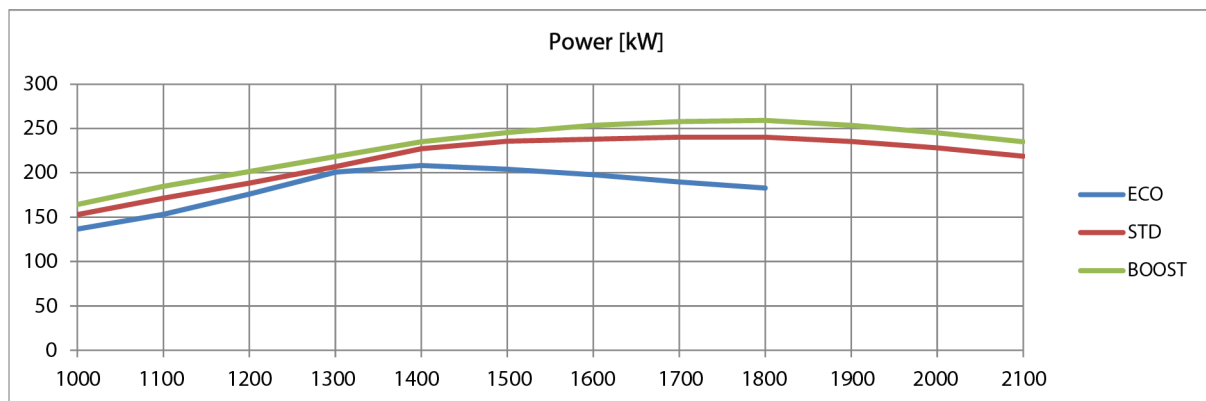
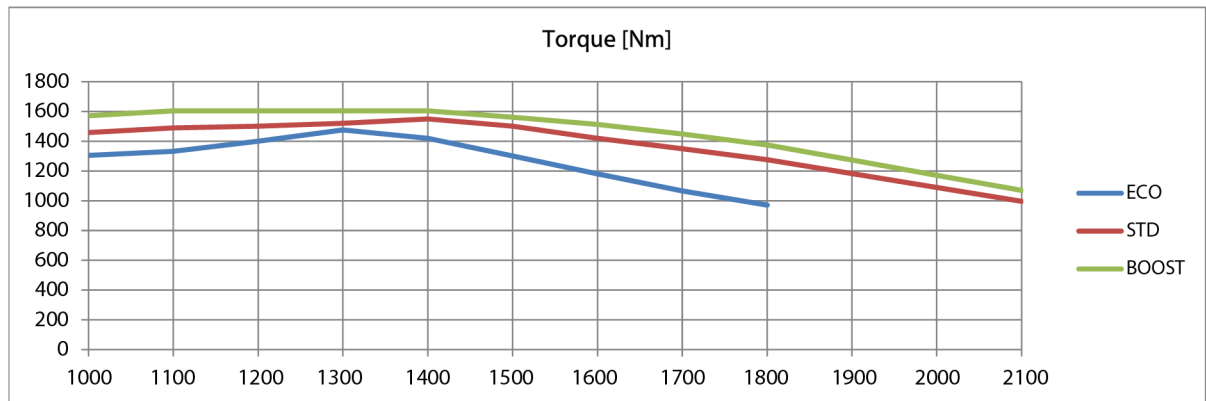
1121G WHEEL LOADER XR-EH, NEW CAB TIER4B	WE
1121G WHEEL LOADER ZBAR-EH, NEW CAB TIER4B	WE

Design characteristics	
Displacement	8710 cm³ (531.5 in³)
Engine Configuration	6 cylinder in line, 4 stroke
Intake Air	Turbocharged, 4 valves/cyl
Fuel injection	High pressure common rail
EGR	No

Performance	
Altitude Capability	3000 m (9842.5 ft)

Engine - Engine and crankcase

High Idle Speed	2287 RPM
Low Idle Speed	700 RPM
Rated Power	235 kW at 2100 RPM
Peak Torque	1604 N·m at 1400 RPM



LEIL17WHL0363GA 1

NOTE: performances detected at engine test bench.

