

INSTRUMENTS AND CONTROLS

Before attempting to operate your new tractor, become familiar with the location and purpose of its controls and instruments. Additional information will be found on the control or instrument.

- | | | |
|-----------------------------|--------------------------------------|---|
| 1. Ammeter | 10. High beam dimmer switch | 21. Draft or position switch-over lever |
| 2. Engine oil pressure | 11. High beam indicator light | 22. P.T.O. control lever |
| 3. Tachometer/Hourmeter | 12. Fuse box | 23. Independent to synchronous P.T.O. control |
| 4. Water temperature gauge | 13. Rad shutter control | 24. Gear shift lever |
| 5. Glow plug indicator | 14. Operator seat | 25. Brake lock rod |
| 6. Ignition key switch | 15. 16. 17. Hydraulic control levers | 26. Front wheel drive control rod (520) |
| 7. Ground switch | 18. Traction Booster lever | 27. Differential lock |
| 8. Turn signal light switch | 19. Traction booster control valve | 28. Hydraulic pump, engage/disengage lever |
| 9. Turn indicator light | 20. Draft control lever | 29. Brake pedals |
| | | 30. Brake latch |
| | | 31. Clutch pedal |
| | | 32. Foot Throttle |
| | | 33. Hand Throttle |
| | | 34. Light switch |
| | | 35. Dash light |
| | | 36. Ground switch indicator light |
| | | 37. Draft control ajustable stop |
| | | 38. Draft control neutral stop |

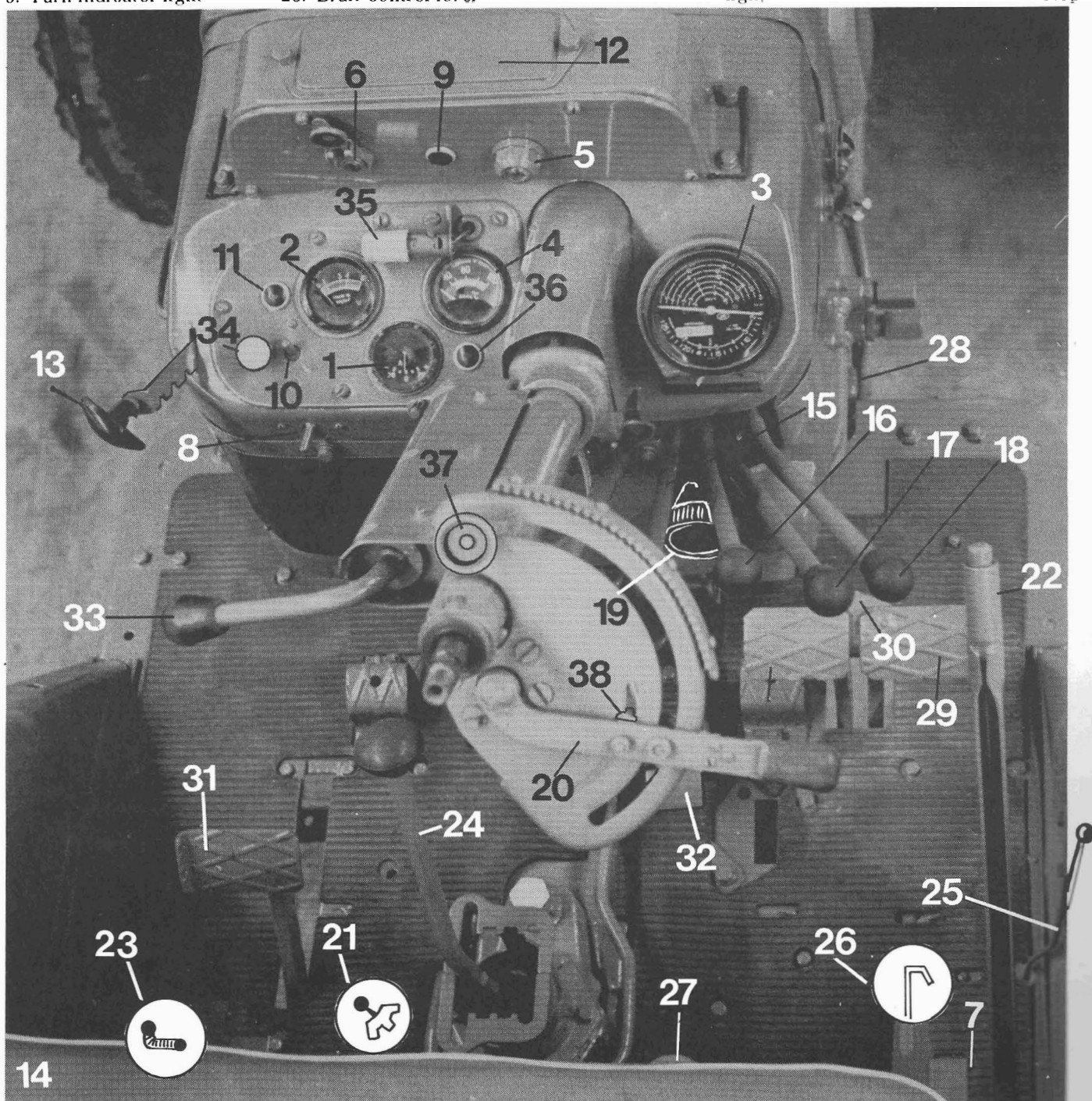


Fig. 2 Instruments and controls

OPERATION

PRESTARTING

Perform the following steps and services before starting your engine for the first time each day.

- A Check the engine crankcase oil level
- B Check tire condition and pressure
- C Check for fuel, oil & hydraulic leaks
- D Check radiator guard screen & clean if necessary

STARTING THE ENGINE



CAUTION!

Never use ether type start aids.
The engine cylinder head is equipped with a glow plug, use of ether to assist starting may result in an explosion and serious injury.

Ensure: — transmission system is in the neutral position, P.T.O. control lever is in neutral position, hydraulic lift levers are in neutral position. Place battery ground switch in the on position. (The switch is turned on by pushing horizontal button and turned off by depressing the vertical button.) Set hand throttle in maximum speed position. Fully depress clutch pedal to minimize transmission drag. The starting cycle is controlled by a three position key switch:

- Position No 1  key handle horizontal — circuit open
- Position No 2  key turned 45° clockwise, glow plug circuit activated
- Position No 3  key turned 90° clockwise, glow plug and starter motor circuit activated. **If engine fails to start after 15 seconds, wait 30 - 40 seconds and repeat steps 2 and 3**

When the engine fires and picks up speed, return the key handle to the horizontal position and reduce throttle opening to approximately 1300 rpm. Immediately check all instruments for operation. Run engine until water temperature reaches 55°C.

If your tractor has been standing idle for an extended period, pre-lubricate the engine as follows: fully close the throttle, depress the clutch pedal and turn starter key 90 degrees. Allow engine to crank for 15 seconds to fill oil passages and splash lube cylinder walls.

HELPFUL HINTS FOR COLD WEATHER STARTING

When the ambient temperature is 0°C or below revise your starting cycle as follows:

1. Disengage the hydraulic pump drive (page)
2. Turn key through 45° and hold for 30 - 40 seconds until dash - indicator lights up to a cherry red.
3. **Turn key and additional 45° to energize the starter**
4. When the engine fires hold key in the start position until the motor runs smoothly. Note: Safety lock out system will disengage the starting motor as soon as the engine begins to pick-up speed.

STOPPING THE ENGINE

After idling the engine at 800 rpm for a few minutes, reduce the engine speed on the throttle lever until the engine stops.

After stopping the engine depress the vertical button on the ground-switch and remove the key to prevent tampering and unauthorized operation. Before dismounting, be sure all equipment is lowered to the ground and the ground switch indicator lamp is off.

BREAKING IN THE ENGINE

The engine is ready for normal operation. However, to facilitate break-in, avoid prolonged periods of engine idling for the first 100 hrs. of service.

If the coolant temperature rises to the red zone on the gauge, shift to a lower gear to reduce the load on the engine.

TOWING THE TRACTOR

Caution: Never tow the tractor at high speeds. Tow the tractor with the engine running to maintain power operation of the steering. When towing the tractor, the transmission oil level should be at the full mark. Be sure the differential lock is disengaged.

Ammeter gauge (Fig. 2-1)

Indicates the rate of charge (+) or discharge (-). Continuous discharge during operation will result in low battery voltage and the engine may be difficult to start.

Water temperature gauge (Fig. 2-4)

Records coolant temperature. Never operate the tractor when coolant temperature is below 40° or above 95°C.

Engine oil pressure gauge (Fig. 2-2)

Indicates engine oil pressure. Never operate the tractor when the oil pressure is below 1 kg cm² or above 4 kg cm² when engine is warm (75-80°C)

Tachometer - Hour meter (Fig. 2-3)

Monitors engine r.p.m. and records engine hours.

Glow plug indicator (Fig. 2-5)

Relates heat intensity of the glow plugs. The glow plug is activated by the key switch.

Note: If the glow plug indicator heats very quickly, check all glow plugs or engine.

Key switch (Fig. 2-6)

Switch has 3 positions, Pos. 1 neutral, or off. Pos. 2 glow plug. Pos. 3 glow plugs and starting motor.

Ground switch (Fig. 2-7)

Connects or disconnects the batteries from the electrical circuit.

Ground switch pilot lamp (Fig. 2-36) Ruby diffuser

Lights up when ground switch is in on position.

Turn indicator switch (Fig. 2-8)

Push toggle to the right for right hand turn - left for left hand turn - middle position for off.

Turn indicator pilot lamp (Fig. 2-9) Green diffuser

Monitors condition of turn signal - steady flash indicates proper operation of signal lights - fast flicker indicates defect in one signal lamp - steady glow indicates defect in both signal lamps.

Head light toggle switch (Fig. 2-10)

Switch has two positions, for low beam move switch down, for high beam move switch to the up position.

High beam pilot lamp (Fig. 2-11) Blue diffuser

Lamp lights when high beam is selected.

Fuse Box (Fig. 2-12)

The electrical circuit is protected by safety Fuses. The world-wide symbols immediately above the fuse box on the dash panel make for quick inspection and correction.

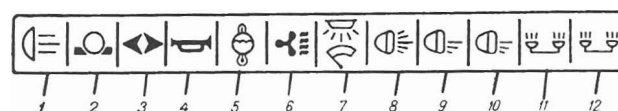


Diagram of Safety Fuses

1 — rear lights; 2 — stop light; 3 — turn indicators; 4 — horn; 5 — temp. gauge; 6 — cab heater fan motor; 7 — dome light and windshield wiper; 8 — "high beam"; 9 — "low beam" left headlight; 10 — "low beam" right headlight; 11 — left clearance lights; 12 — right clearance lights.

Engine coolant shutter control (Fig. 2-13)

Although engine coolant temperature is maintained by a thermostat, the tractor is also equipped with a manual radiator shutter control for operation during severe low temperature for rapid warm up.

