570NXT
Tier 4
Tractor Loader
from PIN NCC570600

SERVICE MANUAL

Part number 47441594
1st edition English
September 2012

CASE CONSTRUCTION

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INTRODUCTION

Safety rules

⚠ DANGER

Improper operation or service of this machine can result in an accident.
Do not operate this machine or perform any lubrication, maintenance, or repair on it until you have read and understood the operation, lubrication, maintenance, and repair information.
Failure to comply will result in death or serious injury.

D0010A

⚠ WARNING

Maintenance hazard!
Always perform all service procedures punctually at the intervals stated in this manual. This ensures optimum performance levels and maximum safety during machine operation.
Failure to comply could result in death or serious injury.

W0132A

⚠ WARNING

Pressurized system!
Before attempting any service procedure, it is your responsibility to know the number of accumulators on the machine, and the correct procedure for releasing the pressure of each accumulator.
Failure to comply could result in death or serious injury.

W0136A

NOTICE: *Extreme working and environmental conditions require shortened service intervals.*

Use Case fluids, lubricants, and filters for the best protection and performance of your machine. All fluids, lubricants, and filters must be disposed of in compliance with environmental standards and regulations. Contact your dealer with any questions regarding the service and maintenance of this machine.

Read the safety decals and information decals on the machine. Read the Operator's Manual and safety manual. Understand the operation of the machine before you start any service.

Before you service the machine, put a 'Do Not Operate' tag on the steering wheel or over the key switch. Ensure the tag is at a location where everyone who might operate or service the machine may see clearly. One tag is included with your new machine. Additional tags are available from your dealer.

Plastic and resin parts

- Avoid using gasoline, paint thinner, etc. when cleaning plastic parts, console, instrument cluster, etc.
- Use only water, mild soap, and a soft cloth when you clean these parts.
- Using gasoline, thinners, etc. can cause discoloration, cracking, or deformation of the part being cleaned.

Safety rules Ductile iron

⚠ DANGER

Improper operation or service of this machine can result in an accident.
Any unauthorized modifications made to this machine can have serious consequences. Consult an authorized dealer on changes, additions, or modifications that may be required for this machine. Do not make any unauthorized modifications.
Failure to comply will result in death or serious injury.

D0030A

Before you weld, cut, or drill holes on any part of this machine, make sure the part is not cast ductile iron. See your dealer if you do not know if a part is cast ductile iron. The following are cast ductile iron parts:

- two wheel drive steering link
- dump links
- front axle
- Air Conditioning (A/C) compressor mounting bracket

Unauthorized modifications to cast ductile iron parts can cause injury or death. Welding, cutting, or drilling can cause cast ductile iron to break. Do not weld, cut, or drill to repair or to attach items to cast ductile iron parts on this machine.

Safety rules

Before welding on the machine you must do the following. If you have any questions about welding on the machine contact your dealer.

- Disconnect the batteries.
- Disconnect the alternator terminal wires.
- Disconnect the instrument cluster.
- Disconnect the engine control unit. Disconnect all connectors from the engine harness to the ECU.
- Disconnect the controller for the loader 4 in 1 bucket or auxiliary hydraulics, if equipped (one connector, located under the loader valve at the rear, left underside of the machine).

Safety rules

Unless otherwise instructed, always perform these steps before you service the machine:

1. Park the machine on a flat, level surface.
2. Place the loader bucket on the ground, with the bottom of the loader bucket parallel to the surface.
3. Place the direction control lever and the transmission in neutral.
4. If you need to open the hood to perform service, raise the loader arms and install the support strut.
5. Shut down the engine.
6. Place a 'Do Not Operate' tag on the key switch so that it is visible to other workers or remove the key.

Basic instructions Important notice regarding equipment servicing

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 information in this manual is up-to-date at the date of the publication. It is the policy of the manufacturer for continuous improvement. Some information could not be updated due to modifications of a technical or commercial type, or changes to the laws and regulations of different countries.

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

Basic instructions Battery

⚠ WARNING

Explosive gas!
Batteries emit explosive hydrogen gas and other fumes while charging. Ventilate the charging area. Keep the battery away from sparks, open flames, and other ignition sources. Never charge a frozen battery.
Failure to comply could result in death or serious injury.

W0005A

⚠ WARNING

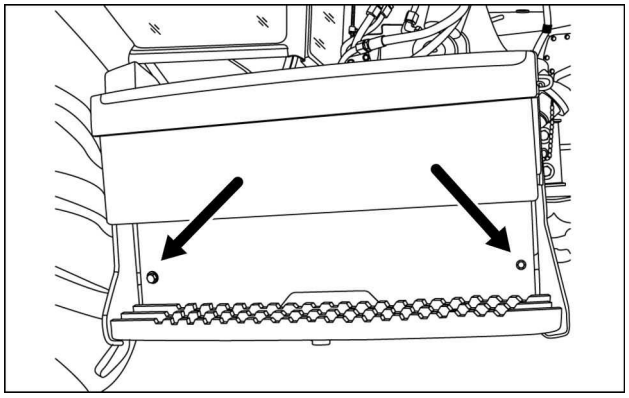
Hazardous chemicals!
Battery electrolyte contains sulfuric acid. Contact with skin and eyes could result in severe irritation and burns. Always wear splash-proof goggles and protective clothing (gloves and aprons). Wash hands after handling.
Failure to comply could result in death or serious injury.

W0006A

- Do not run the engine with the alternator wires disconnected.
- Before using an electric welder, disconnect the alternator wires, instrument cluster and batteries. Disconnect the ECU connectors.
- Do not use a steam cleaner or a cleaning solvent to clean the alternator.
- Keep the battery vents clean. Ensure the battery vents are not restricted.

Disconnect battery

1. Remove the battery cover hardware.



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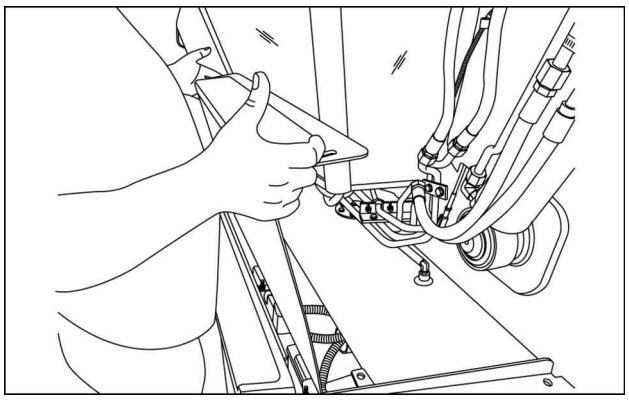
2. Remove the battery cover.



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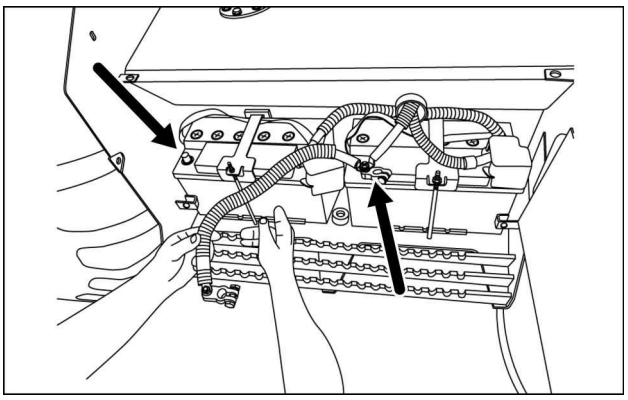
3. Disconnect the negative battery cable from the negative battery terminal.



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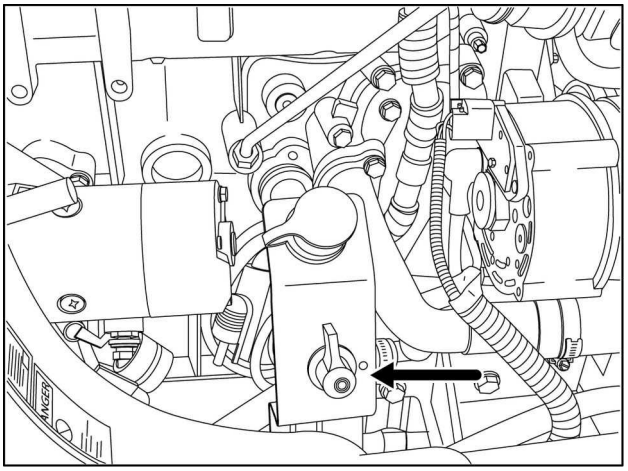
Master disconnect switch (if equipped)

Enable or disable electrical power from the machine batteries to the electrical components using the master disconnect switch, located on the right hand side of the engine.

