PETER P.

1992

OPERATOR'S MANUAL

MacDon

Model 7000
SELF PROPELLED WINDROWER

MacDon Industries Ltd.
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Canada R3J 3S3
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Telex 07-57849

DELIVERY SERVICE

	SERIAL NUMBERS
Windrower Model _____	Windrower _____
Dealer's Name & Address _____	Engine _____
Owner's Name & Address _____	Header _____
_____	Hay Conditioner _____

EXTREME CAUTION should be exercised when unloading windrower due to poor stability of tractor section less header.

CHECK POINTS

Inspect the following and adjust if necessary

Engine

- ☐ Coolant level (radiator)
- ☐ Air cleaner & connections – IMPORTANT
- ☐ Engine oil level
- ☐ Fuel tank for water & foreign material, add fuel
- ☐ Alternator & A/C belts
- ☐ Battery electrolyte
- ☐ Electrical connections (neg. ground)
- ☐ Governor adjustments
- ☐ Oil level in hyd. system & check for leaks along lines.

START ENGINE – RUN TO OPERATING TEMPERATURE

- ☐ Engine oil pressure
  Check that maximum (no load) engine speed is:
  Gas Engine 2380-2430 / Diesel Engine 2320-2370
- ☐ Carburetor adjustment & engine timing
- ☐ Alternator for charging
- ☐ Check engine for external leaks
- ☐ A/C working
- ☐ Gauges working

Main Machine

- ☐ Oil level in hydraulic system and power wheels
- ☐ Tire pressure
- ☐ Parking brake adjusted
- ☐ Steering and variable speed linkage adjustments
- ☐ Check header level with tractor
- ☐ Knife guards for alignment
- ☐ Install breather in wobble box before running knife
- ☐ Knife for free running
- ☐ Draper tension and alignment
- ☐ Belts and chains for alignment and tension
- ☐ Header flotation spring settings
- ☐ All shields and guards in place
- ☐ Turn machine by hand and make sure all moving parts turn freely
- ☐ Run machine at idle for 30 minutes
- ☐ Check bearings to make certain none heating
- ☐ Check control operation for header, throttle, hydraulic functions, steering, and variable speed
- ☐ Check and tighten all bolts, especially wheel bolts. Advise customer to check frequently.
- ☐ Check bearing collars for tightness
- ☐ Check all accessories such as hay conditioner

I have spent sufficient time reviewing Windrower Operator's Manual with owner, and he has thorough knowledge of care, adjustments and safe operation of this Windrower.

_____
Dealer's Signature

ove windrower has been received by me in accordance with foregoing and I have thorough knowledge of its care, adjustment and operation. I am assured that foregoing checks have been physically made by dealer or his representative and accept delivery of this windrower.

_____ _____
Date Owner's Signature

Dealer Copy

INTRODUCTION

Your model 7000 Self-Propelled Windrower is designed to cut, and lay in windrows, a wide variety of grain, hay and specialty crops.

The power unit (referred to in this manual as the "tractor"), when coupled with one of the specially designed draper or auger headers, provides a package which incorporates many features and improvements in design requested by Owner/Operators like yourself.

NOTE: This manual contains information on the windrower tractor only. It is to be used in conjunction with the Header Operator's Manual.
CAREFULLY READ BOTH MANUALS TO BECOME FAMILIAR WITH ALL RECOMMENDED PROCEDURES BEFORE ATTEMPTING TO UNLOAD, ASSEMBLE OR USE THE WINDROWER.

Use the manual as your first source of information about the machine. If you follow the instructions given in this manual, your Windrower will work well for many years.

The manual contains instructions for "Safety", "Operation", and "Maintenance/Service". In addition "Unloading and Assembly" information is given towards the back of this book.

Use the Table of Contents and the Index to guide you to specific areas. Study the Table of Contents to familiarize yourself with how the material is organized.

Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your Windrower dealer if you need assistance, information, or additional copies of the manuals. A Technical Manual is also available which details component repair and overhaul procedures.

NOTE: Right hand (R/H) and left hand (L/H) designations are determined from the operator's position, facing forward.

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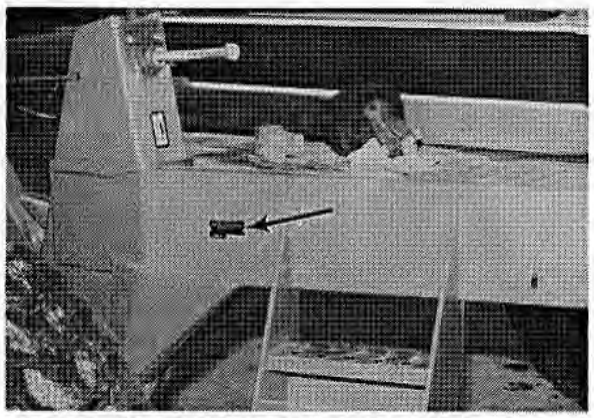
SERIAL NUMBER LOCATIONS

Record the serial numbers in the space provided.

Tractor: _____

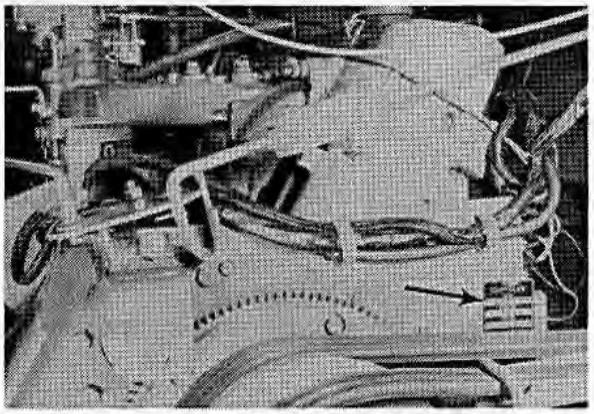
Plate is located on main frame just forward of step ladder.



TRACTOR SERIAL PLATE LOCATION

Gasoline Engine: _____

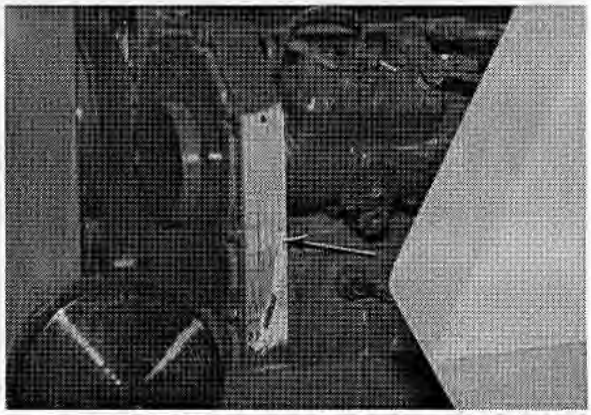
Plate is located on engine back plate, near flywheel.



GAS ENGINE SERIAL PLATE LOCATION

Diesel Engine: _____

Plate is located on left side of block, beside injection pump.



DIESEL ENGINE SERIAL PLATE LOCATION

NOTE: When ordering parts and service, be sure to give your dealer the complete and proper serial number. For engine parts see your local Chrysler (gas) or Cummins (Diesel) engine dealer.

SAFETY

SAFETY ALERT SYMBOL

This safety alert symbol identifies important safety messages in this manual and on safety signs on the Windrower.

This symbol means: ATTENTION!
BECOME ALERT!
YOUR SAFETY IS INVOLVED!

Carefully read and follow the safety message accompanying this symbol.

Why is SAFETY important to you?

3 BIG REASONS

- ACCIDENTS DISABLE AND KILL
- ACCIDENTS COST
- ACCIDENTS CAN BE AVOIDED

SIGNAL WORDS

Note the use of the signal words DANGER, WARNING and CAUTION with safety messages. The appropriate signal word for each message has been selected using the following guidelines:

DANGER - an immediate and specific hazard or forbidden practice which WILL result in severe personal injury or death if the message is not followed.

WARNING - a specific hazard or unsafe practice which COULD result in severe personal injury or death if the message is not followed.

CAUTION - unsafe practice which could result in personal injury if the message is not followed, or a reminder of good safety practices.

SAFETY

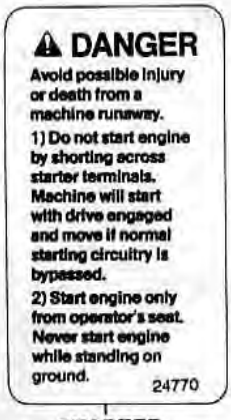
SAFETY SIGNS

- The safety signs reproduced below appear on the windrower at the locations listed.
- Keep safety signs clear and legible at all times.
- Replace safety signs that are missing or become illegible.
- If original parts on which a safety sign was installed are replaced, be sure the repair part also bears the current safety sign.
- Safety signs are available from your Dealer Parts Department. The part number is printed in the lower R/H corner of each safety sign.

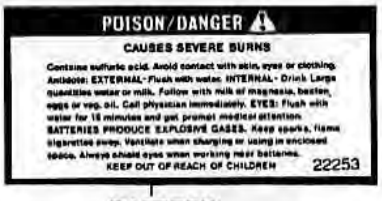
To install safety signs:

1. Be sure the installation area is clean and dry.
2. Decide on the exact position before you remove the backing paper.
3. Remove the smaller portion of the split backing paper.
4. Place the sign in position and slowly peel back the remaining paper, smoothing the sign as it is applied.
5. Small air pockets can be smoothed out or pricked with a pin.

DRIVELINE



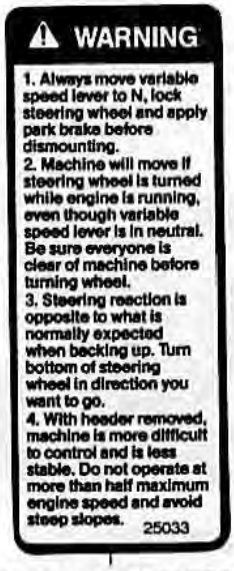
STARTER



BATTERY

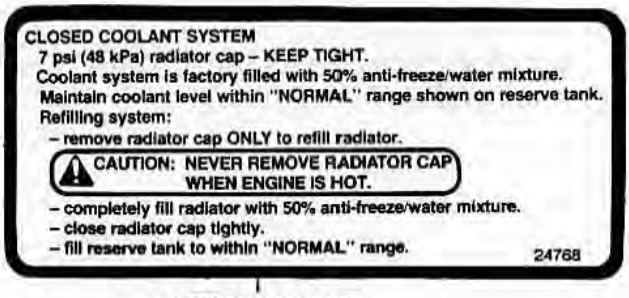
L/H PUMP MOUNT

DRIVE SHIELDS



CAB R/H CENTER POST

CAB L/H CENTER POST

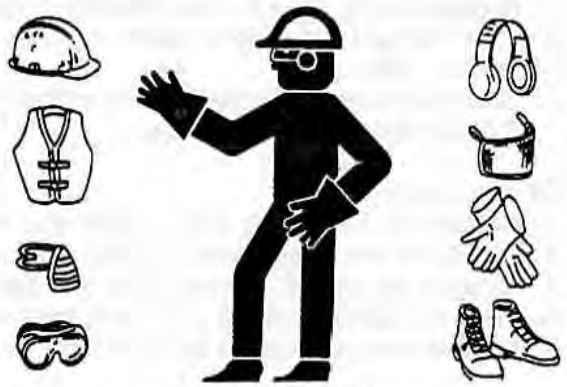


RADIATOR MOUNT

SAFETY

GENERAL SAFETY

The following are general farm safety precautions that should be part of your operating procedure for all types of machinery.



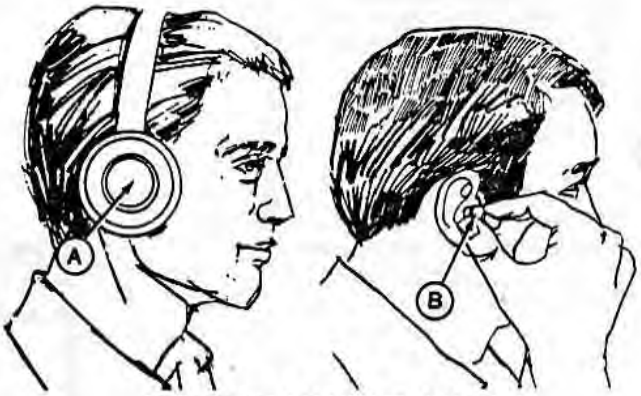
PROTECT YOURSELF

1. Protect Yourself

   When assembling, operating and servicing machinery, wear all the protective clothing and personal safety devices that COULD be necessary for the job at hand. Don't take chances.

   You may need:

   - a hard hat
   - protective shoes with slip resistant soles
   - protective glasses or goggles
   - heavy gloves
   - wet weather gear
   - respirator or filter mask
   - hearing protection. Be aware that prolonged exposure to loud noise can cause impairment or loss of hearing. Wearing a suitable hearing protective device such as ear muffs (A) or ear plugs (B) protects against objectionable or loud noises.



PROTECT AGAINST NOISE

2. Provide a first-aid kit for use in case of emergencies.

3. Keep a fire extinguisher on the machine. Be sure the extinguisher is properly maintained and be familiar with its proper use.

4. Keep young children away from machinery at all times.

BE PREPARED FOR EMERGENCIES

GENERAL SAFETY (continued)

5. Wear close-fitting clothing and cover long hair. Never wear dangling items such as scarves or bracelets.

6. Keep hands, feet, clothing and hair away from moving parts. Never attempt to clear obstructions or objects from a machine while the engine is running.

7. Keep all shields in place. Never alter or remove safety equipment.

8. Do not substitute parts, especially safety related, that may not meet strength or design requirements of the manufacturer.

9. Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

10. Keep the area used for servicing machinery clean and dry. Wet or oily floors are slippery. Wet spots can be dangerous when working with electrical equipment. Be sure all electrical outlets and tools are properly grounded.

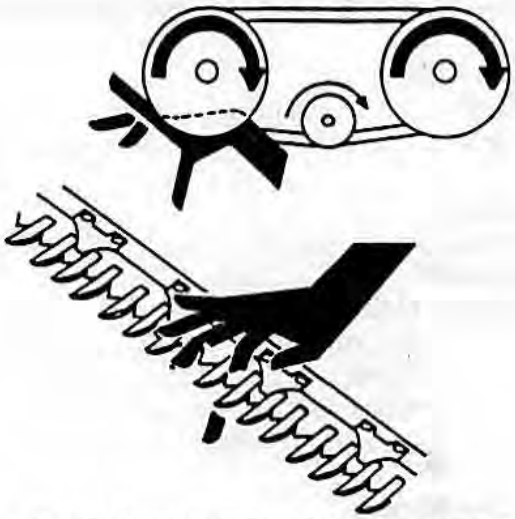
11. Use adequate light for the job at hand.

12. Keep machinery clean. Straw and chaff on a hot engine are a fire hazard. Do not allow oil or grease to accumulate on service platforms, ladders or controls. Clean machines before storage.

13. Never use gasoline, naptha or any volatile material for cleaning purposes. These materials may be toxic and/or flammable.

14. When storing machinery cover sharp or extending components to prevent injury from accidental contact.

NEVER WEAR LOOSE
OR DANGLING CLOTHES



KEEP AWAY FROM MOVING PARTS

KEEP SERVICE AREA
CLEAN AND DRY

SPECIFICATIONS

TRACTOR

Dimensions:
Wheel Base ..... 104.1" (2645 mm)
Height ..... 118.1" (3000 mm)
Clearance (under tractor) ..... 36.0" (915 mm)
Weight (varies with tire size): with gas engine ..... approx. 5350 lbs. (2425 kg)
with diesel engine ..... approx. 5600 lbs. (2540 kg)

Transmission:
Type ..... Hydrostatic
Displacement ..... 2.48 cu. in. (40.6 cc)
Fluid - see "Fuels, Fluids and Lubricants" in Maintenance/Service section

Final Drive:
Type ..... Planetary Gear Drive
Ratio ..... 24.53 to 1
Lubricant - see "Fuels, Fluids and Lubricants" in Maintenance/Service section

Speed Range:
Forward ..... 0 - 13 mph (21 km/h)
Reverse ..... 0 - 6 mph (10 km/h)

Electrical:
Battery ..... 12 Volt, BCI #24C (minimum 480 cold cranking amps at 0°F (-18°C)
Alternator ..... 90 Amp
Breakers: Main (manual re-set) ..... 50 Amp
Air Conditioning ..... 25 Amp
Lights ..... 25 Amp
Instrument Panel ..... 6 Amp
Windshield Wiper ..... 6 Amp

Air Conditioning:
Cooling Capacity ..... 24000 B.T.U./hour
Compressor ..... 10 cu. in./rev., rotary

Park Brake ..... Drum type, lever activated

Tires:

	NORMAL OPERATING PRESSURE		
	with up to 25' Draper Header or 12' Auger Header	with 30' & 36' Draper Header or 14' & 16' Auger Header	Tread Width
Drive Tires			
16.5 L - 16.1 I3 Bar Type	18 psi (125 kPa)	20 psi (138 kPa)	115.7" (2940 mm)
18.4 - 16.1 R1 Bar Type	16 psi (110 kPa)	18 psi (125 kPa)	118.7" (3015 mm)
21.5 L - 16.1 I3 Bar Type	12 psi (83 kPa)	14 psi (97 kPa)	118.7" (3015 mm)
21.5 L - 16.1 R3 Turf & Field	12 psi (83 kPa)	14 psi (97 kPa)	118.7" (3015 mm)
Tail Wheel Tires			
7.5 - 14 I1 Rib Implement	18 psi (125 kPa) (all sizes)		9 ft beam (all sizes) 103.2" (2620 mm)
8.5 L - 14 I1 Rib Implement			
9.5 L - 14 I1 Rib Implement *			10 ft beam (all sizes): 115.0" (2920 mm)

* Used only with forked tail wheel caster option

SPECIFICATIONS

CAPACITIES: See "System Capacities" in Maintenance/Service section.

ENGINES:	GAS	DIESEL
Type	Chrysler Industrial 6 Cylinder	Cummins 4-390, 4 Cyl. 4 stroke cycle
Displacement	225 cu.in. (3.7 L)	239 cu.in. (3.92 L)
Power	68 hp (50.7 kW) @ 2250 rpm	71 hp (53 kW) @ 2200 rpm
Bore	3.40 in. (86.4 mm)	4.02 in. (102 mm)
Stroke	4.125 in. (104.78 mm)	4.72 in. (120 mm)
Compression Ratio	8.2 to 1	17.0 to 1
Compression Pressure @ 150 rpm and full throttle	120 to 150 psi (827 to 1034 kPa)	------
Max. variation btwn cylinders	20 psi (138 kPa)	------
Oil Type	See "Fuels, Fluids and Lube."	See "Fuels, Fluids and Lube."
Oil Pressure: @ 2000 rpm	30 to 80 psi (207 to 552 kPa)	------
@ 2200 rpm	------	30 to 60 psi (207 to 414 kPa)
@ minimum (idle rpm)	8 psi (55 kPa)	13 psi (90 kPa)
Timing	5° BTC @ 500 rpm	------
Firing Order	1-5-3-6-2-4	1-3-4-2
Max. (no load) Engine Speed	2380 to 2430	2320 to 2370
Engine Idle Speed (throttle in center detent)	800 to 1100 rpm	750 to 800 rpm
Rocker Arm-to Valve Clearance: Exhaust	0.020 inch (0.50 mm)	0.020 inch (0.50 mm)
Intake	0.010 inch (0.25 mm)	0.010 inch (0.25 mm)
IMPORTANT: Rocker arm-to-valve clearance adjustments must be made with engine not running.		
Spark Plugs	Champion RV 12 YC	------
Spark Plug Gap	0.035 inch (0.89 mm)	------
Thermostat	180°F (82°C)	180°F (82°C)
Fuel	See "Fuels, Fluids and Lubricants" in Maintenance/Service section for fuel and coolant specifications.	
Engine Coolant		

NOTE: Specifications and design are subject to change without notice or obligation to revise units previously sold.

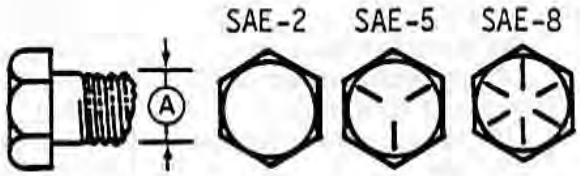
TORQUE SPECIFICATIONS

CHECKING BOLT TORQUE

The tables shown below give correct torque values for various bolts and capscrews. Tighten all bolts to the torques specified in chart unless otherwise noted. Check tightness of bolts periodically, using bolt torque chart as a guide. Replace hardware with the same strength bolt.

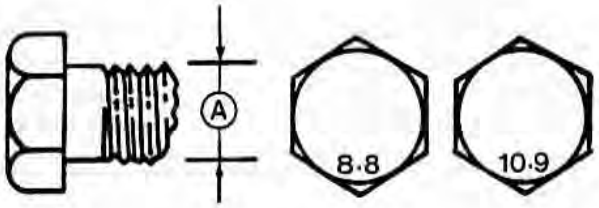
ENGLISH TORQUE SPECIFICATIONS

Bolt Diameter "A"	Bolt Torque * SAE 2 N.m	(lb-ft)	SAE 5 N.m	(lb-ft)	SAE 8 N.m	(lb-ft)
1/4"	8	(6)	12	(9)	17	(12)
5/16"	13	(10)	25	(19)	36	(27)
3/8"	27	(20)	45	(33)	63	(45)
7/16"	41	(30)	72	(53)	100	(75)
1/2"	61	(45)	110	(80)	155	(115)
9/16"	95	(70)	155	(115)	220	(165)
5/8"	128	(95)	215	(160)	305	(220)
3/4"	225	(165)	390	(290)	540	(400)
7/8"	230	(170)	570	(420)	880	(650)
1"	345	(225)	850	(630)	1320	(970)



METRIC TORQUE SPECIFICATIONS

Bolt Diameter "A"	Bolt Torque 8.8 N.m	(lb-ft)	10.9 N.m	(lb-ft)
M3	.5	(.4)	1.8	(1.3)
M4	3	(2.2)	4.5	(3.3)
M5	6	(4)	9	(7)
M6	10	(7)	15	(11)
M8	25	(18)	35	(26)
M10	50	(37)	70	(52)
M12	90	(66)	125	(92)
M14	140	(103)	200	(148)
M16	225	(166)	310	(229)
M20	435	(321)	610	(450)
M24	750	(553)	1050	(774)
M30	1495	(1103)	2100	(1550)
M36	2600	(1917)	3675	(2710)



Torque figures indicated above are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or capscrews unless otherwise specified in this manual. When using locking elements, increase torque values by 5%.

* Torque value for bolts and capscrews are identified by their head markings.

TORQUE SPECIFICATIONS

TIGHTENING O-RING FITTINGS*

1. Inspect O-ring and seat for dirt or obvious defects.
2. On angle fittings, back the lock nut off until washer bottoms out at top of groove.
3. Hand tighten fitting until back-up washer or washer face (if straight fitting) bottoms on face and O-ring is seated.
4. Position angle fittings by unscrewing no more than one turn.
5. Tighten straight fittings to torque shown.
6. Tighten angle fittings to torque shown while holding body of fitting with a wrench.

* The torque values shown are based on lubricated connections as in reassembly.

Thread Size (in.)	Nut Size Across Flats (in.)	Torque Value* (N.m)	(lb-ft)	Recommended Turn to Tighten (After Finger Tightening) (Flats)	(Turns)
3/8	1/2	8	6	2	1/3
7/16	9/16	12	9	2	1/3
1/2	5/8	16	12	2	1/3
9/16	11/16	24	18	2	1/3
3/4	7/8	46	34	2	1/3
7/8	1	62	46	1-1/2	1/4
1-1/6	1-1/4	102	75	1	1/6
1-3/16	1-3/8	122	90	1	1/6
1-5/16	1-1/2	142	105	3/4	1/8
1-5/8	1-7/8	190	140	3/4	1/8
1-7/8	2-1/8	217	160	1/2	1/12

TIGHTENING FLARE TYPE TUBE FITTINGS*

1. Check flare and flare seat for defects that might cause leakage.
2. Align tube with fitting before tightening.
3. Lubricate connection and hand tighten swivel nut until snug.
4. To prevent twisting the tube(s), use two wrenches. Place one wrench on the connector body and with the second tighten the swivel nut to the torque shown.

* The torque values shown are based on lubricated connections as in reassembly.

Tube Size OD (in.)	Nut Size Across Flats (in.)	Torque Value* (N.m)	(lb-ft)	Recommended Turns to Tighten (After Finger Tightening) (Flats)	(Turns)
3/16	7/16	8	6	1	1/6
1/4	9/16	12	9	1	1/6
5/16	5/8	16	12	1	1/6
3/8	11/16	24	18	1	1/6
1/2	7/8	46	34	1	1/6
5/8	1	62	46	1	1/6
3/4	1-1/4	102	75	3/4	1/8
7/8	1-3/8	122	90	3/4	1/8

INSTRUMENTS AND CONTROLS

SYMBOL DEFINITIONS

The following symbols are used to depict functions or reactions at the various instruments and controls. Learn the meaning of these symbols before operating the Windrower.

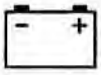
 - park brake, engaged

 - park brake, released

 - engine oil pressure

 - transmission oil pressure

 - engine hours

 - voltage level

 - engine coolant temperature

 - fuel

 - flashing amber lights

 - head lights

 - work (field) lights

 - turn signals

 - temperature control: heater

 - temperature control: air conditioning

 - turn to increase output: heater or air conditioner

 - blower

 - windshield wiper

 - engine R.P.M.

 - increase

 - decrease

 - choke

SYMBOL DEFINITIONS (continued)


- forward ground speed

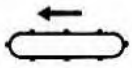

- reverse ground speed


- fast


- slow

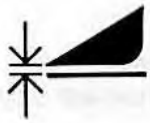

- neutral

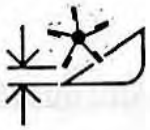

- reel speed

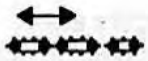

- draper speed


- header drive engaged


- header drive disengaged


- header height


- reel height


- deck shift

INSTRUMENTS AND CONTROLS

CAUTION: Learn and practice safe use of controls before operating.

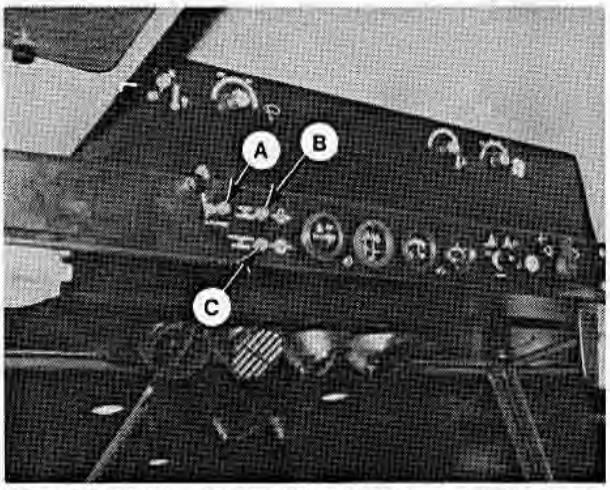
IMPORTANT: See your Dealer if there are any instrument malfunctions. Operate windrower only if all instruments work properly.

ROOF PANEL - WARNING LIGHTS AND BUZZERS

The roof panel warning lights and buzzers are provided to alert the operator that continued operation will cause serious machine damage, due to one of the following:

ENGINE COOLANT TEMPERATURE - A buzzer will sound when engine coolant temperature exceeds 225°F (107°C). See "Engine Temperature Gauge", next page.

NOTE: If a buzzer sounds when engine temperature is below 225°F (107°C) and no indicator light illuminates, check bulbs.



ROOF PANEL - WARNING LIGHTS & BUZZERS

PARKING BRAKE (A) - Both light and buzzer will be activated when ignition switch is turned to ON as a reminder to release brake before driving windrower. Release of brake de-activates light and buzzer.

ENGINE OIL PRESSURE (B) - Both light and buzzer will be activated when ignition switch is turned ON if engine oil pressure is below 7 psi (48 kPa) for the gasoline engine or below 11 psi (76 kPa) for the diesel engine. If light and buzzer stay on for more than a few seconds after engine starts, or if they activate while engine is running, shut engine off and check engine oil level.

TRANSMISSION OIL PRESSURE (C) - Both light and buzzer will be activated when ignition switch is turned ON if transmission oil pressure is below 60 psi (414 kPa). Do not drive the windrower until light and buzzer go off. If light and buzzer stay on after engine starts, or if they activate during operation, shut engine off and check hydraulic oil level at reservoir.

INSTRUMENTS AND CONTROLS

ROOF PANEL - GAUGES AND METERS

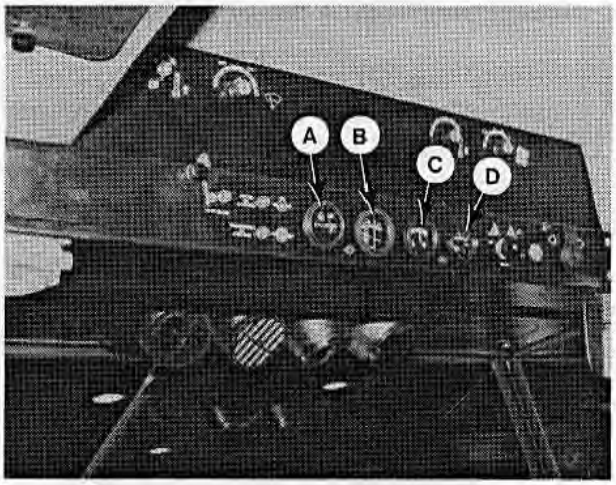
HOUR METER (A) - Shows total engine operating time in hours and tenths.
NOTE: Hour meter is activated when key switch is in the ON position.

VOLT METER (B) - Indicates condition of battery and alternator.

With key switch in the ON position and the engine NOT running, a reading of 12 indicates fully charged battery.

Watch for changes in the volt meter reading:

Reading (with enginerunning)	Condition
14	normal
over 16	regulator misadjusted
under 12	alternator not working or regulator misadjusted



ROOF PANEL - GAUGES AND METERS

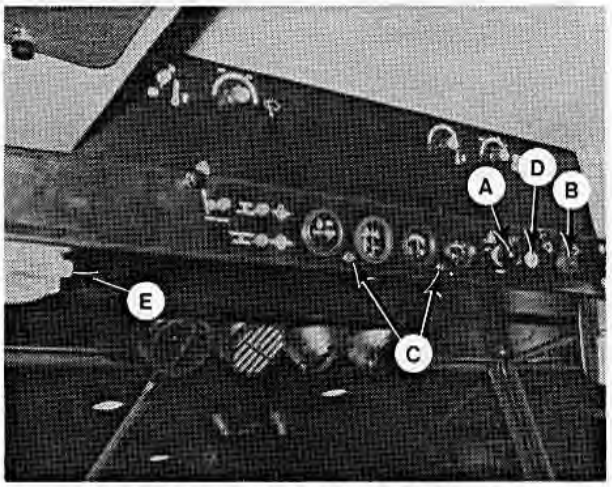
ENGINE TEMPERATURE GAUGE (C) -
Monitors the temperature of the engine coolant. With engine running, temperature gauge should read in the green (operating) range. Allow engine temperature to rise to the green range before beginning operation. If gauge reaches the red range (approximately 225°F [107°C]) the warning buzzer will sound. Stop engine immediately and determine cause. (See Trouble Shooting section.)

FUEL GAUGE (D) - Indicates fuel level in tank. Check fuel gauge before beginning day's operation. Stop to refuel before fuel gauge reaches empty mark. Use fuel specified under "Fuels, Fluids and Lubricants" in Maintenance/Service section.
For diesel only, should engine run out of fuel and not start in several tries, air must be bled from the fuel system. See "Fuel System Air Removal" in Maintenance /Service section.

ROOF PANEL - LIGHTS AND IGNITION

LIGHT SWITCH (A) - The light switch has four positions:

1. OFF - Furthest counter-clockwise position. To turn off all lamps.
2. FLASHER - To turn on flashing amber lamps and red tail lamp. (For use when windrower is being hauled by a towing vehicle.)
3. ROAD - To turn on head lamps, flashing amber lamps and red tail lamp. (For driving on roadways.)
4. FIELD - To turn on head lamps and field lamps. For field use ONLY.



ROOF PANEL - LIGHTS AND IGNITION

CAUTION: When operating on a roadway, switch to the ROAD position. Never use field lamps or any lights which might confuse other drivers. Always use flashing amber lamps when driving or hauling on roadways, unless prohibited by law.

TURN SIGNAL SWITCH (B) - When operating windrower on a roadway, use turn signals as you would in a car or truck.
Turn signals will work with flashers on or off.
Moving switch to left or right will flash turning side lamps with other side steady.
Turn indicators (C) are located between gauges.

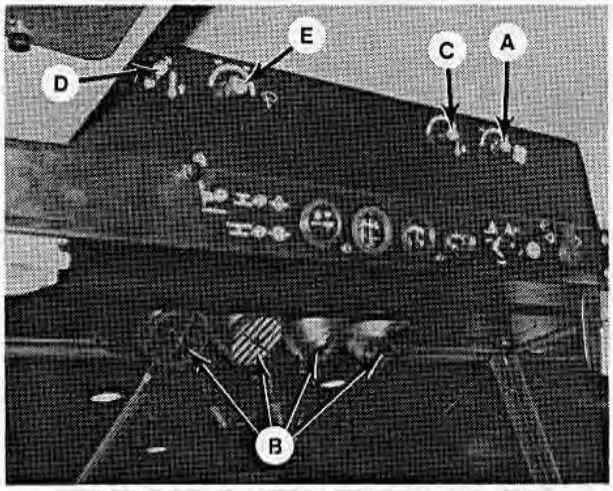
NOTE: Be sure to return switch (B) to center position after turning.

IGNITION SWITCH (D) - The ignition switch has three positions; OFF, ON and START.
The vertical position of the key is OFF. Turn key fully clockwise to START. Holding key in this position will cause engine to crank.
Release of key will return to ON position.

DOME LIGHT (E) - Knob on side of dome light turns light ON and OFF.

ROOF PANEL - CAB TEMPERATURE CONTROLS

BLOWER SPEED SWITCH (A) - Controls operation of roof mounted blower. Four positions are: OFF, LOW, MEDIUM and HIGH. The blower draws in outside air to pressurize the cab.
With door and window closed and blower on, dust and dirt will be filtered out to keep cab interior clean. Adjust louvers (B) to direct air where needed, for example, to defog window.



ROOF PANEL - CAB TEMPERATURE CONTROLS

AIR CONDITIONING TEMPERATURE CONTROL (C) - Air conditioning is OFF when control (C) is turned fully counter-clockwise. Turning control clockwise decreases cab temperature. Blower switch (A) must also be turned ON before air conditioning system will operate.
Regulate cab temperature with air conditioning control and blower speed.

IMPORTANT: If humidity is high it may be necessary to run blower at HIGH speed to prevent evaporator freeze up.

HEATER TEMPERATURE CONTROL (D) - Heater is OFF when control (D) is turned fully counter-clockwise. Turning control clockwise increases cab temperature. Regulate cab temperature with heater control and blower speed.

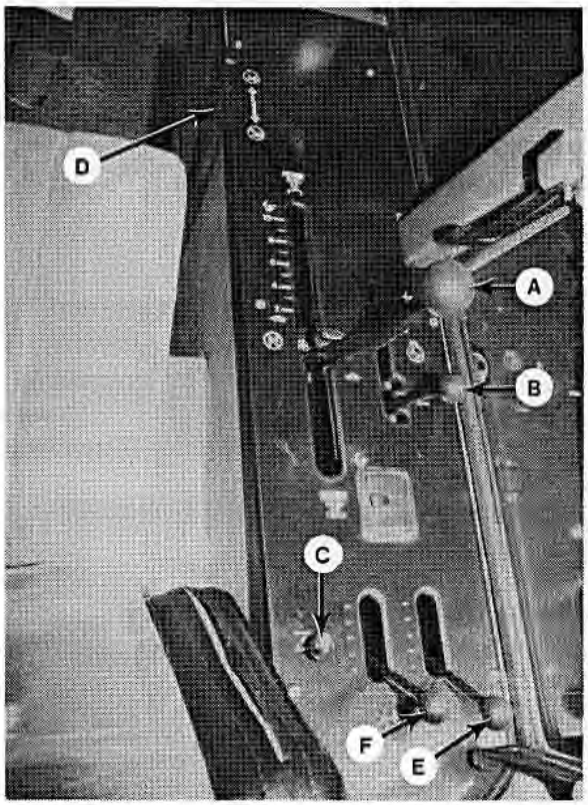
NOTE: Heat and air conditioning systems are independent of each other. To avoid working one system against the other, be sure the system not in use is turned OFF at the appropriate temperature control.

ROOF PANEL - WINDSHIELD WIPER CONTROL

Control windshield wiper using knob (E). Wiper will not return to side of window if turned OFF in mid-stroke.

SIDE PANEL - WINDROWER AND HEADER CONTROLS

VARIABLE GROUND SPEED CONTROL LEVER (A) - Controls windrower direction of movement and rate of speed. A neutral start switch tied in to the steering and ground speed mechanism prevents the starter from engaging unless this lever is in the neutral detent as shown and the steering is locked in the straight ahead position.
Push lever forward for forward motion and rearward for reverse. The further the lever is moved from neutral the faster the speed.