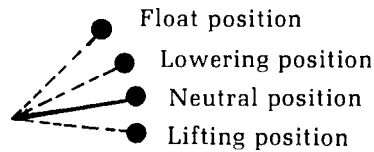
Pull out shutter control to open; push in to close.

Operator seat (Fig. 2-14)

The seat may be moved for and aft to suit the operator. The seat height can be altered by moving the lever.

Hydraulic valve control levers (Fig. 2-15, 16, 17)

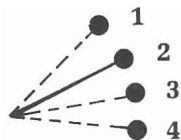
The tractor is equipped with a three spool four position self-cancelling valve.



The hydraulic levers have three fixed positions. Only the lowering position is spring loaded returning the lever to neutral when released.

Note: When controlling the hydraulic system with the hydraulic valve, the draft and position stopped in this position by means of the manual adjusting stop (37).

Hydraulic Lock-Out and Weight transfer lever (Fig. 2-18)



The lockout lever has four positions. The top position serves as a lock-out for all hydraulic functions. E.g. with the lever in the uppermost position, "Lock", the system becomes totally inoperative and thus serves as a safeguard while moving the tractor and plow or loader in a raised position to a site.

Moving the lever to the next position "Off" re-activates the hydraulic system.

The third position "On" engages the weight transfer system, while the lower most position partially cancels the rate of weight transfer and releases pressure in the hydraulic system.

Weight transfer pressure control knob (Fig. 2-19)

The 3 point hitch mounted equipment is utilized for weight transfer. With the equipment lowered to the working depth, place Hydraulic Lock-out and weight transfer lever into the "On" position. Turn knob counter-clockwise to increase rate of transfer or clockwise to decrease the rate. The system is properly adjusted when movement of the mounted equipment is visible, but not noticeable, to the operator. (In areas within the field where weight transfer is not desired the lever may be held down to reduce the effect.) Once the system is properly adjusted it need not be touched unless the implement is exchanged with one lighter or heavier in weight, or suction.

Draft and Position Control lever (Fig. 2-20)

To raise the 3 point hitch pull the lever all the way down; to lower, push lever against the limiting screw. **Note:** For draft or position control all main hydraulic control levers must be in the neutral position. The hydraulic lock-out and weight transfer lever must be in the "Off" or "lock" (preferred) position.

Draft or position, switch over lever (Fig. 2-21)

The draft control valve is located under the operator seat. Push the switch-over lever to the extreme right (when seated) for draft control or the extreme left for position control.

P.T.O. Control lever (Fig. 2-22)

The lever has 3 positions. Forward pos. disengages the P.T.O. Centre position places P.T.O. in neutral. Rearward engages the P.T.O.

Note: If Draft and Position control lever is not in proper neutral position, hydraulic system will overheat.

Independent to synchronous P.T.O. drive control rod (Fig. 2-23)

The control lever is located under the operator seat. Turning the lever counter-clockwise engages the ground speed P.T.O.

For independent P.T.O. drive turn the lever clockwise.

Gear shift lever (Fig. 2-24)

The gear shift lever also selects 'High' or 'Low' range. First select the range by moving the lever into the range and returning it to neutral — then select forward or reverse speeds.

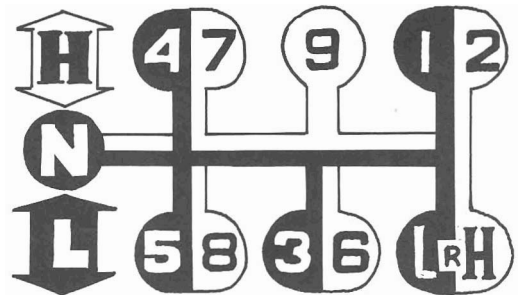


Fig. 3 Gear Shift Diagram

Brake Lock rod (Fig. 2-25)

Depress brake pedals and pull brake lock rod up for parking on an incline. To release brake step onto brake pedals, and depress rod.

Front wheel drive control rod 520 only (Fig. 2-26)

To disconnect the front wheel drive place the rod in the lower position. To connect the system for automatic engagement in forward travel place the rod into the intermediate position. To engage the front axle for operation in both directions place the control rod in the upper position.

Differential Lock (Fig. 2-27)

The lock is engaged by depressing foot pedal (27). Depressing the pedal locks both rear wheels together, preventing the wheels from rotating independently.

**CAUTION:**

1. Do not engage the differential lock while the tractor is in motion.
2. Do not turn the tractor with the differential lock engaged.

Hydraulic Pump drive disconnect lever (Fig. 2-28)

The hydraulic pump may be disconnected from the engine by pulling the knob on the disconnect lever and pushing the lever down. Pull lever up to engage.



CAUTION: Do not attempt to move lever while the engine is running.

Light switch (Fig. 2-34)

The light switch is a push-pull three position switch. Position 1 lights off. Position 2 dash, licence plate and parking lights on. Position 3 dash, licence plate, parking and head lights on.

The 3 Point Hitch

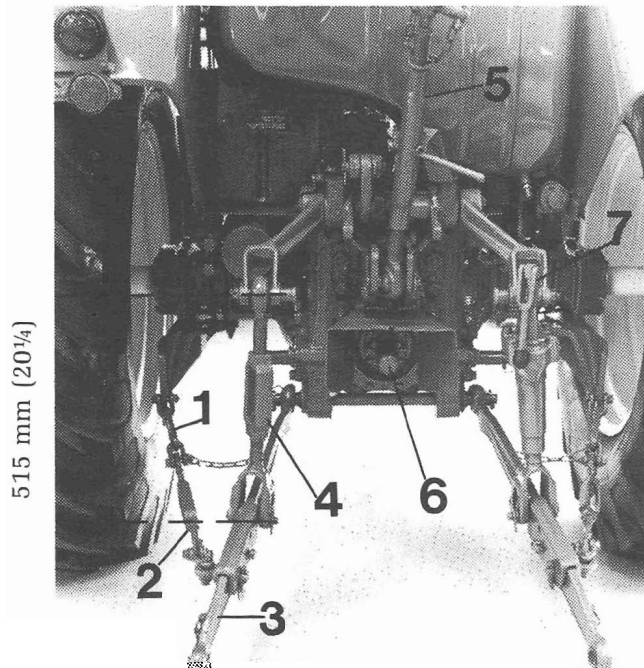


Fig. 4 Three Point Hitch

1. Sway chain 2. Turnbuckle 3. Lower draft links 4. Turnbuckle 5. Centre link 6. P.T.O. 7. Adjustable crank

Note: Adjust only the right lower draft link. The left link should remain at the constant length of 515 mm (20 $\frac{1}{4}$ ”).

Attaching the Implement

Most implements can be easily attached to the 3 point hitch of your tractor as follows.

1. Move tractor to a position where draft link ends are touching or near attachment pins of the implement.
2. Position left hand ball over the attachment pin and secure with link pin.
3. If necessary adjust right hand lift link to align with implement position right hand ball over the pin and secure with link pin.
4. Attach upper link.

Final implement adjustment is made in the field in conformity with its operating instructions.

Turnbuckle adjustment (Fig. 4 Item 2)

When working with a plow, there must be slight lateral motion of the draft links in the working position. With the 3 point hitch in the top raised position the sway chains (Fig. 4-1) must be adjusted to restrict movement at ends of the draft link arms (Fig. 4-3) to a maximum of $\frac{3}{4}$ ” (20 mm)

Heavy mounted equipment

When working with heavy mounted implements, front axle load is reduced and steering affected. In this case it is recommended to increase the stability of the tractor with the ballast weights.

Ballast weights, mounting parts, etc., are available as optional equipment from your Belarus dealer.

Swinging Drawbar

A swinging drawbar is available as an option from your Belarus dealer.

Remote Hydraulic cylinders

To operate hydraulically activated implements, remote cylinder kits including adaptors, may be ordered from your Belarus dealer.

The remote cylinders can be installed as double or single-acting units.

Dual Wheels

A spacer kit, rims and tires are available as an option from your Belarus dealer.

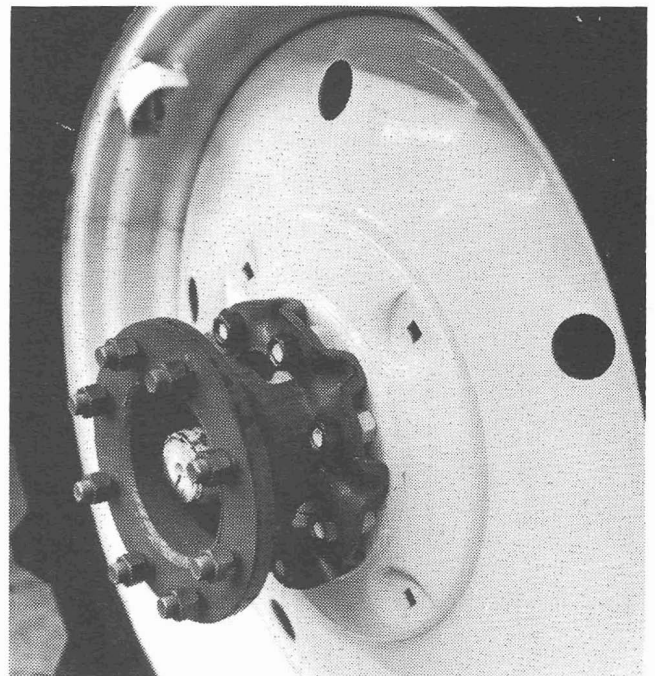


Fig. 5 Optional Dual Wheel Spacer Kit

! CAUTION! Do not stand under raised implements.

