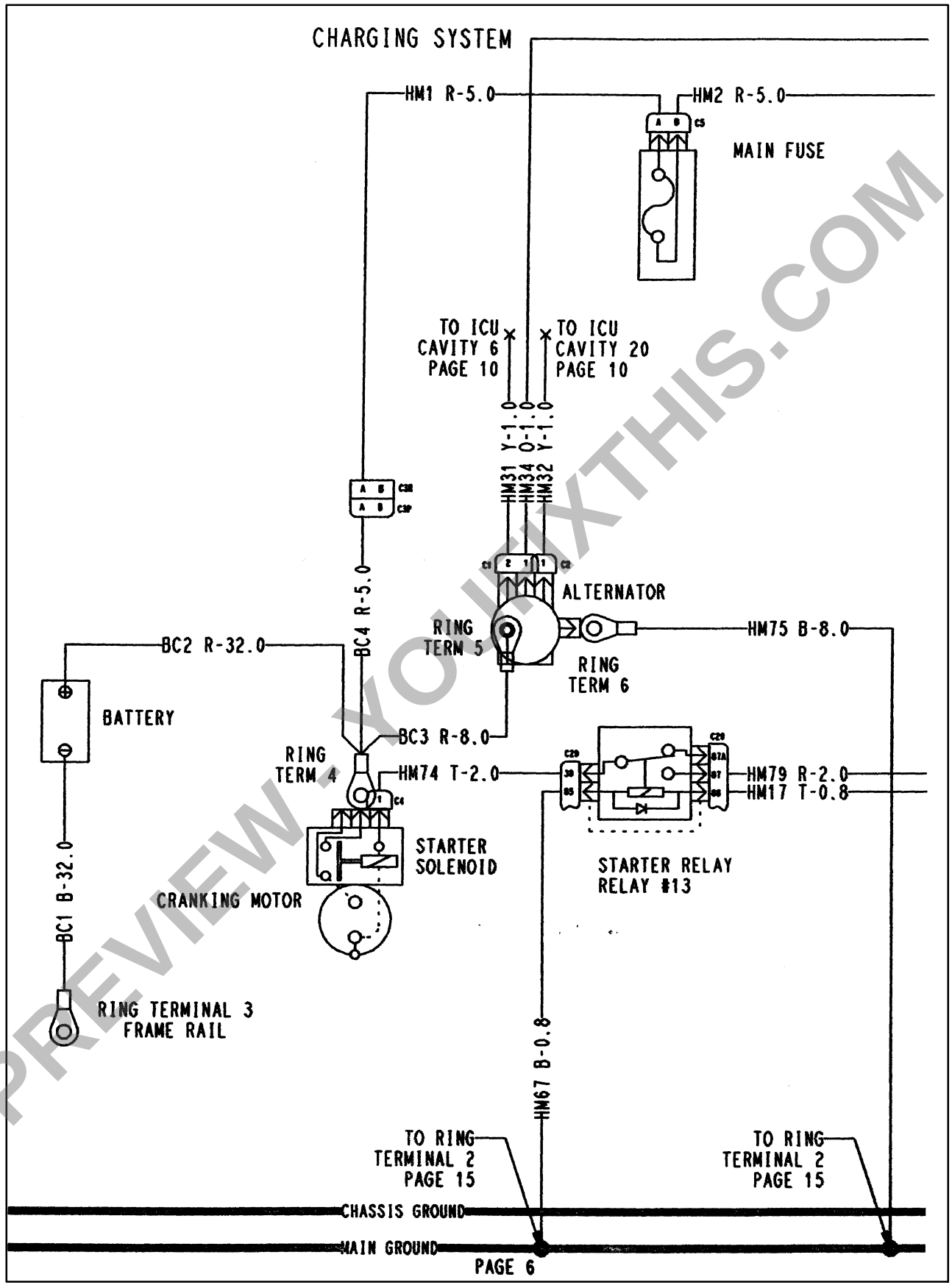


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Bleeding the Injector Lines

Bleed the injector lines if:

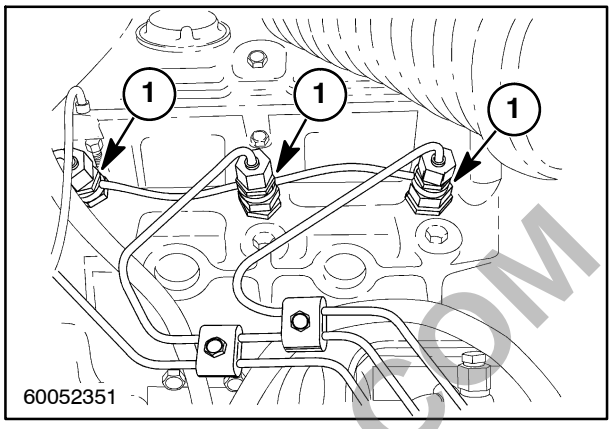
- the tractor has run out of fuel.
- new injectors have been installed.
- the injection pump has been removed for service repairs.

