DX18E, DX24E Tractors
MWX154S, MWX160S Mower Decks

Operator's Manual

87302211

CASE IH

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CONTENTS

SAFETY 0-7

GENERAL INFORMATION 1-1

OPERATION 2-1

LUBRICATION AND MAINTENANCE 3-1

MWX154S, MWX160S MOWER DECK 4-1

SPECIFICATIONS 5-1

INDEX 5-9

PREDELIVERY SERVICE 5-11

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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

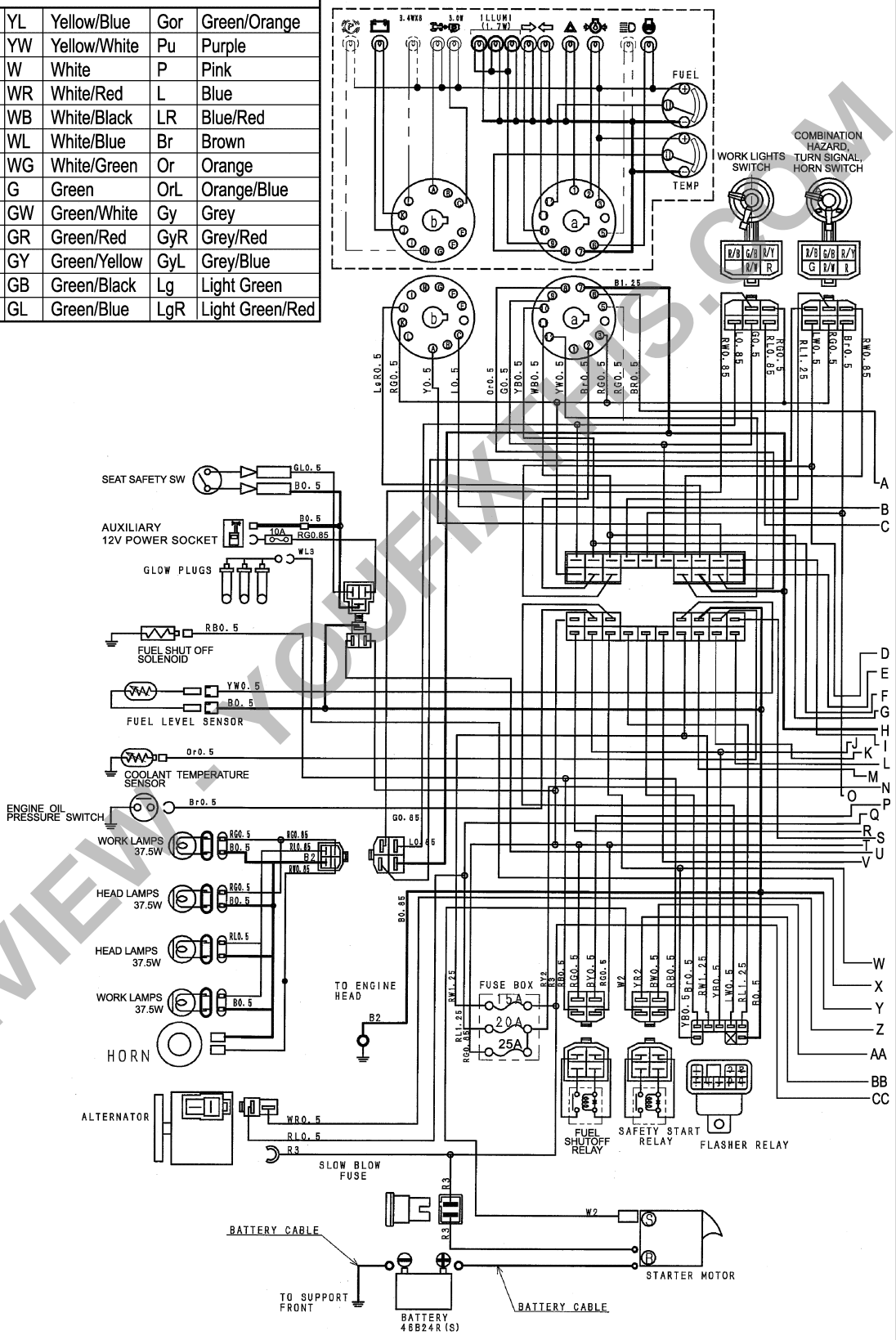
1. **The cooling system operates under pressure which is controlled by the radiator cap. It is dangerous to remove the cap while the system is hot. Always turn the cap slowly to the first stop and allow pressure to escape before removing the cap entirely.**
2. **Keep any type of open flame away from 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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ELECTRICAL WIRING DIAGRAM