Model 520 front wheel setting

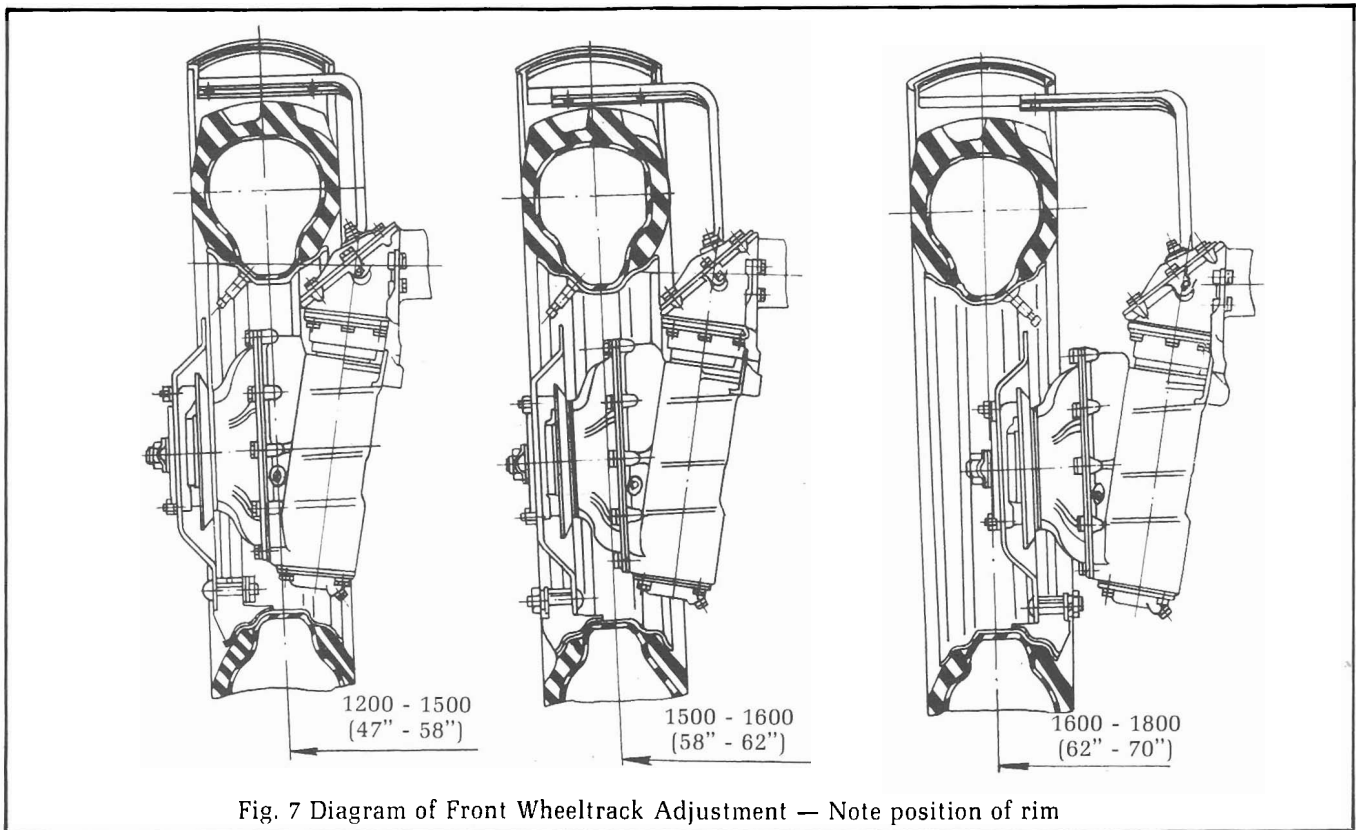


Fig. 7 Diagram of Front Wheeltrack Adjustment — Note position of rim

Model 500 front wheel setting

For operation of model 500 tractor in different row widths, front wheel tread can be adjusted from 1200 to 1800 mm (47" to 70") in 50 mm (1.9") intervals on each side.

To set required wheel tread proceed as follows:

1. Brake rear wheels.
2. Jack up one front wheel.
3. Back off tie bolts. A
4. Remove lock pin. B
5. Move axle and wheel assembly while adjusting tie rod tubes until desired tread width is obtained.
6. Align lock pin hole and insert lock pin.
7. Tighten tie bolts.

Repeat steps 1 - 7 to set opposite wheel

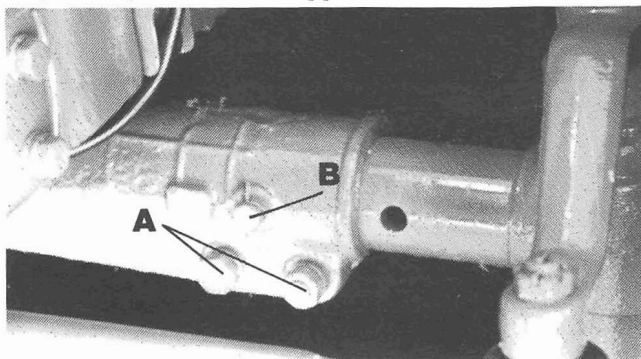


Fig. 6 Front Wheel Tread Adjustment

The front wheel tread can be adjusted from 1200 to 1800 mm (47" to 70") by use of a rack and pinion assembly.

To set required wheel tread proceed as follows:

1. Brake rear wheels.
2. Jack up one front wheel.
3. Back off wedge nuts and tap wedge down.
4. Remove rack and pinion cover and turn pinion until desired tread is obtained with rim in correct position. (See chart Fig. 7)
5. Install rack and pinion cover.
6. Drive wedge bolts into home position and retorque nuts.
7. Adjust tie rod tubes.

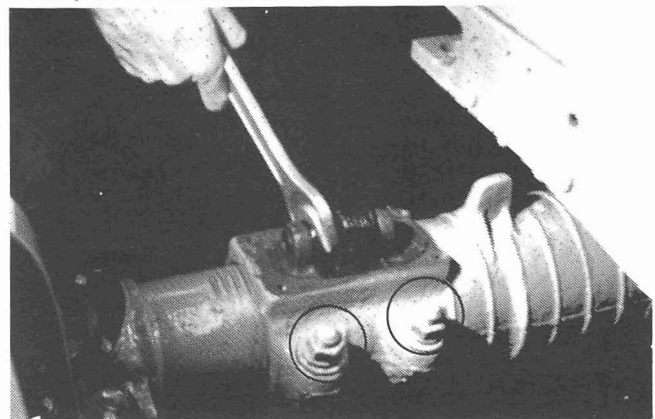


Fig. 8

Front Wheel toe-in

Having repositioned the front wheels, reset toe-in by adjusting the length of the tie rods. Toe-in is correct when dimension I is 4 mm (0.15) smaller than dimension II measured at axle height. With toe-in set, tighten tie rod lock nuts.



CAUTION: After a few hours of service **RETIGHTEN** all mounting hardware on front and rear axles and keep them tight.

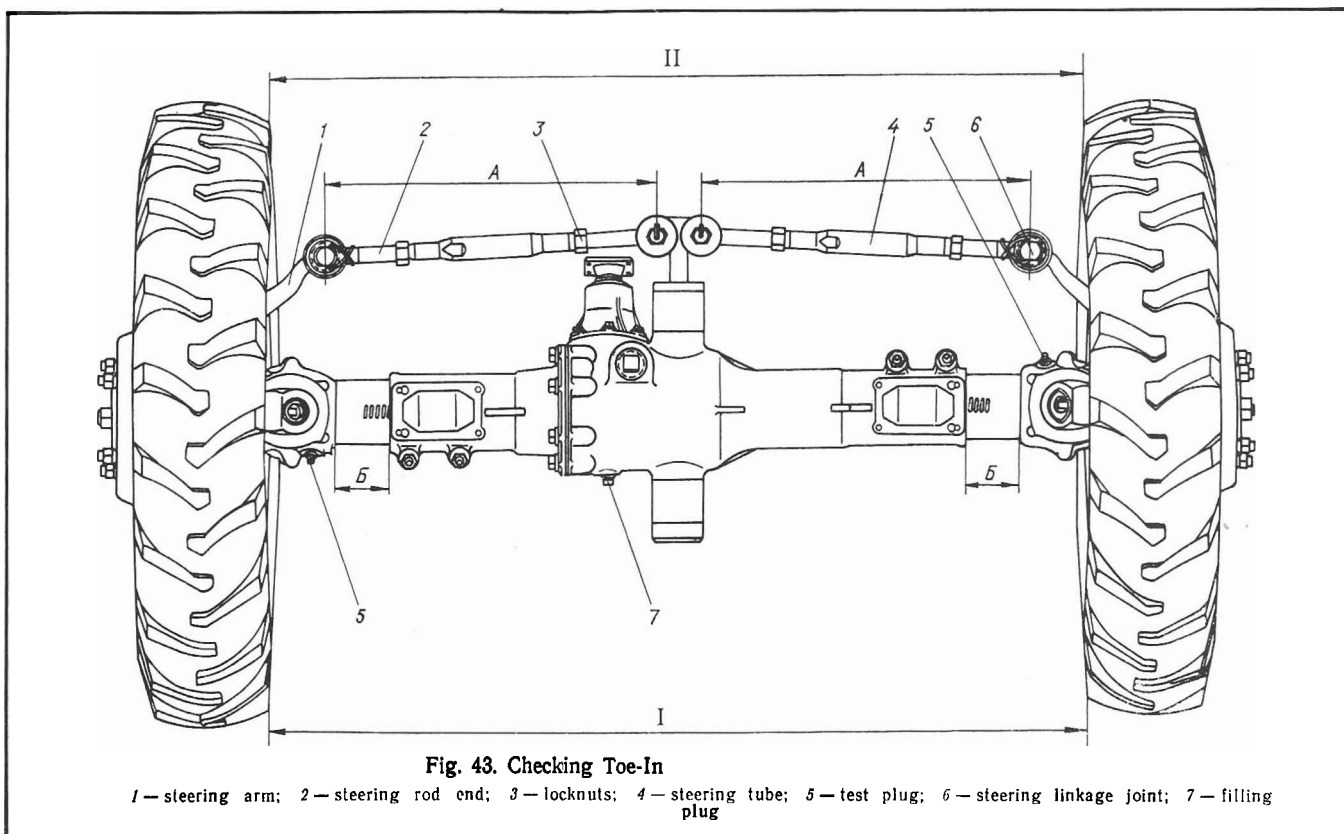


Fig. 9 Checking Toe-in

Rear Wheel tread adjustment 500 and 520

The rear wheels of model 500 and 520 tractors are identical. Wheel track adjustment (with wheel in standard position) ranges from 1350 - 1600 mm (53" - 62"). Reversing the rims increases the wheel track adjustment from 1600 to 2030 mm (62" - 80").

To adjust proceed as follows.

1. Block front wheels.
2. Jack up rear axle.
3. Loosen axle hub bolts E.
4. Turn pinion F until wheel is in desired position.
5. Torque axle hub bolts
6. Repeat steps 1-5 to set opposite wheel

To reverse rims place jack under the differential housing or use a jack under each axle housing. Remove right hand tire and install "dish" in on the left hand side. Install left hand tire "dish" in on the right hand side. Be sure to maintain proper direction of the tire rotation.

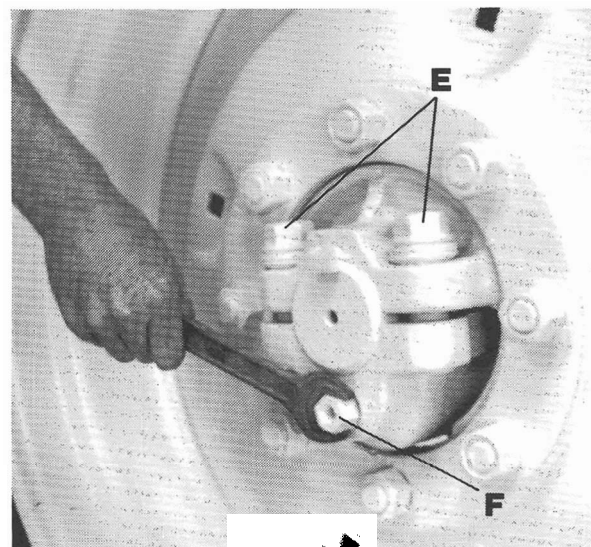


Fig. 10 Rear Wheel Tread

INFLATION CHART

Front Tires - Inflation Pressure

Tire Size	With lowered or rear-mounted implement	With max. ballast or front mounted implement
8.3/8 x 20	20 - 26 p.s.i. 1.4 - 1.8 At.	27 - 36 p.s.i. 1.9 - 2.5 At.
7.5 x 20	20 - 26 p.s.i. 1.4 - 1.8 At.	27 - 36 p.s.i. 1.9 - 2.5 At.

