586H
588H
Tier 4B (final)
Rough Terrain Forklift

OPERATOR'S MANUAL

Part number 47780077
1st edition English
October 2014

CASE CONSTRUCTION

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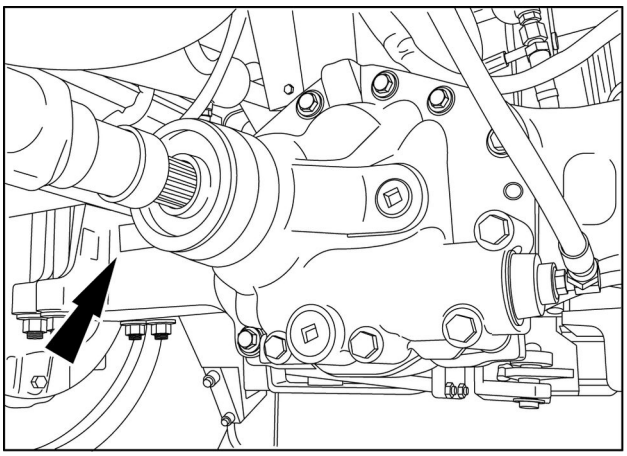


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Front drive axle

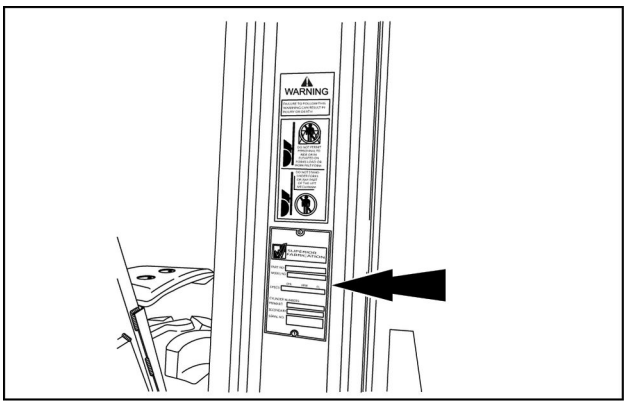
PIN



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Forklift mast

PIN



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2 - SAFETY INFORMATION

Safety rules and signal word definitions

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 and on machine safety signs, 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. The color associated with DANGER is RED.

⚠ WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury. The color associated with WARNING is ORANGE.

⚠ CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury. The color associated with CAUTION is YELLOW.

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 damage or property damage. The color associated with Notice is BLUE.*

Throughout this manual you will find the signal word Notice followed by special instructions to prevent machine damage 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.

Fuel handling precautions



- Do not smoke or permit open flames while fueling or near fueling operations.
- Do not fill the fuel tank completely to the top. Allow room for expansion.
- Clean up spilled fuel immediately and dispose of contaminated material in an environmentally correct manner.
- Tighten the fuel tank cap securely. Should the fuel cap be lost, replace it only with the original manufacturer's approved cap. Use of a non-approved cap without proper venting may result in pressurization of the tank.
- Never use fuel for cleaning purposes.
- Use the correct fuel grade for the operating season. Use ultra-low sulfur diesel fuel only.

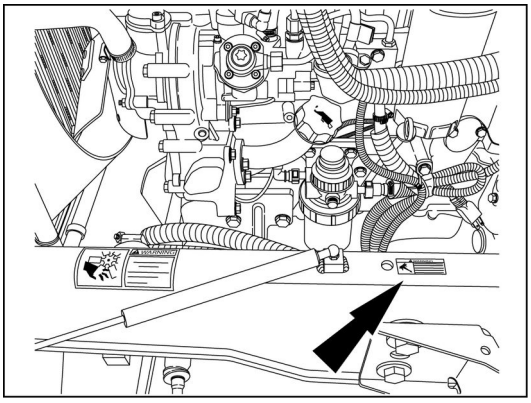
(7) Warning. Fuel under pressure.

WARNING
Pressurized System Hazard. Do not open high pressure fuel system with engine running. Engine operation causes high fuel pressure. Failure to comply could result in death or serious injury.

Quantity: 2
English 87581010
Spanish 87622505
French Canadian 87622506

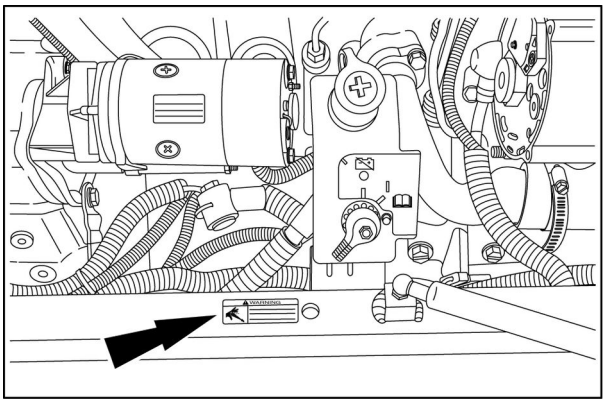


87581010 16



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NOTE: *Open both of the engine side panels.*
(7) Location:
On top of the frame rail.

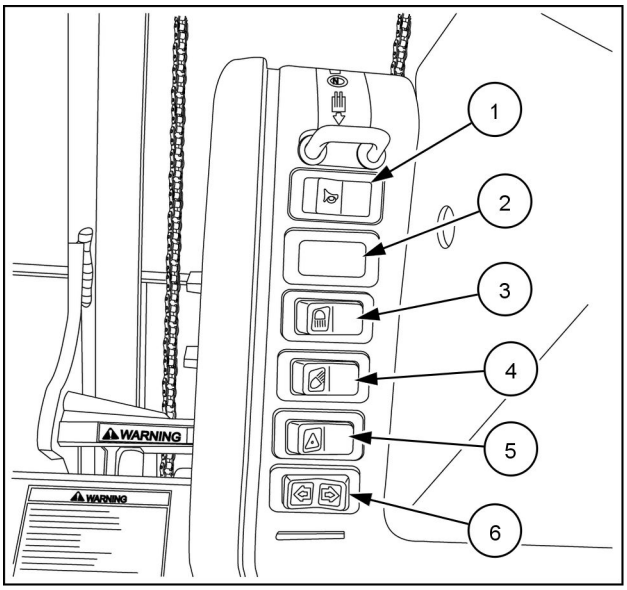


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FORWARD CONTROLS

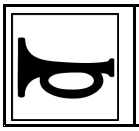
Console controls

Function switches (left side)



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(1) Horn switch

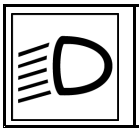
	Push the horn symbol on the rocker switch to sound the horn.

