

JACOBSEN®

ORIGINAL

OPERATOR'S MANUAL

Truck

SV 2322™ Diesel

Product No. 84018

Serial No. 1600 to 1650

LIBRARY COPY

★ DONT MAIL ★

SV 3422™ Gas

Product No. 84019

Serial No. 1600 to 1650

Litho in U.S.A. 1193

Part No. 3000815



WARNING: *If incorrectly used this machine can cause severe injury. Those who use and maintain the machine should be trained in its proper use, warned of its dangers and should read the entire manual before attempting to set up, operate, adjust or service the machine.*

SAFE PRACTICES

SV1193

1. Safety is dependent upon the awareness, concern and prudence of those who operate or service the equipment.
 2. It is your responsibility to read all publications associated with this equipment (i.e. truck, engine, accessories and attachments)
 3. Learn the proper use of the machine and the purpose of all the controls and gauges before you operate the equipment. Working with unfamiliar equipment can lead to accidents.
- 

The safety alert symbol is used to alert you to potential hazards. Failure to read and obey the instructions can result in injury and property damage.
4. Never allow anyone to operate or service the machine or its attachments without proper training and instructions.
 5. Wear all the necessary protective clothing and personal safety devices to protect your head, eyes, ears, hands and feet. Operate the machine only in daylight or in good artificial light.
 6. Inspect the area where the equipment will be used, beware of overhead obstructions (low tree limbs, electrical wires, etc.) and also underground obstacles (sprinklers, pipes, tree roots, etc.). Enter a new area cautiously. Stay alert for hidden hazards.
 7. Never operate equipment that is not in perfect working order or without decals, guards, shields, or other protective devices in place.
 8. Stop and inspect for damage immediately after striking an obstruction. Repair damage before resuming operation.
 9. Do not disconnect (or bypass) any switch. Replace a defective switch immediately. Keep all switches clean and properly adjusted.
 10. Exhaust fumes can be fatal when inhaled. Never run the engine without proper ventilation.
 11. Fuel is highly flammable, handle with care. Never fill the fuel tank with the engine running.
 12. To reduce fire hazard, keep the engine clean. Allow the engine to cool before storing and always remove the ignition key.
 13. Disengage all drives and set parking brake before starting the engine (motor). Always start engine when sitting in operator's seat, never while standing beside unit.
 14. Equipment must comply with SAE J137 and/or ASAE S279 requirements when it is driven on public roads.
 15. Hydraulic fluid under pressure can penetrate the skin and cause injury. Never use your hands to search for oil leaks.
 16. Use caution and reduce speed when working on steep slopes. Operate the machine up and down the face of steep slopes, never across the face. Keep vehicle in gear when going down steep slopes.
 17. To prevent tipping or loss of control, do not start or stop suddenly, reduce speed when making sharp turns. Use caution when changing direction on slopes.
 18. Drive with both hands on the steering wheel and travel at moderate speeds. Always give clear and correct hand signals before turning.
 19. Keep legs, arms and body inside the seating compartment while the vehicle is in motion.
 20. Do not change the maximum engine governor setting or overspeed the engine.



CAUTION:

1. Before leaving operator's position for any reason, unless operating remote accessories (See Section 3.8 or 3.9).
 - a. Shift transmission to 1st or reverse gear.
 - b. Disengage all drives.
 - c. Set parking brake.
 - d. Shut off engine and remove the ignition key.
2. Wait for all movement to stop before making any adjustments or servicing the machine.
3. Keep the area of operation clear of all bystanders.
4. Never carry more than one passenger.

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FOREWORD

By following the operating, maintenance and adjustment instructions in this manual, you will prolong the life of your vehicle and maintain its maximum efficiency.

If additional information or service is needed contact your Jacobsen Turf Equipment Dealer. Dealer's are kept informed of the latest servicing methods for this equipment and can provide prompt and efficient service in the field or at their service stations. They carry Jacobsen service parts or can secure them from the factory.

Use of other than original Jacobsen parts and accessories or Jacobsen authorized parts and accessories will void the warranty.

When ordering parts, always give the model and serial number stamped on the nameplate of your machine. The plate is located on the left, rear side of the frame behind the fender. Record the number below for ready reference.

Serial No. _____

All information in this publication is based on the product information available at time of approval for printing.

Jacobsen reserves the right to make changes at any time without notice or obligation.

For pictorial clarity, some Illustrations and Figures in this manual may show shields, guards or plates open or removed. Under no circumstances should this equipment be operated without these devices securely in place.

The user cannot make any modifications or additions to this vehicle that would adversely affect its safety or performance without prior written authorization from Jacobsen.



WARNING

This vehicle is equipped with an interlock system intended to protect the operator and others from injury by preventing the engine from starting unless the clutch is fully depressed and implement lever is in neutral. Never operate equipment with the interlock system disconnected or malfunctioning.

This vehicle is intended for off road use, it is not intended for construction, mining or handling hazardous materials.

DECALS

Familiarize yourself with the warning decals, they are critical to the safe operation of the machine. REPLACE ALL DAMAGED DECALS IMMEDIATELY.

DANGER

TO AVOID INJURY:

ALWAYS CONNECT THE "GROUND" (BLACK) CABLE LAST AND REMOVE IT FIRST WHENEVER PERFORMING ANY BATTERY MAINTENANCE.

DO NOT CONTACT BATTERY TERMINALS OR TOOLS USED TO LOOSEN THE TERMINALS WITH METAL PARTS.

AVOID CONTACT WITH BATTERY ACID.

KEEP SPARKS AND FLAMES AWAY FROM THE BATTERY.

CAUTION

TO INSTALL BATTERY:

1. INSTALL BATTERY WITH TERMINALS TOWARD FRAME CENTER.
2. CLAMP BATTERY HOLDDOWN TO SUPPORT.
3. CONNECT POSITIVE (+) TERMINAL (RED CABLE).
4. CONNECT NEGATIVE (-) TERMINAL (BLACK CABLE).

TO REMOVE BATTERY:

1. REVERSE INSTALLATION PROCEDURE LISTED ABOVE.

TO JUMP THE BATTERY:

1. CONNECT JUMPER TO POSITIVE (+) TERMINAL ON GOOD BATTERY.
2. CONNECT OTHER END OF POSITIVE JUMPER TO POSITIVE TERMINAL ON THE FLAT BATTERY.
3. CONNECT JUMPER TO NEGATIVE (-) TERMINAL ON GOOD BATTERY.
4. CONNECT OTHER END OF NEGATIVE JUMPER TO FRAME OF VEHICLE WITH FLAT BATTERY.

J-T 336640 CA

336640

PRECAUCION

1. No opere esta maquina sin previo entrenamiento, y sin haber leido el manual de instruccion y operacion.
2. Tenga todas las guardas en su lugar y piezas bien aseguradas.
3. Neutralice todas las velocidades y apague el motor antes de vaciar los recolectores de pasto, darle servicio, limpiar, ajustar y destrabar la maquina.
4. Mantenga las manos, los pies y ropa suelta lejos de piezas en movimiento.
5. No deberan transportar pasajeros si no existe un asiento para ellos.
6. Si no sabe leer ingles, pida que alguien le lea las calcomanias de avisos y las manuales de instruccion y operacion.

J-T340623-CA

340623

CAUTION

- 1.KEEP ALL SHIELDS IN PLACE.
- 2.STOP ENGINE TO ADJUST AND OIL.
- 3.WHEN MECHANISM BECOMES CLOGGED DISENGAGE POWER AND STOP ENGINE BEFORE CLEANING.
- 4.KEEP HANDS, FEET AND CLOTHING AWAY FROM POWER-DRIVEN PARTS.
- 5.DO NOT RIDE ON MACHINE OR ALLOW PASSENGERS UNLESS SEAT IS PROVIDED.
- 6.READ MANUAL THOROUGHLY BEFORE OPERATING MACHINE.

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WARNING

RADIATOR IS UNDER PRESSURE. REMOVE CAP SLOWLY TO AVOID BODILY INJURY.

J-T368956 CA

365956

CAUTION

THIS VEHICLE DESIGNED AND BUILT FOR OFF THE ROAD USE ONLY.

3000786

Order decals by Part Number from your Jacobsen Turf Equipment Dealer.

