

SR270 / SV340
Tier 4B (final)
Alpha Series Skid Steer Loader
PIN NGM418237 and above

TR340 / TV380
Tier 4B (final)
Alpha Series Compact Track Loader
PIN NGM418237 and above

SERVICE MANUAL

Part number **47916277**
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SERVICE MANUAL

SR270 TIER 4B (FINAL) [NGM418237 -]
SV340 TIER 4B (FINAL) [NGM418237 -]
TR340 TIER 4B (FINAL) [NGM418237 -]
TV380 TIER 4B (FINAL) [NGM418237 -]

Link Product / Engine

Product	Market Product	Engine
TR340 TIER 4B (FINAL) [NGM418237 -]	North America	F5BFL413A*B007
TV380 TIER 4B (FINAL) [NGM418237 -]	North America	F5BFL413A*B007
SR270 TIER 4B (FINAL) [NGM418237 -]	North America	F5BFL413A*B007
SV340 TIER 4B (FINAL) [NGM418237 -]	North America	F5BFL413A*B007

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INTRODUCTION

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Foreword - Important notice regarding equipment servicing

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TR340 TIER 4B (FINAL) [NGM418237 -]	NA
TV380	NA

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 CASE CONSTRUCTION Sales and Service Networks.

Safety rules

SV340 TIER 4B (FINAL) [NGM418237 -]	NA
TV380	NA


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 - Personal safety

SR270 TIER 4B (FINAL) [NGM418237 -]	NA
SV340	NA
TR340 TIER 4B (FINAL) [NGM418237 -]	NA
TV380	NA

Carefully study these precautions, and those included in the external attachment operators manual, and insist that they be followed by those working with and for you.

1. Thoroughly read and understand this manual and the attachment Operator's Manual before operating this or any other equipment.
2. Be sure all people and pets are clear of the machine before starting. Sound the horn, if equipped, three times before starting engine.
3. Only the operator should be on the machine when in operation. Never allow anyone to climb on to the machine while it is in motion. If the machine is equipped with an Instructors Seat, this must only be used for training purposes. Passengers must not be allowed to use the Instructors Seat.
4. Keep all shields in place. Never work around the machine or any of the attachments while wearing loose clothing that might catch on moving parts.
5. Observe the following precautions whenever lubricating the machine or making adjustments.
 - Disengage all clutching levers or switches.
 - Lower the attachment, if equipped, to the ground or raise the attachment completely and engage the cylinder safety locks. Completing these actions will prevent the attachment from lowering unexpectedly.
 - Engage the parking brake.
 - Shut off the engine and remove the key.
 - Wait for all machine movement to stop before leaving the operators platform.
6. Always keep the machine in gear while travelling downhill.
7. The machine should always be equipped with sufficient front or rear axle weight for safe operation.
8. Under some field conditions, more weight may be required at the front or rear axle for adequate stability. This is especially important when operating in hilly conditions or/when using heavy attachments.
9. Always lower the attachment, shut off the engine, set the parking brake, engage the transmission gears, remove the key and wait for all machine movement to stop before leaving the operators platform.
10. If the attachment or machine should become obstructed or plugged; set the parking brake, shut off the engine and remove the key, engage the transmission gears, wait for all machine or attachment motion to come to a stop, before leaving the operators platform to removing the obstruction or plug.
11. Never disconnect or make any adjustments to the hydraulic system unless the machine and/or the attachment is lowered to the ground or the safety lock(s) is in the engaged position.
12. Use of the flashing lights is highly recommended when operating on a public road.
13. When transporting on a road or highway, use accessory lights and devices for adequate warning to the operators of other vehicles. In this regard, check local government regulations. Various safety lights and devices are available from your CASE CONSTRUCTION dealer.
14. Practice safety 365 days a year.
15. Keep all your equipment in safe operating condition.
16. Keep all guards and safety devices in place.
17. Always set the parking brake, shut off the engine and remove the key, engage the transmission gears, wait for all machine or attachment motion to come to a stop, before leaving the operators platform to service the machine and attachment.
18. Remember: A careful operator is the best insurance against an accident.
19. Extreme care should be taken in keeping hands and clothing away from moving parts.

Safety rules - Ecology and the environment

SR270 TIER 4B (FINAL) [NGM418237 -]	NA
SV340	NA
TR340 TIER 4B (FINAL) [NGM418237 -]	NA
TV380	NA

Soil, air, and water quality is important for all industries and life in general. When legislation does not yet rule the treatment of some of the substances that advanced technology requires, sound judgment should govern the use and disposal of products of a chemical and petrochemical nature.

Familiarize yourself with the relative legislation applicable to your country, and make sure that you understand this legislation. Where no legislation exists, obtain information from suppliers of oils, filters, batteries, fuels, anti-freeze, cleaning agents, etc., with regard to the effect of these substances on man and nature and how to safely store, use, and dispose of these substances.

Helpful hints

- Avoid the use of cans or other inappropriate pressurized fuel delivery systems to fill tanks. Such delivery systems may cause considerable spillage.
- In general, avoid skin contact with all fuels, oils, acids, solvents, etc. Most of these products contain substances that may be harmful to your health.
- Modern oils contain additives. Do not burn contaminated fuels and or waste oils in ordinary heating systems.
- Avoid spillage when you drain fluids such as used engine coolant mixtures, engine oil, hydraulic fluid, brake fluid, etc. Do not mix drained brake fluids or fuels with lubricants. Store all drained fluids safely until you can dispose of the fluids in a proper way that complies with all local legislation and available resources.
- Do not allow coolant mixtures to get into the soil. Collect and dispose of coolant mixtures properly.
- The air-conditioning system contains gases that should not be released into the atmosphere. Consult an air-conditioning specialist or use a special extractor to recharge the system properly.
- Repair any leaks or defects in the engine cooling system or hydraulic system immediately.
- Do not increase the pressure in a pressurized circuit as this may lead to a component failure.
- Protect hoses during welding. Penetrating weld splatter may burn a hole or weaken hoses, allowing the loss of oils, coolant, etc.

Battery recycling

Batteries and electric accumulators contain several substances that can have a harmful effect on the environment if the batteries are not properly recycled after use. Improper disposal of batteries can contaminate the soil, groundwater, and waterways. CASE CONSTRUCTION strongly recommends that you return all used batteries to a CASE CONSTRUCTION dealer, who will dispose of the used batteries or recycle the used batteries properly. In some countries, this is a legal requirement.



Mandatory battery recycling

NOTE: The following requirements are mandatory in Brazil.

Batteries are made of lead plates and a sulfuric acid solution. Because batteries contain heavy metals such as lead, CONAMA Resolution 401/2008 requires you to return all used batteries to the battery dealer when you replace any batteries. Do not dispose of batteries in your household garbage.

Points of sale are obliged to:

- Accept the return of your used batteries
- Store the returned batteries in a suitable location
- Send the returned batteries to the battery manufacturer for recycling

Torque - Minimum tightening torques for normal assembly

SR270	NA
SV340	NA
TR340 TIER 4B (FINAL) [NGM418237 -]	NA
TR340	NA
TV380	NA

METRIC NON-FLANGED HARDWARE

NOM. SIZE	CLASS 8.8 BOLT and CLASS 8 NUT		CLASS 10.9 BOLT and CLASS 10 NUT		LOCKNUT CL.8 W/CL8.8 BOLT	LOCKNUT CL.10 W/CL10.9 BOLT
	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr		
M4	2.2 N·m (19 lb in)	2.9 N·m (26 lb in)	3.2 N·m (28 lb in)	4.2 N·m (37 lb in)	2 N·m (18 lb in)	2.9 N·m (26 lb in)
M5	4.5 N·m (40 lb in)	5.9 N·m (52 lb in)	6.4 N·m (57 lb in)	8.5 N·m (75 lb in)	4 N·m (36 lb in)	5.8 N·m (51 lb in)
M6	7.5 N·m (66 lb in)	10 N·m (89 lb in)	11 N·m (96 lb in)	15 N·m (128 lb in)	6.8 N·m (60 lb in)	10 N·m (89 lb in)
M8	18 N·m (163 lb in)	25 N·m (217 lb in)	26 N·m (234 lb in)	35 N·m (311 lb in)	17 N·m (151 lb in)	24 N·m (212 lb in)
M10	37 N·m (27 lb ft)	49 N·m (36 lb ft)	52 N·m (38 lb ft)	70 N·m (51 lb ft)	33 N·m (25 lb ft)	48 N·m (35 lb ft)
M12	64 N·m (47 lb ft)	85 N·m (63 lb ft)	91 N·m (67 lb ft)	121 N·m (90 lb ft)	58 N·m (43 lb ft)	83 N·m (61 lb ft)
M16	158 N·m (116 lb ft)	210 N·m (155 lb ft)	225 N·m (166 lb ft)	301 N·m (222 lb ft)	143 N·m (106 lb ft)	205 N·m (151 lb ft)
M20	319 N·m (235 lb ft)	425 N·m (313 lb ft)	440 N·m (325 lb ft)	587 N·m (433 lb ft)	290 N·m (214 lb ft)	400 N·m (295 lb ft)
M24	551 N·m (410 lb ft)	735 N·m (500 lb ft)	762 N·m (560 lb ft)	1016 N·m (750 lb ft)	501 N·m (370 lb ft)	693 N·m (510 lb ft)

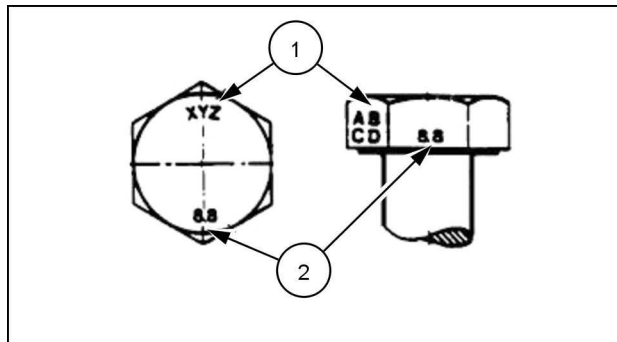
NOTE: M4 through M8 hardware torque specifications are shown in pound-inches. M10 through M24 hardware torque specifications are shown in pound-feet.

METRIC FLANGED HARDWARE

NOM. SIZE	CLASS 8.8 BOLT and CLASS 8 NUT		CLASS 10.9 BOLT and CLASS 10 NUT		LOCKNUT CL.8 W/CL8.8 BOLT	LOCKNUT CL.10 W/CL10.9 BOLT
	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr		
M4	2.4 N·m (21 lb in)	3.2 N·m (28 lb in)	3.5 N·m (31 lb in)	4.6 N·m (41 lb in)	2.2 N·m (19 lb in)	3.1 N·m (27 lb in)
M5	4.9 N·m (43 lb in)	6.5 N·m (58 lb in)	7.0 N·m (62 lb in)	9.4 N·m (83 lb in)	4.4 N·m (39 lb in)	6.4 N·m (57 lb in)
M6	8.3 N·m (73 lb in)	11 N·m (96 lb in)	12 N·m (105 lb in)	16 N·m (141 lb in)	7.5 N·m (66 lb in)	11 N·m (96 lb in)
M8	20 N·m (179 lb in)	27 N·m (240 lb in)	29 N·m (257 lb in)	39 N·m (343 lb in)	18 N·m (163 lb in)	27 N·m (240 lb in)
M10	40 N·m (30 lb ft)	54 N·m (40 lb ft)	57 N·m (42 lb ft)	77 N·m (56 lb ft)	37 N·m (27 lb ft)	53 N·m (39 lb ft)
M12	70 N·m (52 lb ft)	93 N·m (69 lb ft)	100 N·m (74 lb ft)	134 N·m (98 lb ft)	63 N·m (47 lb ft)	91 N·m (67 lb ft)
M16	174 N·m (128 lb ft)	231 N·m (171 lb ft)	248 N·m (183 lb ft)	331 N·m (244 lb ft)	158 N·m (116 lb ft)	226 N·m (167 lb ft)
M20	350 N·m (259 lb ft)	467 N·m (345 lb ft)	484 N·m (357 lb ft)	645 N·m (476 lb ft)	318 N·m (235 lb ft)	440 N·m (325 lb ft)
M24	607 N·m (447 lb ft)	809 N·m (597 lb ft)	838 N·m (618 lb ft)	1118 N·m (824 lb ft)	552 N·m (407 lb ft)	

IDENTIFICATION

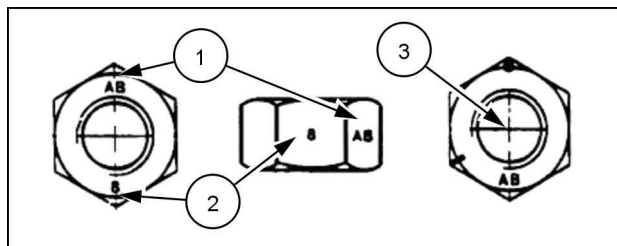
Metric Hex head and carriage bolts, classes 5.6 and up



20083680 1

1. Manufacturer's Identification
2. Property Class

Metric Hex nuts and locknuts, classes 05 and up



20083681 2

1. Manufacturer's Identification
2. Property Class
3. Clock Marking of Property Class and Manufacturer's Identification (Optional), i.e. marks **60** ° apart indicate Class 10 properties, and marks **120** ° apart indicate Class 8.

INCH NON-FLANGED HARDWARE

NOMINAL SIZE	SAE GRADE 5 BOLT and NUT		SAE GRADE 8 BOLT and NUT		LOCKNUT GrB W/ Gr5 BOLT	LOCKNUT GrC W/ Gr8 BOLT
	UN-PLATED or PLATED SILVER	PLATED W/ZnCr GOLD	UN-PLATED or PLATED SILVER	PLATED W/ZnCr GOLD		
1/4	8 N·m (71 lb in)	11 N·m (97 lb in)	12 N·m (106 lb in)	16 N·m (142 lb in)	8.5 N·m (75 lb in)	12.2 N·m (109 lb in)
5/16	17 N·m (150 lb in)	23 N·m (204 lb in)	24 N·m (212 lb in)	32 N·m (283 lb in)	17.5 N·m (155 lb in)	25 N·m (220 lb in)
3/8	30 N·m (22 lb ft)	40 N·m (30 lb ft)	43 N·m (31 lb ft)	57 N·m (42 lb ft)	31 N·m (23 lb ft)	44 N·m (33 lb ft)
7/16	48 N·m (36 lb ft)	65 N·m (48 lb ft)	68 N·m (50 lb ft)	91 N·m (67 lb ft)	50 N·m (37 lb ft)	71 N·m (53 lb ft)
1/2	74 N·m (54 lb ft)	98 N·m (73 lb ft)	104 N·m (77 lb ft)	139 N·m (103 lb ft)	76 N·m (56 lb ft)	108 N·m (80 lb ft)
9/16	107 N·m (79 lb ft)	142 N·m (105 lb ft)	150 N·m (111 lb ft)	201 N·m (148 lb ft)	111 N·m (82 lb ft)	156 N·m (115 lb ft)
5/8	147 N·m (108 lb ft)	196 N·m (145 lb ft)	208 N·m (153 lb ft)	277 N·m (204 lb ft)	153 N·m (113 lb ft)	215 N·m (159 lb ft)
3/4	261 N·m (193 lb ft)	348 N·m (257 lb ft)	369 N·m (272 lb ft)	491 N·m (362 lb ft)	271 N·m (200 lb ft)	383 N·m (282 lb ft)
7/8	420 N·m (310 lb ft)	561 N·m (413 lb ft)	594 N·m (438 lb ft)	791 N·m (584 lb ft)	437 N·m (323 lb ft)	617 N·m (455 lb ft)
1	630 N·m (465 lb ft)	841 N·m (620 lb ft)	890 N·m (656 lb ft)	1187 N·m (875 lb ft)	654 N·m (483 lb ft)	924 N·m (681 lb ft)

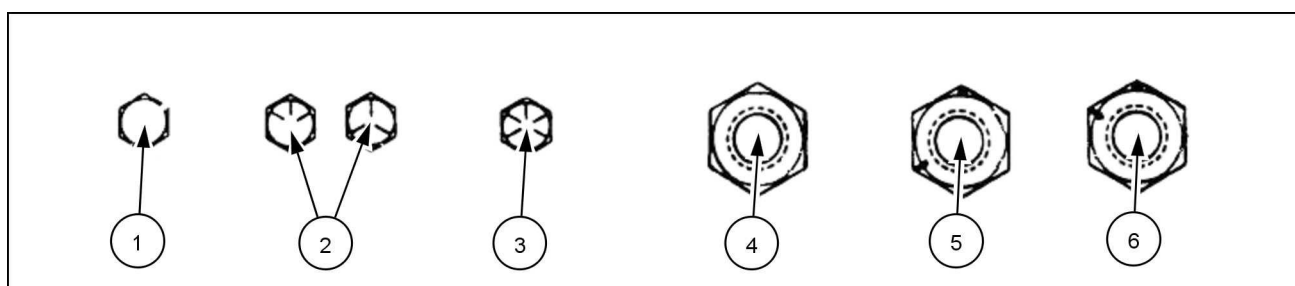
NOTE: For Imperial Units, *1/4 in* and *5/16 in* hardware torque specifications are shown in pound-inches. *3/8 in* through *1 in* hardware torque specifications are shown in pound-feet.