NOTE: BSFC indicates the Brake Specific Fuel Consumption.

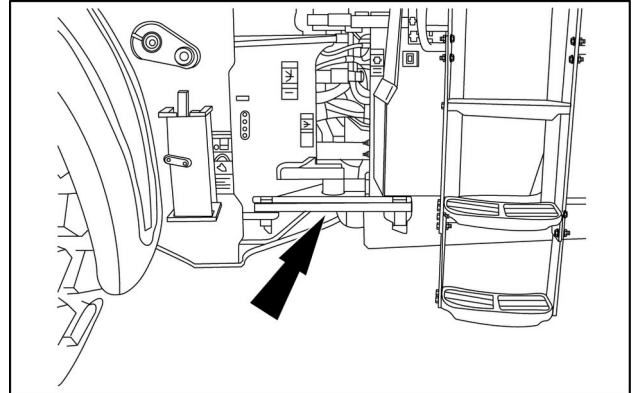
Engine - Remove

Prior operation:

Engine hood - Remove (90.105)

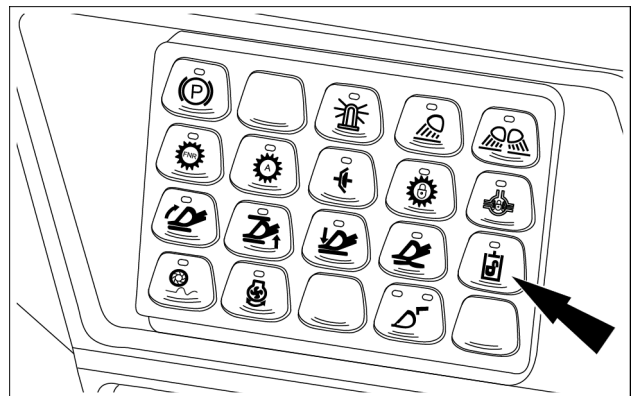
NOTE: emissions sensors mounted in the exhaust stream are sensitive to extreme vibrations. Use of tools that generate extreme vibrations, such as impact wrenches and hammers, will result in damage to emission sensors. Avoid using these tools during any service procedure in close proximity of emission sensors. If the use of these tools cannot be avoided, remove the sensors using extreme caution prior to performing any service procedure.

1. Park the machine on a level surface and lower the bucket to the ground. Put the articulation lock (1) in LOCKED position.



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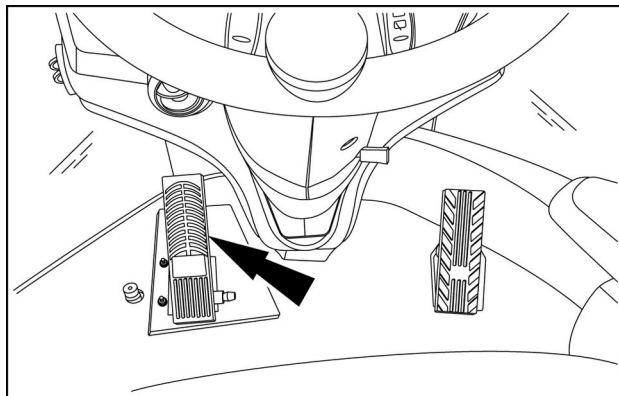
2. Push the hydraulic functions lock-out switch in the normal operation position.