SIDE PANEL - WINDROWER AND HEADER CONTROLS

THROTTLE LEVER (B) - Push lever forward to increase engine speed (RPM) and rearward to decrease. Full forward is operating RPM. Center detent is normal low idle position. For gasoline engine only, holding the lever fully back will stop "dieseling" after key is turned OFF.

CHOKE CONTROL (C) - Pull up on control to close choke. Push down to open choke. See Start-Up Procedure in Operation section for choke use details. (Gasoline Engine only).

HEADER CLUTCH LEVER (D) - Push lever forward to engage all header drives. Pull rearward to disengage drives.
Starter will not engage if clutch lever is not fully back.

NOTE: Some force is required to push lever forward, since it must lock past an over-center mechanism.

DRAPER SPEED CONTROL LEVER (E) - Push lever forward to increase draper speed and rearward to decrease. Speed range is 0 to 900 RPM on roller.

NOTE: Applies to draper headers only. For auger headers, both levers (E) and (F) control reel speed.

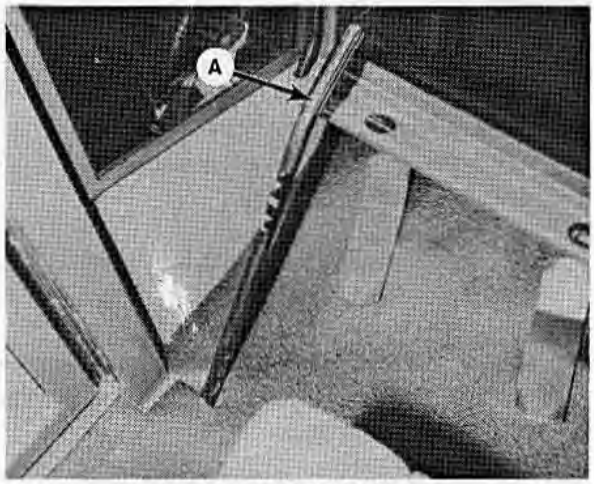
REEL SPEED CONTROL LEVER (F) - Push lever forward to increase reel speed and rearward to decrease. Speed range is 10 to 50 RPM for draper headers and 0 to 70 RPM for auger headers.

INSTRUMENTS AND CONTROLS

PARK BRAKE LEVER

Pull back on lever (A) to engage brake. Push forward to release.

CAUTION: Use park brake only when windrower is stopped. Do not use park brake to slow windrower when moving. Use variable speed lever to slow and stop machine.



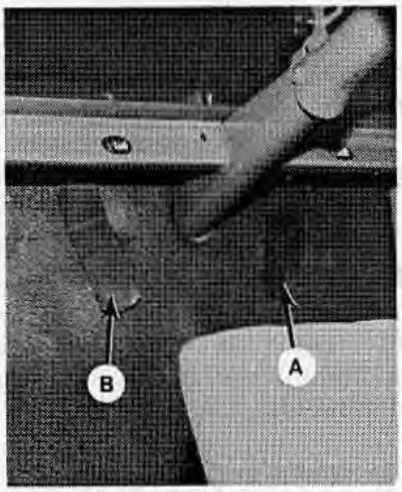
PARK BRAKE LEVER

HEADER CONTROL PEDALS

HEADER LIFT PEDAL (A) - Push on heel of pedal to raise header. Push on toe to lower header.

NOTE: For auger headers, this is the only pedal used.

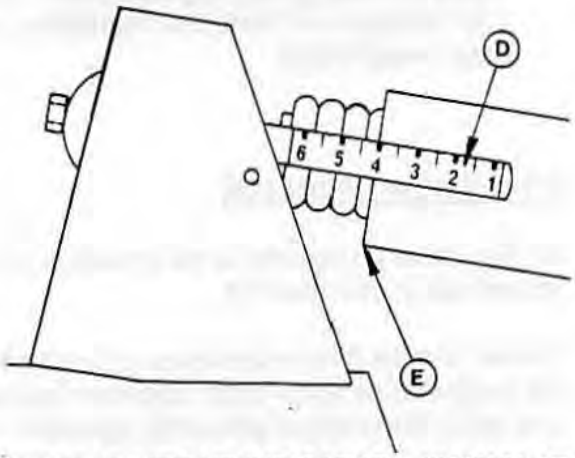
The gauge decal (D) at the left hand spring anchor can be used to identify desired cutting heights. Back end of tube (E) is gauge indicator.
NOTE: The gauge numbers do not correspond to a specific unit of measure, that is, a gauge reading of **4** is not 4 inches off the ground. The numbers are an indication of relative header height, for example, height **4** cuts shorter than **5** but higher than **3**.



HEADER CONTROL PEDALS

REEL LIFT PEDAL (B) - Push on heel of pedal to raise reel. Push on toe to lower reel.

IMPORTANT: Do not continue pushing pedal after header or reel is fully raised. Oil will be pumped through relief valve causing overheating of hydraulic pump if pedal is held for a long period of time.



CUTTERBAR HEIGHT INDICATOR - SHOWN AT CUTTING HEIGHT 4

OPERATION

YOUR RESPONSIBILITIES AS AN OWNER/OPERATOR

CAUTION:

1. **It is your responsibility to read and understand this manual and the Header Operator's Manual completely before operating the windrower. Contact your dealer if an instruction is not clear to you.**

2. **Follow all safety messages in the manuals and on safety signs on the windrower.**

3. **Remember that YOU are the key to safety. Good safety practices protect you and the people around you.**

4. **Before allowing anyone to operate the windrower, for however short a time or distance, make sure they have been instructed in its safe and proper use.**

5. **Review the manuals and all safety related items with all operators annually.**

6. **Be alert for other operators not using recommended procedures or not following safety precautions. Correct these mistakes immediately, before an accident occurs.**

7. **Do not modify the windrower. Unauthorized modifications may impair the function and/or safety and affect machine life.**

8. **The safety information given in this manual does not replace safety codes, insurance needs or laws governing your area. Be sure your windrower meets the standards set by these regulations.**

READ THE OPERATOR'S MANUAL

FOLLOW SAFETY RULES

TO THE NEW OPERATOR

It's natural for an operator to be anxious to get started with a new machine.

Please take the time to familiarize yourself with the windrower by reading the Operator's Manuals and safety signs before attempting operation.

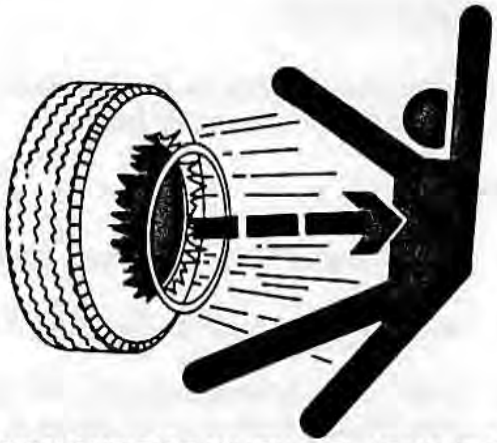
Study the Starting, Driving and Stopping procedures so you will know what to expect.

OPERATION

PREPARING THE TRACTOR

1. Check the tire pressures and adjust if necessary. See Tire Pressure chart in Specification section for recommended pressures for various tire options and header sizes.

CAUTION: When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and not facing tire.



STAND TO ONE SIDE WHEN INFLATING TIRES

2. Check the tension of all belts and adjust if required. See Maintenance/Service section.

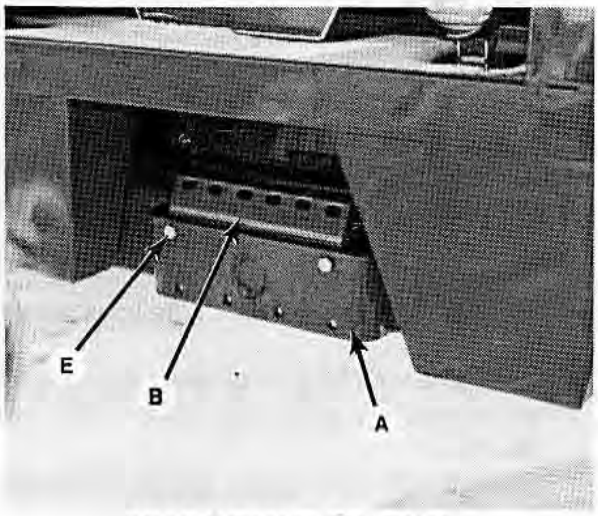
3. Lubricate the machine completely. See Maintenance/Service section.

4. Add fuel and check engine oil and coolant levels. See Maintenance/Service section.

5. Check hydraulic oil and power wheel lubricant levels. See Maintenance/Service section.

6. Install auxiliary float springs if required. Your header Operator's Manual will inform you if auxiliary float springs are necessary for your size and type of header.

7. **CAUTION: For increased tractor stability, add weights to weight bar at rear of tractor.**



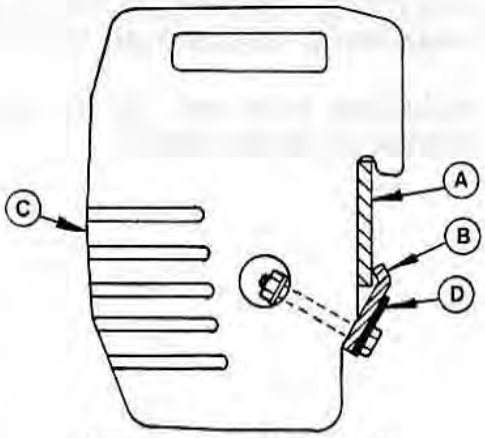
REAR WEIGHT BRACKET

Bracket (A) - is for attaching tractor weights. Add tractor weights as recommended below.

NOTE: A 74 lb. (34 kg) weight is available from your windrower dealer. It is necessary to reposition clamp (B) to attach weights. (Hardware [E] is not used to attach weights.) Install weight (C) as shown, securing with clamp (B) and bar (D).

HEADER SIZE & TYPE	REAR WEIGHT REQUIREMENT*
12ft. Auger, under 25 ft Draper	0
14 ft. Auger	300 lbs. (135 kg)
16 ft. Auger	450 lbs. (205 kg)
25 ft. Draper	150 lbs. (70 kg)
30 ft. Draper	350 lbs. (160 kg)
36 ft. Draper	450 lbs. (205 kg)

* Additional weight may be required in hilly areas.



WEIGHT INSTALLATION

OPERATION

BREAK-IN PERIOD

The windrower is ready for normal operation. However there are several items to check and watch out for during the first 100 hours, as follows:

ENGINE:

1. Operate engine at moderate load, avoid extremely heavy or light loading for longer than 5 minutes.

2. Avoid unnecessary idling. If engine will be idling for longer than 5 minutes, turn key OFF to stop engine.

3. Check engine oil level frequently. Watch for any signs of leakage. If oil must be added, use oil specified under "Fuels, Fluids and Lubricants" in Maintenance/Service section.

NOTE: During the break-in period, a higher than usual oil consumption should be considered normal.

4. Watch coolant gauge in cab and coolant level at coolant reserve tank mounted next to radiator. Maintain correct levels as marked on reserve tank. See "Cooling System" in Maintenance/Service section.

5. Change engine oil and filter after the first 25 hours and every 200 hours or at least once per season thereafter. See "Engine" in Maintenance/Service section.

WINDROWER:

1. Until you become familiar with the sound and feel of your new windrower, be extra alert and attentive.

2. Check all belts after 5 hours operation for initial stretch. Tighten as necessary. (See Maintenance/Service section). Continue to check the belts periodically for the first 50 hours.

3. Change both hydraulic oil filters after 3 to 5 hours. Spare elements are provided. One filter is located at the main drive pump, the other at the oil reservoir. See "Hydraulic System" in Maintenance/Service section.
   Change both filters again after 50 hours and every 300 hours thereafter.

4. Check wheel bolt torque after the first 10 hours and periodically thereafter (at least every 100 hours).
   Drive wheels: 80 to 90 ft. lbs. (108 to 122 N·m)
   Caster wheels: 50 to 60 ft. lbs. (68 to 81 N·m)

5. Adjust park brake after the first 10 hours and every 100 hours thereafter. See Park Brake in Maintenance/Service section.

OPERATION

PRE-STARTING CHECKS

Do the following at the start of each operating season:

CAUTION:

1. **Review the Operator's Manual to refresh your memory on safety and operating recommendations.**
2. **Review all safety signs and other decals on the windrower and note hazard areas.**
3. **Be sure all shields and guards are properly installed and secured. Never alter or remove safety equipment.**
4. **Reacquaint yourself with the controls before beginning operation.**
5. **Check the first aid kit and fire extinguisher. Know where they are and how to use them.**

Also:

6. Drain off excess hydraulic oil added for storage. See "Hydraulic System" in Maintenance/Service section.
7. Remove plastic bags and/or tape from all sealed openings. Re-assemble pre-cleaner and air intake tube.
8. Charge battery and install. Be sure terminals are clean and cables are connected securely.
9. Adjust tension on all belts. See Maintenance/Service section.
10. Perform all Annual maintenance. See Maintenance/Service section.

OPERATION

PRE-STARTING CHECKS

Do the following each day before starting the engine:

CAUTION:

1. **Clear the area of other persons, pets, etc. Keep children away from machinery. Walk around the windrower to be sure no one is under, on or close to it.**

2. **Remove foreign objects from the windrower and surrounding area.**

3. **Wear close-fitting clothing and protective shoes with slip resistant soles.**

   As well, carry with you any protective clothing and personal safety devices that COULD be necessary through the day. Don't take chances.

   You may need:
   - **a hard hat**
   - **protective glasses or goggles**
   - **heavy gloves**
   - **respirator or filter mask**
   - **wet weather gear**

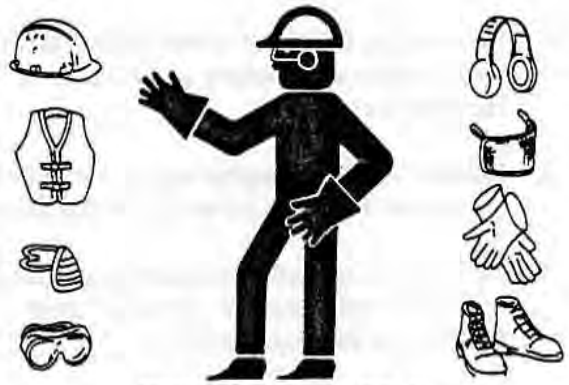
4. **Protect against noise. Wear a suitable hearing protective device such as ear muffs or ear plugs to protect against objectionable or uncomfortable loud noises.**

5. **Check the machine for leaks or any parts that are loose, missing, broken, or not working correctly. Use proper procedure when searching for pressurized fluid leaks. See "Fuel System" and "Hydraulic System" in Maintenance/Service section.**

6. **Clean the windows and mirrors to be sure of good visibility in all directions. To wash front window, stand on ground and use a long handled squeegie or mop to reach top of window. DO NOT stand on back tube of header.**

7. **Clean all lights and reflective surfaces to be sure you are visible to others.**

8. **Perform all Daily Maintenance. See Maintenance/Service section.**



PROTECT YOURSELF

PROTECT AGAINST NOISE

OPERATION

START-UP PROCEDURE

DANGER: Avoid possible injury or death from a runaway machine.

Do not start engine by shorting across starter terminals. Machine will start in gear and move if normal starting circuitry is bypassed.

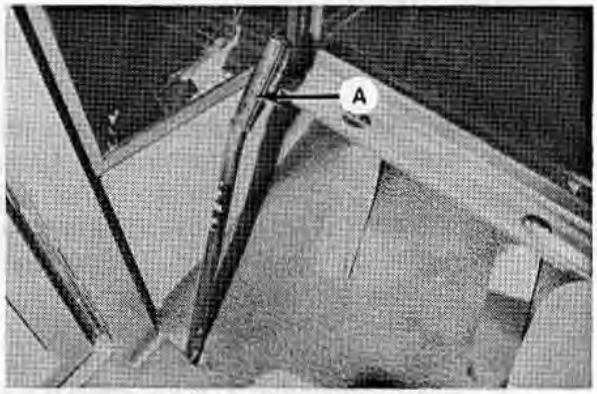
This machine has two neutral start devices which prevent the engine from starting unless the variable speed lever is in neutral, the steering wheel is locked in the neutral position, and the header drive clutch is disengaged. Under no circumstances are these circuits to be deliberately rewired so that the engine can be started with controls out of neutral.

Start engine only from operator's seat with controls in neutral. NEVER start engine while standing on ground.

Before starting engine, be sure there is plenty of ventilation to avoid asphyxiation.

IMPORTANT: Do not tow machine to start engine. Damage to hydrostatic drives will result.

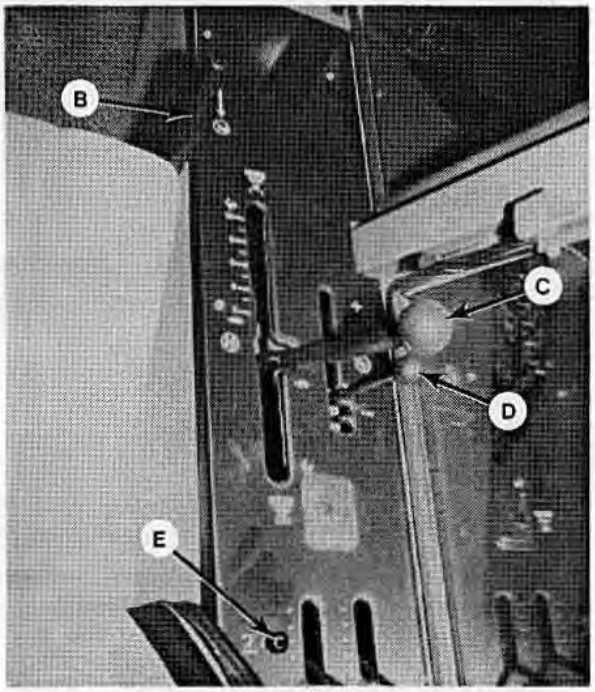
NEVER SHORT ACROSS STARTER TERMINALS



ENGAGE PARK BRAKE

ADJUSTING CONTROLS

1. Engage park brake (A).
2. Disengage header clutch (B).
3. Move variable speed lever to neutral position (C).
4. Turn steering wheel until it locks. If steering wheel has been tilted up for easier exit and re-entry, adjust to desired operating position.
5. Move throttle lever to start-up position (D).
6. For gas engine model, pull up choke lever (E) all the way.



ADJUST CONTROLS FOR START-UP

CHECKING INSTRUMENTS

The engine gauges and instruments provide important information about engine operation and condition. Familiarize yourself with the gauges and monitor them carefully during start-up and operation. See "Instruments and Controls" section.

START-UP PROCEDURE (continued)

STARTING ENGINE

CAUTION: Be sure the area is clear of other persons,pets etc. before proceeding.

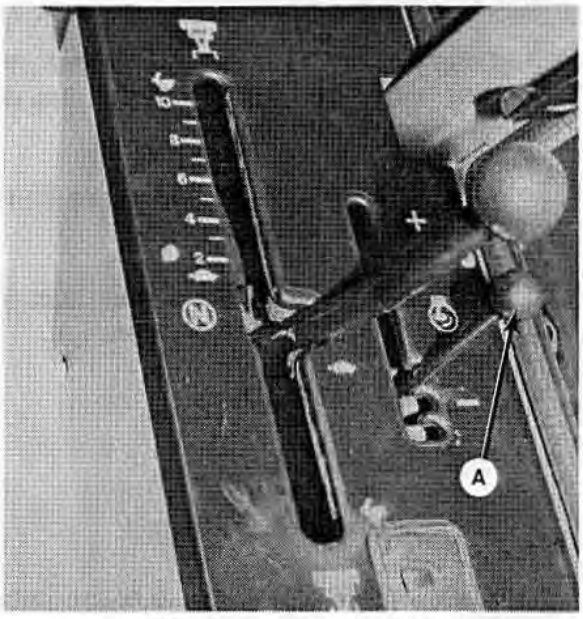
1. Turn ignition key to START position until engine starts. Release key.

IMPORTANT: Do not operate starter for longer than 15 seconds at a time. If engine does not start, wait at least one minute before trying again. If engine does not start in four attempts, refer to Trouble Shooting section.

WARNING: If starter engages with steering wheel unlocked, variable speed lever out of neutral, or header clutch engaged, DO NOT START ENGINE. Perform Neutral Lock Adjustment. (See Maintenance/ Service section.)

2. Once gasoline engine starts, push choke partly in. After a few minutes, push choke fully in.

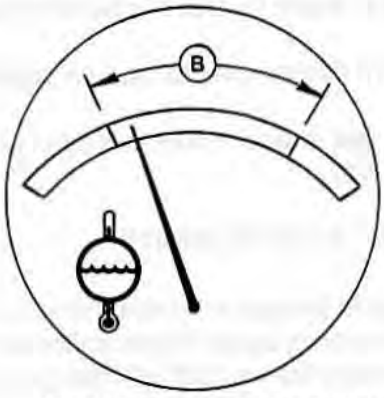
NOTE: If gasoline engine becomes flooded, push choke in, move throttle lever to full open, and engage starter. When engine starts, pull lever back immediately. Never run a cold engine at full RPM.



THROTTLE - IDLE POSITION

WARMING UP ENGINE

Allow engine to run with throttle lever (A) in start-up position until temperature gauge reaches the green (normal operating) range (B).



TEMPERATURE GAUGE-
OPERATING RANGE

USING A BOOSTER BATTERY

If engine fails to start in cold weather, an extra 12-volt battery can be connected in parallel with the windrower battery. Follow directions carefully. See "Connecting Booster Battery" in Maintenance/ Service section.

DRIVING THE WINDROWER

WARNING:
Avoid driving the machine with header removed. Removing header shifts weight from controlled drive wheels to uncontrolled casters, leaving the machine less stable and more difficult to control. If necessary to drive machine with header removed, do not exceed half maximum engine speed and avoid loose gravel and slopes. Because of windrower shape characteristics, a roll-over protected (ROPS) cab is not required. If operating with header removed, be aware that the cab structure will not withstand a roll-over.

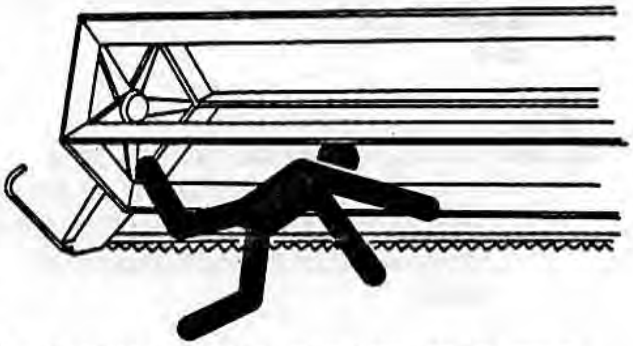
AVOID DRIVING WITH HEADER REMOVED

CAUTION: HYDROSTATIC STEERING
The machine is steered hydrostatically, that is, turning the steering wheel varies the hydraulic flow to one drive wheel relative to the other drive wheel. The reaction of this type of steering is different than conventional steering mechanisms.
Remember:

- **With the engine running and the variable speed lever in neutral, the machine will move if the steering wheel is turned.**
- **Hydrostatic steering is more sensitive than mechanical steering.**
- **Steering is opposite to normal when driving in reverse.**

CAUTION:

1. **Never move variable speed lever or steering wheel until you are sure all bystanders have cleared the area.**
2. **Be sure area is clear before making turns, ends of header travel in a large arc.**
3. **Check the operation of all controls in a safe, clear area before starting work. Be sure you know the capacity and operating characteristics of this machine.**
4. **Do not allow riders and operate only while seated in the operator's position.**
5. **Never attempt to get on or off a moving windrower.**
6. **Avoid sudden starts and stops.**
7. **Avoid inclines, ditches and fences.**
8. **Reduce speed when turning, crossing slopes, or when traveling over rough ground.**
9. **Do not allow anyone to stand behind the machine while operating. Foreign objects may be forcibly ejected.**



CLEAR THE AREA BEFORE OPERATING

DO NOT ALLOW RIDERS

DRIVING THE WINDROWER (continued)

TO DRIVE FORWARD:

1. After starting engine, release park brake. If buzzer and warning lights remain on, shut engine off and refer to Trouble Shooting section to determine cause.

2. Push throttle lever (A) to full forward (operating speed).

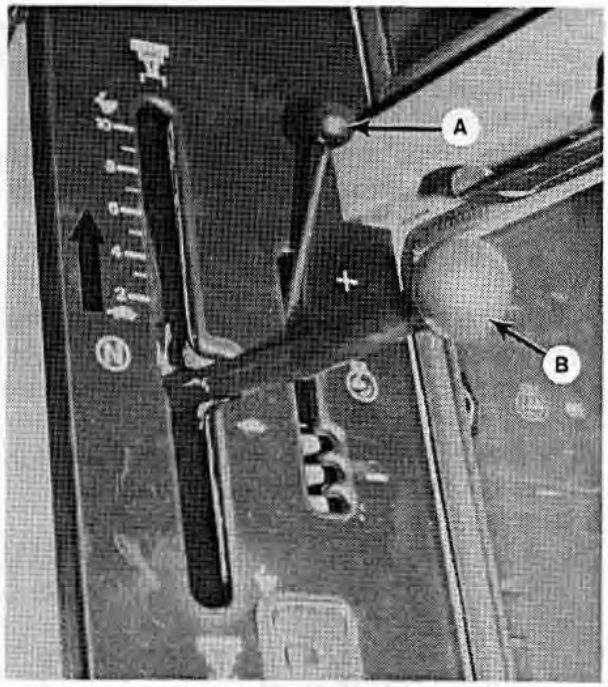
IMPORTANT: Always operate windrower with throttle lever fully forward (maximum engine RPM). Use control levers to vary ground speed, reel speed and draper speed. All systems are designed for efficient operation at maximum engine RPM.

CAUTION: Check again to be sure all bystanders have cleared the area.

3. Move variable ground speed lever (B) forward to desired speed.

CAUTION: Operate both steering wheel and variable speed lever slowly for familiarization. Avoid the common tendency of new operators to over-steer.

4. In situations where more tractive (lugging) power is required, for example, driving up a ramp, up a hill, or up out of a ditch: Move the variable speed lever towards neutral. The effect of this is similar to down-shifting a manual transmission, increasing torque at the drive wheels.



CONTROL LEVERS - DRIVING FORWARD

DRIVING THE WINDROWER (continued)

TO DRIVE REARWARD:

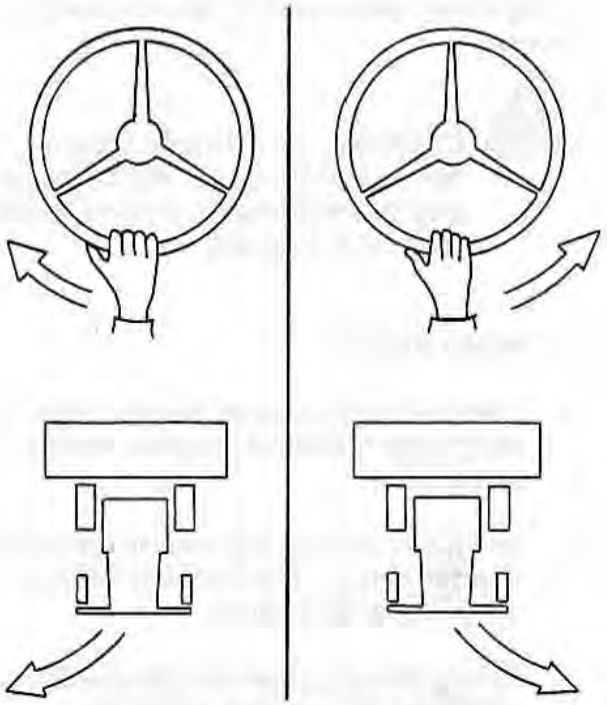
WARNING: Back up slowly. Steering is opposite to normal when reversing. Hold steering wheel at the bottom and turn wheel in direction you want the rear of the machine to travel.

1. Move throttle lever to front detent (A).

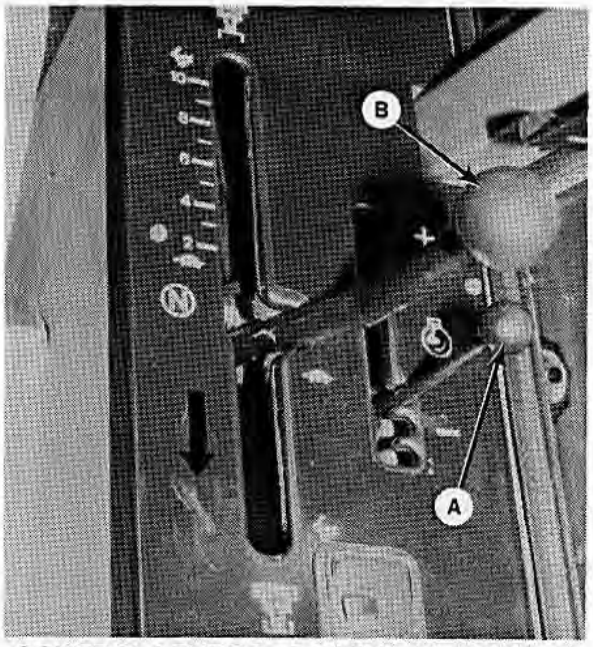
NOTE: Reversing with throttle lever at (A) is recommended since steering will be less sensitive than at full engine speed. However to achieve maximum ground speed in reverse, throttle lever must be fully forward.

CAUTION: Check again to be sure all bystanders have cleared the area.

2. Move variable ground speed lever (B) rearward to desired speed.



STEERING OPPOSITE TO NORMAL WHEN REVERSING



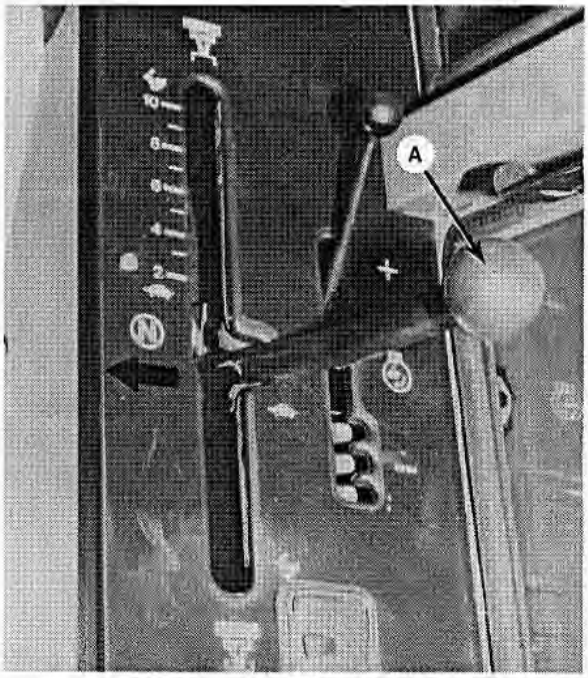
CONTROL LEVERS - DRIVING REARWARD

DRIVING THE WINDROWER (continued)

MAKING A SPIN TURN:

Hydrostatic steering gives the operator significantly more maneuverability than mechanical steering.

CAUTION: Be sure area is clear before making turns. Although tractor pivots "on the spot," ends of header travel in a large arc.



CONTROL LEVERS - SPIN TURN

To make a spin turn:

1. Move the variable speed lever (A) out of its neutral detent (towards the seat, not forward or rearward).
2. Slowly turn the steering wheel in the desired direction of turn. The windrower will pivot between the drive wheels.
3. To stop the turn, slowly turn the steering wheel back to its centered position.
4. To increase the turn radius, slowly move the ground speed lever away from neutral. Remember that this will increase ground speed as well.
5. To stop the turn, return all controls to neutral.

STOPPING PROCEDURE

TO STOP WINDROWER:

WARNING: Do not move variable speed lever rapidly back to neutral. Operator may be thrown forward by sudden stop.

1. To slow down and stop the windrower, SLOWLY return the variable speed lever (A) to neutral.

WARNING: Do not use park brake to slow windrower down. This may result in erratic machine reaction which could cause personal injury as well as damage to the brake mechanism.

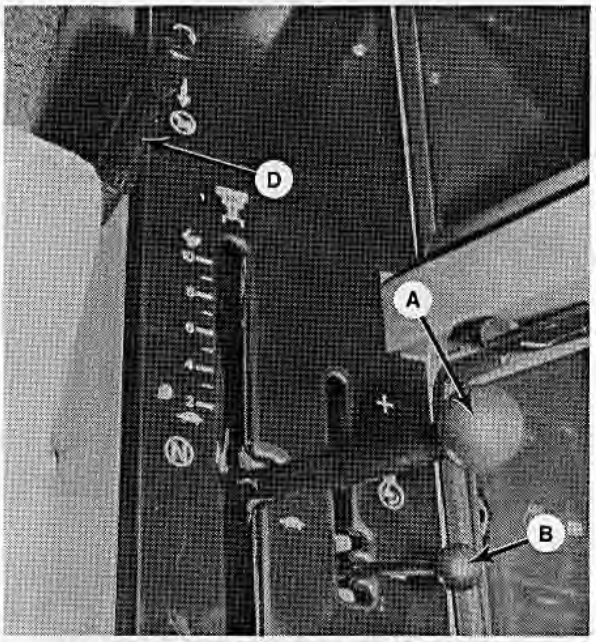
2. Move throttle lever (B) to low idle position.

NOTE: Avoid unnecessary idling. Stop engine if it will be idling for longer than 5 minutes.

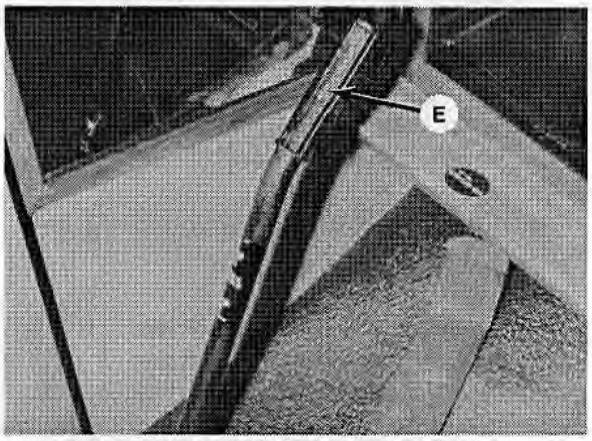
3. Disengage header drive clutch (D) to stop header drives.

4. Engage park brake lever (E) if machine is to remain stopped.

CAUTION: Park machine on flat level ground only. Keep park brake properly adjusted at all times. See Maintenance Service section.



CONTROL LEVERS - STOPPING



ENGAGE PARK BRAKE LEVER

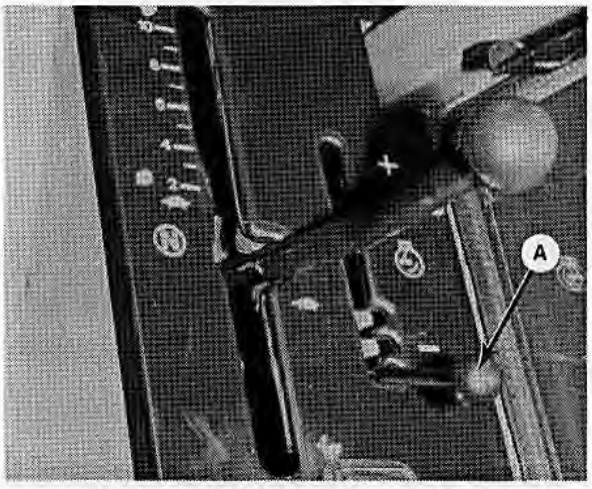
TO STOP ENGINE:

CAUTION: Be sure windrower is safely parked on a flat, level surface, header on the ground and the brake lever engaged.

IMPORTANT: Before stopping engine that has been operating at working load, idle engine at least one minute at low idle to cool hot engine parts.

1. Turn key counter-clockwise to vertical (OFF) position.
2. For gas engine, if necessary, hold throttle lever (A) fully back to stop "dieseling".

IMPORTANT: Do not leave key in "ON" position, hour meter will keep running.



HOLD THROTTLE BACK TO PREVENT "DIESELING" OF GAS ENGINE

LEAVING THE WINDROWER

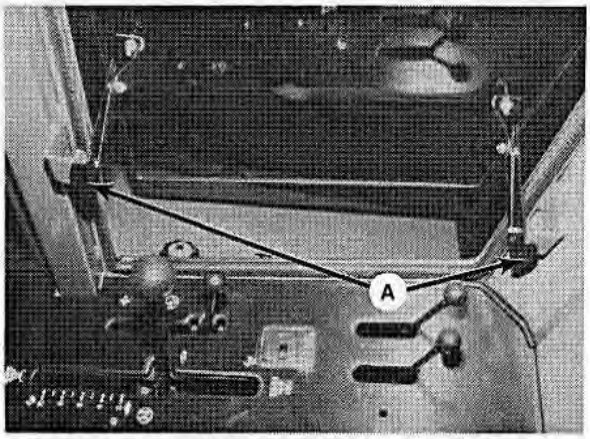
CAUTION: Before leaving the operator's seat for any reason:

1. **Park on level ground if possible.**
2. **Fully lower header and reel.**
3. **Disengage header drive clutch.**
4. **Stop engine and remove key from ignition. A child or even a pet could engage an idling machine.**
5. **Be sure variable speed lever is in the neutral detent and steering wheel is locked in the straight ahead position. Turn off all switches.**
6. **Engage the park brake.**
7. **Raise arm rest and steering wheel for easier exit and re-entry.**
8. **Lock the cab door when leaving the windrower unattended.**
9. **To provide more secure hand and foot mobility, preventing slipping and possible injury, always face the windrower and use the hand rail when dismounting (or mounting).**

EMERGENCY EXIT

In case exit through cab door is not possible, the right hand side window may be opened to provide an emergency exit. Open window, then pull inward on both latches (A) to clear pins and push outward on window.