Wire Color Codes					
B	Black	YL	Yellow/Blue	Gor	Green/Orange
BY	Glack/Yellow	YW	Yellow/White	Pu	Purple
BW	Black/White	W	White	P	Pink
R	Red	WR	White/Red	L	Blue
RW	Red/White	WB	White/Black	LR	Blue/Red
RB	Red/Black	WL	White/Blue	Br	Brown
RY	Red/Yellow	WG	White/Green	Or	Orange
RL	Red/Blue	G	Green	OrL	Orange/Blue
RG	Red/Green	GW	Green/White	Gy	Grey
Y	Yellow	GR	Green/Red	GyR	Grey/Red
YR	Yellow/Red	GY	Green/Yellow	GyL	Grey/Blue
YB	Yellow/Black	GB	Green/Black	Lg	Light Green
YG	Yellow/Green	GL	Green/Blue	LgR	Light Green/Red



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MINIMUM HARDWARE TIGHTENING TORQUES

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

INCH HARDWARE AND LOCKNUTS

NOMINAL SIZE	SAE GRADE 2		SAE GRADE 5		SAE GRADE 8		LOCKNUTS		NOMINAL SIZE
	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	GR.B w/GR5 BOLT	GR.C w/GR8 BOLT	
1/4	55* (6.2)	72* (8.1)	86* (9.7)	112* (13)	121* (14)	157* (18)	61* (6.9)	86* (9.8)	1/4
5/16	115* (13)	149* (17)	178* (20)	229* (26)	250* (28)	324* (37)	125* (14)	176* (20)	5/16
3/8	17 (23)	22 (30)	26 (35)	34 (46)	37 (50)	48 (65)	19 (26)	26 (35)	3/8
7/16	27 (37)	35 (47)	42 (57)	54 (73)	59 (80)	77 (104)	30 (41)	42 (57)	7/16
1/2	42 (57)	54 (73)	64 (87)	83 (113)	91 (123)	117 (159)	45 (61)	64 (88)	1/2
9/16	60 (81)	77 (104)	92 (125)	120 (163)	130 (176)	169 (229)	65 (88)	92 (125)	9/16
5/8	83 (112)	107 (145)	128 (174)	165 (224)	180 (244)	233 (316)	90 (122)	127 (172)	5/8
3/4	146 (198)	189 (256)	226 (306)	293 (397)	319 (432)	413 (560)	160 (217)	226 (306)	3/4
7/8	142 (193)	183 (248)	365 (495)	473 (641)	515 (698)	667 (904)	258 (350)	364 (494)	7/8
1	213 (289)	275 (373)	547 (742)	708 (960)	773 (1048)	1000 (1356)	386 (523)	545 (739)	1

NOTE: Torque values shown with * are inch pounds.

IDENTIFICATION
CAP SCREWS AND CARRIAGE BOLTS



SAE GRADE 2 | SAE GRADE 5 | SAE GRADE 8

REGULAR NUTS | SAE GRADE 5 HEX NUTS | SAE GRADE 8 HEX NUTS

LOCKNUTS



GRADE IDENTIFICATION
GRADE A NO NOTCHES
GRADE B ONE CIRCUMFERENTIAL NOTCH
GRADE C TWO CIRCUMFERENTIAL NOTCHES



GRADE IDENTIFICATION
GRADE A NO MARKS
GRADE B THREE MARKS
GRADE C SIX MARKS
MARKS NEED NOT BE LOCATED AT CORNERS



GRADE A NO MARK
GRADE B LETTER B
GRADE C LETTER C
GRADE IDENTIFICATION

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TROUBLESHOOTING

The following troubleshooting guide is for the mower and its drive. This assumes the tractor engine is running to prescribed specifications and the tractor hydraulics are working properly. Consult the applicable Tractor Repair Manual for all tractor system checks.