NOTICE: *Wait at least 60 seconds after ignition key is placed in the OFF position before turning master disconnect switch to OFF. This allows the machine controllers to shutdown properly.*

NOTICE: *Some machine service procedures require an actual terminal disconnect of the batteries. Do not use the master disconnect for those types of procedures, such as welding on the machine.*



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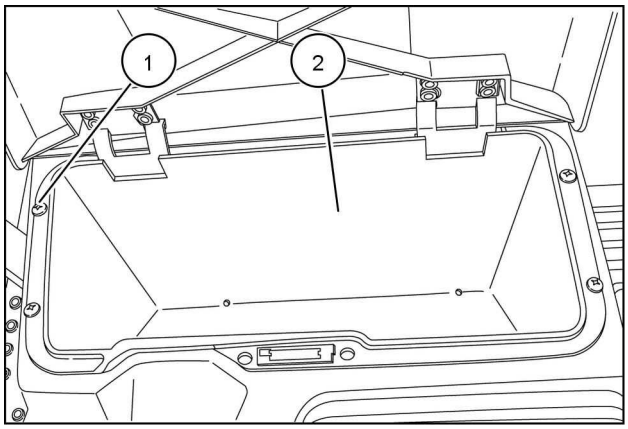
Basic instructions Fuse and relay locations

The machine is equipped with three fuse box locations. In the front console, a side console box and an external location.

Front console - Engine Control Unit (ECU) fuse and relay

1. Open the manual storage compartment located in front of the steering wheel.
2. Remove the four screws **(1)**.
3. Remove the compartment insert **(2)** to access the fuse and relay.



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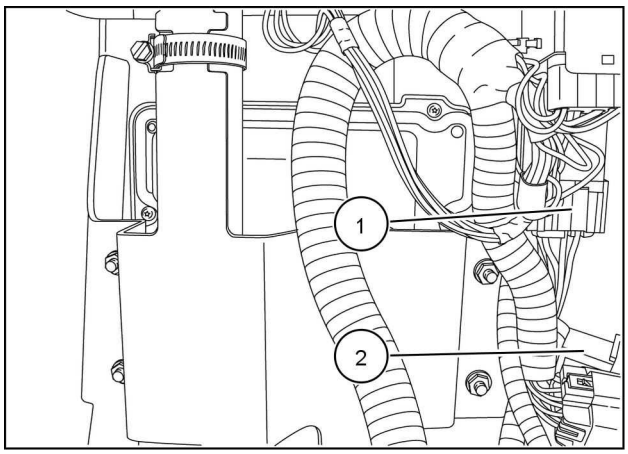
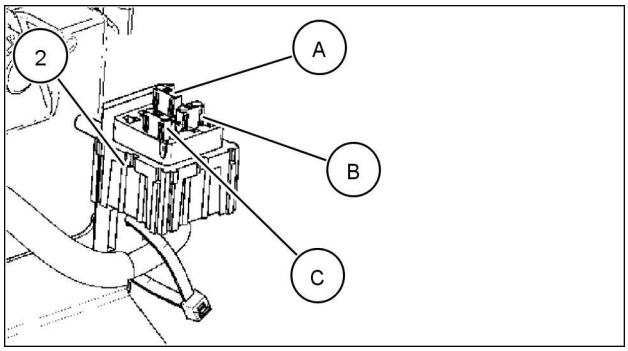
Fuse or relay reference		Designation
(1)		ECU B+ **70 A** sealed relay
(2)	**(A)**	ECU B+ **20 A** fuse
	(B)	ECU B+ **7.5 A** fuse
	(C)	LAMBDA SENSOR B+ **7.5 A** fuse



RAPH12UTL0126BA 2



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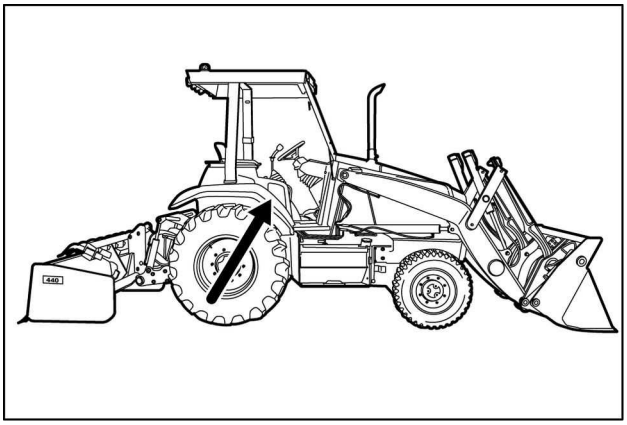
Side console box

Find the fuse cover panel on the right hand side below the loader control handle.

1. Loosen both retaining screws and remove the panel cover.



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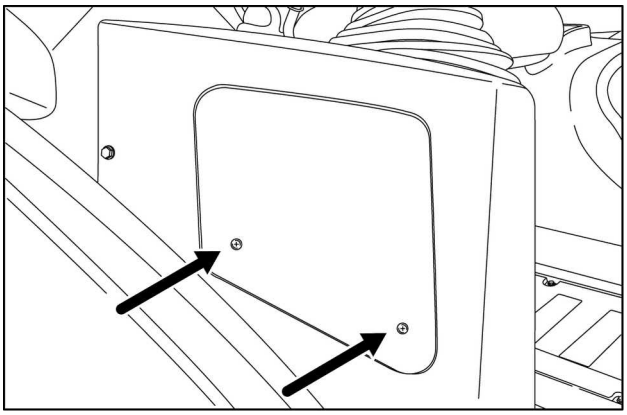
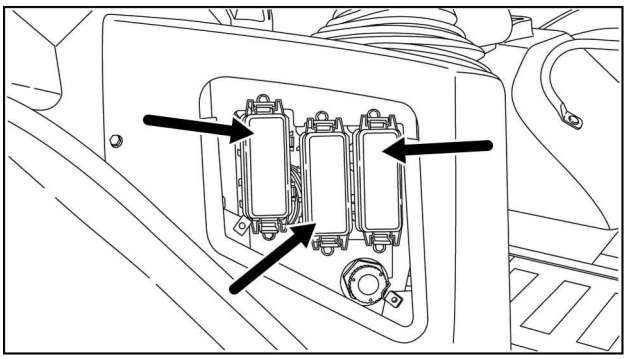
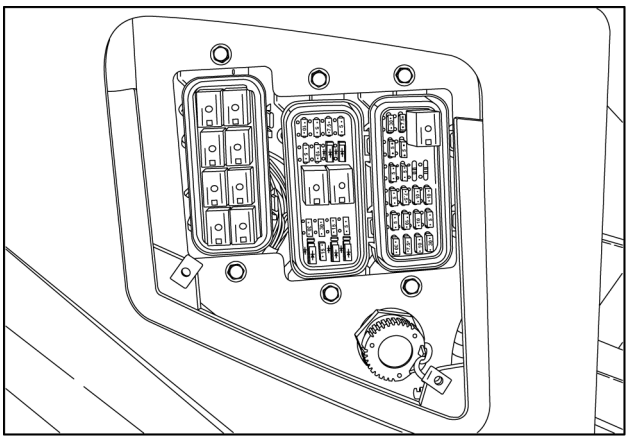


RAPH12UTL0122AA 5

2. Remove the fuse box covers as needed.



RAPH12UTL0117AA 6



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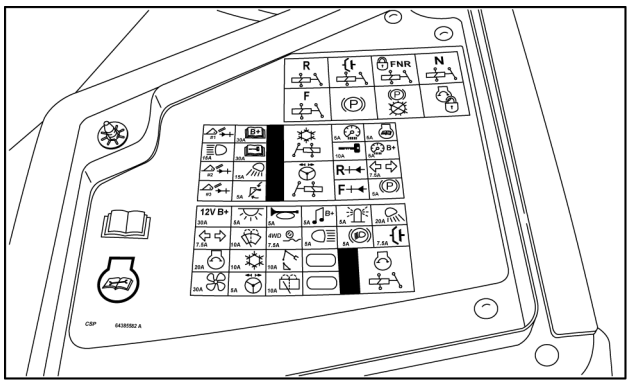
3. Refer to the decal on the interior side of the panel cover for fuse, relay, and/or diode functions.