(2) Blank

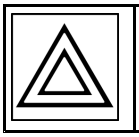
(3) Rear work lamp switch

	Push the rear work lamp symbol on the switch to turn on the rear work lamps. Push the other side to turn off the rear work lamps.

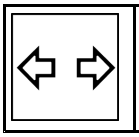
(4) Driving lamp switch

	Push the driving lamp symbol on the switch to turn on the driving lamps. Push the other side to turn off the driving lamps.

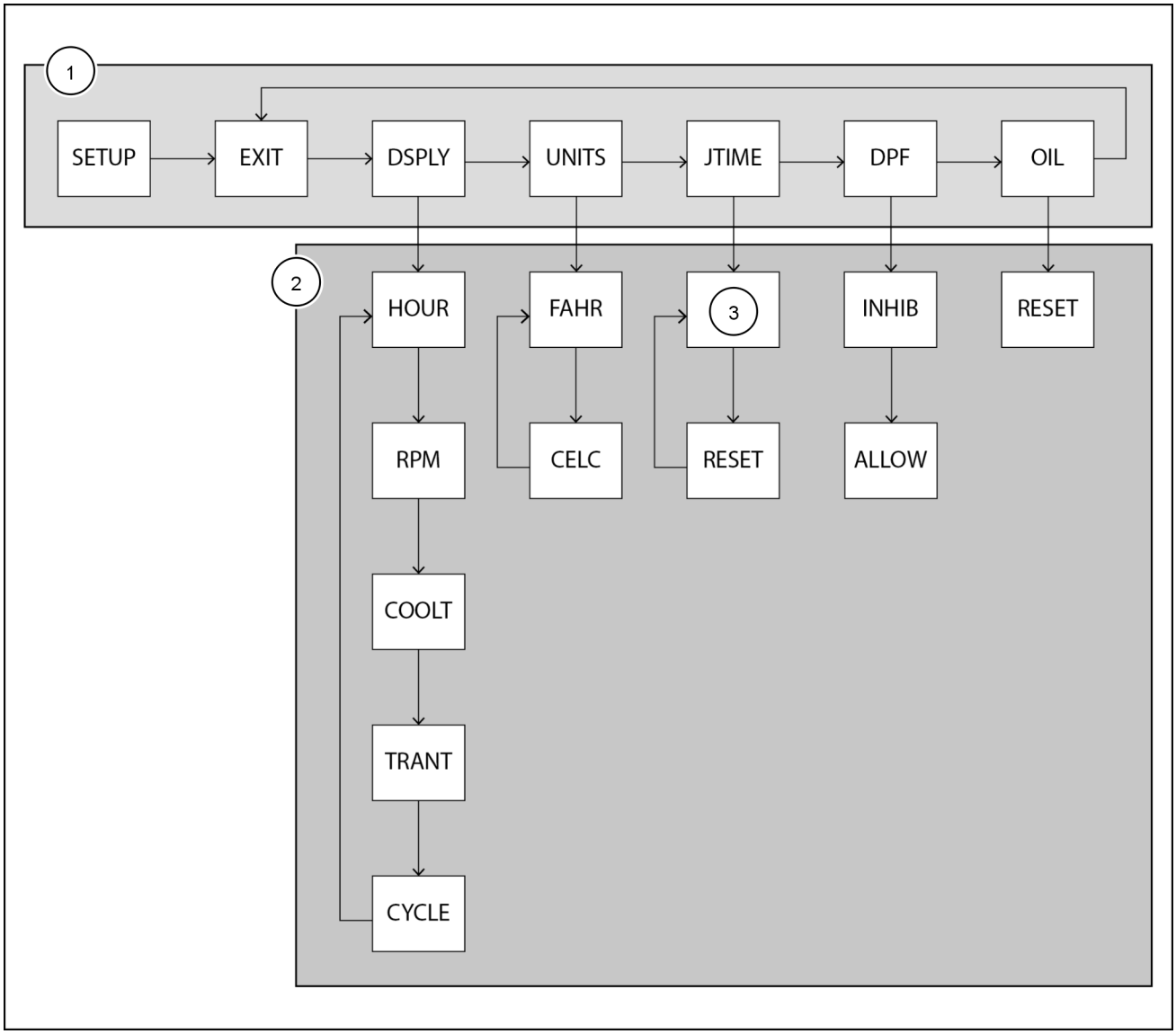
(5) Flasher switch

	Push the flasher symbol switch and the front and rear signal lamps flash simultaneously. Push the other side of the flasher switch to turn off the signal lamps.

(6) Turn signal switch (three position switch)

	Push the left side of the switch to signal a left turn. Push the right side of the switch to signal a right turn. Place the switch in the center position to turn off the turn signal.

Overview of the SETUP menu



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(1) Top level menu		(2) Second level menu	
SETUP	Setup the start of the top level menus	HOUR	Engine work hours
EXIT	Exit the setup menu	RPM	Engine RPM
DSPLY	Alternate between desired display options	COOLT	Engine coolant temperature
UNITS	Alternate between desired temperature units (degrees F or C)	TRANT	Transmission oil temperature
JTIME	Job timer (track hours for a specific job)	CYCLE	Cycle through each option listed under the DSPLY menu
DPF	Diesel Particulate Filter (inhibit auto regeneration)	FAHR	Display temperatures in degrees Fahrenheit
OIL	Oil life reset	CELC	Display temperatures in degrees Celsius
		(3)	Total work hours appear for the current job timer
		RESET	Reset the job timer work hours or oil life
		INHIB	Inhibit the auto-regeneration process
		ALLOW	Allow the auto-regeneration process

- Do not wait longer than **30 s** after the engine preheat lamp is not lit before cranking the engine. If the delay is longer, the start up cycle is aborted and the process must be restarted.

Warm up the hydraulic system

When the temperature is below **4 °C** (**40 °F**) and the engine has been warmed up:

1. Raise the engine throttle between **1600 - 1800 RPM**.
2. Drive the machine slowly in a low gear.
3. Actuate each of the hydraulic forklift controls.

   NOTE: *Watch the hydraulic malfunction indicator lamp. If the oil is too cold the lamp will illuminate while the operator cycles the functions.*
4. Cycle the functions for approximately **10 min**.
5. Release the controls and leave the machine throttle set for approximately **15 s**.