INCH FLANGED HARDWARE

NOM- INAL SIZE	SAE GRADE 5 BOLT and NUT		SAE GRADE 8 BOLT and NUT		LOCKNUT GrF W/ Gr5 BOLT	LOCKNUT GrG W/ Gr8 BOLT
	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD		
1/4	9 N·m (80 lb in)	12 N·m (106 lb in)	13 N·m (115 lb in)	17 N·m (150 lb in)	8 N·m (71 lb in)	12 N·m (106 lb in)
5/16	19 N·m (168 lb in)	25 N·m (221 lb in)	26 N·m (230 lb in)	35 N·m (310 lb in)	17 N·m (150 lb in)	24 N·m (212 lb in)
3/8	33 N·m (25 lb ft)	44 N·m (33 lb ft)	47 N·m (35 lb ft)	63 N·m (46 lb ft)	30 N·m (22 lb ft)	43 N·m (32 lb ft)
7/16	53 N·m (39 lb ft)	71 N·m (52 lb ft)	75 N·m (55 lb ft)	100 N·m (74 lb ft)	48 N·m (35 lb ft)	68 N·m (50 lb ft)
1/2	81 N·m (60 lb ft)	108 N·m (80 lb ft)	115 N·m (85 lb ft)	153 N·m (113 lb ft)	74 N·m (55 lb ft)	104 N·m (77 lb ft)
9/16	117 N·m (86 lb ft)	156 N·m (115 lb ft)	165 N·m (122 lb ft)	221 N·m (163 lb ft)	106 N·m (78 lb ft)	157 N·m (116 lb ft)
5/8	162 N·m (119 lb ft)	216 N·m (159 lb ft)	228 N·m (168 lb ft)	304 N·m (225 lb ft)	147 N·m (108 lb ft)	207 N·m (153 lb ft)
3/4	287 N·m (212 lb ft)	383 N·m (282 lb ft)	405 N·m (299 lb ft)	541 N·m (399 lb ft)	261 N·m (193 lb ft)	369 N·m (272 lb ft)
7/8	462 N·m (341 lb ft)	617 N·m (455 lb ft)	653 N·m (482 lb ft)	871 N·m (642 lb ft)	421 N·m (311 lb ft)	594 N·m (438 lb ft)
1	693 N·m (512 lb ft)	925 N·m (682 lb ft)	979 N·m (722 lb ft)	1305 N·m (963 lb ft)	631 N·m (465 lb ft)	890 N·m (656 lb ft)

IDENTIFICATION

Inch Bolts and free-spinning nuts

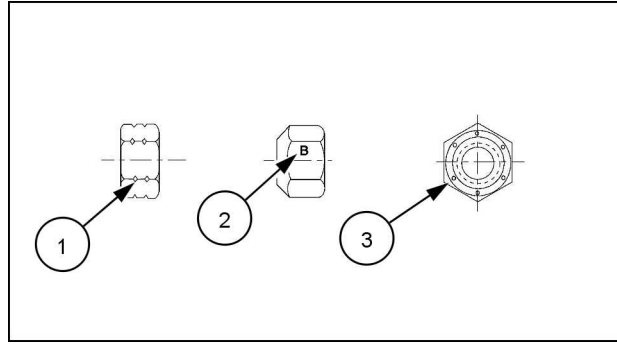


20083682 3

Grade Marking Examples

SAE Grade Identification			
1	Grade 2 - No Marks	4	Grade 2 Nut - No Marks
2	Grade 5 - Three Marks	5	Grade 5 Nut - Marks 120 ° Apart
3	Grade 8 - Five Marks	6	Grade 8 Nut - Marks 60 ° Apart

Inch Lock Nuts, All Metal (Three optional methods)



20090268 4

Grade Identification

Grade	Corner Marking Method (1)	Flats Marking Method (2)	Clock Marking Method (3)
Grade A	No Notches	No Mark	No Marks
Grade B	One Circumferential Notch	Letter B	Three Marks
Grade C	Two Circumferential Notches	Letter C	Six Marks

Torque - Standard torque data for hydraulics

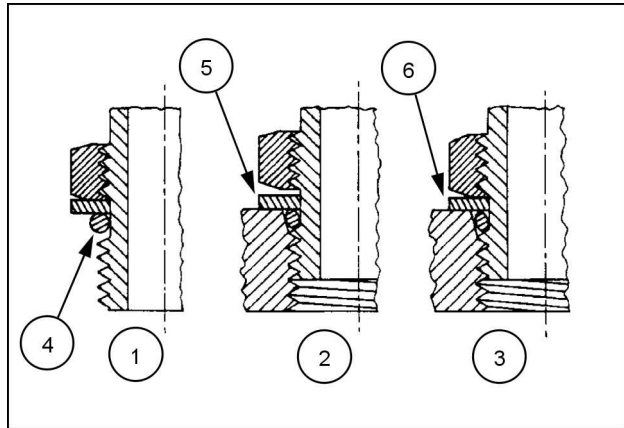
SR270 TIER 4B (FINAL) [NGM418237 -]	NA
SV340	NA
TR340 TIER 4B (FINAL) [NGM418237 -]	NA
TV380	NA

INSTALLATION OF ADJUSTABLE FITTINGS IN STRAIGHT THREAD O RING BOSSES

1. Lubricate the O-ring by coating it with a light oil or petroleum. Install the O-ring in the groove adjacent to the metal backup washer which is assembled at the extreme end of the groove (4).
2. Install the fitting into the SAE straight thread boss until the metal backup washer contacts the face of the boss (5).

NOTE: Do not over tighten and distort the metal backup washer.

3. Position the fitting by turning out (counterclockwise) up to a maximum of one turn. Holding the pad of the fitting with a wrench, tighten the locknut and washer against the face of the boss (6).



23085659 1

STANDARD TORQUE DATA FOR HYDRAULIC TUBES AND FITTINGS

TUBE NUTS FOR 37° FLARED FITTINGS				O-RING BOSS PLUGS ADJUSTABLE FITTING LOCKNUTS, SWIVEL JIC- 37° SEATS
SIZE	TUBING OD	THREAD SIZE	TORQUE	TORQUE
4	6.4 mm (1/4 in)	7/16-20	12 - 16 N·m (9 - 12 lb ft)	8 - 14 N·m (6 - 10 lb ft)
5	7.9 mm (5/16 in)	1/2-20	16 - 20 N·m (12 - 15 lb ft)	14 - 20 N·m (10 - 15 lb ft)
6	9.5 mm (3/8 in)	9/16-18	29 - 33 N·m (21 - 24 lb ft)	20 - 27 N·m (15 - 20 lb ft)
8	12.7 mm (1/2 in)	3/4-16	47 - 54 N·m (35 - 40 lb ft)	34 - 41 N·m (25 - 30 lb ft)
10	15.9 mm (5/8 in)	7/8-14	72 - 79 N·m (53 - 58 lb ft)	47 - 54 N·m (35 - 40 lb ft)
12	19.1 mm (3/4 in)	1-1/16-12	104 - 111 N·m (77 - 82 lb ft)	81 - 95 N·m (60 - 70 lb ft)
14	22.2 mm (7/8 in)	1-3/16-12	122 - 136 N·m (90 - 100 lb ft)	95 - 109 N·m (70 - 80 lb ft)
16	25.4 mm (1 in)	1-5/16-12	149 - 163 N·m (110 - 120 lb ft)	108 - 122 N·m (80 - 90 lb ft)
20	31.8 mm (1-1/4 in)	1-5/8-12	190 - 204 N·m (140 - 150 lb ft)	129 - 158 N·m (95 - 115 lb ft)
24	38.1 mm (1-1/2 in)	1-7/8-12	217 - 237 N·m (160 - 175 lb ft)	163 - 190 N·m (120 - 140 lb ft)
32	50.8 mm (2 in)	2-1/2-12	305 - 325 N·m (225 - 240 lb ft)	339 - 407 N·m (250 - 300 lb ft)

These torques are not recommended for tubes of 12.7 mm (1/2 in) OD and larger with wall thickness of 0.889 mm (0.035 in) or less. The torque is specified for 0.889 mm (0.035 in) wall tubes on each application individually.

Before installing and torquing 37° flared fittings, clean the face of the flare and threads with a clean solvent or Loctite cleaner and apply hydraulic sealant **LOCTITE® 569** to the 37° flare and the threads.

Install fitting and torque to specified torque, loosen fitting and retorque to specifications.

PIPE THREAD FITTING TORQUE

Before installing and tightening pipe fittings, clean the threads with a clean solvent or Loctite cleaner and apply sealant **LOCTITE® 567 PST PIPE SEALANT** for all fittings including stainless steel or **LOCTITE® 565 PST** for most metal fittings. For high filtration/zero contamination systems use **LOCTITE® 545**.

PIPE THREAD FITTING	
Thread Size	Torque (Maximum)
1/8-27	13 N·m (10 lb ft)
1/4-18	16 N·m (12 lb ft)
3/8-18	22 N·m (16 lb ft)
1/2-14	41 N·m (30 lb ft)
3/4-14	54 N·m (40 lb ft)

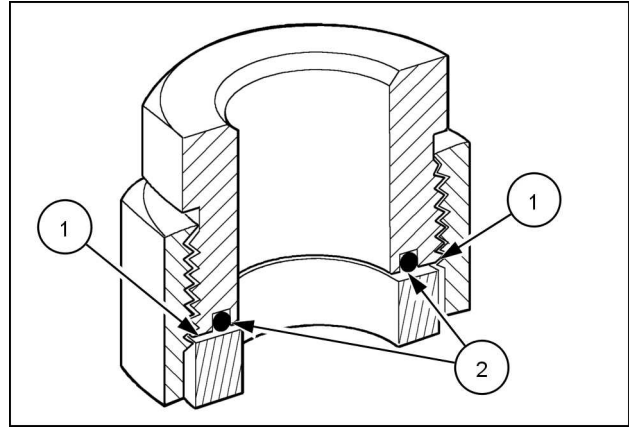
INSTALLATION OF ORFS (O-RING FLAT FACED) FITTINGS

When installing ORFS fittings thoroughly clean both flat surfaces of the fittings **(1)** and lubricate the O-ring **(2)** with light oil. Make sure both surfaces are aligned properly. Torque the fitting to specified torque listed throughout the repair manual.

NOTICE: If the fitting surfaces are not properly cleaned, the O-ring will not seal properly. If the fitting surfaces are not properly aligned, the fittings may be damaged and will not seal properly.

NOTICE: Always use genuine factory replacement oils and filters to ensure proper lubrication and filtration of engine and hydraulic system oils.

The use of proper oils, grease, and keeping the hydraulic system clean will extend machine and component life.



50011183 2

Basic instructions - Shop and assembly

SR270 TIER 4B (FINAL) [NGM418237 -]	NA
SV340	NA
TR340 TIER 4B (FINAL) [NGM418237 -]	NA
TV380	NA

Shimming

For each adjustment operation, select adjusting shims and measure the adjusting shims individually using a micrometer, then add up the recorded values. Do not rely on measuring the entire shimming set, which may be incorrect, or the rated value shown on each shim.

Rotating shaft seals

For correct rotating shaft seal installation, proceed as follows:

1. Before assembly, allow the seal to soak in the oil it will be sealing for at least thirty minutes.
2. Thoroughly clean the shaft and check that the working surface on the shaft is not damaged.
3. Position the sealing lip facing the fluid.

NOTE: With hydrodynamic lips, take into consideration the shaft rotation direction and position the grooves so that they will move the fluid towards the inner side of the seal.

4. Coat the sealing lip with a thin layer of lubricant (use oil rather than grease). Fill the gap between the sealing lip and the dust lip on double lip seals with grease.
5. Insert the seal in its seat and press down using a flat punch or seal installation tool. Do not tap the seal with a hammer or mallet.
6. While you insert the seal, check that the seal is perpendicular to the seat. When the seal settles, make sure that the seal makes contact with the thrust element, if required.
7. To prevent damage to the seal lip on the shaft, position a protective guard during installation operations.

O-ring seals

Lubricate the O-ring seals before you insert them in the seats. This will prevent the O-ring seals from overturning and twisting, which would jeopardize sealing efficiency.

Sealing compounds

Apply a sealing compound on the mating surfaces when specified by the procedure. Before you apply the sealing compound, prepare the surfaces as directed by the product container.

Spare parts

Only use CNH Original Parts or CASE CONSTRUCTION Original Parts.

Only genuine spare parts guarantee the same quality, duration, and safety as original parts, as they are the same parts that are assembled during standard production. Only CNH Original Parts or CASE CONSTRUCTION Original Parts can offer this guarantee.

When ordering spare parts, always provide the following information:

- Machine model (commercial name) and Product Identification Number (PIN)
- Part number of the ordered part, which can be found in the parts catalog

Protecting the electronic and/or electrical systems during charging and welding

To avoid damage to the electronic and/or electrical systems, always observe the following practices:

1. Never make or break any of the charging circuit connections when the engine is running, including the battery connections.
2. Never short any of the charging components to ground.
3. Always disconnect the ground cable from the battery before arc welding on the machine or on any machine attachment.
 - Position the welder ground clamp as close to the welding area as possible.
 - If you weld in close proximity to a computer module, then you should remove the module from the machine.
 - Never allow welding cables to lie on, near, or across any electrical wiring or electronic component while you weld.
4. Always disconnect the negative cable from the battery when charging the battery in the machine with a battery charger.

NOTICE: *If you must weld on the unit, you must disconnect the battery ground cable from the machine battery. The electronic monitoring system and charging system will be damaged if this is not done.*

5. Remove the battery ground cable. Reconnect the cable when you complete welding.

⚠ WARNING

Battery acid causes burns. Batteries contain sulfuric acid.

Avoid contact with skin, eyes or clothing. Antidote (external): Flush with water. Antidote (eyes): flush with water for 15 minutes and seek medical attention immediately. Antidote (internal): Drink large quantities of water or milk. Do not induce vomiting. Seek medical attention immediately. Failure to comply could result in death or serious injury.

W0111A

Special tools


The special tools that CASE CONSTRUCTION suggests and illustrate in this manual have been specifically researched and designed for use with CASE CONSTRUCTION machines. The special tools are essential for reliable repair operations. The special tools are accurately built and rigorously tested to offer efficient and long-lasting operation.

By using these tools, repair personnel will benefit from:

- Operating in optimal technical conditions
- Obtaining the best results
- Saving time and effort
- Working in safe conditions

Basic instructions - Video links

This service manual contains video links that are viewable through the eTim service or through the Dealer Portal.

Video links are denoted by the YouTube  icon within the document, and can be viewed in the eTim service instruction or through the Dealer Portal.

The Dealer Portal video location is located under the <Service> <Training> <Tech Knowledge Program> tabs.

Hydraulic contamination

SR270 TIER 4B (FINAL) [NGM418237 -]	NA
SV340	NA
TR340 TIER 4B (FINAL) [NGM418237 -]	NA
TV380 TIER 4B (FINAL) [NGM418237 -]	NA

Contamination in the hydraulic system is a major cause of the malfunction of hydraulic components. Contamination is any foreign material in the hydraulic oil.

Contamination can enter the hydraulic system in several ways:

- When you drain the oil or disconnect any line
- When you disassemble a component
- From normal wear of the hydraulic components
- From damaged seals or worn seals
- From a damaged component in the hydraulic system

All hydraulic systems operate with some contamination. The design of the components in this hydraulic system permits efficient operation with a small amount of contamination. An increase in this amount of contamination can cause problems in the hydraulic system.

The following list includes some of these problems:

- Cylinder rod seals that leak
- Control valve spools that do not return to neutral
- Movement of control valve spools is difficult
- Hydraulic oil that becomes too hot
- Pump gears, housing, and other parts that wear rapidly
- Relief valves or check valves held open by dirt
- Quick failure of components that have been repaired
- Slow cycle times are slow. The machine does not have enough power.

If your machine has any of these problems, check the hydraulic oil for contamination.

There are two types of contamination: microscopic and visible.

Microscopic contamination occurs when very fine particles of foreign material are suspended in the hydraulic oil. These particles are too small to see or feel. Microscopic contamination can be found by identification of the following problems or by testing in a laboratory.

Examples of problems caused by microscopic contamination:

- Cylinder rod seals that leak
- Control valve spools that do not return to neutral
- The hydraulic system has a high operating temperature

Visible contamination is foreign material that can be found by sight, touch, or odor. Visible contamination can cause a sudden failure of components.