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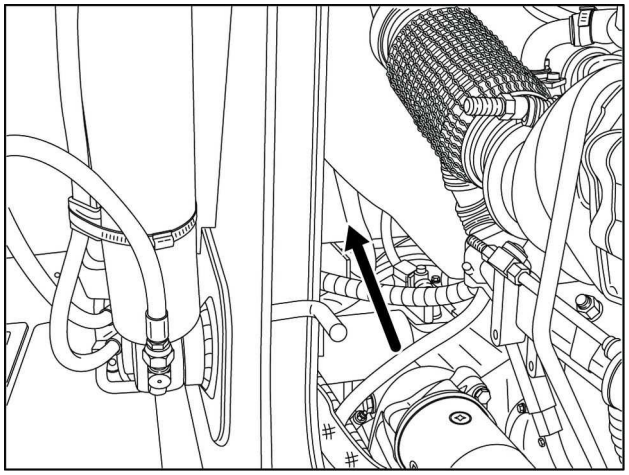
Glow-plug Control Unit (GCU) fuse

1. Raise the loader arm and engage the safety support.
2. Lift the engine hood.
3. Locate the **60 A** fuse box for the GCU on the right hand side of the engine.



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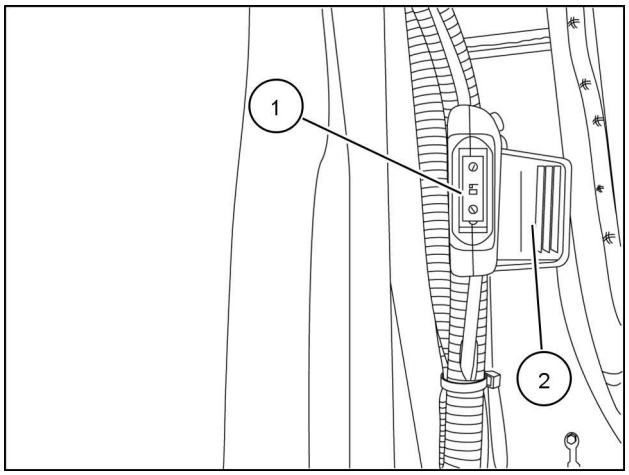
4. Remove the rubber fuse cover **(2)** to view the fuse **(1)** .



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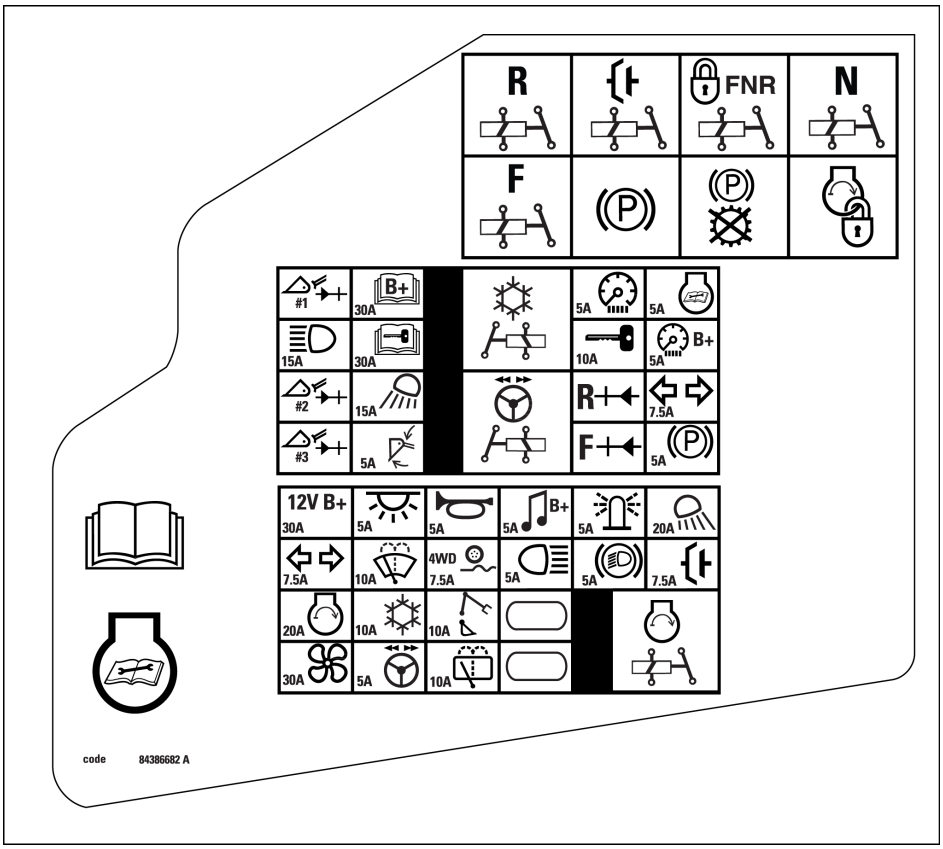
Basic instructions Fuse, relay and diode icon definitions

Right hand side console panel

Power Shuttle



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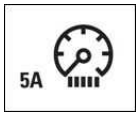
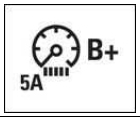
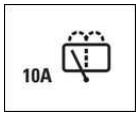
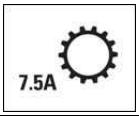
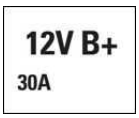
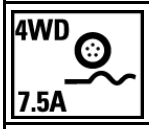
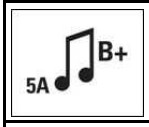
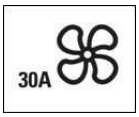
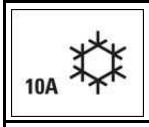
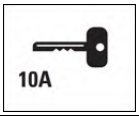
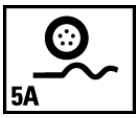
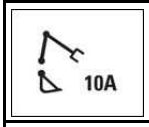
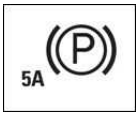
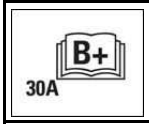
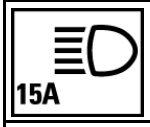
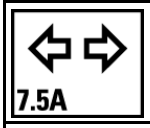
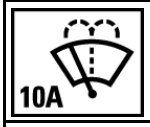
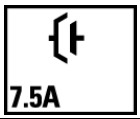
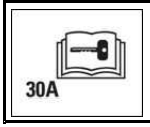
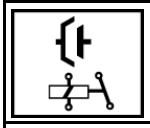
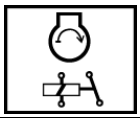
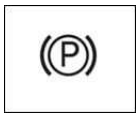
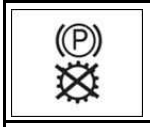
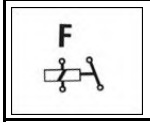
Fuse icon definitions

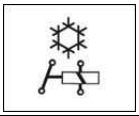
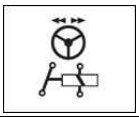
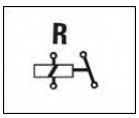
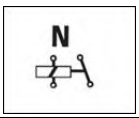
Symbol	Function
	Engine Control Unit (ECU) B+
	Instrument cluster key ON
	Instrument cluster B+
	Rear lights
	Rear wipers/washers

Symbol	Function
	Transmission differential lock
	Tail lights
	Cigarette lighter plugs
	4WD, Ride Control
	Dome light
	Radio B+
	Horn
	Blower motor
	A/C
	Key switch
	2WD, Ride Control
	Quick coupler, EH Clam, Radio Key ON
	SAHR brake
	Comfort Steer
	Customer B+

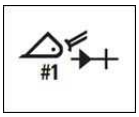
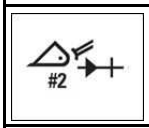
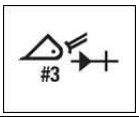
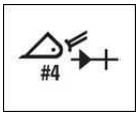
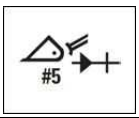
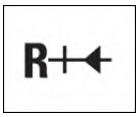
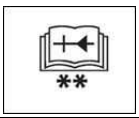
Symbol	Function
	Head lights
	Front work lights
	Turn signal, Hazards
	Front wiper/washer
	High beam
	Beacon
	Transmission de-clutch
	Customer key ON

Relay icon definitions

Symbol	Function
	Transmission De-clutch relay
	Transmission lock relay
	Start relay
	Spring Applied Hydraulic Release (SAHR) park brake relay
	SAHR park brake transmission cutout relay
	Forward relay