To bleed the injector lines:

1. Loosen the injector line fittings, 1, at the injectors.
2. Move the hand throttle control lever to its wide open position.
3. Crank the engine until air-free fuel flows from each connection, then tighten the fittings to 24 – 29 N·m (18 – 22 ft-lb).

IMPORTANT: *If air is not purged from the system, repeat the above procedures.*

Do not crank the engine continuously for more than 30 seconds as this may cause starting motor failure.

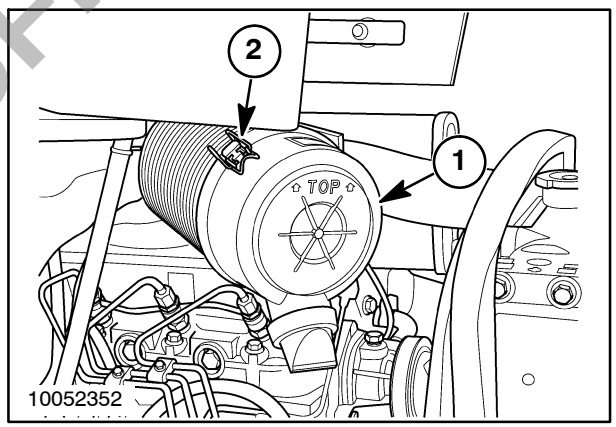


11

AIR CLEANER

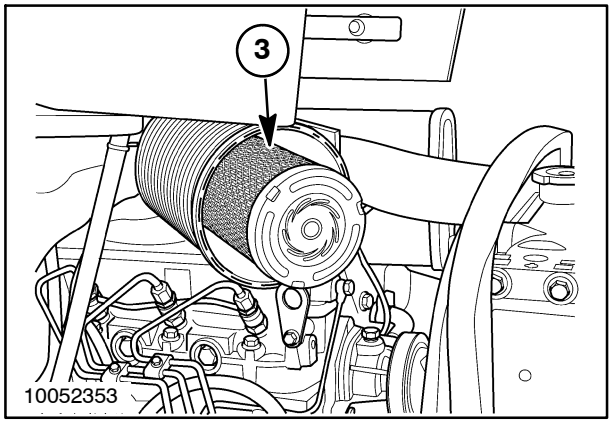
The air cleaner, 1, is accessed by opening the tractor hood.

The air cleaner assembly contains two elements: an outer primary element and an inner safety element.



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To remove the primary element, release the clips, 2, on the end cap. Remove the end cap from the air cleaner body to expose the primary element, 3.



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MINIMUM HARDWARE TIGHTENING TORQUES

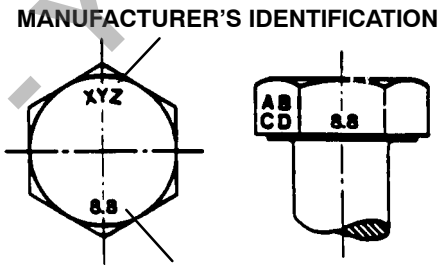
IN NEWTON-METERS (FOOT POUNDS) FOR NORMAL ASSEMBLY APPLICATIONS

METRIC NON-FLANGED HARDWARE AND LOCKNUTS

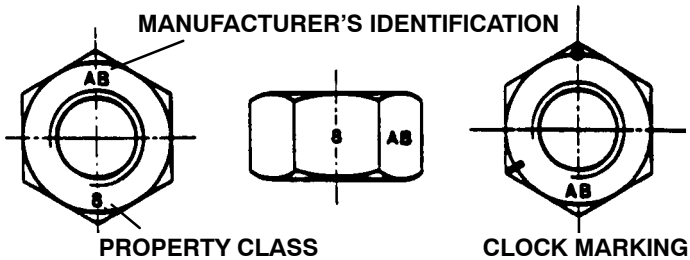
NOMINAL SIZE	CLASS 5.8		CLASS 8.8		CLASS 10.9		LOCKNUT CL.8 W/CL8.8 BOLT
	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr	
M4	1.7 (15)*	2.2 (19)*	2.6 (23)*	3.4 (30)*	3.7 (33)*	4.8 (42)*	2.3 (20)*
M6	5.8 (51)*	7.6 (67)*	8.9 (79)*	12 (102)*	13 (115)*	17 (150)*	7.8 (69)*
M8	14 (124)*	18 (159)*	22 (195)*	28 (248)*	31 (274)*	40 (354)*	19 (169)*
M10	28 (21)	36 (27)	43 (32)	56 (41)	61 (45)	79 (58)	38 (28)
M12	49 (36)	63 (46)	75 (55)	97 (72)	107 (79)	138 (102)	66 (49)
M16	121 (89)	158 (117)	186 (137)	240 (177)	266 (196)	344 (254)	164 (121)
M20	237 (175)	307 (226)	375 (277)	485 (358)	519 (383)	671 (495)	330 (243)
M24	411 (303)	531 (392)	648 (478)	839 (619)	897 (662)	1160 (855)	572 (422)

NOTE: Torque values shown with * are inch pounds.