Examples of problems caused by visible contamination:

- Particles of metal or dirt in the oil
- Air in the oil
- Dark or thick oil
- Oil with an odor of burned oil
- Water in the oil

If you find contamination, use a portable filter to clean the hydraulic system.

Fluids and lubricants

Fuel tank

Capacity	96.5 L (25.5 US gal)
Specifications	#2 Diesel ultra-low sulfur

Cooling system

Capacity	19.0 L (5.0 US gal)
Specifications	CASE AKCELA ACTIFULL™ OT EXTENDED LIFE COOLANT

Hydraulic system

Reservoir capacity	22.7 L (6.0 US gal)
System capacity:	45.4 L (12.0 US gal)
Specifications	TUTELA AUTO SUPREME™ ENGINE OIL SAE 10W-30

Chain compartments

Capacity - each side	
SR270, SV340	22.2 L (23.5 US qt)
Specifications	TUTELA AUTO SUPREME™ ENGINE OIL SAE 10W-30

Grease fittings

Quantity	As required
Specifications	TUTELA MOLY GREASE GR-75 (Molydisulfide)

Engine crank case oil

Capacity - with filter change	8.5 L (9.0 US qt)
Specifications	CASE AKCELA UNITEK NO. 1™ SBL CJ-4

Final track drive

Capacity - each side	
TR340, TV380	1.0 L (1.06 US qt) +/- 0.1 L (0.1 US qt)
Specifications	TUTELA HYPOIDE EP GEAR LUBE SAE 80W-90

Emissions fluid

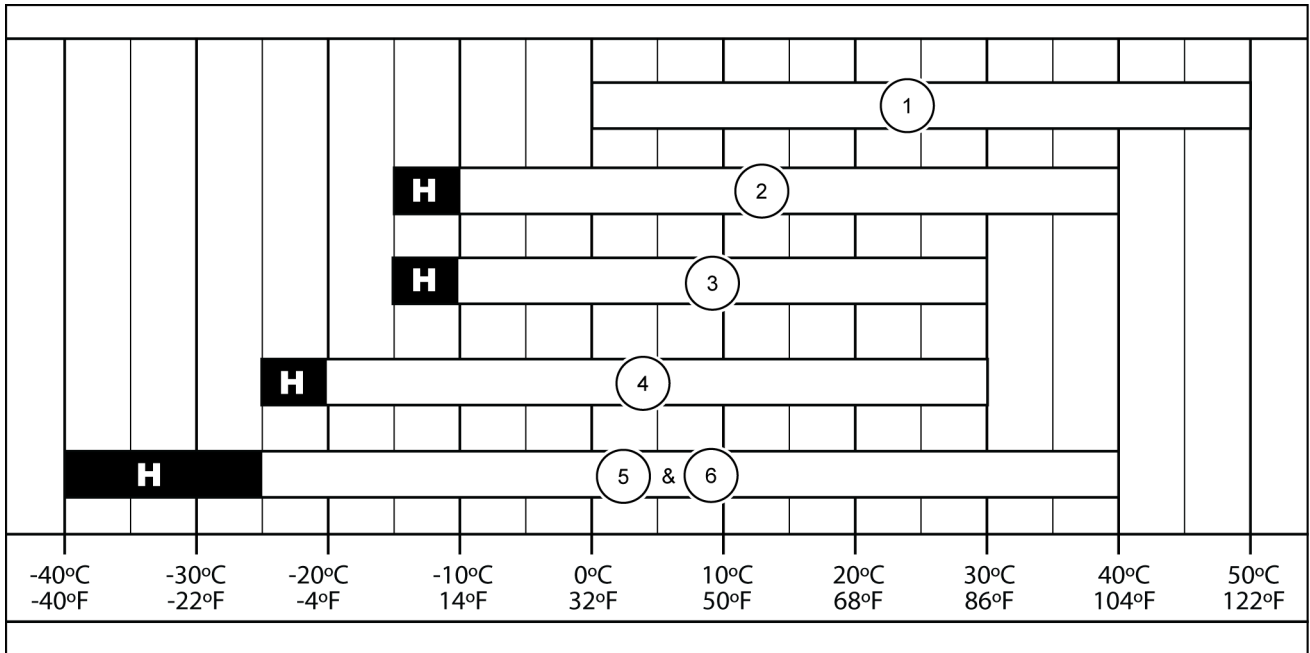
Reservoir capacity	10.7 L (2.8 US gal)
DEF/AdBLUE® low volume indicator	2.4 L (0.6 US gal)
Specifications	DEF/AdBLUE®

General specification - Recommended engine oil for operating temperature ranges

SR270 TIER 4B (FINAL) [NGM418237 -]	NA
SV340	NA
TR340 TIER 4B (FINAL) [NGM418237 -]	NA
TV380 TIER 4B (FINAL) [NGM418237 -]	NA

CASE AKCELA UNITEK NO. 1™ SBL CJ-4 is recommended for use in this engine. See the chart below for the recommended viscosity at ambient temperature ranges.

NOTICE: DO NOT put performance additives or other oil additive products in the engine crankcase.



RAPH12SSL0417FA 1

(H) = Engine oil pan or coolant block heater recommended in this range.

Block	Viscosity	Temperature range
(1)	API CJ-4 20W-50	0 - 50 °C (32 - 122 °F)
(2)	10W-40 CJ-4 UNITEK to CNH MAT3521	-15 - 40 °C (5 - 104 °F)
(3)	10W-30 CJ-4 UNITEK to CNH MAT3521	-15 - 30 °C (5 - 86 °F)
(4)	API CJ-4 5W-30	-25 - 30 °C (-13 - 86 °F)
(5)	0W-40 CJ-4 UNITEK to CNH MAT3521	-40 - 40 °C (-40 - 104 °F)
(6)	API CJ-4 0W-40	-40 - 40 °C (-40 - 104 °F)

Product identification

SR270 TIER 4B (FINAL) [NGM418237 -]	NA
SV340	NA
TR340 TIER 4B (FINAL) [NGM418237 -]	NA
TV380 TIER 4B (FINAL) [NGM418237 -]	NA

Write your machine model number, Product Identification Number (PIN), and serial numbers on the lines provided below. Always give these numbers and component plate numbers to your dealer when you need parts or information for your machine.

Make a record of the numbers. Keep this record and your manufacturer's statement of origin in a safe place. If the machine is stolen, report the numbers to your local law enforcement agency.

MACHINE

Machine Model and Type

Product Identification Number

Year of Build

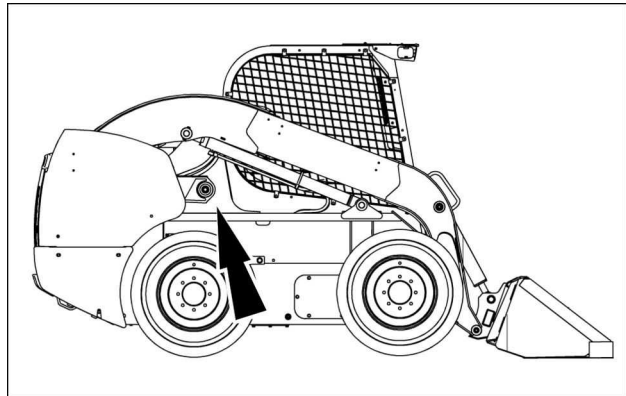
Engine Serial Number

Hydrostatic Pump Serial Number

Bucket Serial Number

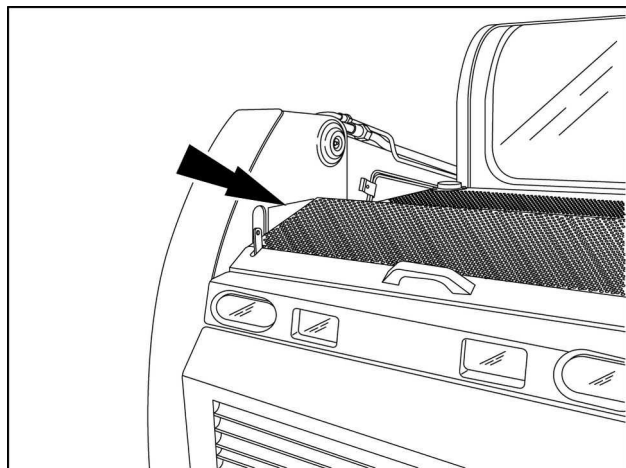
Product Identification Number (PIN)

- Outside right-hand side of chassis - vertical lift.



RCPH11SSL005AAD 1

- Inside left-hand side loader arm tower - radial lift.

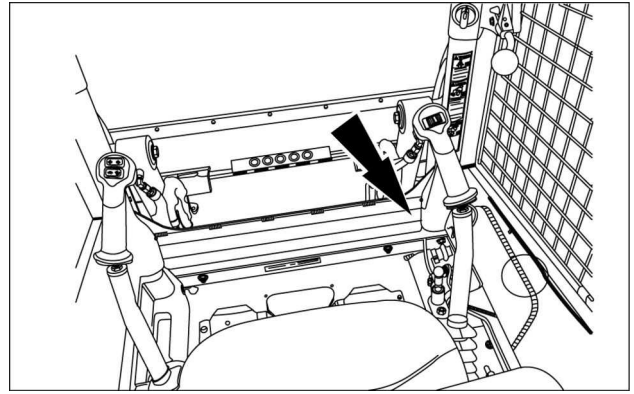


RAIL14SSL0713AA 2

INTRODUCTION

Roll Over Protective Structure (ROPS) certification plate.

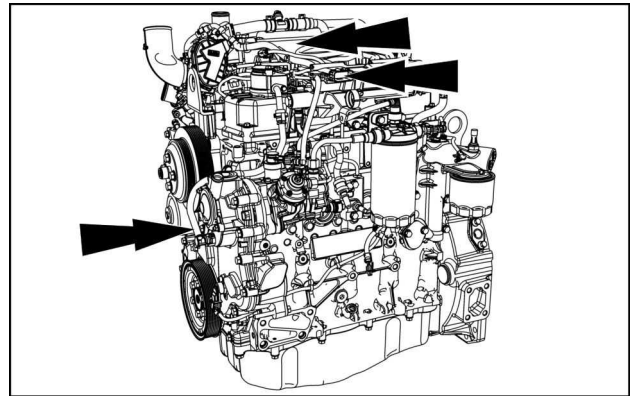
- Front edge (lower) inside cab.



931007505A 3

Engine serial number plate location

- On the side of the Exhaust Gas Recirculation (EGR) cooler.
- On top of the valve cover.
- The serial number is also stamped on the engine front cover

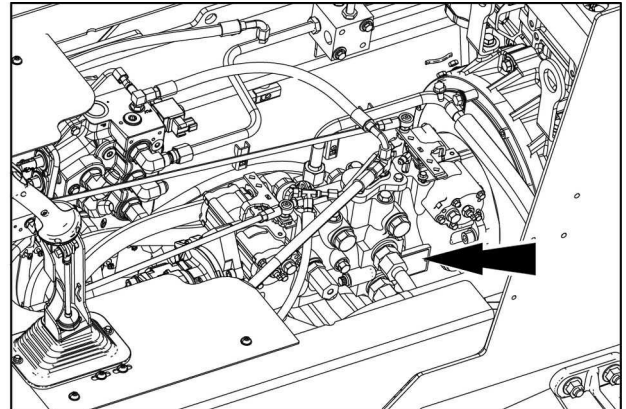


23119866 4

Hydrostatic pump

- Mechanical (Servo) hydrostatic pump

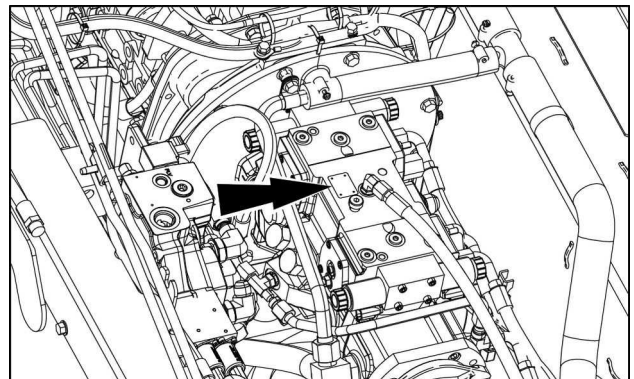
NOTE: You must tilt the cab forward to view the hydrostatic pump. Some items not shown for clarity.



RAIL15SSL0133BA 5

- Electro-Hydraulic (EH) hydrostatic pump

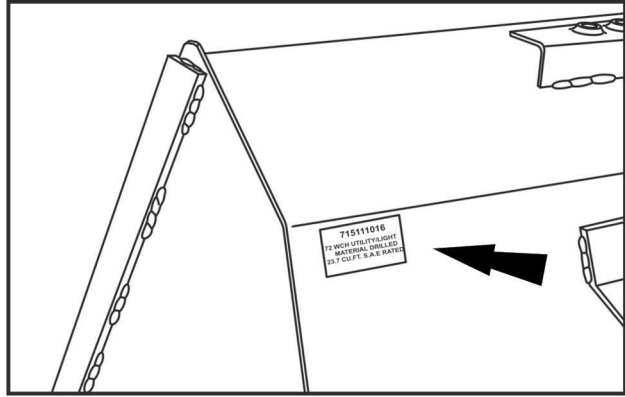
NOTE: You must tilt the cab forward to view the hydrostatic pump. Some items not shown for clarity.



RAIL15SSL0135BA 6

INTRODUCTION

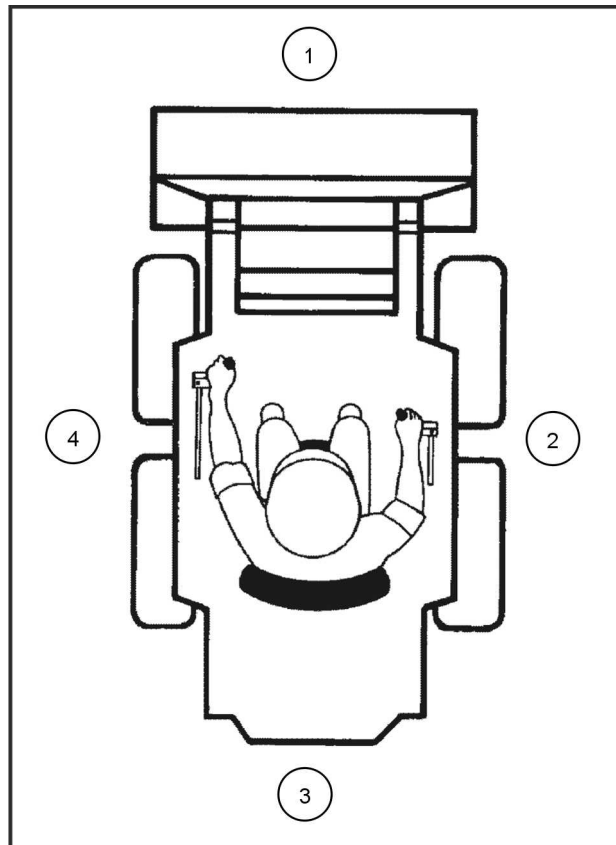
Bucket identification plate (part number and description)



BT04F026-01 7

Product identification - Machine orientation

SR270 TIER 4B (FINAL) [NGM418237 -]	NA
SV340	NA
TR340 TIER 4B (FINAL) [NGM418237 -]	NA
TV380	NA



RAPH12SSL0057BA 1

The terms front (1), right (2), rear (3), and left (4) are used in this manual to indicate the direction as seen from the operator's seat.



