

SERVICE MANUAL

E215C EVO
E245C EVO

Hydraulic Excavator

Part Number

48024961

1st Edition

English 11/2016





SERVICE MANUAL

**E215C EVO CRAWLER EXCAVATOR - STANDARD MODEL - TIER3
E245C EVO CRAWLER EXCAVATOR - MASS EXCAVATOR MODEL - TIER3**

Contents

INTRODUCTION

Engine.....	10
[10.001] Engine and crankcase	10.1
[10.216] Fuel tanks	10.2
[10.254] Intake and exhaust manifolds and muffler	10.3
[10.310] Aftercooler.....	10.4
[10.400] Engine cooling system	10.5
Hydraulic systems.....	35
[35.106] Variable displacement pump	35.1
[35.102] Pump control valves.....	35.2
[35.353] Hydraulic travel system	35.3
[35.359] Main control valve.....	35.4
Hydraulic systems.....	35
[35.000] Hydraulic systems.....	35.5
[35.300] Reservoir, cooler, and filters.....	35.6
[35.304] Combination pump units	35.7
[35.357] Pilot system	35.8
[35.355] Hydraulic hand control	35.9
[35.356] Hydraulic foot control.....	35.10
[35.352] Hydraulic swing system	35.11
[35.354] Hydraulic central joint	35.12
[35.736] Boom hydraulic system	35.13
[35.737] Dipper hydraulic system.....	35.14
[35.738] Excavator and backhoe bucket hydraulic system.....	35.15
[35.360] Hammer and rotating bucket hydraulic system	35.16
Frames and ballasting	39

<https://www.ebooklibonline.com>

Hello dear friend!

Thank you very much for reading.

Enter the link into your browser.

The full manual is available for immediate download.

<https://www.ebooklibonline.com>

[39.140] Ballasts and supports	39.1
Tracks and track suspension	48
[48.130] Track frame and driving wheels	48.1
[48.100] Tracks	48.2
[48.134] Track tension units	48.3
[48.138] Track rollers	48.4
Cab climate control	50
[50.100] Heating	50.1
[50.200] Air conditioning	50.2
Electrical systems	55
[55.000] Electrical system	55.1
[55.010] Fuel injection system	55.2
[55.013] Engine oil system	55.3
[55.015] Engine control system	55.4
[55.201] Engine starting system	55.5
[55.640] Electronic modules	55.6
[55.036] Hydraulic system control	55.7
[55.051] Cab Heating, Ventilation, and Air-Conditioning (HVAC) controls	55.8
[55.050] Heating, Ventilation, and Air-Conditioning (HVAC) control system	55.9
[55.100] Harnesses and connectors	55.10
[55.301] Alternator	55.11
[55.302] Battery	55.12
[55.404] External lighting	55.13
[55.416] Swing control system	55.14
[55.417] Travel control system	55.15
[55.530] Camera	55.16
[55.518] Wiper and washer system	55.17
[55.514] Cab lighting	55.18

[55.408] Warning indicators, alarms, and instruments	55.19
[55.512] Cab controls.....	55.20
[55.950] Hammer electric system	55.21
[55.992] Anti-theft system	55.22
[55.DTC] FAULT CODES.....	55.23
Booms, dippers, and buckets	84
[84.910] Boom.....	84.1
[84.912] Dipper arm	84.2
[84.100] Bucket.....	84.3
Platform, cab, bodywork, and decals	90
[90.100] Engine hood and panels	90.1
[90.120] Mechanically-adjusted operator seat.....	90.2
[90.150] Cab.....	90.3
[90.156] Cab windshield and windows	90.4



INTRODUCTION

Foreword - Important notice regarding equipment servicing

E215C EVO CRAWLER EXCAVATOR - STANDARD MODEL - TIER3	LA
E245C EVO CRAWLER EXCAVATOR - MASS EXCAVATOR MODEL - TIER3	LA

All repair and maintenance work listed in this manual must be carried out only by qualified dealership personnel, strictly complying with the instructions given, and using, whenever possible, the special tools.

Anyone who performs repair and maintenance operations without complying with the procedures provided herein shall be responsible for any subsequent damages.

The manufacturer and all the organizations of its distribution chain, including - without limitation - national, regional, or local dealers, reject any responsibility for damages caused by parts and/or components not approved by the manufacturer, including those used for the servicing or repair of the product manufactured or marketed by the manufacturer. In any case, no warranty is given or attributed on the product manufactured or marketed by the manufacturer in case of damages caused by parts and/or components not approved by the manufacturer.