Rear Tires - Inflation Pressures

Tire Size	With little or no added ballast	With max. ballast or heavy rear mounted implement.
13.6/12 x 31	14 - 20 p.s.i. 1. - 1.4 At.	16 - 20 p.s.i. 1.2 - 1.8 At.
18.4/15 x 30	18 p.s.i. 1.3 At.	19 - 21 p.s.i. 1.3 - 1.5 At.
15.5 x 38	16 p.s.i. 1.2 At.	20 p.s.i. 1.8 At.

Ballast

The safety and performance of your tractor will be improved if the correct amount of front or rear ballast is used to obtain the proper amount of rear wheel slippage. Front ballast will help maintain stability and steering control when front weight is transferred to the rear wheels. The amount of rear ballast should permit operation with approx. 8 - 12 percent slip of the rear wheels.

If too much ballast is used, the tread marks will be clear and distinct. Over ballasting results in less power available to pull the implement because more power is required to overcome tractor rolling resistance.

With too little rear ballast, the tread marks will be obliterated by excessive slippage which also results in horsepower loss and excessive tire wear.

Consult your Belarus dealer for advice and assistance regarding use of liquid ballast.
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Note: Tires must not be filled with more than a 75% liquid to 25% air ratio. To prevent tire slippage on the rim the correct inflation pressure must be maintained.

AIR CLEANER

Centrifugal Separator

Loosen wing nuts, remove separator, strip and clean all parts.

Caution: Do not deform guide plate slots when cleaning.

Oil Bath

Release wing nuts, remove pan from housing, discard oil and wash pan.

Re-fill to circular indentation in pan wall with engine lube oil. Do **not** overfill.

Elements

Withdraw elements and wash in varsol or diesel fuel.

Ensure elements are dry before assembling.

ENGINE OIL FILTER



CAUTION:

Do not remove the smaller nut above the large knurled nut unless the entire filter requires servicing.

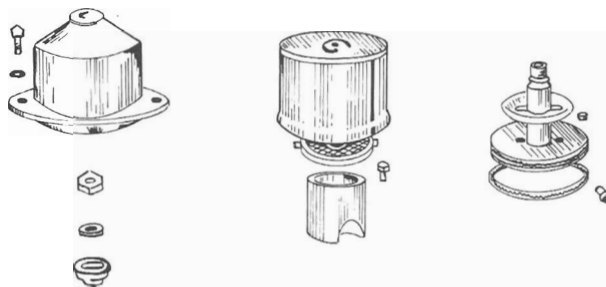


Fig. 11

To service the 500 oil filter proceed as follows:

1. Remove bolts (2) from filter cover
 2. Remove cover
 3. Turn off nut and remove thrust washer and rotor body assembly
 4. Hold filter body from rotating by inserting a screwdriver under the lower part of the filter body and remove nut from rotor body cup with H.S.P. wrench 41. (An effective lock may be obtained on one of the jets and the centre shaft)
 5. Remove rotor body cup
 6. Clean filter (cup and screen)
 7. Clean the jet outlet holes by means of 1.5 mm diameter copper or brass wire
 8. Reassemble by reversing the above steps.
- NOTE: If the centrifugal filter is in good condition, the filter should make a noise for 30 - 60 seconds after the engine has been stopped

ELECTRICAL SYSTEM

Alternator

The alternator is driven by "V" belt from the crankshaft pulley. Alternator output is governed by a transistorized regulator.
No service or adjustment should be attempted on

either unit with the exception of cleaning the alternator drain holes with a small probe and changing the setting of the regulator seasonal adjusting screw.

Any other work should be undertaken by your Belarus dealer.

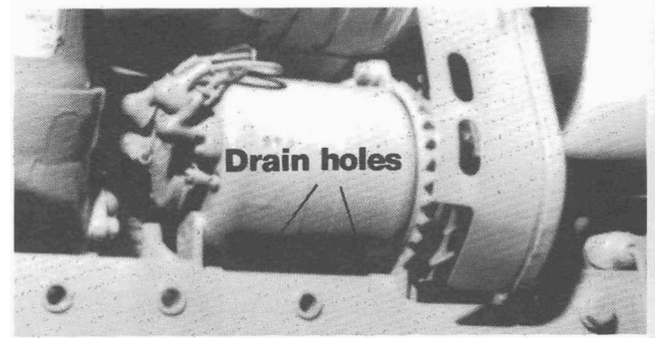


Fig. 12 A.C. Alternator with Built-in Rectifier

Charge rate seasonal adjustment

Check battery ground switch is in "OFF" position. For winter operation turn screw clockwise to position 3. For summer preparation turn screw counter-clockwise to position 1.

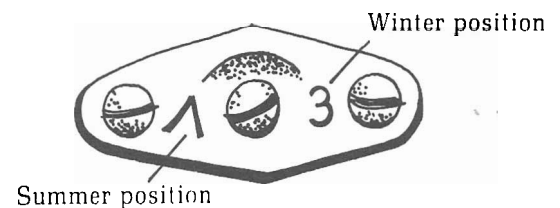


Fig. 13 Adjustment on Voltage Regulator

Charge rate fluctuation

If the ammeter indicates rapid fluctuation in the charge rate, check "V" belt tension. If belt tension is satisfactory consult your Belarus dealer.

Fuse replacement

In the event of a fuse failure always investigate the cause. Do **Not** fit a heavier rated fuse to overcome the problem.

Battery service

Corrosion removal from terminals and cables should be carried out using a solution of 115g (4 ozs.) baking soda added to 1L (1 quart) of water. Ensure solution does not enter battery. Flush treated parts and surrounding area with clean water.

Coat terminal posts with Petroleum Jelly to prevent further corrosion.
Clean vent holes in filler plugs.

Electrolyte level

The correct electrolyte level in the battery is 1/2" (12-15 mm) above the separator plate. Top up with distilled water as necessary.



CAUTION: If topping up is necessary at below 0°C (32°F) run engine for 2—3 hours to ensure thorough mixing of water and electrolyte.

FUEL SYSTEM

Fuel Filters

The engine is fitted with a double filtration system.

Primary Filter (Fig. 21)

The primary filter contains no element and serves to separate water and other foreign matter from the diesel fuel. Periodic removal and thorough cleaning is recommended. Drain sediment after every 60 hours of engine operation.

Secondary Filter assembly (Fig. 38)

Remove plug "A" every 240 hours to drain off sediment. Change fuel filters after 480 operating hours by removing bolts "B".

Bleeding fuel system

When filter service is complete or the engine has run out of fuel bleed all air from system by opening bleed plug A and actuating hand pump B until air free fuel flows from bleed plug.

Close bleed plug and secure hand pump.

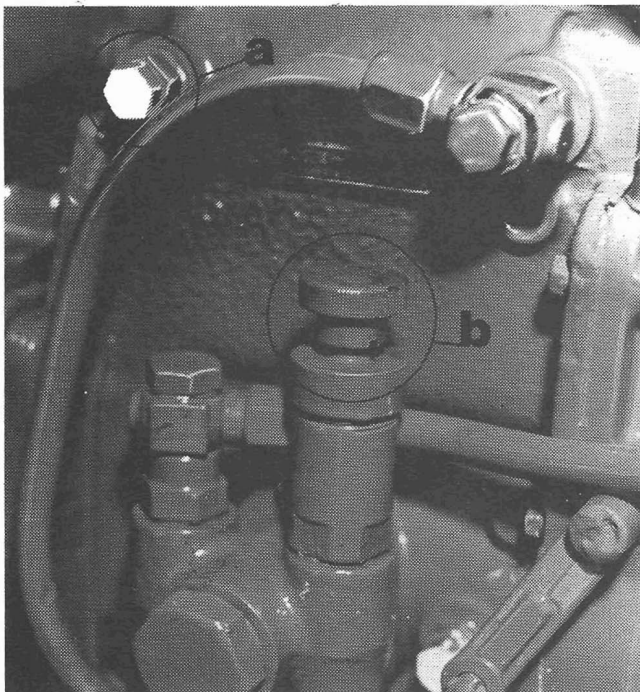


Fig. 14 Primer Pump

Fuel pump lubrication

Operator maintenance of the fuel pump is restricted to lubrication.

Unauthorized adjustment or alteration of the fuel pump in any way, will cancel warranty.

Fuel pump lube oil level

Thoroughly clean pump body around filling and level plugs.

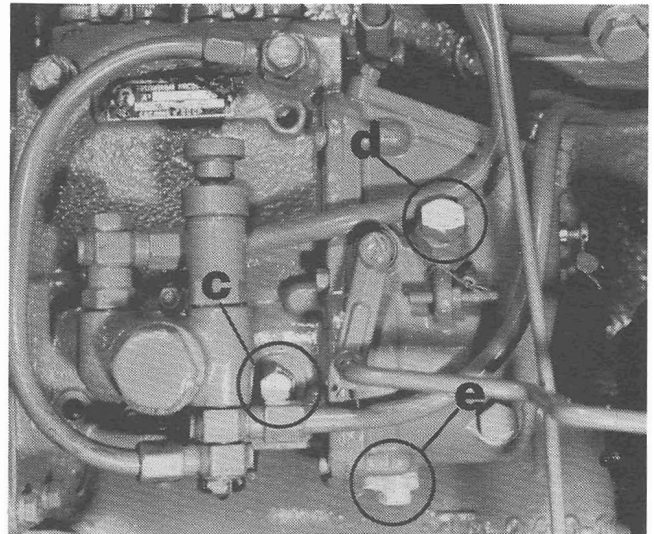


Fig. 15 Fuel Pump

Remove level plug C

If required add engine lube oil through filler plug D until oil flows from level plug hole C.

Re-fit plugs with serviceable seal rings.

Fuel pump lube oil change

Thoroughly clean pump body around filling, level and drain plugs. Remove drain plug E, and drain oil. Re-fit drain plug with serviceable seal.

Remove level and filler plugs C & D, fill with engine lube oil to top of level plug C.

Allow 60 seconds for oil level to equalize between pump body and governor casing. Add or drain oil as necessary to obtain correct level. Replace plugs.



CAUTION:

Overfilling with lube oil will adversely affect operation of the governor mechanism.

