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DX29, DX33 Tractors

PIN Number HBA010001 and Above

Operator's Manual

87310108

CASE IH

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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

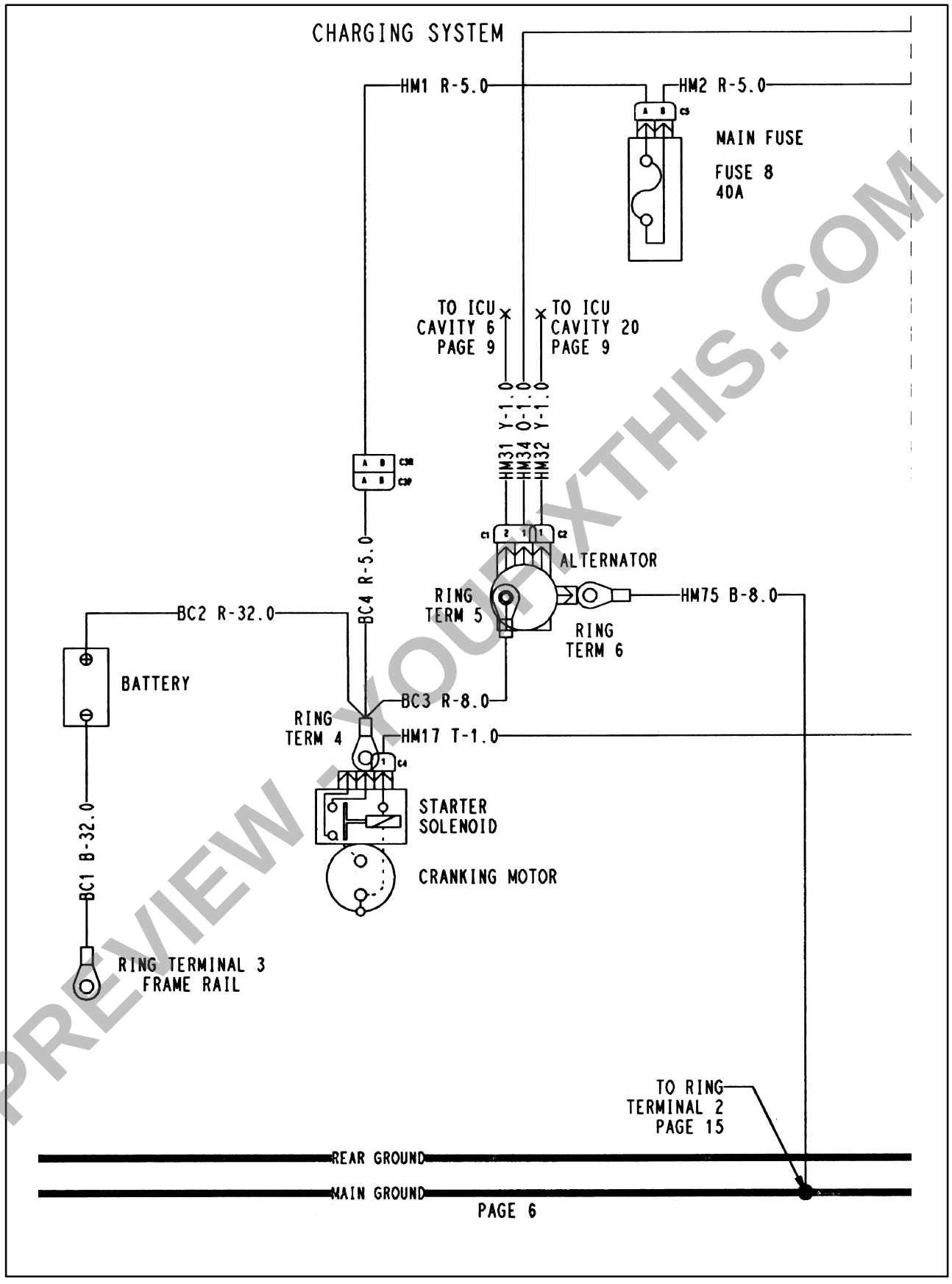
1. **Read the Operator's Manual carefully before using the tractor. Lack of operating knowledge can lead to accidents.**
2. **Use an approved roll bar and seat belt for safe operation. Overturning a tractor without a roll bar can result in death or injury. If your tractor is not equipped with a roll 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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REAR WHEEL WEIGHT INSTALLATION