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SPECIFICATIONS

1.0 PRODUCT 84019: (Model SV 3422) Gasoline

Air Cleaner.....	Donaldson Centrifugal pre-cleaner
Cooling System.....	Pressurized Series Flow, sealed, 190°F (87°C) Thermostat, 7 Blade Fan (ø16.5 (419mm))
Capacity	1 Gallon (3.8 L)
Electrical System.....	12 Volt - 55 amp Alternator/Regulator
Engine.....	VSG-411 Ford, 4-cycle, 4-cylinder, Liquid Cooled
Bore and Stroke.....	2.911" x 2.558" (73.96mm x 64.98mm)
Compression Ratio.	9.5:1
Displacement.....	67.0 cu. in. (1100cc)
Horsepower.....	34 HP @3200 RPM (25.3 Kw)
Torque.....	60.0 ft.-lbs. @2600-3200 RPM (81.35Nm)
Fuel.....	Unleaded, 87 Octane Gasoline
Governor Type.....	Electronic (Barber-Colman)
Lubrication.....	Full pressure with full flow oil filter
Oil Capacity.....	3.5 quarts (3.3L)

1.1 PRODUCT 84018: (Model SV 2322) Diesel

Air Cleaner.....	Donaldson Centrifugal pre-cleaner
Cooling System.....	Pressurized, Sealed, 183°F (84°C) Thermostat, 4 Blade Fan
Capacity.....	1 Gallon (3.8 L)
Electrical System.....	12 Volt - 40 amp Alternator/Regulator
Engine.....	Kubota D905-B Diesel, 4-cycle 3-cylinder, Liquid Cooled
Bore and Stroke.....	2.83" x 2.90" (72.0mm x 73.6mm)
Compression Ratio.	22:1
Displacement.....	54.80 cu. in. (899cc)
Horsepower.....	23 HP @3200 RPM (17.1 Kw)
Torque.....	39.7 ft.-lbs. @2000 RPM (53.8Nm)
Fuel.....	No. 2 Diesel, minimum cetane 45
Fuel Injection Pump....	Bosch MD Type
Governor Type.....	Centrifugal Flyweight - Mechanical
Lubrication.....	Pressurized by Trochoid Pump
Oil Capacity.....	3.5 quarts (3.3L)
Oil Filter.....	Full FLOW Oil Filter Cartridge

1.2 TIRES

Front.....	20 x 10.00-10, 4-ply turf rib
Rear.....	24 x 13.5-12, 4-ply Ultra-Trac

1.3 TRUCK:

Muffler.....	Nelson
Fuel Capacity.....	8.5 Gallons (32.2 L)
Hydraulic Oil	
System Capacity.....	8 Gallons (30 L)
Transmission.....	4 speeds forward and 1 reverse; synchromesh in all forward gears
Ratio's:	1st 3.97:1
	2nd 2.34:1
	3rd 1.46:1
	4th 1.00:1
	Rev 3.71:1
Clutch.....	7.25" (184.5 mm) Commercial
Rear Axle.....	Rigid semi-floating with 5.38:1 Hypoid ring gear with 5-bolt wheel hub and heavy duty tapered bearings

Transfer Case.....	Parallel Shaft, two-speed with 2.02:1 and 4.5:1 ratios, non-synchromesh
Rated Capacity.....	2200 lbs. (998 kg) plus 200 lb. operator, 200 lb. passenger and 200 lb. box
Speeds.....	Engine @2500 RPM (Rated PTO speed)

Gear	Low Range	High Range
1st	1.7 mph	3.8 mph
2nd	3.0 mph	6.5 mph
3rd	4.7 mph	10.4 mph
4th	6.8 mph	19.5 mph @ 3200 eng. RPM

Starting.....	12 Volt gear-drive starting motor
Lighting.....	Dual Halogen Headlights, Tail and Brake Lights (2)

Suspension

Front.....	Wish-bone type independent with coil-over shocks
Back.....	Two multiple leaf-type springs and heavy-duty shock absorbers

Power Take Off.....	Live, Hydraulic powered, 5 HP
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Seats.....	(2) two-piece high-back
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Brakes:

Front.....	Heavy duty hydraulic disc
Rear.....	Heavy duty hydraulic internal expanding drum type (8.5" 225mm)

Steering.....	Hydrostatic power
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1.4 BATTERY:

12 Volt, 80 amp hours at 20 hour rate. AABM Group #22NF.

1.5 WEIGHTS AND DIMENSIONS:

Ground Clearance.....	8.0" (203 mm)
Overall Height.....	50" (1270 mm) to top of steering wheel
Overall Length.....	126" (3200 mm) bumper to rear of box
Overall Width.....	64" (1625 mm) over rear tires
Inside Clearance.....	30" (762 mm) Circle:
Outside Clearance.....	17" (5.2 m) Circle:
Weight w/Fuel, Battery and Box.....	2100 lbs. (952.6 kg)
Wheel Base.....	80" (2032 mm)
Wheel Tread	
Front	42" (1067 mm)
Rear	49.5" (1257 mm)

1.6 ACCESSORIES:

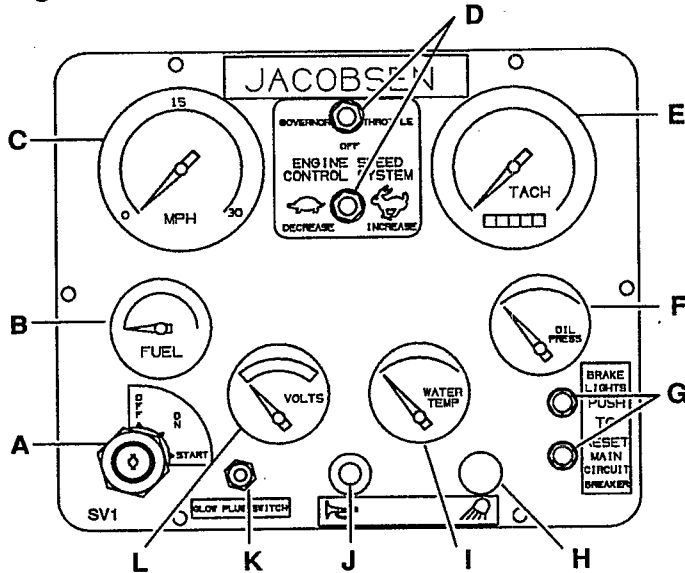
Bed.....	84603
Sprayers	
125 Gallon:	Smithco
200 Gallon:	Smithco
Top Dresser 60".....	Turfco
Pole Chain Saw.....	84598
Hydraulic Pruner	
1-3/4" Diameter Limbs... ..	84599
2" Diameter Limbs.....	84600
Quick Disconnect Fittings.....	84602
Orange Paint (12 oz Spray).....	554598

OPERATOR CONTROLS



CAUTION: Do not attempt to drive the Truck unless you have read this Manual. Learn the location and purpose of all the controls and instruments before you operate the vehicle.

Figure 2A



2.0 INSTRUMENT PANEL

A. Ignition Switch

Off..... All power circuits are "OFF". The key can be removed.

On..... Ignition system is "ON" and accessories may be operated.

Start... Refer to section 3.4.

B. Fuel Gauge: Indicates the amount of fuel in the tank. Operates only when the ignition switch is "On".

C. Speedometer: (Optional equipment)

D. Engine Speed Control: (SV 3422 Only) Used to set constant engine speeds for spraying, top dressing, spreading or using remote accessories. See Section 3.8.

The control is preset at the factory to 2500 ± 200 RPM.

E. Tachometer/Hourmeter: Indicates engine RPM. Used in conjunction with attachments in spraying, top dressing or spreading applications.

Hourmeter: Indicates how many hours the vehicle has been operated and can be used to keep track of maintenance intervals or the time required to perform various tasks.

F. Oil Pressure Gauge: Normal operating range:

Gas Engine..... 30 - 40 psi (206.7 - 275.6 kPa)

Diesel Engine.. 60 - 90 psi (413.4 - 620.1 kPa)

If the level drops below the safe range, stop the engine immediately, investigate and repair the cause.

G. Circuit Breakers: An electrical malfunction will trip a visual indicator. Push down on the top of the rubber boot to reset circuit breaker.

20 amp main, 10 amp brake lights. A 50 amp circuit breaker is located in the engine compartment, left side.

H. Light Switch: Pull switch to activate the head lights.

I. Temperature Gauge: Indicates engine temperature. Normal range $195^{\circ} - 210^{\circ} \text{ F}$ ($90.5^{\circ} - 98.9^{\circ} \text{ C}$).