SERVICE MANUAL

Engine

SR270 TIER 4B (FINAL) [NGM418237 -]
SV340 TIER 4B (FINAL) [NGM418237 -]
TR340 TIER 4B (FINAL) [NGM418237 -]
TV380 TIER 4B (FINAL) [NGM418237 -]

Contents

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[10.001] Engine and crankcase	10.1
[10.216] Fuel tanks	10.2
[10.206] Fuel filters	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
[10.304] Engine lubrication system.....	10.7



Engine - 10

Engine and crankcase - 001

SR270 TIER 4B (FINAL) [NGM418237 -]
SV340 TIER 4B (FINAL) [NGM418237 -]
TR340 TIER 4B (FINAL) [NGM418237 -]
TV380 TIER 4B (FINAL) [NGM418237 -]

Contents

Engine - 10

Engine and crankcase - 001

SERVICE

Engine

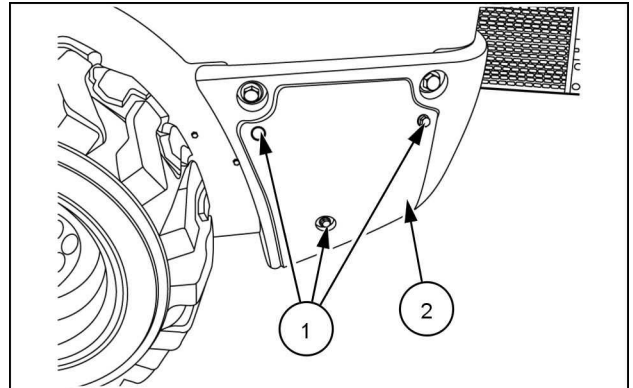
Drain fluid (*)	3
Remove (*)	4
Install	17
Filling (*)	31

(*) See content for specific models

Engine - Drain fluid

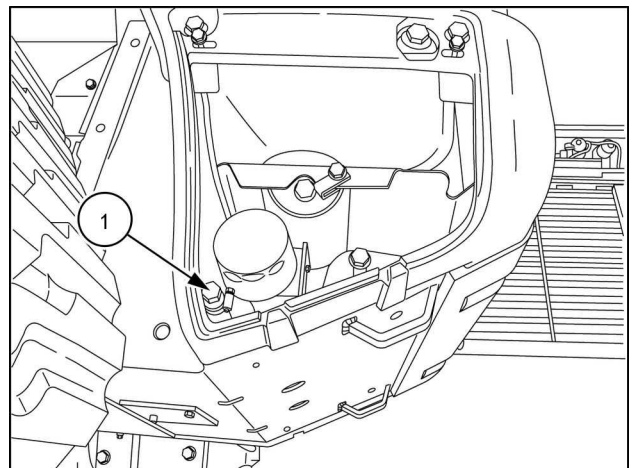
SR270 TIER 4B (FINAL) [NGM418237 -]	NA
SV340	NA
TR340 TIER 4B (FINAL) [NGM418237 -]	NA
TV380 TIER 4B (FINAL) [NGM418237 -]	NA

1. Remove the access cover (2) by removing the mounting bolts (1).



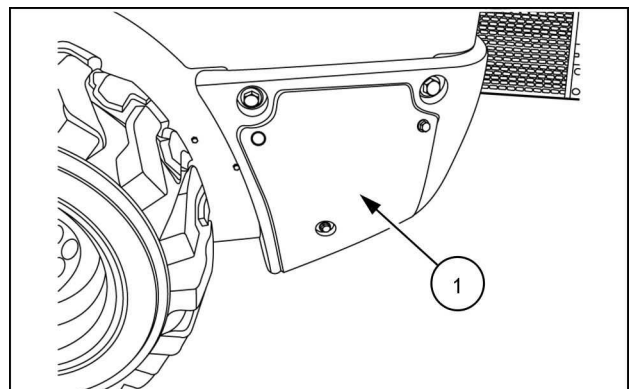
931001637 1

2. Remove the drain plug (1).
3. When the oil has drained from the engine, install the drain plug (1). Torque the drain plug (1) to **68 - 82 N·m (50 - 60 lb ft)**.



RAIL14SSL0709AA 2

4. Install the access cover (1).



931001637 3

Engine - Remove

SR270 TIER 4B (FINAL) [NGM418237 -]	NA
SV340 TIER 4B (FINAL) [NGM418237 -]	NA
TR340 TIER 4B (FINAL) [NGM418237 -]	NA
TV380	NA

⚠ WARNING

Avoid injury! Always do the following before lubricating, maintaining, or servicing the machine.

1. Disengage all drives.
2. Engage parking brake.
3. Lower all attachments to the ground, or raise and engage all safety locks.
4. Shut off engine.
5. Remove key from key switch.
6. Switch off battery key, if installed.
7. Wait for all machine movement to stop.

Failure to comply could result in death or serious injury.

W0047A

⚠ WARNING

Fire hazard!

When handling diesel fuel, observe the following precautions:

1. Do not smoke.
2. Never fill the tank when the engine is running.
3. Wipe up spilled fuel immediately.

Failure to comply could result in death or serious injury.

W0099A

⚠ 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

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

Prior operation:

Tilt the ROPS.

Prior operation:

Disconnect the battery.

Prior operation:

Drain the coolant.

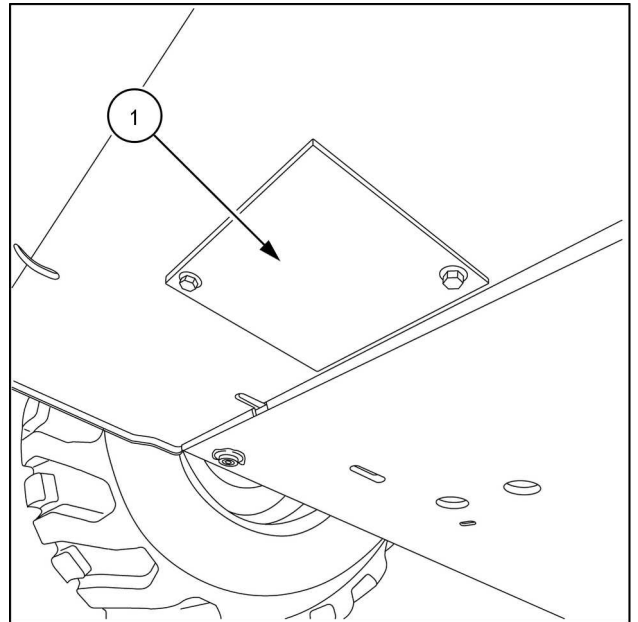
Prior operation:

Drain the engine oil.

Prior operation:

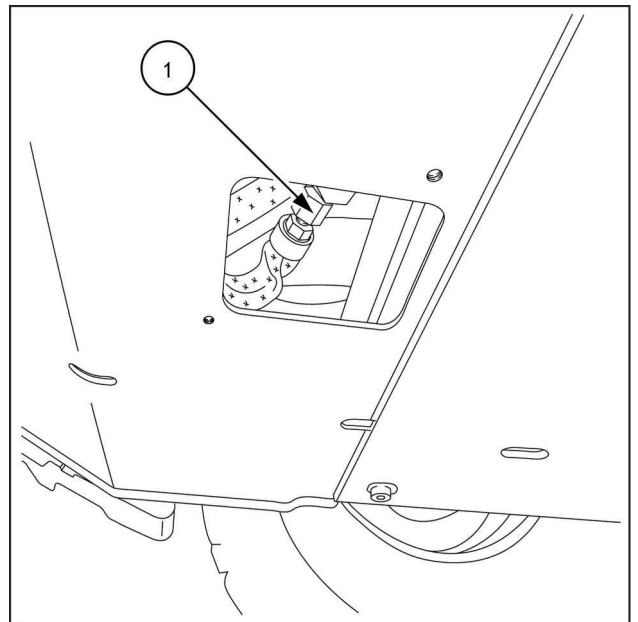
Evacuate the A/C system (if equipped).

1. Remove the access plate **(1)** for the engine oil pan.



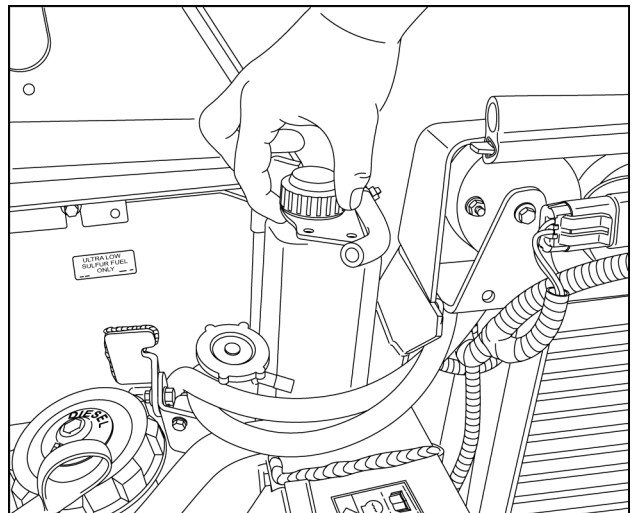
RAPH12SSL0233AA 1

2. Disconnect the hose **(1)** for the oil drain plug from the engine oil pan.



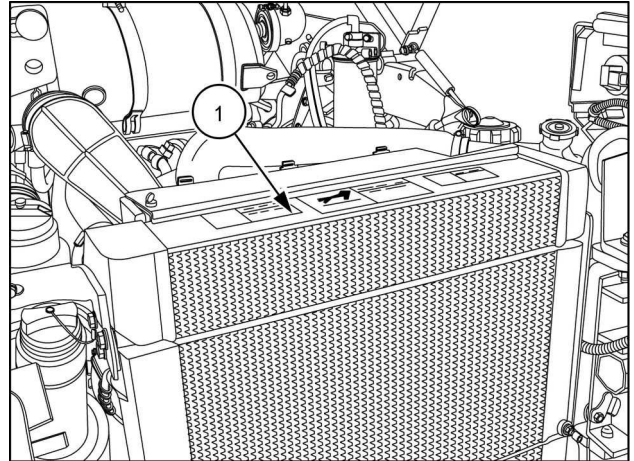
RAPH12SSL0232AA 2

3. Remove the mounting bolts for the overflow bottle.
4. Remove the overflow bottle.



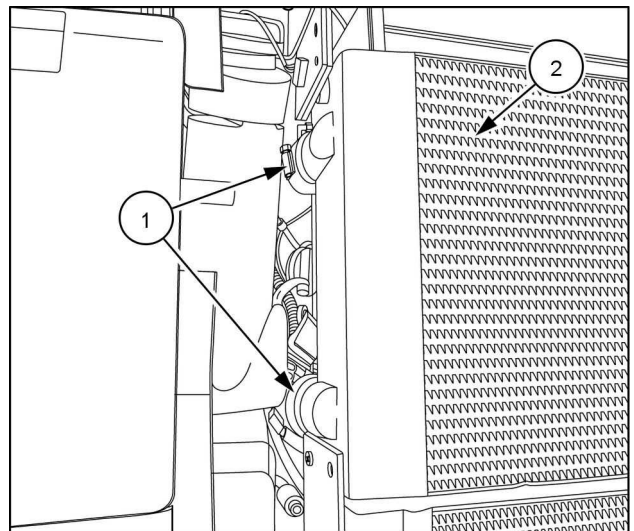
RAIL14SSL0845BA 3

5. Remove the air cooler (1).



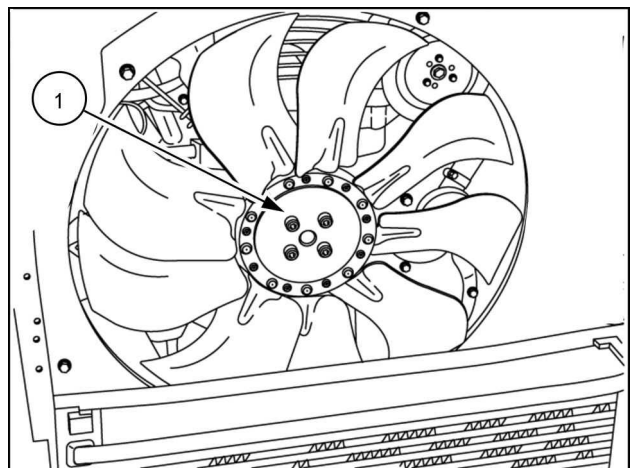
RAIL14SSL0798BA 4

6. Disconnect the hoses from the radiator (1).
7. Remove the radiator (2) from the shroud.



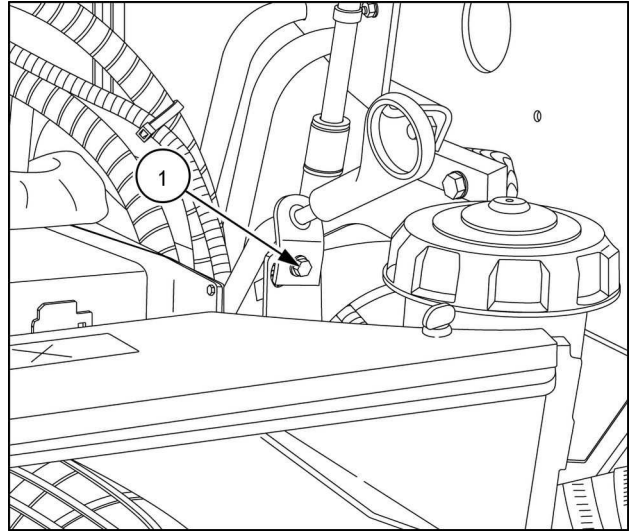
RAIL14SSL0797BA 5

8. Remove the fan from the engine.



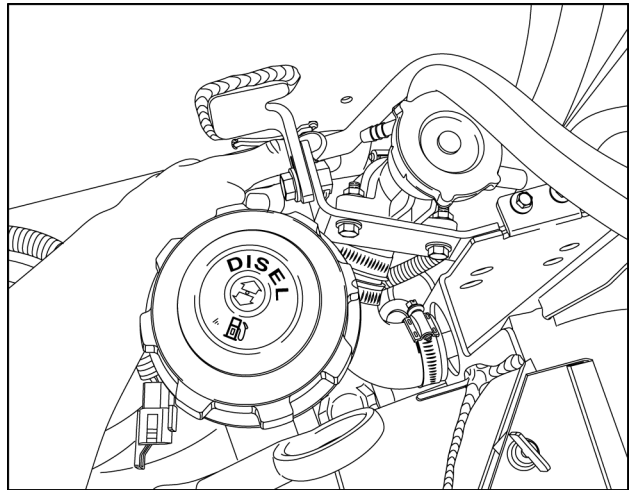
RAPH12SSL0062AA 6

9. Detach the mount (1) for the oil dip stick from the shroud.



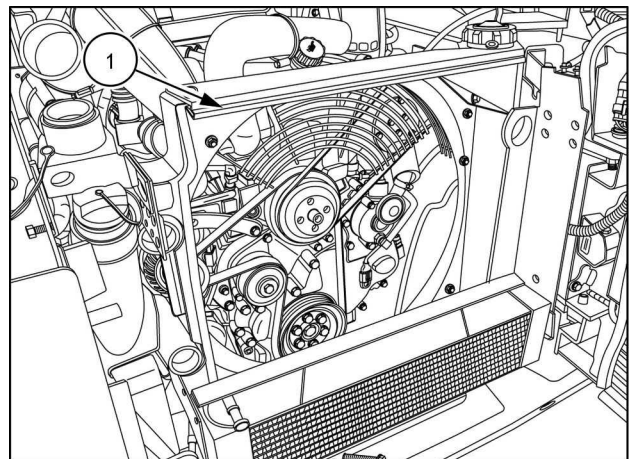
RAIL14SSL0847BA 7

10. Disconnect the overflow tube from the filler neck.



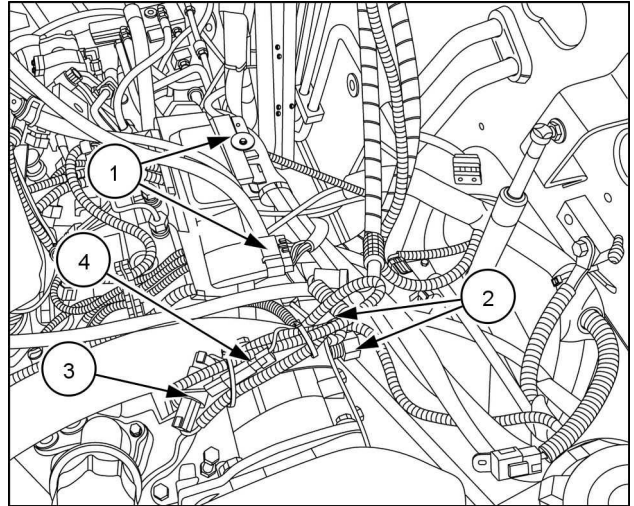
RAIL14SSL0846BA 8

11. Remove the shroud (1).



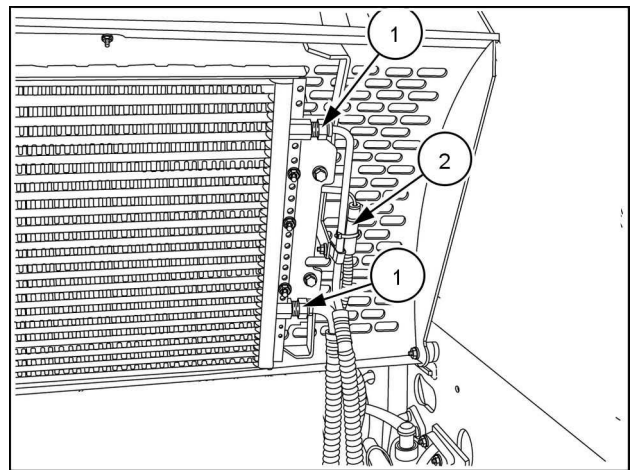
RAIL14SSL0795BA 9

12. Disconnect the engine connectors **(1)** from the engine.
13. If your machine has A/C, disconnect the A/C lines **(2)** to the A/C compressor.
14. If your machine has A/C, disconnect the A/C compressor **(3)**.
15. If your machine has A/C, disconnect the high pressure switch **(4)** for the A/C system.