NOTE: *Immediately after the warm up procedure, the machine may operate a bit slower than normal, but will quickly return to normal operating speeds.*

Four-Wheel Drive (4WD) machine

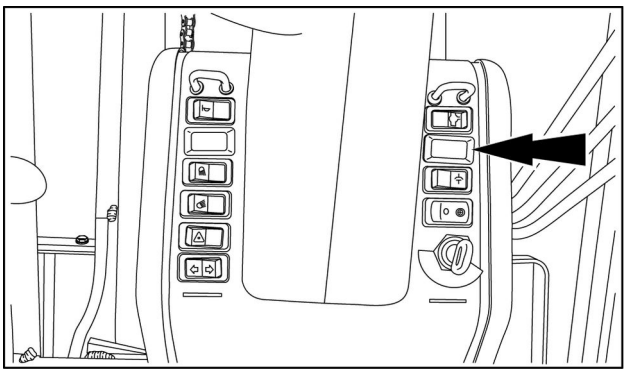
If equipped, Four-Wheel Drive (4WD) significantly improves traction in rough conditions. When the rear steer axle is engaged, operate the machine only in 1st or 2nd gear. Disengage the rear steer axle before operating on the hard surface or in 3rd or 4th gear.

NOTICE: *The use of 4WD when it is not required will increase the wear on machine components and affect the machines mobility in certain driving situations.*

NOTE: *4WD can be engaged when the machine is on the move or at a stop.*

Engage or Disengage 4WD:

1. Press the 4WD symbol end of the rocker switch to engage 4WD system. The 4WD symbol illuminates when 4WD is engaged.
2. Press the other side of the 4WD switch to disengage.

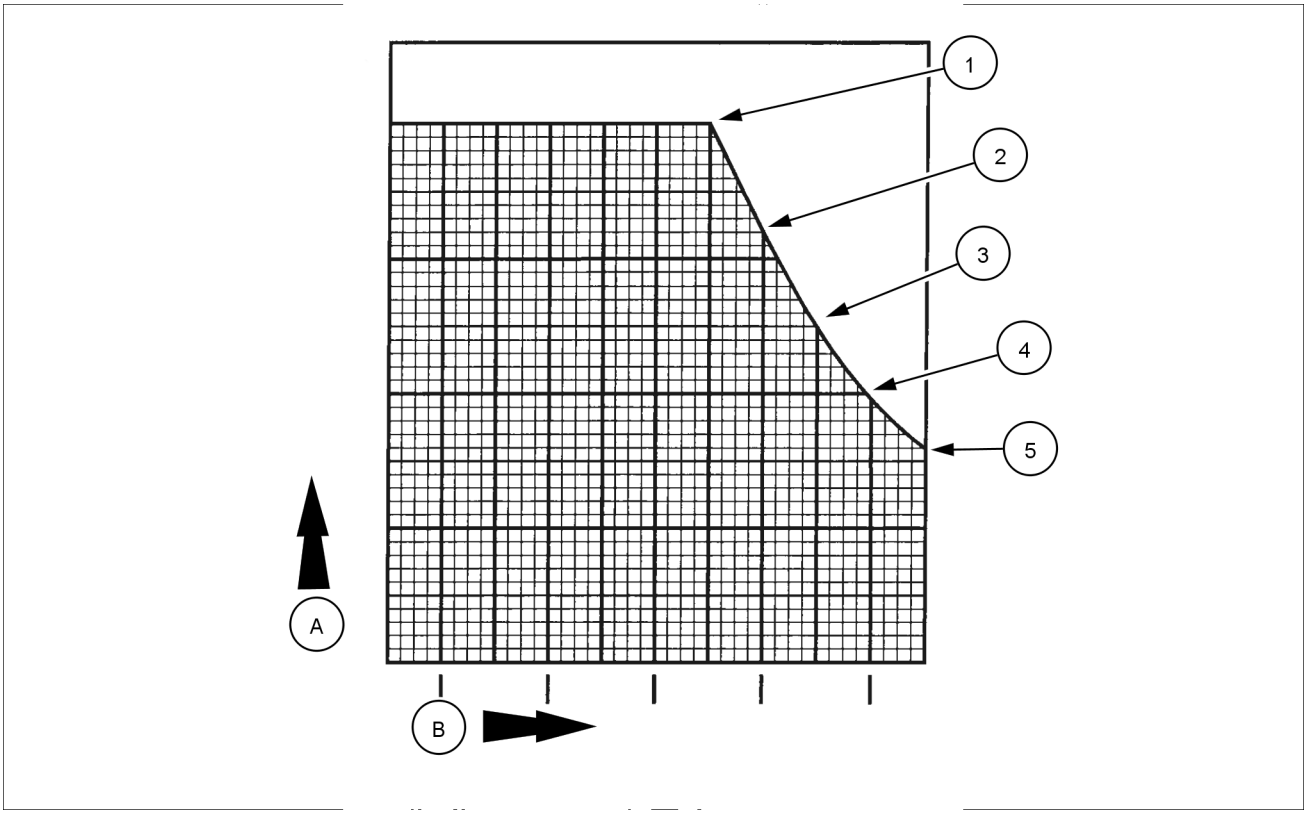


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586H Load limit chart

The lift capacity decreases as the load center distance to the front of the fork face increases.

NOTE: *Machine capacity is less when operating on uneven, unstable, or soft ground conditions. Lift capacities are based on solid, level, and smooth ground conditions. Reduce the load to maintain stability.*



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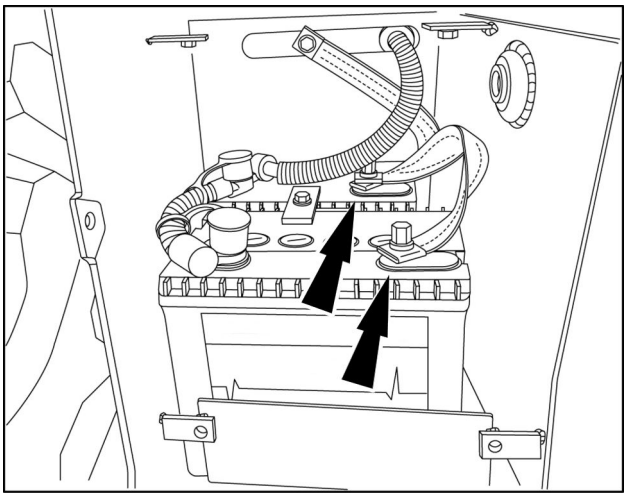
Lift capacity chart as load center distance increase