J. Horn: Push switch to sound horn.

K. Glow Plug Switch: (Diesel only) Used to activate glow plugs.

L. Voltmeter: Used to monitor battery condition. Operation range should never be in red area.

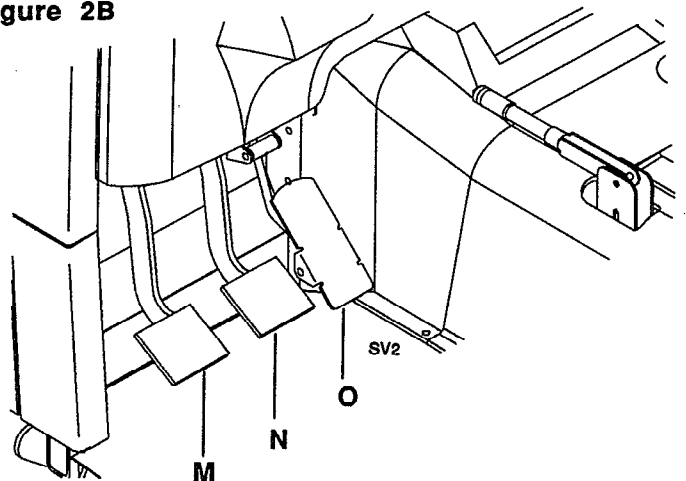
2.1 PEDALS

M. Clutch: Pedal must be fully depressed to start the engine and when shifting gears.

N. Service Brake Pedal: Depress the brake pedal slowly but firmly. Use moderate pedal pressure except in emergency situations.

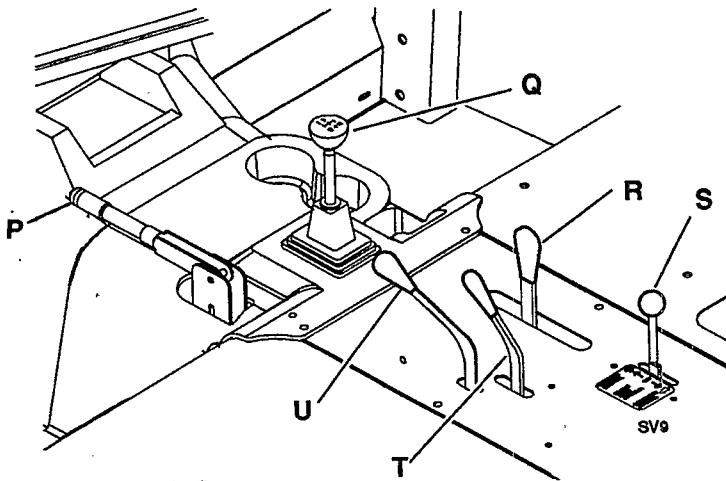
O. Accelerator: Regulates engine and driving speed of the vehicle. Depress the pedal slowly until you reach the desired ground speed.

Figure 2B



OPERATOR CONTROLS

Figure 2C



T. Implement: Used to operate attachments. Lever must be in neutral (center position) to start the engine.

IMPORTANT: Engaging PTO with a plugged attachment could permanently damage the attachment.

U. Bed Lift: Detent available for specific accessories.

Raise..... Lift up to raise the bed to any degree desired.

Float Lower..... Push down to lower bed.

2.2 LEVERS

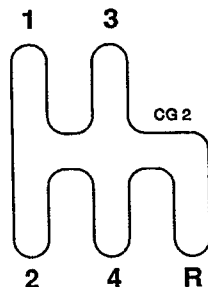
P. Parking Brake: Two (2) position hand operated lever. Engage by pulling the lever upwards and back into the locked position. To disengage push forward and down.

Q. Shift Lever: Four speed synchromesh transmission uses a standard pattern with four (4) forward and one reverse position.

The clutch must be completely depressed when shifting and released slowly for smooth engagements.

Note: When downshifting, always downshift to the next lowest gear. Do not omit intermediate gear positions or damage to the clutch and transmission may result.

Shift Pattern



R. Speed Range: Used in conjunction with the engine speed control. See Sections 3.8 and 3.9.

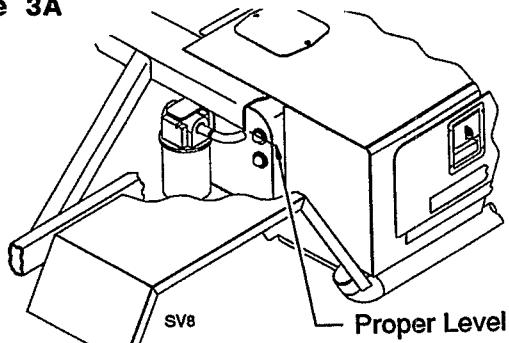
S. Engine Speed Control: (SV 2322 Only) Used to set constant engine speeds for spraying, top dressing, spreading or using remote accessories. See Section 3.9.

3.0 GENERAL

Before putting this vehicle into operation, you and each operator you employ should read this manual carefully in its entirety to become thoroughly familiar with the truck, the controls and the proper use of the equipment.

3.1 DAILY CHECK LIST

1. Perform a visual inspection of the entire unit. Look for signs of abrasive wear, oil leaks, loose hardware, and low tires.
2. **Brakes and Brake Lights:** Check the brake action and insure the brake lights function. Make sure the parking brake will hold on a hill and that when disengaged, does not drag or prevents the vehicle from rolling freely. (Section 4.5)
3. **Fuel:** Check the fuel gauge to insure you have a full tank (Section 5.8).
4. **Tires:** Tire inflation is governed by the type of the terrain and work loads. (Section 5.17)
5. **Interlock System:** If the engine cranks when performing steps "b" or "c", turn ignition key off immediately, find and repair the cause before operating the vehicle (Sections 4.3 and 5.6).
 - a. Sit in operator's seat, engage parking brake, and shift transmission to neutral.
 - b. Disengage implement lever, **do not** depress clutch, and turn key to "Start" position.
 - c. Engage implement lever, depress clutch and turn key to "Start" position.
6. **Oil:** Crankcase oil level should be at the "full" mark on the dipstick.
Hydraulic oil level (Figure 3A) should be at the mid point on the upper sight gauge. (Section 5.11)

Figure 3A**3.2 OPERATING SUGGESTIONS**

1. The operator must be seated on the truck seat to start the engine, under no circumstances should the engine be started with operator standing next to the truck.
2. If this truck is driven on public roads, it must comply with state and local ordinances. Contact local authorities for regulations and equipment requirements.



CAUTION: Pick up all debris. Enter a new area cautiously. Operate at speeds that allow you to have complete control of the vehicle and can maneuver safely or stop in case of an emergency.

3. Study the area to determine the best and safest operating procedure. Consider the grade, type of terrain and condition of the surface. Each condition will require certain adjustments or precautions.
4. Do not oversteer, especially at higher speeds. Drive with both hands on the steering wheel and always keep your legs, arms and body inside the vehicle.
5. Always give clear and correct hand signals before turning. Know what is behind you before backing up.
6. Vehicle is limited to 2 occupants maximum.
7. Avoid quick stops and starts. Always remain seated and *hold on* while vehicle is in motion.
8. Turn headlights "on" at dusk to aid your visibility and enable other drivers to see you. Keep the headlights clean.

3.3 BREAK-IN PROCEDURE**(Gasoline Engine)**

1. An extensive break-in period is not required. Drive moderately for the first 25 hours, avoid full throttle starts and rapid acceleration.
 - a. Check the engine oil every five (5) hours of operation. *Higher than normal oil consumption is not uncommon during the initial break-in period. Never overfill the engine with oil, foaming may result and enter the breather system.*
 - b. Check and tighten all hardware.
2. Change engine oil and filter element after first 25 hours of operation. (Section 5.7)
3. Check and adjust alternator, fan and pump belt tension after first 10 hours of operation. (Section 4.1)

(Diesel Engine)

1. During the first 50 hours of operation, drive moderately, avoid full throttle starts and rapid acceleration.
 - a. *The engine must reach an operating temperature of at least 140° F (60° C) prior to operation at full load conditions.*
 - b. Check engine oil *twice daily*. *Higher than normal oil consumption is not uncommon during the initial break-in period.*
 - c. Check and tighten all hardware.
2. Change engine oil and filter element after first 25 hours of operation. (Section 5.7)
3. Check and adjust the fan belt tension after first 10 hours of operation. (Section 4.1)

OPERATION

3.4 TO START

(Gasoline Engine)



CAUTION: *Never run the engine inside a building without proper ventilation, exhaust fumes can be fatal when inhaled.*

1. Sit in operator's seat and adjust the seat to a comfortable driving position.
 - a. Engage parking brake. Fully depress the clutch.
 - b. Move transmission lever to "neutral" position.
 - c. Disengage implement lever.
2. Insert ignition key and turn key to the "Start" position. Release as soon as engine starts. Do not hold key in "Start" position for more than 5 seconds at a time.
3. **To start a flooded engine:** press the accelerator pedal gently to the floor and hold it there.
 - a. Turn the ignition key to the "Start" position until the engine starts. Do not operate starter for more than 10 seconds at a time and wait at least one minute before re-engaging starter.
 - b. Release the accelerator pedal *immediately* after engine starts.
 - c. Allow the engine to run at a fast idle for a few seconds until the flooded condition is cleared.