The manufacturer reserves the right to make improvements in design and changes in specifications at any time without notice and without incurring any obligation to install them on units previously sold. Specifications, descriptions, and illustrative material herein are as accurate as known at time of publication but are subject to change without notice.

In case of questions, refer to your NEW HOLLAND CONSTRUCTION Sales and Service Networks.

Safety rules

E215C EVO CRAWLER EXCAVATOR - STANDARD MODEL - TIER3	LA
E245C EVO CRAWLER EXCAVATOR - MASS EXCAVATOR MODEL - TIER3	LA


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.

Safety rules - General information

E215C EVO CRAWLER EXCAVATOR - STANDARD MODEL - TIER3	LA
E245C EVO CRAWLER EXCAVATOR - MASS EXCAVATOR MODEL - TIER3	LA

Cleaning

Clean the metal parts with cleaning solution that meets the standard and steam cleaning. (except for bearings)

After cleaning, dry well, and inject oil in all parts.

Also inject oil into the bearings after drying.

Inspection

When disassembling parts, check all the parts.

If there are any worn or damaged parts, replace them.

Inspect carefully to prevent initial breakdowns.

Bearing

Replace any loose bearings.

Air dry bearings before installing them.

Needle bearing

When inserting needle bearings, be very careful not to damage them.

Apply grease to the section where the needle bearing will be inserted.

Gear

Check that there is no wear and no damage.

Oil seal, O-ring, gasket

Always install new oil seals, O-rings, and gaskets.

Apply grease to sections where oil seals and O-rings will be inserted.

Shaft

Check that there is no wear and no damage.

Check the bearings and check for damaged oil seals on the shaft.

Service parts

Install NEW HOLLAND CONSTRUCTION genuine service parts.