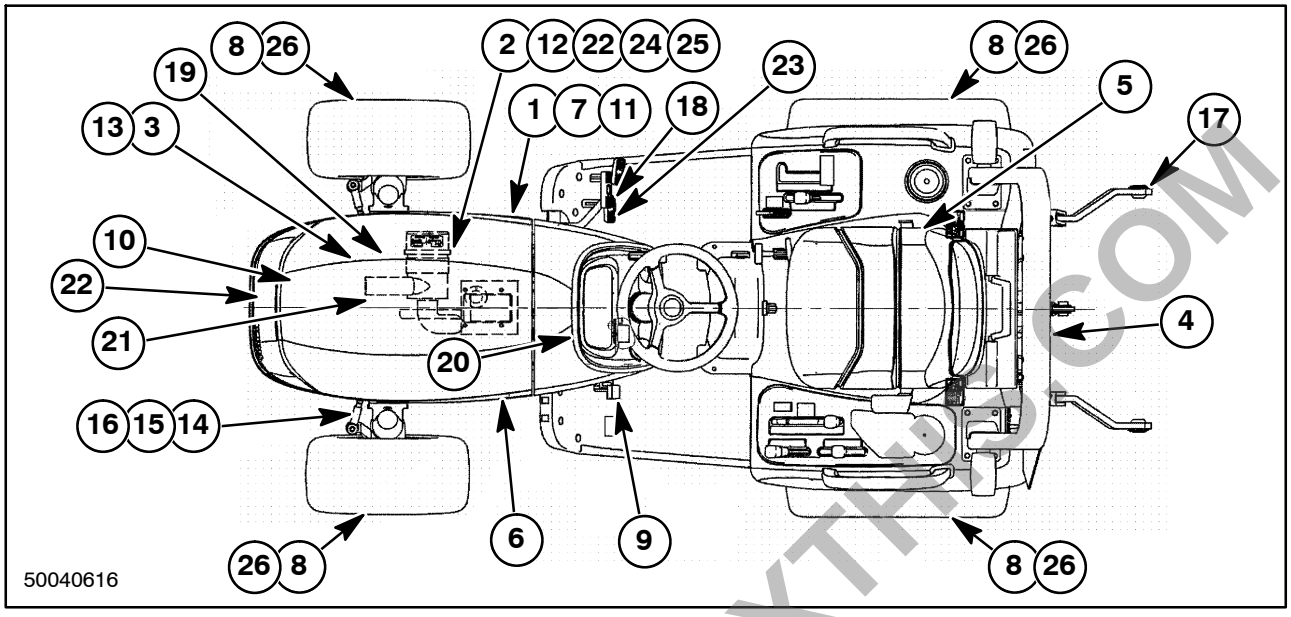
Before attempting any repair or test, observe the general condition of the tractor and mower. Make certain the tractor is operating properly and the mower is setup correctly. The following charts may give you some hints in solving a problem with the mower. If the problem cannot be easily solved, contact your Case IH Service Repair Dealer.

SYMPTOM	PROBLEM	CORRECTION
Excessive Vibration	Loose gearbox bolts.	Re-torque or replace as necessary.
	Loose spindle/blade fasteners.	Re-torque or replace as necessary.
	Damaged gearbox.	Rebuild gearbox as necessary.
	Worn or damaged driveline U-joints.	Rebuild driveline as necessary.
	Blade interference with grass buildup.	Clean the underside of the deck.
	Blades unbalanced.	Balance blades.
	Blade broken.	Replace mowing blades in sets.
Gearbox Overheating	Low on lubricant.	Fill to oil level plug.
	Debris buildup on top of deck around gearbox.	Clean deck top and remove debris.
Gearbox Noisy	Worn or rough bearings.	Replace bearings.
	Worn or rough gears.	Run-in gears, or rebuild gearbox.
Gearbox Leaking	Damaged oil seal.	Replace oil seal.
	Damaged shaft in seal area.	Replace shaft and oil seal.
	Oil seal installed wrong, or upside down.	Replace oil seal.
	Oil level too high in housing.	Drain oil to correct level.
	Cracked or broken housings.	Replace housings or gearbox assembly.
	Gasket damaged.	Replace liquid gasket.
	Bolts loose.	Re-torque bolts.
Blades Wear Too Fast	Cutting in sandy conditions.	Increase deck cutting height.
	Cutting in rocky conditions.	Increase deck cutting height.
	Heat treat removed by sharpening with grinder.	Replace blades in sets.
Not Cutting Clean	Blades dull.	Sharpen or replace blades.
	Blades installed upside down.	Install blades correctly.
	Blade RPM too low.	Use full throttle position.
	Mower not level.	See cutting height adjustments, Tires under inflated.
	Tractor tires mashing grass.	Too wet or lush to cut. Reverse direction of cut and re-mow the area.
	Ground speed too fast.	Reduce ground speed.
	Excessive grass buildup under mower deck.	Clean underside of deck.