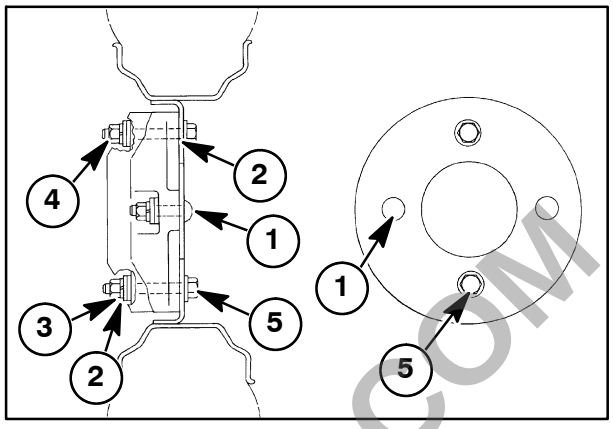
(Ag. Tire)

Hardware needed one weight installed per wheel:

Item	Qty	Description
1	4	5/8″ x 3-1/2″ carriage bolt
2	8	5/8″ flat washer
3	4	5/8″ lock washer
4	4	5/8″ nut

Hardware needed two weights installed per wheel:

Item	Qty	Description
1	2	5/8″ x 3-1/2″ carriage bolt
2	10	5/8″ flat washer
3	4	5/8″ lock washer
4	4	5/8″ nut
5	2	5/8″ x 7″ cap screw



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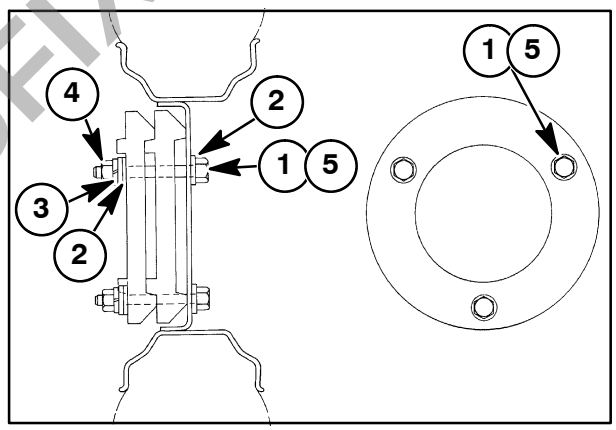
(R4 Tire) (Weight installed with flat side facing outward)

Hardware needed one weight installed per wheel:

Item	Qty	Description
1	3	1/2″ x 4″ cap screw
2	9	1/2″ flat washer
3	3	1/2″ lock washer
4	3	1/2″ nut

Hardware needed two weights installed per wheel:

Item	Qty	Description
2	9	1/2″ flat washer
3	3	1/2″ lock washer
4	3	1/2″ nut
5	3	1/2″ x 6-1/2″ cap screw



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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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SECTION 2
OPERATION

CONTROLS AND INSTRUMENTS

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

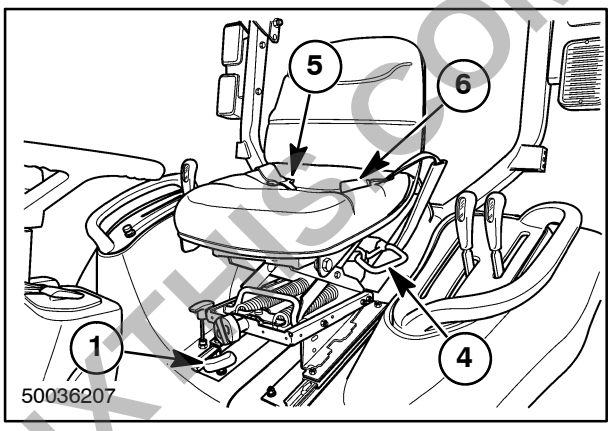
Adjusting the Tractor Seat

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.