IDENTIFICATION
HEX CAP SCREW AND CARRIAGE BOLTS
CLASSES 5.6 AND UP



HEX NUTS AND LOCKNUTS
CLASSES 05 AND UP



86529681 REV F 5.1

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FUEL AND LUBRICANT SERVICE PROCEDURES

ENGINE

Checking the Engine Oil Level

NOTE: *Check the engine oil level daily or after every 10 hours of operation.*

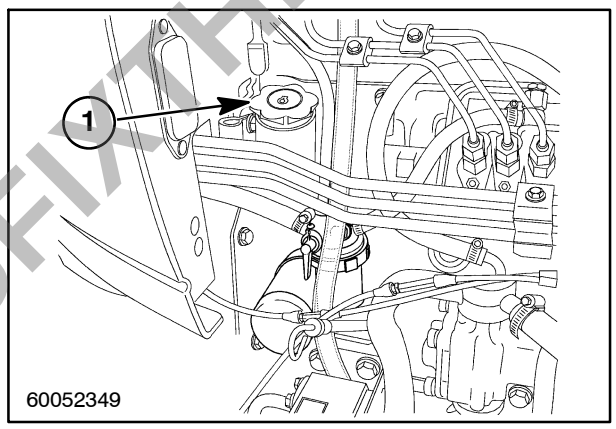
1. After the engine has been stopped for a period of time and with the tractor standing level, check the oil level using the dipstick.



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2. If the oil level is low, remove the filler cap, 1, and add oil through the filler hole. Add enough oil so that the level registers between the two marks on the dipstick. Do not overfill.

NOTE: *Slowly add oil into the filler neck, if oil is added rapidly, the possibility of oil spilling over the filler neck could occur.*



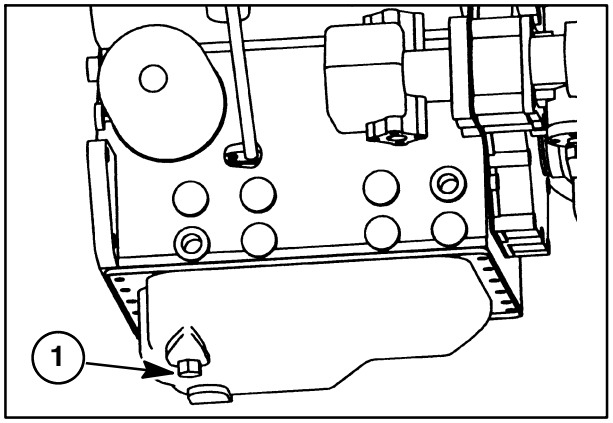
4

Changing the Engine Oil

NOTE: *Change the engine oil and filter after the first 50 hours of operation, then every 100 hours thereafter. If the tractor is operated for extended periods of time at maximum rated power and speed, or under other types of continuous, severe operating conditions, the engine oil and filter should be changed at 70 hour intervals following the initial oil change.*

To change the engine oil:

1. Place a suitable container beneath the drain opening to catch the used oil. With the tractor engine off but at normal operating temperature, remove the drain plug, 1. Reinstall the plug after all of the oil has been drained.