Symbol	Function
	A/C relay
	Comfort Steer relay
	Reverse relay
	Neutral relay
	Starter interlock relay

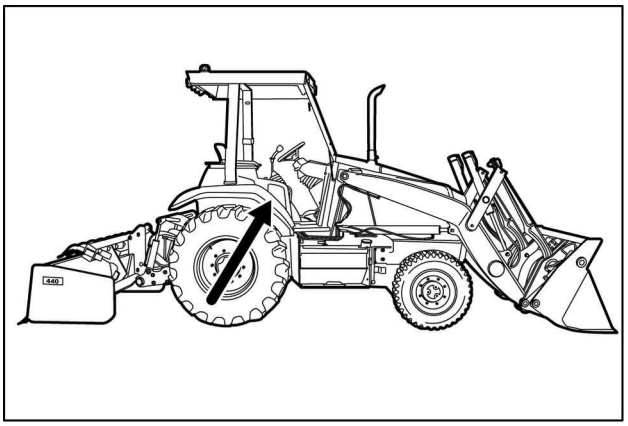
Diode icon definitions

Symbol	Function
	Quick coupler diode #1
	Quick coupler diode #2
	Quick coupler diode #3
	Quick coupler diode #4
	Quick coupler diode #5
	Reverse signal diode (Power Shuttle only)
	Forward signal diode (Power Shuttle only)
	Torque control diode

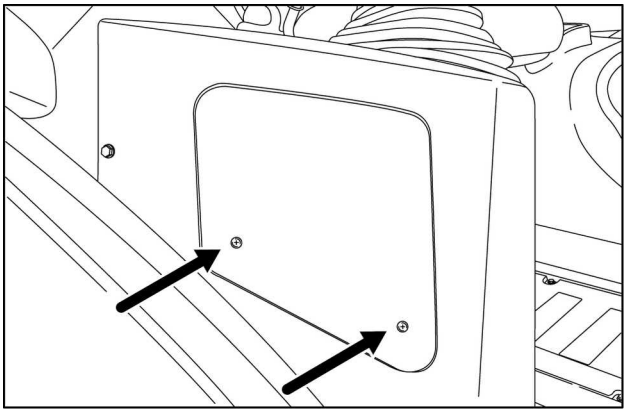
Basic instructions Diagnostic service tool port

The diagnostic/service tool port is located in the fuse box at the side console. Connect the Electronic Service Tool (EST) or DATAR to this port to update software and/or perform service and diagnostic tests.

1. Turn the thumb screws **(1)** to loosen the panel cover **(2)** for the fuse box. Remove the panel cover.



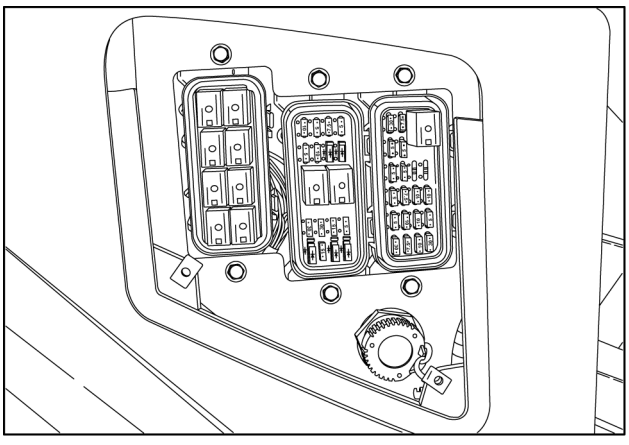
RAPH12UTL0106AA 1



RAPH12UTL0122AA 2

2. Unscrew the cap for the diagnostic/service tool port.

   NOTE: *You do not have to remove the fuse box covers.*

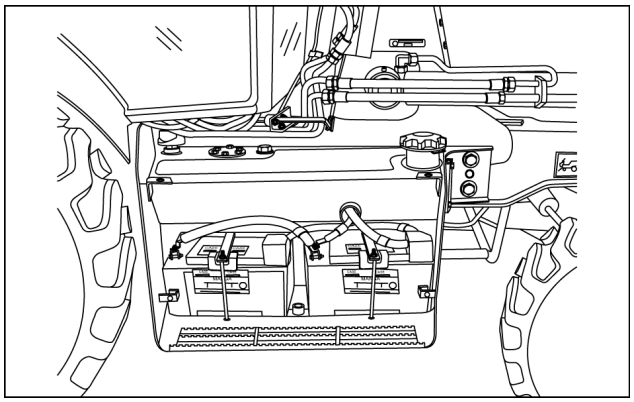


RAPH12UTL0118BA 3

Basic instructions Welding on the machine

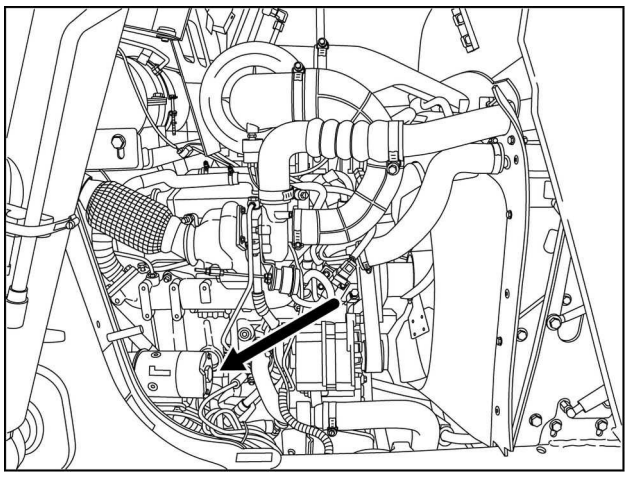
Contact your dealer if you have any questions before welding on this machine. The following procedures must be completed before welding.

Remove the battery cover and disconnect the batteries.



RCPH10TLB429AAF 1

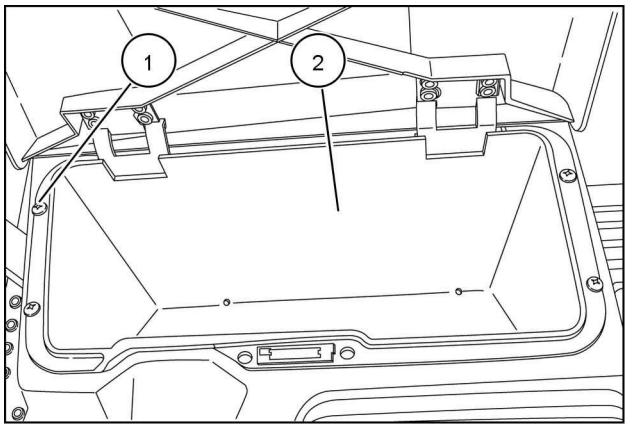
Disconnect the alternator terminal wires.



RCPH11TLB005BAD 2

Disconnect the engine control unit (ECU)

1. Remove the cover from the steering column shroud.

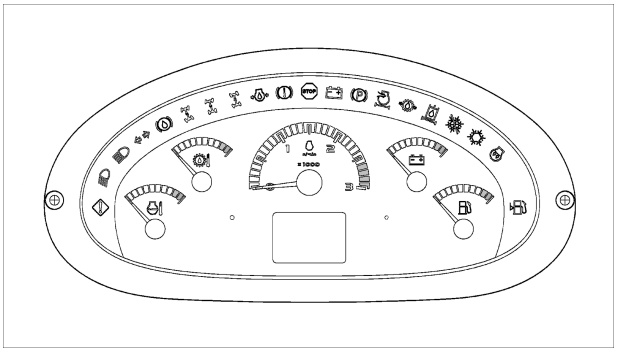


RAPH12UTL0128AA 3

2. Remove the ECU guard plate.
3. Disconnect both ECU connectors.

Disconnect the instrument cluster.