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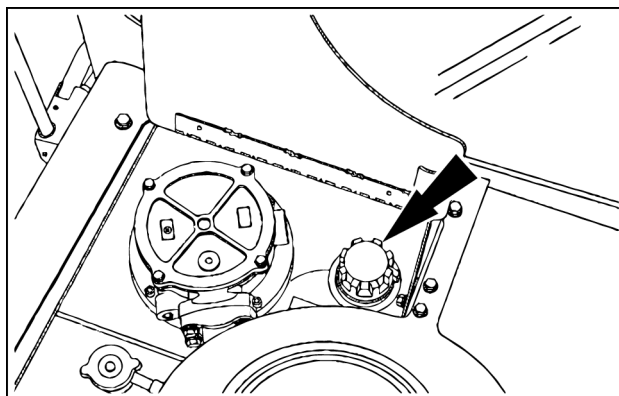
3. Move the loader hydraulic control handle to the raise and lower position in order to release any hydraulic pressure in the lift circuit.
4. Move the loader control handle in and out of the tilt position several times, this will relieve any pressure in the pilot accumulator.
5. Release the pressure in the ride control accumulator with the bleeder valve in the ride control valve load travel stabilizer.

6. Actuate the brake pedal several times to discharge brake accumulators.



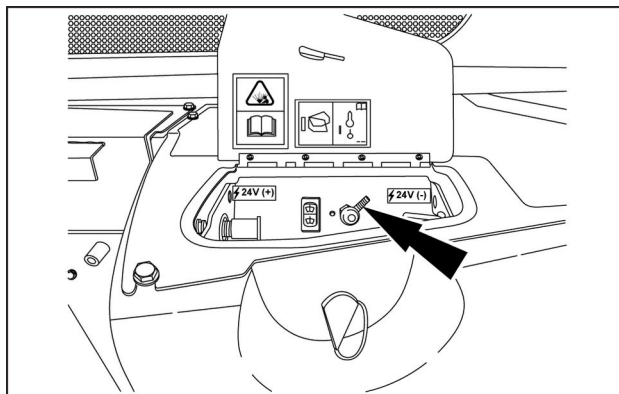
LEIL15WHL0564AA 3

7. Slowly loosen the filler cap on the hydraulic oil tank to release air pressure.



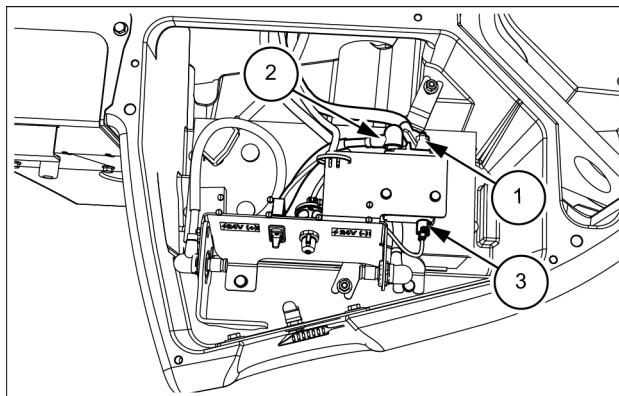
LEIL15WHL0825AA 4

8. Locate the timed disconnect switch in the battery box. Put the timed disconnect switch in the OFF position.



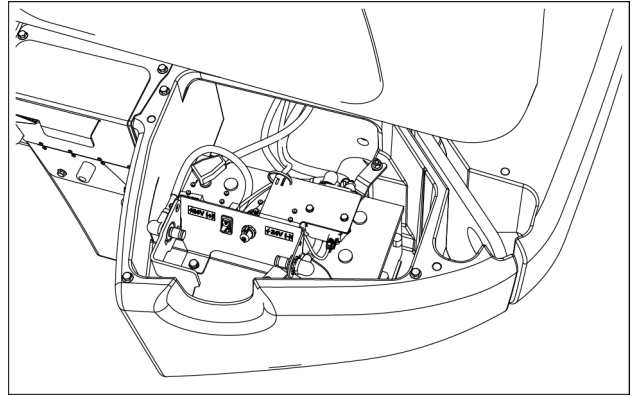
LEIL15WHL0663AA 5

9. Tag and disconnect the positive cable (battery to isolator) cable (1) and the positive cable (isolator to starter) (2) from the battery isolator. Disconnect the connector (3) from the timed disconnect switch.