	The load center distance **(B)** from the fork face	Approximate maximum load limit **(A)**
(1)	**0 - 610 mm** (**0 - 24 in**)	**2722 kg** (**6000 lb**)
(2)	**711 mm** (**28 in**)	**2359 kg** (**5200 lb**)
(3)	**813 mm** (**32 in**)	**2041 kg** (**4500 lb**)
(4)	**914 mm** (**36 in**)	**1769 kg** (**3900 lb**)
(5)	**1016 mm** (**40 in**)	**1633 kg** (**3600 lb**)

Welding on the machine

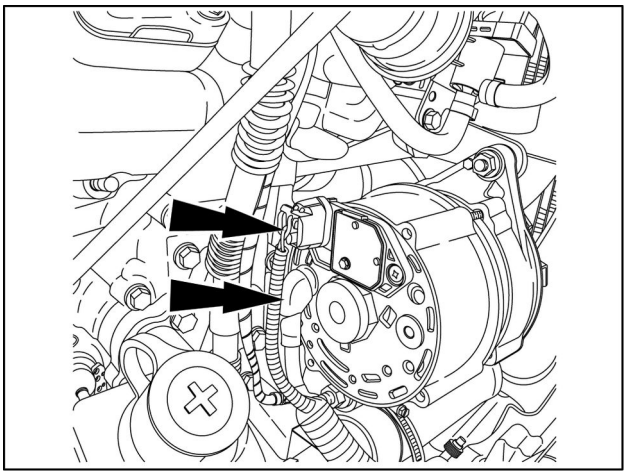
Contact your dealer if you have any questions before welding on this machine. The following procedures must be completed before welding.

1. Remove the battery cover and disconnect the batteries.



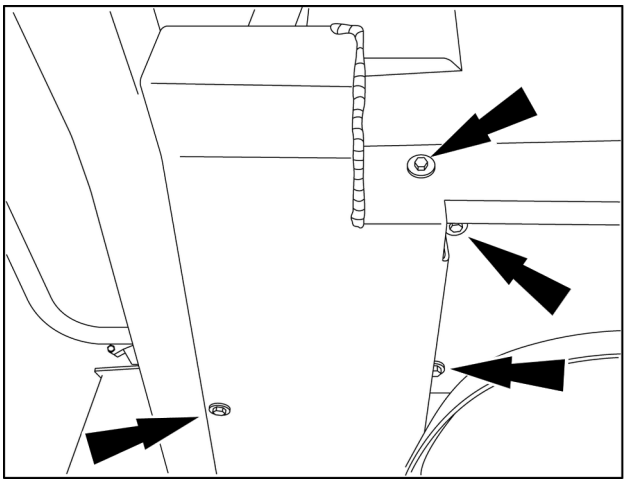
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2. Disconnect the alternator terminal wires.



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3. Remove the four bolts and the ECU cover panel from the right-hand side of the operator seat.



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Fluid capacities and lubricant specifications

Engine crank case

Specification:	**TUTELA UNITEK CJ-4 ENGINE OIL SAE 10W-40(API CJ-4)**
Capacity:	
With filter change	**8.00 L (8.45 US qt)**

NOTE: *Refer to the "Engine oil viscosity"* ***7-22*** *for recommendations on the oil types designed for your operating environment.*

Fuel tank

Specification:	**ASTM D975 GRADE NO. 2-D S15**
Capacity:	**117 L (31 US gal)**

Cooling system

Specification:	**CASE AKCELA ACTIFULL™ OT EXTENDED LIFE COOLANT**
Capacity:	**17.4 L (18.4 US qt)**

Hydraulic system

Specification:	**CASE AKCELA HY-TRAN® ULTRACTION**
Capacity:	
Total system	**70.0 L (74.0 US qt)**
Reservoir with filter change	**54.5 L (57.6 US qt)**
Reservoir without filter change	**52.6 L (55.6 US qt)**

Transmission

Specification:	**CASE AKCELA HY-TRAN® ULTRACTION**	
Capacity:		
Manual (Power shuttle)		
	Two-Wheel Drive (2WD)	Four-Wheel Drive (4WD)
Total system	**17.0 L (18.0 US qt)**	**19.4 L (20.5 US qt)**
Refill (with or without filter change)	**10.5 L (11.1 US qt)**	**13.0 L (13.7 US qt)**

Front drive axle

Specification:	**TUTELA TRANSAXLE FLUID SAE 80W-140**
Capacity:	
Differential and planetaries	**13.6 L (14.4 US qt)**

Rear steer axle — Four-Wheel Drive (4WD)

Specification:	**TUTELA TRANSAXLE FLUID SAE 80W-140**
Capacity:	
Differential	**5.5 L (5.8 US qt)**
Each planetary hub	**0.7 L (0.7 US qt)**

Brake master cylinder

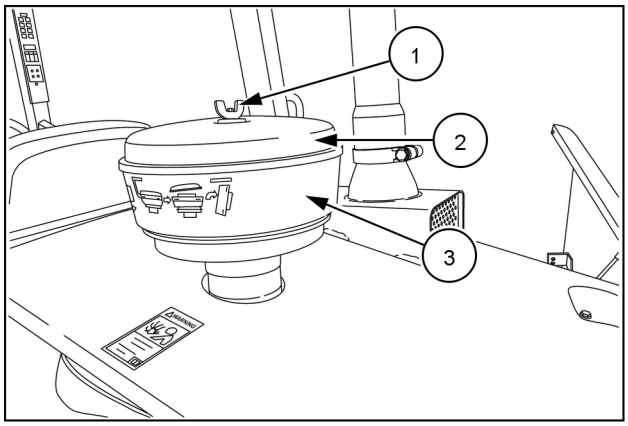
Brake fluid supplied by the transmission.

At warning message display

Engine air filters

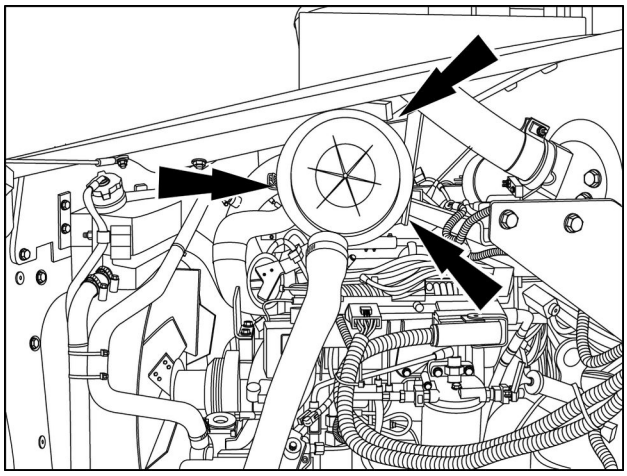
Clean or replace the engine air filter when the warning lamp and engine malfunction lamp remains illuminated while the engine is running.