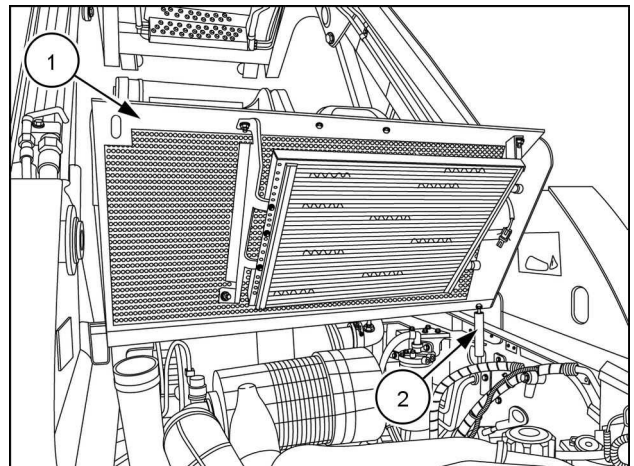
RAIL14SSL0848BA 10

16. If your machine is equipped with A/C, disconnect the lines **(1)** from the A/C condenser.
17. If your machine is equipped with A/C, disconnect the condenser fan **(2)**.



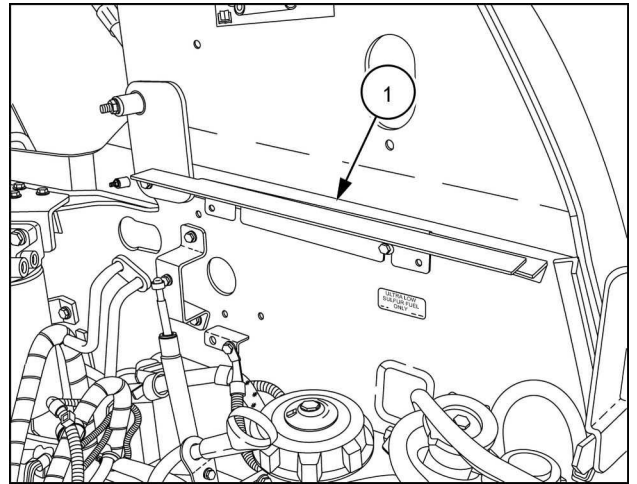
RAPH12SSL0075AA 11

18. Detach the hood strut **(2)** from the tilting hood **(1)**.
19. Remove the tilting hood **(1)** from the rear deck.



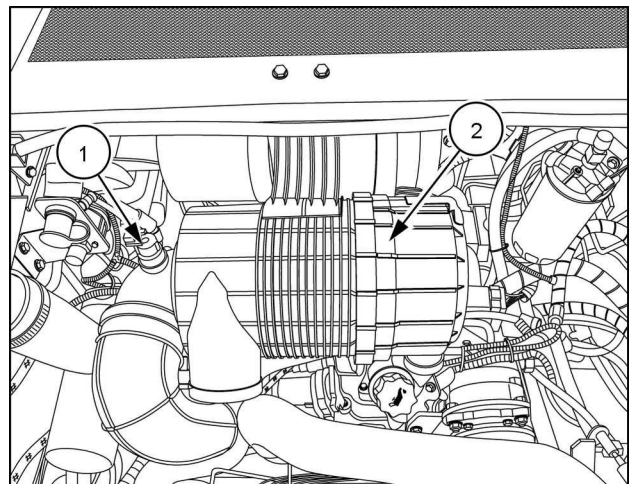
RAIL14SSL0850BA 12

20. Remove the right-hand side hood stop (1).



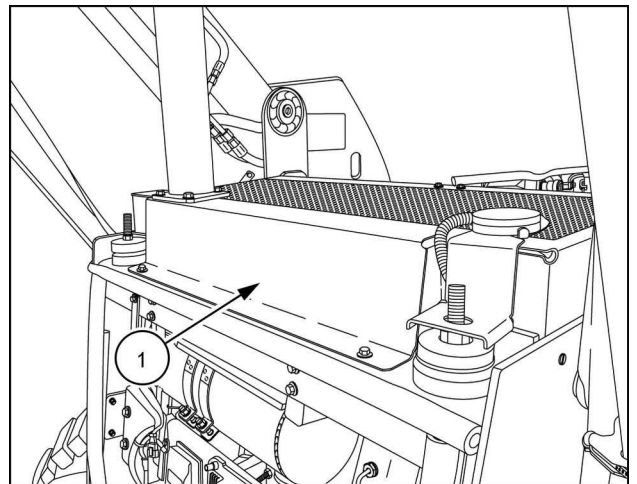
RAIL14SSL0849BA 13

21. Disconnect the restriction sensor (1).
22. Detach the air cleaner assembly (2) from the rear deck.



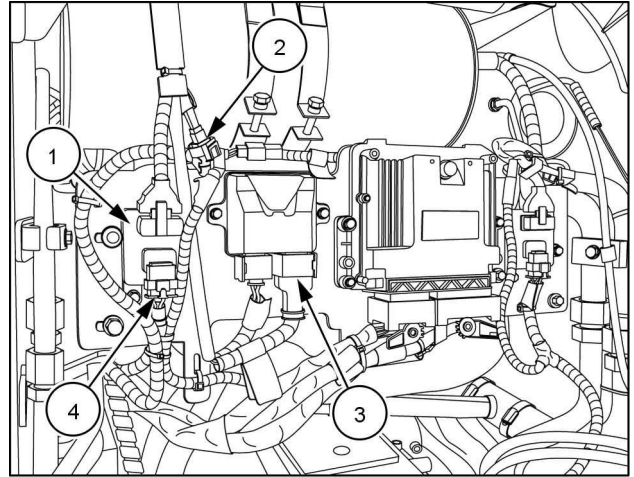
RAIL14SSL0851BA 14

23. Detach the rear deck (1) from the chassis, and remove the rear deck (1).



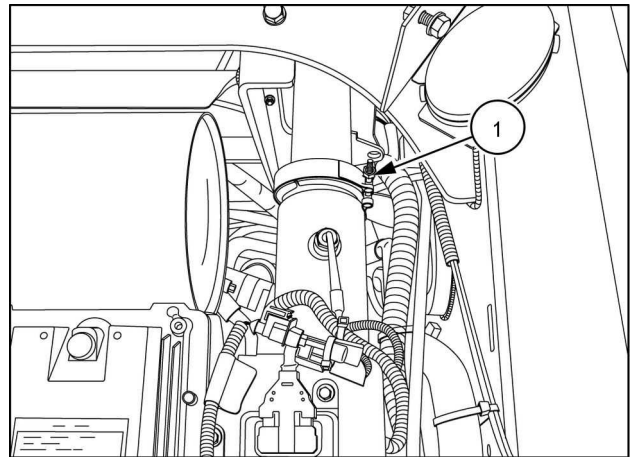
RAIL14SSL0852BA 15

24. Disconnect the NOx module (4), NH3 module (3), and temperature sensor (2).
25. Remove any wire ties, P-clamps, and retainers that are securing these wires.
26. Detach the NOx module (1) from the bracket for the control modules.



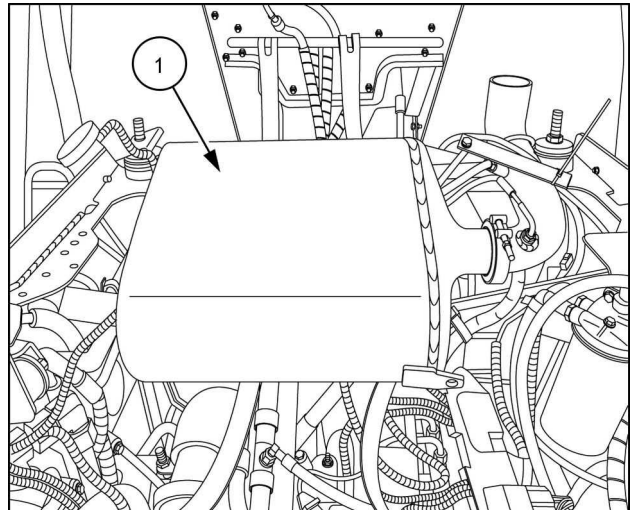
RAIL14SSL0792BA 16

27. Remove the exhaust clamp (1).



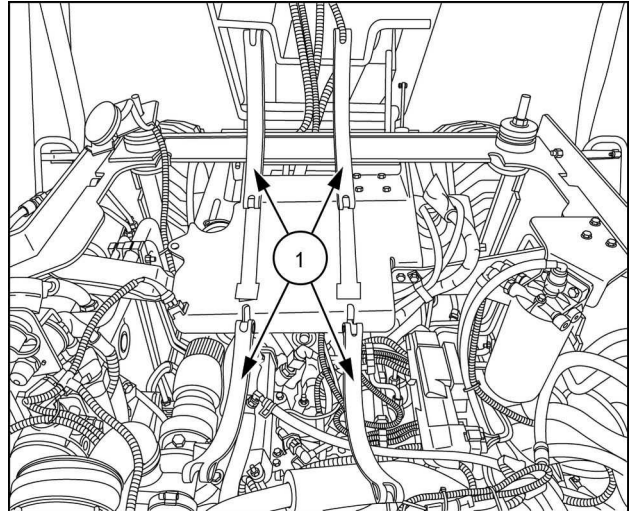
RAIL14SSL0791BA 17

28. Detach the selective catalytic reduction (SCR) muffler (1) from the muffler mounting bracket. Save the hardware for reuse.
29. Remove the SCR muffler (1).



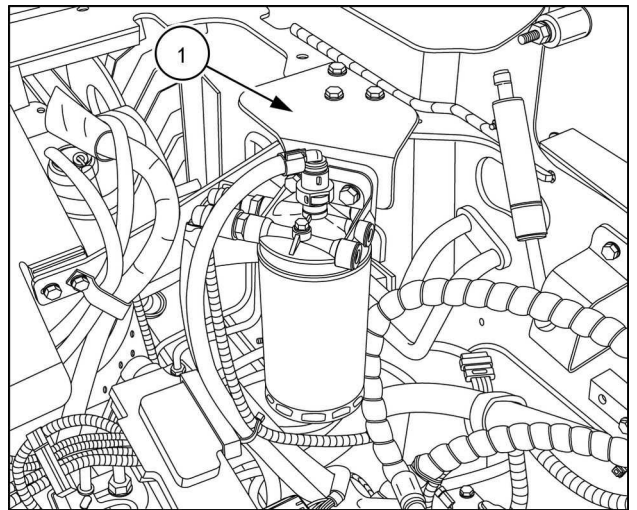
RAIL14SSL0853BA 18

30. Remove the retaining straps **(1)** for the SCR muffler.



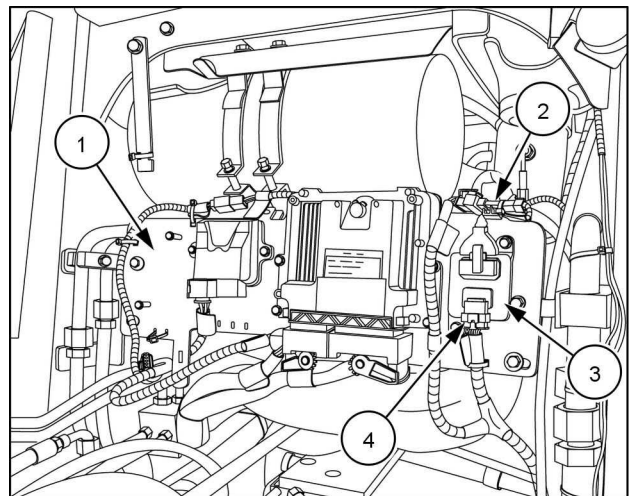
RAIL14SSL0854BA 19

31. Detach the fuel filter assembly **(1)** from the chassis.
32. Lay the fuel filter assembly **(1)** on the engine.



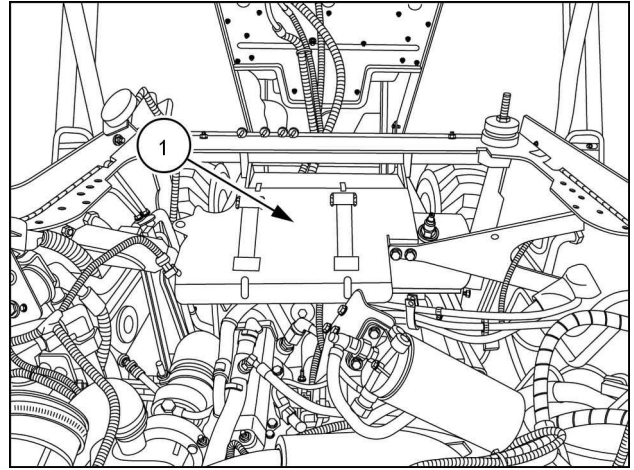
RAIL14SSL0855BA 20

33. Disconnect the control module **(4)** for the NOx sensor and the temperature sensor **(2)**.
34. Remove any wire ties, P-clamps, and retainers that are securing these wires.
35. Detach the control module **(3)** for the NOx sensor from the bracket **(1)** for control modules.
36. Detach the bracket **(1)** for the control modules from the chassis.



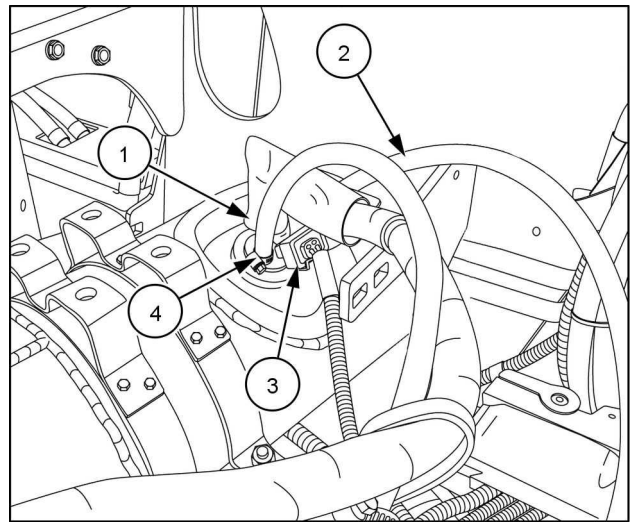
RAIL14SSL0788BA 21

37. Remove the muffler mounting bracket (1).



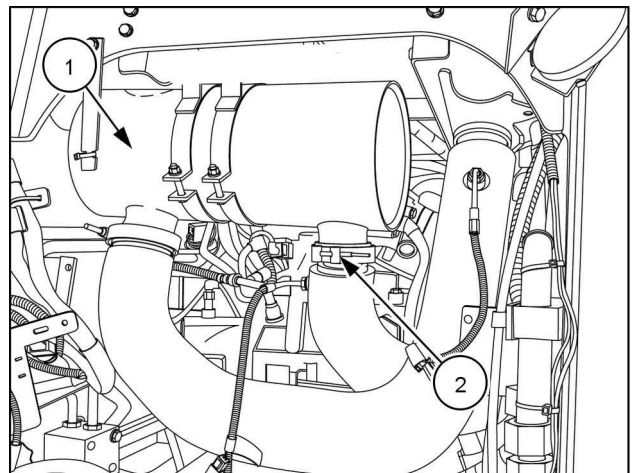
RAIL14SSL0844BA 22

38. Disconnect the left coolant line (4) and right coolant line (2).
39. Disconnect the DEF hose (1).
40. Disconnect the injector (3).
41. Remove any wire ties, P-clamps, and retainers that are securing these wires to the muffler mounting bracket.