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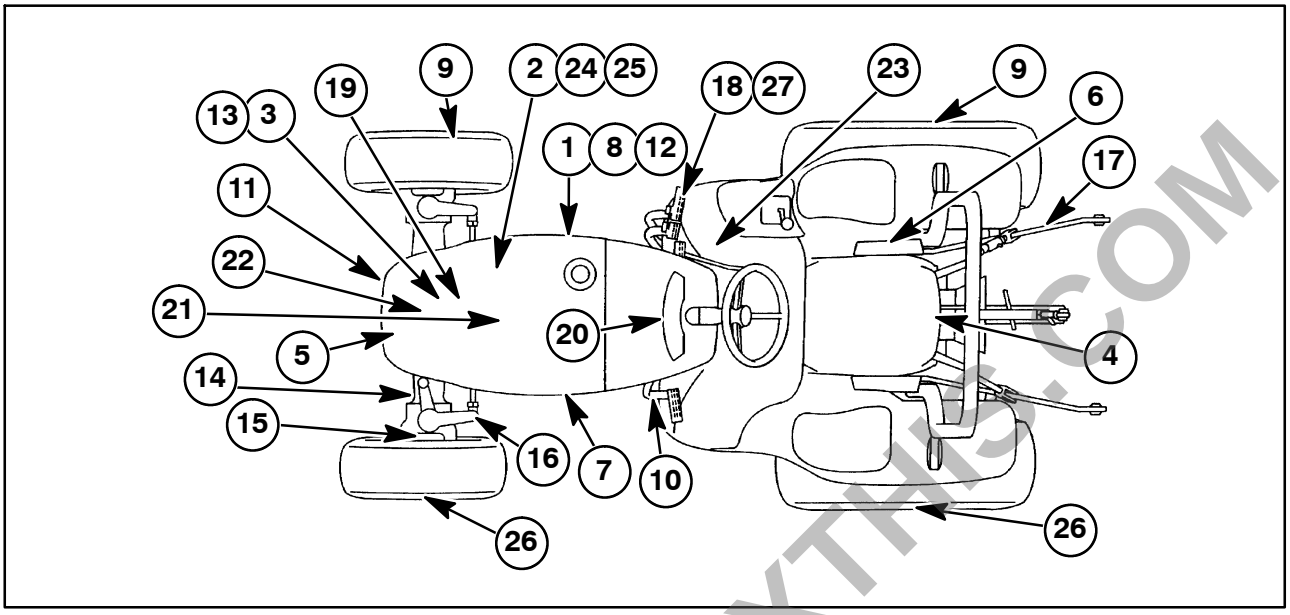
SECTION 4
SPECIFICATIONS

	Model DX31—Hydrostatic/Gear	Model DX34—Hydrostatic
ENGINE		
Type	Diesel	Diesel
Engine Gross Horsepower	23.1 kw (31 hp)	26.1 kw (35 hp)
Cylinders	3	3
Bore	84 mm (3.31 in)	84 mm (3.31 in)
Stroke	90 mm (3.54 in)	100 mm (3.94 in)
Displacement	1.50 L (91.3 cu. in.)	1.65 L (101.1 cu. in.)
Compression Ratio	22.2:1	23.3:1
Firing Order	1-2-3	1-2-3
Low Idle Speed	1100 ± 50 RPM	1100 ± 50 RPM
Maximum Speed:		
High Idle	2840 ± 25 RPM	2840 ± 25 RPM
Rated	2600 RPM	2600 RPM
Valve Clearance (Cold):		
Intake	0.20 mm (0.008 in)	0.20 mm (0.008 in)
Exhaust	0.20 mm (0.008 in)	0.20 mm (0.008 in)
CAPACITIES		
Fuel Tank	27.6 liters/ 7.3 U.S. gals.	27.6 liters/ 7.3 U.S. gals.
Cooling System	5.2 liters/ 5.5 U.S. qts.	5.2 liters/ 5.5 U.S. qts.
Engine Crankcase:		
With Filter	4.5 liters/ 4.8 U.S. qts.	4.5 liters/ 4.8 U.S. qts.
Rear Axle & Transmission (Includes Hydraulics)		
Gear	32.5 liters/ 8.6 U.S. gals.	
HST	33.3 liters/ 8.8 U.S. gals.	33.3 liters/ 8.8 U.S. gals.
Front Axle Final Reduction	0.8 liters/ 0.85 U.S. qts.	0.8 liters/ 0.85 U.S. qts.
Differential Gear Case	1.4 liters/ 1.5 U.S. qts.	1.4 liters/ 1.5 U.S. qts.

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LUBRICATION AND MAINTENANCE CHART
CASE IH DX31, DX34 — FRONT-WHEEL DRIVE



1

NO.	LUBRICATION & MAINTENANCE ITEMS	CHECK	CLEAN	LUBE	CHANGE	ADJUST	SERVICE INTERVALS
1	Engine Oil Level	X					Every 10 Hours or Daily
2	Air Cleaner	X					
3	Radiator Coolant	X					
4	Transmission Oil Level	X					
5	Radiator Fins		X				
6	Hydraulic Filter				X		First 50 Hours
7	H.S.T. Filter				X		
1, 8	Engine Oil & Filter				X		
9	Tire Pressure	X					
12	Fuel Filter				X		
26	Wheel Bolt Torque	X					
—	All Fluid Levels	X					
27	Brake Pedal Free Play	X					
8	Tires	X					Every 50 Hours
10	Clutch Pedal	X		X		X	
11	Battery	X					
13	Fan Belt	X					
14	Front Axle Oil Level	X					
15	Final Reduction Gear Cases Oil Level	X					
27	Brake Pedal Free Play	X					
	Lubrication Fittings:						
16	Steering Linkage			X			
17	3-Point Linkage			X			
18	Brake Pedal			X			
19	Power Steering Cylinder			X			
20	Pedal Shaft			X			
21	Drive Cover Shaft			X			
22	Pivot Shaft			X			
23	H.S.T. Pedal Pivot			X			