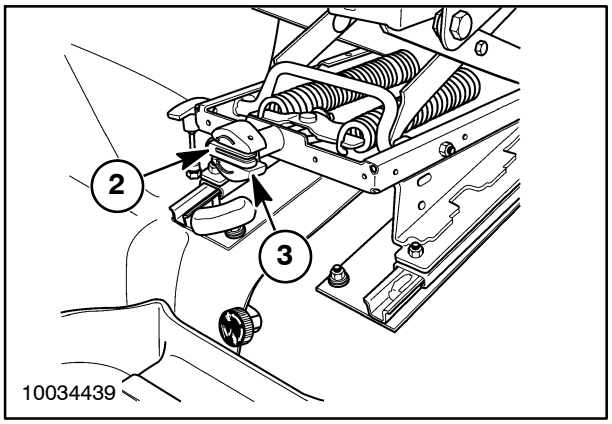
1

Adjusting the Seat Belt

The male end of the seat belt, 5, is part of a retraction mechanism, located on right 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 left 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.



2

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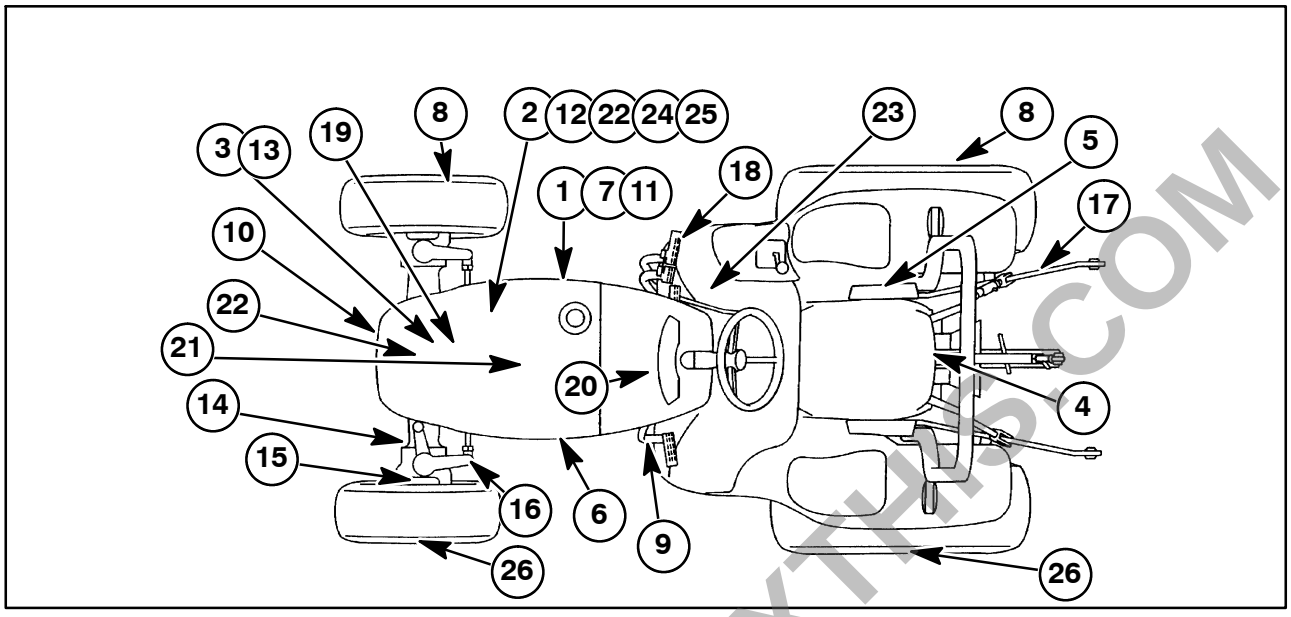
SECTION 4
SPECIFICATIONS