(Diesel Engine)



CAUTION:

Do not use starting assist fluids.

Use of starting assist fluids in the air intake system may be potentially explosive or cause a "Runaway" engine condition resulting in serious engine damage and/or personal injury.

1. Make certain the fuel shut-off valve is open. The valve is located in the engine compartment on the firewall.
2. Sit in operator's seat and adjust the seat to a comfortable driving position.
 - a. Engage parking brake. Fully depress the clutch.
 - b. Move transmission lever to "neutral" position.
 - c. Disengage implement lever.
3. Activate glow plug switch for 3 to 5 seconds, release the switch.
4. Insert ignition key, turn key to the "Start" position and release as soon as engine starts. Do not hold key in "Start" position for more than 5 seconds at a time.
5. Allow engine to warm up.

3.5 TO DRIVE/TRANSPORT

For general operation, forward motion of the vehicle may be started using 2nd gear. First gear is designed for use in situations where the vehicle is fully loaded or operating in sand or snow.

1. Disengage parking brake. Place engine speed controls in the "Off" position. (Figure 3B and 3C)
2. Shift transmission lever to desired gear and shift "Speed Range" to high.
3. Gently depress accelerator pedal and slowly release the clutch pedal.

Note: Before shifting from forward to reverse or from High to Low, the truck must come to a complete stop. Shifting "On-the-go" will result in extensive transmission and transfer case damage.

3.6 TO STOP/PARK

1. Remove foot from accelerator pedal, depress clutch pedal and apply the brake pedal.
2. Bring the vehicle to a complete stop.
3. Disengage the implement lever if running an attachment.
4. Engage the parking brake.
5. Place transmission in first gear (1) or reverse (R) and block the wheels if machine is left unattended on an incline.
6. Turn ignition switch to "OFF" position and remove key.

3.7 TO TOW

1. Turn ignition switch to "Off" position and remove key.
2. Disengage parking brake and shift transmission to neutral.
3. Do not exceed 5 mph when towing.

3.8 ENGINE SPEED CONTROL (Gasoline Engine)

The Jacobsen SV3422 truck has an electronic speed control system that allows the operator to change engine RPM between 900 and 3200 RPM in three modes of operation.

Governor - Off - Throttle

GOVERNOR MODE

1. The upper limit of engine RPM can be decreased to any fixed value between 3200 and 900 RPM for working in confined areas such as golf greens.

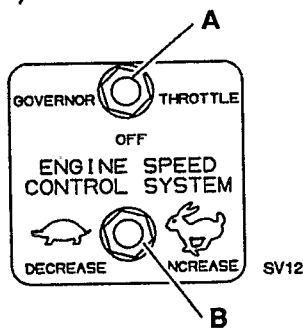
OPERATION

2. Shift transmission to neutral and apply parking brake.
3. Determine what ground speed is required for the application and from the chart on the center control panel find what RPM, gear and range is required.
 - a. Pull Governor/Throttle switch outwards and place switch in the "Governor" mode. (A - Figure 3B)
 - b. Fully depress the accelerator and with the lower toggle (B - Figure 3B) set the engine RPM to the value from the chart, then release accelerator.
 - c. Select speed range: High or Low.
4. Release parking brake, depress clutch and shift transmission to selected gear. Depress the accelerator to bring the vehicle to the preset speed then actuate implement lever to operate attachment.
 - a. Keep accelerator fully depressed during operation.
 - b. To reduce speed, stop or turn, release the accelerator.
 - c. To reestablish the preset speed, fully depress accelerator.

OFF MODE

1. The operator has control over the full range of engine RPM and ground speed.
2. Place the Governor/Throttle switch in the center position. (Figure 3B).

Figure 3B



THROTTLE MODE

The lower limit of engine RPM can be increased to any fixed value between 900 and 3200 RPM and can be used in "**fixed speed**" for working in large open areas such as fairways and also in "**remote**" for operation of accessories.

Fixed Speed

1. Shift transmission to neutral and apply parking brake.
2. From the chart on the center control panel determine what ground speed is required for the applications.
 - a. Pull Governor/Throttle switch outwards and place switch in the "Throttle" mode.
 - b. With the lower toggle set the engine RPM to the value from the chart.
 - c. Select speed range: High - Low.

3. Release parking brake, depress clutch and shift transmission to selected gear. Depress the accelerator to bring the vehicle to the preset speed then actuate implement lever to operate attachment.
 - a. When necessary depress brake to release speed control.
 - b. To reset speed control, move upper toggle to "off" and then back to "throttle" mode.

Remote

1. Shift transmission to neutral and apply parking brake.
2. Connect attachments to quick disconnect fittings on right side of vehicle.
3. Determine what RPM is required for the application.
 - a. Pull Governor/Throttle switch outwards and place switch in the "Throttle" mode.
 - b. With the lower toggle set the engine RPM to the value from the chart.
 - c. Activate implement lever.

3.9 ENGINE SPEED CONTROL (Diesel Engine)

The Jacobsen SV 2322 truck has a manual speed control that allows the operator to change engine RPM between 900 and 3200 RPM in three modes of operation.

Governor - Off - Throttle

GOVERNOR MODE

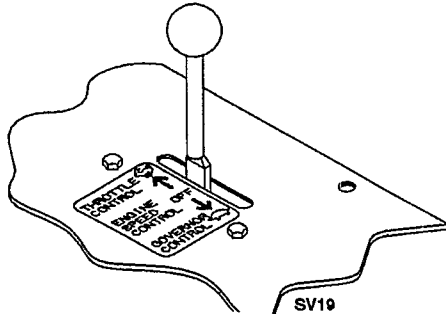
1. The upper limit of engine RPM can be decreased to any fixed value between 3200 and 900 RPM for working in confined areas such as golf greens.
2. Shift transmission to neutral and apply parking brake.
3. Determine what ground speed is required for the application and from the chart on the center control panel find what RPM, gear and range is required.
 - a. Pull Governor/Throttle lever back (Figure 3C) and with the accelerator set the engine RPM to the value from the chart, then release accelerator.
 - b. Select speed range: High or Low.
4. Release parking brake, depress clutch and shift transmission to selected gear. Depress the accelerator to bring the vehicle to the preset speed then actuate implement lever to operate attachment.
 - a. Keep accelerator fully depressed during operation.
 - b. To reduce speed, stop or turn, release the accelerator.
 - c. To reestablish the preset speed, fully depress accelerator.

OPERATION

OFF MODE

1. The operator has control over the full range of engine RPM and ground speed.
2. Place the Governor/Throttle lever in the center position. (Figure 3C).

Figure 3C



THROTTLE MODE

The lower limit of engine RPM can be increased to any fixed value between 900 and 3200 RPM and can be used in "**fixed speed**" for working in large open areas such as fairways and also in "**remote**" for operation of accessories.

Fixed Speed

1. Shift transmission to neutral and apply parking brake.
2. From the chart on the center control panel determine what ground speed is required for the applications.
 - a. Push Governor/Throttle forward to set the engine RPM to the value from the chart.
 - b. Select speed range: High - Low.
3. Release parking brake, depress clutch and shift transmission to selected gear. Depress the accelerator to bring the vehicle to the preset speed then actuate implement lever to operate attachment.

Remote

1. Shift transmission to neutral and apply parking brake.
2. Connect attachments to quick disconnect fittings on right side of vehicle.
3. Determine what RPM is required for the application.
 - a. Push Governor/Throttle lever forward to set value from the chart.
 - b. Activate implement lever.

3.10 HILLSIDE OPERATION

1. This vehicle has been designed for good traction and stability under normal driving conditions, however, caution must be used while operating on slopes, especially on wet grass that will reduce traction and steering control.



WARNING

To minimize the possibility of overturning when operating on hills and terraces, always travel up and down the face of the slope, never horizontally. Avoid unnecessary turns, use extreme caution and travel at reduced speeds.