SAFETY FIRST

According to accident statistics compiled annually, farming is dangerous business. Many farmers die each year in preventable tractor accidents and many more are hurt. Most accidents can be eliminated by simple observance of the following safety rules — be sure you and your operators are familiar with them. Use your new Belarus safely.

- When an implement is to be left on the tractor which is not in use, never leave it in a raised position. Always lower it.

- Place the shift lever in neutral and set the parking brake when the tractor is stopped.

- Never oil, grease or adjust the tractor while it is moving.

- Do not leave the engine running while adjustments or repairs are made to the tractor or drawn equipment.

- Hydraulic oil under pressure can cause injury by penetrating the skin or blinding. Always be sure all connections are tight and there is no damage to the hoses. Relieve all hydraulic pressure before disconnecting hoses.

- Do not smoke when filling batteries. Avoid open flame.

- Like gasoline, vaporized diesel fuel is dangerous and volatile. Use caution handling any fuel. Do not smoke while filling the tank or servicing the fuel system and avoid refuelling the tractor when the engine is running.

- Use extreme caution when towing loads at road speed. Avoid hard application of the brakes.

- Drive slowly over rough ground.

- Adjust headlights so they will not hinder, the vision of oncoming drivers.

- Always display a slow moving vehicle sign when driving the tractor on a road or highway.

- Keep the speed down on hillsides and curves to avoid danger of tipping.

- Keep sleeves, jackets and other clothing tight and belted. Take extra care with clothing when near moving parts.

- Keep a well maintained fire extinguisher in the cab at all times and know how to use it properly.

- Never start or run the tractor in a closed shed or garage.

- Do not start or run the tractor except from the drivers seat.

- Never allow any person to ride on the hitch, drawbar or any part of the tractor except the cab. An operator and one rider may occupy the cab safely.

- During tight turns with implements, lift them from the ground to prevent damage to sidewalls. Normal operating turns pose no problem.

- Avoid jerky starts when driving out of ditches, gullies or on steep hills. Engage the clutch slowly.

- Do not operate near the edge of a ditch or gully and watch for irregularities such as holes or large stones when operating on hillsides.

- Never allow the tractor to coast when descending steep hills or grades. Always use a gear low enough to maintain complete control.

- Always use the drawbar when hitching heavy loads to be towed.

- When hitching equipment to the drawbar always be sure that in making the connection the tractor is moving away from the equipment. Always check past the clevis then move forward.

Common sense is the best safety guideline. Always think every action through, especially if it is a new or unfamiliar procedure.

FUELS AND LUBRICANTS

Diesel Fuel

Fuel quality affects the performance and service life of a diesel engine. Use of cheap, low quality fuel oil may prove costly due to reduced engine life, increased overhaul and service costs.

Fuel Specifications

Grade No 1 — D or grade No 2 — D diesel fuel in accordance with ASTM D975 should be used, final selection being dictated by temperature. Generally, grade No 1 — D should be used from late fall to spring. Grade No 2 — D from spring to late fall. If a choice of fuels is available, select the product with the lowest sulphur, water and sediment content. At altitudes in excess of 5,000' use grade No 1 — D irrespective of temperature.

Refueling the tractor

If your fuel storage tank outlet is not fitted with a filter use a 1000 mesh filter screen when refueling. On completion of the day's operation fill tank to minimize condensation.

Fuel Storage

Proper fuel storage is vitally important to the operation of your tractor. Because of climatic variations we strongly recommend that your local oil company representative is consulted when planning your storage facility.

Lubricants

To minimize total operating costs use high quality lubricants of specified grade is essential. Use of inferior, low cost grease and oils will result in increased wear and overhaul costs.

Engine Lubricating and Hydraulic System Oils

Use of an oil that conforms to one of the following specifications:

Single Grade
API Service CD/SD

NOTE:

Use of series 3 oil is necessary only when sulphur content of diesel fuel exceeds 0.6%

When selecting viscosity consider the: average temperature at your average daily start time expected in the period covered by your next service cycle.

Select oil from the following table:

Temperature °C	Single Grade Oil
Above 0	SAE 30
0 to — 20	SAE 20
Below — 20	SAE 10

When using SAE 5 or SAE 5W — 20 oil increased consumption may occur. Check your dip stick at more frequent intervals.

LUBRICATION AND PERIODIC SERVICE

The lubrication and preventive service cycle is divided into daily, periodic and seasonal operations. The periodic service frequency is based on a 60 hour cycle. Engine operating hours are recorded on the tachometer. On completion of the initial 60 hours of operation, servicing will be carried out by your Belarus dealer, free of charge except for oils used. The lubrication and service intervals are based on operations under average conditions. If severe conditions are encountered the tractor will require service at more frequent intervals.

DAILY OR EVERY 10 HOURS

Component	Figure	Service	Capacity or Measurement	Type of Lubricant
Engine crankcase	19	check oil level	to upper mark	Engine oil
Radiator	20	check coolant level	to top tank filler throat.	water & antifreeze solution
Fan belt	21	check tension	1/2" deflection 25 lbs force	
Tires	22	check condition & inflation pressure	see chart for recommendations	
General		check for loose bolt & nuts, oil and fuel leaks.		

60 HOUR SERVICE

Repeat daily service and include

Component	Figure	Service	Capacity or Measurement	Type of Lubricant
Primary fuel filter	23	drain sediment		motor oil
Hydraulic system	24 & 25	check oil level	to upper mark	see chart for recommendations
Fuel injection pump	26	check oil level	to check plug	multi-purpose grease
Water pump bearing	27	lubricate	3 shots of grease	
Clutch release bearing	28	lubricate	8 shots of grease	motor oil
Front wheel drive shaft (520)	29, 30, 31	lubricate	until grease becomes visible	
Front drive axle top bevel (90°) 520 only	32	check oil level	to top of filler plug	
Air cleaner	33	drain & wash	fill to mark	
Oil filter	34	remove and wash		
Batteries	35	check electrolyte level	to ring	clean water

DAILY SERVICE



Fig. 19 Check oil level

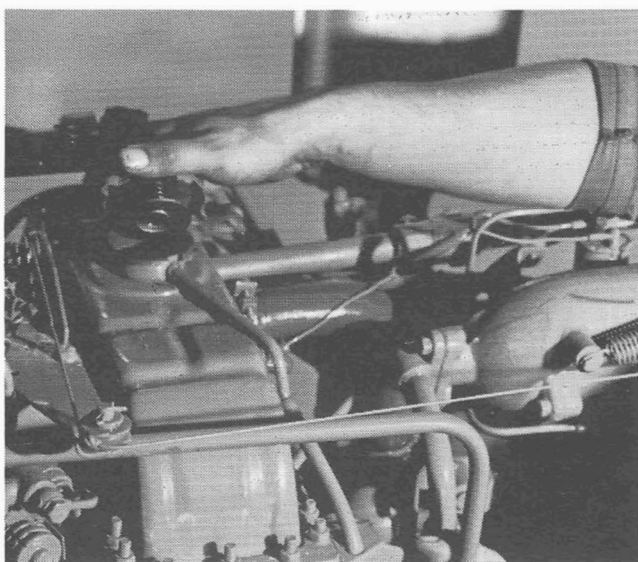


Fig. 20 Check coolant level

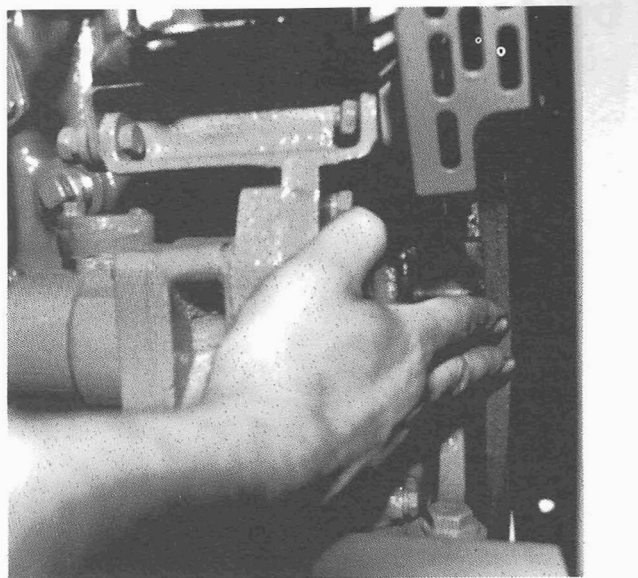


Fig. 21 Check fan belt tension

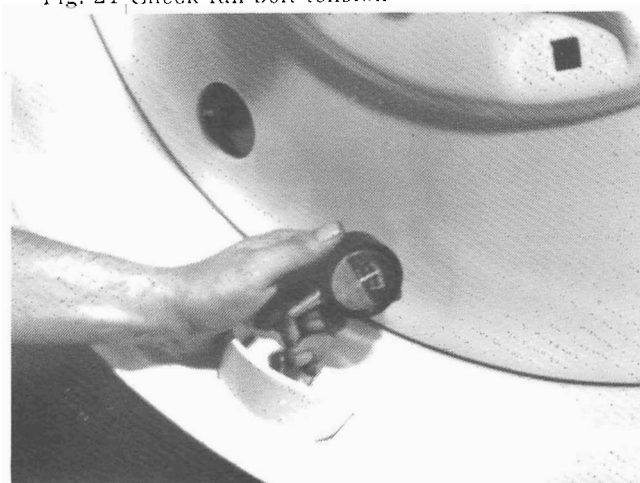


Fig. 22 Check tire inflation & condition

60 HOUR SERVICE

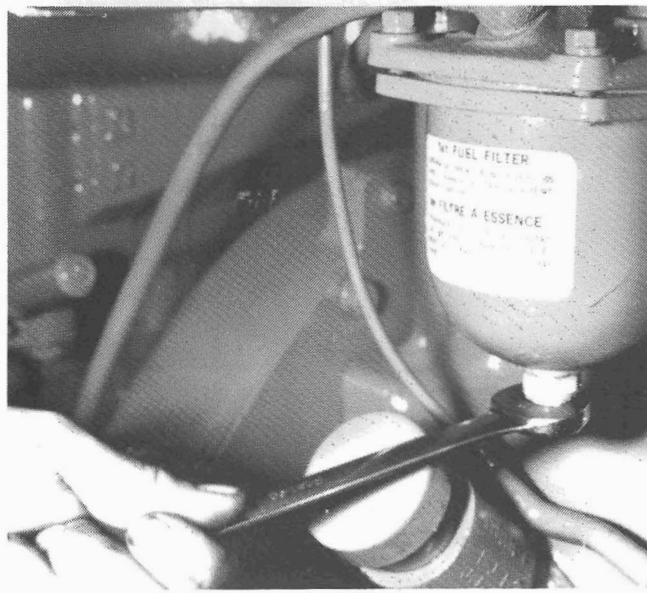


Fig. 23 Primary fuel filter, drain sediment.