FOR NORMAL WINDOW OPERATION, lift and push both window latches (A) out to the notched detents.



R/H SIDE WINDOW - EMERGENCY EXIT

OPERATION

DRAPER SPEED

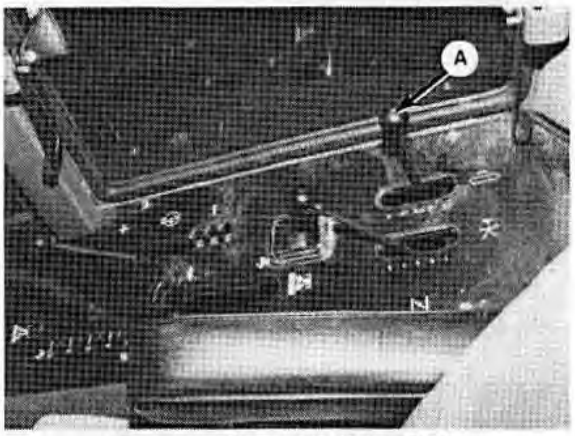
Draper speed affects the orientation of stalks in the windrow. Faster draper speeds will tend to form herringbone or dovetail configurations. See "Windrow Characteristics" in this section.

Move lever (A) forward to increase draper speed and rearward to decrease. Range is 0 to 900 roller RPM, or 0 to 530 ft./minute (161 m/min.)

960 175 TO 500 F.P.M.

NOTE: If higher draper speed is required, an adjustment can be made to "borrow" hydraulic flow from the reel drive. See "Draper Speed Control Valve: Linkage Adjustment" in Maintenance/Service section.

IMPORTANT: For center delivery, the extreme left foot pedal (connected to 4-way valve under left front corner of cab) must be in the "heel-down" position to allow proper oil flow to the draper drives. Accidental movement of this pedal from the "heel-down" position will cause the drapers to stop or reverse.



DRAPER SPEED CONTROL

CUTTING WIDTH

For 12, 15 and 18 foot headers, unless combine capacity is a limiting factor, run the end of the header close to the edge of the standing crop, taking a full cut. If a full width windrow will overload your combine, cut less than a full windrower width. Overloading the combine means wasted crop, high fuel consumption, and possible repair bills.

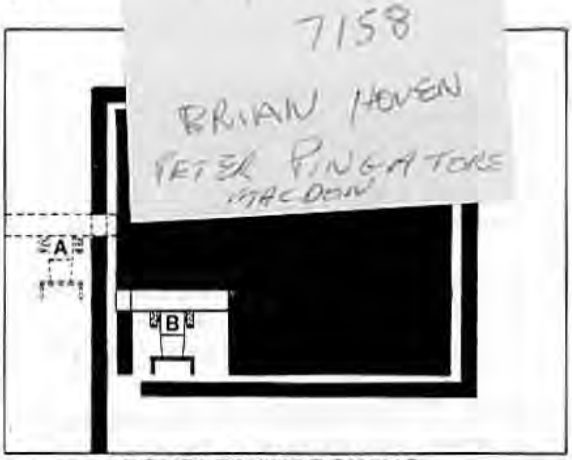
For 21, 25 and 30 foot headers, see "Delivery Opening" to select a windrow delivery which will match your combine capacity.

DELIVERY OPENING - 21', 25' AND 30'

DOUBLE WINDROWING

The 21, 25 and 30 foot headers have double windrow capability. This allows cutting one round delivering to the right hand end (A), then shifting to left end delivery (B) and laying the second windrow beside the first.

Larger capacity combines can then pick up twice as much material in a single pass; saving time and fuel.

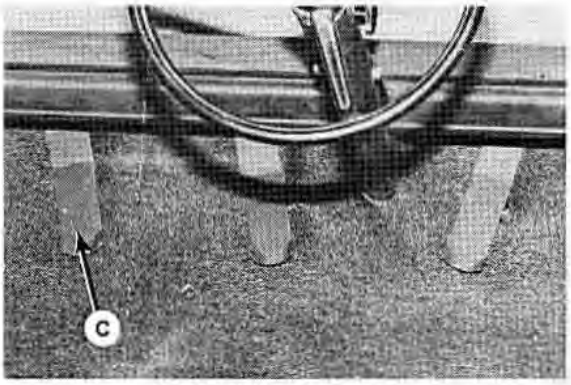


DOUBLE WINDROWING

NOTE: For ease of operation, the short stationary deck at the right end of the header provides clearance between right end delivered windrow and standing crop.

To shift end delivery:

1. For right end delivery, push once on toe of deck shift pedal (C) to shift decks to the left and reverse draper travel.
2. For left end delivery, push once on heel of pedal to shift decks to the right and reverse draper travel.

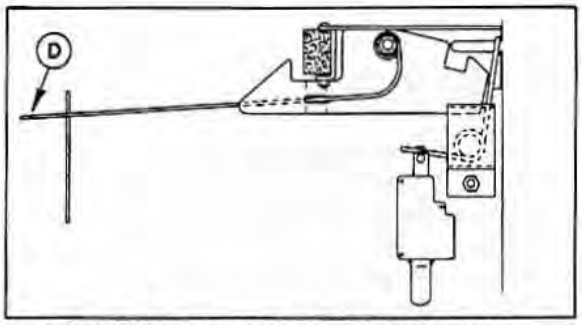


DECK SHIFT PEDAL

CHANGING DELIVERY MODE

To change from "double windrow" end delivery to center delivery mode:

1. Push once on toe of deck shift pedal to shift decks to the left.
2. Move latch lever to UNLATCH position (D).
3. Push once on heel of deck shift pedal to move right shifting deck away from left deck. Draper direction will change automatically to center delivery.

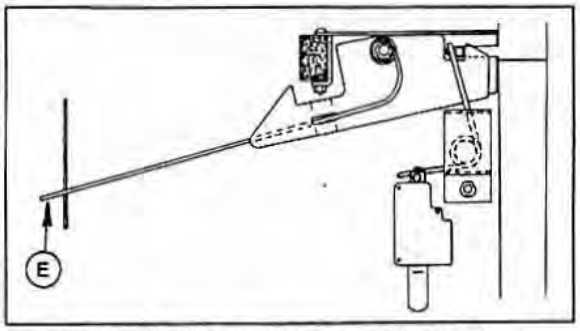


LATCH LEVER - UNLATCH POSITION

To change from center delivery to "double windrow" end delivery mode:

1. Push once on toe of deck shift pedal to shift right deck against left deck.
2. Move latch lever to LATCH position (E).

   NOTE: For 21' header, center delivery opening adjustment must be set to narrowest position to allow end delivery. See "Center Delivery Opening Width".



LATCH LEVER - LATCH POSITION

OPERATING THE HEADER

Correct operation reduces crop loss and allows cutting of more acres. The length of service you receive from your windrower depends upon thorough lubrication, and proper maintenance and adjustments.

For header attaching, detaching, operating and service, refer to your Header Operator's Manual.

CAUTION: Do not mount anything on the windrower tractor except the headers designed for use with it. Un-approved attachments may change the stability and controllability of the machine.

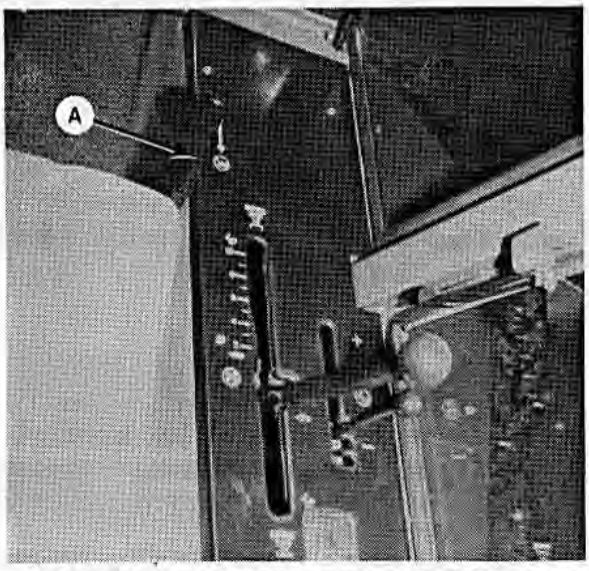
TRANSPORTING THE WINDROWER

DRIVING WINDROWER ON ROADS

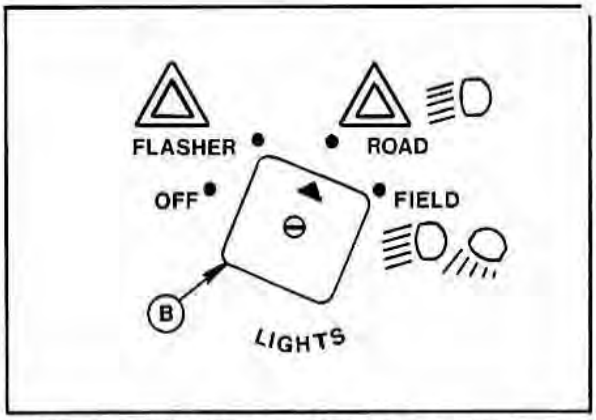
WARNING: Do not drive windrower on a road or highway at night, or in conditions which reduce visibility, such as fog or rain. The width of the windrower makes it unsafe to transport under these conditions.

CAUTION:

1. **Check local laws for width regulations and lighting or marking requirements before transporting on roads.**
2. **Disengage header drive clutch (A) when traveling to and from the field.**
3. **Before driving windrower on a roadway, be sure flashing amber lamps, red tail lamp and head lamps are clean and work properly. Turning light switch (B) to ROAD position will activate these lamps. Always use these lamps on roads to provide adequate warning to other vehicles.**
4. **Do not use field lamps on roads, other drivers may be confused by them.**
5. **Before driving windrower on roadway, clean slow moving vehicle emblem and reflectors. Adjust rear view mirror and clean windows.**
6. **Transport windrower with header fully raised and reel fully lowered. Maintain adequate visibility and be aware of roadside obstructions, oncoming traffic and bridges.**
7. **When traveling down hill, reduce speed and keep header at a minimum height. This provides maximum stability if forward motion is stopped for any reason. Raise header completely at bottom of grade to avoid contacting ground.**
8. **Travel speed should be such that complete control and machine stability are maintained at all times.**
9. **Stop, look and listen before entering a roadway. Stay on your side of the road and pull over if possible to let faster traffic pass. Slow down and signal as you turn off.**



DISENGAGE HEADER DRIVE CLUTCH



LIGHT SWITCH TO "ROAD" POSITION

TRANSPORTING THE WINDROWER

TOWING THE WINDROWER ON A TRAILER

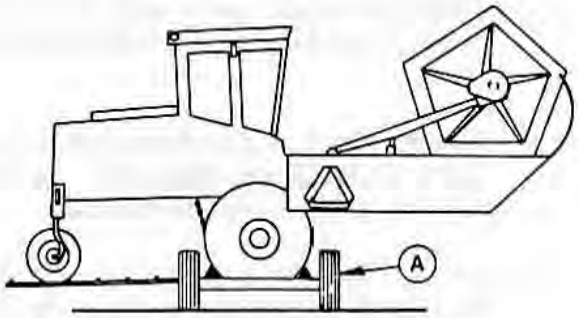
For transporting the windrower other than under its own power, a side mount trailer (A) carrying all four windrower wheels is recommended.

Also acceptable are side mount trailers (B) where the windrower tail wheels remain on the ground. For this type, tighten caster set screws, step 7, below.

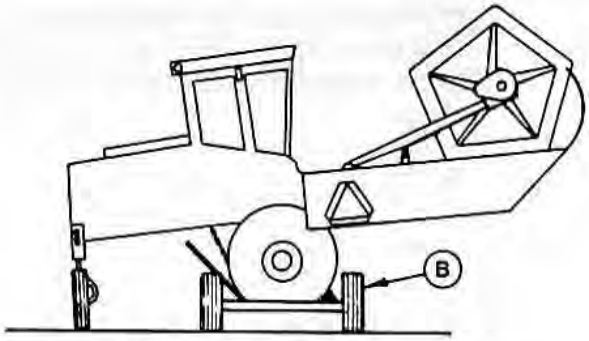
For narrower headers, front or rear mount trailers may be used, providing local laws regarding width regulations are adhered to.

WARNING: When towing the windrower on a trailer:

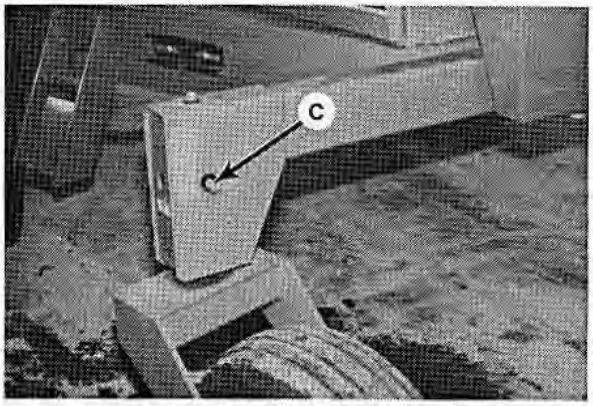
1. **Keep header fully raised and reel fully lowered.**
2. **Chain windrower securely to trailer, using loops welded under tractor frame. Be sure windrower weight is centered on trailer for stable load. Block drive wheels to prevent movement.**
3. **Transport width is approximately 20 ft. (6·1m). Check local laws for width regulations and lighting or marking requirements.**
4. **Remember that when towing windrower sideways or backwards, slow moving vehicle emblem, reflectors and warning lights are not easily visible. It is your responsibility to adequately mark the load when transporting in this fashion.**
5. **Set light switch to FLASHER position to activate amber lamps.**
6. **Do not tow the windrower on a roadway at night, or in conditions which reduce visibility, such as fog or rain. The width of the load makes it unsafe to transport under these conditions.**
7. **If towing at speeds over 15 mph (25 km/h), on a type (B) trailer, tighten caster set screws (C) to 20 ft. lbs. (27 N.m) (after aligning caster wheels with trailer wheels) to prevent erratic movement of the casters. Failure to do this will result in caster damage and could cause loss of control. (Remember to loosen set screws after transport.)**



SIDE MOUNT TRAILER - TYPE (A)



SIDE MOUNT TRAILER - TYPE (B)



CASTER SET SCREWS

TRANSPORTING THE WINDROWER

TOWING THE WINDROWER ON A TRAILER (continued)

WARNING:

8. Do not tow at speeds over 25 mph (40 km/h). Travel speed should be such that complete control and stability are maintained at all times.

9. Be aware of roadside obstructions, oncoming traffic and bridges. Take care when traveling over rough terrain or on slopes.

10. Be sure the total weight of the trailed vehicle NEVER EXCEEDS the weight of the towing vehicle, unless the trailed vehicle is equipped with remote brakes.

    NOTE: Windrower weighs 7500 to 9500 lbs (3400 to 4300 kg) depending on header size.

    Stopping distance increases at an increasing rate as the weight of the trailed vehicle increases, especially on hills and slopes.

TRANSPORTING THE WINDROWER (continued)

TOWING WINDROWER WITHOUT TRAILER

The best method for transporting a disabled windrower is to haul it on a suitable trailer or flatbed carrier. (See Towing Windrower on a Trailer.)

In emergency situations, for example, towing out of a field or into a shop, windrower may be towed without a trailer, providing the following precautions are followed:

1. Disengage final drives:
   - Engage park brake.
   - Remove cover (A) at center of drive wheels.
   - Replace with dished side facing in.
   - Disengage park brake after attaching to towing vehicle.

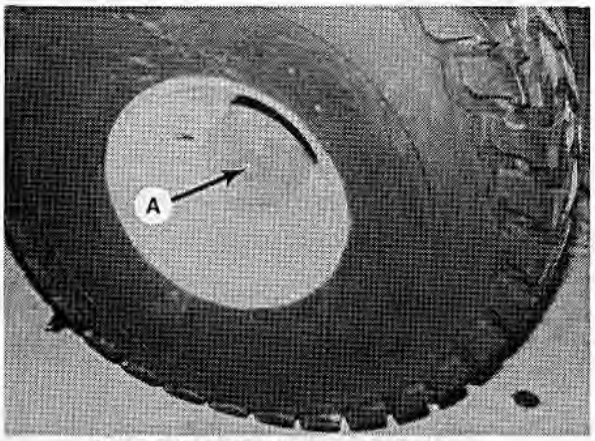
   IMPORTANT: Failure to disengage final drives before towing will result in serious transmission damage.

   After towing, reverse cover (A) to re-engage final drives. Be sure plunger at center of wheel pops out to engage drive.

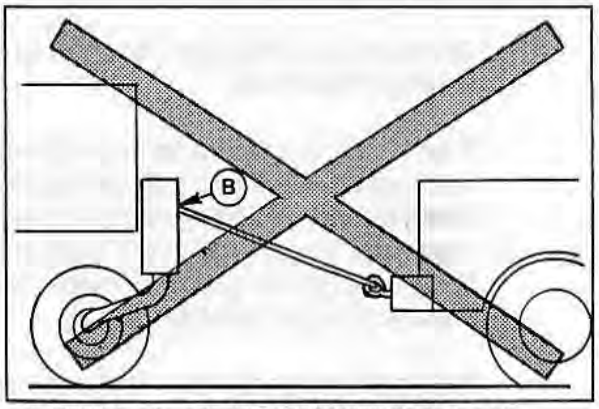
2. Do not exceed 15 mph (25 km/h) when towing windrower. Do not use this towing method for normal transporting of windrower. Even with final drives disengaged, rolling speeds of more than 15 mph (25 km/h) will cause final drive gears to run at excessive speeds, possibly destroying the unit.

3. **WARNING: A proper towing apparatus is critical to safe towing. Use the following guidelines:**

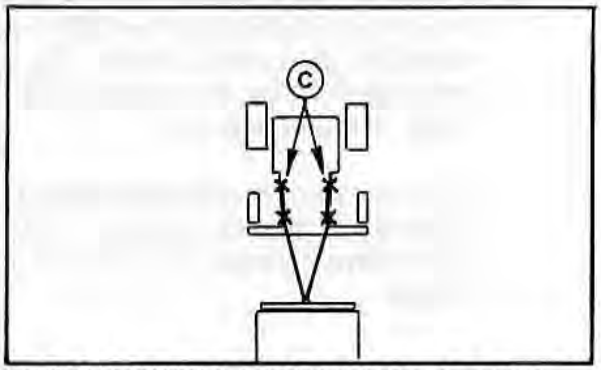
- **Do not attach directly from hitch to walking beam (B). Slope of tow bar will not provide proper transfer of braking force to windrower, causing loss of control.**
- **For proper control, towing apparatus should be attached to both left and right hand frame members (C) and should attach to tow bar at same height (D) as vehicle hitch.**
- Towing apparatus should be removed for field operation, to avoid interference with windrow.



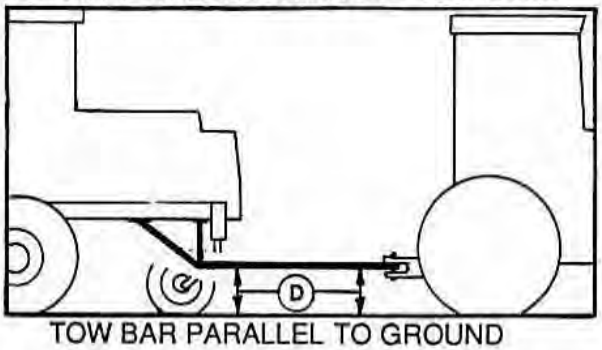
DISENGAGE FINAL DRIVES



DO NOT ATTACH TO WALKING BEAM



ATTACH TOWING APPARATUS TO FRAME



TOW BAR PARALLEL TO GROUND

TRANSPORTING THE WINDROWER

TOWING WINDROWER WITHOUT TRAILER (continued)

4. **WARNING:**

- **Be sure the towing vehicle is heavier than the windrower.**

  NOTE: Windrower weighs 7500 to 9500 lbs. (3400 to 4300 kg) depending on header size.

  Remember stopping distance increases when towing, especially on hills and slopes.

- **Do not exceed 15 mph (25 km/h) when towing windrower.**

- **Remember that when towing windrower backwards, slow moving vehicle emblem, reflectors and warning lights are not easily visible. It is your responsibility to adequately mark the load when transporting in this fashion.**

- **Set light switch to FLASHER position to activate amber lamps.**

- **Do not tow the windrower on a roadway at night, or in conditions which reduce visibility, such as fog or rain. The width of the load makes it unsafe to transport under these conditions.**

- **Be aware of roadside obstructions, oncoming traffic and bridges. Take care when traveling over rough terrain or on slopes.**

STORAGE PROCEDURE

Do the following at the end of each operating season:

CAUTION:

1. **Clean the windrower thoroughly. Never use gasoline, naptha or any volatile material for cleaning purposes. These materials may be toxic and/or flammable.**

2. **Store windrower in a dry protected place. Never operate engine in a closed building. Proper ventilation is required to avoid exhaust gas hazards.**

3. **Remove the battery and store in a cool, dry place not subject to freezing. Check every 30 days and charge if necessary. Remember when working around storage batteries that all of the exposed metal parts are "live". Never lay a metal object across the terminals because a spark and short circuit will result.**

4. **Cover cutterbar and knife guards to prevent injury from accidental contact.**

Also:

5. If stored outside, always cover windrower with a waterproof canvas or other protective material. This will protect the switches, instruments, tires, etc. from inclement weather.

   If no cover is available, remove pre-cleaner bowl and air intake tube. Seal air cleaner intake, exhaust pipe and fuel tank cap with plastic bags and/or waterproof tape.

6. If possible, block up windrower to take weight off tires.

7. Repaint all worn or chipped painted surfaces to prevent rust.

8. Loosen all drive belts.

9. Lubricate the windrower thoroughly, leaving excess grease on fittings to keep moisture out of bearings. Apply grease to exposed threads and sliding surfaces of components.

STORAGE PROCEDURE (continued)

10. Check for worn components and repair. Tighten loose hardware and replace any missing hardware. See Specifications section for torque charts.

11. Check for broken components and order replacements from your dealer. Attention to these items right away will save time and effort at beginning of next season.

12. Add rust inhibitor to the engine oil.
    Gasoline Engine - use 5 oz. (150 mL)
    Diesel Engine - use 10 oz (300 mL)
    Run engine to operating temperature to mix inhibitor with oil.

13. For gas engine: Spray a fogging oil into the carburetor air intake while engine is running. Shut off engine as soon as oil has been drawn into combustion chamber. Drain carburetor. See "Engine" in Maintenance/Service section.

14. To prevent condensation, fill hydraulic oil reservoir to filler neck with approved hydraulic system oil. See "Fuels, Fluids and Lubricants" in Maintenance/Service section. Also add 1 ounce (30 mL) of rust inhibitor to hydraulic oil at filler neck.

15. Check anti-freeze concentration in engine coolant. Be sure it is sufficient to protect engine against lowest expected temperature.

16. Run the air conditioning system every two months for about 5 minutes. It will be necessary to reverse some of the above procedures to allow running the engine and air conditioning. Remember to repeat these steps afterward.

SERVICE PROCEDURES

CAUTION: To avoid personal injury, before servicing machine or opening drive covers:

1. **Fully lower header and reel.**
2. **Disengage header drive clutch.**
3. **Stop engine and remove key.**
4. **Engage park brake.**
5. **Wait for all moving parts to stop.**

STAY CLEAR OF DRIVELINE
AND ALL MOVING PARTS

Wear close-fitting clothing and cover long hair. Never wear dangling items such as scarves or bracelets.

Wear protective shoes with slip-resistant soles, a hard hat, protective glasses or goggles and heavy gloves.

Be prepared if an accident should occur. Know where the first aid kit and fire extinguisher are located and how to use them.

Keep the service area clean and dry. Wet or oily floors are slippery. Wet spots can be dangerous when working with electrical equipment. Be sure all electrical outlets and tools are properly grounded.

Use adequate light for the job at hand.

Park on level surface when possible. Block wheels securely.

Replace all shields removed or opened for service.

Do not substitute parts, especially safety related, that may not meet strength or design requirements of the manufacturer.

Keep the windrower clean. Do not allow oil or grease to accumulate on the service platform, ladder or controls.

Never use gasoline, naptha or any volatile material for cleaning purposes. These materials may be toxic and/or flammable.

FUELS, FLUIDS AND LUBRICANTS

DIESEL FUEL

Use Grade No. 2 - D fuel, as defined by ASTM Designation D975 for diesel fuels.

NOTE: When temperature is very cold, the use of a mixture of No. 1 and No. 2 Diesel Fuel is permitted for a short period of time, providing the following specifications are met:

Sulfer Content - less than 1% by weight, preferably less than .5%.

Water and Sediment - for maximum filter life, should not exceed .1% by weight.

Cetane Number - 40 minimum. In cold weather or high altitude operation, a higher cetane number (45 to 55) is desirable.

Diesel Fuel Conditioner is available from your dealer. The use of diesel fuel conditioner will:

1. Clean fuel injectors, valves and manifolds for increased service life.
2. Disperse insoluble gummy deposits that can form in the fuel system.
3. Separate moisture from the fuel.
4. Stabilize fuel in storage.

GASOLINE

Use a regular grade leaded gasoline that has a minimum octane number rating of 91.

Non-leaded gasoline with a minimum octane rating of 91 may also be used. Premium grades of unleaded gasoline are NOT recommended.

ENGINE COOLANT

Use a 50/50 mix of water and ethylene-glycol (anti-freeze) meeting SAE spec J1034.

GREASE

Use an SAE Multi-Purpose High Temperature Grease with Extreme Pressure (EP) Performance and containing at least 1.5% molybdenum disulphide.

Also acceptable is an SAE Multi-Purpose Lithium Base Grease.

FUELS, FLUIDS AND LUBRICANTS (continued)

HYDRAULIC OIL

Use SAE 10W30 Class SF or CC engine oil.

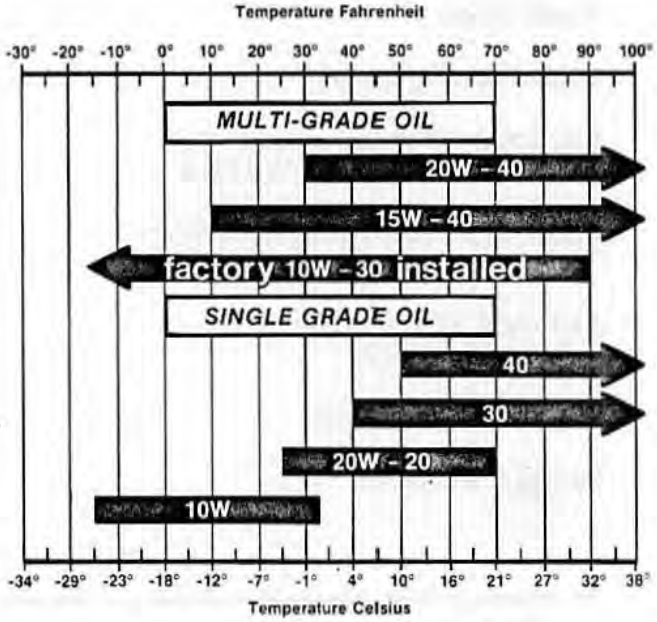
ENGINE OIL

Depending upon the expected air temperature range during the oil change interval, use the oil viscosity shown in the temperature chart at right.

10W30 and 15W40 multi-grade oils are recommended because of the wide temperature ranges in which they are effective. Do not mix oil types or viscosities.

For the gasoline engine, oil should comply with SAE specs for Class SF or CC engine oil.

For the diesel engine, oil should comply with SAE specs for Class CC engine oil.



AIR TEMPERATURE RANGES

POWER WHEEL GEAR LUBRICANT

Use SAE 85W-140 gear lubricant. (API Service Classification GL-5)

STORING LUBRICANTS

Your machine can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, moisture and other contaminants.

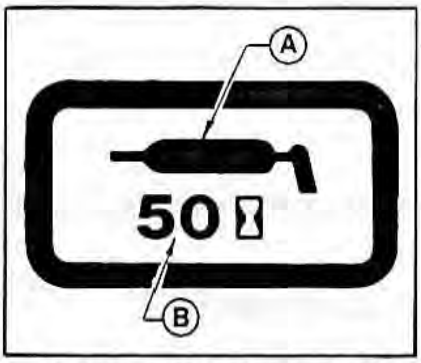
FUELS, FLUIDS AND LUBRICANTS (continued)

SYSTEM CAPACITIES	S.I.	U.S.
Fuel Tank	160 L	42 gal.
Hydraulic System: Total	63 L	16.6 gal.
Reservoir Capacity	47 L	12.5 gal.
Power Wheel	840 mL	28.4 oz.
Engine Cooling System	21.5 L	5.7 gal.
Gas Engine Crankcase: Less Filter	4.7 L	5 qts.
With Filter	5.7 L	6 qts.
Diesel Engine Crankcase: Less Filter	9.5 L	10 qts.
With Filter	10.4 L	11 qts.
Air Conditioning System: Refrigerant (R-12)	1.7 kg	3.75 lbs.
Governor (Gas Engine)	75 to 90 mL	2½ to 3 oz.
Battery (Electrolyte)	5.1 L	175 oz.

GREASING THE WINDROWER TRACTOR

See "Fuels, Fluids and Lubricants" for recommended greases.

The following greasing points are marked on the windrower by decals showing a grease gun (A), and grease interval (B) in hours of operation. Use the hour meter in the cab and the "Maintenance Checklist" provided to keep a record of scheduled maintenance.



SAMPLE GREASE DECAL

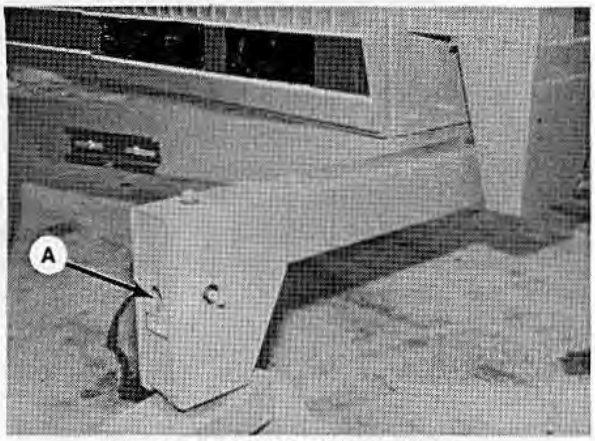
Procedure:

1. Wipe grease fitting with a clean cloth before greasing, to avoid injecting dirt and grit.
2. Inject grease through fitting with grease gun until grease overflows fitting.
3. Leave excess grease on fitting to keep out dirt.
4. Replace any loose or broken fittings immediately.
5. If fitting will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.

GREASING THE WINDROWER TRACTOR (continued)

25 HOURS:

1. Caster Pivots (A) - two fittings

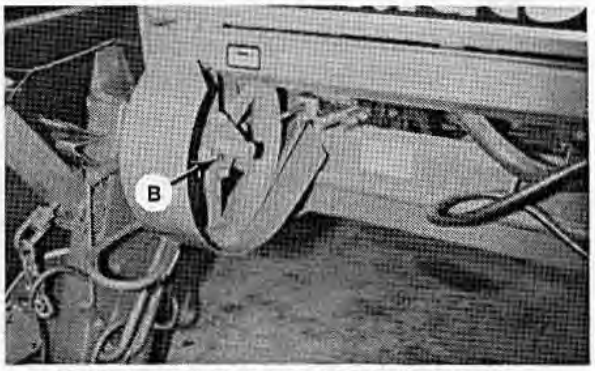


GREASE CASTER PIVOTS

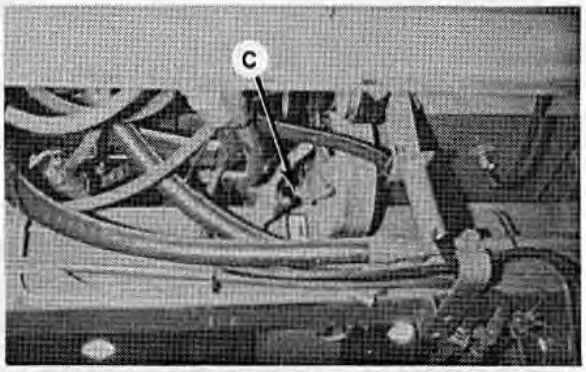
---

50 HOURS:

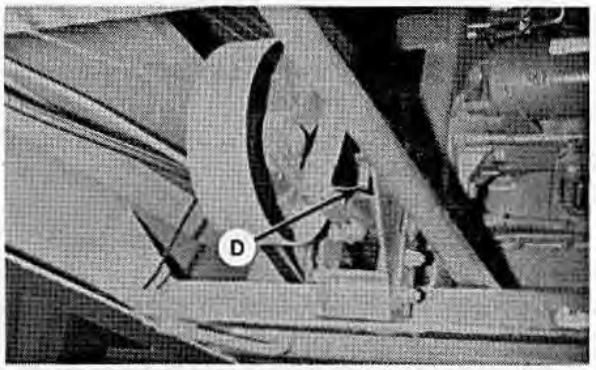
1. Header Drive Pulley (B) - one fitting
2. Header Drive Idler Pulley Pivot (C) - one fitting
3. Traction Drive Idler Pulley Pivot (D) - one fitting
4. Walking Beam Center Pivot (E) - one fitting
5. Float Spring Anchors (F) - two fittings (plus auxiliary spring anchors if equipped)



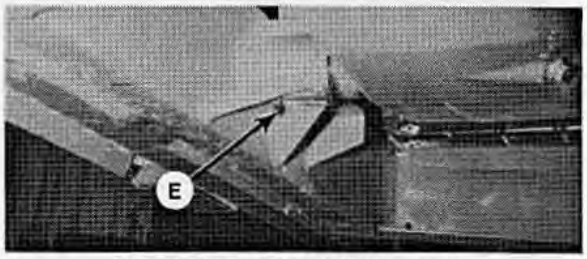
GREASE HEADER DRIVE PULLEY



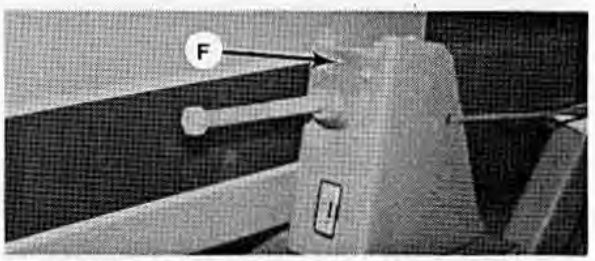
GREASE HEADER DRIVE IDLER PULLEY PIVOT



GREASE TRACTION DRIVE IDLER PULLEY PIVOT



GREASE WALKING BEAM CENTER PIVOT



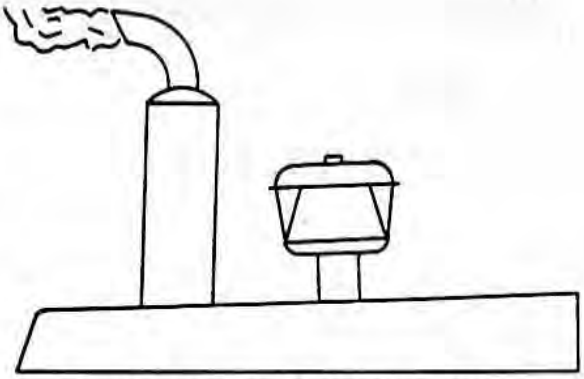
GREASE FLOAT SPRING ANCHORS

ENGINE

CAUTION: Never operate engine in a closed building. Proper ventilation is required to avoid exhaust gas hazards.

Keep the engine clean. Straw and chaff on a hot engine are a fire hazard.

Never use gasoline, naptha or any other volatile material for cleaning purposes. These materials may be toxic and/or flammable.



AVOID EXHAUST GAS HAZARDS

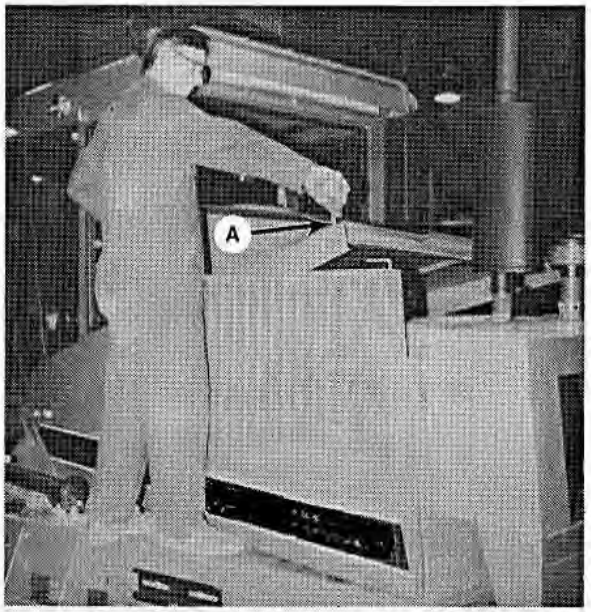
OPENING THE ENGINE COVER

CAUTION: Do not allow oil or grease to accumulate on service platform.