2. When climbing a steep slope and the tires begin to slip, the grade is too steep for safe operation. Angle the truck to a less steep slope until traction is regained.
3. Do not start or stop suddenly or make sharp turns to prevent tipping or the loss of control.
4. Correct tire pressure is essential for maximum traction and hillside holding. Keep tires properly inflated.
5. Block wheels if machine is left unattended on an incline.

3.11 TOWING

1. The operator must take greater precautions in driving, stopping and shifting when towing an accessory.
2. Never pull loads that may exceed the braking capacity of the vehicle.
3. Position the load on the towed unit so the weight will not cause instability or effect steering control.

3.12 AFTER OPERATION

1. Park the truck on a flat surface, stop the engine, set parking brake and remove key from ignition switch.
2. Wash the truck and the attachments after each use. (Section 5.4).
3. To prevent condensation in the fuel tank, fill tank with fresh, clean fuel at the end of every operating day. (Section 5.8).
4. Clean the air filter dust cup.



WARNING

Never fill the fuel tank when smoking or near an open flame. Fumes or spilled fuel could ignite. Do not overfill fuel tank; leave room for expansion.

ADJUSTMENTS

WARNING

To prevent injury, stop engine, set parking brake and remove key from ignition switch before making any adjustments or performing maintenance.

Make sure the vehicle is on a solid and level surface. Never work on a vehicle that is supported by the jack alone. Use jackstands.

If only the front or rear of the vehicle is raised, place chocks in front of and behind the wheels that are not raised.

4.0 GENERAL

1. Proper adjustment and lubrication are essential to the performance of your machine. If proper adjustment cannot be made, contact an Authorized Jacobsen Dealer.
2. Do not wear loose fitting clothing or jewelry when adjusting or repairing the vehicle's mechanical or electrical components.

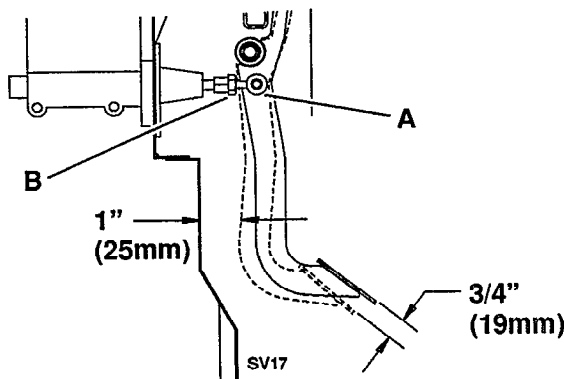
4.1 BELTS

1. Replace worn or frayed belts immediately.
2. Adjust all belts so the belt deflects 1/4" to 3/8" (6.4 to 9.5 mm) at mid-span with 22 lb. push/pull (10 Kg).

4.2 BRAKE PEDAL

1. Check the brake fluid level. (Refer to Section 5.5).
2. If the free-play is more than 3/4" (19 mm) before resistance is felt or if there is less than 1" (25 mm) between the firewall and the pedal, adjust ball joint (A).
3. Remove hardware securing ball joint to brake pedal, loosen nut (B) and adjust the ball joint.
4. Reassemble and securely tighten all hardware.

Figure 4A



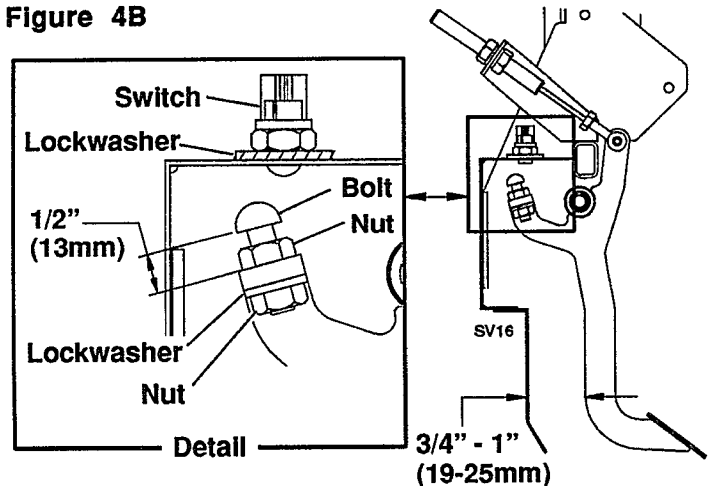
4.3 CLUTCH INTERLOCK

WARNING

Never operate truck with the interlock system disconnected or malfunctioning.

1. The interlock switch must be activated only when the clutch is fully depressed.
2. Make sure the switch is securely fastened and the plunger extends beyond the mounting bracket.
3. The bolt must be assembled to the clutch pedal as shown in the detail below.

Figure 4B



4.4 CLUTCH PEDAL

1. Normal free-play is from 3/4" to 1" (19 to 25 mm) measured from the firewall to the pedal.
2. Make certain all the mounting hardware is securely tightened.
3. Remove shift lever knob then remove the center transmission cover.
4. Remove hardware securing ball joint to clutch arm lever, loosen nut and adjust the ball joint.

4.5 PARKING BRAKE

1. The knob at the end of the brake is used to compensate for brake lining and linkage wear.
2. Place brake lever in the disengaged position and turn knob in a clockwise direction, applying and releasing brake lever every turn until a definite "snap over center" action is achieved.

IMPORTANT: Overadjustment causes "hard" lever action, but does not increase brake efficiency.

ADJUSTMENTS

4.6 TORQUE REQUIREMENTS

1. Tie rod, drag link and steering cylinder ball joints:
Torque to 45 ft. lbs., (61 Nm) then continue to tighten until the next slot in the nut lines up with the cotter pin hole.
2. All other ball joints: Torque to 20 ft. lbs. (27 Nm)
3. Torque rear wheel hardware to 60 - 75 ft. lbs. (81 - 101 Nm).
Torque front wheel hardware to 40 - 50 ft. lbs. (54 - 68 Nm).

Check and retorque all wheel mounting hardware daily until torque is maintained.

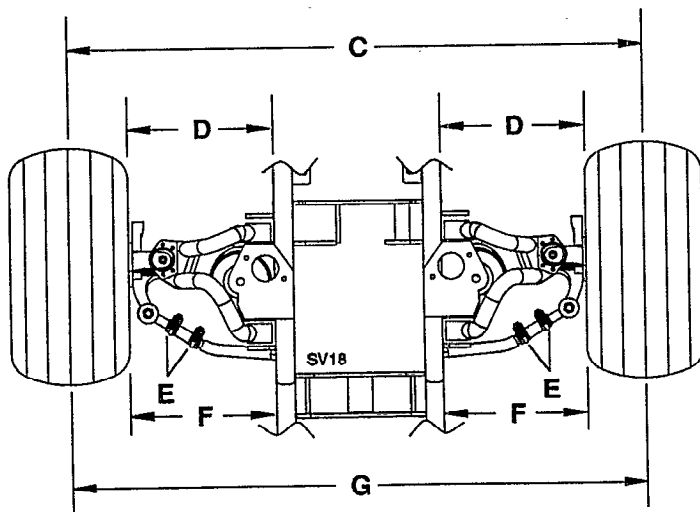
4. Standard Jacobsen torque specifications for Grade 5 coarse hardware.
1/4" hardware from 115 to 130 in. lbs.
5/16" hardware from 235 to 260 in. lbs.
3/8" hardware from 35 to 40 ft. lbs.
1/2" hardware from 80 to 95 ft. lbs.
5/8" hardware from 160 to 185 ft. lbs.

4.7 WHEEL ALIGNMENT

The need for an alignment may be determined by the vehicle pulling to one side and can usually be felt through the steering unit.

1. Park the vehicle on a clean, flat surface.
2. Turn front wheels to the straight ahead position.
3. Align the front wheels with the frame. Use the steering wheel to adjust until the wheels are as parallel with the frame as possible. Dimensions "D" and "F" should be equal ($\pm 1/8(3.2 \text{ mm})$).
4. Loosen nuts (E) and adjust toe-in (G) to be 1/8" (3.2 mm) less than dimension "C".

Figure 4C



WARNING

To prevent injury, stop engine, set parking brake and remove key from ignition switch before making any adjustments or performing maintenance.

Make sure the vehicle is on a solid and level surface. Never work on a vehicle that is supported by the jack alone. Use jackstands.

If only the front or rear of the vehicle is raised, place chocks in front of and behind the wheels that are not raised.