1. Remove the instrument cluster panel.
2. Disconnect all connectors from the back of the panel.



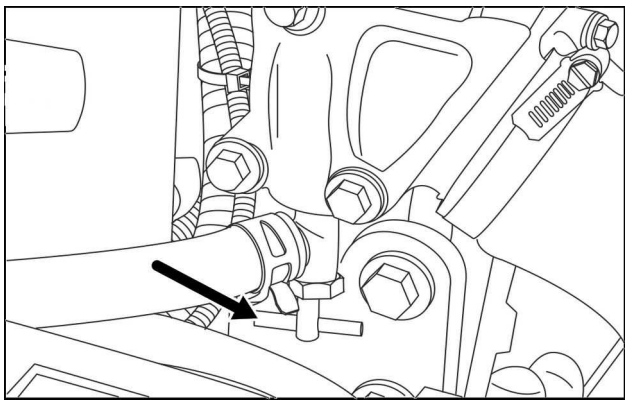
RAIL12FRK1169FA 4

- Disconnect the controller for the loader 4 in 1 bucket or auxiliary hydraulics, if equipped (one connector, located under the loader valve at the rear, left underside of the machine).

Basic instructions Coolant shutoff valve

The heater coolant shutoff valve controls the flow of hot coolant to the heater.

- In warm ambient temperatures, turn the shutoff valve clockwise to stop hot coolant flow to the heater.
- In cold ambient temperatures, turn the shutoff valve counter-clockwise to allow hot coolant to flow to the heater.



RCPH10TLB159AAF 1

Basic instructions Loader lift arm

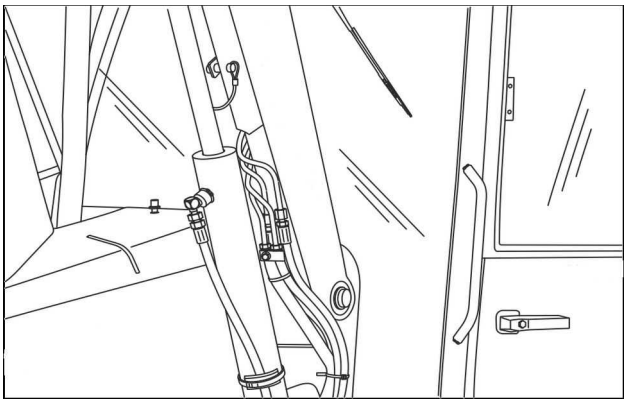
⚠ WARNING

Crushing hazard!
If you service the machine with the loader lift arms raised, always use the support strut. Remove the retaining pin and place the support strut onto the cylinder rod. Install the retaining pin into the support strut. Lower the lift arms onto the support strut.
Failure to comply could result in death or serious injury.

W0230A

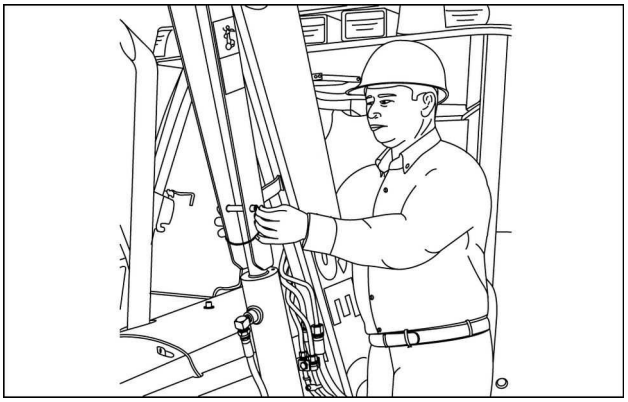
Raise and support loader lift arms:

1. Empty the loader bucket.
2. Raise the loader lift arms to the maximum height.
3. Shut down the engine.



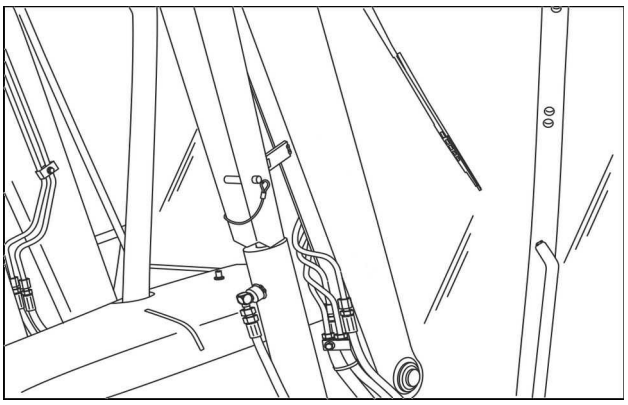
RCPH10TLB230AAF 1

4. Remove the retaining pin.
5. Lower the support strut onto the cylinder rod.
6. Install the retaining pin.



RCPH10TLB221AAF 2

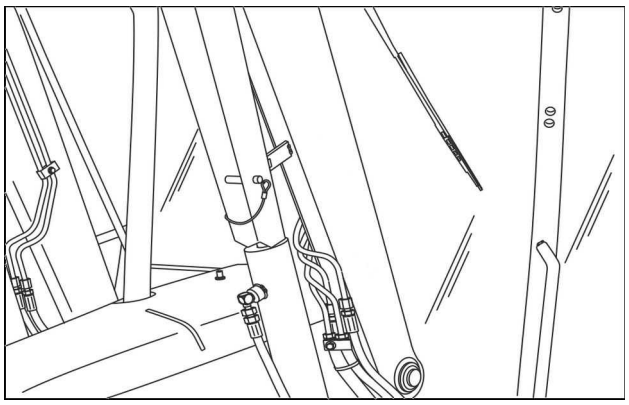
7. Start the engine.
8. Slowly lower the lift arms so that the end of the support strut rests on the cylinder.



RCPH10TLB227AAF 3

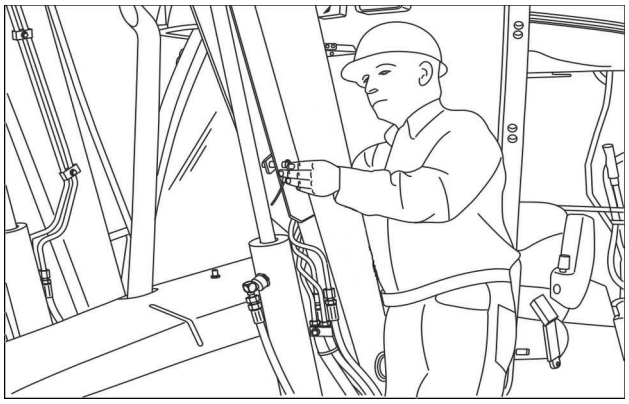
Lower supported loader lift arms:

1. Raise the lift arms so that the end of the support strut no longer rests on the cylinder.
2. Shut down the engine.



RCPH10TLB227AAF 4

3. Remove the retaining pin from the support strut.
4. Raise the support strut up to the storage position and secure with the retaining pin, as shown.



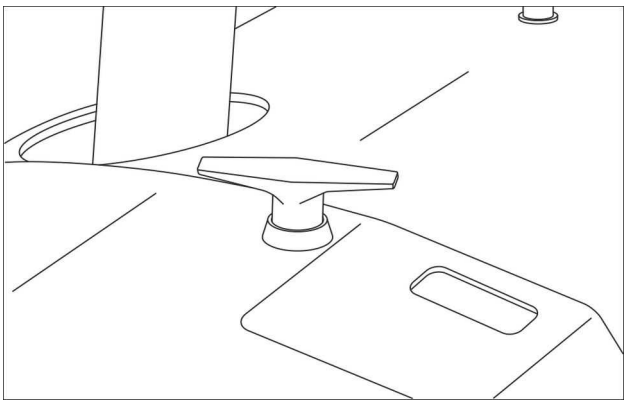
RCPH10TLB231AAF 5

5. Start the engine.
6. Lower the loader to the ground.

Basic instructions Hood

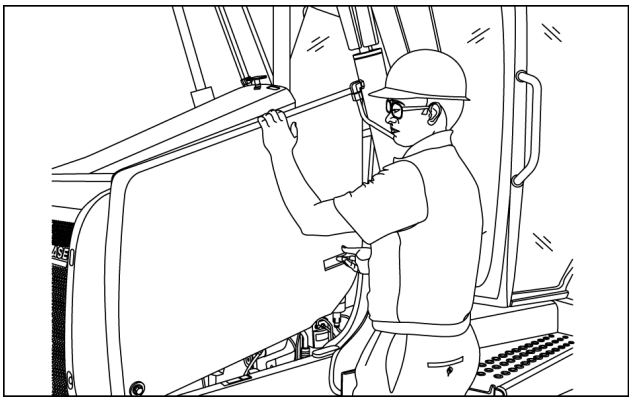
Open the hood:

1. Shut down the engine.
2. Turn the handle counter-clockwise to release the hood latch.



RCPH10TLB166AAF 1

3. Lift the hood and rotate forward.

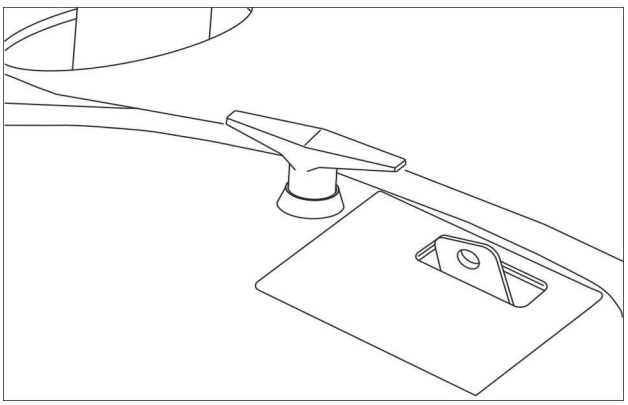


RCPH10TLB356AAF 2

NOTICE: *To avoid damage to the hood parts, always close the hood before moving the loader.*

Close the hood:

1. Lower the hood.
2. Turn the handle clockwise to lock the hood latch.



RCPH10TLB167AAF 3

Torque Minimum tightening torques for normal assembly

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)

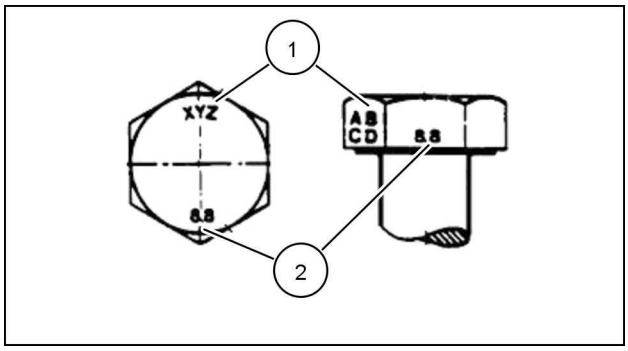
NOTE: *M4 through M8 hardware torque specifications are shown in pound-inches. M10 through M24 hardware torque specifications are shown in pound-feet.*

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

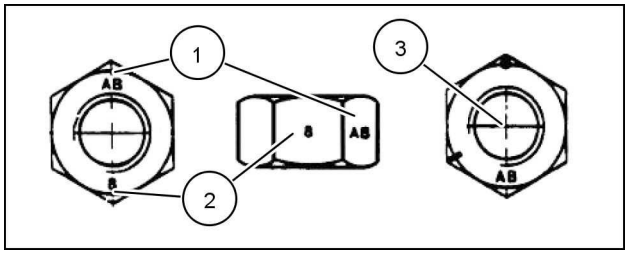
Metric Hex head and carriage bolts, classes 5.6 and up



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)**

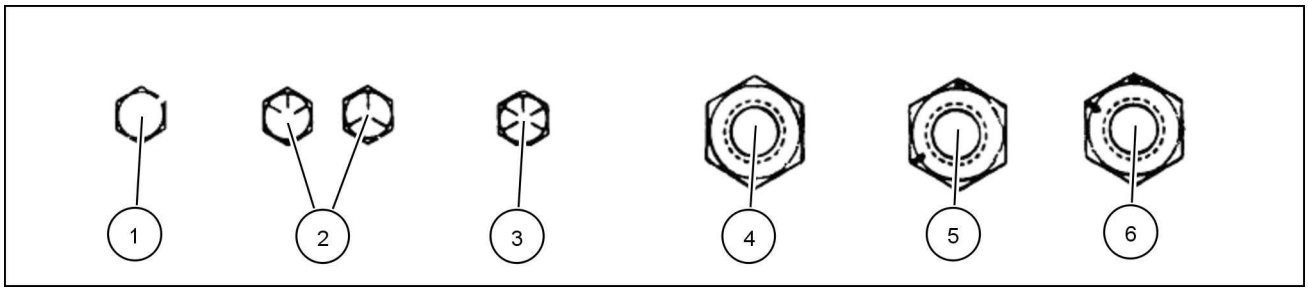
NOTE: *For Imperial Units,* ***1/4 in*** *and* ***5/16 in*** *hardware torque specifications are shown in pound-inches.* ***3/8 in*** *through* ***1 in*** *hardware torque specifications are shown in pound-feet.*

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

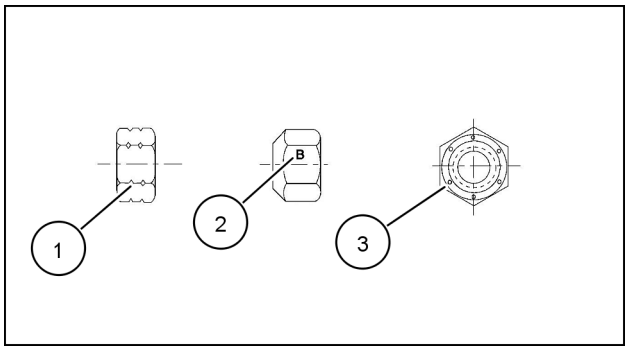


20083682 3

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)



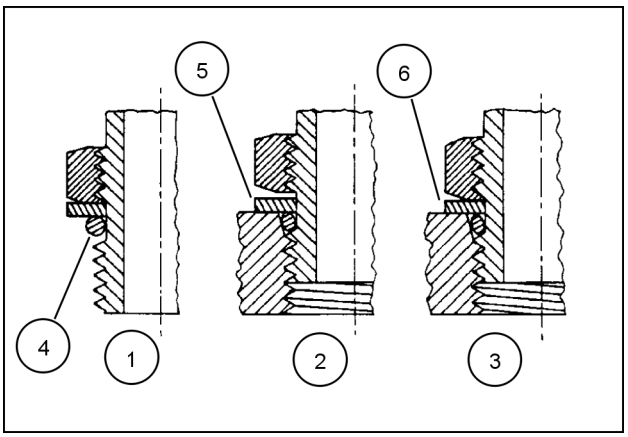
20090268 4

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

INSTALLATION OF ADJUSTABLE FITTINGS IN STRAIGHT THREAD O RING BOSSES



23085659 1

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)**.

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**)

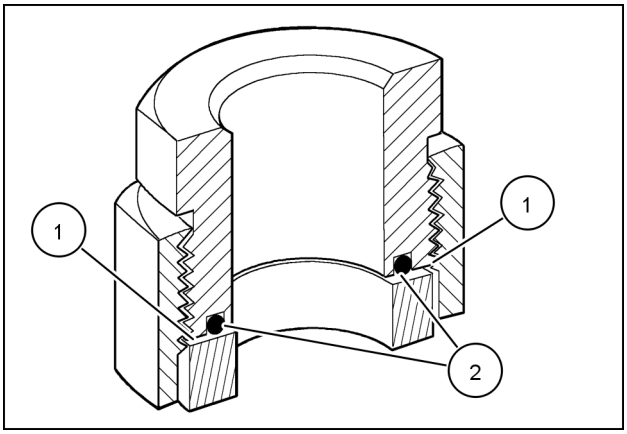
INSTALLATION OF ORFS (O-RING FLAT FACED) FITTINGS

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.