1. Clean the air pre-cleaner (if equipped):
   A. Remove the wing nut **(1)**.
   B. Remove the cover **(2)**.
   C. Remove the bowl **(3)**.
   D. Clean the bowl with a damp cloth.
   E. Assemble the air pre-cleaner.
2. Open the right-hand side engine panel.



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3. Clean the area around the outside front cover of the air filter housing.
4. Inspect the air filter housing and components for damage.
5. Release the three clips that secure the air filter housing cover in place.

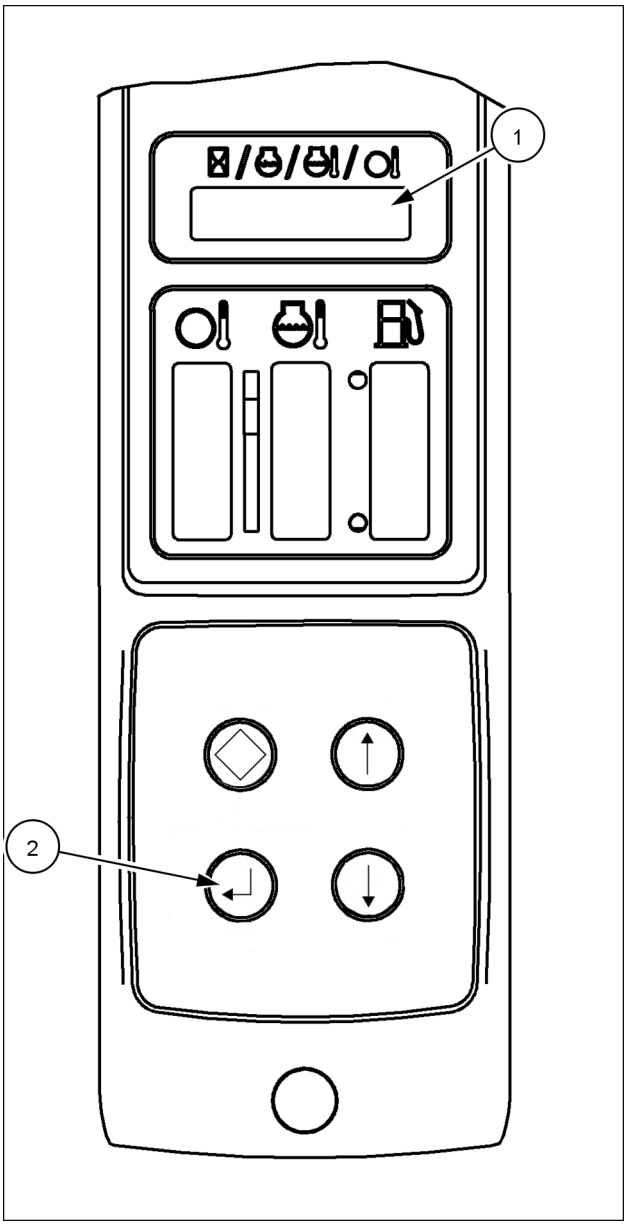


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3. Wait for IDLE to appear on the display **(1)**. The system is checking that the machine is in an idle state with the park brake is on.
4. The REGEN START PRESS ENTER sequence message appears on the display screen when the system is ready to start the regeneration process.
5. Press the start button **(2)**.
6. REGEN WAIT message alternates on the display screen while the system validates all conditions are met.
7. One of the following will occur.
   - REGEN ON will alternate on the display screen, the regeneration process starts.
   - REGEN FAIL will alternate on the display screen, the machine is not ready. Repeat Step **2**.

NOTE: *If the regeneration continues to FAIL, contact your authorized dealer for service.*

8. REGEN END will alternate on the display screen and return to the main screen. The regeneration process is complete and the machine is ready for operation.



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After Treatment System (ATS) regeneration failure

NOTE: *There are two levels of warning if the operator does not perform the manual regeneration or a system malfunction occurs. Level 1 warning is provided when the Particulate Matter (PM) Catalyst reaches maximum load at which time the engine power is reduced by **25 %**. Level 2 warning is provided when the PM Catalyst is overloaded at which time the engine power is reduced by **50 %**..*

When the below messages appear during machine operation the Engine Control Unit (ECU) will begin to de-rate the engine output, contact your dealer for service..

- Level 1 — A single audible alert, an illuminated operator alert symbol, ATS and FAIL alternate on the display screen.
- Level 2 — A constant audible alert, an illuminated emergency stop symbol, ATS and FAIL alternate on the display screen.

Coolant reservoir (de-aeration reservoir) fluid level

⚠ CAUTION

Burn hazard!
Hot coolant can spray out if you remove the filler cap while the system is hot. After the system has cooled, turn the filler cap to the first notch and wait for all pressure to release before proceeding. Failure to comply could result in minor or moderate injury.

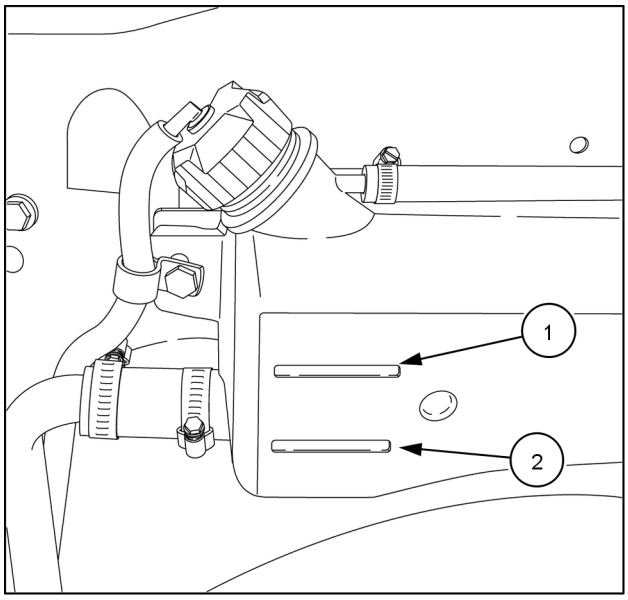
C0043A

NOTICE: *NEVER mix OAT coolant with conventional coolant. Under no circumstances should you top off a cooling system with only water. You can use a refractometer to check the concentration level. Supplemental Coolant Additives (SCA) should not be used when using* ***CASE AKCELA ACTIFULL™ OT EXTENDED LIFE COOLANT****. Change the coolant solution at the change interval recommended.*

Check the de-aeration reservoir fluid level every **50 h** of operation.