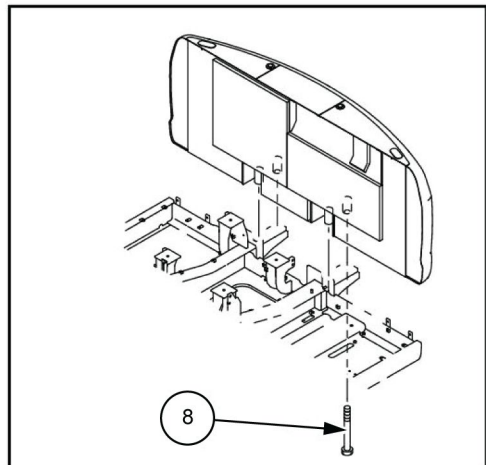
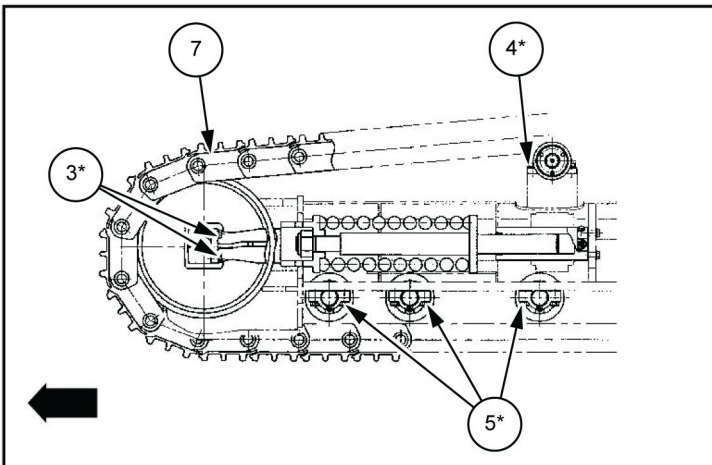
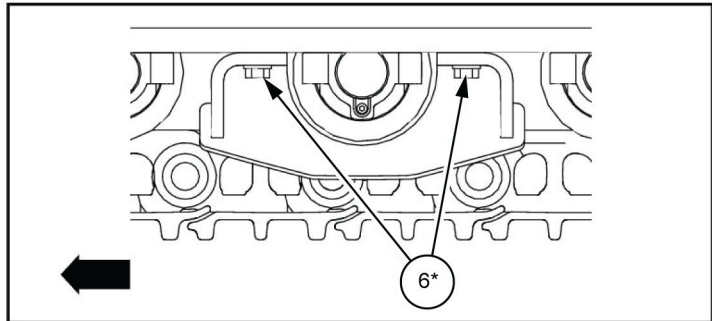
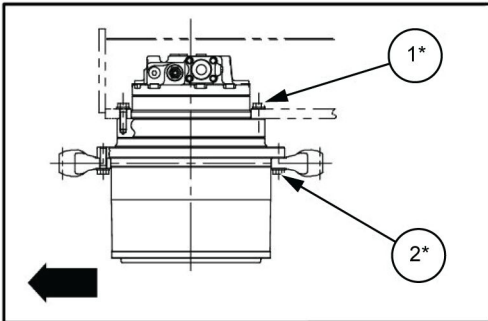
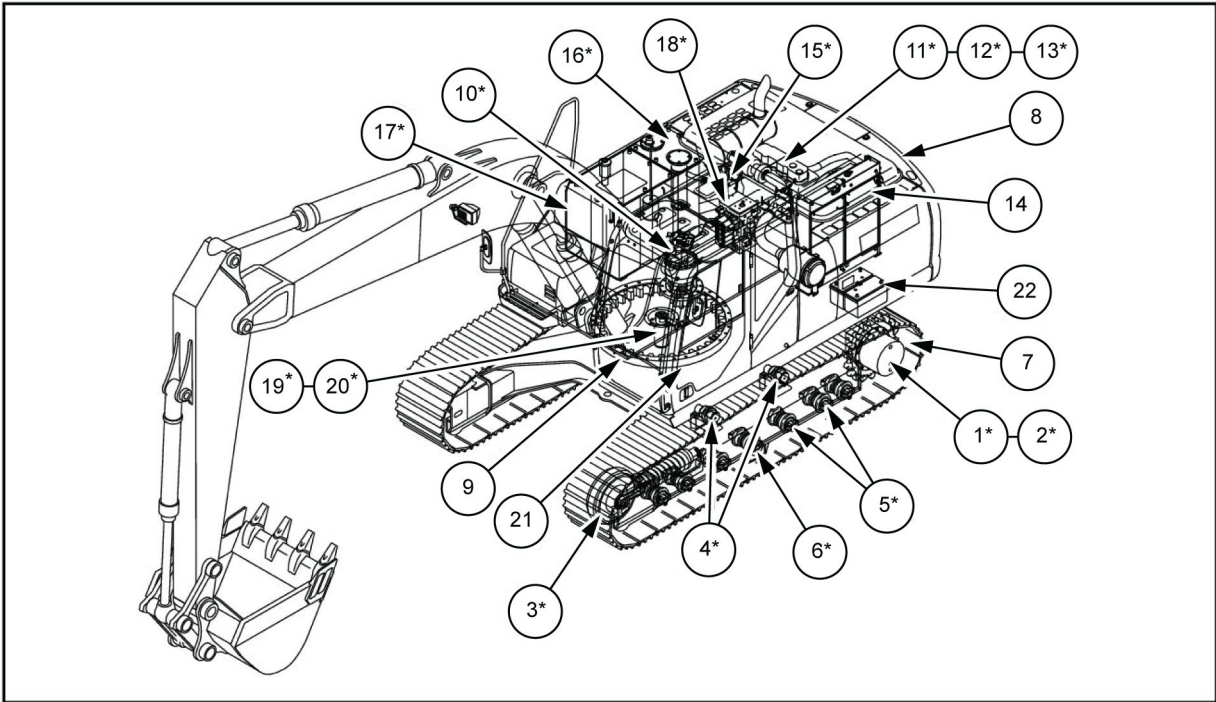
When placing an order, check the parts catalog. It contains the NEW HOLLAND CONSTRUCTION genuine part numbers.

Any breakdowns arising from the installation of non-genuine parts are not covered by the warranty.

Lubricants (fuel, hydraulic oil)

Use the oil from the specified company or specified in the operator's manual or service Manual.