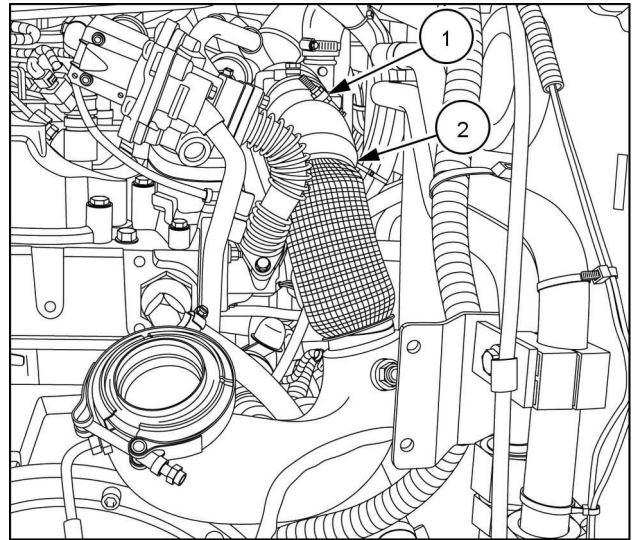
RAIL14SSL0857BA 23

42. Remove the exhaust clamp (2).
43. Remove the DOC muffler (1).



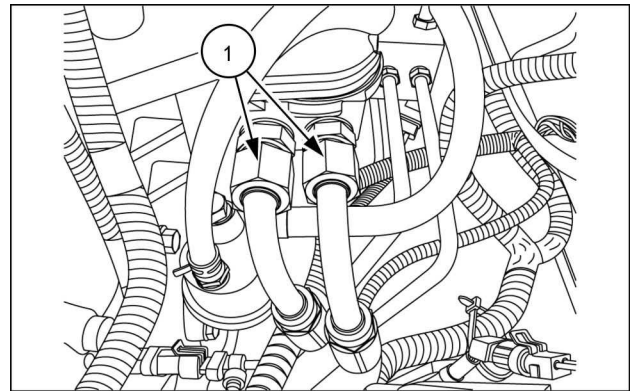
RAIL14SSL0787BA 24

44. Remove the exhaust clamp **(1)**.
45. Remove the exhaust tube **(2)**.



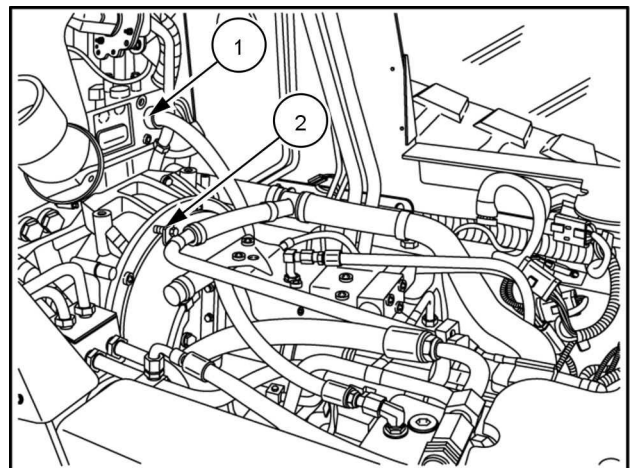
RAIL14SSL0784BA 25

46. Detach the lines **(1)** for the remote, engine oil filter from the engine.



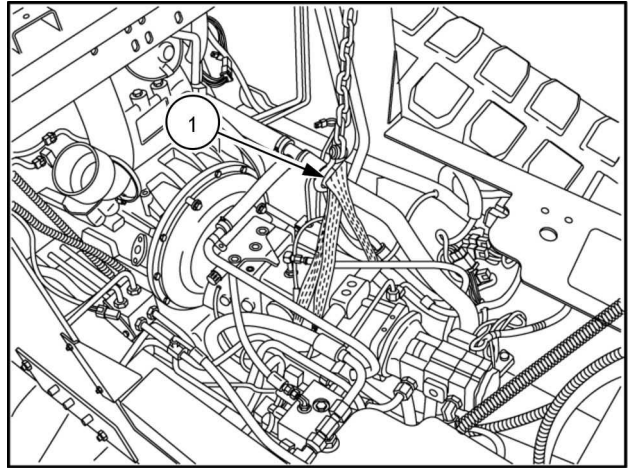
931001923 26

47. If your machine has a cab heater, disconnect the heater hose from the engine.
48. Disconnect the hydraulic line P clamp **(2)** from the bell housing.



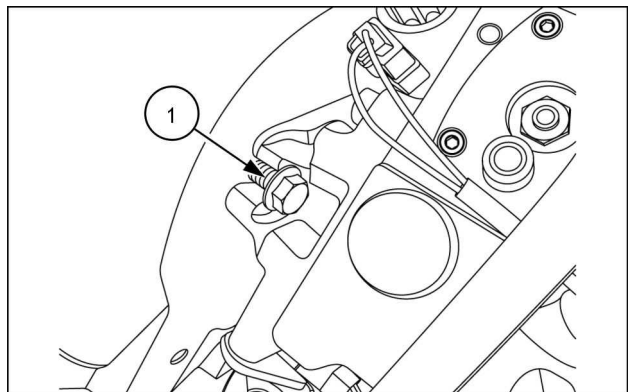
RAPH12SSL0058AA 27

49. Support the hydrostatic drive with a suitable lifting device **(1)**.



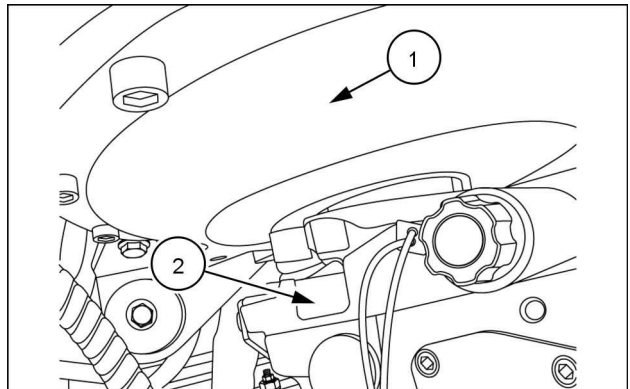
RAPH12SSL0057AA 28

50. Remove the mounting bolts **(1)** for the hydrostatic drive assembly.



931001928 29

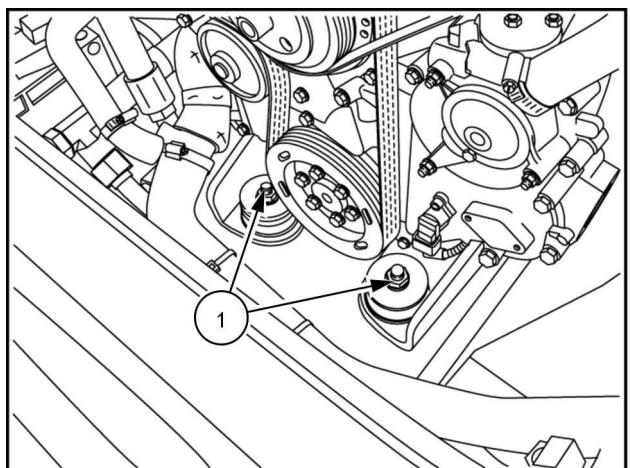
51. Separate the hydrostatic drive assembly **(2)** from the engine bell housing **(1)**.



931001936 30

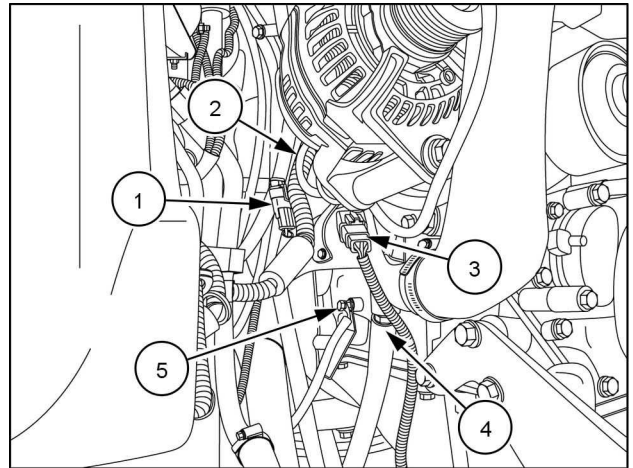
52. Remove the engine mounting hardware **(1)** at the front of the engine.

53. Repeat step **52** at the rear of the engine.



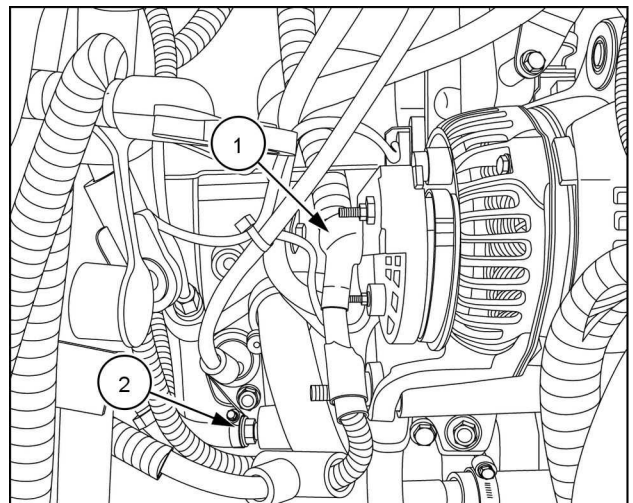
RAPH12SSL0050AA 31

54. Detach the positive battery cable **(2)** from the starter.
55. Disconnect the starter **(1)**.
56. Disconnect the alternator **(3)**.
57. Detach the ground cable **(5)** from the engine.



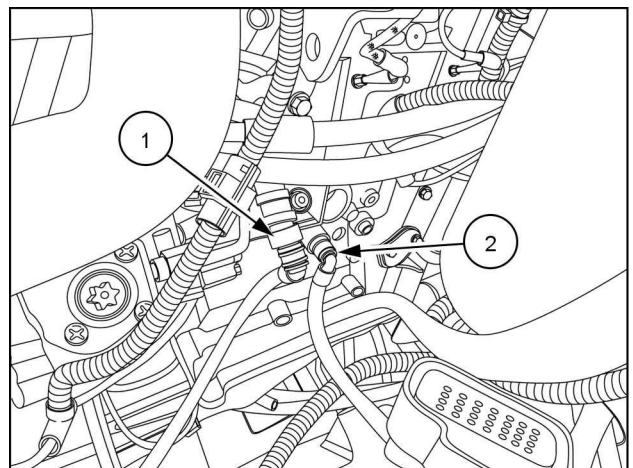
RAIL14SSL0778BA 32

58. Detach the positive battery cable **(1)** from the alternator.
59. Disconnect the coolant line **(2)** for the SCR system from the engine.



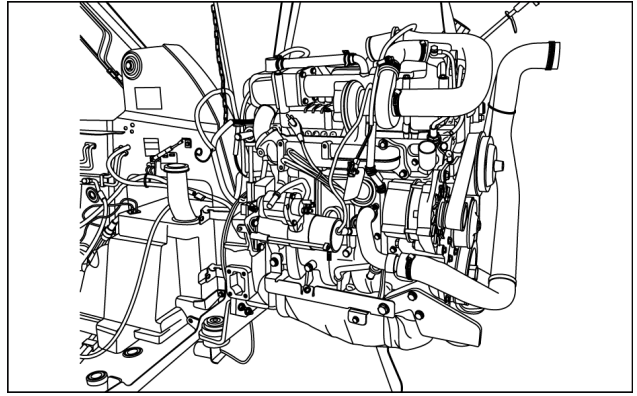
RAIL14SSL0779BA 33

60. Disconnect the feed line **(1)** and return line **(2)** for the fuel from the injection pump.



RAIL14SSL0777BA 34

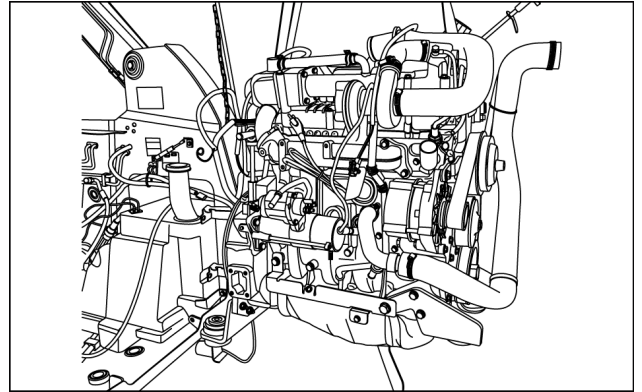
61. Attach adequate lifting equipment to the engine.
62. Carefully lift the engine from the chassis.



931001946 35

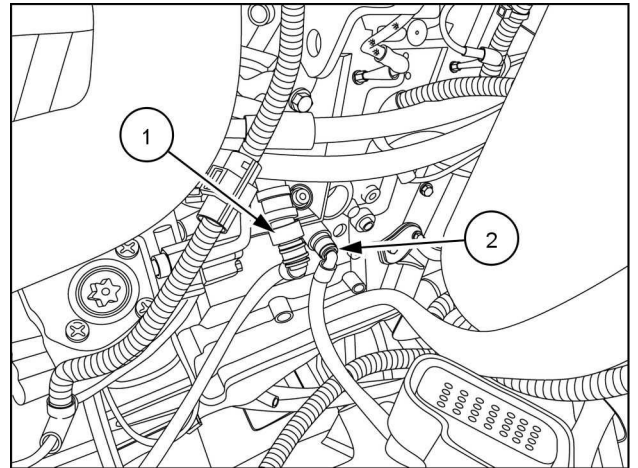
Engine - Install

1. Carefully lower the engine into the chassis.



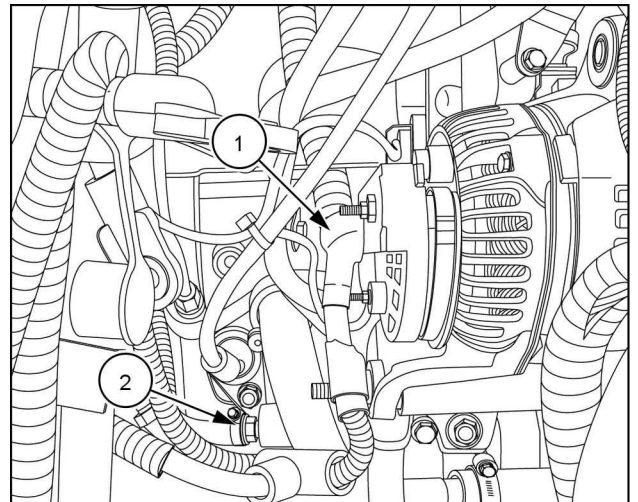
931001946 1

2. Connect the feed line (1) and return line (2) for the fuel to the injection pump.



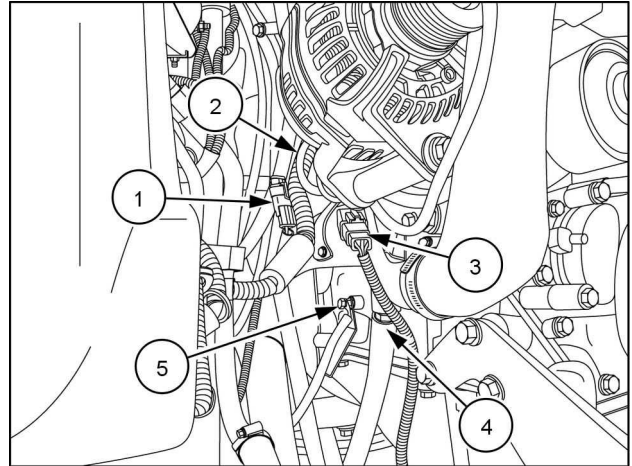
RAIL14SSL0777BA 2

3. Attach the positive battery cable (1) to the alternator.
4. Attach the coolant line (2) for the selective catalytic reduction (SCR) system to the engine.



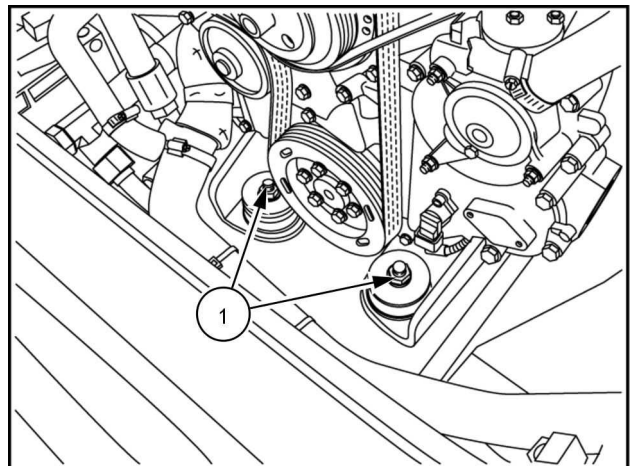
RAIL14SSL0779BA 3

5. Install the positive battery cable (2) onto the starter.
6. Connect the starter (1).
7. Connect the alternator (3).
8. Connect the ground cable (5) to the engine.
9. Secure all wires, harnesses, and hoses away from hot components.
10. If your machine has a cab heater, connect the heater hose (4) to the male connector on the engine.



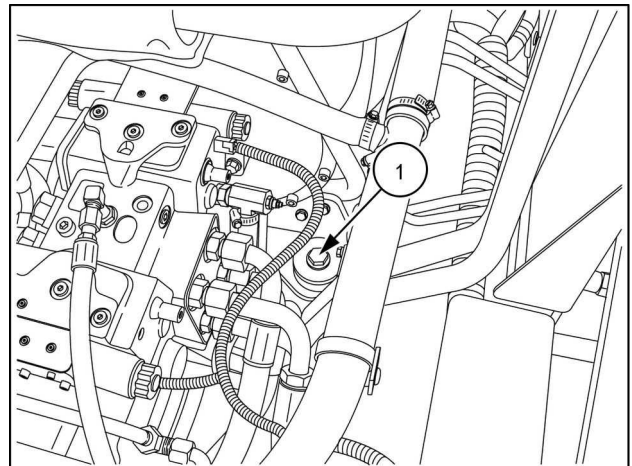
RAIL14SSL0778BA 4

11. Apply **LOCTITE® 243™** to the threads of the engine mounting hardware (1).
12. Install the hardware (1), and torque to **163 - 176 N·m (120 - 130 lb ft)**.