Coolant fluid specification – **CASE AKCELA ACTIFULL™ OT EXTENDED LIFE COOLANT**

1. Ensure an accurate level reading:
   A. Park the machine on level ground.
   B. Shut down the engine.
   C. Allow time for the coolant to completely cool. Coolant must be cold before proceeding.
   D. Open the right hand side engine panel.
2. Check the coolant level on the reservoir. The coolant level should be between the HOT MAX mark **(1)** and the COLD MIN mark **(2)**.
3. If coolant is below the COLD MIN mark add coolant.

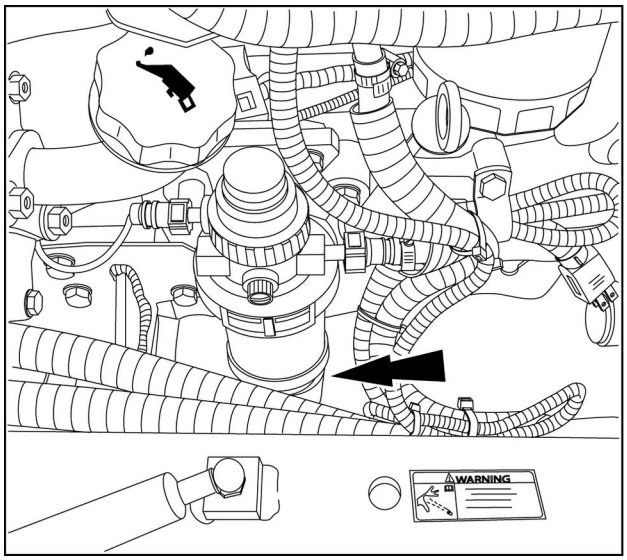


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Fuel filters

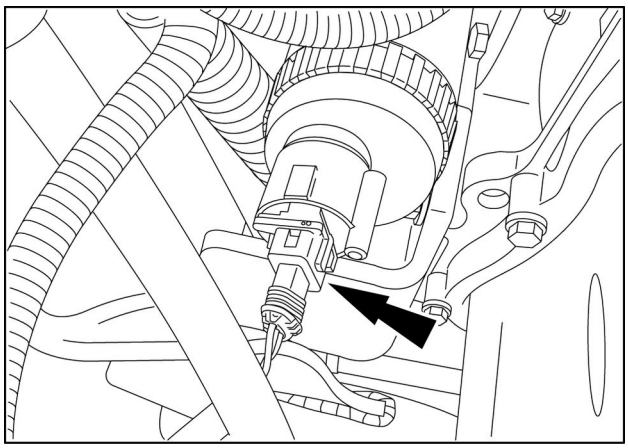
Replace the fuel filters after the first **100 h** of operation on a new machine or if a major component has been rebuilt. Then replace the fuel filters every **500 h** of operation or after a loss of engine power.

1. Fill the fuel tank before proceeding.
2. Open the fuel tank cap slightly to release pressure.
3. Open the right side engine panel.
4. Clean the area around the water separator of dirt and debris.



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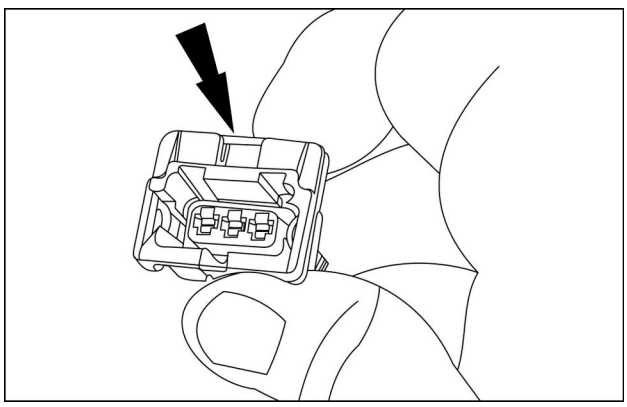
5. Remove the wire connector at the base of the water separator.



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- Press on the wire clasp that holds the connector to the drain to remove.

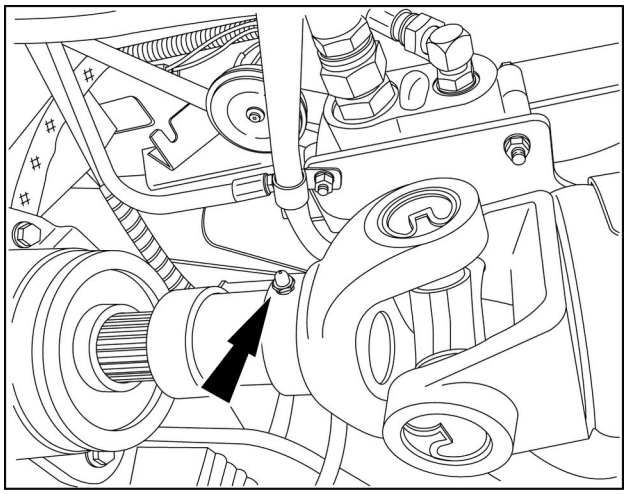
NOTE: *View is from underneath the machine.*



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Front drive axle - drive shaft

Grease the front drive shaft every **250 h** of operation. Use **TUTELA MULTI-PURPOSE EP GREASE 251H, GR-9**.