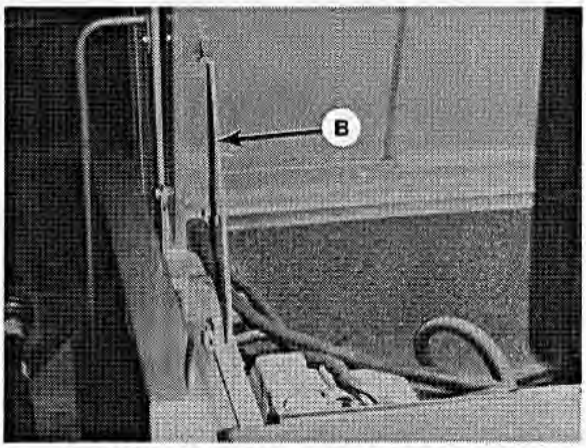
1. Standing on service platform, lift handle (A) to release cover latch.
2. Pull up on handle (A) to raise engine cover. Be sure rod (B) engages in locked position.

To close:

1. Pull handle (A) to open cover further and release rod (B) from locked position.
2. Slide rod (B) towards rear of windrower until lock position is cleared.
3. Lower engine cover with handle (A).
4. Push down handle (A) to engage cover latch.



OPENING ENGINE COVER



ENGINE COVER - LOCK POSITION

ENGINE (continued)

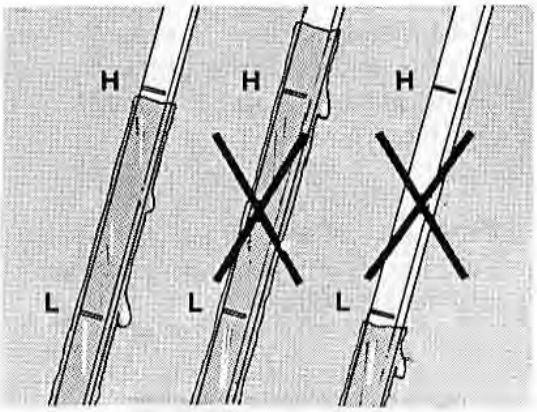
LUBRICATING OIL

Check engine oil level daily on dipstick.
See "Fuels, Fluids and Lubricants" section for recommended oil type.

IMPORTANT: Never operate the engine with the oil level below the "L" (LOW) mark or above the "H" (HIGH) mark.

CAPACITY - LOW MARK TO HIGH: 1 litre (1.05 U.S. qt.)

Change engine oil and filter after the FIRST 25 HOURS OF OPERATION and every 200 hours (or beginning of each operating season) thereafter.

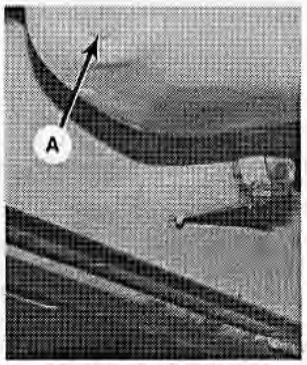


MAINTAIN ENGINE OIL LEVEL

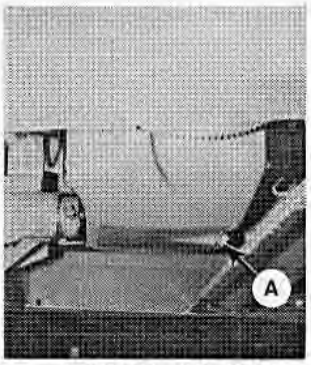
To change:

1. Warm up the engine. Shut engine off and remove ignition key.
2. Remove the drain plug (A) and allow oil to drain.

CAUTION: Remember that the oil is hot.



GAS ENGINE



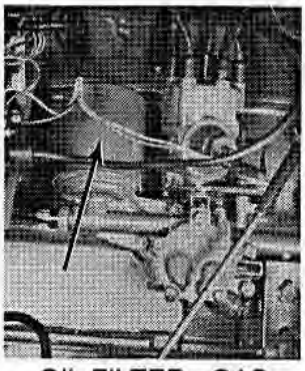
DIESEL ENGINE

REMOVE DRAIN PLUG

NOTE: A drain pan with a capacity of 20 litres (5 U.S. gallons) will be adequate for gas or diesel engines.

3. Check the condition of the used oil:
   - Thin, black oil indicates fuel dilution.
   - Milky discolouration indicates coolant dilution.

   If oil appears diluted, have your Dealer correct the problem before operating the windrower.
4. Clean around the filter head, remove the filter and clean the gasket surface.
5. Apply a thin film of clean oil to the gasket on the new filter.


OIL FILTER - GAS ENGINE


OIL FILTER - DIESEL ENGINE

ENGINE

LUBRICATING OIL

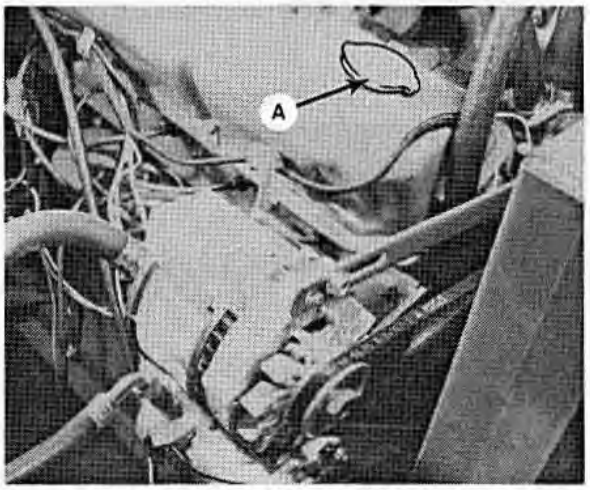
Changing engine oil and filter (continued)

6. Install the new filter. Turn the filter onto the mount until the gasket contacts the filter head. Tighten the filter an additional 1/2 to 3/4 turn by hand.

IMPORTANT: Do not use a filter wrench to install the oil filter. Overtightening can damage the gasket and the filter.

7. Install the oil pan drain plug.

8. Fill the engine with the proper amount of oil. See "Fuels, Fluids and Lubricants" section for recommended oil types.



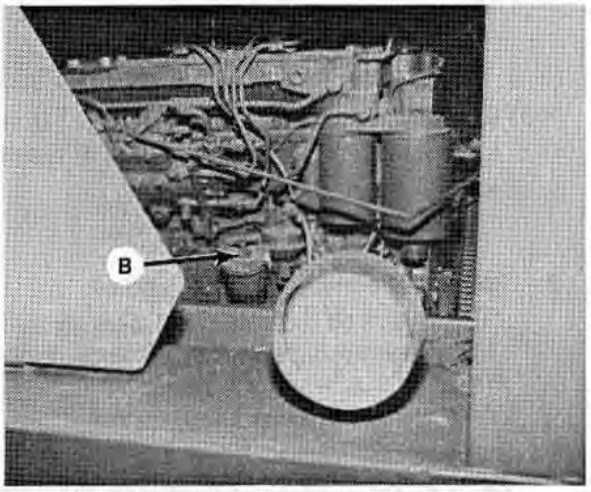
FILLER LOCATION - GAS ENGINE

Capacity	Gas Engine	Diesel Engine
With filter change	5.7L (6 U.S. qts.)	10.4L (11 U.S. qts.)
Without filter change	4.7L (5 U.S. qts)	9.5L (10 U.S. qts.)

(A) - Filler cap - gas engine
(B) - Filler cap - diesel engine

9. Operate the engine at low idle and check for leaks at the filter and drain plug.

10. Shut off engine. Wait five minutes, then check oil level at dipstick. Add oil if required.



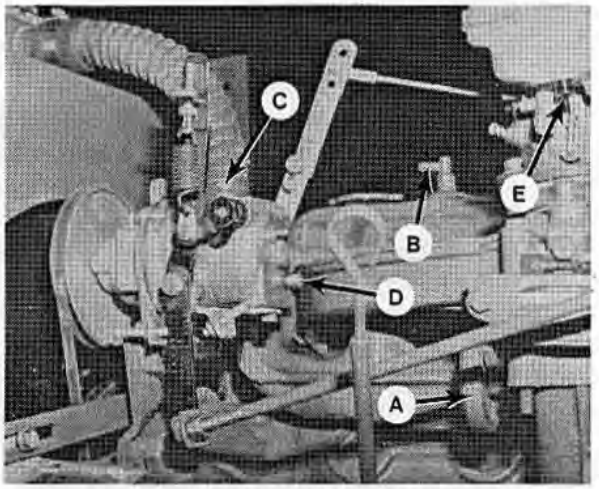
FILLER LOCATION - DIESEL ENGINE
(view from back of windrower)

ENGINE (continued)

MANIFOLD HEAT CONTROL VALVE - GAS ENGINE

WARNING: To avoid personal injury from combustion, apply solvent on shaft only after exhaust manifold has cooled.

Lubricate manifold heat control valve (A) every 100 Hours (or beginning of each operating season). Apply a few drops of Manifold Heat Control Valve Solvent to the end of the control shaft, at the bearings. Work valve back and forth several times.



GAS ENGINE MAINTENANCE

CLOSED CRANKCASE VENTILATOR VALVE - GAS ENGINE

Inspect valve (B) every 100 Hours (or beginning of each operating season). Replace every 500 Hours. To inspect, remove valve and shake. Rattling noise indicates valve is operational.

GOVERNOR LUBRICATION - GAS ENGINE

The governor is pre-filled by the manufacturer and does not require maintenance for the first 12 months. Check governor oil level at the beginning of each operating season thereafter.

To check level:

1. Remove filler plug (C).
2. Remove level plug (D).
3. Add SAE 10W30 or SAE 20 engine oil through filler hole until oil runs out of level hole.

   CAPACITY - 2 1/2 to 3 oz. (75 to 90 mL)

IMPORTANT: Allow excess oil to drain. Over-filling will cause sluggish operation.

4. Re-install both plugs.

CARBURETOR STORAGE - GAS ENGINE

If windrower is to be stored for an extended period, turn plug (E) counter-clockwise and drain carburetor.

ENGINE (continued)

BELTS

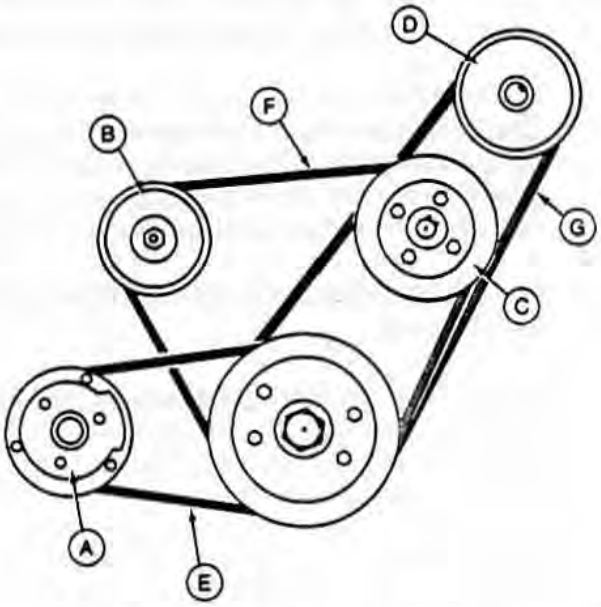
IMPORTANT: When installing new belts, never pry belt over pulley. Loosen necessary component hardware and adjust belt tension. Re-adjust tension of a new belt after a short run-in period. (About 5 hours.)

Gasoline Engine Belts

To adjust tension:
1. Loosen necessary mounting hardware on component driven by belt to be adjusted.
2. For alternator and governor belts, adjust tension so that a force of 8 to 12 lbs. (36 to 54 N) deflects the belt 3/8 inch (10 mm) at midpoint of longest span.

NOTE: When moving governor to adjust governor belt tension, keep governor parallel to key guides to prevent misalignment of throttle rod.

3. For compressor belt, adjust tension so that a force of 8 to 12 lbs. (36 to 54 N) deflects the belt 3/16 inch (5 mm) at midspan.
4. Tighten hardware and recheck tension.



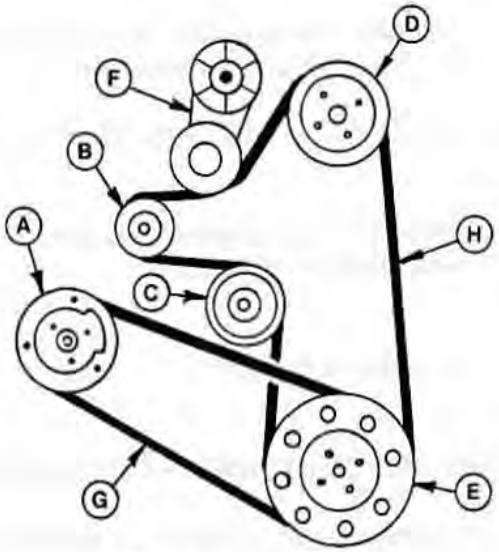
BELTS - GASOLINE ENGINE

A - Air Conditioning Compressor
B - Alternator
C - Water Pump
D - Governor
E - Compressor Belt
F - Alternator/Water Pump Belt
G - Governor Belt

Diesel Engine Belts

The alternator/water pump/ fan belt is automatically tensioned. No manual adjustment is required.

To adjust compressor belt:
1. Loosen compressor mounting hardware.
2. Adjust tension so that a force of 8 to 12 lbs. (36 to 54 N) deflects belt 3/16 inch (5 mm) at midspan.
3. Tighten compressor mounting hardware and recheck tension.



BELTS - DIESEL ENGINE

A - Air Conditioning Compressor
B - Alternator
C - Water Pump
D - Fan Pulley
E - Crankshaft Pulley
F - Automatic Belt Tensioner
G - Compressor Belt
H - Alternator/Water Pump/Fan Belt

ENGINE (continued)

IGNITION TIMING ADJUSTMENT - GAS ENGINE

WARNING: To avoid personal injury, disengage all drives and engage park brake.

It is necessary to have the engine running for this procedure. Be sure everyone in the area is aware that the machine is being serviced.

Use extreme care when working around moving parts.

Never wear loose fitting or dangling clothing. Keep hands, feet, clothing and hair away from moving parts.

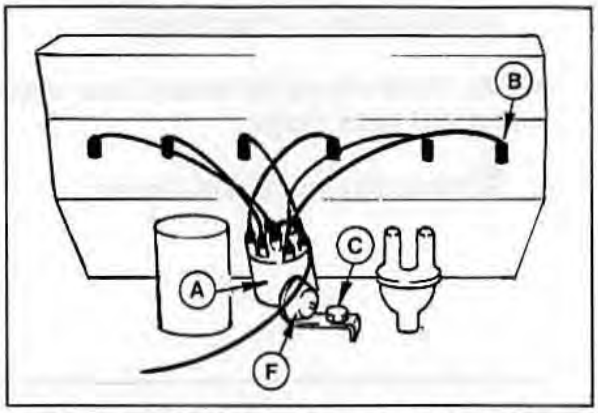
For maximum engine performance, position distributor (A) correctly to give proper ignition timing. To adjust:

1. Connect secondary lead of timing light to No. 1 spark plug (B).
2. Connect red primary lead to positive battery terminal and black primary lead to negative battery terminal.
3. Connect tachometer to engine.
4. Loosen distributor capscrew (C) enough to allow rotation of distributor by hand.
5. Start engine and run to normal operating temperature.
6. Move throttle lever at bellcrank to achieve tachometer reading of 500 RPM.
7. Aim timing light at indicator tab (D) on rear of engine and rotate distributor (A) to align tab (D) with timing mark (E) on flywheel.

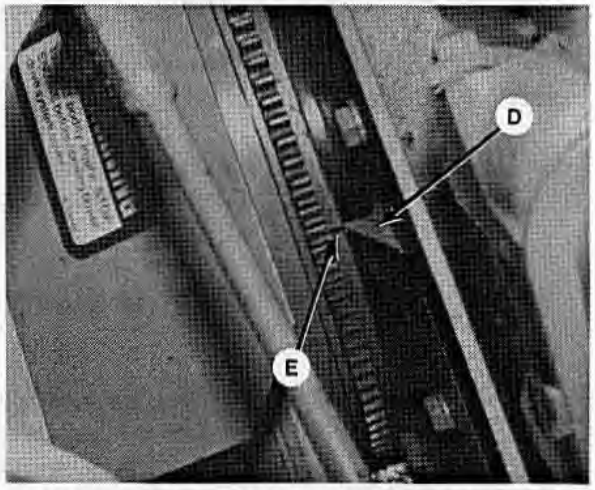
NOTE: DO NOT use distributor vacuum advance chamber (F) as a turn handle.

8. When tab and mark align, stop engine and tighten capscrew (C).
9. Start engine, set at 500 RPM and recheck timing with timing light.

NOTE: If advance units are functioning, timing mark (E) should move down on flywheel, below tab (D) when engine speed is increased.



DISTRIBUTOR AND NO. 1 SPARK PLUG



TIMING INDICATORS ALIGN AT 500 RPM

ENGINE (continued)

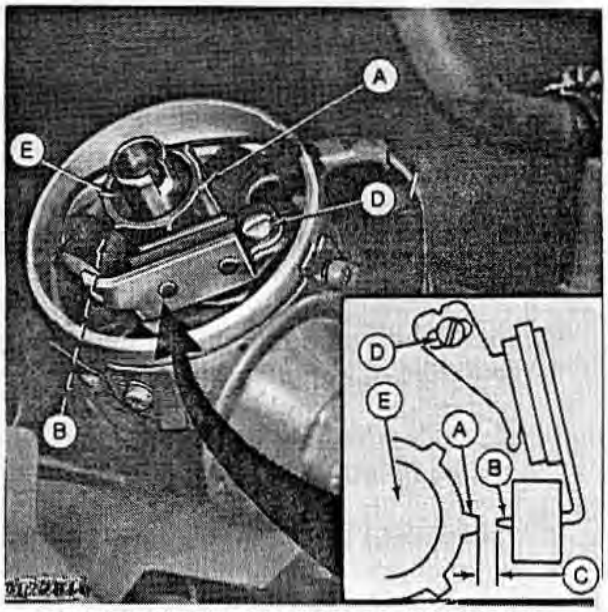
DISTRIBUTOR AIR GAP ADJUSTMENT - GAS ENGINE

When you have an ignition problem, check spark plugs and wires. If in good condition, remove distributor cap and check distributor:

1. Wipe distributor cap with clean cloth and inspect for cracks. Replace if necessary.
2. Remove rotor and check for damage or wear.
3. Align one reluctor tooth (A) with pick-up coil tooth (B) and check for 0.006 inch (0.15 mm) gap (C) with a non-magnetic feeler gauge.
4. Loosen screw (D) and adjust gap (C). Tighten screw securely and recheck gap.

NOTE: There should not be any force required to remove the feeler gauge.

5. Replace rotor and distributor cap.

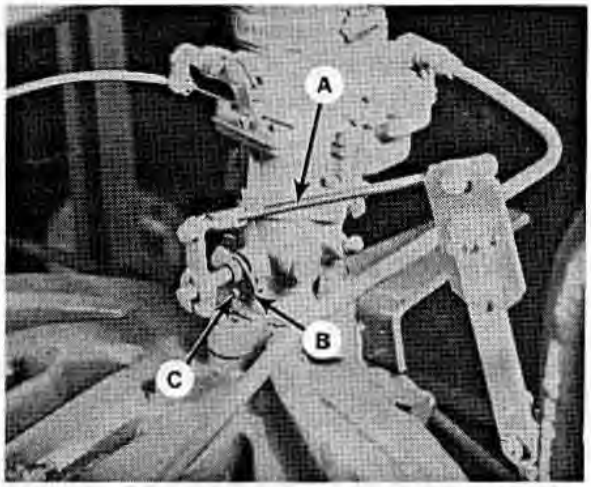


DISTRIBUTOR AIR GAP ADJUSTMENT

GOVERNOR TO CARBURETOR LINKAGE ADJUSTMENT - GAS ENGINE

If governor or carburetor is removed for any reason, the linkage should be adjusted:

1. With the throttle lever fully forward and engine off, adjust throttle rod (A) so lever (B) is 0.04 inch (1 mm) away from stop pin (C).
2. Check that the linkage is not binding at any throttle position.
3. Adjust governor for maximum engine speed and proper surge. See "Maximum Engine Speed Adjustment" and "Governor Surge Adjustment" in this section.



GOVERNOR TO CARBURETOR LINKAGE

ENGINE (continued)

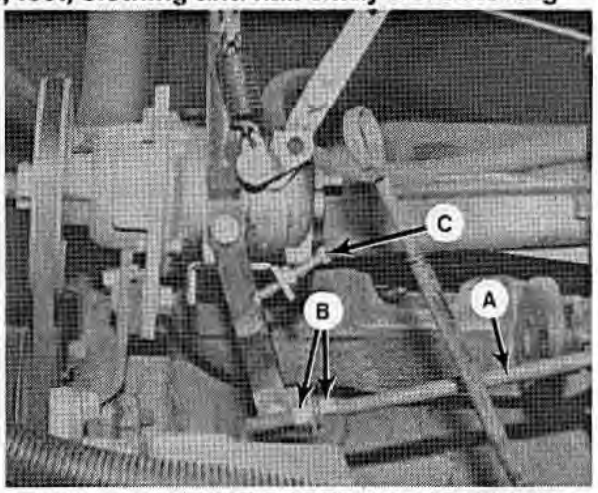
MAXIMUM ENGINE SPEED ADJUSTMENT - GAS ENGINE

WARNING: To avoid personal injury, disengage all drives and engage park brake. It is necessary to have the engine running for this procedure. Be sure everyone in the area is aware that the machine is being serviced.

Use extreme care when working around moving parts. Never wear loose fitting clothing or dangling items such as scarves or bracelets. Keep hands, feet, clothing and hair away from moving parts.

Maximum engine speed is controlled by the governor. To adjust:

1. Start engine and let idle until normal operating temperature is reached.
2. Move throttle lever to full forward position.
3. Adjust rod (A) with nuts (B) until a no-load engine speed of 2380 to 2430 RPM is reached.
4. Finger tighten bolt (C) against governor lever and lock position with jam nut.
5. Adjust governor surge if necessary. See "Governor Surge Adjustment" in this section.



MAXIMUM ENGINE SPEED ADJUSTMENT

GOVERNOR SURGE ADJUSTMENT - GAS ENGINE

To check surge, move throttle lever rapidly from idle to full forward. The governor should surge (hunt) from one to three times.

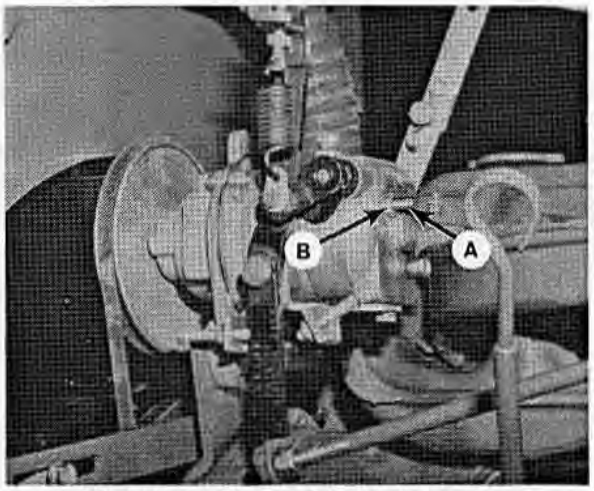
WARNING: Follow safety instructions given above under "Maximum Engine Speed Adjustment".

If surging occurs more than three times, turn bumper screw (A) in to reduce surge.

IMPORTANT: Do not turn bumper screw in too far, as this will cause the governor to become ineffective. The result would be inability to maintain engine speed under load. The bumper screw should never be turned in so far that engine speed "wanders" more than 15 RPM. To adjust bumper screw:

1. Loosen jam nut (B).
2. Turn bumper screw (A) to correct surge.
3. Tighten jam nut to secure the position.

NOTE: If bumper screw adjustment does not correct surge, see your Windrower dealer.



GOVERNOR SURGE ADJUSTMENT

ENGINE (continued)

CARBURETOR IDLE MIXTURE ADJUSTMENT - GAS ENGINE

WARNING: To avoid personal injury, disengage all drives and engage park brake.

It is necessary to have the engine running for this procedure. Be sure everyone in the area is aware that the machine is being serviced.

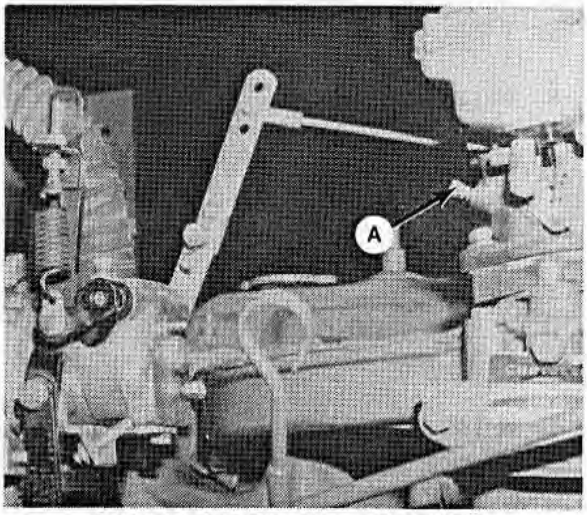
Use extreme care when working around moving parts. Never wear loose fitting clothing or dangling items such as scarves or bracelets. Keep hands, feet, clothing and hair away from moving parts.

If engine runs unevenly when idling, the fuel/air mixture can be adjusted using screw (A) on carburetor.

To adjust:

1. With throttle lever at low idle position, engine running, turn screw (A) in or out until engine runs evenly.

2. Move throttle lever fully forward and back to idle position. Engine should settle and run evenly without tendency to stall.



CARBURETOR IDLE MIXTURE

ENGINE (continued)

LOW IDLE ADJUSTMENT - GAS ENGINE

After adjusting maximum engine speed, governor surge and idle mixture, low idle speed should be 800 to 1100 RPM, with throttle lever (A) in the center detent.

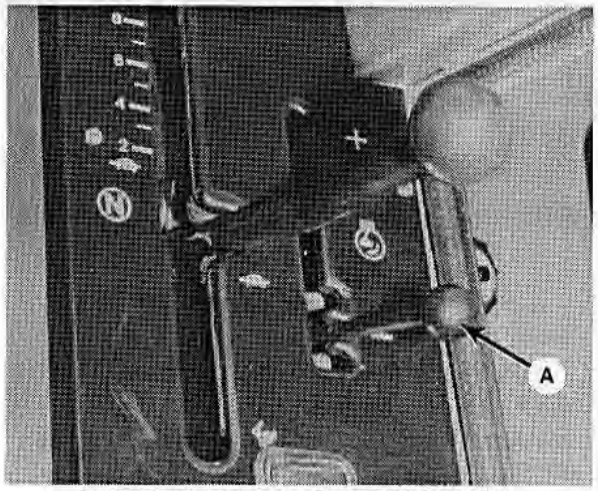
If adjustment is necessary:

WARNING: To avoid personal injury, disengage all drives and engage park brake.

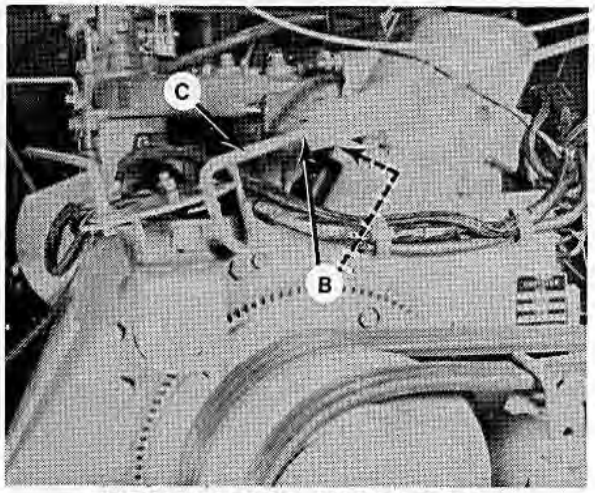
It is necessary to have the engine running for this procedure. Be sure everyone in the area is aware that the machine is being serviced.

Use extreme care when working around moving parts. Never wear loose fitting clothing or dangling items such as scarves or bracelets. Keep hands, feet, clothing and hair away from moving parts.

1. Start engine and position throttle lever (A) in center detent (low idle) position.
2. Loosen jam nuts (B) on throttle rod (C).
3. Set engine speed to 800 - 1100 RPM by adjusting length of throttle rod assembly with one of the jam nuts.
4. Tighten jam nuts.



THROTTLE LOW IDLE POSITION



THROTTLE ROD ADJUSTMENT

ENGINE (continued)

MAXIMUM SPEED SETTING - DIESEL ENGINE

For the diesel engine, maximum speed is factory set at 2320 to 2370 RPM.

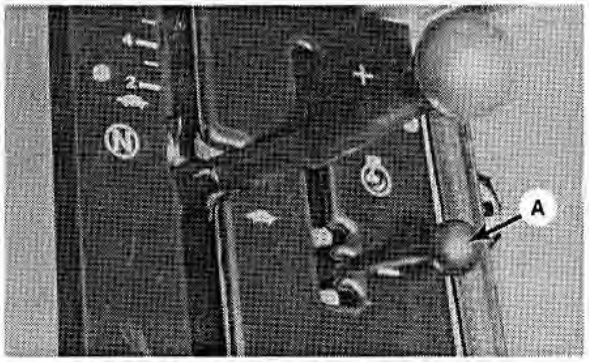
IMPORTANT: Do not remove any seals from injector pump; removal of seals will void engine warranty.

If engine maximum speed is not 2320 to 2370 RPM, check that with throttle lever fully forward the fuel pump lever contacts the full RPM stop. If not, bend throttle rod by hand to suit. If this does not correct the problem, see your Windrower dealer.

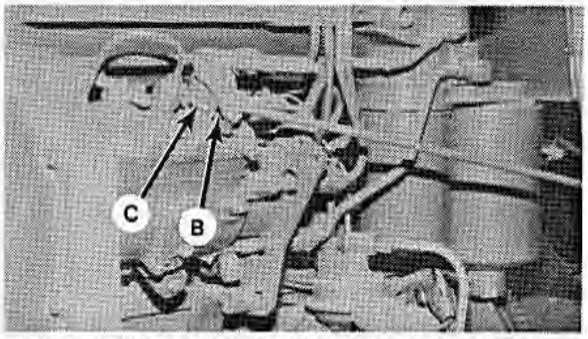
THROTTLE ROD ADJUSTMENT - DIESEL ENGINE

1. With throttle lever (A) in the center detent (low idle) position, fuel pump lever (B) should contact slow speed stop screw (C).
2. If not, loosen jam nut (D) on throttle rod (E).
3. Lengthen throttle rod assembly with nut (F) until lever (B) contacts stop screw (C).
4. Secure position by tightening nut (D).

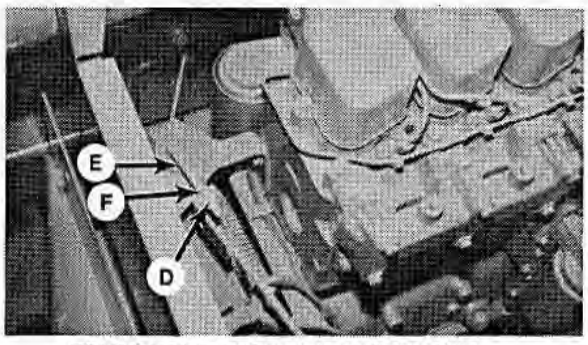
IMPORTANT: Do not adjust idle speed with stop screw (C). This has been factory set for 750 to 800 RPM low idle speed. If low idle is not 750 to 800 RPM, see your Windrower dealer.



THROTTLE LOW IDLE POSITION



FUEL PUMP LEVER AND STOP SCREW



THROTTLE ROD ADJUSTMENT

ENGINE (continued)

VALVE TAPPET CLEARANCE

Every 1000 hours of operation, have gas or diesel engine valve tappet clearance checked and adjusted by your Windrower dealer.

GENERAL ENGINE INSPECTION

Every 2000 hours of operation, see your Windrower dealer for required general service or tune-up.

For diesel engine, have fuel injection pump and nozzles inspected and the vibration dampener checked at this time.

AIR-INTAKE AND EXHAUST SYSTEMS

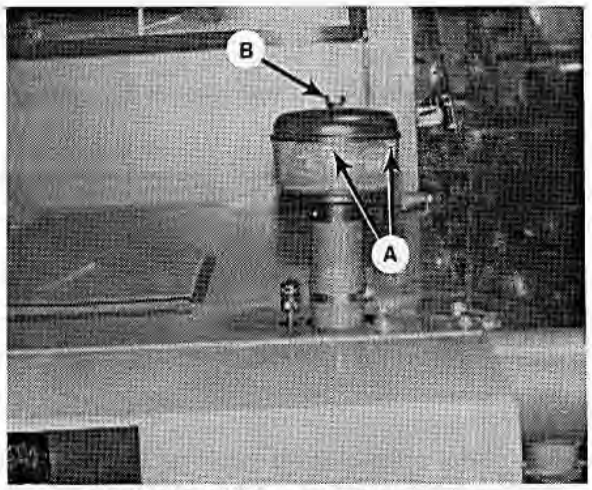
PRE-CLEANER

Clean pre-cleaner bowl when dust level reaches white lines (A) marked on bowl, or at least daily.

To clean bowl:

1. Loosen knob (B) and remove cap and bowl from intake tube.
2. Separate bowl from cap and empty dust from bowl.

NOTE: An optional aspirated pre-cleaner package is available for both gas and diesel powered units to prolong air cleaner element life. See "Options and Attachments" section.



PRE-CLEANER - CLEAN DAILY

AIR CLEANER

IMPORTANT: Do not run engine with air cleaner disconnected or disassembled.

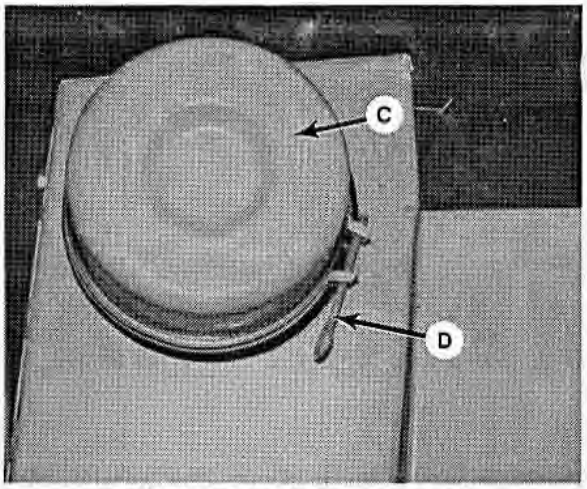
Dust Cup (C) - Gas Engine:

Empty dust cap daily or more often if required. Dust level should not be allowed to build up to less than 1/2 inch (13 mm) from notch in dust cup inner lip.

To empty cup:

1. Loosen clamp by turning eyebolt (D). Remove cup.
2. Remove rubber baffle inside cup and empty dust from cup.

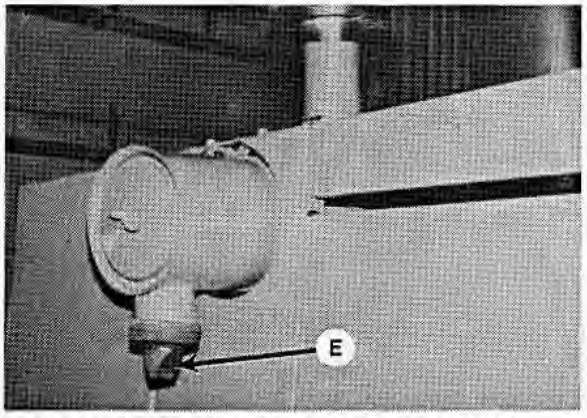
When re-assembling, be sure arrows on dust cup point up.



DUST CUP - CLEAN DAILY

Vacuator Valve (E) - Diesel Engine:

Inspect vacuator valve daily for obstructions which could restrict the ejection of dust through the valve. Clean or replace if necessary.



VACUATOR VALVE - INSPECT DAILY

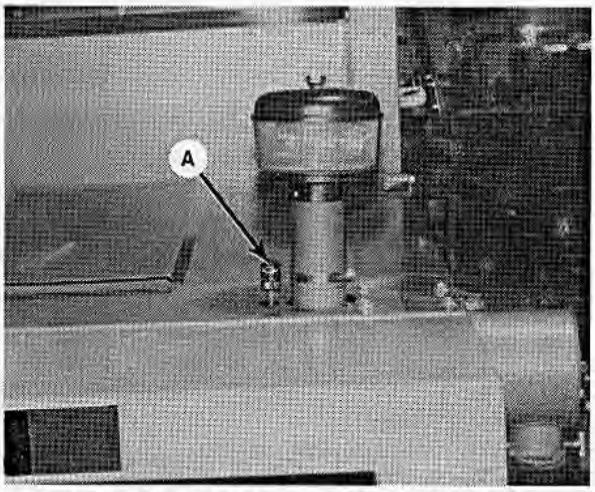
AIR INTAKE AND EXHAUST SYSTEMS

AIR CLEANER (continued)

Filter Elements - Cleaning and Inspection

For gas engine, clean filter element every 100 hours under normal conditions, every 50 hours under severe conditions.