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LUBRICATION AND MAINTENANCE CHART
CASE IH DX18E/DX24E — FRONT-WHEEL DRIVE



1

NO.	LUBRICATION & MAINTENANCE ITEMS	CHECK	CLEAN	LUBE	CHANGE	ADJUST	SERVICE INTER-VALS
1	Engine Oil Level	X					Every 10 Hours or Daily
2	Air Cleaner	X					
3	Radiator Coolant	X					
4	Transmission Oil Level	X					
5	Hydraulic Filter				X		First 50 Hours
6	H.S.T. Filter				X		
1, 7	Engine Oil & Filter				X		
8	Tire Pressure	X					
11	Fuel Filter				X		
26	Wheel Bolt Torque	X					
—	All Fluid Levels	X					
8	Tires	X					Every 50 Hours
9	Battery	X					
10	Fuel Filter	D	R	A	I	N	
12	Fan Belt	X					
13	Front Axle Oil Level	X					
14	Final Reduction Gear Cases Oil Level	X					
	Lubrication Fittings:						
16	3-Point Linkage			X			
17	Brake Pedal			X			
18	Pedal Shaft			X			
19	H.S.T. Pedal Pivot			X			
1, 7	Engine Oil & Filter				X		Every 100 Hours
2	Air Cleaner Element		X				
10	Secondary Fuel Filter		X				

NO.	LUBRICATION & MAINTENANCE ITEMS	CHECK	CLEAN	LUBE	CHANGE	ADJUST	SERVICE INTER-VALS
20	Brake					X	Every 200 Hours
10	Fuel Filter Element				X		
12	Fan Belt					X	
21	Wheel Bolt Torque	X					
	Steering Free Play	X				X	
4	Transmission Oil				X		Every 300 Hours
5	Hydraulic Filter				X		
6	H.S.T. Filter				X		
13	Front Axle Oil				X		
14	Final Reduction Gear Cases Oil				X		
24	Primary Fuel Filter				X		
22	Fuel Injector	X				X	Every 600 Hours
23	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 5
SPECIFICATIONS

	Model DX18E Hydrostatic	Model DX24E Hydrostatic
ENGINE		
Type	S753 Diesel	S773 Diesel
Engine Gross Horsepower	18.0	24.0
Cylinders	3	3
Bore 75 mm (2.95″)	75 mm (2.95″)	77 mm (3.03″)
Stroke	72 mm (2.83″)	72 mm (2.83″)
Displacement	0.954 L (58.2 cu. in.)	1.005 L (61.3 cu. in.)
Compression Ratio	23.1:1	23.1:1
Firing Order	1 – 2 – 3	1 – 2 – 3
Low Idle Speed	1300 ± 50 RPM	1300 ± 50 RPM
Maximum Speed		
High Idle	3200 ± 50 RPM	3200 ± 50 RPM
Rated	3000 ± 50 RPM	3000 ± 50 RPM
Valve Clearance (Cold):		
Intake	0.20 mm (0.008″)	0.20 mm (0.008″)
Exhaust	0.20 mm (0.008″)	0.20 mm (0.008″)
CAPACITIES		
Fuel Tank	29.5 liters/ 7.8 U.S. gals.	29.5 liters/ 7.8 U.S. gals.
Cooling System	3.5 liters/ 3.7 U.S. qts.	3.5 liters/ 3.7 U.S. qts.
Engine Crankcase		
With Filter	4.0 liters/ 4.24 U.S. qts.	4.0 liters/ 4.24 U.S. qts.
Rear Axle & Transmission	13 liters/ 13.8 U.S. qts.	13 liters/ 13.8 U.S. qts.
Power Steering	Using Transmission Oil (Common Use)	Using Transmission Oil (Common Use)
Front Axle Differential/ Final Reduction Gear Case	2.0 liters/ 2.12 U.S. qts.	2.0 liters/ 2.12 U.S. qts.