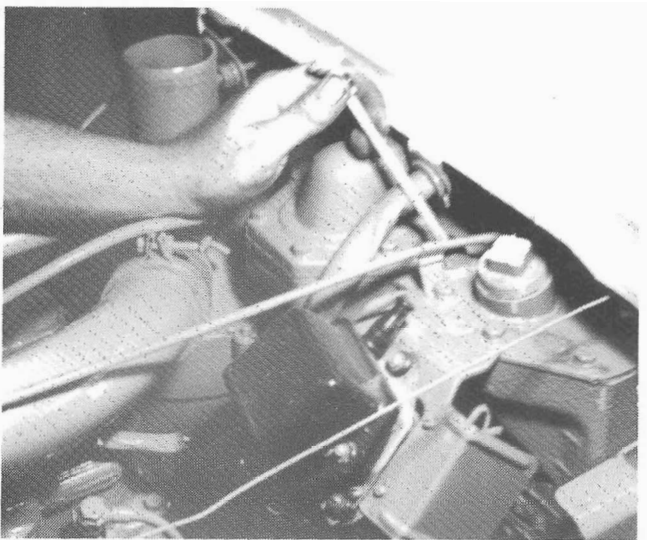
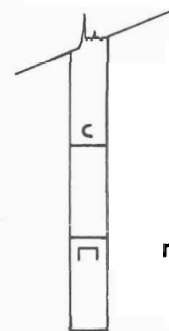


Fig. 24 Main hydraulic system - check oil level



Fig. 25 Steering hydraulic system - check oil level

Hydraulic Tank Dip Stick Marking



- Level when auxiliary cylinders are used

□ - Normal level without auxiliary cylinders.

60 HOUR SERVICE

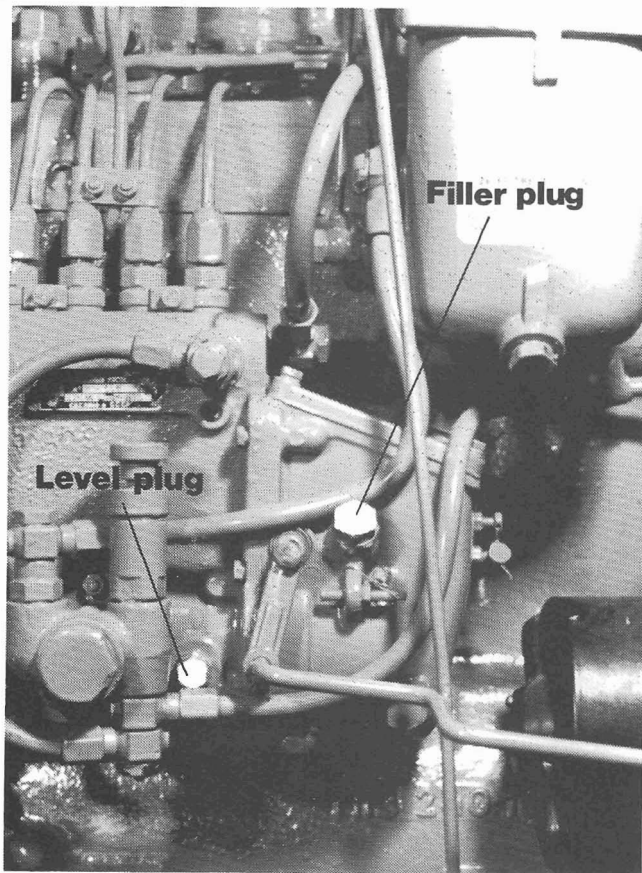


Fig. 26 Injection pump oil level check

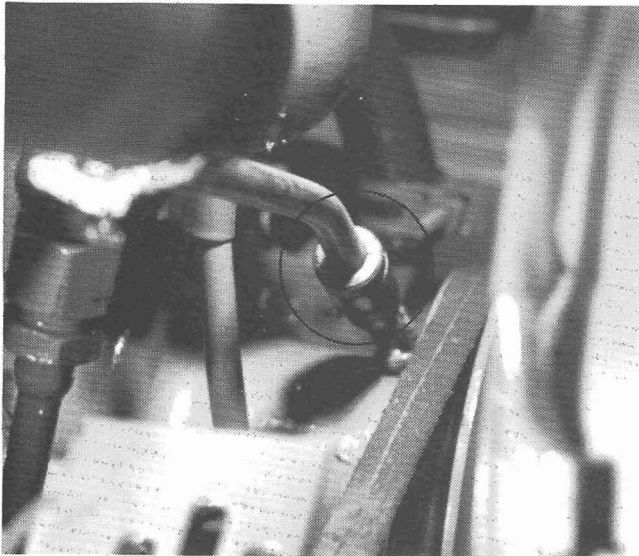


Fig. 27 Water pump bearing fitting

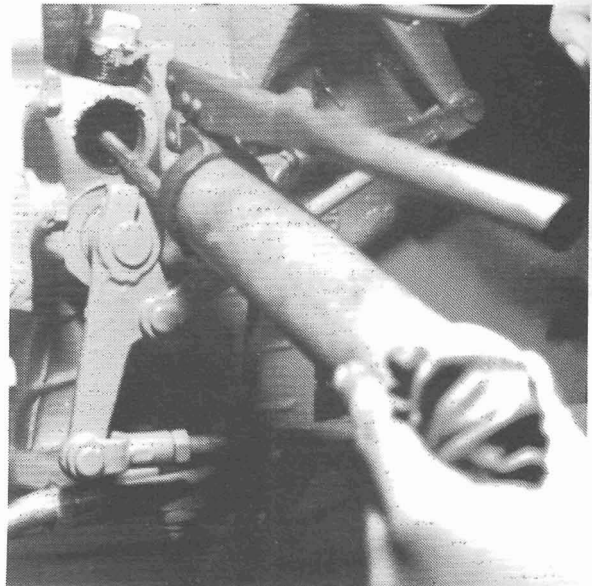


Fig. 28 Clutch release bearing

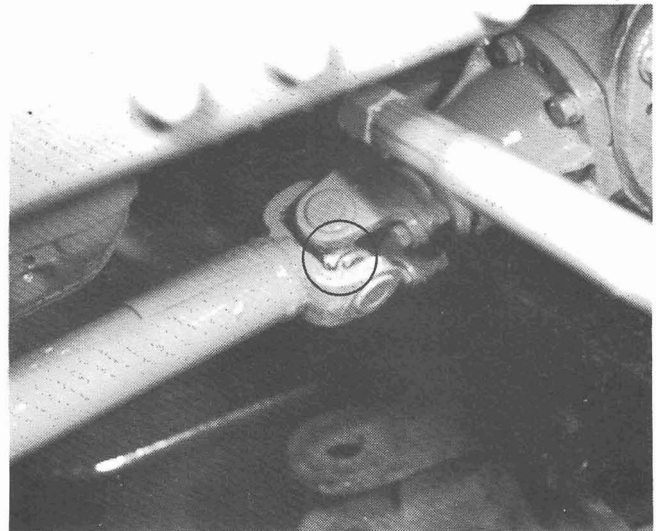


Fig. 29 Front wheel drive shaft front fitting (520)

60 HOUR SERVICE cont'd

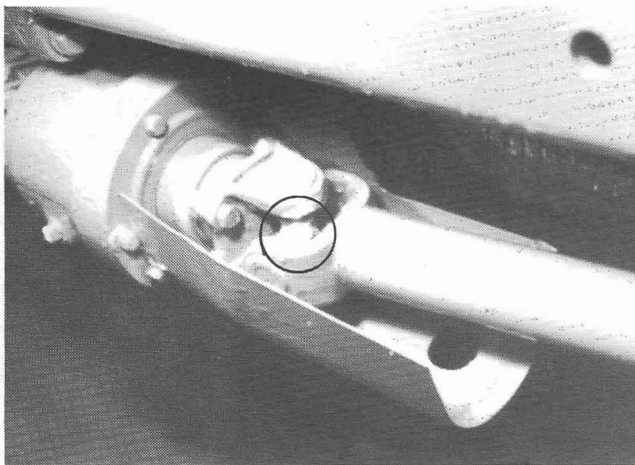


Fig. 30 Front wheel drive shaft centre fitting (520)

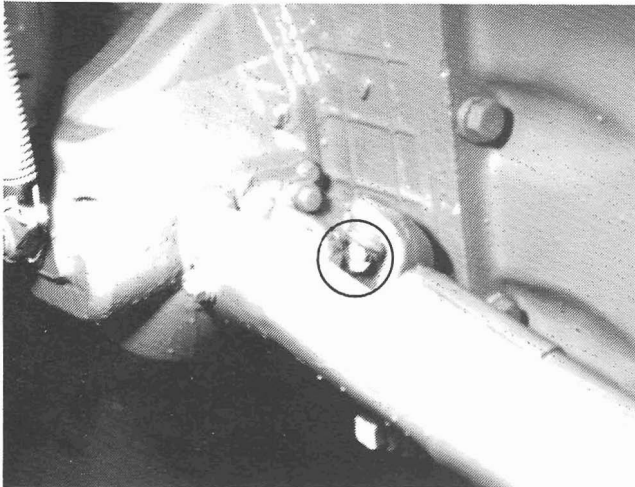


Fig. 31 Front wheel drive shaft rear fitting (520)

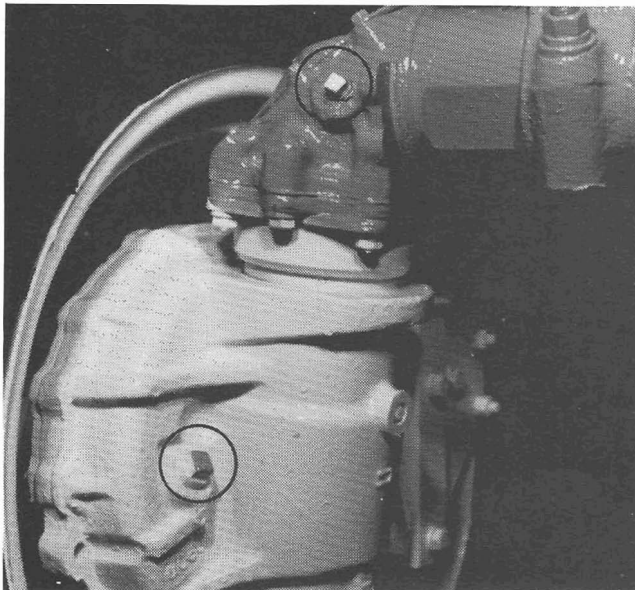


Fig. 32 Front drive axle top bevel (90°) "A" — and lower drive case plugs "B" left and right hand size