NO.	LUBRICATION & MAINTENANCE ITEMS	CHECK	CLEAN	LUBE	CHANGE	ADJUST	SERVICE INTERVALS
1, 8	Engine Oil & Filter				X		Every 100 Hours
2	Air Cleaner Element		X				
12	Fuel Filter		X				
27	Brake Pedal Free Play					X	Every 200 Hours
12	Fuel Filter Element				X		
13	Fan Belt					X	
26	Wheel Bolt Torque	X					
4	Transmission Oil				X		Every 300 Hours
6	Hydraulic Filter				X		
7	H.S. T. Filter				X		
15	Front Axle Oil				X		
16	Final Reduction Gear Cases Oil				X		
24	Fuel Injector	X			X	X	Every 600 Hours *Refer to Repair Manual
25	Valve Clearance	X				X	
2	Air Cleaner Element				X		Seasonal
3	Radiator Coolant				X		
2	Safety Air Filter Element				X		Every 3rd Primary Element Change or Every **1000** Hours, Whichever Comes First

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SECTION 2
OPERATION

CONTROLS AND INSTRUMENTS

SEAT, SEAT BELT, AND ROLLOVER PROTECTIVE STRUCTURE (ROPS)

Adjusting the Tractor Seat

Your Case IH tractor is equipped with an adjustable suspension seat.

To move the seat fore and aft, raise the release lever, 1. Because the seat is on an inclined base, more effort is required to move the seat rearward than forward.

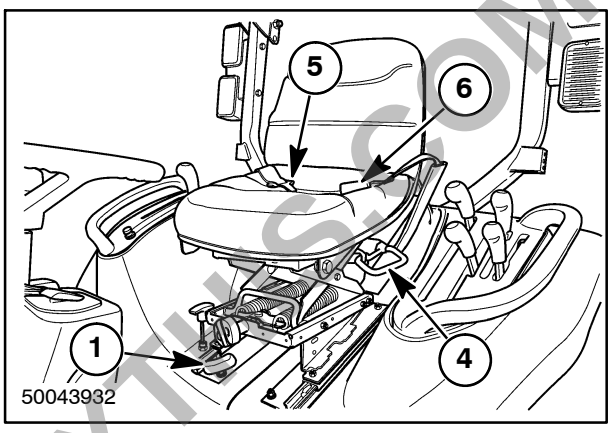
To adjust the flotation of the seat, pull out handle, 2, on knob, 3. Rotate the handle clockwise for a firmer ride or counterclockwise for a softer ride.

To swivel the seat, raise the handle, 4, and swivel in the desired direction. The seat will swivel and lock at 10° or 20° to the right or the left.

NOTE: *Care of vinyl, plastic, and rubber parts to MAXIMIZE life:*

For cleaning of vinyl, plastic, and rubber parts, use “ONLY” a mild car washing soap and water, as described below:

“First remove any loose dirt by rinsing with clean water. Mix a warm, mild liquid CAR WASHING soap solution (1 part soap and 99 parts water). Then using a sponge or soft cloth, apply the soap solution to the part. Allow the solution to soak for a few minutes to loosen the dirt. Finally, rinse the part with clean water to remove the dirt, and any solution residue. If all the dirt does not come off, repeat the procedure.”



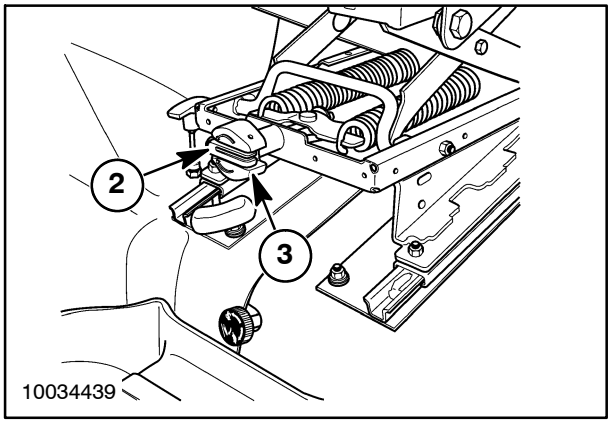
1

Adjusting the Seat Belt

The male end of the seat belt, 5, is part of a retraction mechanism, located on left side of the seat. To extend length of seat belt, pull out on male end until correct length is obtained. To latch seat belt, insert male end into belt latch, 6, located on right side of seat. Make sure belt is securely buckled and belt length is adjusted correctly for size of operator.