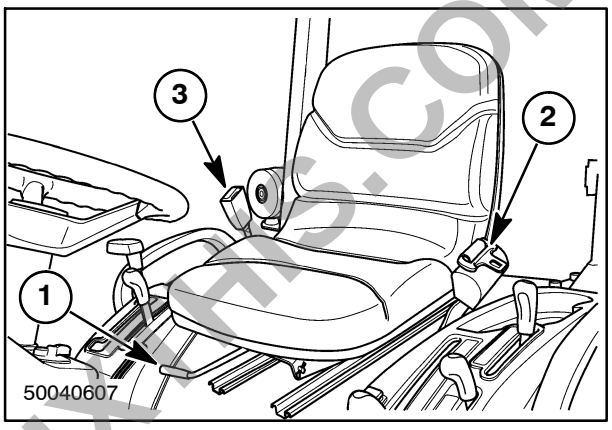
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SECTION 2
OPERATION

CONTROLS AND INSTRUMENTS

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



1

Adjusting the Tractor Seat
Your Case IH tractor is equipped with an adjustable-position seat.

To adjust the seat fore-and-aft, raise the release lever, 1, slide the seat along its mounting rails to the desired position, and release the lever. Because the seat is on an inclined base, more effort is required to move the seat rearward than forward.

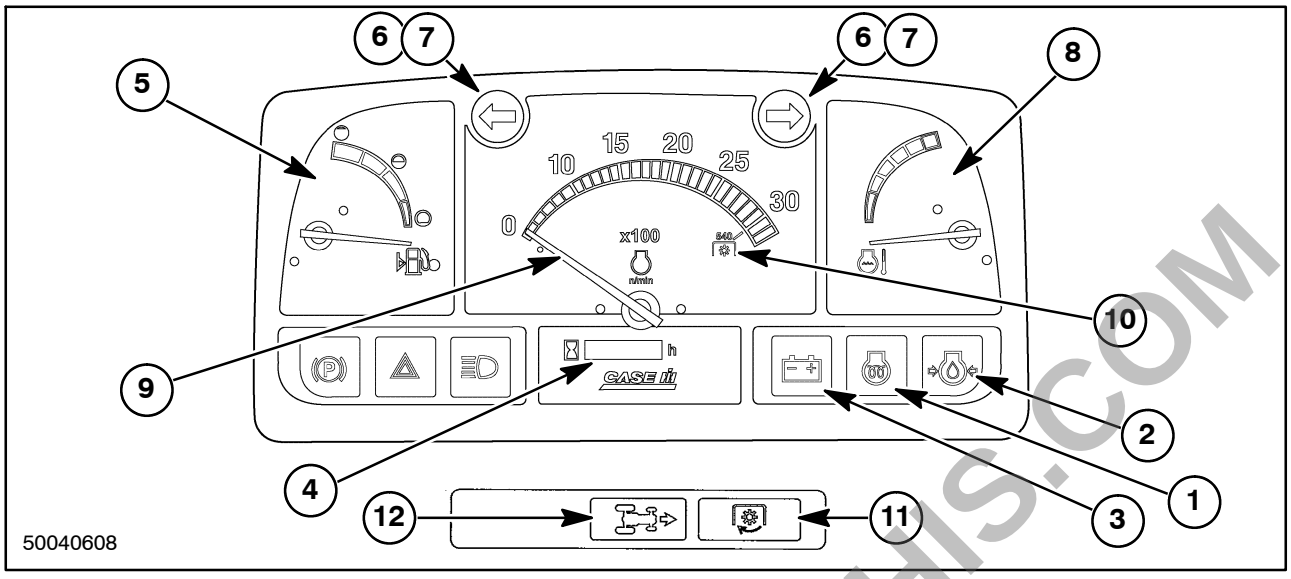
Adjusting the Seat Belt
The male end of the seat belt, 2, is part of a retraction mechanism, located on the left side of the seat. To extend the length of the seat belt, pull out on the male end until the correct length is obtained. To latch the belt, insert the male end, 2, into the belt latch, 3, located on the right side of the seat. Ensure that the belt is securely latched during use, and that the belt length is correctly adjusted for the size of each 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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3