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Abbreviation Measurements

Typical applications	Metric unit		Imperial unit	
	Name	Symbol	Name	Symbol
Area (Land area)				
	hectare	**ha**	acre	**ac**
	square meter	**m²**	square foot	**ft²**
			square inch	**in²**
	square millimeter	**mm²**	square inch	**in²**
Electricity				
	ampere	**A**	ampere	**A**
	volt	**V**	volt	**V**
	microfarad	**µF**	microfarad	**µF**
	ohm	**Ω**	ohm	**Ω**
Force				
	kilonewton	**kN**	pound	**lb**
	newton	**N**	pound	**lb**
Force per length				
	newton per meter	**N/m**	pound per foot	**lb/ft**
			pound per inch	**lb/in**
Frequency				
	megahertz	**MHz**	megahertz	**MHz**
	kilohertz	**kHz**	kilohertz	**kHz**
	hertz	**Hz**	hertz	**Hz**
Frequency − Rotational				
	revolution per minute	**r/min**	revolution per minute	**r/min** [a]
		rpm		**rpm**
Length				
	kilometer	**km**	mile	**mi**
	meter	**m**	foot	**ft**
	centimeter	**cm**	inch	**in**
	millimeter	**mm**	inch	**in**
	micrometer	**µm**		
Mass				
	kilogram	**kg**	pound	**lb**
	gram	**g**	ounce	**oz**
	milligram	**mg**		
Power				
	kilowatt	**kW**	horsepower	**Hp**
	watt	**W**	Btu per hour	**Btu/hr**
			Btu per minute	**Btu/min**
Pressure or stress (Force per area)				
	kilopascal	**kPa**	pound per square inch	**psi**
			inch of mercury	**inHg**
	pascal	**Pa**	inch of water	**inH2O**
	megapascal	**MPa**	pound per square inch	**psi**

Typical applications	Metric unit		Imperial unit	
	Name	**Symbol**	**Name**	**Symbol**
Temperature (other than Thermodynamic)				
	degrees Celsius	**°C**	degrees Fahrenheit	**°F**
Time				
	hour	**h**	hour	**h**
	minute	**min**	minute	**min**
	second	**s**	second	**s**
Torque (includes Bending moment, Moment of force, and Moment of a couple)				
	newton meter	**N m**	pound foot	**lb ft**
			pound foot	**lb in**
Velocity				
	kilometer per hour	**km/h**	mile per hour	**mph**
	meter per second	**m/s**	foot per second	**ft/s**
	millimeter per second	**mm/s**	inch per second	**in/s**
	meter per minute	**m/min**	foot per minute	**ft/min**
Volume (includes Capacity)				
	cubic meter	**mm³**	cubic yard	**yd³**
				cu yd
	liter	**l**	cubic inch	**in³**
	liter	**l**	US gallon	**US gal**
			UK gallon	**UK gal**
			US quart	**US qt**
			UK quart	**UK qt**
	milliliter	ml	fluid ounce	**fl oz**
Volume per time (includes Discharge and Flow rate)				
	cubic meter per minute	**m³/min**	cubic foot per minute	**ft³/min**
	liter per minute	**l/min**	US gallon per minute	**US gal/min**
	milliliter per minute	**ml/min**	UK gallon per minute	**UK gal/min**
Sound power level and Sound pressure level				
	decibel	**dB**	decibel	**dB**

Capacities

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)**

Fuel tank

Specification:	No. 2 ultra low sulfur diesel
Capacity:	**151 l (40 US gal)**

Cooling system

Specification:	**CNH XHD PREMIX (50 %** water and **50 %** ethylene glycol)
Capacity:	
Without heater	**16.1 l (17.0 US qt)**
With heater	**16.8 l (17.8 US qt)**

Hydraulic system

Specification:	**CASE AKCELA HY-TRAN® ULTRA™ HYDRAULIC TRANSMISSION OIL**
Capacity:	
Total system	**77 l (81 US qt)**
Reservoir with filter change	**55 l (58 US qt)**
Reservoir without filter change	**53 l (56 US qt)**

Transmission

Specification:	**CASE AKCELA HY-TRAN® ULTRA™ HYDRAULIC TRANSMISSION OIL**	
Capacity:		
	Two wheel drive	Four wheel drive
Total system	**17.0 l (18.0 US qt)**	**19.9 l (21 US qt)**
Refill (with or without filter change)	**10.4 l (11.0 US qt)**	**13.2 l (14.0 US qt)**

Front drive 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)**

Rear axle

Specification:	**TUTELA TRANSAXLE FLUID SAE 80W-140**
Capacity:	**13.6 l (14.4 US qt)**

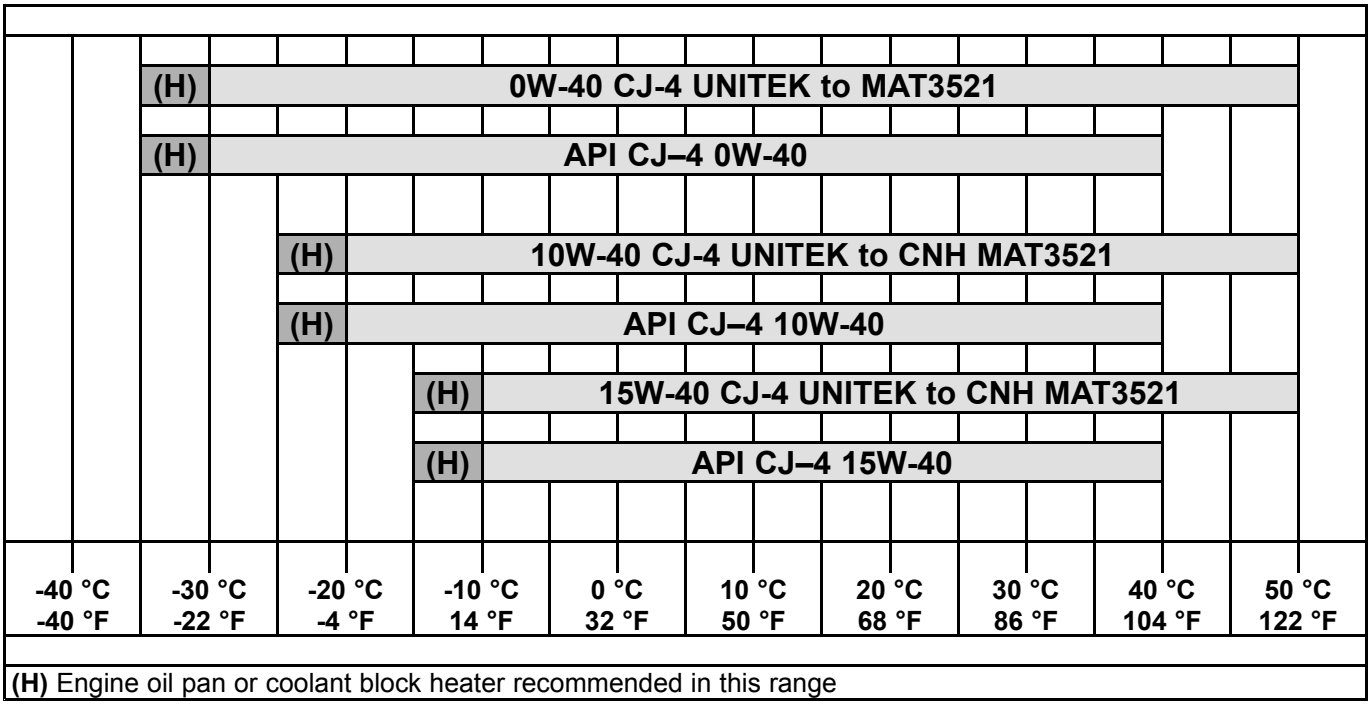
Brake master cylinder

Brake fluid supplied by the transmission.

Consumables

CJ-4 Oils – Tier 4 F5C emissions equipped machines

Recommended operating temperature range



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

Dye and black light procedure for detecting oil leaks

Oils and grease have natural phosphors and will illuminate differently under the black light. Oil, bluish-white, grease, brilliant-white, anti-freeze, greenish-yellow, sealing compounds, red to orange.

Kit part number 380040182 consisting of:

Part Number	Description	Unit of measurement	Comments	Usage
380002254	Black Light	—	12 Volt Ultra Violet Light	—
380002357	Dye-uniglow F2HF	**10 ml** (**0.34 US fl oz**)	Glows Green in Black Light	Engine Oil / Crankcase
380002358	Dye-uniglow F4HF	**65 ml** (**2.2 US fl oz**)	Glows Yellow in Black Light	Hydraulic Oil
380002359	Dye-uniglow 1750	**10 ml** (**0.34 US fl oz**)	Glows Purple in Black Light	Transmission Oil

NOTE: *Each dye is formulated to work in conjunction with a specific fluid, therefore the dyes are not interchangeable and should only be used as described.*

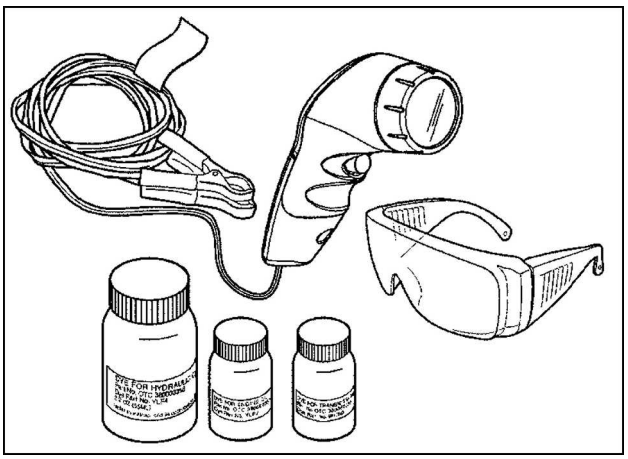
1. Prior to adding dye, connect the black light to the machines battery and investigate suspected areas.
2. Once suspected leak areas are found, attempt to trace the leak completely to the origin.