INTRODUCTION



LPIL12CX00034HB 1



SERVICE MANUAL

Engine

**E215C EVO CRAWLER EXCAVATOR - STANDARD MODEL - TIER3
E245C EVO CRAWLER EXCAVATOR - MASS EXCAVATOR MODEL - TIER3**

Engine - General specification

E215C EVO CRAWLER EXCAVATOR - STANDARD MODEL - TIER3	LA
E245C EVO CRAWLER EXCAVATOR - MASS EXCAVATOR MODEL - TIER3	LA

Engine main data

Item	Engine model 4HK1
Type	Diesel / 4-cycle / water cooling, inline 4 cylinder OHC
Shape of combustion chamber	Direct injection type
Cylinder liner type	Dry type
Cylinder bore x stroke	115 mm (4.528 in) x 125 mm (4.921 in)
Displacement	5.193 L (316.89 in³)
Compression ratio	17.5
Compression pressure	3.04 MPa (440.95 psi) 200 RPM
Idling rotation speed	900 RPM
Valve clearance	In
	Out
Ignition type	Compression ignition
Injection order	1, 3, 4, 2
Lubricant system	
Lubricating type	Pressure type
Oil pump type	Gear type
Lubrication oil amount	15.6 – 23.1 L (4.121 – 6.102 US gal)
Oil filter type	Full-flow paper filter/bypass combined type (spin-on type, w/o drain plug)
Oil cooled type	Built-in, water cooled
Cooling system	
Cooling type	Water cooled
Radiator type	Corrugated fin (pressure type)
Water pump type	Spiral, belt type
Thermostat type	2 wax type unit
Thermostat valve opening temperature	82.0 °C (180 °F)
Coolant capacity	14 L (3.70 US gal)
Fuel system	
Injection pump type	Common rail type; HP3 model
Governor type	Electronic control type
Injection nozzle type	Electric multi-hole injector (G3AM type)
Battery system	
Generator type	AC type
Output	24 V/ 50 A
Regulator type	IC
Start system	
Starter type	Electromagnetic pinion shift type
Output	24 V / 5.0 kW
Preheat system type	Glow plug
Glow plug standard voltage/current	23 V/ 3.5 A

Cooling system main data

Item	Data
Water pump	Spiral type
Thermostat	Wax pellet type
Valve opening temperature	82.0 °C (180 °F)
Full-open temperature	95.0 °C (203 °F)

Electrical system main data

Generator	
Item	Data
Isuzu parts number	8980921161
Nominal output	24 V/ 50 A
Rated speed	5000 RPM
Regulator type	IC type
Regulated voltage	28.5 V ± 1
Weight	9.5 kg (20.9 lb)

Starter		
Type (Manufacturer)	Nikko	
Rated	Voltage	24 V
	Output	5 kW (6.8 Hp)
	Time	30 s
No. of pinion gears	13	
Direction of rotation (toward pinion)	Clockwise	
Weight (approx.)	8.0 kg (17.6 lb)	
No-load characteristics	Current/voltage	85 A or less/ 24 V
	Speed	3300 RPM or more
Load characteristics	Current/voltage	400 A/ 18.5 V
	Torque	28.4 N·m (20.95 lb ft) or more
	Speed	1250 RPM or more
Locking characteristics	Current/voltage	1400 A or less/ 9 V
	Torque	88.2 N·m (65.05 lb ft) or more

Glow plug	
Item	Type
Preheat unit model	Glow plug
Glow plug rated voltage/current	23 V/ 3.5 A

Engine - Prepare

E215C EVO CRAWLER EXCAVATOR - STANDARD MODEL - TIER3	LA
E245C EVO CRAWLER EXCAVATOR - MASS EXCAVATOR MODEL - TIER3	LA

⚠ WARNING

Escaping fluid!

Hydraulic fluid or diesel fuel leaking under pressure can penetrate the skin and cause infection or other injury. To prevent personal injury: Relieve all pressure before disconnecting fluid lines or performing work on the hydraulic system. Before applying pressure, make sure all connections are tight and all components are in good condition. Never use your hand to check for suspected leaks under pressure. Use a piece of cardboard or wood for this purpose. If injured by leaking fluid, see your doctor immediately.

Failure to comply could result in death or serious injury.

W0178A

⚠ WARNING

Avoid injury!

Shut off the engine, remove the key, and make sure all motion is stopped before servicing the machine.

Failure to comply could result in death or serious injury.

W1128A

⚠ WARNING

Crushing hazard!

The lifting systems must be operated by qualified personnel who are aware of the correct procedures to follow. Make sure all lifting equipment is in good condition, and all hooks are equipped with safety latches.

Failure to comply could result in death or serious injury.

W0256A

⚠ WARNING

Heavy objects!

Lift and handle all heavy components using lifting equipment with adequate capacity. Always support units or parts with suitable slings or hooks. Make sure the work area is clear of all bystanders.

Failure to comply could result in death or serious injury.

W0398A

⚠ WARNING

Explosion hazard!

Batteries emit explosive gases. Always ventilate when using in an enclosed area or when charging. Keep the battery away from sparks, open flames, and other ignition sources.