	Model DX29—Hydrostatic/Gear	Model DX33—Hydrostatic/Gear
ENGINE		
Type	Diesel	Diesel
Engine Gross Horsepower	21.6 kw (29)	24.6 kw (33)
Cylinders	3	3
Bore	84 mm (3.31″)	84 mm (3.31″)
Stroke	80 mm (3.15″)	90 mm (3.54″)
Displacement	1.33 L (81.2 cu. in.)	1.50 L (91.3 cu. in.)
Compression Ratio	22.7:1	22.2:1
Firing Order	1-2-3	1-2-3
Low Idle Speed	1000 RPM	1000 RPM
Maximum Speed:		
High Idle	3040 RPM	3040 RPM
Rated	2800 RPM	2800 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	27.6 liters/ 7.3 U.S. gals.	27.6 liters/ 7.3 U.S. gals.
Cooling System	4.0 liters/ 4.2 U.S. qts.	4.0 liters/ 4.2 U.S. qts.
Engine Crankcase:		
With Filter	4.0 liters/ 4.2 U.S. qts.	4.0 liters/ 4.2 U.S. qts.
Rear Axle & Transmission (Includes Hydraulics)		
Gear	32.5 liters/ 8.6 U.S. gals.	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.
Power Steering	1.6 liters/ 1.7 U.S. qts.	1.6 liters/ 1.7 U.S. qts.
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 DX29, DX33 — 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	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	Clutch Pedal	X		X		X	
10	Battery	X					
12	Power Steering Oil Level	X					
13	Fan Belt	X					
14	Front Axle Oil Level	X					
15	Final Reduction Gear Cases Oil Level	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, 7	Engine Oil & Filter				X		Every 100 Hours
2	Air Cleaner Element		X				
11	Fuel Filter		X				
8	Brake					X	Every 200 Hours
11	Fuel Filter Element				X		
13	Fan Belt					X	
26	Wheel Bolt Torque	X					
4	Transmission Oil				X		Every 300 Hours
5	Hydraulic Filter				X		
6	H.S. T. Filter				X		
14	Front Axle Oil				X		
15	Final Reduction Gear Cases Oil				X		
12	Power Steering Oil				X		Every 600 Hours *Refer to Repair Manual
24*	Fuel Injector	X				X	
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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STARTING THE ENGINE

The key switch, 1, allows activation of the starter motor and fuel delivery only when:

1. The rear PTO, 2, and Mid PTO, 3, (if equipped) are in the “OFF” position.
2. The range lever, 4, is in the “NEUTRAL” position.
3. The operator is sitting in the seat OR the parking brake is engaged.

NOTE: *Without an operator in the seat, or with the parking brake disengaged, the starter motor can be activated, but the engine will not start, because the fuel solenoid is not energized, blocking fuel flow to the injection pump.*

Always use safe practices when starting your tractor. Turn the key to the extreme right. Position the hand throttle forward so that it is one-fourth to one-third open.

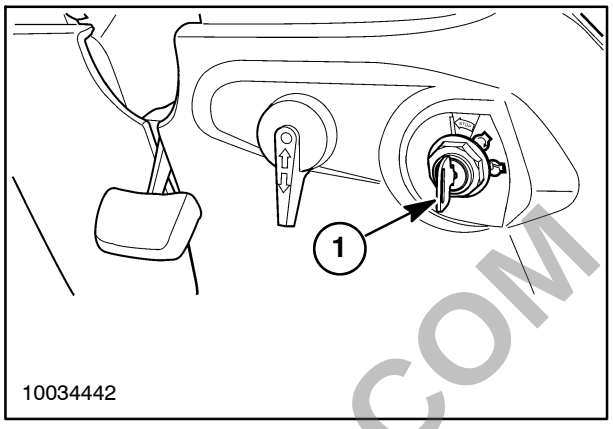
⚠ WARNING ⚠

Always sit in the operator’s seat when starting the tractor. Never attempt to start the engine while standing beside the tractor.

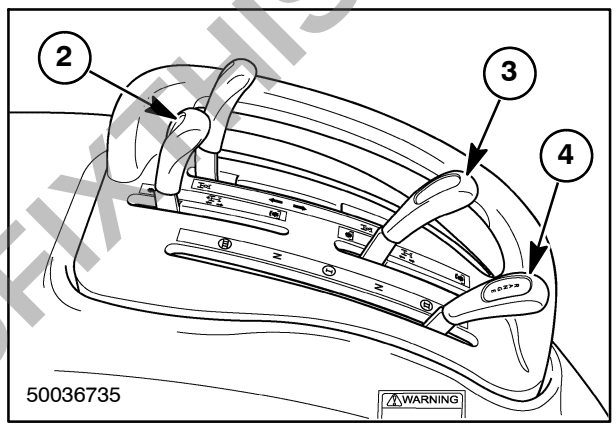
IMPORTANT: *Do not engage the starting motor continuously for more than 30 seconds. Doing so may cause starting motor failure.*

The engine will shut off in approximately two seconds if the operator leaves the seat without first engaging the parking brake and setting the range lever in the “NEUTRAL” position.