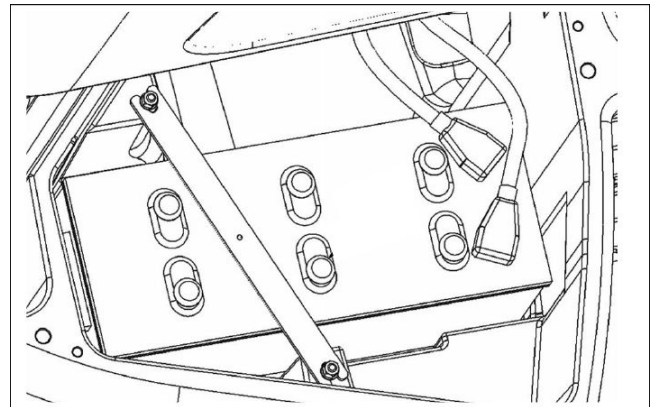


LEIL16WHL1528AB 6

10. Loosen and remove the bolts that hold the battery cover in place on both the left-hand and right-hand rear of the machine.
Disconnect the battery cable from the battery.



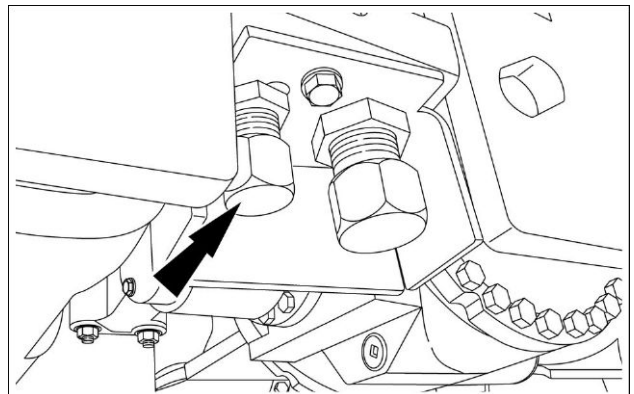
LEIL16WHL0891AB 7



LEIL15WHL1489AA 8

11. Open the access cover.
Place a suitable container below radiator drain, remove the radiator cap and coolant drain plug (arrow) to drain the engine coolant. Reinstall the drain plug and radiator cap after the coolant has drained.

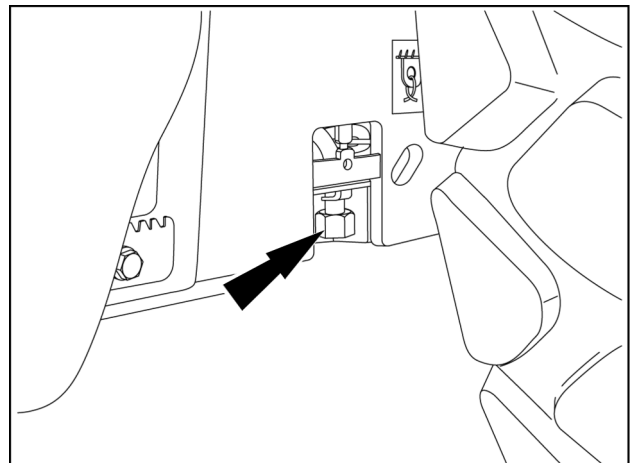
NOTE: see machine specifications for cooling system volume.



LEIL15WHL0719AB 9

12. Open the access cover.
Place a suitable container below the engine oil drain. Remove the drain plug and drain the oil into the container. Reinstall drain plug.

NOTE: see machine specifications for engine oil sump volume.