Failure to comply could result in death or serious injury.

W0369A

NOTICE: Keep away from flames.

NOTICE: The air conditioner circuit is filled with high pressure gas, gas may spray out dangerously when loosening lines.

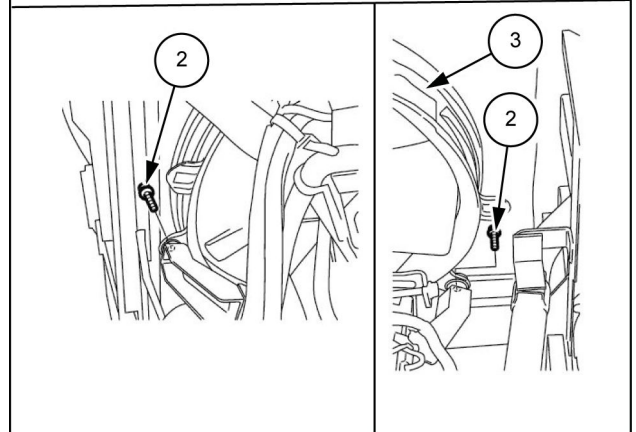
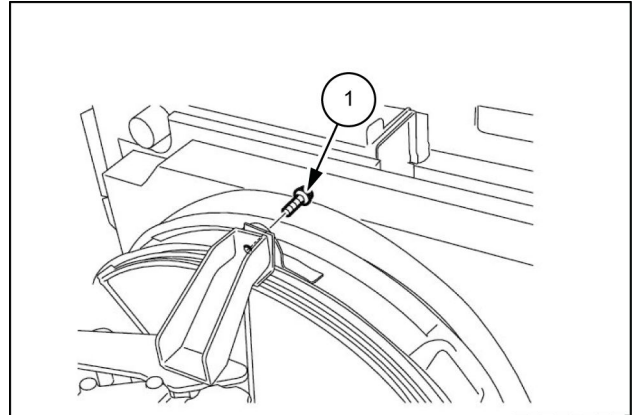
Items to prepare:

- Wrenches [**7 mm, 8 mm, 10 mm, 13 mm, 17 mm, 36 mm**]
- Box wrench [**24 mm**]
- Shackle (with the required lifting capacity) x 2
- Wire rope (with the required breaking load)
- Lifting equipment (with the required lifting capacity)
- Marking pen
- Caps
- Plugs
- Waste oil can
- Rag
- Cleaning fluid
- Wood plank

Engine - Remove

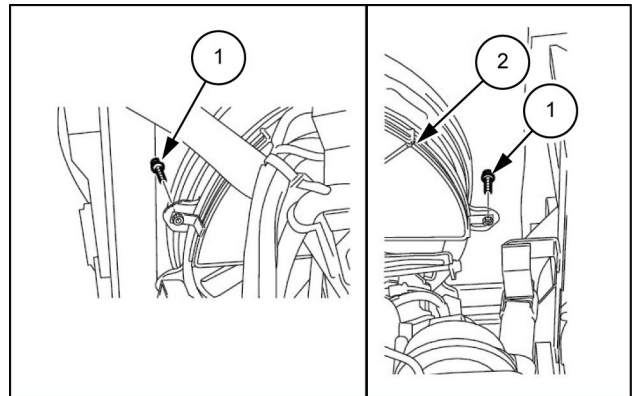
E215C EVO CRAWLER EXCAVATOR - STANDARD MODEL - TIER3	LA
E245C EVO CRAWLER EXCAVATOR - MASS EXCAVATOR MODEL - TIER3	LA

1. Remove the counterweight. (For details, See "**Counterweight - Remove (39.140)**").
2. Remove the pump. (For details, See "**Pump - Remove (35.106)**").
3. Use a wrench to remove the bolts **(1)** and **(2)**, and then remove the fan shroud **(3)**.



LPIL12CX00144BB 1

4. Use a wrench to remove the bolts **(1)**, and then remove the fan guard **(2)**.



LPIL12CX00145AB 2



Suggest:

If the above button click is invalid.