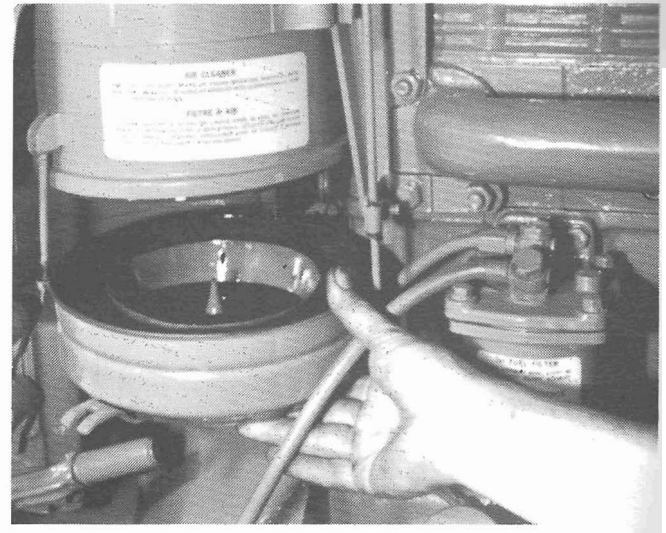


Fig. 33 Air cleaner

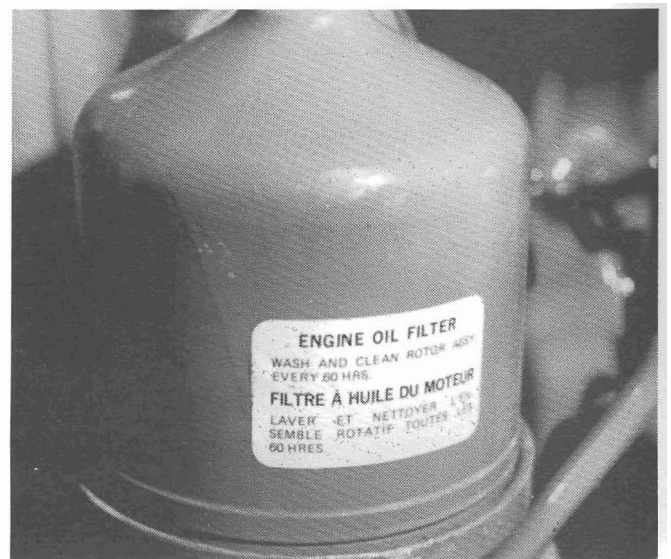


Fig. 34 Oil filter

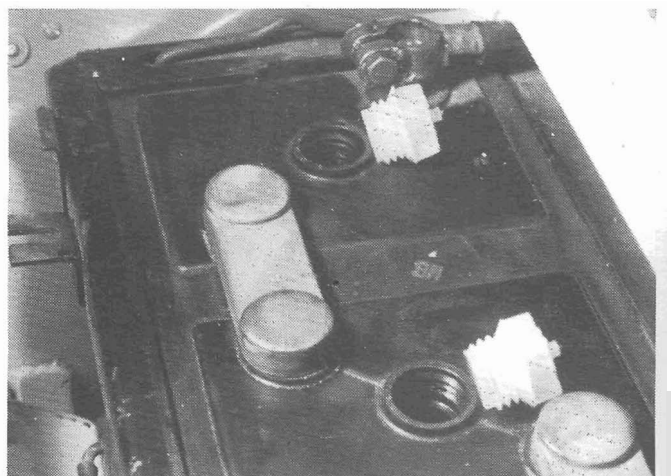


Fig. 35 Check battery

240 HOUR SERVICE**Repeat daily and 60 hour service and include**

Component	Figure	Service	Capacity or measurement	Type of Lubricant
Engine-crankcase	36	change oil	15 liters	motor oil
Fuel injection pump	37	change oil	0.2 liter	motor oil
Secondary fuel filter	38	drain off sediment		
Transmission	39	check oil level	to check plug	S.A.E. 80 EP
Front drive axle (520)	40	check oil levels	to filler plug	see chart
Drive shaft support bearing	41	check oil levels	to filler plug	see chart
Tractor grease fittings	42 - 46	lubricate	3-4 shots of grease	multi-purpose grease
Hydraulic filter	47,48	wash		Dealer Service Item
Clutch & Brake		adjust		Dealer Service Item

480 HOUR SERVICE**Repeat daily, 60 hour, 240 hour service and include**

Component	Figure	Service	Capacity or measurement	Type of Lubricant
Air cleaner		wash intake pipe and element	considered dealer service item 0.2 liter	motor oil
Secondary fuel filter		change elements	considered dealer service item	

240 HOUR SERVICE

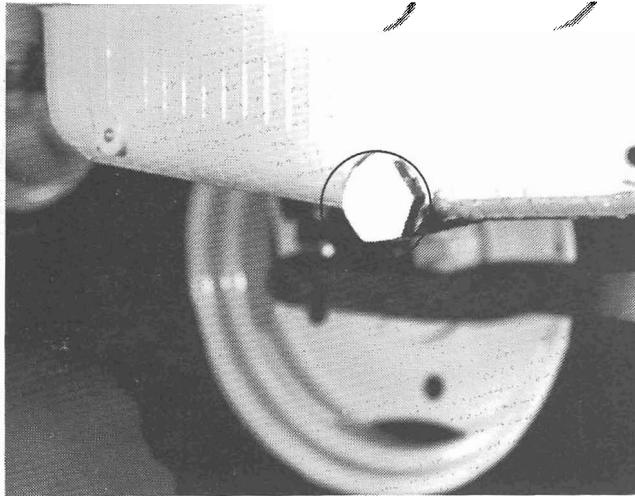


Fig. 36 Oil pan drain plug.

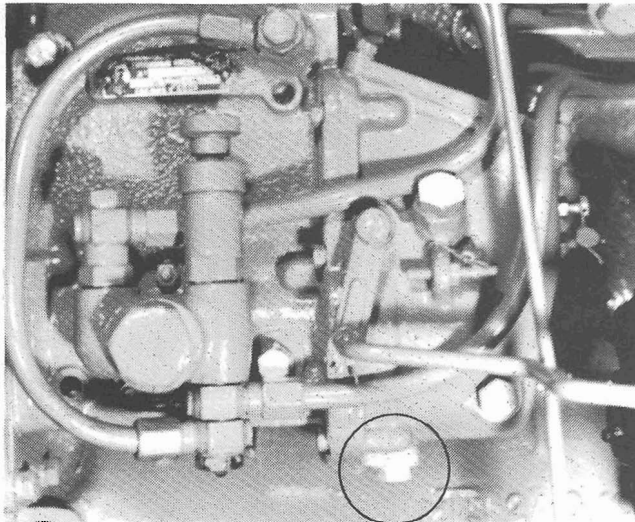


Fig. 37 Fuel injection pump drain plug.

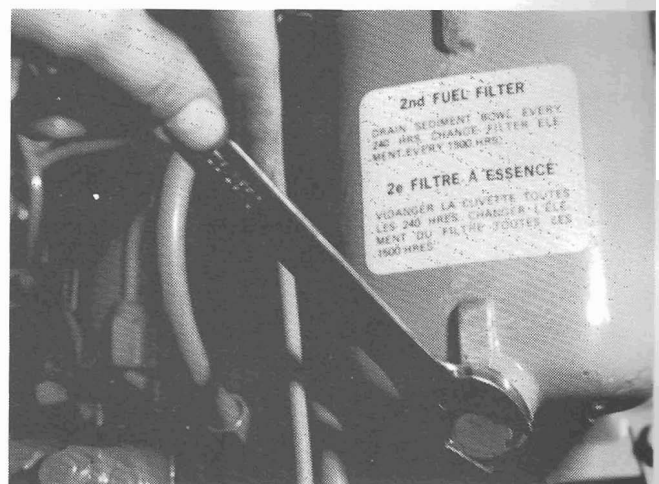


Fig. 38 Secondary fuel filter

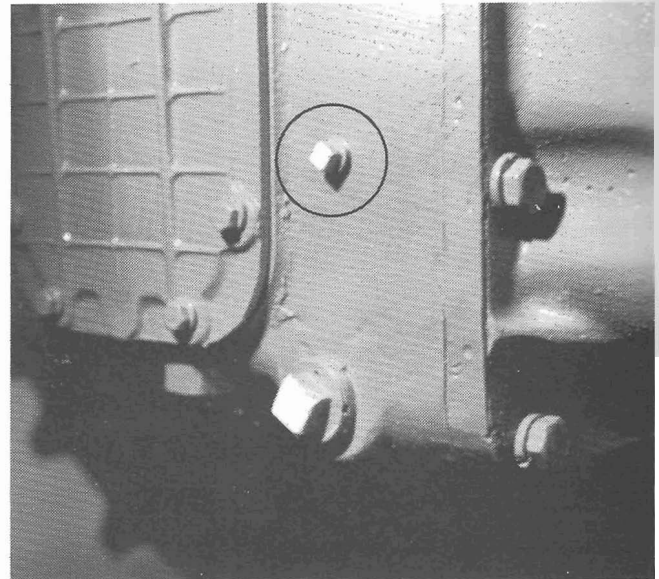


Fig. 39 Transmission lube check plug.

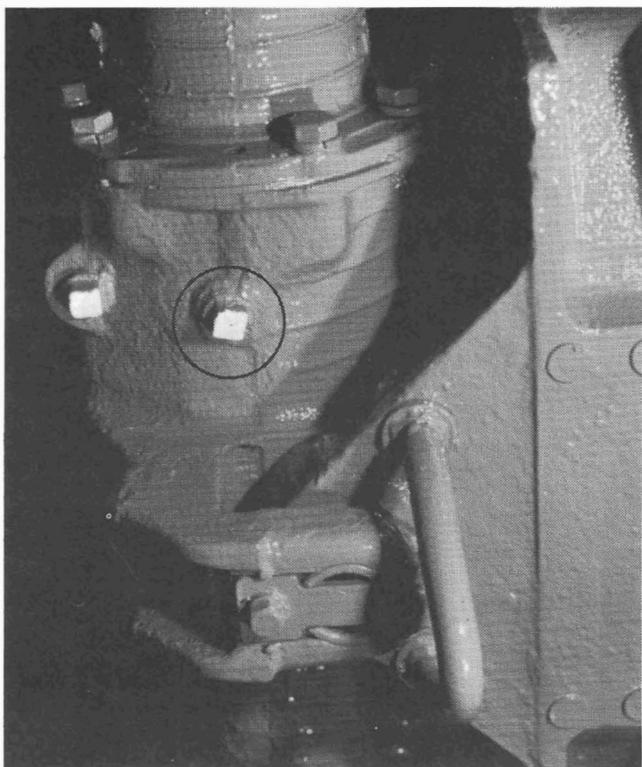


Fig. 40 Front drive axle differential housing check plug. (520)

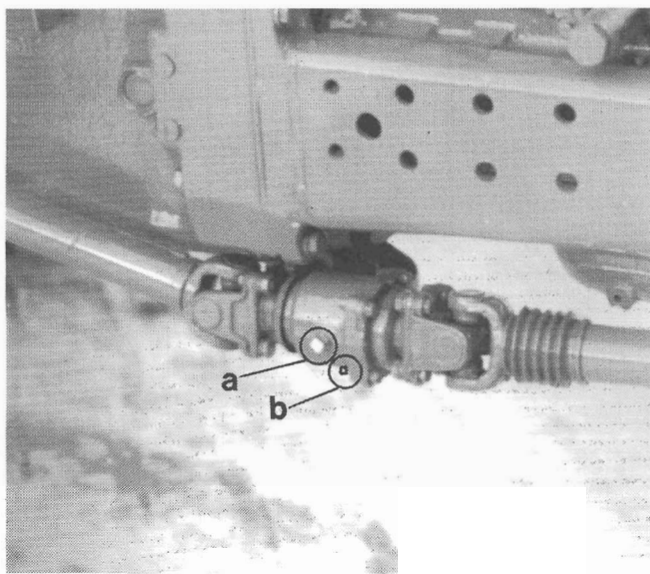


Fig. 41 Drive shaft support bearing
A - level plug; B - drain plug.