For diesel engine, the air cleaner is equipped with a restriction gauge (A) which signals red when the primary filter element requires cleaning. Check restriction gauge daily. Never clean filter element unless restriction gauge signals red. Excessive cleaning will shorten element life. After cleaning, re-set restriction gauge by pushing button on top of gauge.

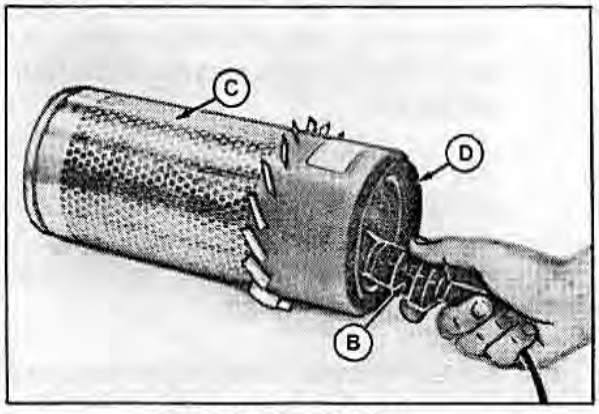


RESTRICTION GAUGE - DIESEL ONLY

IMPORTANT: The diesel engine air cleaner is a dual element type. Clean the primary (outer) element only. Do not attempt to clean the secondary (inner) element. If there is visible dirt on the secondary element, replace both primary and secondary elements. See "Filter Elements - Replacement" for normal change interval.

To clean air filter element:

1. Remove element from air cleaner canister.
2. Clean inside of canister and cover with a cloth.
3. Inspect element as follows.
   - Hold a bright light (B) inside element and check carefully for holes. Discard any element which shows the slightest hole.
   - Be sure outer screen (C) is not dented. Vibration would quickly wear a hole in the filter.
   - Be sure filter gasket (D) is in good condition. If gasket is damaged or missing, replace element.
4. Pat sides of element gently to loosen dirt. Do not tap element against a hard surface.



INSPECT ELEMENT

AIR INTAKE AND EXHAUST SYSTEMS

AIR CLEANER

Cleaning Filter Elements (continued):

5. Using a Dry Element Cleaner Gun, clean element with compressed air.

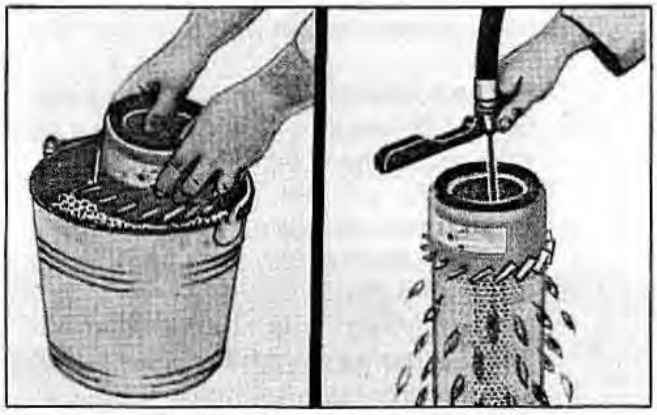
NOTE: Air pressure must not exceed 100 psi (689 kPa).

Hold nozzle next to inner surface, and move up and down pleats.

CLEAN WITH COMPRESSED AIR

IMPORTANT: Do not direct air against outside of element, as dirt might be forced through to inside.

6. Repeat steps 4 & 5 to remove additional dirt.
7. If washing is not necessary, repeat inspection (step 3) before re-installing.
8. If element is coated with oil or soot, wash in a solution of warm water and Filter Element Cleaner (Donaldson D1400 or equivalent) as follows:
   - Let element soak in solution at least 15 minutes, then agitate gently to flush out dirt.
   - Rinse element thoroughly from inside with clean water. Use element cleaning gun or a free-running hose (maximum pressure 40 psi [275 kPa], higher pressures can damage element).
   - Allow element to dry completely before using. This usually takes from one to three days. Do not oven dry, or use compressed air or other drying agents. Protect element from freezing until dry.
   - Inspect element (step 3) before re-installing.
9. Inspect the air intake piping for damage, cracked hoses, loose clamps, etc.



WASH AND RINSE ELEMENT

AIR INTAKE AND EXHAUST SYSTEMS

AIR CLEANER (continued)

Filter Elements - Replacement

The air cleaner filter element should be replaced after six cleanings or at least every 3 years.

For the diesel engine, replace the primary (outer) element as above. The secondary (inner) element must not be cleaned, and should be replaced every third time the primary element is changed.

MUFFLER

CAUTION: To avoid burns, do not touch muffler when engine is running or before allowing sufficient cooling time after shut-down.

Clean out muffler accumulation every 200 hours as follows:

1. Remove spark arrester plug (A). (Two plugs for diesel engine.)
2. Block off muffler outlet (B).
3. Start engine and run at idle until any accumulated debris is removed.
4. Remove blockage at (B) and replace plug(s).

REMOVE SPARK ARRESTER PLUG AND BLOCK OUTLET

COOLING SYSTEM

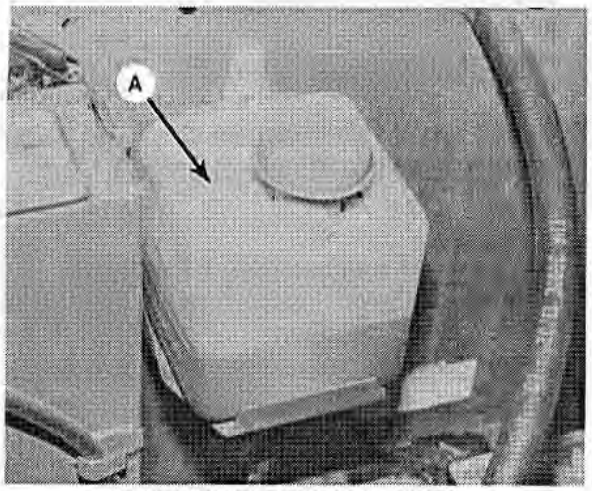
COOLANT LEVEL

Check coolant level daily at reserve tank (A). Tank is best observed from platform with engine cover open. Check level when engine is cold. Maintain NORMAL level shown on reserve tank.

If coolant is at or below "ADD COOLANT" level, add coolant to reserve tank (A), not to radiator. See "Fuels, Fluids and Lubricants" for recommended anti-freeze type.

IMPORTANT: Use a 50/50 mix of anti-freeze and clean, soft water. This ratio will protect engine to temperatures of -34°C (-30°F). In areas where freezing temperatures are not a concern, the use of an anti-freeze mixture is still recommended. Anti-freeze contains rust inhibitors and other additives to prolong engine life.

Do not drain cooling system to protect against freezing. Heater does not drain completely, so damage could result.



MAINTAIN "NORMAL" LEVEL

RADIATOR CAP

The radiator cap must fit tightly and the cap gasket must be in good condition to maintain the 7 psi (58 kPa) pressure in the cooling system.

CAUTION: To avoid personal injury from hot coolant, do not turn radiator cap until engine cools.

Turn the cap to the first notch to relieve pressure before removing cap completely.

ANTI-FREEZE CONCENTRATION

Check the anti-freeze concentration once per season, preferably before off-season storage. Protect the engine to -34°C (-30°F) with a 50/50 anti-freeze and water mixture.

COOLING SYSTEM (continued)

CHANGING COOLANT

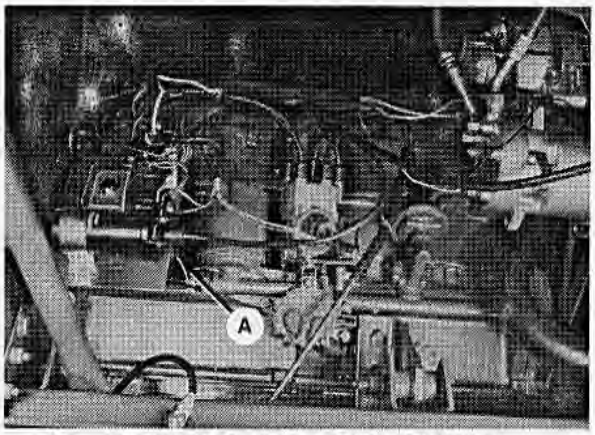
Coolant should be removed, system flushed and new coolant added every 2 years

Procedure:

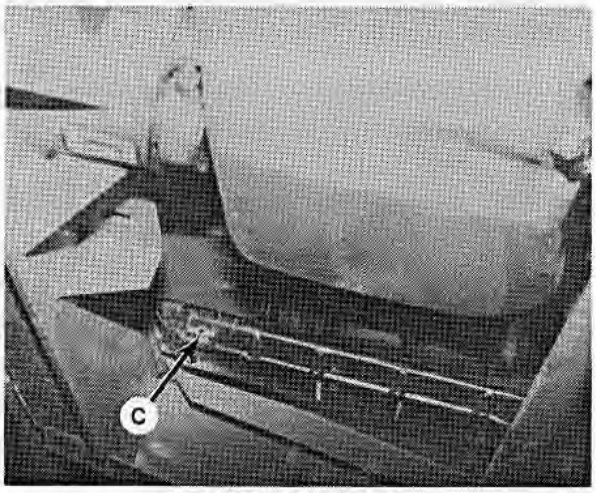
CAUTION: To avoid personal injury from hot coolant, do not turn radiator cap until engine cools. Turn the cap to the first notch to relieve pressure before removing cap completely.

1. With engine cool and approximately level, open engine cover and remove radiator cap.
2. Gas Engine: Remove drain plug (A) from engine block.
   Gas & Diesel: Open radiator drain valve (C).

   NOTE: A drain pan with a capacity of 30 litres (8 U.S. gallons) will be adequate.
3. When system is drained, replace drain plug in block and close radiator drain valve.
4. Fill system with clean water and replace radiator cap.
5. Turn heater switch in cab ON and leave it on until flushing is complete.
6. Start and run engine until normal operating temperature is reached.
7. Stop engine and drain water out before rust or sediment settles.
8. Close drain valves and fill system with a solution of clean water and a heavy duty radiator cleaner. Follow instructions provided with cleaner.
9. After using cleaner solution, again flush system with clean water. Inspect radiator, hoses and fittings for leaks.
10. Close drain valves and fill system with a 50/50 mix of anti-freeze and clean, soft water.
    SYSTEM CAPACITY - 21.5 litres (5.7 U.S. gallons)
    See "Fuels Fluids and Lubricants" for anti-freeze type.



BLOCK DRAIN - GAS ENGINE



RADIATOR DRAIN

COOLING SYSTEM (continued)

SCREENS AND COOLERS

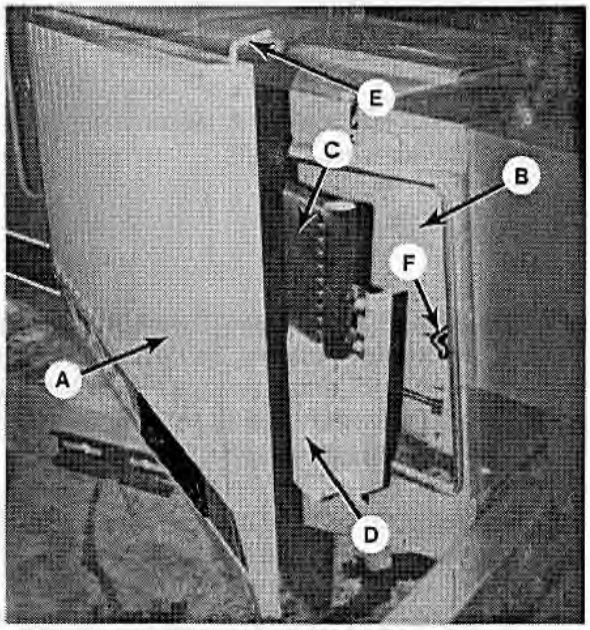
Radiator Screen (A) - Should be cleaned periodically during a day's operation and checked frequently. Do not allow excessive trash build-up.

NOTE: An optional rotary screen is available for conditions where trash build-up is excessive.

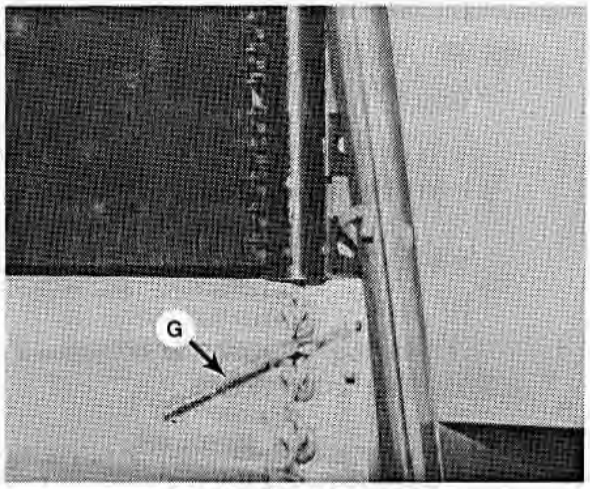
Radiator (B), Oil Cooler (C) and Condenser (D) - Should be cleaned daily with compressed air. More frequent cleanings may be necessary in severe conditions.

For access to oil cooler and condenser, release screen latch (E) and lift catch (F).

For access to radiator, remove retainer (G) and swing cooler and condenser mount out.



SCREEN AND COOLERS



RADIATOR ACCESS

FUEL SYSTEM

STORING FUEL

Buy good quality, clean fuel from a reputable dealer.

Proper fuel storage is critically important. Keep all dirt, water and other contaminants away from fuel.

Avoid storing fuel over long periods of time. If you have a slow turnover of fuel in tank or supply tank, add fuel conditioner to avoid condensation problems.

Store fuel in a convenient place away from buildings.

REFUELLING WINDROWER

WARNING: To avoid personal injury or death from explosion or fire, do not smoke or allow flame or sparks near fuel tank when refuelling.

Never refuel the windrower when the engine is hot or running.

REFUEL SAFELY

IMPORTANT: Do not fill tank completely; space is required for expansion. A filled tank could overflow if exposed to a rise in temperature, such as direct sunlight.

Fill fuel tank daily, preferably at the end of the days operation. This prevents condensation in the tank as moist air cools overnight.

See "Fuels, Fluids and Lubricants" for recommended fuels.

IMPORTANT: Do not allow tank to empty. Running out of fuel can cause problems with the fuel system, especially with diesel engine.

TANK CAPACITY is 160 litres (42 U.S. gallons)

FUEL TANK CAP

If fuel tank cap requires replacement, be sure to order the original equipment part which is properly vented for safe operation.

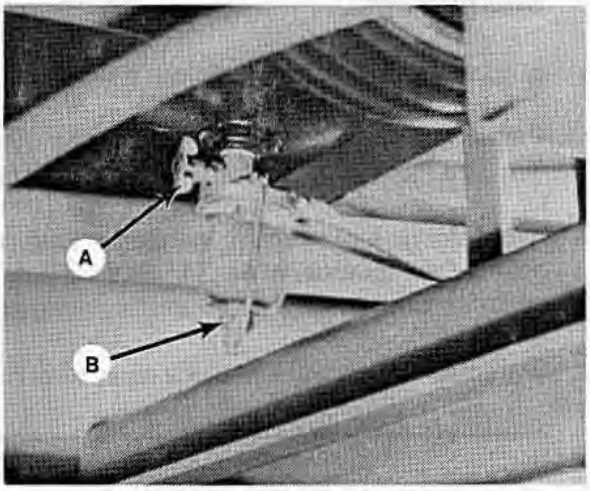
FUEL SYSTEM (continued)

FUEL SEDIMENT BOWL

Inspect fuel sediment bowl daily. Bowl is located under tank. Clean as required.

To clean:

1. Close valve (A) to shut off fuel.
2. Loosen nut (B) and remove bowl.
3. Clean bowl thoroughly.
4. Replace bowl and open valve (A).



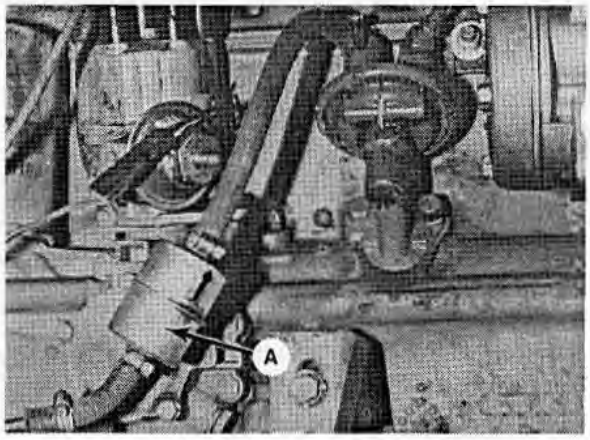
FUEL SEDIMENT BOWL

FUEL FILTER - GASOLINE ENGINE

Change fuel filter every 200 hours or once per operating season.

To change:

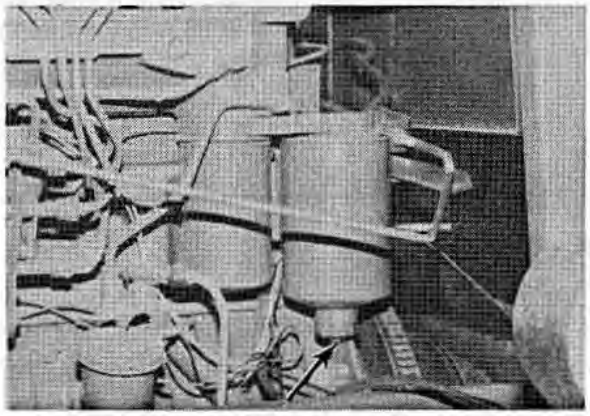
1. Remove filter (A), located on front side of engine.
2. Install new filter, ensuring arrow points in direction of fuel flow.



FUEL FILTER - GAS

FUEL/WATER SEPARATOR - DIESEL ENGINE

Drain water trap at fuel filter daily.


DRAIN WATER TRAP - DIESEL

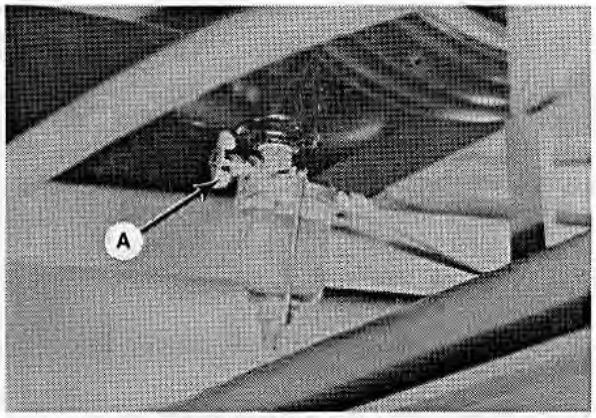
FUEL SYSTEM (continued)

FUEL FILTERS - DIESEL ENGINE

Change fuel filters every 500 hours of operation.

To change:

1. Close valve (A) under fuel tank to shut off fuel.



SHUT OFF FUEL

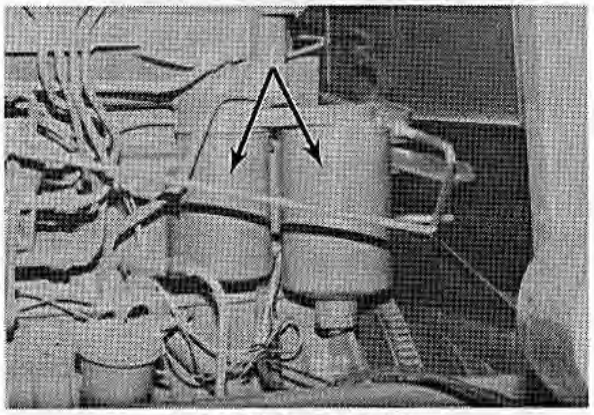
2. Clean the filter head, filters and the engine area next to the filters.

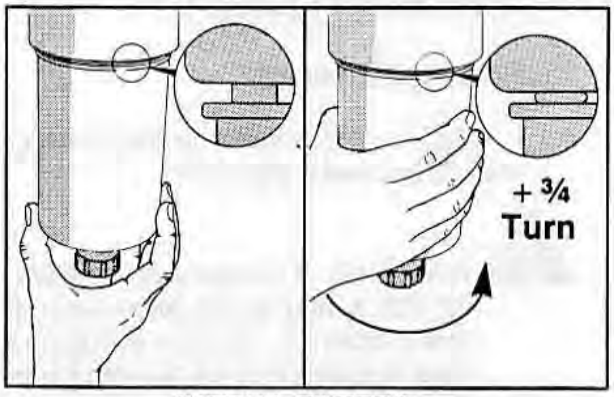
3. Remove the two filters using a clamp wrench.

4. **IMPORTANT:** Fill the new filters with clean fuel and apply a thin film of clean oil to the filter gaskets.

5. Install the new filters. Turn the filters onto the mount until the gasket contacts the filter head. Tighten the filter an additional 1/2 turn to 3/4 turn by hand.

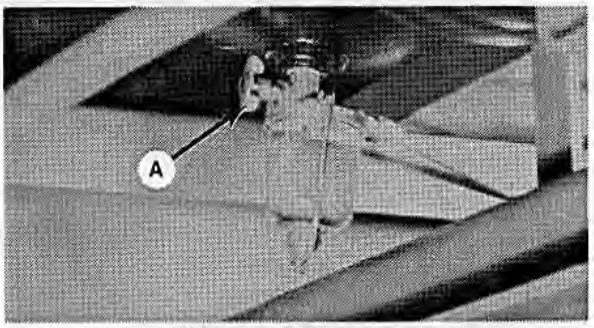
   IMPORTANT: Do not use a filter wrench to install filters. Overtightening can damage the gasket and the filter.


REMOVE FILTERS



INSTALL FILTERS

6. Open valve (A) under fuel tank.



OPEN FUEL LINE

FUEL SYSTEM (continued)

FUEL SYSTEM AIR REMOVAL - DIESEL ENGINE

Controlled venting of air is provided at the injection pump through the fuel drain manifold. Small amounts of air introduced by changing filters or injection pump supply line will be vented automatically, if the fuel filter is changed in accordance with instructions. (See "Fuel Filters".)

However, manual venting ("bleeding") will be required if:

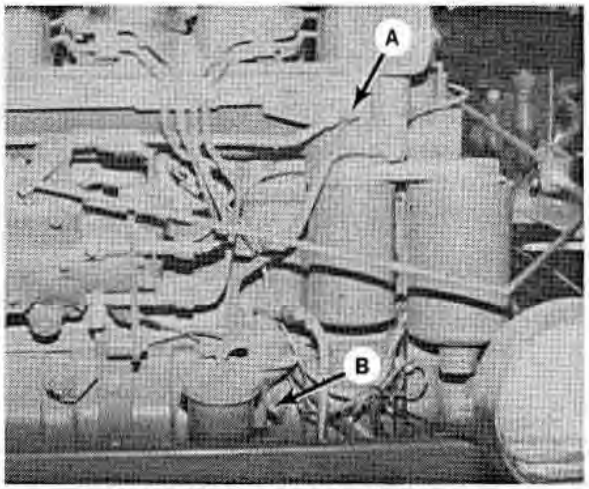
1. The fuel filter is not filled prior to installation.
2. Injection pump is replaced.
3. High-pressure fuel lines are replaced.
4. Engine is run until fuel tank is empty.

To bleed LOW pressure lines and fuel filters:

1. Loosen the bleed screw (A) located at the outlet fitting from the fuel filter housing.
2. Operate the hand lever (B) on the lift pump until clear fuel with no air bubbles flows from around the bleed screw.

NOTE: If hand lever will not pump fuel, crank the engine a small amount.

3. Tighten the bleed screw (A).



BLEEDING LOW PRESSURE LINES AND FILTERS

To bleed injection pump:

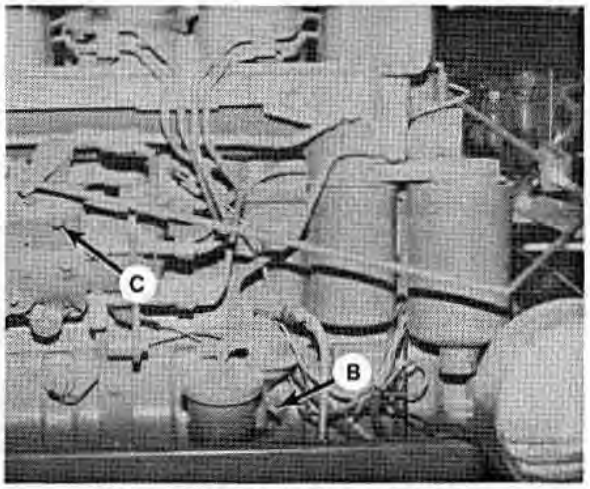
1. Turn key in ignition switch to ON position. (First position clockwise after OFF.)

WARNING: It is necessary to have the ignition switch in the ON position for this procedure. Be sure everyone in the area is aware that the machine is being serviced. Lock the cab door and take the key to prevent unexpected start up.

2. Loosen bleed screw (C) at the injection pump.
3. Operate the hand lever (B) on the lift pump until clear fuel with no air bubbles flows from around the bleed screw.

NOTE: If hand lever will not pump fuel, crank the engine a small amount.

4. Tighten the bleed screw (C).
5. Turn ignition switch OFF and remove key.



BLEEDING INJECTION PUMP

FUEL SYSTEM

FUEL SYSTEM AIR REMOVAL - DIESEL ENGINE (continued)

To bleed high pressure lines:

WARNING: Escaping fluid under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting diesel lines. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject fluids under high pressure. Use a piece of cardboard or paper to search for leaks. Do not use your hand.

If ANY fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene could result.

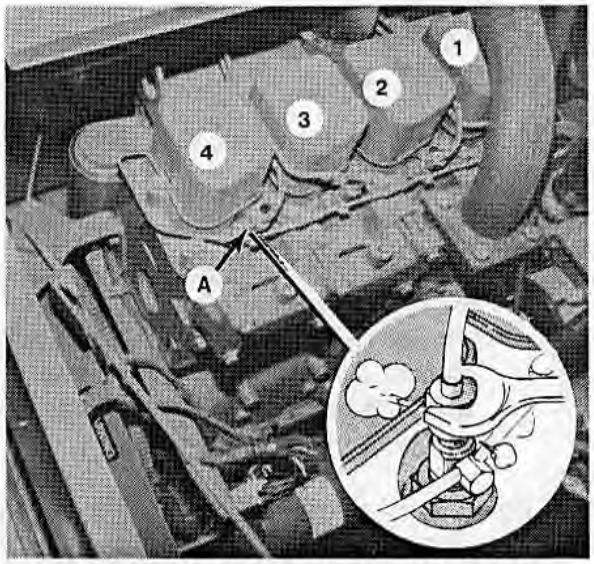
AVOID PRESSURIZED FLUID

WARNING: Do not bleed a hot engine as this could cause fuel to spill onto a hot exhaust manifold creating a danger of fire.

WARNING: It is necessary to have the engine cranking for this procedure. Two persons will be required; one to turn ignition switch and one to watch the injector connections and tighten the fittings when the line is free of air.

Use extreme care when working around moving parts. Wear close fitting clothing and protective eyewear. Keep hands, feet, clothing and hair away from moving parts.

1. Loosen the fittings at the injectors (A).
2. Turn key in ignition switch to START (3 o'clock position) and crank for 15 seconds maximum. Allow starter to cool for 1 minute before cranking again.
3. When clear fuel with no air bubbles flows from the connections, stop cranking the engine and tighten fittings.

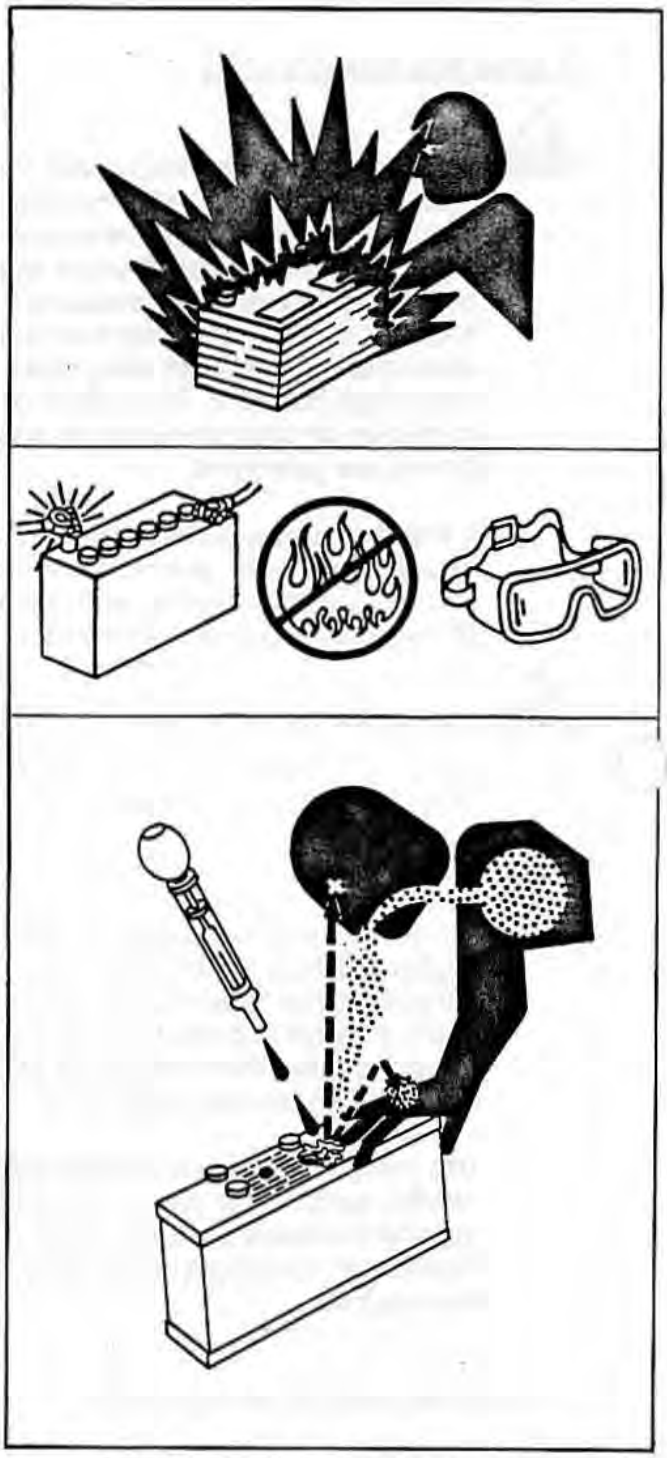


BLEEDING HIGH PRESSURE LINES

ELECTRICAL SYSTEM

BATTERY

WARNING:
Keep all smoking materials, sparks and flames away from batteries, as gas given off by electrolyte is explosive. Ventilate when charging in enclosed space. Always wear protective eyewear when working near batteries.
Do not tip batteries more than 45° to avoid electrolyte loss.
Battery electrolyte causes severe burns.
Avoid contact with skin, eyes or clothing. Keep batteries out of reach of children.
If electrolyte is spilled or splashed on clothing or the body, neutralize it immediately with a solution of baking soda and water, then rinse with clean water. Electrolyte splashed into the eyes is extremely dangerous. Should this occur, force the eye open and flood with cool clean water for five minutes. Call a doctor immediately.
To avoid shocks, burns or damage to electrical system, disconnect battery ground cable before working in an area where you might accidentally contact electrical components.



BE CAREFUL AROUND BATTERIES

Preventing Battery Damage:

- Be sure alternator connections are correct before cables are connected to battery. See "Preventing Alternator and Regulator Damage" in this section.
- Carefully observe polarity when attaching booster battery.
- Do not operate the engine with alternator or battery disconnected.

WARNING: With battery cables disconnected and engine running, a high voltage can be built up if terminals touch frame. Anyone touching the frame under these conditions would be severely shocked.

- Do not short across battery or alternator terminals, or allow battery positive (+) cable or alternator wire to become grounded.

ELECTRICAL SYSTEM

BATTERY

Preventing Battery Damage (continued)

- Do not polarize the alternator.
- When welding on any part of the machine, disconnect battery cables and alternator wire.
- Store batteries below 80°F (26°C) for maximum shelf life. Check voltage after storage and recharge as needed, according to battery manufacturer recommendations.
- Do not store batteries in discharged state, or stack batteries on top of each other.

CAUTION: When working around storage batteries, remember that all of the exposed metal parts are "live". Never lay a metal object across the terminals because a spark or short circuit will result.

Battery Maintenance:

CAUTION: Do not attempt to service battery unless you have the proper equipment and experience to perform the job. Have it done by a qualified dealer.

- Check fluid level once a year. If necessary add distilled water (or clean rain water) to bring level to bottom of cell neck. Do not add water in freezing temperatures unless engine is run two to three hours to mix electrolyte.
- Check battery charge once a year, more often if operating in cold weather. Hydrometer readings should be 1.260 to 1.300. Readings below 1.250 indicate charging is required. See "Charging Battery" in this section.

ELECTRICAL SYSTEM

BATTERY

Battery Maintenance (continued):

- Keep battery clean by wiping it with a damp cloth.
- Keep all connections clean and tight. Remove any corrosion and wash terminals with a solution of baking soda and water.
  A light coating of grease on terminals (after cables are attached) will reduce corrosion.
- A replacement battery must have a rating of at least 480 cold cranking amps at 0°F (-18°C).

IMPORTANT: BATTERY IS NEGATIVE GROUNDED. Always connect starter cable to positive (+) terminal of battery and battery ground cable to negative (-) terminal of battery. Reversed polarity in battery or alternator may result in permanent damage to electrical system.

Charging Battery:

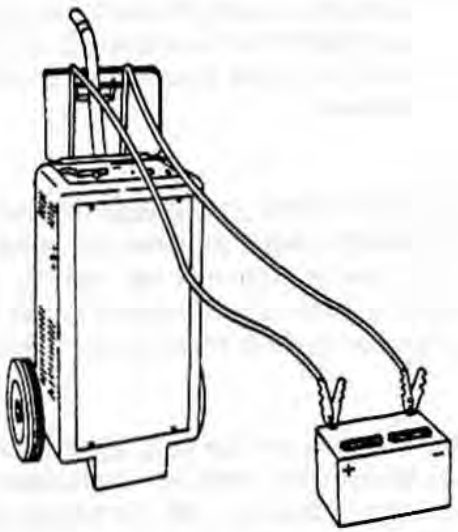
CAUTION: Ventilate the area where batteries are being charged.

Do not charge a frozen battery. Warm to 60°F (16°C) before charging.

Do not connect or disconnect live circuits. To prevent sparks, turn off charger and connect positive cable first. If charging battery in windrower, disconnect positive battery cable before connecting charger cable, then connect ground cable last, away from battery.

Stop or cut back charging rate if battery case feels hot, or is venting electrolyte. Battery temperature must not exceed 125°F (52°C).

Follow all instructions and precautions furnished by the battery charger manufacturer. Charge at recommended rates and times.



CHARGE BATTERIES SAFELY

ELECTRICAL SYSTEM

BATTERY (continued)

Using a Booster Battery:

A twelve volt battery can be connected in parallel (+ to +) with the windrower battery. Use heavy-duty battery cables.

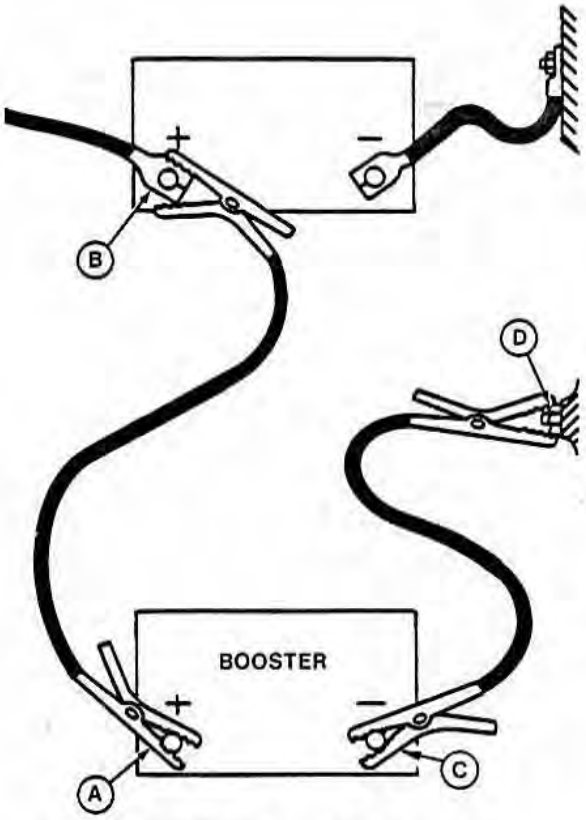
CAUTION: Gas given off by batteries is explosive. Keep sparks and flames away from batteries. Make last connection and first disconnection at a point farthest away from the batteries.

Wear protective eyewear when using a booster battery.

Be sure everyone is clear of machine when starting engine. Start engine from operator's station only.

1. Attach one cable to positive terminal (A) of booster battery.
2. Standing on service platform, open engine cover and attach other end of cable to positive terminal (B) of windrower battery.
3. Attach second cable to negative terminal (C) of booster battery and good ground (D) on windrower frame.
4. Turn ignition switch in cab as with normal start up.
5. When disconnecting cables, remove cable from ground (D) first.

CAUTION: Avoid contact with moving parts when disconnecting cable at windrower battery terminal (B). Never wear loose fitting or dangling clothing.