   NOTE: *At the origin, the leak should be the brightest in color.*
3. After confirmation of the suspected leak, thoroughly clean the area of the leak to remove any existing fluids. Recheck the area with the black light to assure the area is clean. Good cleaning is important for the following reasons:
   - Fluids captured by threaded joints or other cavities will continue to show signs of leakage unless completely clean.
   - Casting surfaces can hold residual oil.
4. Use the entire contents of the bottle of dye in the system/systems of the suspected leak.
5. Run the unit for 5 to 10 minutes and cycle through suspect system functions to ensure that the dye is available to all possible leak points.

   NOTE: *The hydraulic oil should be heated to* ***71 °C*** *(****160 °F****), engine at normal operating temperature, and transmission should be in the normal operating range on the gauge.*
6. Use a clean cloth and wipe the dipstick or the inside surface of the filler tube on each of the 3 sumps.
7. View traces of dyed fluid on the cloth under the black light to ensure good samples.
8. Use these 3 samples as your baseline when inspecting the unit with the black light.

   NOTE: *High hour engine oil can reduce the effectiveness of the dye. In this event change the oil.*
9. Avoid common errors.
   - Fan airflow blowing leaking fluid.
   - Gravity pulling leak paths down.
   - When paint at a joint is not broken, the joint is not leaking.

   NOTE: *It is not necessary to change oils after this check.*



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Diesel fuel

Use No. 2 diesel fuel in the engine of this machine. The use of other fuels can cause the loss of engine power and high fuel consumption.

In very cold temperatures, a mixture of No. 1 and No. 2 diesel fuels is temporarily permitted.

NOTICE: *See your fuel dealer for winter fuel requirements in your area. If the temperature of the fuel is below the cloud point (wax appearance point), wax crystals in the fuel will cause the engine to lose power or not start.*

The diesel fuel used in this machine must meet the specifications in the chart or Specification D975-81 of the American Society for Testing and Materials.

Specifications for acceptable No. 2 Diesel Fuel	
API gravity (minimum)	34
Flash point (minimum)	**60 °C** (**140 °F**)
* Cloud point (maximum)	**-20 °C** (**-4 °F**)
* Pour point (maximum)	**-26 °C** (**-15 °F**)
Viscosity (at)	**88 °C** (**190 °F**)
Centistokes	**(2.0)** to **(4.3)**
Saybolt Seconds Universal	**(32)** to **(40)**
* Refer to the Notice on this page.	

Fuel Storage

If you keep fuel in storage for a period of time, you can get foreign material or water in the fuel storage tank. Many engine problems are caused by water in the fuel.

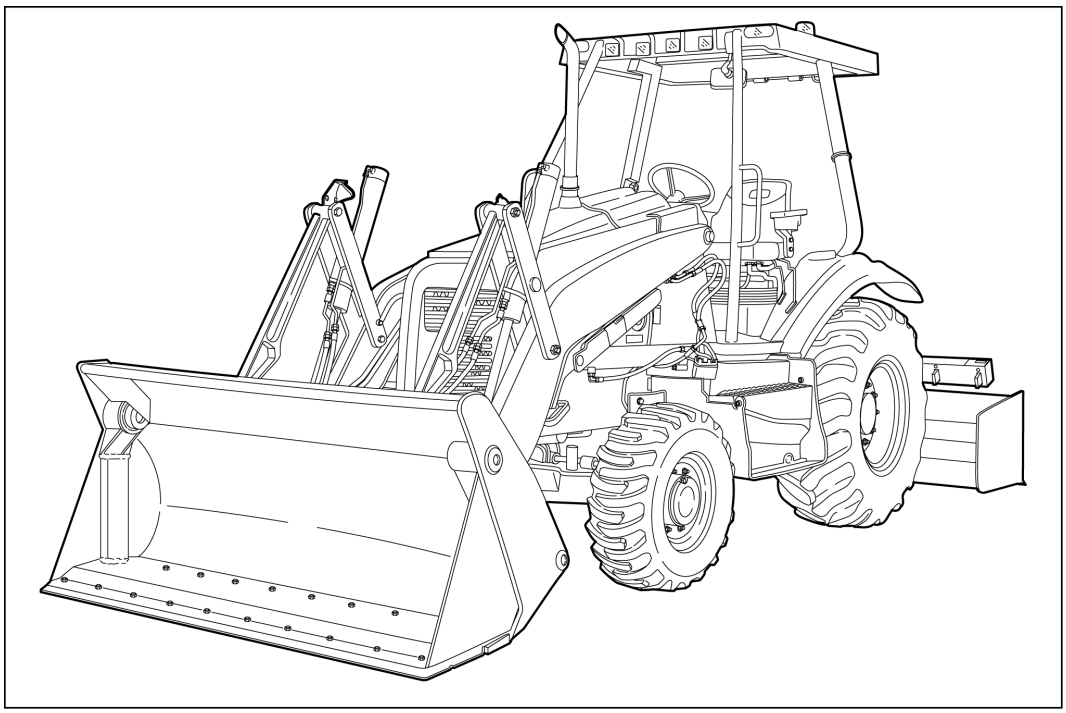
Keep the fuel storage tank outside and keep the fuel as cool as possible. Remove water from the storage container at regular periods of time.

CONSUMABLES INDEX

CASE CONSTRUCTION

SERVICE MANUAL

Engine



570NXT

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CONSUMABLES INDEX

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570NXT

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Engine - General specification

Model	Diesel, F5HFL413D*A
Type	Four cylinder, turbocharged
Firing order	1 - 3 - 4 - 2
Bore and stroke	99mm x 110mm (3.9 in x 4.33 in)
Displacement	**3.4 l** (**207 in³**)
Compression ratio	16.5 to 1
Fuel injection	Direct HPCR
Horsepower - rated at **2200 RPM** Gross Net with 39° fan	 **63 kW** (**85 Hp**) **58 kW** (**79 Hp**)
Peak torque at **1400 RPM** Gross Net with 39° fan Maximum torque rise	 **374 N·m** (**276 lb ft**) **364 N·m** (**268 lb ft**) 36% ± **5 RPM**

Engine - Speeds stall test check sheet

Results from stall test procedure (fill in values accordingly)

ID	RPM test valve	Stall test component (specified value)
1		Loader hydraulic stall speed (**2200 - 2330 RPM**)
2		Torque converter stall speed (**2150 - 2310 RPM**)
3		Combined - loader hydraulic and torque converter - stall speed (**1610 - 1890 RPM**)

Stall test reference chart

ID	RPM	Results
1 2 3	2230 to 2330 2180 to 2310 1610 to 1890	All systems operating within normal specified RPM values.
1 2 3	Above 2330 Above 2310 Above 1890	Engine problem. Check engine speeds. Refer to the engine service manual.
1 2 3	Below 2230 Below 2180 Below 1610	Engine problem. Check engine speeds. Replace the fuel and air filters. Refer to the engine service manual.
1 2 3	Below 2230 2180 to 2310 Below 1610	Hydraulic system problem(s). Check the setting of the main relief valve. Check the output of the hydraulic pump.
1 2 3	Above 2330 2180 to 2310 Above 1890	Hydraulic system problem(s). Check the setting of the main relief valve. Check the output of the hydraulic pump. Check for leakage in the loader control valve.
1 2 3	2230 to 2330 2180 to 2310 1610 to 1890	Hydraulic system problem(s). Check the setting of the main relief valve. Check the output of the hydraulic pump.
1 2 3	2230 to 2330 2180 to 2310 1610 to 1890	Hydraulic system problem(s). Check the setting of the main relief valve. Check the output of the hydraulic pump.
1 2 3	2230 to 2330 Above 2310 Above 1890	Torque converter or transmission problems.
1 2 3	2230 to 2330 Below 2180 Below 1610	Torque converter or transmission problems.

Engine - Exploded view

1.	Bolt	6.	Nut
2.	Washer	7.	Bolt
3.	Bracket, Left hand engine mount	8.	Washer
4.	Mount	9.	Bracket, Right hand engine mount
5.	Washer		