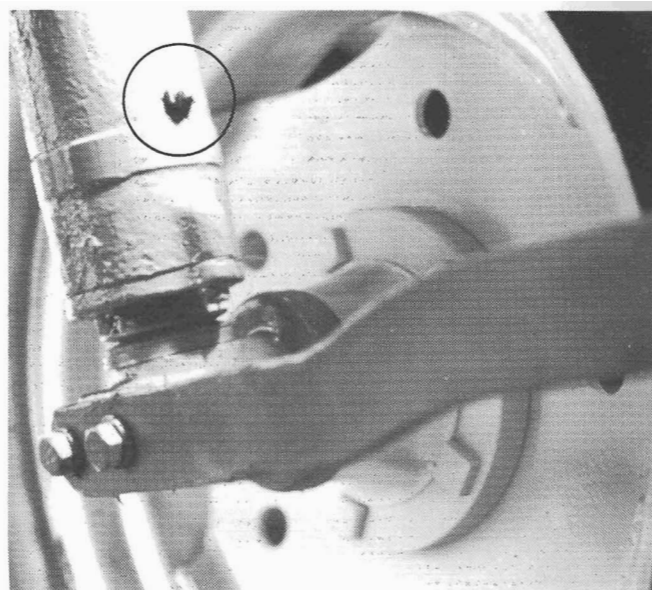


Fig. 42 Front spindle grease fittings (500) left & right hand side.

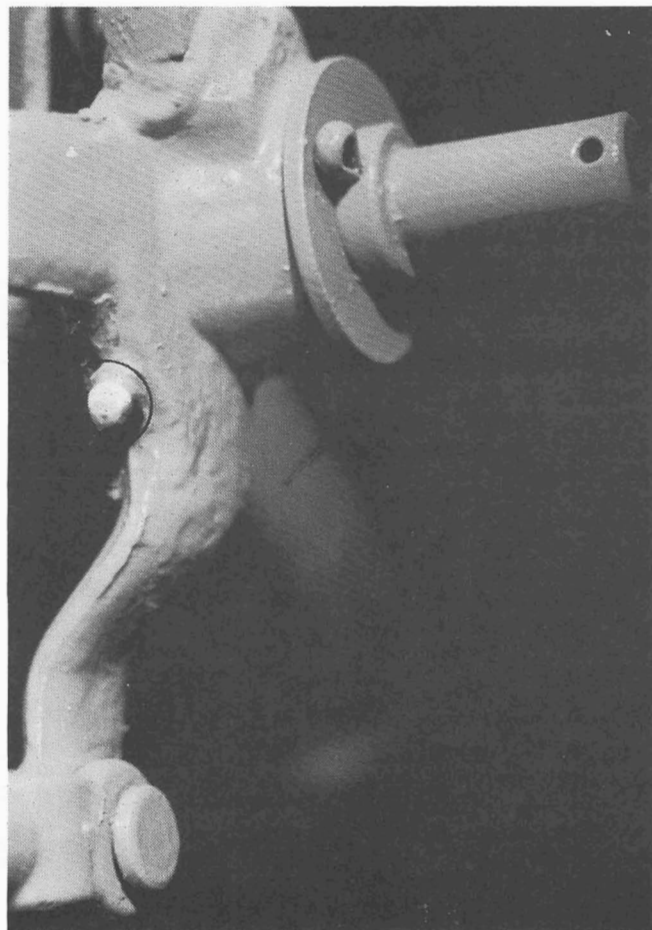


Fig. 43 Clutch pedal support grease fitting.

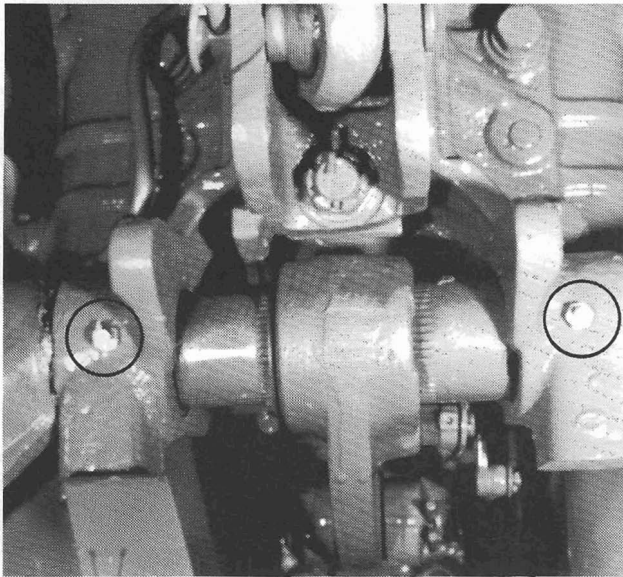


Fig. 44 Three point hitch cross shaft fittings.

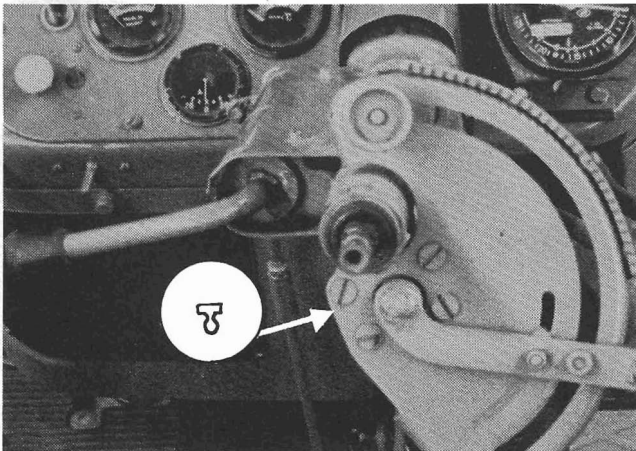


Fig. 45 Steering shaft universal joint

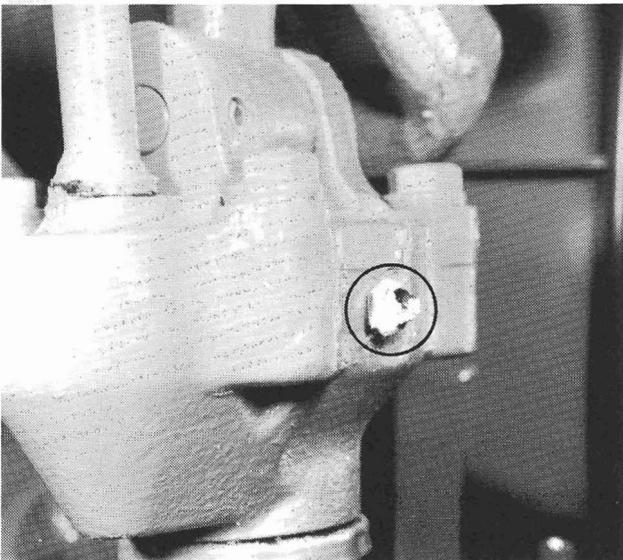
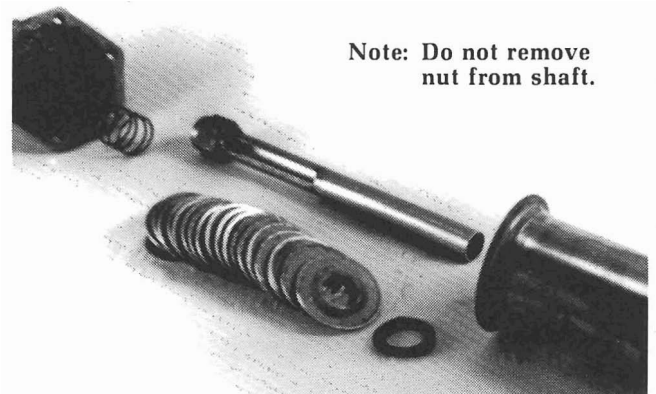


Fig. 46 Lower draft link adjustment reducer grease fitting.



Fig. 47 Hydraulic oil filter removal



**Note: Do not remove
nut from shaft.**

Fig. 48 Hydraulic oil filter disassembled

960 HOUR SERVICE

Repeat daily, 60 hour, 240 hour and 480 hour service and include

Component	Service	Capacity or Measurement	Type of Lubricant
Front wheel bearings	check end plug		repack with multi-purpose grease
Cylinder head	retorque		
Intake and Exhaust valves	adjust		
Fuel injectors	test and adjust		
Steering valve	adjust worm nut		
Intermediate Bearing and safety clutch (520)	check & adjust		
Transmission	change oil	40 liters	see chart
Hydraulic tank	change oil	20.5 liters	see chart
Power steering tank	change oil	6 liters	see chart
Accumulator	drain		

This service requires the use of special test equipment. For this reason, the tractor should be serviced by your local Belarus Dealer who is trained and equipped to carry out the service.

SEASON PREVENTIVE MAINTENANCE

Cold Season

When ambient temperature does not rise above 5°C service as follows:

1. Replace summer grade lubricant with winter grade in engine and hydraulic systems.
2. Check all electrical equipment for correct operation.
3. Turn seasonal switch on regulator to winter position.
4. Check tire pressure.
5. Test anti-freeze solution for proper protection.

Warm Season

When ambient temperature rises to 5°C and above, service as follows:

1. Replace winter grade lubricants with summer grade in the engine and hydraulic systems.
2. Turn seasonal switch on voltage regulator to summer position.
3. Check tire pressure.

LUBRICANT CHART

Component	Summer	Winter
Engine		
Fuel injection pump	SAE 30 shell Rotella H.D. 30	SAE 20 shell Rotella H.D. 20
Hydraulic reservoirs	Motor oil SAE 40 shell Tolpa	Motor oil SAE 30 shell Rotella
Air cleaner	API Service CD/SD	API Service CD/SD
Transmission		
Front drive axle (520)	S.A.E. 90 EP	S.A.E. 90 EP
Drive shaft support bearing (520)	gear oil	gear oil
Hydraulic power steering	engine oil	engine oil
Cardan shaft bearing	SAE 90 EP	SAE 90 EP