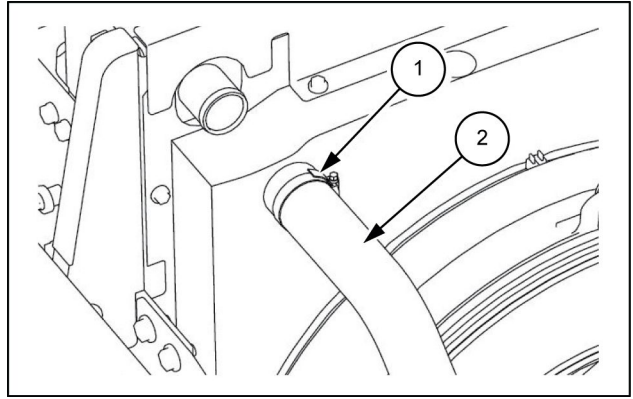
Please download this document

first, and then click the above link

to download the complete manual.

Thank you so much for reading

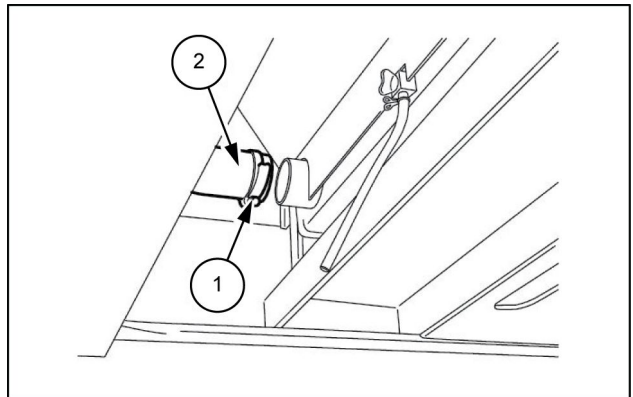
5. Use a wrench [**7 mm**] to loosen the hose band **(1)** on the radiator, and then remove the upper hose **(2)**.



SMIL13CEX1230AB 3

6. Use a wrench [**7 mm**] to loosen the hose band **(1)** on the radiator, and then remove the lower hose **(2)**.

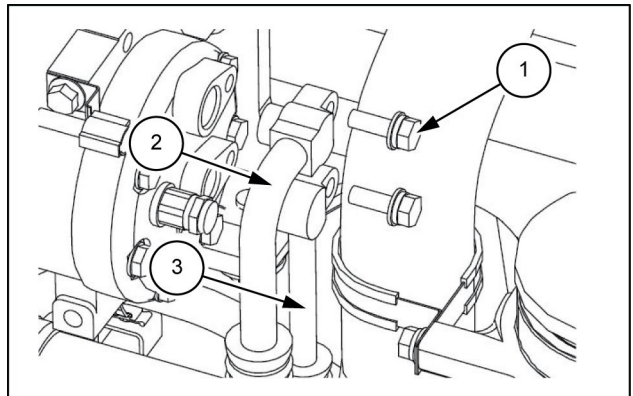
- Use caps to cover the radiator and hoses to prevent the entry of water, dust or dirt.
- Before removing the radiator hoses, completely drain the coolant.



SMIL13CEX1231AB 4

7. Use a wrench [**13 mm**] to loosen the line bolts **(1)** in 2 locations, and then remove the 2 lines **(2)** and **(3)** from the compressor.

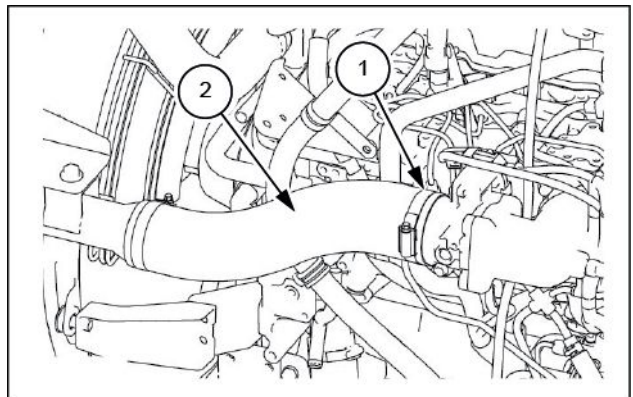
- Always remove the low-pressure (suction side) line **(2)** first.
 - Install caps or plugs to the compressor and lines to prevent any entry of water, dust or dirt.
3. Line (discharge side)



SMIL13CEX1232AB 5

8. Use a wrench [**8 mm**] to loosen the hose band **(1)** on the intercooler, and then remove the hose **(2)**.

- Use caps to cover the line and hose to prevent the entry of water, dust or dirt.



SMIL13CEX1233AB 6

<https://www.ebooklibonline.com>

Hello dear friend!

Thank you very much for reading.

Enter the link into your browser.

The full manual is available for immediate download.

<https://www.ebooklibonline.com>