INSTRUMENT PANEL

1. **Cold Starting Indicator Light**— Illuminates when the key switch is turned to the “HEAT” position. It remains lit for approximately 5 seconds when the key is held in position, 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” or “HEAT” positions 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” or “HEAT” positions 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 based on an average engine speed of 3000 RPM. Engine speeds below 3000 RPM accumulate engine hours at a slower rate than clock hours. Engine speeds above 3000 RPM accumulate engine hours faster than clock hours. 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” or “HEAT” positions. It will register empty with the key switch in the “STOP” position.
6. **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.
7. **Flasher Turn Lights**—Operate when the turn signal switch is activated. Rotate the switch to the right for right turns, the right arrow will flash. Rotate the switch to the left for left turns, the left arrow will flash. The key switch has to be in the “RUN” position.
8. **Temperature Gauge**—Indicates coolant temperature. It is activated when the key switch is turned to the “ON” or “HEAT” positions. 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.
9. **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.
10. **Rear PTO Speed**—Determined by the position of the needle on the tachometer. The tachometer is marked to indicate 540 PTO RPM. Engine RPM should remain close to this mark while using the rear PTO; running the engine faster than this results in a dangerous overspeed condition.
11. **PTO Indicator Light**—Illuminates with the key switch in the “ON” position and the PTO clutch lever engaged. This light indicates that the PTO clutch is engaged.
12. **HST Cruise Control Indicator Light**—Illuminates with the key switch in the “ON” position and the cruise control engaged. This light indicates that the HST cruise control is engaged.

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Bleeding the Injector Lines

Bleed the injector lines if:

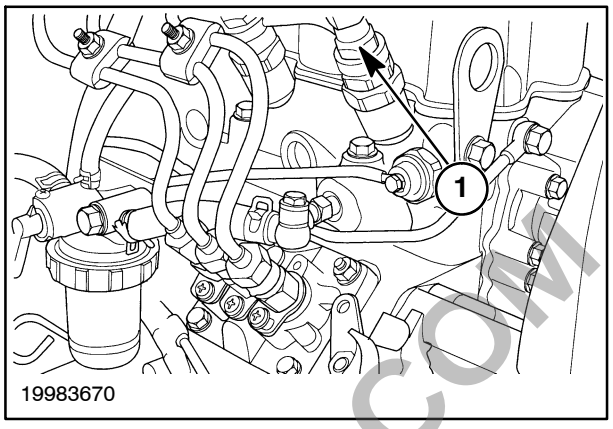
- the tractor has run out of fuel.
- new injectors have been installed.
- the injection pump has been removed for service repairs.

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. lbs.).

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 starter motor failure.

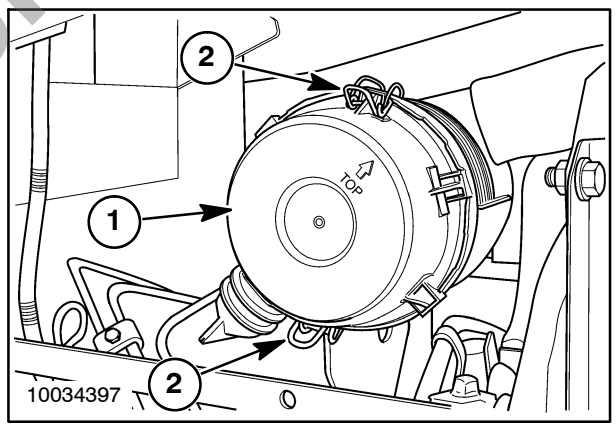


11

AIR CLEANER

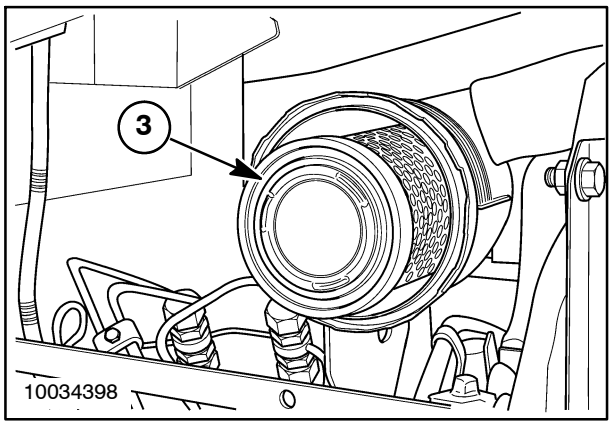
The air cleaner, 1, is accessed by opening the tractor hood.

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



12

To remove the primary element, loosen the spring clamps, 2, and remove the end cap from the air cleaner body to expose the primary element, 3.