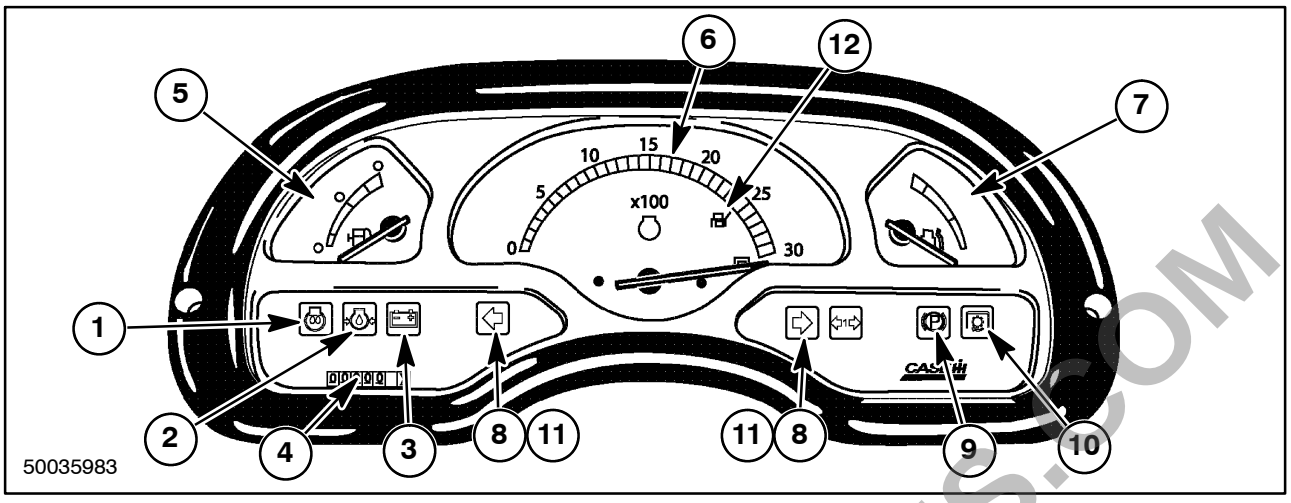
Use soap and water to clean the seat belt if necessary. Do not use carbon tetrachloride, naphtha, etc., as these substances will weaken the webbing. Additionally, do not bleach or redye the webbing, as these products will also weaken the webbing.

Replace the seat belt if it becomes damaged or worn.



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INSTRUMENT PANEL

1. **Cold Starting Indicator Light** – Illuminates when the key switch is first turned to the "ACC/RUN" position. It remains lit for approximately four seconds, during which time the glow plugs are heating the precombustion chambers.
2. **Engine Oil Pressure Warning Light** – Illuminates with the key switch in the "ON" position and remains lit for a short period of time after the engine is started. The light indicates oil pressure only and goes out when sufficient oil pressure is present at the oil sender. If the bulb becomes lit during operation, stop the tractor engine immediately and investigate the cause.
3. **Battery Charge Warning Light** – Illuminates when the key switch is in the "ON" position and goes out when the engine is started. If this bulb becomes lit during operation, it indicates that the charging system is not operating normally. As the battery can become fully discharged under these conditions, the problem should be investigated as soon as possible.
4. **Proof Meter** – Records the hours and portions of hours that your tractor has been operated regardless of engine RPM. Use the proof meter as a guide to determine hourly service and maintenance intervals.
5. **Fuel Gauge** – Indicates the amount of diesel fuel remaining in the tank. The gauge is activated when the key switch is in the "ON" position. It will resister "empty" with the key switch in the "STOP" position.
6. **Tachometer** – Registers engine RPM (Revolutions Per Minute). The gauge is marked in increments of 100 and will return to zero when the engine is not running.
7. **Temperature Gauge** – Indicates coolant temperature. It is activated when the key switch is turned to the "ON" position. The gauge will register cold with the key switch in the "STOP" position. If the needle registers in the green range of the gauge, this indicates a normal operating temperature. If the needle moves to the red portion of the gauge, this indicates an overheated condition. Stop the tractor engine immediately and investigate the cause.
8. **Flasher Warning Lights** – Operate when the flasher switch is turned on, regardless of the key switch position. Use the flasher warning lights and the SMV emblem when traveling on public roads, day or night.
9. **Parking Brake Light** – Illuminates if the parking brake is engaged when the key switch is turned from the "OFF" position.
10. **PTO On Indicator** – When either the rear or mid PTO is engaged, the indicator will be illuminated amber with the key in the "START" or "ON" positions.
11. **Flasher Turn Lights** – Operate when the turn signal switch is moved upwards for right turns the right arrow will flash and moved downwards for left turns the left arrow will flash. The key switch has to be in the "ACC/RUN" or "START" positions.
12. **PTO Speed Indicator** – Determined by the position of the needle on the tachometer. The tachometer is marked to indicate 540 PTO RPM. If the needle registers above the 540 RPM mark, this indicates a dangerous over speed condition, and the engine RPM should be reduced immediately.