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Suggest:

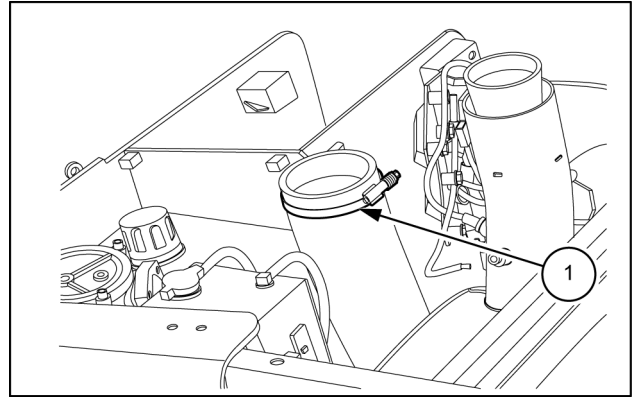
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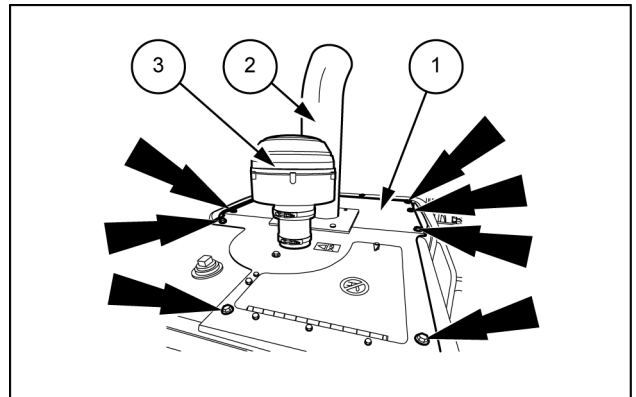
13. Loosen the hose clamp **(1)** on the air intake hose under the air inlet engine hood.

NOTICE: for clarity the engine hood compartment top cover is not shown in the figure.



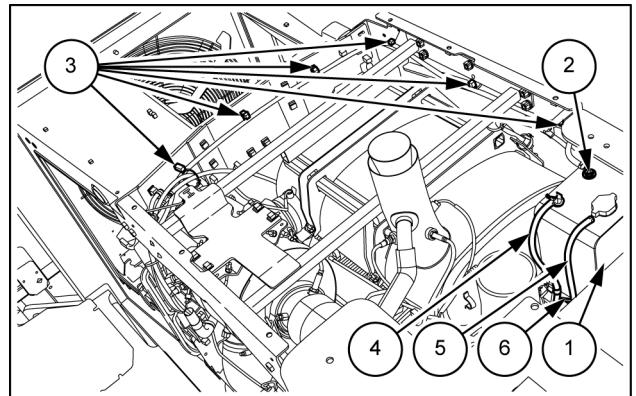
LEIL15WHL0673AB 11

14. Remove the mounting bolts (arrows) from engine compartment top cover **(1)**.
15. Attach a suitable lifting device and lift strap to the engine compartment cover and exhaust stack. Carefully remove the cover **(1)**, the exhaust stack **(2)** and the precleaner **(3)** as an assembly.



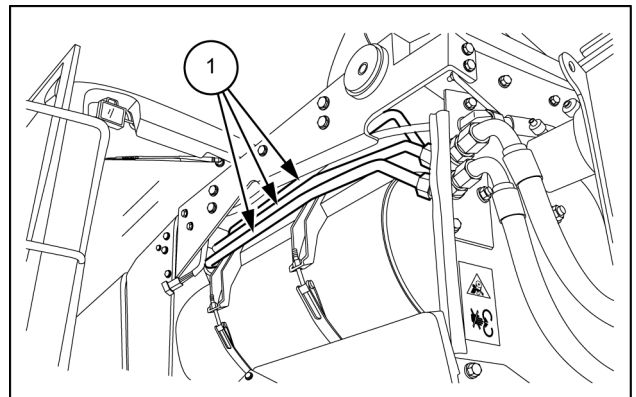
LEIL15WHL0679AB 12

16. Disconnect the deaeration tank overflow hose **(2)** from the coolant tank **(1)**. Remove the P-clamps **(3)** that secure the overflow hose **(2)** to the wall and brackets. Tag and remove the overflow hose **(2)** from the engine and engine wall. Disconnect the hoses **(4)**, **(5)** and **(6)** from the coolant tank **(1)**.



LEIL15WHL0667AB 13

17. Remove the hydraulic oil lines **(1)** and the related fittings.



LEIL15WHL0682AB 14

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