5.0 PROCEDURE

The life of the vehicle depends on the maintenance it receives.

1. Inspect the vehicle on a regular basis and replace worn or damaged parts before operating the machine or before actual breakdown occurs.
2. Establish a regular maintenance schedule.
 - a. Keep the truck and attachments clean.
 - b. Keep all moving parts properly adjusted and lubricated.
 - c. Keep all fluids at their proper levels.
 - d. Keep shields in place and all hardware securely fastened.
 - e. Keep tires properly inflated.
3. Do not wear loose fitting clothing or jewelry when adjusting or repairing the vehicle's mechanical or electrical components.
4. Use the illustrations in the Parts Catalog as reference for the disassembly and reassembly of components.

5.1 AIR CLEANER

1. Empty dust cup once a week. **Do not remove the element.** Frequent removal of the element increases the risk of injecting dust and other impurities into the engine.
2. Replace the element yearly, more frequently when operating in extremely dusty conditions.
 - a. Remove the old element as gently as possible.
 - b. Carefully clean the inside of the filter housing without allowing dust into the intake.
 - c. Inspect the new element and gasket for damage. Do not use a damaged element.
 - d. Assemble the new element and make sure the gasket seats evenly.
 - e. Reassemble the dust cup making sure it seals completely around the filter housing.
3. Check all hoses and air ducts. Tighten hose clamps to insure a leak-tight fit.

5.2 BATTERY

1. Make absolutely certain the ignition switch is in the "Off" position and the keys have been removed before servicing the battery.



CAUTION: Always use insulated tools, wear protective glasses or goggles and protective clothing when working with batteries. You must read and obey all the battery manufacturer's instructions.

2. When the battery is being installed or removed, verify battery polarity before connecting or disconnecting the battery cables.
 - a. When installing the battery, always assemble the red, positive (+) battery cable first and the ground, black, (-) cable last.
 - b. When removing the battery, always remove the ground (-) cable first and the positive (+) cable last.
3. Clean the cable ends and battery posts with steel wool. Use a solution of baking soda and water to clean the battery. Do not allow the solution to enter into the battery cells.
4. Tighten cables securely to battery terminals and apply a light coat of silicone dielectric grease to terminals and cable ends to prevent corrosion. Keep terminal covers in place.

5.3 BATTERY – CHARGING

1. Refer to the Battery and Charger's manual for specific instructions.



DANGER

Charge battery in a well ventilated area. Batteries generate explosive mixtures of hydrogen and oxygen gases. Keep any device that may create sparks or flames away from the battery to prevent an explosion.

To prevent injury, stand away from battery when the charger is turned on. A damaged battery could explode.

2. Whenever possible, remove the battery from the truck before charging and make sure the electrolyte covers the plates in all the cells.
3. Make sure the charger is "Off", then connect the positive (+) connector from the charger to the positive battery terminal and the negative (-) connector of the charger to the negative battery terminal.
4. Always turn the charger "Off" before removing a charger lead from the battery.

MAINTENANCE

5.4 BODY AND UPHOLSTERY.

1. Thoroughly wash the attachments and vehicle after each use.

Do not use high pressure spray or spray water directly at the ignition switch or other electrical components.

2. Keep the grill, radiator fins, pumps and engine block clean to prevent heat damage to the engine or hydraulic oil circuit.

IMPORTANT: Do not wash a hot or running engine, you may damage the injection pump and the engine.

3. Thoroughly clean all areas where mud or other debris can collect. Do not use hot water, strong soap, or harsh chemical detergents. Use cold water and automotive cleaners.
4. Clean and retouch scratched or worn painted surfaces with Jacobsen "Orange" spray paint. (Section 1.6) Polish the vehicle for maximum paint protection.
5. Clean plastic or rubber components with a mild soap solution or use a commercially available vinyl/rubber cleaner.

5.5 BRAKE FLUID

Clean the area around the fill cap before removing. Maintain fluid level at 3/8 inch below the top of the housing. Use standard automotive brake fluid DOT 3.

5.6 ELECTRICAL SYSTEM

Use extreme care when working with the electrical system. Turn the ignition switch off and remove the negative battery cable when checking connections or wires.

1. Make certain all terminals and connections are clean and properly secured. Inspect all wiring after the first 25 hours of operation and every 250 hours thereafter.
2. Check all switches regularly to be sure they are kept clean and operating correctly. Check circuit breakers.



WARNING

Never operate truck with the interlock system disconnected or malfunctioning.

3. If the interlock system does not function properly, a switch may be faulty, wires may not be properly assembled, or there may be a short in the electrical system. If the problem cannot be corrected, contact your nearest Jacobsen Dealer.

4. Keep wire harness and individual wires away from moving parts to prevent damage.

5.7 ENGINE

1. Detailed maintenance information can be obtained from the engine manual supplied with your vehicle.
2. Change crankcase oil and filter after the first 25 hours of operation and every 75 hours thereafter. If operating in extremely dusty, high, or low ambient conditions, change oil and filter more often.

NOTE: Do not mix brands and viscosity grades of oil.

3. Use the correct grade and weight of oil for the temperature conditions. Change the oil only when the engine is warm.
4. Replace with a good quality detergent oil meeting API service designations:
Diesel Engine: CC/CD/CE - 10W30
Gasoline Engine: SG, SG/CC or SG/CD - 10W30

5.8 FUEL

Diesel

1. Fill the fuel tank at the end of each operating day to within 1" (25 mm) below filler neck. Do not over fill and never allow the fuel tank to become empty.

Drain water and sediment every 75 hours. A petcock is provided under the fuel tank.
2. Use clean, fresh, #2 Diesel fuel. Minimum Cetane Rating 45.
3. Store fuel in clean drums equipped with a water trap. Drain trap regularly.
 - a. Do not store diesel fuel in galvanized tanks and keep drums under cover away from direct sunlight.
 - b. Once in place, avoid moving the drum and do not use the last few gallons that may contain water and sediment.
 - c. Handle fuel as little as possible. Avoid using cans and funnels to transfer fuel.
4. If the injection pump, injectors or the fuel system require adjustment or servicing, contact your Jacobsen Dealer.

Gasoline

1. Fill the fuel tank at the end of each operating day to within 1" (25 mm) below filler neck. Do not over fill and never allow the fuel tank to become empty.
2. Use clean, regular grade unleaded gasoline, 87 octane minimum.

Do not use hi-test gasoline or an oil gasoline mixture. When using blended fuel, do not use a blend with more than 10% ethanol.

3. Under no circumstances should you use a blend containing more than 5% methanol. Refer to your engine manual for specific instructions.

4. Handle fuel with care - it is highly flammable. Use an approved container, the spout must fit inside the fuel filler neck.

- Never fill the fuel tank with the engine running or while the engine is hot.
- Do not smoke when handling fuel or fill the tank indoors.
- Never overfill the tank or spill fuel. Wipe up spilled fuel immediately.
- Never store fuel containers near an open flame or any device that may create sparks and ignite the fuel.

5.9 FUEL FILTER

- Before servicing any filter, thoroughly clean the outside of the filter housing and connecting fuel hoses, dirt must not be allowed to enter into the fuel system.
- When replacing the fuel filter, check the fuel lines. Replace hoses showing signs of deterioration or damage.

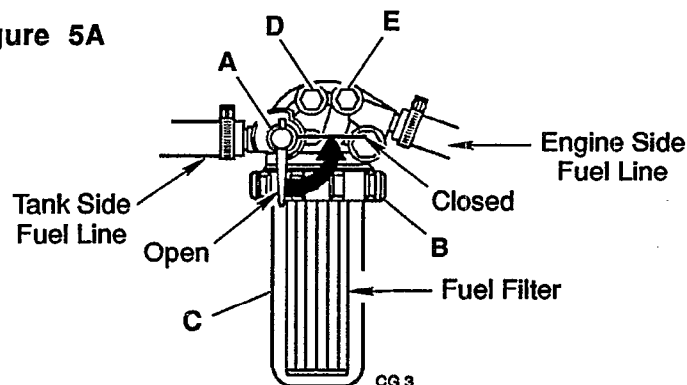
(Gasoline Engine)

Refer to your engine manual for intervals and specific instructions.

(Diesel Engine)

- Close the fuel filter pet cock.
- Loosen the ring screw on top of the filter cup, detach filter cup, and clean the cup interior with light oil.
- Replace element every 500 hours of operation.
- Refit element and reassemble the filter.
- Open fuel pet cock and loosen the two air vent plugs a few turns. When bubbles cease to flow, tighten the plugs.