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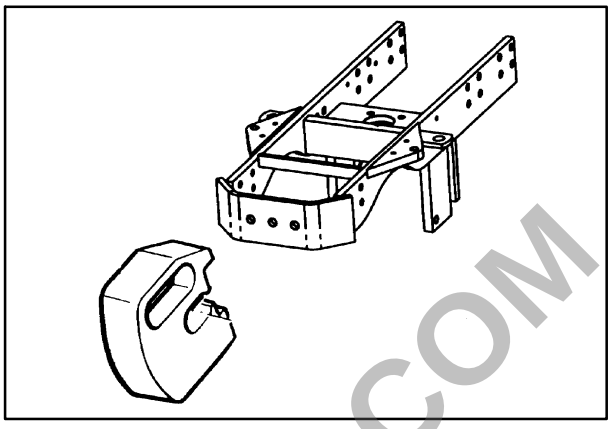
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CAST IRON WEIGHTS (OPTIONAL)

Cast iron weights are available as accessories from your Case IH Dealer. Weights can be mounted on the front end of the tractor and on the rearmost wheels.

Front Weights

Tire Type	Weight(s)
Agricultural, Turf, & Industrial	Maximum of (2) weights per tractor @ 26 kg (57 lb) each – 52 kg (114 lb) total Optional: (2) weights @ 45 kg (100 lb) each – 90 kg (200 lb) total



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Front Weight Carrier Bracket #718233006 (Optional)

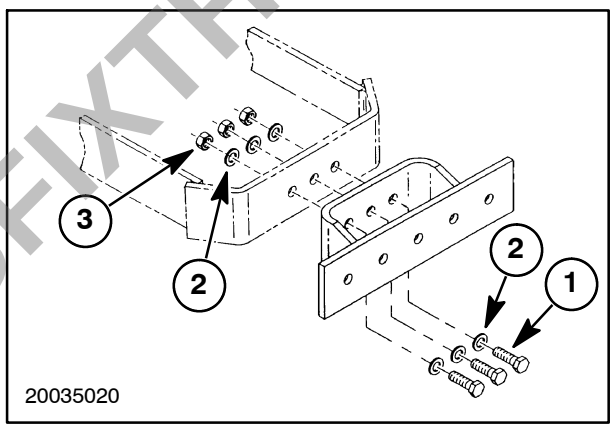
An extension mounting bracket is available, which can be installed on the front of the tractor frame. The extension mounting bracket is used if more than two front end weights are needed for counterbalancing. When the extension bracket is installed, a maximum of (5) front weights can be installed.

Weight options:

(5) 60 lb weights, for a maximum of 300 lb

(5) 100 lb weights, for a maximum of 500 lb

NOTE: *The front extension mounting bracket, is compatible with a front grill guard but not with a LX114 loader installed.*



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Extension Bracket (Mounting Hardware)

Item	Qty.	Description
1	3	5/8 in x 2 hex head bolt
2	6	5/8 in flat washer
3	3	5/8 in nut

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SAFETY

PRECAUTIONARY STATEMENTS

A careful operator is the best operator. Most accidents can be avoided by observing certain precautions. To help prevent accidents, read the following precautions before operating this equipment. Equipment should be operated only by those who are responsible and instructed to do so.

Carefully review the procedures given in this manual with all operators. It is important that all operators be familiar with and follow safety precautions.

THE TRACTOR

1. **Read the Operator's Manual carefully before using the tractor. Lack of operating knowledge can lead to accidents.**
2. **Use an approved roll bar and seat belt for safe operation. Overturning a tractor without a roll bar can result in death or injury. If your tractor is not equipped with a roll bar and seat belt, see your Case IH Dealer.**
3. **Always use the seat belt. The only instance when the seat belt should not be used is if the roll bar has been removed from the tractor.**
4. **If a front end loader is to be installed, always use a FOPS (Falling Object Protective Structure) canopy to avoid injury from falling objects.**
5. **Use the handholds and step plates when getting on and off the tractor to prevent falls. Keep steps and platform cleared of mud and debris.**
6. **Do not permit anyone but the operator to ride on the tractor. There is no safe place for extra riders.**
7. **Keep all safety decals clean of dirt and grime, and replace all missing, illegible, or damaged safety decals. See the list of decals in the Decal section of this manual.**