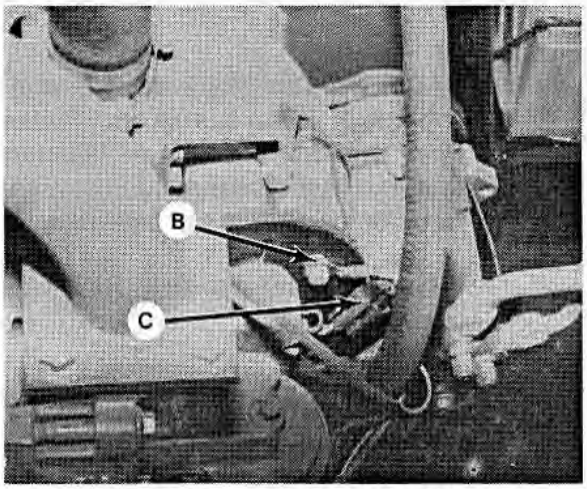


ATTACHING BOOSTER BATTERY

ELECTRICAL SYSTEM

PREVENTING ALTERNATOR AND REGULATOR DAMAGE

1. Always disconnect battery ground cable when working with the alternator or regulator.
2. Never attempt to polarize alternator or regulator.
3. Use the photo at right if wires are disconnected from the alternator (B) or regulator (C).
4. Never ground the alternator field terminal or field circuit.
5. Never connect or disconnect alternator or regulator wires with battery connected or alternator operating.
6. Always disconnect cables from the battery when charging battery in windrower.
7. Connect all cables before operating engine.



ALTERNATOR/REGULATOR WIRING

ELECTRICAL SYSTEM (continued)

SPARK PLUGS - GAS ENGINE

Spark plugs should be kept clean to ensure optimum engine operation.

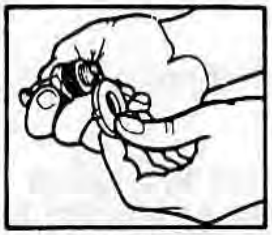
Every 200 Hours or once per operating season, remove plugs and examine for evidence of oil fouling, gas fouling, burning or overheating conditions.

Clean and re-gap or replace with new plugs if required.

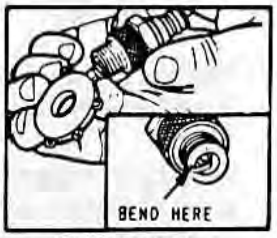
Re-gap to 0.035 inch (0.89 mm).

When reinstalling plugs, tighten to 30 ft.lbs. (41 N.m) torque.

Replacement plugs should be Champion RV 12 YC or equivalent.



CHECK PLUG CLEARANCE



SET PLUG CLEARANCE

LAMPS AND BULBS

Servicing Lamp Bulbs

1. If all electrical fails at the same time, check main circuit breaker.
2. If a single lamp fails, bulb may be burned out, or it may have a faulty ground.
3. If problem is other than circuit breaker, bulb, or ground see your Windrower dealer.

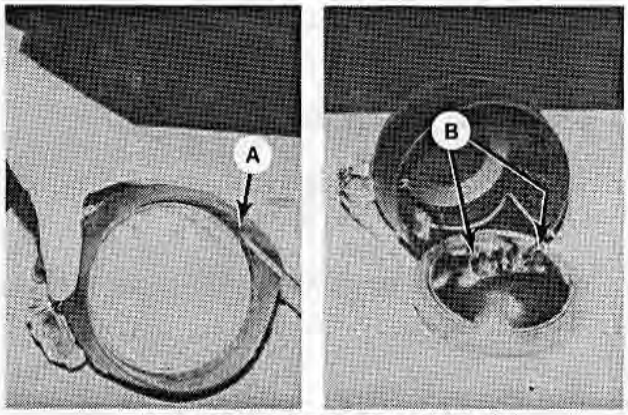
Replacing Head or Field Lamps

1. Turn lights and key to OFF.
2. Use a screwdriver to pry sealed beam from rubber bezel (A). Work your way around circumference, taking care not to break sealed beam.
3. Disconnect wire (B) and connect new sealed beam.

NOTE: Replacement seal beam trade number:

Head Lamp - # H-7610
Field Lamp - # H-7606

4. Carefully push new sealed beam into rubber bezel. Make sure it is properly positioned.



REPLACING SEALED BEAMS

ELECTRICAL SYSTEM

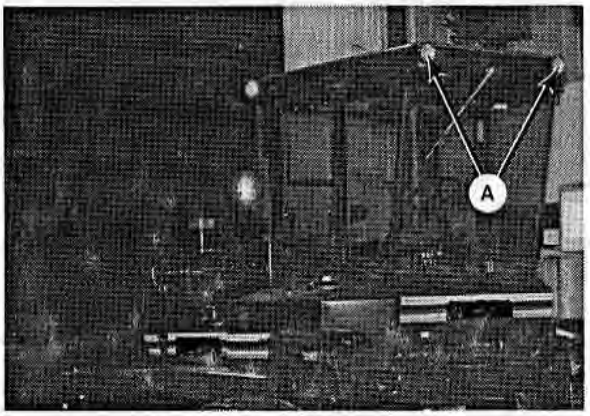
LAMPS AND BULBS (continued)

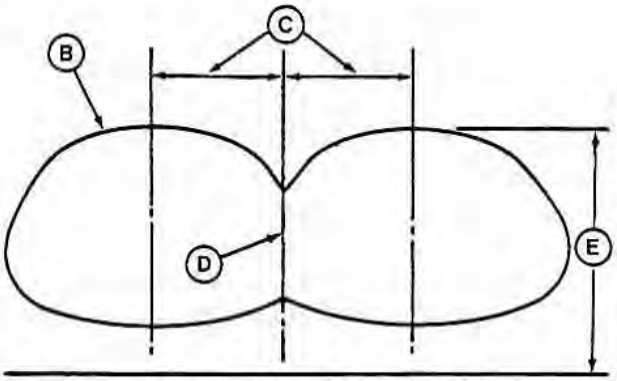
Adjusting Headlamps

CAUTION: Adjust headlamps so light is not objectionable to oncoming traffic.

Position the windrower so headlamps (A) are 25 feet (7.6 m) from a wall.

With the headlamps on, the light beams should shine straight forward and form a light pattern (B) as shown. The centers of the two beams should be equal distances (C) from the windrower center line (D). The upper edge (E) of each beam should be approximately 7 feet (2.1 m) high.



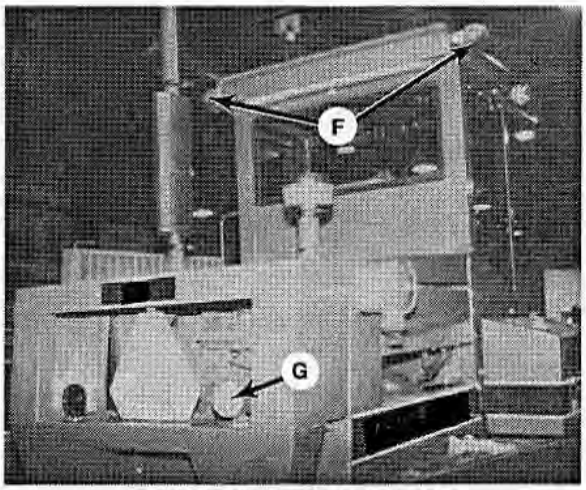


ADJUSTING HEADLAMPS

Adjusting Field Lamps

There are three field lamps on the machine, two at roof level (F) and one at rear (G).

Adjust as required to give the best lighting for your application.



ADJUSTING FIELD LAMPS

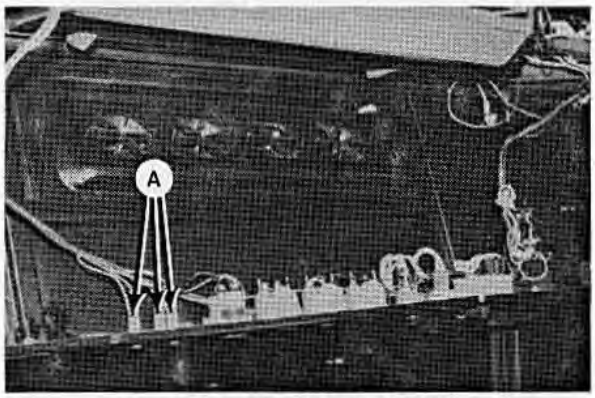
ELECTRICAL SYSTEM

LAMPS AND BULBS (continued)

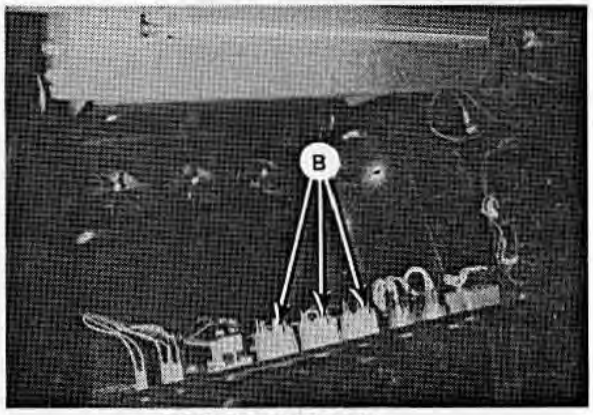
Replacing Console Light Bulbs

1. Turn light switch and ignition key to OFF.
2. Remove two nuts with washers and swing down instrument cover.
3. To replace engine oil pressure, transmission oil pressure or parking brake light, remove two wires, push out entire unit (A) and replace.
4. To replace gauge lights, pull and twist bulb holder (B) from back of gauge and replace bulb.

   NOTE: Bulb trade # 53



WARNING LIGHT UNITS

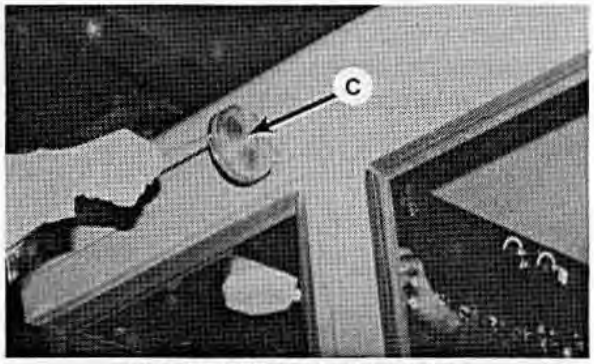


GAUGE LIGHTS

Replacing Flashing Amber or Red Tail Light Bulbs

1. Using screwdriver, pry plastic lens (C) from fixture.
2. Replace bulb and plastic lens.

   NOTE: Bulb trade # 1156

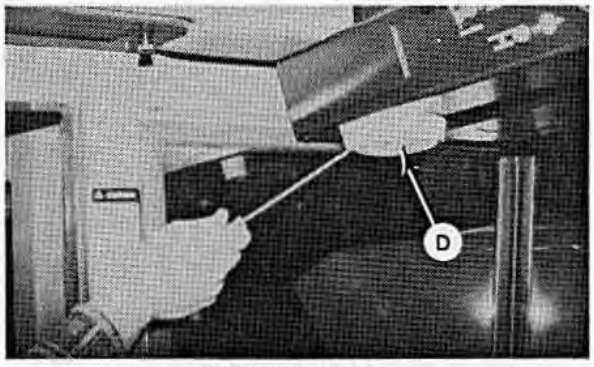


AMBER AND RED LIGHTS

Replacing Dome Light Bulb

1. Pry plastic lens (D) from fixture using screwdriver.
2. Replace bulb and reinstall plastic lens.

   NOTE: Bulb trade # 212-2



DOME LIGHT

ELECTRICAL SYSTEM (continued)

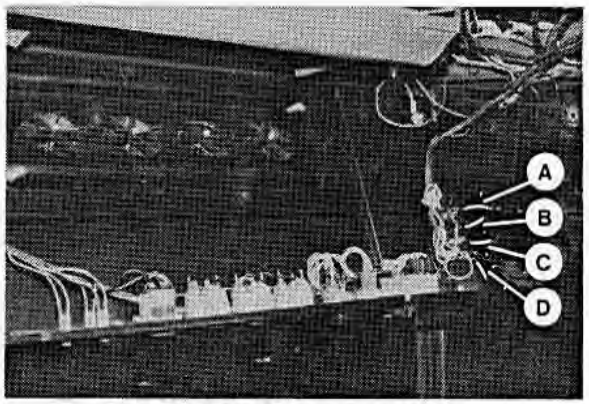
CIRCUIT BREAKERS

Checking Cab Circuit Breakers

These breakers will reset automatically after approximately one minute.

See your Windrower dealer if circuits do not operate correctly

(A) - Lighting System, 25 amp
(B) - Windshield Wiper, 6 amp
(C) - Air Conditioning System, 25 amp
(D) - Instrument Panel, 6 amp



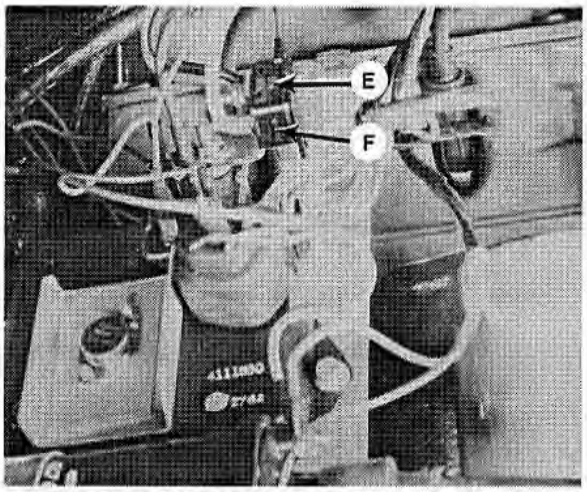
CAB CIRCUIT BREAKERS

Checking Main Circuit Breaker

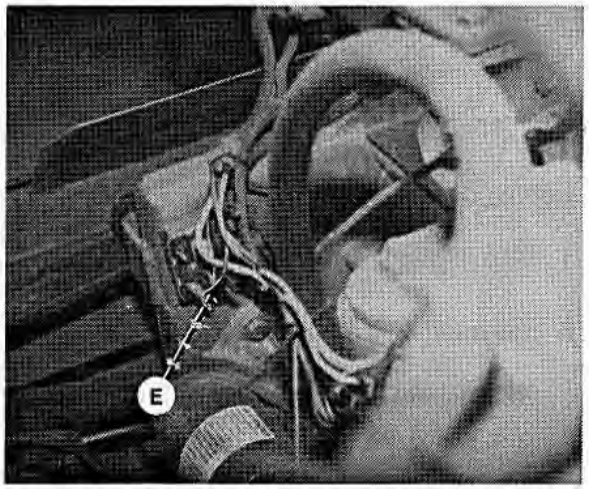
If none of the electrical functions will operate, check 50 amp main circuit breaker (E) on cab side of engine.

If re-set button (F) is out, push in to reset circuit breaker.

Breaker should not trip regularly under normal operating conditions. If repeated tripping occurs, see your Windrower dealer.



MAIN CIRCUIT BREAKER - GAS ENGINE



MAIN CIRCUIT BREAKER - DIESEL ENGINE

HYDRAULIC SYSTEM

WARNING: Avoid high pressure fluids. Escaping fluid can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic lines. Tighten all connections before applying pressure. Keep hands and body away from pin-holes and nozzles which eject fluids under high-pressure. Use a piece of cardboard or paper to search for leaks. IF ANY fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene may result.

AVOID HIGH PRESSURE FLUIDS

IMPORTANT: Dirt, dust, water and foreign material are the major causes of trouble developing in the hydraulic system. DO NOT attempt to service hydraulic system in the field. Precision fits require WHITE ROOM CARE during overhaul.

CHECK PROPERLY FOR LEAKS

HYDRAULIC OIL

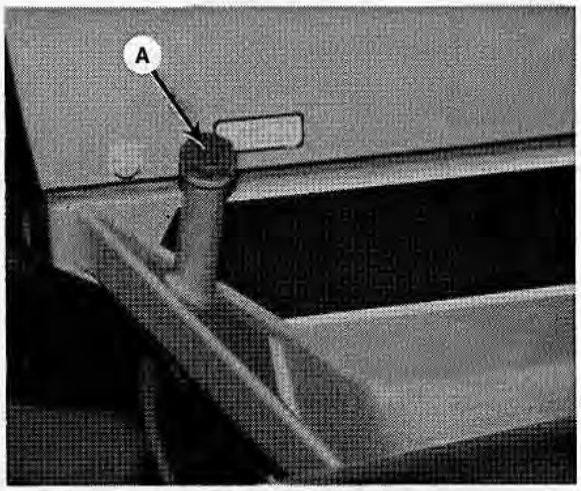
Check hydraulic oil level daily on dipstick (A). It is important that tractor be on level ground when checking. See "Fuels, Fluids and Lubricants" for recommended oil type.

Maintain level between "LOW" and "FULL" marks, with header lift cylinders retracted.

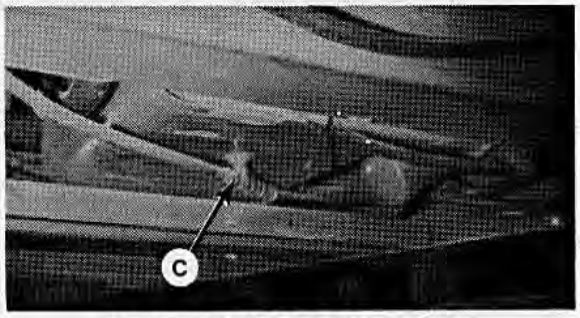
CAPACITY - LOW MARK TO FULL: 4 litres (1 U.S. gallon)

When storing machine for an extended time, add oil to top of filler neck. Drain off excess oil to proper level before next use.

To drain, remove one of the hoses at tee (C) under the left front corner of the reservoir. Reattach hose and check level at dipstick (A).



HYDRAULIC OIL DIPSTICK



TO DRAIN HYDRAULIC OIL

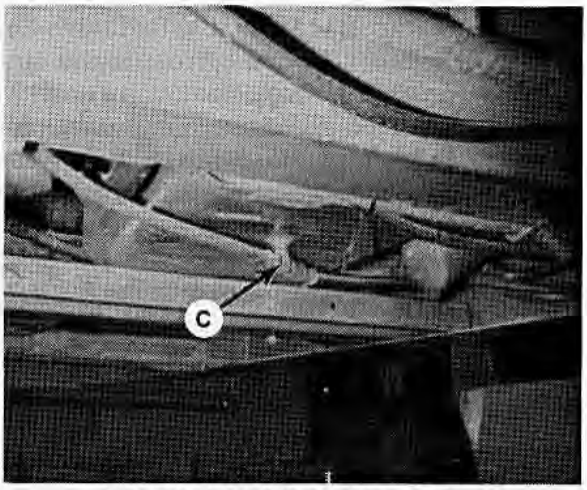
HYDRAULIC SYSTEM

HYDRAULIC OIL (continued)

Change hydraulic oil every 600 Hours or 3 years.

To change:

1. Warm up the oil by running the engine to NORMAL operating temperature range. Shut engine OFF and remove key.
2. Remove one of the hoses at tee (C) under the left front corner of the reservoir. Allow oil to drain. **NOTE:** A drain pan with a capacity of 65 litres (17 U.S. gallons) will be required.
3. Replace the hydraulic oil filters. See "Hydraulic Oil Filters" in this section.
4. Reattach the hose at tee (C).
5. Fill the system with oil through filler neck. See "Fuels, Fluids and Lubricants" for recommended oil type. Check oil level with dipstick periodically during filling to prevent "spill-over".



TO DRAIN HYDRAULIC OIL

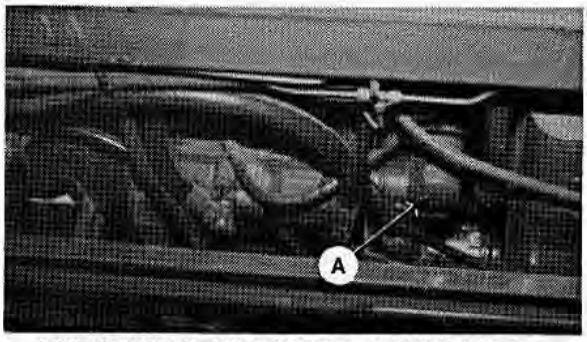
CAPACITY - Reservoir only: 47 litres (12.5 U.S. gal.)
- Total system: 63 litres (16.6 U.S. gal.)

HYDRAULIC OIL FILTERS

Change both hydraulic oil filters at the following intervals:

- After first 5 hours
- After first 50 hours
- Every 300 hours thereafter

One filter is located at the main drive pump (A), the other at the oil reservoir (B).

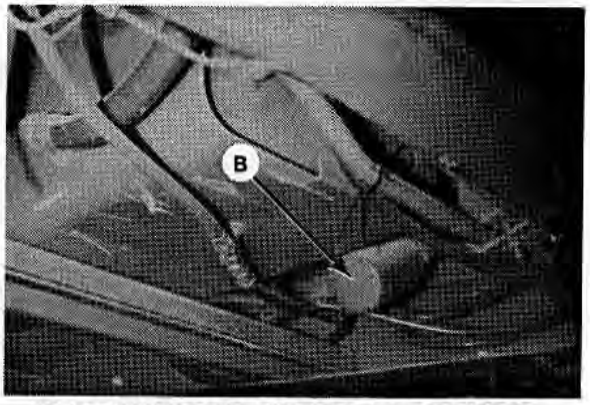


HYDRAULIC OIL FILTER - MAIN PUMP

To change:

1. Clean around the filter head.
2. Remove the filter and clean the gasket surface of the filter head.
3. Apply a thin film of clean oil to the gasket on the new filter.
4. Install new filter. Turn the filter onto the mount until the gasket contacts the filter head. Tighten the filter an additional 1/2 to 3/4 turn by hand.

   IMPORTANT: Do not use a filter wrench to install the oil filter. Overtightening can damage gasket and filter.



HYDRAULIC OIL FILTER - RESERVOIR

HYDRAULIC OIL COOLER

Clean daily with compressed air. See "Screens and Coolers" under Cooling System Maintenance.

CAB AIR SYSTEM

WARNING: The air conditioning system is pressurized. Improper servicing may cause refrigerant to penetrate eyes and skin or cause burns. Special equipment and procedures are required to service the air conditioning system. See your Windrower dealer for service.

If an accident involving refrigerant should occur, see a doctor familiar with this type of injury immediately.

AIR CONDITIONING CONDENSER

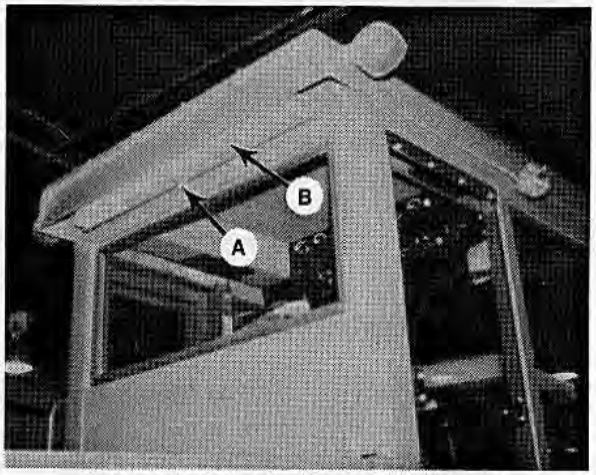
Clean daily with compressed air. See "Screens and Coolers" under Cooling System Maintenance.

FRESH AIR INTAKE FILTER

Clean daily as follows:

1. Loosen wing nut (A) and release filter (B) from rear of cab roof.
2. Tap filter gently on a flat surface, dirty side down. Do not tap on a tire.
3. Direct compressed air (100 psi [689 kPa] maximum) through filter in opposite direction of air flow arrows.
4. Wash filter as required:
   - Soak 15 minutes in warm water (not over 100°F [38°C]) with Filter Element Cleaner (Donaldson D 1400 or equivalent).
   - Rinse thoroughly with clean water (maximum pressure 40 psi [272 kPa]).
   - Shake excessive water from filter and allow element to dry. Do not use compressed air to dry filter; it may rupture the wet element. Protect element from freezing until dry.
5. Reinstall filter, making sure air flow arrows point towards cab.

CAUTION: The cab air intake filter is not designed to filter out harmful chemicals. Follow chemical manufacturers instructions carefully when operating around spray areas.



CAB FRESH AIR INTAKE FILTER


CLEANING AIR FILTER

CAB AIR SYSTEM (continued)

RETURN AIR FILTERS

Clean return air filters every 100 hours, more often in dusty conditions.

To clean:

1. Remove filter covers at both sides of cab roof by removing two nuts (A).
2. Remove foam filter elements and clean with compressed air.
3. Replace filter elements and covers.

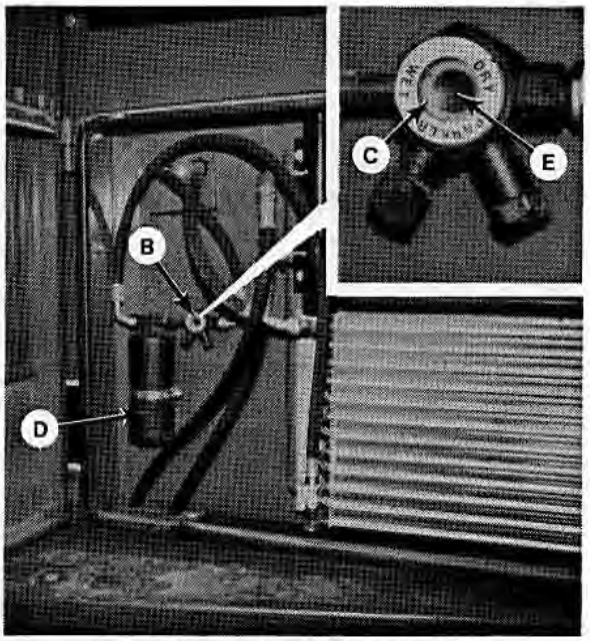
REMOVE FOR ACCESS TO RETURN AIR FILTER

AIR CONDITIONING MANIFOLD

The air conditioning manifold (B) is located behind the radiator screen, forward of condenser and provides a check point for drier condition and refrigerant charge level.

Check manifold every 100 hours or if reduced cooling is noticed, as follows.

1. Check drier condition: Inspect the paper ring (C) in the sight glass. A blue colour indicates the drier (D) is operating normally. A pinkish white colour indicates the drier is saturated with moisture and should be replaced immediately to avoid system damage.
2. Check refrigerant charge level:
   IMPORTANT: Outside temperature MUST be 70°F (21°C) or higher when checking refrigerant charge.
   - Open cab door and window.
   - With engine running, set air conditoner control to maximum cooling and turn blower on.
   - After a few minutes, check sight glass (E) while air conditioning compressor is running. The liquid should be clear. If liquid is cloudy or foamy, charge is low and refrigerant should be added. See your Windrower dealer for service.

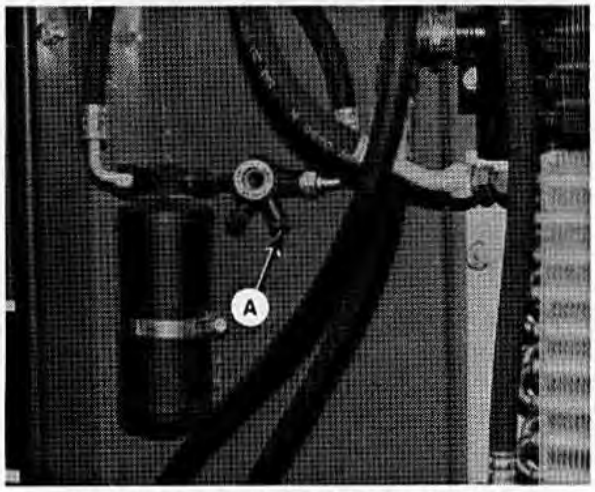


AIR CONDITIONING MANIFOLD

CAB AIR SYSTEM (continued)

HIGH PRESSURE RELIEF VALVE

The high pressure relief valve (A) will release refrigerant if pressure in air conditioning system becomes excessive. The valve is pre-set at 500 psi (3450 kPa).

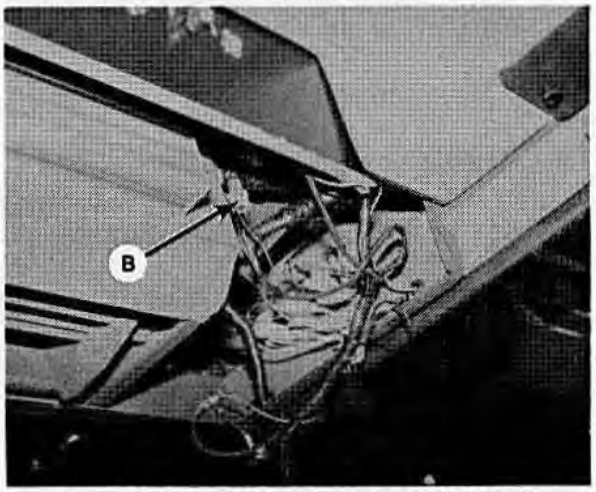


HIGH PRESSURE RELIEF VALVE

LOW PRESSURE CUT-OUT SWITCH

The low pressure switch (B) is located on the evaporator outlet tube (inside cab roof panel). This switch will cut out electrical power to the compressor clutch when suction pressure drops below 8 psi (55 kPa).

If air conditioning system should stop functioning during operation, check sight glass at manifold for refrigerant charge level.



LOW PRESSURE CUT-OUT SWITCH

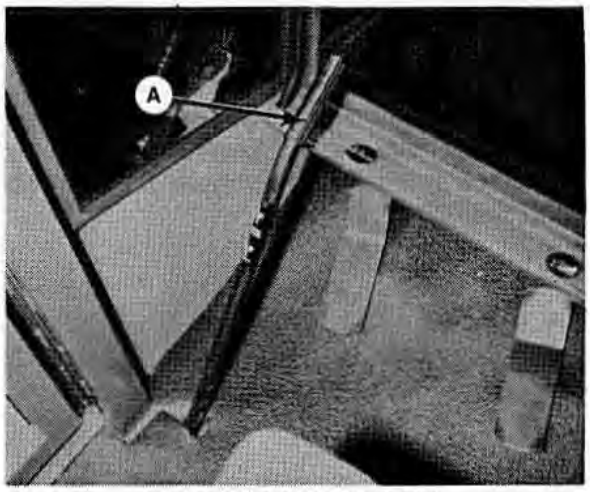
PARK BRAKE

Adjust park brake after the first 10 hours of operation and every 100 hours thereafter.

CAUTION: For equal brake force on both wheels, adjust both sides at the same time.

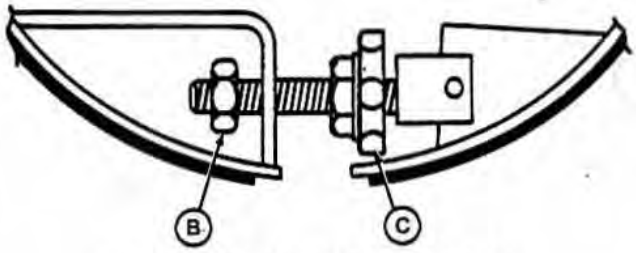
To adjust:

1. Block both drive wheels and disengage park brake by pushing lever (A) forward.



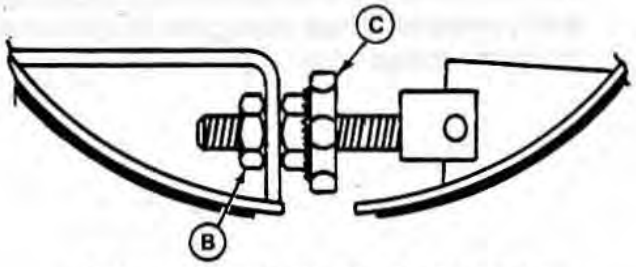
PARK BRAKE LEVER

2. Remove brake shields at both wheels.
3. Loosen jam nut (B) and turn adjuster (C) to position shown. Repeat at opposite wheel.
4. Engage brake lever (A) by pulling back.
5. Using a screwdriver, rotate adjuster (C) to expand brake shoes against wheel. Repeat at opposite wheel.



BRAKE ADJUSTMENT - STEP 3

6. Disengage brake lever (A).
7. Turn adjuster (C) an additional one and one half turns to attain proper brake tension.
8. Tighten jam nut (B).
9. Replace brake shields, allowing a 0.1 to 0.2 inch (2 to 4 mm) clearance between shields and tire rim. Tighten shield hardware.
10. Repeat steps 7, 8 and 9 at opposite wheel.



BRAKE ADJUSTMENT - COMPLETE

NEUTRAL LOCK ADJUSTMENT

- The starter should engage ONLY when the ground speed lever is in neutral, the steering wheel is locked, and the header drive clutch is disengaged.
- Under these conditions, the machine should not "growl" severely or move after engine start-up.

If either of the above does not hold true, perform the following checks and adjustments in sequence until correct:

1. Check that all related electrical connections are good.
2. Check that all hardware is properly tightened on ground speed controls, steering controls, control rods, pintle arms, header drive clutch lever and neutral start mechanisms.
3. Check that with ground speed lever and steering wheel in their neutral positions, the brass capscrew (A) at the left hand pump mount makes contact with brass capscrew (B) on the pivot shaft.

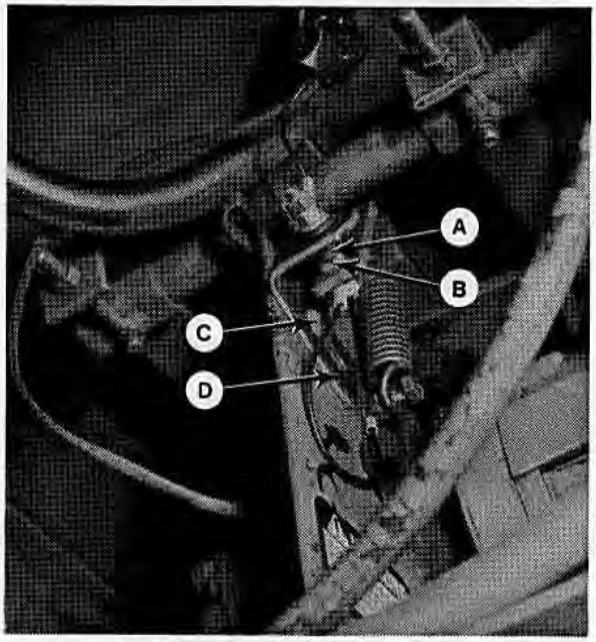
   If not, adjust as follows:

   a. Loosen nut on bolt (C) securing bracket (D).

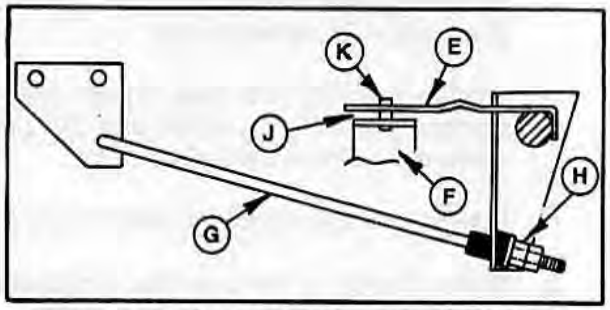
   b. Check that interlock brackets (E) lay flush on pintle arms (F). If not, adjust length of engaging rod (G) with nut (H) until brackets lay flush.

   c. Adjust position of bracket (D) to cause a 1/8 inch (3 mm) gap at (J) between interlock brackets (E) and pintle arms (F). This will ensure positive contact of capscrews (A) and (B).

   d. Check that with the ground speed lever in the full forward position, the pins (K) on the pintle arms clear the interlock brackets. If not, adjust length of engaging rod (G) with nut (H) until pins clear. Contact could cause unnecessary wear and excessive hydrostatic noise.



NEUTRAL START SWITCH



INTERLOCK BRACKETS / PINTLE ARMS

NEUTRAL LOCK ADJUSTMENT (continued)

4. Check that with the header drive clutch lever in the disengaged position (fully back), ball on header neutral switch (L) just bottoms out on the lever bracket (M). If not, bend the switch mount to suit.

5. If machine "growls" severely or moves when both ground speed lever and steering wheel are in their neutral positions, determine (from the operator's position) which drive wheel is noisy or moving. Shut off engine, remove key, and adjust as follows:

CAUTION: Use jackstands with a minimum capacity of 3 tons (2720 kg) to provide adequate support for machine.

a. Raise front of machine high enough to allow wheels to turn freely and support with jackstands.

b. **NOTE:** The L/H pump controls the R/H power wheel motor and the R/H pump controls the L/H power wheel motor. This means if the R/H wheel is out of neutral, the L/H interlock bracket and control rod will require adjustment, and vice versa. Sometimes both sides may require adjustment.

   Remove bolt (N) securing the control rod (P) at the steering plate (Q).

   NOTE: This is at the front end, not at the pump end.

c. Loosen the securing bolt (R) on interlock bracket (E).

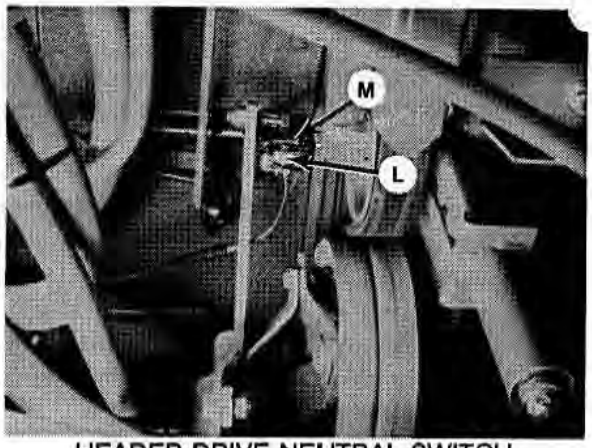
d. With interlock bracket (E) fully engaged on pin (K) on pintle arm, adjust the interlock bracket by turning the jam nuts (S) on the adjuster (T).