Figure 5A



5.10 BLEEDING THE FUEL SYSTEM

Bleed the fuel system after the fuel filter and lines have been removed, after the fuel tank has become empty, or after long storage.

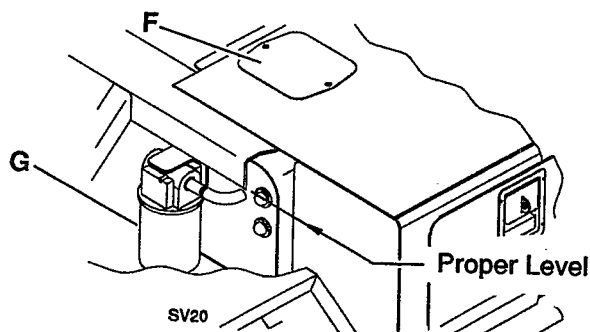
- Fill the fuel tank then open the fuel pet cock.
- Loosen air vent plugs a few turns.
- Tighten the plugs when bubbles cease to flow.
- Open the air vent plug on top of the fuel injection pump.
- Retighten the plug when bubbles stop flowing.

IMPORTANT: Always keep the air vent plug on the fuel injection pump closed except when air is vented, or it may cause the engine to stop.

5.11 HYDRAULIC OIL

- Park the truck on a level surface.
- Oil should be at 60° to 90°F (16°-32°C), when checking level. Do not check oil level when oil is hot.
- To add oil, remove cover (F), thoroughly clean the area around the cap to prevent dirt or grass from entering the tank and contaminating the system. Fill to center of top sight gauge.
- Drain and replace the hydraulic oil every 500 hours or yearly. Refer to Section 7.3-G. Remove plug from bottom of oil tank. Total system capacity 8 gal. (30 L).
- Change oil after a major component failure, or if you notice the presence of water (noted by a cloudy or milky appearance), air (noted by foam), or a rancid odor (indicating excessive heat).
- Once a year check the breather element and replace if necessary.

Figure 5B



MAINTENANCE

5.12 HYDRAULIC OIL FILTER

Change the oil filter after the first 25 hours of operation and every 250 hours thereafter. (G - Figure 5B)

1. Remove the old filter.
2. Install new filter. Hand tighten only.
3. Check hydraulic oil level on sight gauge and add if necessary.

5.13 JUMPER CABLES

Check the condition of the "dead" battery.

1. Stop the engine on vehicle with good battery.
2. Connect red jumper cable to positive terminal on good battery and to the positive terminal on the "dead" battery.
3. Connect the black jumper cable from the negative terminal on the good battery to ground (frame) of vehicle with "dead" battery.
4. Start the engine.

5.14 LIGHTS

1. Make sure all electrical connections are securely fastened and the light switch functions properly.
2. Replace entire headlight assembly.
3. Replace bulbs and taillight covers as required.

5.15 MUFFLER AND EXHAUST

1. When the engine is running properly the exhaust fumes are colorless, do not operate the vehicle if you notice a change in the sound or color of the exhaust, shut the unit down immediately and repair the cause.
2. Make sure the exhaust manifolds are secure and are not warped by unevenly torqued bolts .



WARNING

Leaking exhaust fumes contain carbon monoxide that is toxic and can be fatal when inhaled.

The best protection against carbon monoxide inhalation is proper installation and frequent inspections of the complete exhaust system.

5.16 RADIATOR

1. Check coolant level every 75 hours. Radiator should be full and the recovery bottle level (Diesel Only) should be up to the "full" mark.
2. Drain and refill every 500 operating hours or annually.
 - a. Remove the radiator cap (14 psi - 96 kPa - higher rated cap should not be used)
 - b. Open the engine block drain, the radiator drain and also drain the recovery bottle. (Diesel Only)
3. Mix equal amounts of clean water and ethylene glycol based anti-freeze (capacity 4 quarts - 3.8 L).
4. Keep radiator cooling fins clean. See that nothing obstructs air flow to and from the engine.
5. If you have to add coolant more than once a month, or add more than one quart at a time, have a Jacobsen Dealer check the cooling system.



WARNING

To avoid serious bodily injury from hot coolant or steam blow-out, never attempt to remove the radiator cap while the engine is running. Shut engine off and wait until it is cool. Even then, use extreme care when removing the cap.

5.17 TIRES

1. Keep tires properly inflated to reduce the amount of wear and prolong the life of the tire. Check pressure once a month while the tires are cool.
2. Use an accurate, low pressure tire gauge with one pound per square inch graduations.
3. Recommended pressure:

	Light Load	Heavy Load
Front	10 to 12 psi (69 - 83 kPa)	10 to 12 psi (69 - 83 kPa)
Rear	10 to 12 psi (69 - 83 kPa)	16 to 18 psi (110 - 124 kPa)

4. Check and torque wheel mounting hardware (Section 4.3).



CAUTION: Unless you have the proper training, tools and experience, DO NOT attempt to mount a tire on a rim. Improper mounting can produce an explosion which may result in serious injury.

6.0 GENERAL

Your vehicle should be kept dry and protected from the elements during storage.

1. Lubricate the truck. Check the hydraulic oil. Replace oil filters.
2. Wash the vehicle thoroughly and paint any scratched, worn or exposed metal.
3. Take this opportunity to thoroughly inspect the truck, tighten all hardware, replace worn or damaged components.
4. Clean the tires thoroughly, store the vehicle so that the load is off the tires and remove 1/3 of the air pressure. If it is not jacked up, check the tires at regular intervals and reinflate as necessary. (Section 5.17)

6.1 BATTERY

1. Remove and clean the battery. (Section 5.2)
2. Store battery in upright position, in a cool, dry place. Storage above 80°F (26.7°C) increases self-discharge. Discharged batteries will freeze when stored below 20°F (-7°C).
3. Recheck every 60 to 90 days and charge as necessary. (Section 5.3)

6.2 ENGINE

1. While the engine is still warm, drain the oil from the crankcase and change oil filter. Refill with fresh oil. (Section 5.7).
2. Clean exterior of engine. Paint the exposed metal or coat it with a light coating of rust preventative oil.
3. Use an anti-oxidant fuel conditioner, such as STA-BIL® to prevent the build up of gum residues and varnish films on the fuel lines, carburetor and injector during storage.

Note: Be sure to use the proper type of stabilizer (Gasoline or Diesel) for your engine.

Read and follow the mixing instructions carefully, then fill the tank with stabilized fuel.

Run the engine for about 5 minutes to distribute the treated fuel. Stop the engine, close the fuel shut off valve and let the engine cool.

4. Drain and refill radiator. (Section 5.16)
5. During long storage, start and run the engine for about fifteen minutes at full throttle every 2 or 3 months to prevent internal engine rust.

6.3 AFTER STORAGE

1. Check and reinstall the battery. (Sections 5.2 and 5.3).
2. Check or service the fuel filter and air cleaner (Sections 5.9 and 5.1).
3. Check level of oil in the engine crankcase and hydraulic system (Sections 5.7 and 5.11).
4. Fill the fuel tank with fresh fuel (Section 5.8).
5. Make certain that the tires are properly inflated (Section 5.17).
6. Start the engine but do not operate at high speed immediately after starting. Allow enough time for the engine to become properly warmed and lubricated.



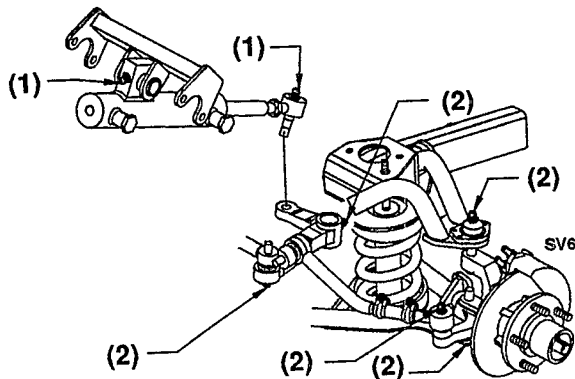
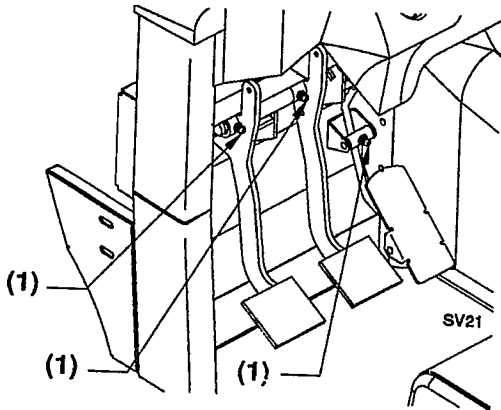
CAUTION: Never run the engine inside a building without proper ventilation; exhaust fumes can be fatal when inhaled.