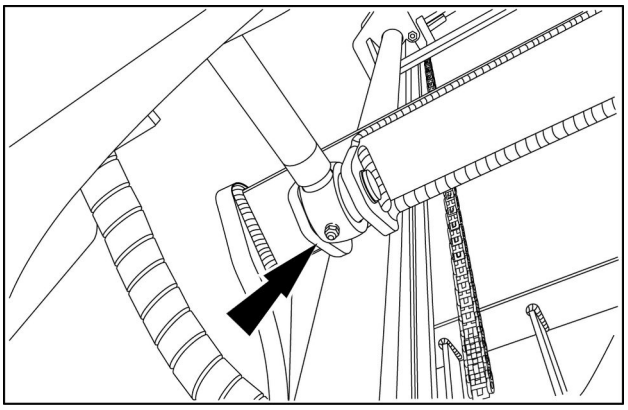


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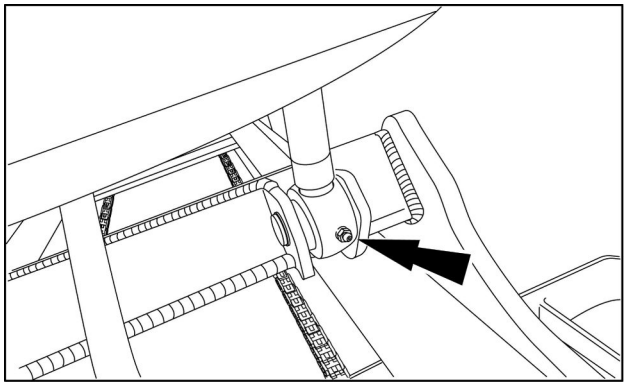
Tilt cylinder - Grease

Grease the tilt cylinders (four locations) every **250 h** of operation. Use **TUTELA MULTI-PURPOSE EP GREASE 251H, GR-9**.

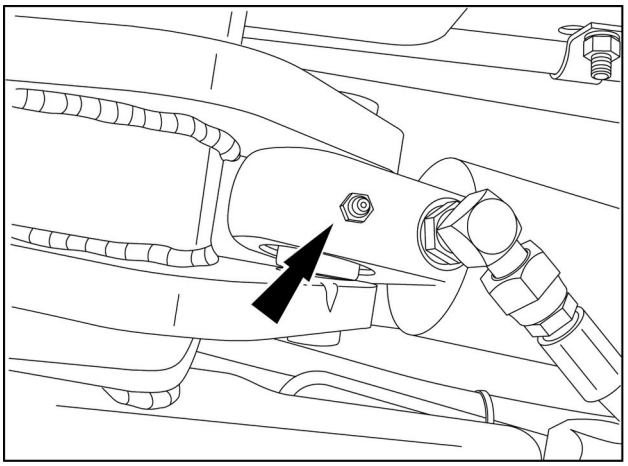
NOTE: *All views are from underneath the machine.*



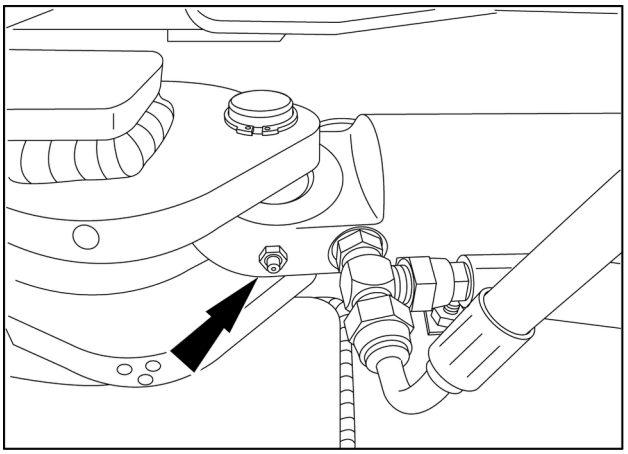
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RAPH12FRK0265AA 3



RAPH12FRK0266AA 4

Every 1000 hours

Hydraulic fluid and filter

⚠ WARNING

Personal Protective Equipment (PPE) required.
When assembling, operating, or servicing the machine, wear protective clothing and PPE necessary for the particular procedure. Some PPE that may be necessary includes protective shoes, eye and/or face protection, hard hat, heavy gloves, filter mask, and hearing protection.
Failure to comply could result in death or serious injury.

W0353A

⚠ WARNING

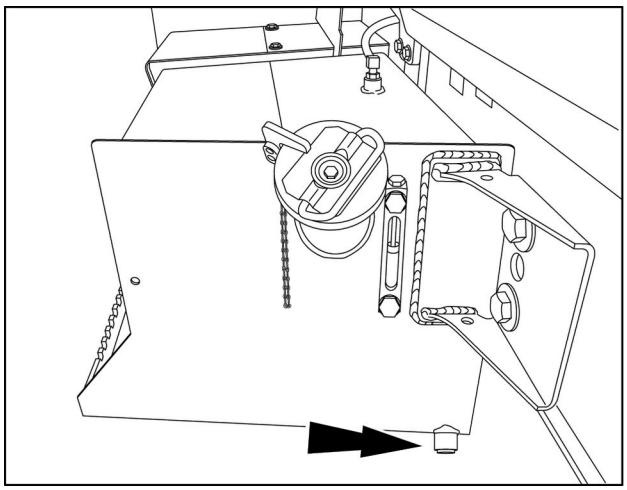
Burn hazard!
Before performing any service on the hydraulic system, you must allow it to cool. Hydraulic fluid temperature should not exceed 40 °C (104 °F).
Failure to comply could result in death or serious injury.

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Replace the hydraulic fluid and oil filter every **1000 h** of operation.

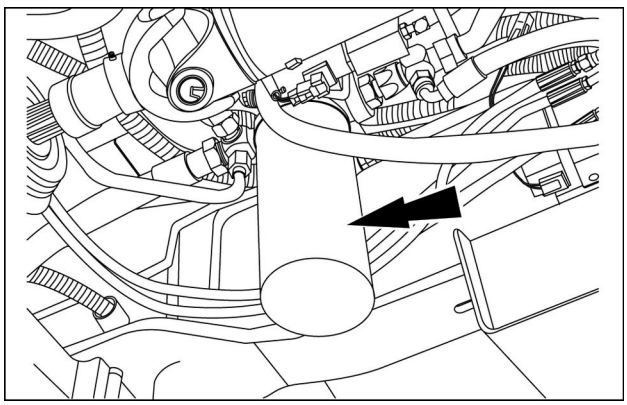
Hydraulic oil specification – **54.5 L** (**57.6 US qt**) of **CASE AKCELA HY-TRAN® ULTRACTION**.

1. Warm up the hydraulic fluid by operating the forklift controls.
2. Park the machine on level ground.
3. Lower the carriage to the ground and turn off the engine.
4. Place a suitable container underneath the hydraulic reservoir drain plug.
5. Remove the hydraulic fill cap.
6. Remove the drain plug.