   IMPORTANT: If wheel was moving forward, adjust interlock bracket forward. If wheel was reversing, adjust bracket rearward. Adjust nuts (S) in ½ turn increments only.

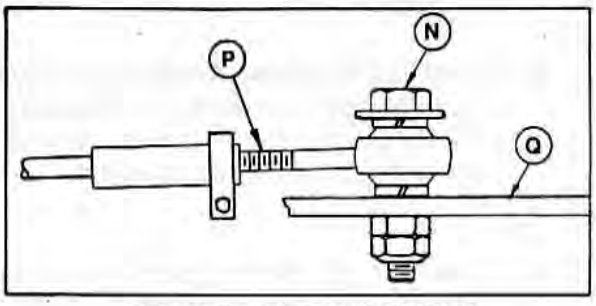
e. Tighten bolt (R) and nuts (S) on interlock bracket (E). Be sure pintle arm pin (K) is centered in slot in interlock bracket.

f. Start engine and check for wheel movement.

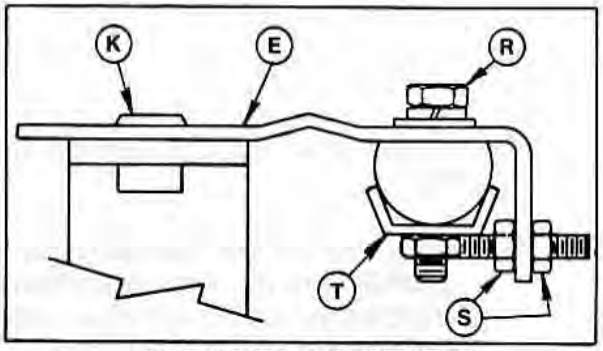
g. Shut off engine. Remove key. If necessary, repeat steps c. to g.



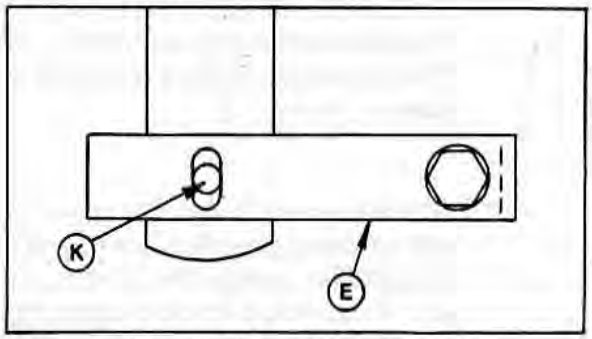
HEADER DRIVE NEUTRAL SWITCH



CONTROL ROD ASSEMBLY



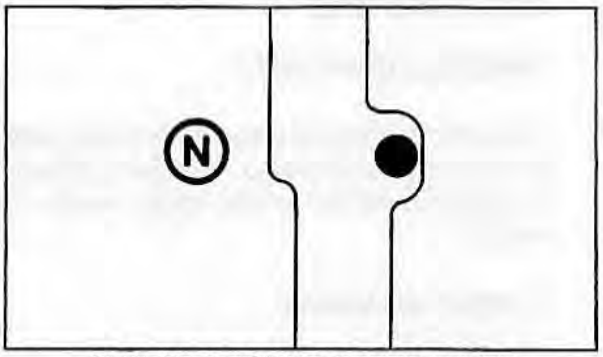
INTERLOCK ADJUSTMENT



PINTLE ARM PINS CENTERED

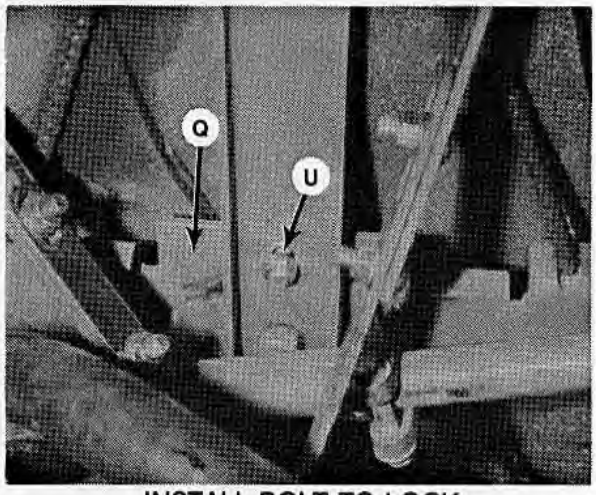
NEUTRAL LOCK ADJUSTMENT (continued)

5 h. Move ground speed lever to the center of the neutral detent.



CENTER GROUND SPEED LEVER

i. Secure the steering wheel in the center position by installing a bolt (U) in the steering plate (Q).



INSTALL BOLT TO LOCK STEERING WHEEL

j. Loosen clamp (V) on control rod (P).

k. By turning control rod (P), adjust to exact length required for bolt to drop straight into hole in steering plate (Q).

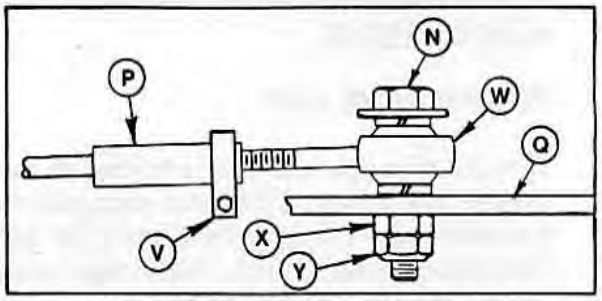
l. Angularly align ball joint housing (W) with ball joint housing at pump end of control rod.

m. Attach control rod (P) to steering plate (Q) using hex nut (X) and lock nut (Y) as shown. Torque hex nut to 80-90 ft. lbs. (110-120 N·m). Tighten lock nut while holding hex nut (not bolt) with another wrench.

n. Tighten clamp (V) securely.

o. Remove bolt (U) installed in step 5 i.

p. Lower drive wheels to ground.



ADJUST CONTROL ROD LENGTH

TRACTION DRIVE

TRACTION DRIVE BELT

This belt runs from the engine flywheel pulley to the main hydraulic pump. The pump provides hydraulic power for ground speed, header lift and reel lift.

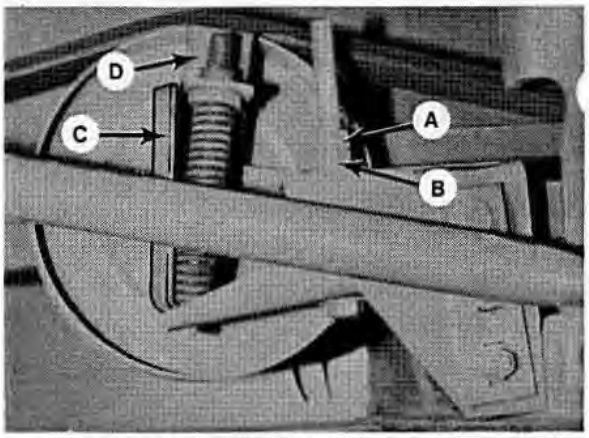
To adjust belt tension:

1. Loosen nut (A).
2. Turn nut (B) to increase or decrease belt tension until gauge (C) is level with bracket (D) as shown.
3. Tighten nut (A).

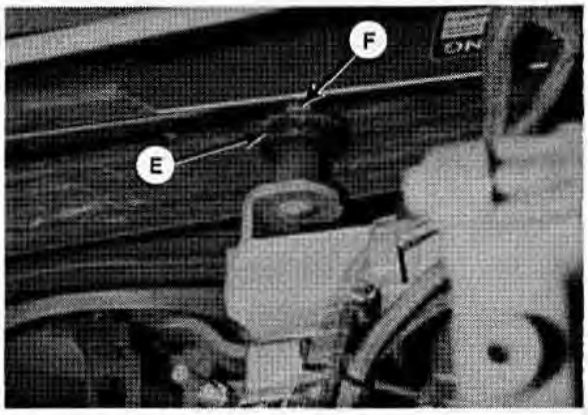
NOTE - Diesel engine only:

4. At engine backplate, adjust idler bearing (E) to just contact belt, without deflecting it.

   To adjust; loosen nut (F), slide bearing up or down as required and tighten nut (F).



ADJUSTING TRACTION DRIVE BELT



IDLER BEARING - DIESEL ONLY

IMPORTANT: When installing new belts, never pry belt over pulley. Loosen necessary component hardware, install belt and adjust tension. Readjust tension after a short run-in period. (About 5 hours).

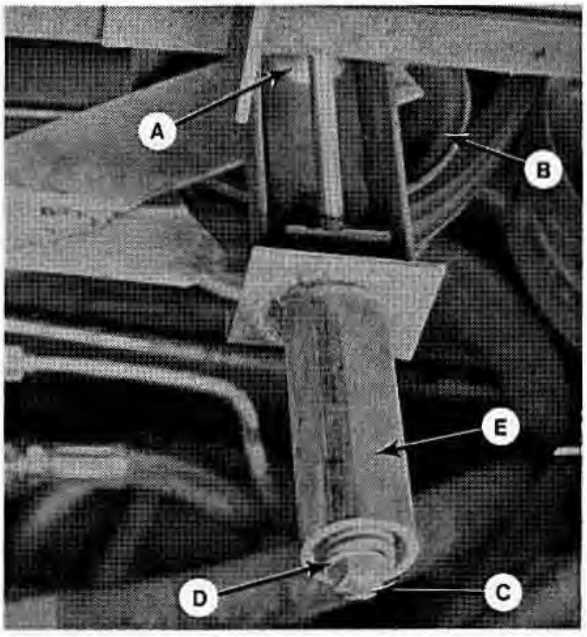
HEADER DRIVES

HEADER DRIVE BELT

This belt runs from the engine flywheel to the header drive pulley. This clutch-engaged drive provides power (through the driveline) for all mechanical header drives. Belt tension adjustment is made at the inside idler.

To adjust:

1. Engage header drive clutch in cab.
2. Loosen nut two turns on bolt (A) through idler pulley (B).
3. Turn adjusting rod (C) until washer (D) is flush with bottom of tube (E).
4. Tighten nut on bolt (A).



ADJUSTING HEADER DRIVE BELT

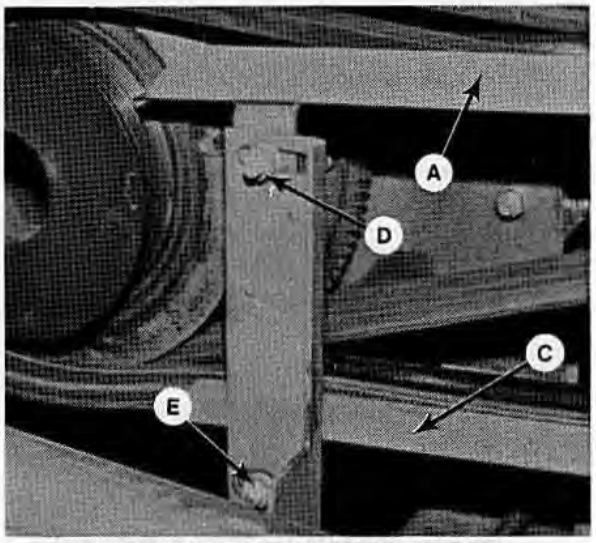
HEADER DRIVES (continued)

HEADER DRIVE BELT GUIDES

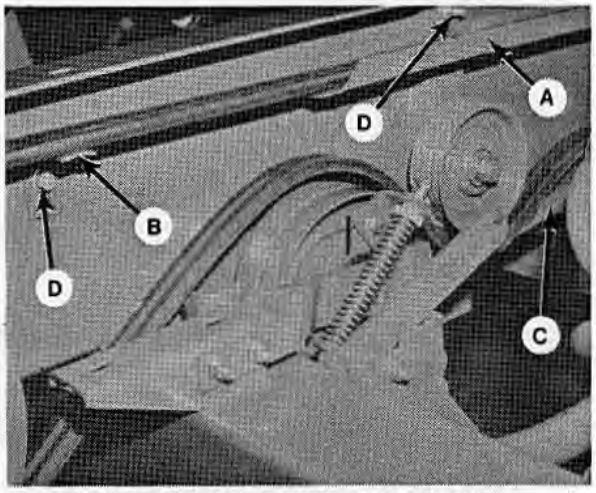
Belt guides for the header drive belt should be adjusted so they do not rub belt when drive is engaged, but still support belt when drive is disengaged.

To adjust:

1. Engage header drive clutch in cab.
2. Loosen nuts (D) securing top guide (A) and belt support (B).
3. Adjust top guide and belt support to clear belt by 1/8 inch (3 mm).
4. Tighten nuts (D).
5. Disengage header drive clutch.
6. Loosen nut (E) at rear of lower guide (C).
7. Adjust lower guide so belt does not contact driver pulley.
8. Tighten nut (E).



ADJUSTING BELT GUIDES - REAR



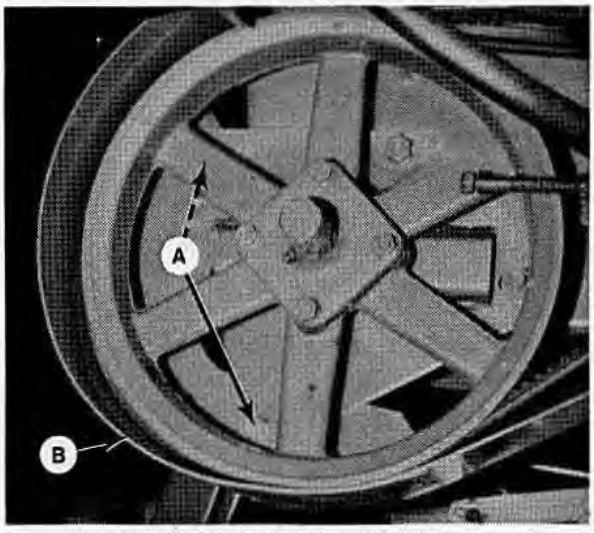
ADJUSTING BELT GUIDES - FRONT

HEADER DRIVE PULLEY SHIELD

The pulley shield should be adjusted so it does not rub the belt when drive is engaged.

To adjust:

1. Engage header drive clutch in cab.
2. Loosen nuts (A) and position shield (B) to clear belt by 1/8 inch (3 mm).
3. Tighten nuts (A).

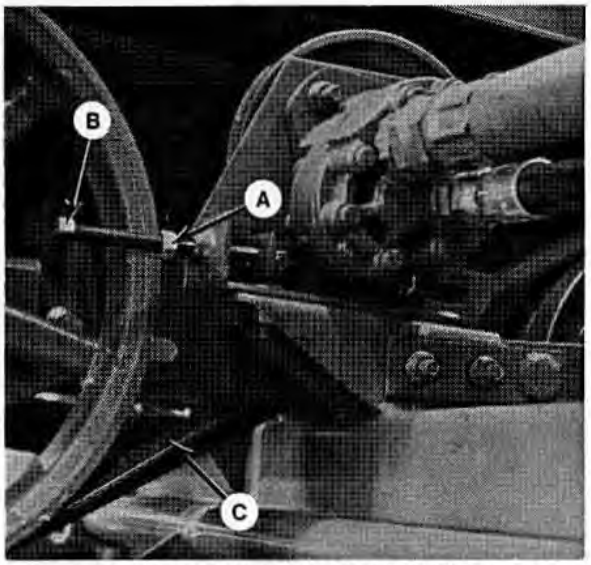


ADJUSTING PULLEY SHIELD

HEADER DRIVES (continued)

HEADER HYDRAULIC PUMP DRIVE BELT

This belt runs from the header drive pulley back to the header hydraulic pump. The pump provides power for all hydraulic drives on the header.



ADJUSTING HEADER PUMP DRIVE BELT

To adjust belt tension:

1. Loosen jam nut (A).
2. Turn bolt (B) clockwise to increase belt tension.

   NOTE: It is not necessary to loosen any other hardware.
3. Adjust tension so that a force of 15 lbs. (65 N) deflects the belt 1/4 inch (6 mm) at (C).
4. Tighten jam nut (A).

To remove belt:

1. Loosen jam nut (A).
2. Turn bolt (B) counter-clockwise to decrease belt tension.
3. Pull upper and lower belt strands together to slide pump forward.
4. Remove belt.

When installing a new belt:

1. Loosen tensioner as above. Never pry belt over pulley.
2. Install belt and tension as above.
3. Readjust tension after a short run in period. (About 5 hours.)

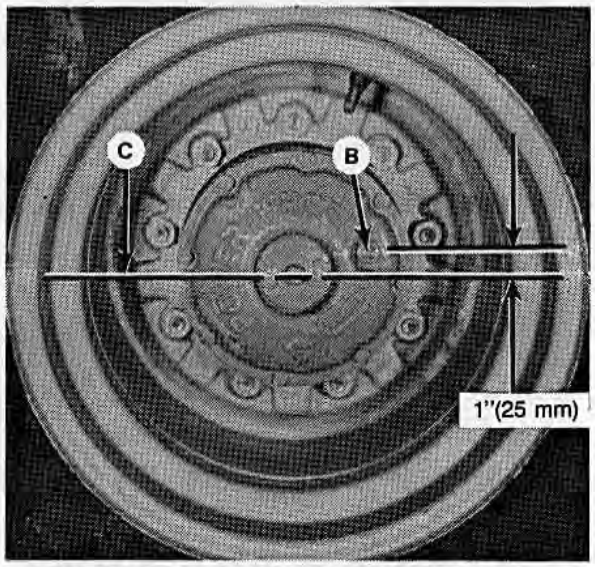
WHEELS AND TIRES

POWER WHEELS

Check lubricant level annually. See "Fuels, Fluids and Lubricants" for recommended lubricant.

To check level; position wheel so fill plug (B) is 1 inch (25 mm) above wheels horizontal center line (C). Lubricant should be level with fill plug.

CAPACITY - 840 mL (28.4 U.S. oz.)



CHECK POWER WHEEL LUBE LEVEL

WHEEL BOLTS

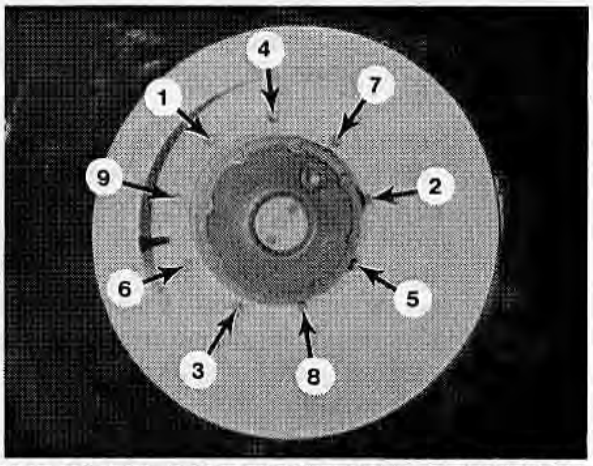
Check and tighten wheel nuts/bolts after the first 10 hours of operation and every 100 hours thereafter.

Whenever a wheel is removed and re-installed, check torque after one hour of operation.

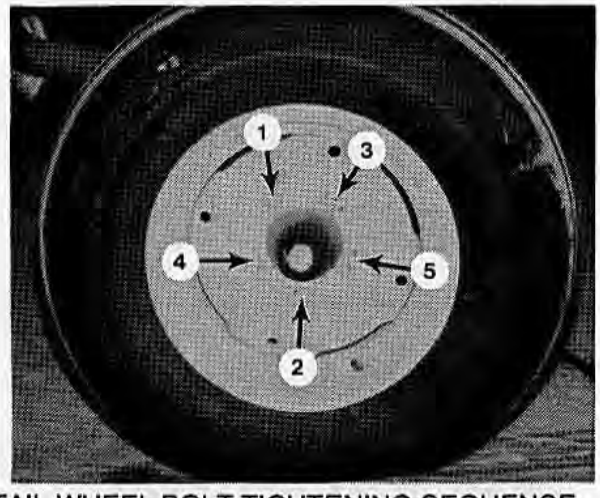
Maintain 80 to 90 ft.lbs. (108 to 122 N.m) torque on drive wheel nuts and 50 to 60 ft.lbs. (68 to 81 N.m) torque on the caster wheel bolts.

Follow the proper bolt tightening sequence shown at right.

NOTE: When installing drive tires, be sure air valves are on the outside and tire tread points forward.



DRIVE WHEEL BOLT TIGHTENING SEQUENCE



TAIL WHEEL BOLT TIGHTENING SEQUENCE

WHEELS AND TIRES (continued)

TIRE INFLATION

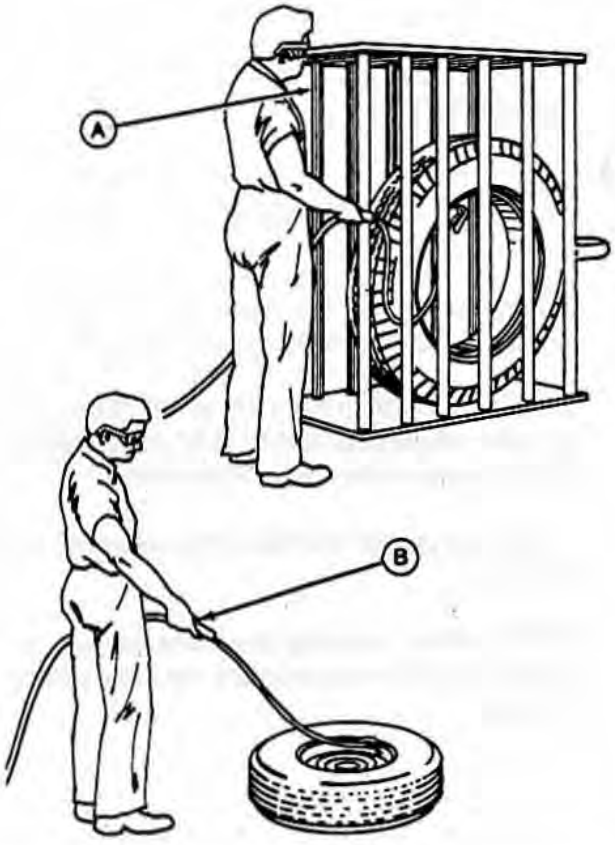
Check tire pressures daily.

Maintain pressures recommended in Specifications section.

WARNING: Service tires safely. A tire can explode during inflation and cause serious injury or death. Never increase air pressure beyond 35 psi (241 kPa) when seating the bead on the rim. Replace a tire if it has a defect. Replace a wheel rim which has cracks, wear or severe rust. Never weld a wheel rim. Make sure all the air is removed from a tire before removing the tire from the rim. Never use force on an inflated or partially inflated tire. Make sure the tire is correctly seated before inflating to operating pressure.

Do not remove, install or make repairs to a tire on a rim unless you have the proper equipment and experience to perform the job. Take the tire and rim to a qualified tire repair shop. If the tire is not in correct position on the rim, or if too full of air, the tire bead can loosen on one side, causing air to leak at high speed and with great force. An air leak of this nature can thrust the tire in any direction, endangering anyone in the area.

SERVICE TIRES SAFELY



(A) - Use a safety cage if available.

(B) - Do not stand over tire. Use a clip-on chuck and extension hose.

CASTER WHEEL BEARINGS

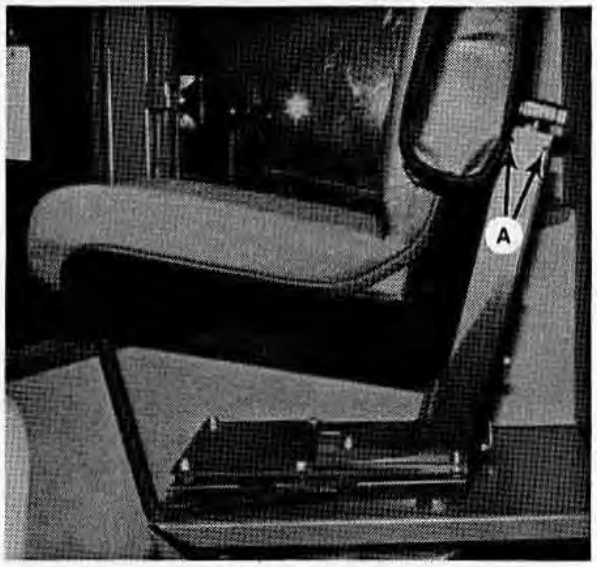
Remove bearings, clean thoroughly and repack with bearing grease every 500 hours.

OPERATOR'S STATION

SEAT

Seat Mount Lubrication

Oil seat once per season at points (A) shown, (two per side). Use a light weight oil.



OIL SEAT

Operator Weight Adjustment

There is a graduated scale on the rear of the seat frame. Turn knob (B) clockwise to increase spring tension.

Seat Fore-Aft Position

To adjust, pull out on lever (C), move seat forward or rearward to desired position and release lever.

Seat Height

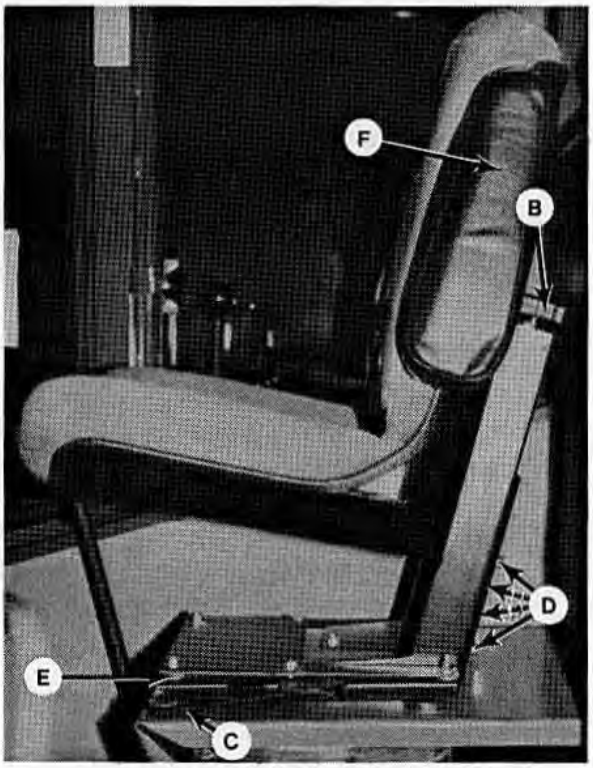
To adjust, loosen four bolts (D), move seat up or down to desired position and retighten bolts.

Seat Angle

To adjust, add or remove shims at (E). When tightening hardware, compress rubber isolators to a height of 3/8 inch (10 mm) each.

Arm Rest

Arm rest (F) has two positions, vertical and horizontal. Raise left hand arm rest when leaving seat for easier exit and re-entry.



SEAT ADJUSTMENTS

OPERATOR'S STATION (continued)

STEERING WHEEL

To adjust steering wheel tilt; loosen knob (A), move steering wheel to desired position and tighten knob.

Move steering wheel up when leaving seat for easier exit and re-entry.

STEERING WHEEL TILT ADJUSTMENT

REEL AND HEADER LIFT PEDAL LINKAGE

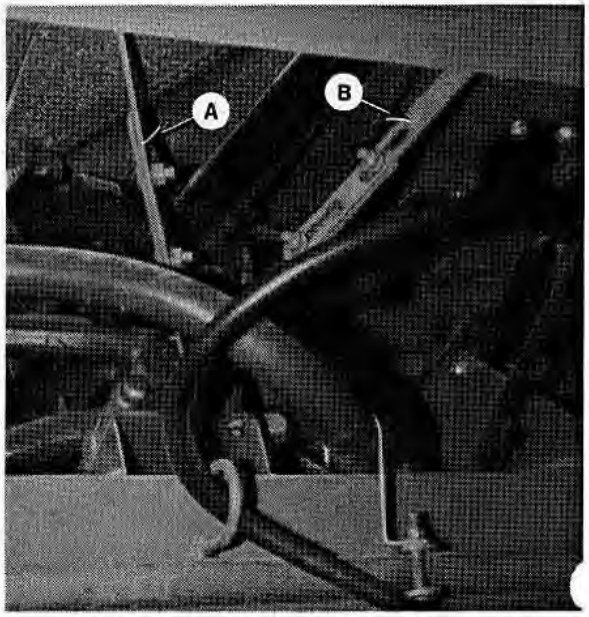
WARNING: To avoid injury from accidental lowering of reel or header, lower reel and header completely before adjusting linkage.

The linkages connecting the reel and header lift pedals to the control valve may be adjusted to provide maximum operator comfort.

To adjust:

1. Loosen two bolts per linkage and adjust length of linkages (A) and (B) to suit operator.
2. Be sure that valve spools reach travel limits (in and out) before toe and heel of pedal bottoms out on cab floor when depressed.

(A) - Header Control Linkage
(B) - Reel Control Linkage



HEADER AND REEL PEDAL LINKAGES

MAINTENANCE/SERVICE

MAINTENANCE SCHEDULE

The following maintenance schedule is a listing of periodic maintenance procedures, organized by service intervals. For detailed instruction, see the specific heading in Maintenance/Service section. Use "Fuels, Fluids and Lubricants" as specified under that heading.

SERVICE INTERVALS

The recommended service intervals are in hours of operation. Use the hour meter in the cab to indicate when the next service interval has been reached.

IMPORTANT: Recommended intervals are for average conditions. Service Windrower more often if operated under adverse conditions (severe dust, extra heavy loads, etc.). Regular maintenance is the best insurance against early wear and untimely breakdowns. Following this schedule will increase machine life.

Where a service interval is given in more than one time frame, eg. "100 Hours or Annually", service the Windrower at whichever interval is reached first.

CAUTION: Carefully follow safety messages given under "Service Procedures".

MAINTENANCE SCHEDULE

AT FIRST USE: See "Preparing the Tractor" and "Break-In Period" in Operation section.

DAILY:

1. Check tire inflation pressures.
2. Check engine oil level.
3. Check engine coolant level.
4. Clean radiator screen (check and clean several times daily, as required.)
5. Clean radiator, hydraulic oil cooler, and A/C condenser.
6. Clean cab fresh air intake filter.
7. Check hydraulic oil level.
8. Clean pre-cleaner bowl.
9. Clean air cleaner dust cup - gas engine.
10. Check air cleaner vacuator valve - diesel engine.
11. Check air cleaner restriction gauge - diesel engine.
12. Fill fuel tank.
13. Check fuel sediment bowl.
14. Drain fuel filter water trap - diesel engine.

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25 HOURS

1. Grease caster pivots.

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50 HOURS

1. Grease header drive pulley.
2. Grease header drive idler pulley pivot.
3. Grease traction drive idler pulley pivot.
4. Grease walking beam center pivot.
5. Grease float spring anchors.

MAINTENANCE SCHEDULE (continued)

100 HOURS OR ANNUALLY*

1. Check wheel bolt/nut torque.
2. Adjust park brake.
3. Lubricate manifold heat control valve - gas engine.
4. Check closed crankcase ventilator valve - gas engine.
5. Clean air cleaner filter element.
6. Clean cab return air filters.
7. Check refrigerant charge and drier condition at A/C manifold.

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200 HOURS OR ANNUALLY*

1. Change engine oil and filter.
2. Clean out muffler accumulation.
3. Clean and regap spark plugs - gas engine.
4. Change fuel filter - gas engine.

ANNUALLY*

1. Lubricate seat mount.
2. Check power wheel lubricant level.
3. Check governor oil level - gas engine.
4. Check battery fluid level.
5. Check battery charge.
6. Check anti-freeze concentration.

* It is recommended that Annual Maintenance be done prior to start of operating season.

MAINTENANCE SCHEDULE (continued)

END OF SEASON: See "Storage Procedure" in Operation section.

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300 HOURS OR 2 YEARS

1. Change engine coolant.
2. Change hydraulic oil filters.

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500 HOURS

1. Repack caster wheel bearings.
2. Change closed crankcase ventilator valve - gas engine.
3. Change fuel filters - diesel engine.

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600 HOURS OR 3 YEARS

1. Change hydraulic oil.
2. Change air cleaner filter element.

1000 HOURS

1. Check engine valve tappet clearance.

2000 HOURS

1. General engine inspection.

MAINTENANCE RECORD

Windrower No. ______________________ Serial No. ______________________

matched with Header No. ______________________

Combine this record with Header Maintenance Record for "complete unit" service.
See Maintenance/Service section for details on each procedure. Copy this page to continue record.

ACTION CODES: ✔ - Check | ▲ - Change | ☼ - Clean | + - Add | ● - Lubricate | (G) - Gas Engine Only | (D) - Diesel Engine Only

ACTION CODE	Maintenance Procedure	Hour Meter Reading/ Serviced By:
	BREAK-IN	See "Preparing the Tractor" and "Break-In Period" in Operation section for checklist.
	DAILY	
✔	Tire Pressure	
✔	Anti-Freeze	
	Storage Procedure	See "Storage Procedure" in Operation section for checklist.
	300 HRS. OR 2 YEARS	
▲	Engine Coolant	
▲	Hydraulic Filters	
	500 HOURS	
●	Caster Wheel Bearings	
▲	Ventilator Valve (G)	
▲	Fuel Filters (D)	
	600 HRS. OR 3 YEARS	
▲	Hydraulic Oil	
▲	Air Cleaner Element	
	1000 HOURS	
✔	Valve Tappets	
	2000 HOURS	
✔	General Engine Insp.	

TROUBLE SHOOTING

PROBLEM	CAUSE	REMEDY	REF.
CAB AIR SYSTEM			
Blower fan will not run.	Burned out motor.	Replace motor.	*
	Burned out switch.	Replace switch.	*
	Motor shaft tight or bearings worn.	Repair motor.	*
	Faulty wiring - loose or broken.	Repair or replace wiring.	*
Blower fan operating but no air coming into cab.	Dirty filter.	Clean filter.	83
Heater not heating.	Defective thermostat in water outlet manifold.	Replace thermostat.	*
	Heater temperature control defective.	Replace control.	*
	No thermostat in water outlet manifold.	Install thermostat.	*
Odor from air louvers.	Plugged drainage hose.	Blow out hose with forced air.	—
	Dirty filters.	Clean filters.	83, 84
Air conditioning not cooling.	Low refrigerant level.	Add refrigerant.	84
	Electric switch contacts in thermostat burned excessively, or sensing element defective.	Replace thermostat.	*
	Clutch coil or relay burned out or disconnected.	Check current flow to clutch or relay. Replace if inoperative.	*
	Condenser fins plugged.	Clean condenser.	66

* See your Windrower dealer.

TROUBLE SHOOTING

PROBLEM	CAUSE	REMEDY	REF.
Air conditioning not cooling. (cont'd.)	Blower motor disconnected or burned out.	Check current flow to blower motor. Repair or replace if inoperative.	*
	Loose or broken drive belt.	Replace drive belt and/or tighten to specifications.	52
	Compressor partially or completely frozen.	Remove compressor for service or replacement.	*
	Dirty filters.	Clean filters.	83, 84
	Broken or disconnected electrical wire.	Check all terminals for loose connections; check wiring for hidden breaks.	—
	Broken or disconnected ground wire.	Check ground wire to see if loose, broken, or disconnected.	—
	Expansion valve stuck in open position.	Replace expansion valve.	*
	Expansion valve stuck shut.	Replace expansion valve.	*
	Broken refrigerant line.	Examine all lines for evidence of breakage by external stress or rubbing wear.	*
	Fusible plug in sight glass blown.	Replace sight glass.	*
	Leak in system.	Leak-test system, and repair leak as necessary.	*
	Compressor shaft seal leaking.	Replace the compressor shaft seal.	*
	Clogged screen in receiver-drier; plugged hose or coil.	Repair as necessary. Replace receiver-drier; evacuate and charge.	*

* See your Windrower dealer.

TROUBLE SHOOTING

PROBLEM	CAUSE	REMEDY	REF.
Air conditioning not producing sufficient cooling, (25°F (14°C) drop in cab below ambient temperature measured at louvered vent).	Compressor clutch slipping.	Remove clutch assembly for service or replacement.	*
	Clogged air filter.	Remove air filter and clean or replace, whichever is necessary.	83
	Too little air circulation over condenser coil; fins clogged with dirt or bugs.	Clean condenser.	66
	Evaporator fins clogged.	Clean evaporator fins behind instrument panel.	—
	Too little refrigerant in system.	Recharge system until bubbles disappear and gauge readings stabilize to specifications.	84
	Clogged expansion valve.	Bleed system and replace valve. Then, evacuate and charge system.	*
	Clogged receiver-drier.	Bleed system, replace receiver-drier. Then, evacuate and charge system.	*
	Excessive moisture in system.	Bleed system; replace receiver-drier. Then evacuate and charge system.	*
	Air in system.	Bleed, evacuate, and charge system.	*
	Thermostat defective or improperly adjusted.	Replace thermostat.	*
	Blower motor sluggish in operation.	Remove blower motor for service or replacement.	*
Air conditioning system too noisy.	Defective winding or improper connection in compressor clutch coil or relay.	Replace or repair as necessary.	*

* See your Windrower dealer.