13

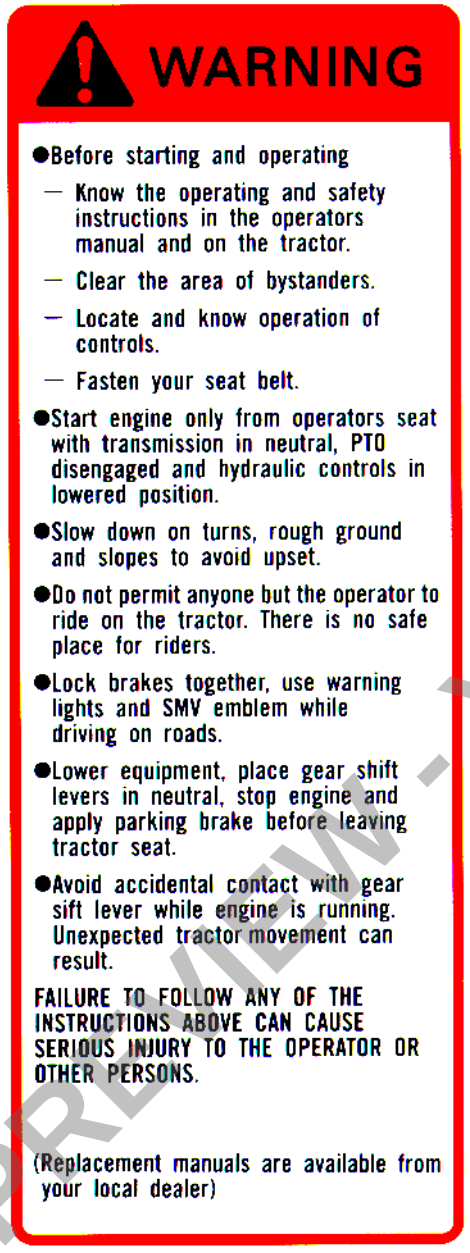
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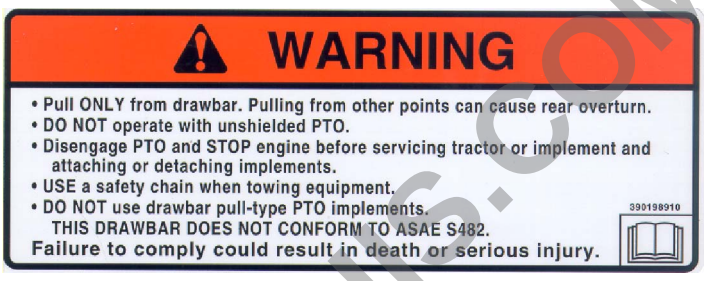
SAFETY DECALS

The following safety decals have been placed on your machine in the areas indicated. They are intended for your personal safety and for those working with you. Please take this manual and walk around your machine to note the content and location of these warning signs. Review these warning signs and the operating instructions detailed in this manual with your machine operators.

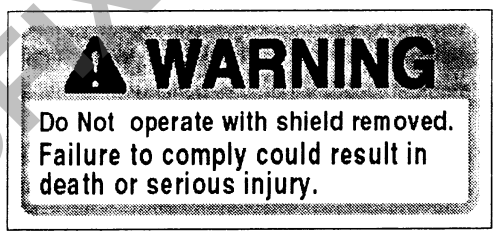
Keep the decals legible. If they are not, obtain replacements from your authorized dealer. The decal replacement part numbers are listed with each decal.



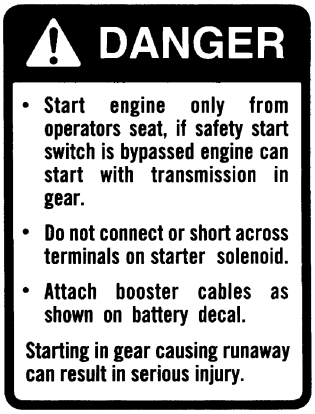
WARNING: Before Starting and Operating
PART NO: SBA390198380
LOCATION: In Front of Operator's Seat
Left Side of Platform



WARNING: Pull Only From Drawbar
PART NO: SBA390198910
LOCATION: Top of PTO Shield



WARNING: Do Not Operate With Shield Removed
PART NO: SBA390198480
LOCATION: Inside of Engine Side Shields



DANGER: Start Engine Only from Operator's Seat
PART NO: SBA190196683
LOCATION: On the Starting Motor

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