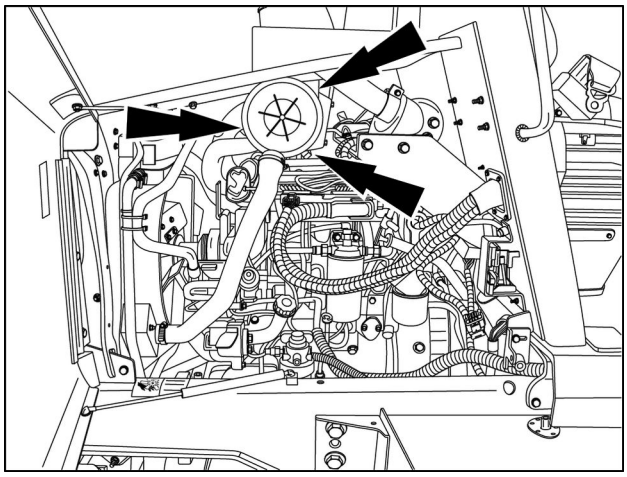
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7. Remove the hydraulic filter:
   A. Locate the hydraulic filter under the right front portion of the machine just behind the front drive axle.
   B. Clean the area around the filter head area before removing the old filter.
   C. Use a filter wrench and remove the old filter. Have a suitable container ready to capture any fluid that might leak or spill.
   D. Dispose of the filter in accordance with local, regional, and federal regulations.



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13. Position the filter cover over the housing, hold the cover in place, and fasten the clips that secure the air filter cover in place.

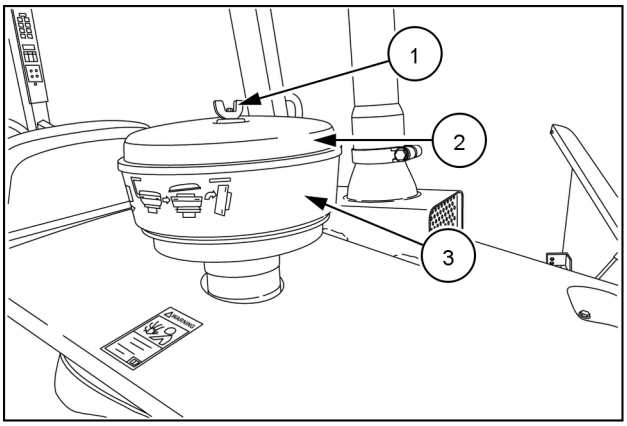


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Engine air pre-cleaner (if equipped)

Check the air pre-cleaner bowl and remove any debris from the bowl.

1. Remove the wing nut **(1)** .
2. Remove the cover **(2)** and bowl **(3)** .
3. Empty debris from the bowl and wipe with a damp cloth.
4. Assemble the air pre-cleaner.



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8 - SPECIFICATIONS

Engine - General specification

586H and 588H

Model	Diesel, F5HFL463D*F005, TIER 4B Final emissions compliant
Type	Four cylinder, turbocharged
Firing order	1-3-4-2
Bore and stroke	**99 mm** x **110 mm** (**3.90 in** x **4.33 in**)
Displacement	**3.4 l** (**207.5 in³**)
Compression ratio	17 to 1
Fuel injection	Direct High Pressure Common Rail (HPCR)
Horsepower - rated at **2200 RPM**	
Gross	**55 kW** (**75 Hp**)
Net with **33 °** fan	**51 kW** (**69 Hp**)
Peak torque at **1400 RPM**	
Gross	**316 N·m** (**233 lb ft**)
Net with **33 °** fan	**298 N·m** (**220 lb ft**)
Maximum torque rise	**35 % ± 5 RPM**
Engine speeds	
Rated speed, full load	**2200 RPM**
Low idle	**900 - 1000 RPM**
High idle, no load	**2330 - 2430 RPM**
Converter stall	**1925 - 2075 RPM**
Hydraulic stall	**2175 - 2330 RPM**

Torque

Use the torques in this chart when special torques are not given. These torques apply to fasteners with both UNC and UNF threads as received from suppliers dry, or when lubricated with engine oil. Not applicable if special graphite lubricants, Molydisulfide greases, or other extreme pressure lubricants are used.

Decimal hardware

Grade 5 bolts, nuts, and studs

Size	Nm	lb in/lb ft
1/4 in	12 - 15 Nm	108 - 132 lb in
5/16 in	23 - 28 Nm	204 - 252 lb in
3/8 in	48 - 57 Nm	420 - 504 lb in
7/16 in	73 - 87 Nm	54 - 64 lb ft
1/2 in	109 - 130 Nm	80 - 96 lb ft
9/16 in	149 - 179 Nm	110 - 132 lb ft
5/8 in	203 - 244 Nm	150 - 180 lb ft
3/4 in	366 - 439 Nm	270 - 324 lb ft
7/8 in	542 - 651 Nm	400 - 480 lb ft
1 in	787 - 944 Nm	580 - 696 lb ft
1-1/8 in	1085 - 1193 Nm	800 - 880 lb ft
1-1/4 in	1519 - 1681 Nm	1120 - 1240 lb ft
1-3/8 in	1980 - 2278 Nm	1460 - 1680 lb ft
1-1/2 in	2631 - 2983 Nm	1940 - 2200 lb ft

Markings for Grade 5 hardware



Grade 8 bolts, nuts, and studs

Size	Nm	lb in/lb ft
1/4 in	16 - 20 Nm	144 - 180 lb in
5/16 in	33 - 39 Nm	288 - 348 lb in
3/8 in	61 - 73 Nm	540 - 648 lb in
7/16 in	95 - 114 Nm	70 - 84 lb ft
1/2 in	149 - 179 Nm	110 - 132 lb ft
9/16 in	217 - 260 Nm	160 - 192 lb ft
5/8 in	298 - 358 Nm	220 - 264 lb ft
3/4 in	515 - 618 Nm	380 - 456 lb ft
7/8 in	814 - 976 Nm	600 - 720 lb ft
1 in	1220 - 1465 Nm	900 - 1080 lb ft
1-1/8 in	1736 - 1953 Nm	1280 - 1440 lb ft
1-1/4 in	2468 - 2712 Nm	1820 - 2000 lb ft
1-3/8 in	3227 - 3688 Nm	2380 - 2720 lb ft
1-1/2 in	4285 - 4827 Nm	3160 - 3560 lb ft

Markings for Grade 8 hardware



NOTE: *Use thick nuts with Grade 8 bolts.*

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