TROUBLE SHOOTING

PROBLEM	CAUSE	REMEDY	REF.
Air conditioning system too noisy. (cont'd.)	Loose or excessively worn drive belt.	Tighten or replace as required.	52
	Noisy clutch.	Remove clutch for service or replacement as necessary.	*
	Compressor noisy.	Check mountings and repair; remove compressor for service or replacement.	*
	Compressor oil level low.	Add 525 viscosity refrigerant oil.	*
	Blower fan noisy; excessive wear in blower motor.	Remove blower motor for service or replacement as necessary.	*
	Excessive charge in system.	Discharge excess refrigerant until pressure drops within specifications.	*
	Low charge in system.	Check system for leaks; charge system.	*
	Excessive moisture in system.	Replace receiver-drier; evacuate and charge system.	*
Air conditioning cools intermittently.	Compressor clutch slipping.	Slippage over a prolonged period will require that clutch be removed for service; may require adjustment for proper spacing.	*
	Unit icing up due to excessive moisture in system, incorrect super heat adjustment in expansion valve, or thermostat adjusted too low.	Replace expansion valve; replace receiver-drier if excess moisture is present; adjust thermostat.	*

* See your Windrower dealer.

TROUBLE SHOOTING

PROBLEM	CAUSE	REMEDY	REF.
Air conditioning cools intermittently. (cont'd.)	Thermostat defective.	Replace thermostat.	*
	Defective blower switch or blower motor.	Remove defective part for service or replacement.	*
	Partially open, improper ground, or loose connection in compressor clutch coil or relay.	Check connections or remove clutch coil or relay for service or replacement.	*
ENGINE			
Engine hard to start or will not start.	Variable speed lever not in neutral, steering wheel not centered, header clutch engaged.	Adjust neutral or neutral start assembly, center steering wheel, disengage header clutch.	87
	No fuel to engine.	Fill empty tank, replace clogged filters.	67
	Old fuel in tank.	Drain tank and refill with fresh fuel.	67
	Water, dirt or air in fuel system.	Drain, flush, fill and bleed system.	70
	Improper type of fuel.	Use proper fuel for operating conditions.	44
	Diesel hand primer raised.	Push primer down.	70
	Crankcase oil too heavy.	Use oil of proper viscosity.	45
	Low battery output.	Have battery tested. Check battery electrolyte level.	73
	Poor battery connection.	Clean and tighten loose connections.	74
	Faulty starter.	Repair or replace.	*
	Wiring shorted, circuit breaker open.	Check continuity of wiring and circuit breaker (manual reset).	80
	Gas engine - no spark.	Clean or replace spark plugs. Check wires. Check distributor cap and air gap.	77 54
	Diesel Engine - faulty injectors.	Clean or replace injectors.	*

* See your Windrower dealer.

TROUBLE SHOOTING

PROBLEM	CAUSE	REMEDY	REF.
Engine knocks.	Insufficient oil.	Add oil.	49
	Engine out of time.	Diesel - Time injection pump. Gas - Time engine ignition.	* 53
	Low or high coolant temperature.	Remove and check thermostat, see Engine Overheats.	*
	Improper fuel.	Use proper fuel.	44
Low oil pressure.	Low oil level.	Add oil.	49
	Improper type of oil.	Drain, fill crankcase with proper oil.	45
	Worn components.	Repair engine.	*
High oil consumption.	Crankcase oil too light.	Use proper viscosity oil.	45
	Oil leaks.	Check for leaks in lines around gaskets and drain plug.	—
	Internal parts worn.	Check for worn parts.	*
Engine runs irregularly or stalls frequently.	Unsteady fuel supply.	Clean vent on fuel cap. Blow dry. Replace clogged filters.	68
	Water, dirt, or air in fuel system.	Drain, flush, fill and bleed system.	70
	Low coolant temperatures.	Remove and check thermostat.	*
	Diesel - Dirty or faulty injectors.	Clean or replace injectors.	*
	Gas - Improper carburetor setting.	See Adjusting the Carburetor.	56
	Improper spark.	Set spark plug gap and check ignition system.	77
	Governor improperly adjusted.	Adjust governor.	55
Lack of power.	Incorrect timing.	Diesel - Time injection pump. Gas - Time engine ignition.	* 53
	Low engine speed.	Set engine speed.	55

* See your Windrower dealer.

TROUBLE SHOOTING

PROBLEM	CAUSE	REMEDY	REF.
Lack of power (cont'd.)	Too high viscosity engine oil.	Drain and fill with oil of proper viscosity.	45
	Intake air restriction.	Service air cleaner.	60
	Clogged fuel filter.	Replace filter element.	68
	High back pressure.	Clean out muffler.	63
	Improper type fuel.	Use proper fuel.	44
	High or low engine temperature.	Remove and check thermostat. See Engine Overheats.	*
	Improper valve clearance.	Set valve clearance.	*
	Diesel Engine - Faulty injectors.	Clean or replace injectors.	*
	Gas Engine - dirty or improperly gapped spark plugs.	Clean and gap or replace spark plugs.	77
Engine temperature below normal.	Defective thermostat.	Remove and check thermostat.	*
Warning buzzer sounds.	Engine overheated.	Check coolant level and thermostat.	64
	Park brake engaged.	Release brake.	21
	Low engine oil pressure.	Check oil level.	49
	Low transmission oil pressure.	Check oil level.	81
Engine overheats.	Low coolant level.	Fill reserve tank to proper level, check system for leaks.	64
	Engine overloaded.	Reduce ground speed.	30
	Defective radiator cap.	Replace cap.	64
	Loose or defective fan belt.	Adjust or replace belt.	52
	Dirty radiator core or grill screen.	Remove trash and dirt. Install rotary screen if build-up is frequent and excessive.	66 116
	Cooling system dirty.	Flush cooling system.	65

* See your Windrower dealer.

TROUBLE SHOOTING

PROBLEM	CAUSE	REMEDY	REF.
Engine overheats. (cont'd)	Defective thermostat.	Remove and check thermostat.	*
	Defective temperature gauge or sender.	Check water temperature with thermometer and replace if necessary.	*
	Defective water pump.	Repair or replace.	*
	Water only for coolant.	Use antifreeze.	64
High fuel consumption.	Improper type of fuel.	Use proper fuel.	44
	Clogged or dirty air cleaner.	Service air cleaner.	60
	Engine overloaded.	Reduce ground speed.	30
	Improper valve clearance.	Reset valves.	*
	Engine out of time.	Diesel - Time injection pump. Gas - Time engine.	* 53
	Low engine temperature.	Check thermostat.	*
	Diesel Engine - Injection nozzles dirty.	Clean or replace injectors.	*
	Gas Engines - Improper carburetor setting.	See Adjusting Carburetor.	56
Diesel engine emits black or gray smoke.	Improper type of fuel.	Consult your fuel supplier and use proper type fuel for operating conditions.	44
	Engine overloaded.	Reduce ground speed.	30
	Clogged or dirty air cleaner.	Service air cleaner.	60
	Defective muffler.	Check the muffler for possible damage which might create back pressure.	63
	Dirty or faulty injectors.	Clean or replace injectors.	*
	Engine out of time.	Make sure injection pump is timed properly.	*
	Air in fuel system.	Bleed fuel system.	70

* See your Windrower dealer.

TROUBLE SHOOTING

PROBLEM	CAUSE	REMEDY	REF.
Diesel engine emits white exhaust smoke.	Improper type of fuel.	Consult fuel supplier and use proper type of fuel for operating conditions.	44
	Cool engine.	Warm engine up to normal operating temperature.	17
	Defective thermostat.	Remove and check thermostat.	*
	Engine out of time.	Make sure injection pump is timed properly.	*
Starter cranks slowly or will not operate.	Low battery output.	Check battery charge.	73
	Variable speed lever not in neutral, steering wheel not centered, header clutch engaged.	Adjust neutral or neutral start assembly, center steering wheel, disengage header clutch.	87
	Relay not functioning.	Check relay and wire connections.	*
	Loose or corroded battery connections.	Clean and tighten loose connections.	74
	Key switch worn or terminals loose.	Check switch and terminals.	*
	Too high viscosity crankcase oil.	Drain and fill crankcase with oil of proper viscosity and quality.	45
	Main circuit breaker tripped.	Reset main circuit breaker.	80
	Main circuit breaker defective.	Replace circuit breaker.	*
Air filters require frequent cleaning.	Pre-cleaner not cleaned regularly.	Clean pre-cleaner.	60
	Excessively dusty conditions.	Install aspirated pre-cleaner.	115
	With Aspirated Pre-Cleaner: Hose from pre-cleaner to muffler plugged.	Remove obstruction.	115

* See your Windrower dealer.

TROUBLE SHOOTING

PROBLEM	CAUSE	REMEDY	REF.
ELECTRICAL			
Low voltage and/or battery will not charge.	Defective battery.	Test maintenance free battery.	*
	Low engine speed.	Increase speed.	55
	Loose or defective fan belt.	Adjust belt. Replace worn belt.	52
	Loose or corroded connections.	Clean and tighten battery connections.	74
	Dirty or defective alternator, defective voltage regulator, or high resistance in circuit.	Check circuit.	*
	Alternator or voltage regulator not connected properly.	Connect properly.	76
Lights dim.	High resistance in circuit or poor ground on lights.	Check the wiring circuit for a break in a wire or a poor ground.	*
	Defective light switch.	Replace switch.	*
Lights do not light.	Defective light switch.	Replace switch.	*
	Open wiring or defective circuit breaker.	Check wiring for broken wire or shorts, check circuit breaker in instrument panel.	80
	Poor ground on lights.	Clean under light mounting and ground wires and tighten.	—
Turn signals or indicators showing wrong direction.	Reversed wires.	Connect correctly.	*
No current to cab.	Main circuit breaker tripped.	Reset main breaker.	80
	Broken or disconnected electrical wire.	Check wiring for a broken, loose or shorted wire.	*

* See your Windrower dealer.

TROUBLE SHOOTING

PROBLEM	CAUSE	REMEDY	REF.
HYDRAULIC DRIVE SYSTEM			
Warning buzzer sounds.	Oil pressure in drive system low.	Stop machine and check oil level.	81
	Parking brake engaged.	Release parking brake.	21
	Foreign material shorting sender.	Clean top of sender.	—
	Short in wiring to buzzer.	Check wiring to buzzer.	*
	Faulty sender.	Replace sender.	*
Wheels lack pulling ability on a grade or pulling out of a ditch.	Insufficient torque at drive wheels.	Reduce ground speed.	30
	Loose or worn controls.	Check control.	*
	Air in system.	Use proper oil, check oil level, check oil filter and leaks.	81
	Brakes dragging.	Check brake linkages for full release.	86
	Internal pump or motor damage.	Check pump and/or motor.	*
	Relief valve dirty or damaged.	Check valve.	*
Both wheels will not pull in forward or reverse.	Low oil level.	Check oil reservoir level.	81
	Power wheels disengaged.	Engage power wheels.	120
	Check oil tubes for dents or flattened spots.	Replace damaged tubes.	*
	Steering controls worn or loose.	Check control lever and steering for loose, worn or broken ball joints and ball joint rods.	*
	Check pump arms for broken shaft or loose hardware.	Repair or tighten.	*

* See your Windrower dealer.

TROUBLE SHOOTING

PROBLEM	CAUSE	REMEDY	REF.
Both wheels will not pull in forward or reverse. (cont'd.)	Check brakes for full release or binding.	Adjust brakes and remove foreign objects so wheels are free to rotate.	86
	Charge pump relief valve damaged.	Check valve parts and seat.	*
	Internal charge pump damaged.	Check pump.	*
	High pressure relief valve stuck open, damaged seat.	Check valve and clean or replace.	*
	Failed pump.	Repair or replace pump.	*
One wheel does not pull forward or reverse.	One power wheel dis-engaged.	Engage power wheel.	120
	Check pump arm for broken shaft or sheared key.	Replace shaft or key.	*
	Steering controls worn or loose.	Check control lever and steering for loose, worn or broken ball joints and ball joint rods.	*
	Excessive clearance at pump arm key.	Replace key, shaft or arm.	*
	Check oil tubes for dents and flattened spots.	Replace damaged oil tubes.	*
	Check brake for full release or binding.	Adjust brakes for full release, remove foreign material so wheel is free to rotate.	86
	Failed pump, motor, or power wheel.	Repair or replace failed component.	*
One wheel develops pull in either forward or reverse.	Faulty relief valve.	Repair or replace relief valve.	*
Excessive noise from drive system.	Hydraulic tube clamps loose.	Tighten clamps.	—
	Brakes dragging.	Adjust brakes for full release.	86
	Faulty pump or motor.	Repair or replace pump.	*
	Air in system.	Check lines for leakage.	*

* See your Windrower dealer.

TROUBLE SHOOTING

PROBLEM	CAUSE	REMEDY	REF.
Hydraulic oil filter leaks at seal.	Not tightened.	Tighten.	—
	Damaged seal or threads.	Replace filter or filter head.	82
	Charge pressure too high (filter at main pump)	Reduce relief pressure setting.	*
STEERING AND GROUND SPEED CONTROLS			
Machine will not steer straight.	Inspect linkage for wear or looseness.	Replace worn parts or adjust linkage.	*
Machine moves on flat ground with parking brake engaged and controls in neutral.	Neutral start lock out of adjustment.	Adjust linkage.	87
	Parking brake out of adjustment.	Adjust linkage and brake shoes.	86
PARK BRAKE			
Loss of brake capacity.	Improper linkage adjustment.	Adjust linkage.	86
	Brake shoes worn.	Replace.	*
Incomplete brake release.	Brake linkage adjustment too tight.	Adjust linkage.	86
	Foreign material caught around brake shoe area.	Remove material.	—
OPERATOR'S SEAT			
Rough ride.	Seat suspension not adjusted properly.	Adjust.	95
	High air pressure in tires.	Deflate to proper pressure.	10
	Excessive bouncing.	Add rear weights.	23

* See your Windrower dealer.

OPTIONS AND ATTACHMENTS

Consult your Windrower Dealer for details on the following Options and Attachments.

FORKED TAILWHEEL CASTERS

Optional to standard formed casters.

NOTE: If not factory ordered, installation to be done by Windrower dealer.

FORKED CASTER OPTION

ASPIRATED PRE-CLEANER

Optional to standard bowl-type pre-cleaner. Designed to prolong air cleaner element life in dusty conditions. Available for both gas and diesel engines.

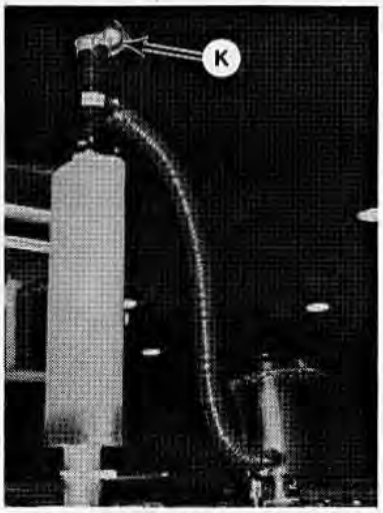
To install:

1. Attach pre-cleaner (A) to air filter canister (B) using clamp (C). Secure with 3/8 x 1 1/2 inch capscrew, lockwasher and hex nut (D).

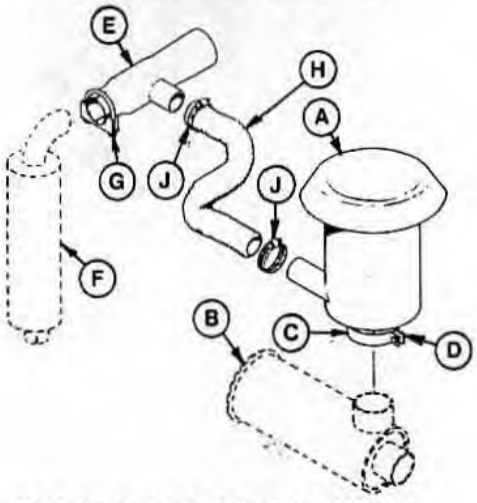
2. Attach aspirator (E) to muffler (F) with U-bolt, clamp and hex nuts (G).

   NOTE: For diesel engine, first remove muffler outlet extension tube, install aspirator (E) directly on muffler outlet and install rain cap (K) above the aspirator.

3. Secure hose (H) to pre-cleaner and aspirator using two hose clamps (J).



ASPIRATED PRE-CLEANER



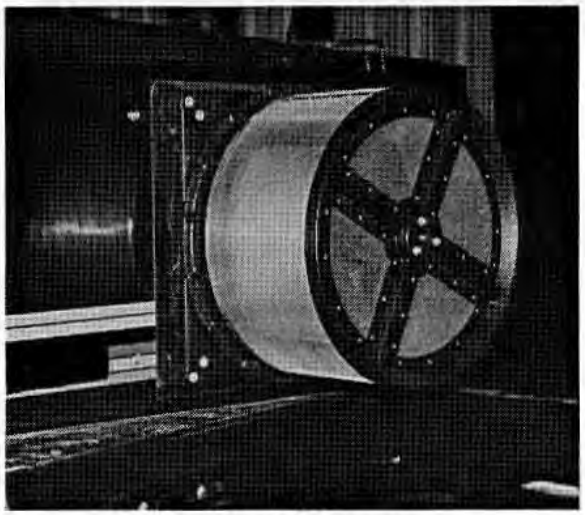
PRE-CLEANER INSTALLATION

ROTARY SCREEN

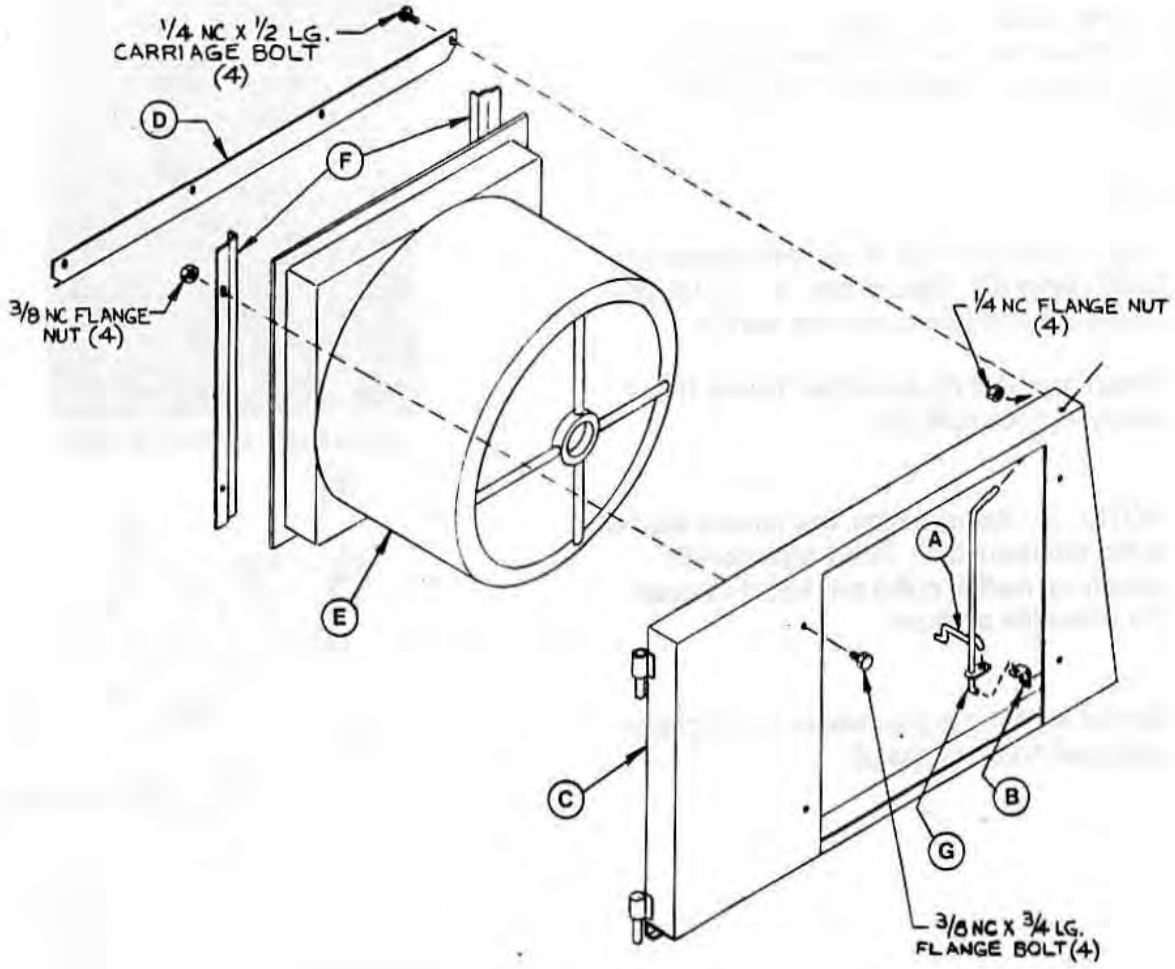
Optional to standard radiator screen. Designed for conditions where trash build-up on screen is excessive.

To install:

1. Remove standard screen. Latching rod (A) is re-used with rotary screen.
2. Remove L-bracket (B) from standard screen and install on rotary screen adapter (C). Install screen latch (G) as shown.
3. Rear filler (D) is shipped attached to adapter, but with lip reversed from field position. Remove rear filler to permit installation of screen assembly (E) into adapter (C).
4. Assemble as shown below. Rear filler (D) must be installed <u>after</u> screen brackets (F). Install filler (D) so lip points away from screen assembly.



ROTARY SCREEN



UNLOADING

WARNING: To avoid personal injury or death do not attempt to drive the windrower off the carrier. It must be lifted or towed. When starting the windrower, slight movement of the steering wheel could cause fast and hard-to-correct movement on a small surface such as a trailer bed. This could cause the machine to fall from the carrier onto the ground.

PREPARE TO UNLOAD

PREPARE TO UNLOAD

CAUTION: To avoid injury to bystanders from being struck by machinery, do not allow persons to stand in the unloading area.

1. Move trailer into position and block trailer wheels.
2. Lower trailer storage stands.

CAUTION: Unloading equipment must meet or exceed the specified requirements. Using inadequate equipment may result in chain breakage, vehicle tipping or machine damage.

LIFTING VEHICLE REQUIREMENTS

Use a forklift with a minimum 10,000 lb. (4535 kg) lifting capacity.

TOWING VEHICLE REQUIREMENTS

Use a forklift with a minimum 5,000 lb. (2270 kg) lifting capacity.

TOWING CHAIN REQUIREMENTS

Use overhead lifting quality chain with a minimum 5000 lb. (2270 kg) working load limit.

UNLOAD WINDROWER BY LIFTING

1. Set forklift tines to a width of 72 inches (1830 mm) outside to outside.
2. Center forklift on windrower.
3. Drive forklift straight into load.

NOTE: Watch for header drive belt adjuster, which protrudes below the main frame near the fuel tank.

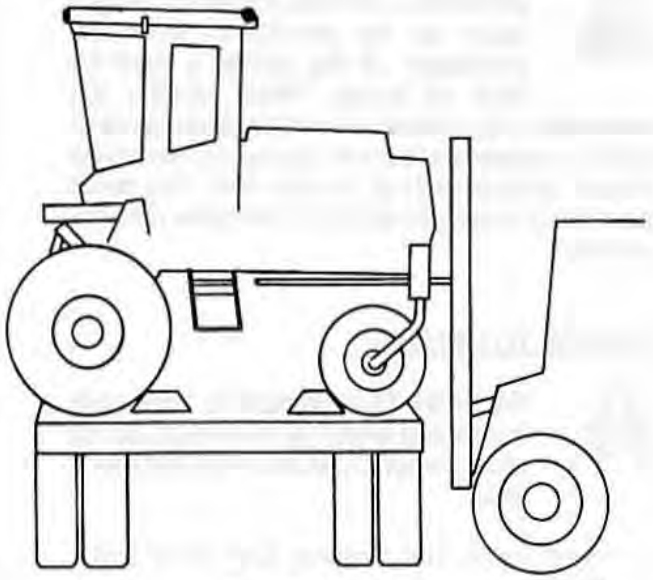
4. Attach chains from windrower to forklift (See "Unload Windrower by Towing") or otherwise secure windrower to prevent it sliding off of forks.

CAUTION: Final gear drives have been disengaged for shipping, making the windrower a freewheeling vehicle. To avoid injury from shifting load, remove hauler's chains and shipping blocks from one machine at a time, as each is unloaded, and always after it is secured to forklift.

5. Remove hauler's chains and shipping blocks from the unit being lifted.
6. Raise machine 12 inches. (300 mm).

CAUTION: Be sure machine is balanced before backing away from carrier.

7. Slowly back away from carrier.
8. When clear of carrier, lower machine to ground. Remove chains.



POSITION FORKLIFT

UNLOADING

UNLOAD WINDROWER BY TOWING

1. Center forklift on rear of windrower and drive forward straight into load.

NOTE: Watch for header drive belt adjuster, which protrudes below the frame near the fuel tank.

2. Place a 4 x 4 piece of lumber (A) between windrower weight bracket and back of forks.

3. Route towing chain through windrower tie-down loop (B) and secure to forklift. Repeat on opposite side.

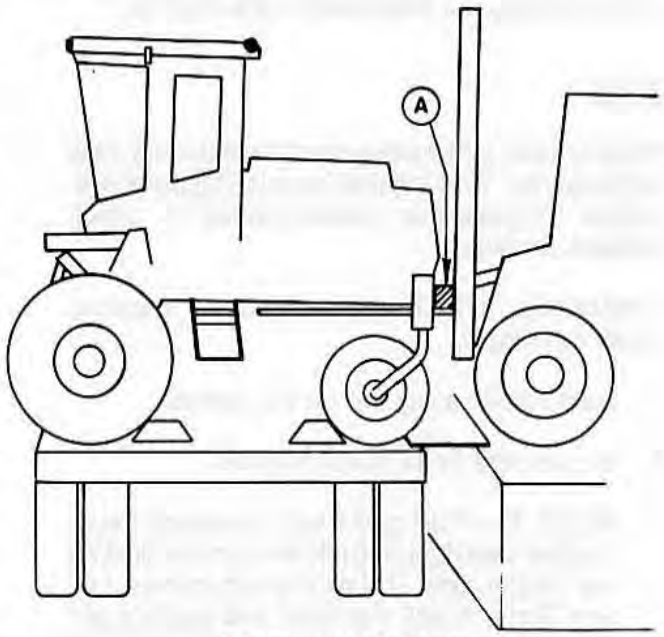
CAUTION: Final gear drives have been disengaged for shipping, making the windrower a freewheeling vehicle. To avoid injury from shifting load, remove hauler's chains and shipping blocks from one machine at a time, as each is unloaded, and always after it is secured to forklift.

4. Remove hauler's chains and shipping blocks from the unit being unloaded.

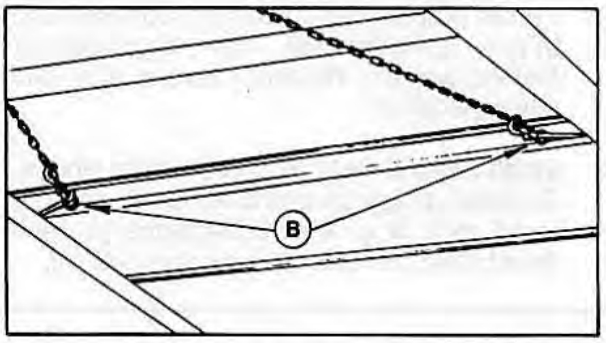
5. Raise machine until caster wheels clear the carrier bed.

6. Slowly back away from carrier until windrower is clear.

7. Lower caster wheels to ground. Remove chains.



POSITION FORKLIFT



ATTACH CHAINS - BOTH SIDES

ASSEMBLY

NOTE: The purpose of shipping preparations such as having no fuel in gasoline engine tank and no battery is to better adapt the unit for an extended non-active period. If the machine is to remain non-active for a long period of time, do not perform the following assembly instructions until necessary. Also, further prepare the unit for storage as instructed in this manual.

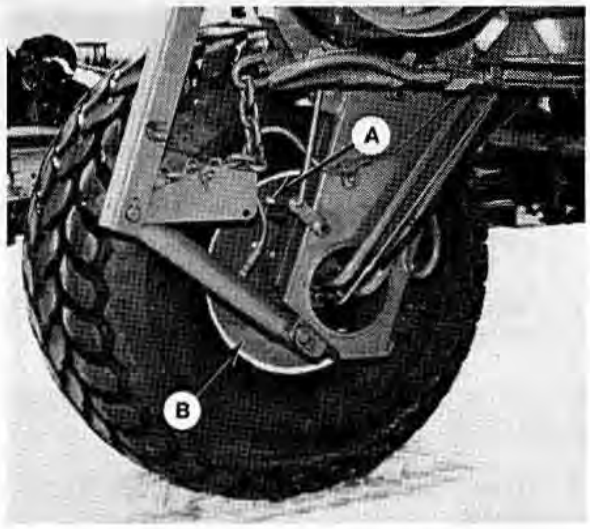
TIRES

If tires are shipped installed on the windrower, they will have been over-inflated for shipping purposes. Deflate to pressures recommended in Specifications section.

If drive tires have been removed for shipping, install as follows:

1. Be sure air valves are on the outside.
2. Be sure tire tread points forward.

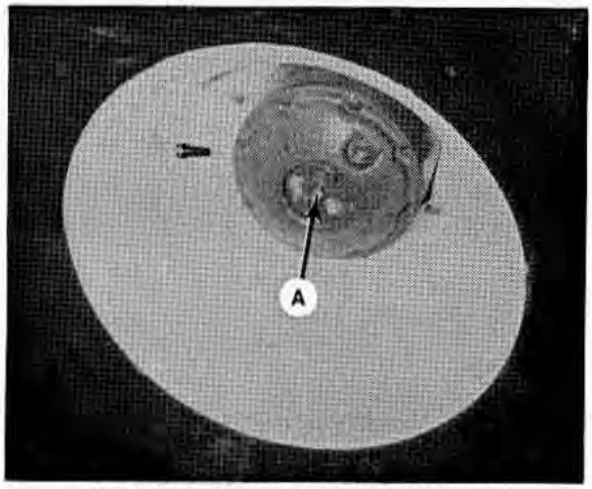
   NOTE: For "Turf and Field" (diamond tread) tires be sure right and left tires are installed on the proper side. If they are not marked Left and Right, install the tires and perform the Park Brake Adjustment as described in Maintenance/Service section.
3. Follow proper bolt tightening sequence and torque specifications. See Maintenance/Service section. Re-check torque after one hour operation.
4. Install brake shields (B) on both drive wheels. To install, hinge open and assemble with 0.1 to 0.2 inch (2 to 4 mm) clearance between shields and tire rims. Secure with bolt (A).



INSTALL BRAKE SHIELDS

ENGAGE FINAL DRIVES

Remove cover (A) at center of drive wheels. Replace with dished side of cover facing out.



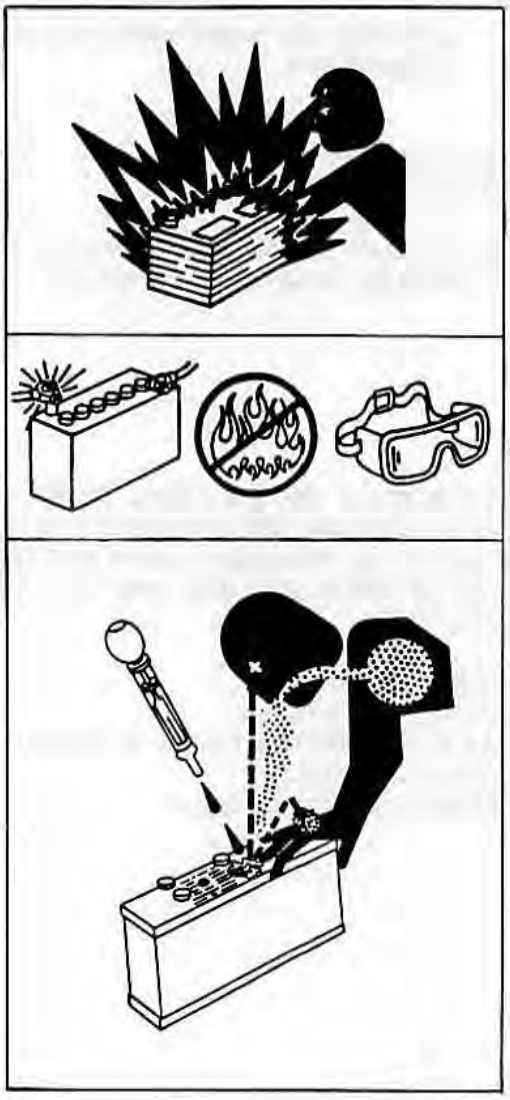
REVERSE COVER TO ENGAGE DRIVE

FUEL WINDROWER

Gasoline engine units are shipped without fuel. Add fuel before attempting to start the windrower.

ASSEMBLY

INSTALL BATTERY



The windrower is shipped without battery.

1. Battery Specifications

Select a vibration proof, 12 volt battery with BCI code #24C-480. The 480 indicates a rating of 480 cold cranking amps at 0°F (-18°C). Higher ratings are also acceptable.

2. Fill Battery (if required)

WARNING: Keep all smoking materials, sparks and flames away from electrolyte container and battery, as gas given off by electrolyte is explosive.

Battery electrolyte causes severe burns. Avoid contact with skin, eyes or clothing. Wear protective eyewear and heavy gloves.

If electrolyte is spilled or splashed on clothing or on the body, neutralize it immediately with a solution of baking soda and water, then rinse with clean water. Electrolyte splashed into the eyes is extremely dangerous. Should this occur, force the eye open and flood with cool, clean water for five minutes. Call a doctor immediately.

If battery is dry, fill battery cells with electrolyte (battery acid). Capacity of a battery of recommended size is 5.1 litres (175 US oz), or approximately 850 mL (30 oz) per cell.

3. Charge Battery

CAUTION: Follow directions regarding charging battery given in Maintenance/Service section and instructions furnished by the battery charger manufacturer.

4. Install Battery

Position battery in windrower and install hold-down.

5. Connect Battery Cables

Connect ground cable to negative (-) terminal on battery. Connect starter cable to positive (+) terminal on battery. Be sure connections are clean and tight.

WARNING: Do not run the engine with battery cables disconnected. High voltage can build up in the frame, creating a shock hazard. Alternator damage will also result.

When the preceding Assembly Instructions are complete, the windrower tractor is in running condition.

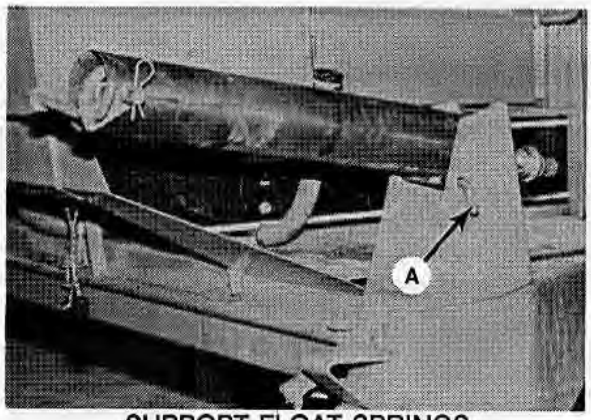
CAUTION: Machine is less stable and more difficult to control without header. Do not exceed HALF maximum engine speed and avoid loose gravel and slopes. Refer to instructions in this manual on Starting, Driving and Stopping the Windrower.

UNTIE HEADER LINKAGE

CAUTION: Be careful when removing shipping wire.

1. Untie header lift linkages and lower into working position.

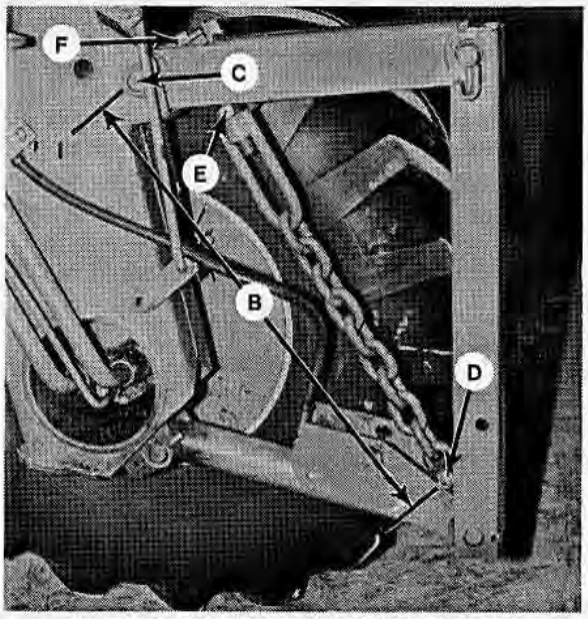
   Untie float spring assemblies and support the float spring by installing retainer pin (A).



SUPPORT FLOAT SPRINGS

2. Check length of diagonal chains. The length (B) of the diagonal chain (measured from top link pin [C] to the bottom chain bolt [D]) should be 26.0 inches (660 mm) when the chain is tight.

   To adjust chain length:
   - Loosen jam nut (E).
   - Turn bolt (F)until chain length is correct.
   - Tighten jam nut (E).
   - Repeat on opposite linkage.



CHECK DIAGONAL CHAIN LENGTH

HEADER RELATED ASSEMBLY

When a specific header is matched with tractor, perform the final preparations listed under "Preparing the Tractor" in Operation section.

HEADER ATTACHMENT

See Header Operator's Manual for header attachment instructions.

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