SERVICING THE TRACTOR

1. **The cooling system operates under pressure which is controlled by the radiator cap. It is dangerous to remove the cap while the system is hot. Always turn the cap slowly to the first stop and allow pressure to escape before removing the cap entirely.**
2. **Keep any type of open flame away from the tractor and do not smoke while refueling. Wait for the engine to cool before refueling.**
3. **Keep the tractor and equipment, particularly brakes and steering, maintained in a reliable and satisfactory condition to ensure your safety and comply with legal requirements.**
4. **Keep open flame or cold weather starting aids away from the battery to prevent fires or explosions. Use jumper cables according to instructions to prevent sparks which could cause explosion.**
5. **Stop the engine before performing any service on the tractor.**
6. **Escaping hydraulic/diesel fluid under pressure can penetrate the skin causing serious injury. If fluid is injected into the skin, obtain medical attention immediately or gangrene may result.**
   - **DO NOT use your hand to check for leaks. Use a piece of cardboard or paper to search for leaks.**
   - **Stop the engine and relieve pressure before connecting or disconnecting lines.**
   - **Tighten all connections before starting the engine or pressurizing lines.**
7. **Do not modify or permit anyone else to modify or alter this tractor or any of its components or functions without first consulting a Case IH Dealer.**
8. **The fuel oil in the injection system is under high pressure and can penetrate the skin. Unqualified persons should not remove or attempt to adjust a pump, injector, nozzle, or any other part of the fuel injection system. Failure to follow these instructions can result in serious injury.**
9. **Continuous long-term contact with used engine oil may cause skin cancer. Avoid prolonged contact with used engine oil. Wash skin promptly with soap and water.**

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FEDERAL EMISSIONS WARRANTY

(North America Only)

(California owner's emissions warranty is covered elsewhere)

CNH UK Ltd warrants that your new 1996 and later heavy-duty off-road diesel engine was designed, built, and equipped to conform to applicable U.S. Environmental Protection Agency regulations for a period of use of five years or 3,000 hours of operation, whichever occurs first.

The new model year, class of diesel engine, and emission application determination for your engine are identified on the emission control information label affixed to the engine. The warranty period begins on the date the new equipment is sold to the first retail purchaser.

Any emission control system parts which are proven defective during normal use will be repaired or replaced during the warranty period. The warranty repairs and service will be performed by any authorized CNH dealer at the dealer's place of business, with no charge for parts or labor (including diagnosis).

As the engine owner, you are responsible to perform all the required maintenance listed in your owner's manual. CNH UK Ltd will not deny an emission warranty claim solely because you have no record of maintenance; however, a claim may be denied if your failure to perform maintenance resulted in the failure of a warranted part. Receipts covering regular maintenance should be retained in the event of questions and these receipts should be passed on to each subsequent owner of the engine.

It is recommended replacement parts used for maintenance or repairs be CNH Service Parts to maintain the quality originally designed into your emission certified engine. The use of non-CNH parts does not invalidate the warranty on other components unless the use of such parts causes damage to warranted parts.

CNH UK Ltd wishes to assure the emission control systems warranty is being properly administered. If you believe you have not received the service entitled to under this warranty, you should contact the nearest CNH Office for assistance. The address and phone number of each Office is in your equipment owner's manual. If additional assistance or information is needed, contact:

Service Department
CNH America, LLC
500 Diller Avenue
New Holland, PA 17557
(717) 355-1121

Please note that the Emission Warranty does not cover:

1. Systems and parts that were not first installed on the new equipment or engine as original equipment by CNH UK Ltd.
2. Part malfunctions caused by abuse, misuse, improper adjustment, modification, alteration, tampering, disconnection, improper or inadequate maintenance, or use of non-recommended fuels and lubricating oils.
3. Accident caused damage, acts of nature, or other events beyond CNH UK Ltd's control.
4. Replacement of expendable items made in connection with scheduled maintenance.
5. Parts requiring replacement, inspection or adjustment maintenance intervals for reasons other than being defective.
6. Parts which are not CNH Service Parts.
7. Loss of time, inconvenience, loss of use of equipment/engine or commercial loss.
8. Equipment with altered or disconnected hourmeter where the hours cannot be determined.
9. Equipment normally operated outside the United States.
10. Non-defective parts replaced by other than CNH dealers.

Coverage

This emission control system warranty applies only to the following emission control parts.

Electronic Control Unit
Fuel Injection Pump
Fuel Injectors
Turbocharger
Intake Manifold
Exhaust Manifold
Boost Pressure Tubing-connection to Aneroid Device ON F.I.P.

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