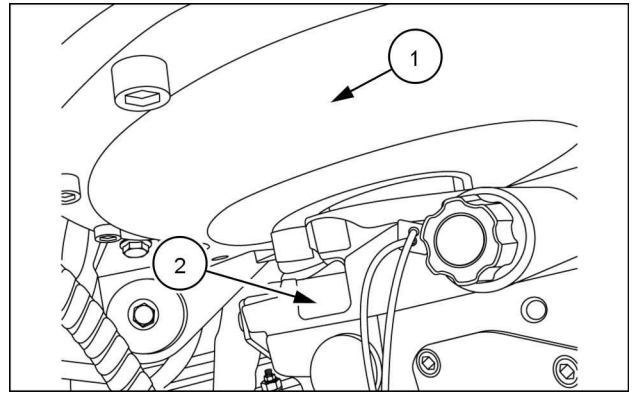
RAPH12SSL0050AA 5

13. Apply **LOCTITE® 243™** to the threads of the engine mounting hardware (1).
14. Install the hardware (1), and torque to **163 - 176 N·m (120 - 130 lb ft)**.

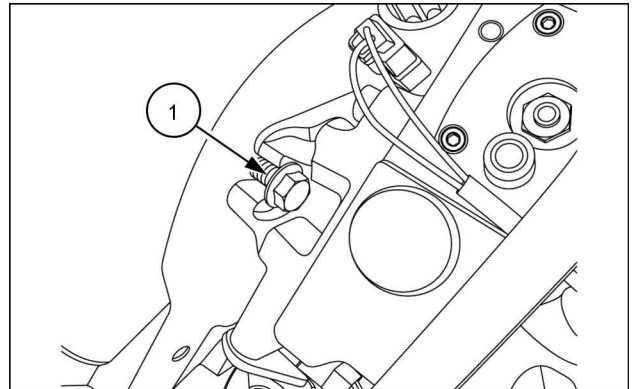


RAPH12SSL0077AA 6

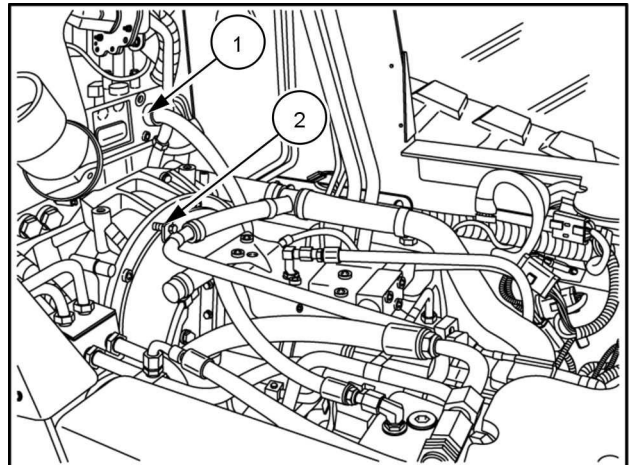
15. Engage the hydrostatic drive assembly (2) to the engine bell housing (1).



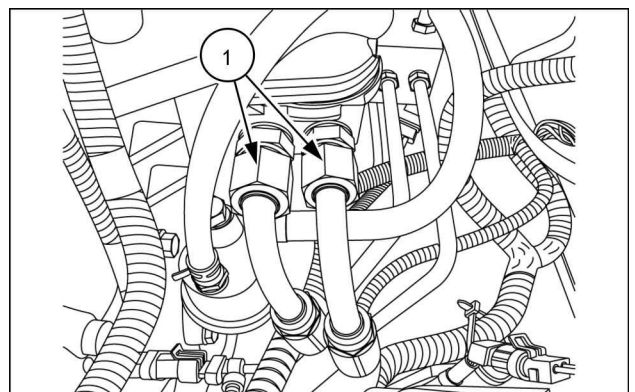
16. Apply **LOCTITE® 243™** to the threads of the mounting bolts (1) for the hydrostatic drive assembly.
17. Install the mounting bolts (1). Torque the mounting bolts (1) for the hydrostatic drive assembly to **87 - 117 N·m (64 - 86 lb ft)**.



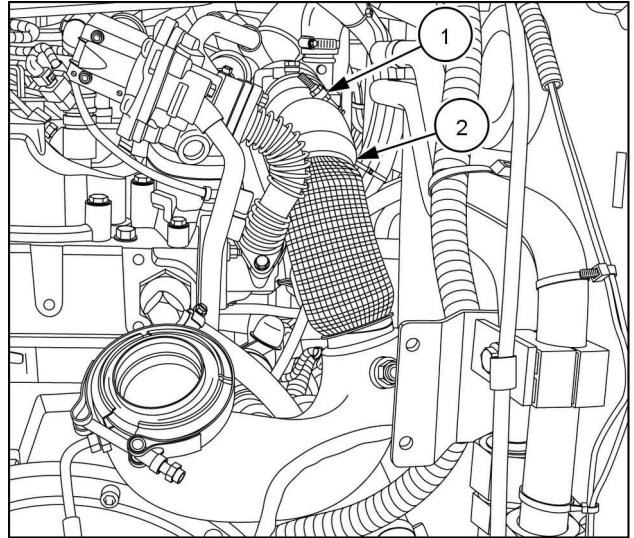
18. If your machine has a cab heater, connect the heater hose (1) to the engine.
19. Connect the P clamp (2) for the hydraulic line to the bell housing.



20. Connect the lines (1) for the remote, engine oil filter to the engine.

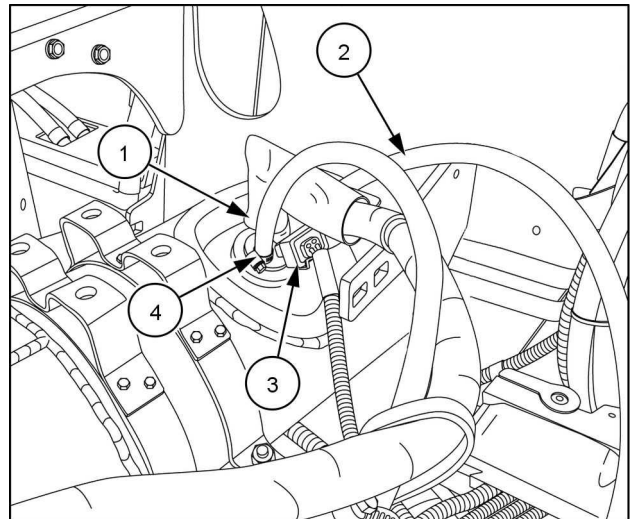


21. Attach the exhaust tube (2) to the exhaust manifold. Torque the clamp (1) to **11 - 15 N·m (97 - 133 lb in)**.



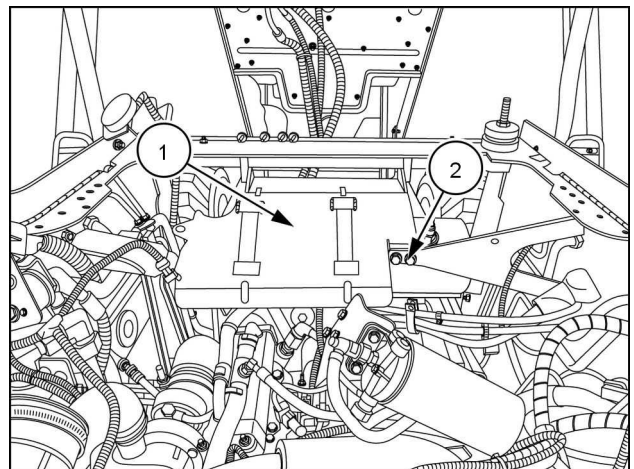
RAIL14SSL0784BA 11

22. Place the diesel oxidation catalyst (DOC) muffler in position.
23. Connect the injector (4).
24. Connect the diesel exhaust fluid (DEF) hose (2).
25. Connect the left coolant line (1) and right coolant line (3).



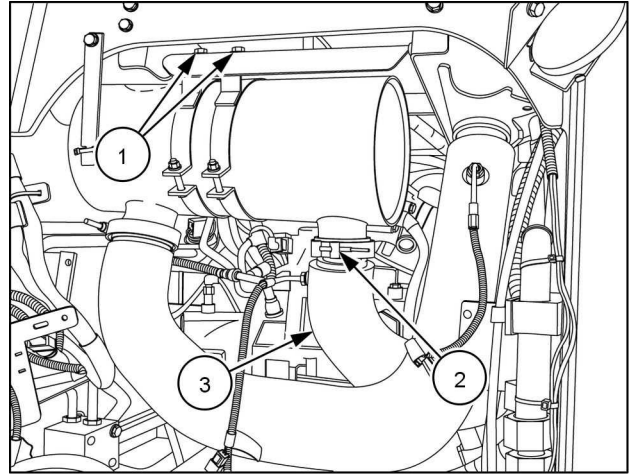
RAIL14SSL0857BA 12

26. Attach the muffler mounting bracket (1) to the chassis. Torque the bolts to **27 - 37 N·m (20 - 27 lb ft)**.
27. Attach the cable support bracket (2) to the muffler mounting bracket (1).



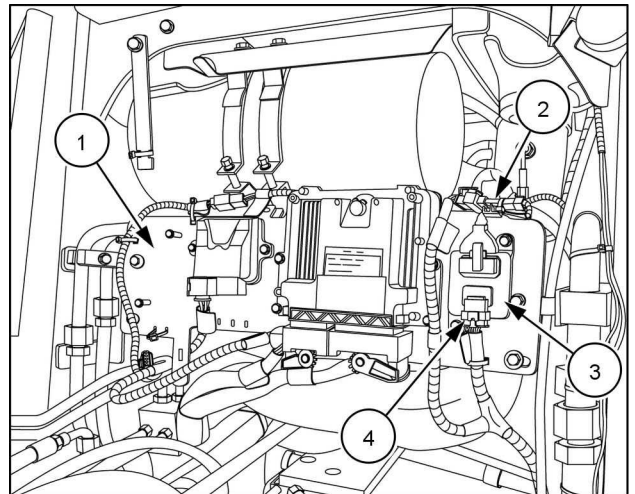
RAIL14SSL0844BA 13

28. Attach the DOC muffler to the muffler mounting bracket. Torque the bolts **(1)** to **54 - 73 N·m (40 - 54 lb ft)**.
29. Attach the exhaust tube **(3)** to the DOC muffler. Torque the clamp **(2)** to **11 - 15 N·m (97 - 133 lb in)**.



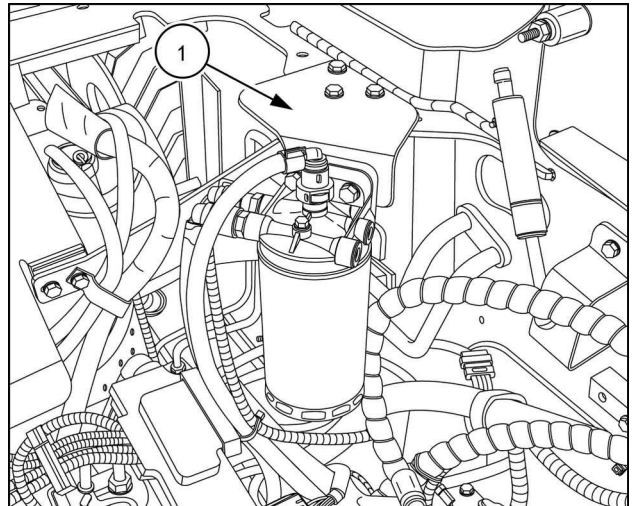
RAIL14SSL0787BA 14

30. Attach the bracket **(1)** for the control modules to the chassis.
31. Attach the control module **(3)** for the NOx sensor to the bracket **(1)**.
32. Connect the control module **(4)** for the NOx sensor and the temperature sensor **(2)**.
33. Secure all wires, harnesses, and hoses away from hot components.



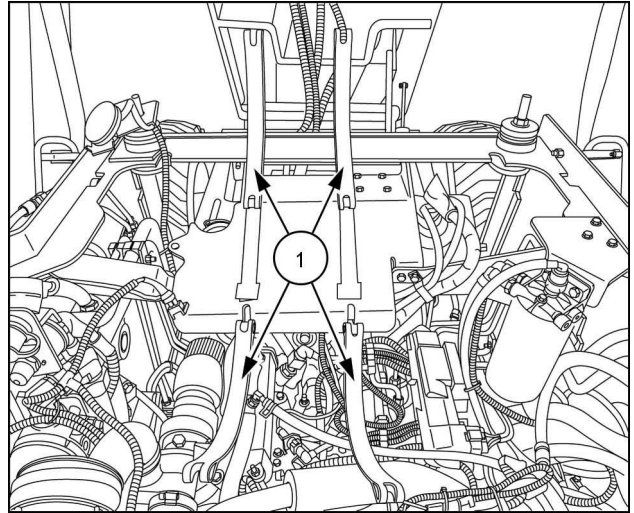
RAIL14SSL0788BA 15

34. Attach the fuel filter assembly **(1)** to the chassis.



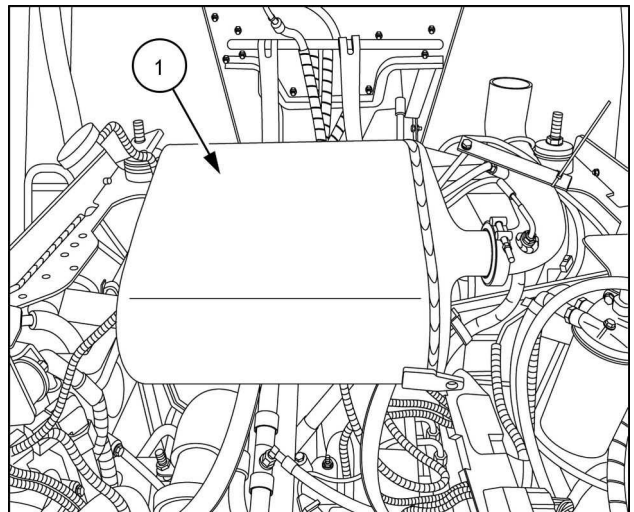
RAIL14SSL0855BA 16

35. Install the retaining straps (1) for the SCR muffler.



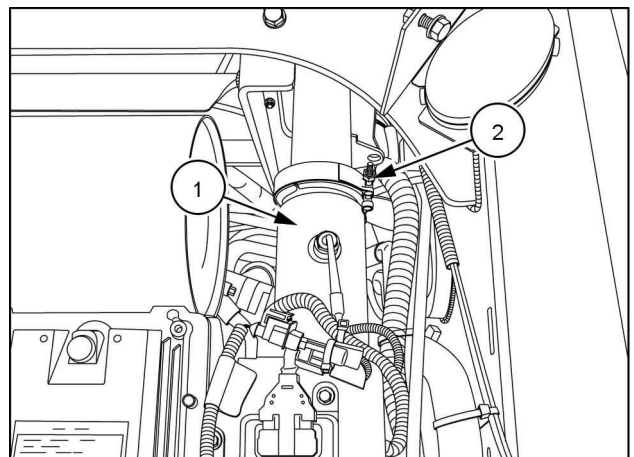
RAIL14SSL0854BA 17

36. Attach the SCR muffler (1) to the muffler mounting bracket.



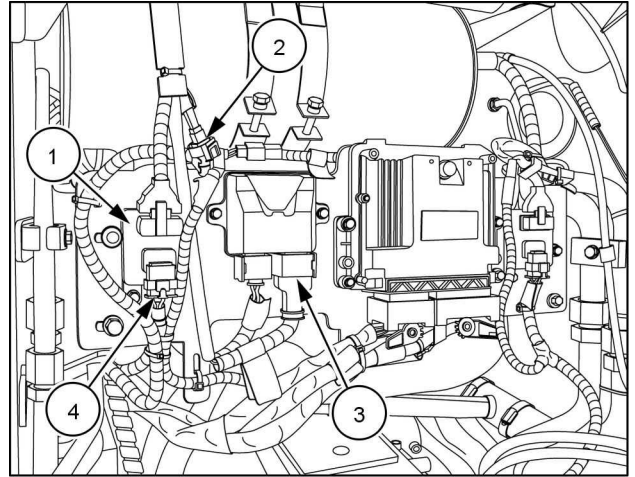
RAIL14SSL0853BA 18

37. Attach the exhaust tube (1) to the SCR muffler. Torque the clamp (2) to 11 - 15 N·m (97 - 133 lb in).
38. Secure the SCR muffler to the muffler bracket by using the hardware that was previously removed.