NOTE: *When the tractor engine is in operation, the parking brake MUST be engaged, and the range lever MUST be in the “NEUTRAL” position, to allow the operator to leave the seat.*



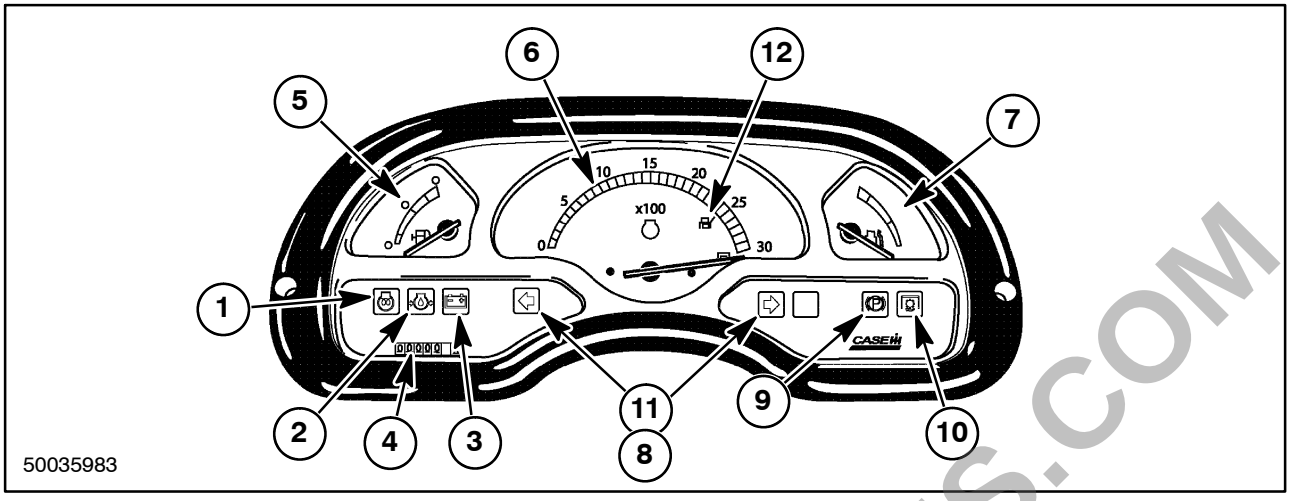
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INSTRUMENT PANEL

1. **Cold Starting Indicator Light** – Illuminates when the key switch is turned to the “HEAT” position. It remains lit for approximately four 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 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” or “HEAT” positions. 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” 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.
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 “HEAT,” “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.

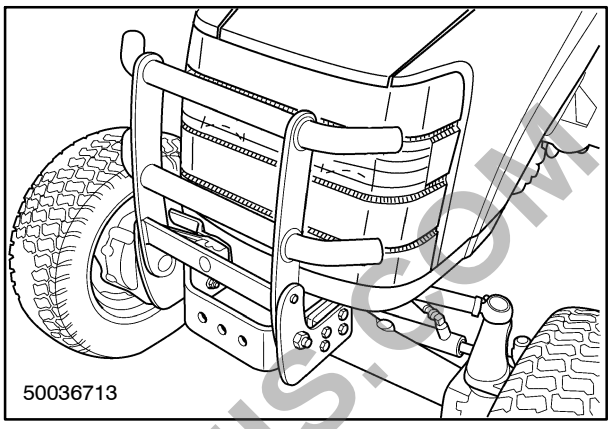
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OPTIONAL ATTACHMENTS

GRILLE GUARD #719849056 (OPTIONAL)

A pivoting front grille guard is available to provide protection to the front of the tractor. The grille guard is compatible with, front end loader and front weights.



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