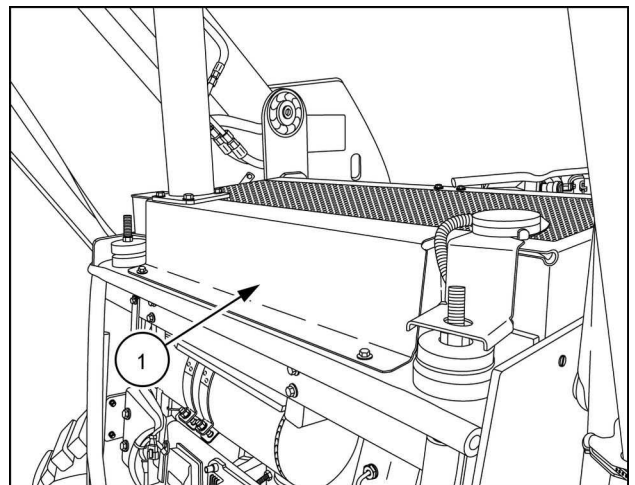
RAIL14SSL0791BA 19

39. Attach the NOx module (1) to the bracket for the control modules.
40. Connect the NOx module (4), NH3 module (3), and temperature sensor (2).
41. Secure all wires, harnesses, and hoses away from hot components.



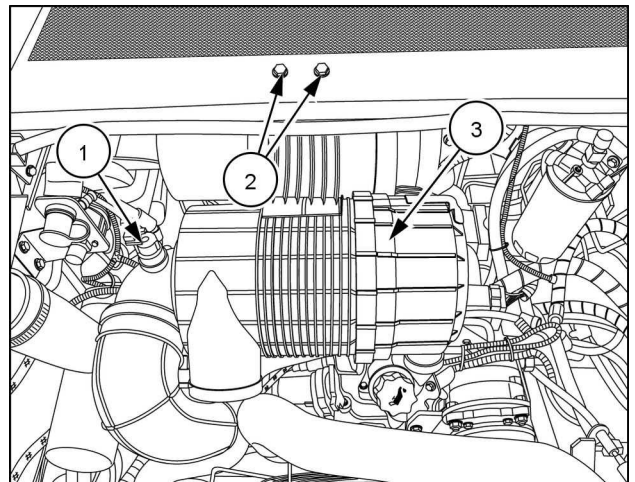
RAIL14SSL0792BA 20

42. Attach the rear deck (1) to the chassis.



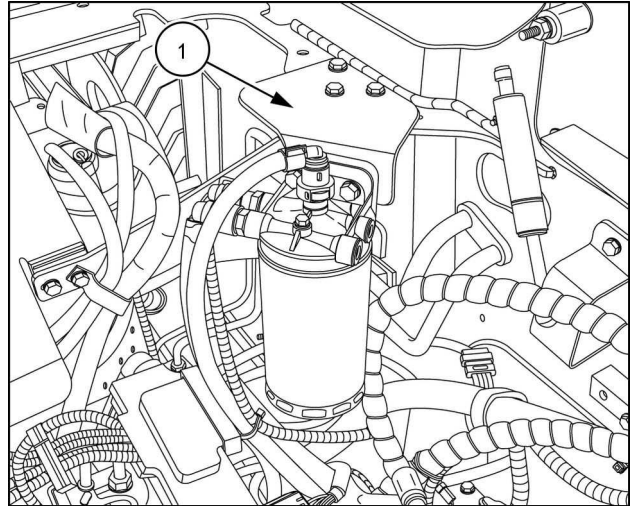
RAIL14SSL0852BA 21

43. Install the air cleaner assembly (3). Torque the bolts (2) to 27 - 37 N·m (20 - 27 lb ft).
44. Connect the restriction sensor (1) for the air filter.



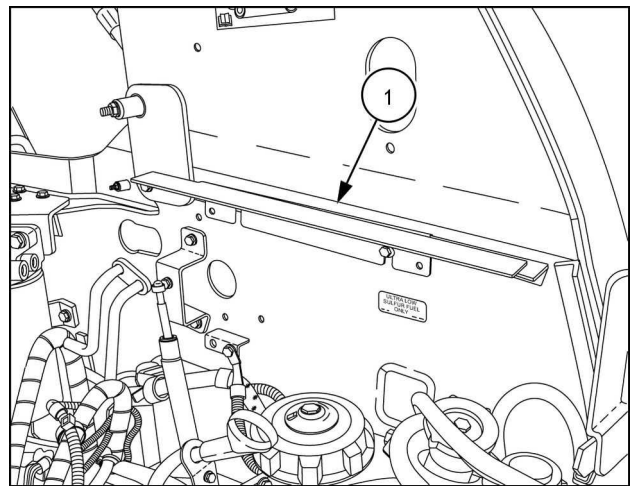
RAIL14SSL0851BA 22

45. Attach the fuel filter assembly (1) to the chassis.
46. Lay the fuel filter assembly (1) on the engine.
47. Attach the air cleaner assembly (3) the rear deck.
Torque the bolts (2) to 27 - 37 N·m (20 - 27 lb ft).



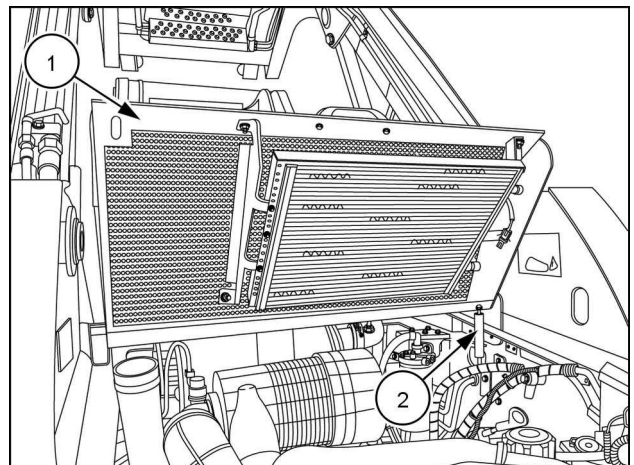
RAIL14SSL0855BA 23

48. Install the right-hand side hood stop (1).



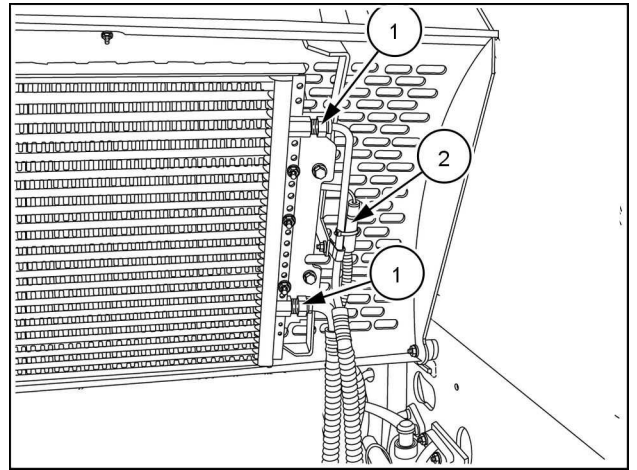
RAIL14SSL0849BA 24

49. Install the tilting hood (1) onto the rear deck.
50. Attach the hood strut (2) to the tilting hood (1).



RAIL14SSL0850BA 25

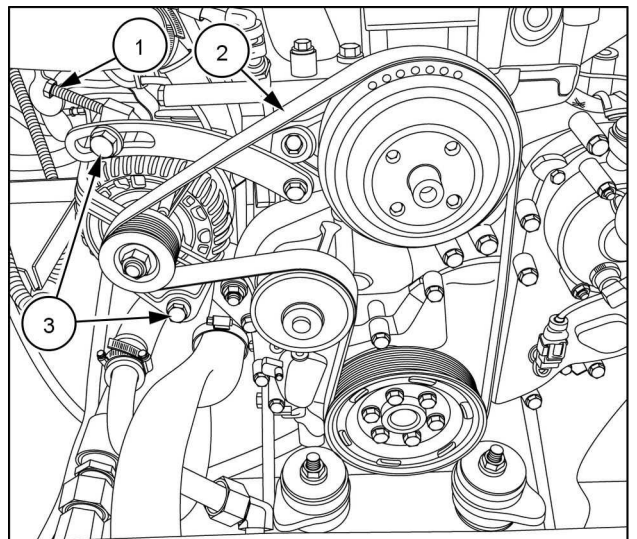
51. If your machine is equipped with A/C, connect the lines (1) to the A/C condenser.
52. If your machine is equipped with A/C, connect the condenser fan.



RAPH12SSL0075AA 26

53. Loosen the alternator by loosening the mounting bolts (3).
54. Loosely install the serpentine belt (2) for the alternator.
55. Turn the adjusting screw (1) clockwise to create a little tension on the serpentine belt (2).

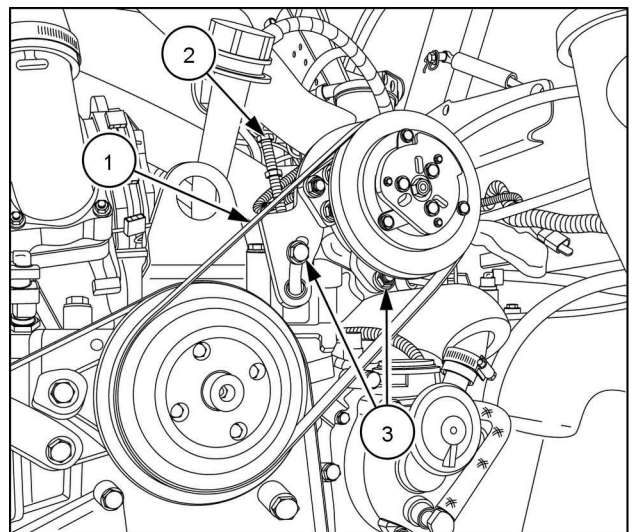
NOTE: Do not overtighten the adjusting screw. You will not be able to install the cooling fan if the belt has been tightened to specification on the pulleys.



RAIL14SSL0793BA 27

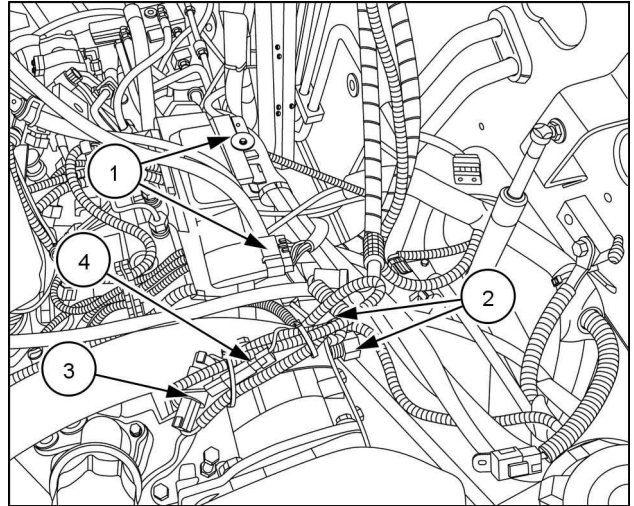
56. If your machine is equipped with A/C, loosen the A/C compressor by loosening the mounting bolts (3).
57. Loosely install the serpentine belt (1) for the A/C compressor.
58. Turn the adjusting screw (2) clockwise to create a little tension on the belt.

NOTE: Do not overtighten the adjusting screw. You will not be able to install the cooling fan if the belt has been tightened to specification on the pulleys.



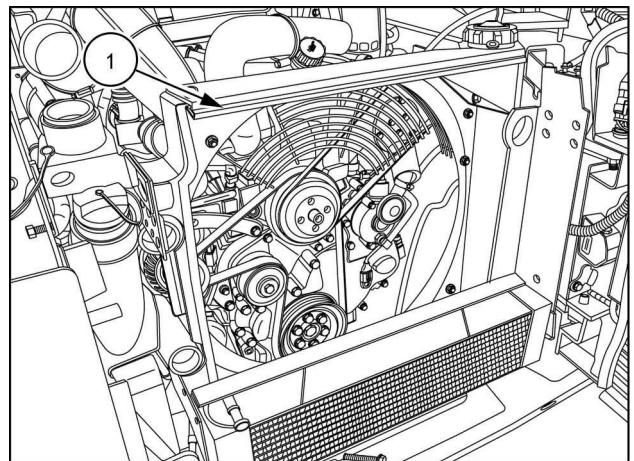
RAIL14SSL0794BA 28

59. Connect the engine connectors **(1)** to the engine.
60. If your machine has A/C, connect the A/C lines **(2)** to the A/C compressor.
61. If your machine has A/C, connect the A/C compressor **(3)**.
62. If your machine has A/C, connect the high pressure switch **(4)** for the A/C system.



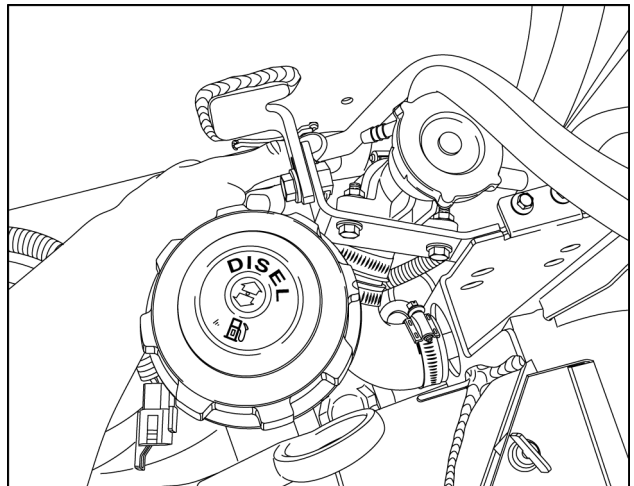
RAIL14SSL0848BA 29

63. Install the shroud **(1)**.



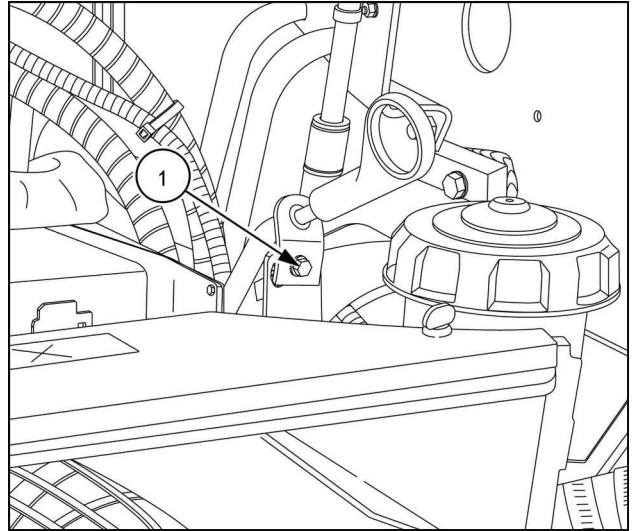
RAIL14SSL0795BA 30

64. Connect the overflow tube to the filler neck.



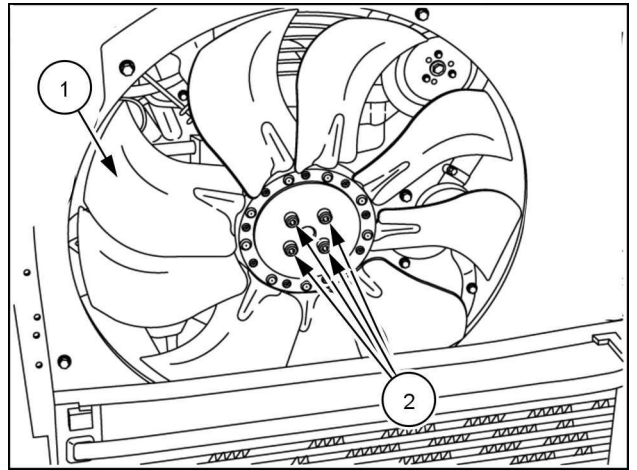
RAIL14SSL0846BA 31

65. Attach the mount (1) for the oil dip stick to the shroud.



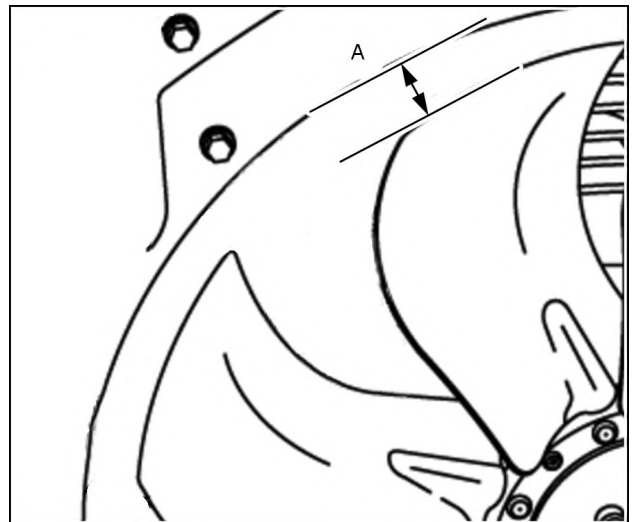
RAIL14SSL0847BA 32

66. Apply **LOCTITE® 243™** to the threads of the bolts (2), and install the fan (1).



RAPH12SSL0062AA 33

67. Readjust the shroud if there is not **13 mm (1/2 in)** of clearance (**A**) between the fan blades and the shroud.



RAPH14SSL0776BA 34

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