LUBRICATION

7.0 GENERAL

Lubrication coupled with cleanliness is the most inexpensive preventive maintenance tool.

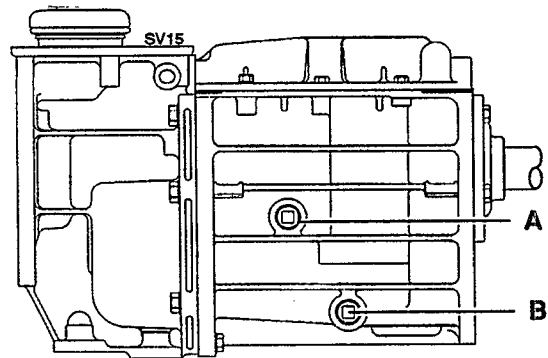
1. Always clean the grease fitting before and after lubricating.
2. Apply grease with a manual grease gun and fill slowly until grease begins to seep out. Do not use compressed air guns.
3. For smooth operation of all levers, pivot points and other friction points that are not listed on the lubrication chart, apply several drops of SAE 30 oil every 40 hours or as required.



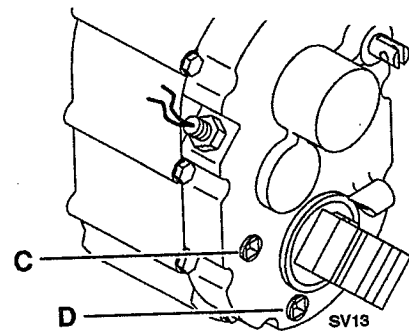
7.1 POWER TRAIN

Park the vehicle on a clean, level surface. Do not check levels when the fluids are hot.

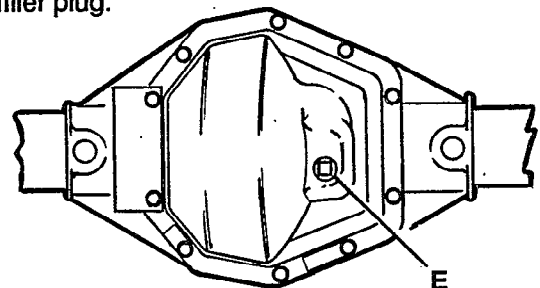
1. **Transmission:** Check at the filler plug hole on the right side of the transmission.
 - a. Remove the transmission cover from the Operator's compartment.
 - b. Clean the area around plug (A) then remove the plug.
 - c. Oil level should be even with the bottom of the filler plug.
 - d. Remove plug (B). Drain while the lubricant is still warm to allow more impurities to be drained out.



2. **Two Speed Transfer Case:** Check at the filler plug hole from the rear of the vehicle.
 - a. Clean the area around plug (C) then remove the plug. Oil level should be even with the bottom of the filler plug.
 - b. Remove plug (D) to drain.



3. **Differential:** Lubricant level is inspected at the rear of the differential housing.
 - a. Clean the area around plug (E) then remove the plug.
 - b. Oil level should be even with the bottom of the filler plug.



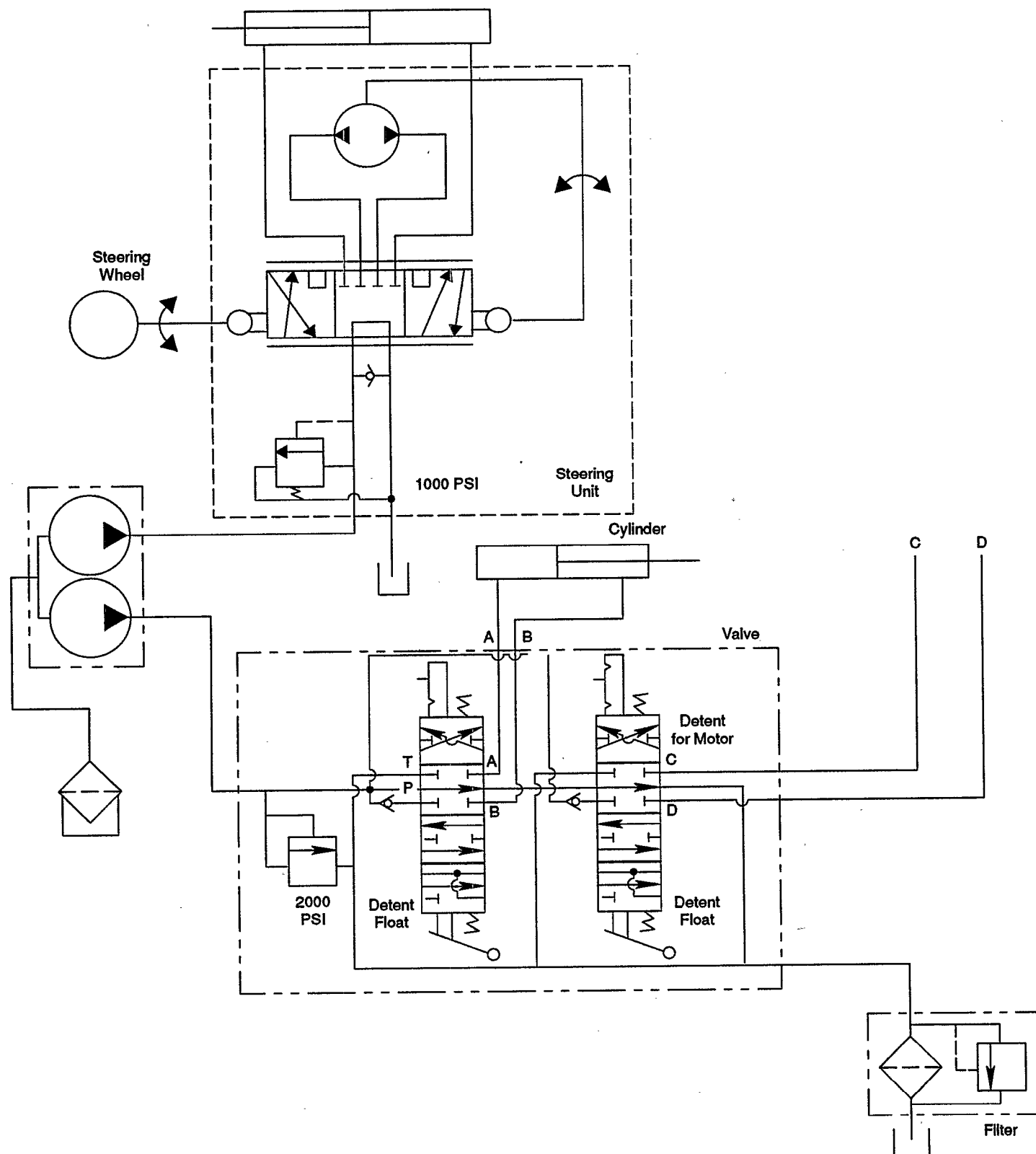
7.2 MAINTENANCE CHART

<i>Recommended Inspection and Lubrication Intervals</i>							Section	Lubricant
HOURS.....	8.....	25.....	75.....	250.....	500/Yearly			
Air Filter	I-C.....	I-C.....	I-C.....	R.....	5.1			
Battery.....			I-C.....		5.2/5.3			
Bearing, Wheels.....			I-A.....	I-A.....	I-A.....	7.3.....	B	
Brakes.....	I.....		I-A.....		4.2/4.5			
Master Cylinder.....			I-A.....		5.5			
Clutch.....			I-A.....		4.3/4.4			
Cooling System.....	I*.....			R.....	5.16			
Differential.....			I***.....		R.....	7.3.....	C	
Engine Oil	I.....	R**.....	R.....		5.7/7.3.....		D or E	
Oil Filter.....		R**.....	R.....		5.7			
Fuel Filter.....			C.....	R.....	5.9			
Grease Fittings (All).....			A.....		7.0/7.3.....	A		
Hydraulic Filter.....		R*.....		R.....	5.12			
Hydraulic Oil.....	I.....			R.....	5.11/7.3.....	G		
Muffler/Exhaust.....			I.....		5.15			
Tires.....	I.....				5.17			
Transmission.....			I***.....		R.....	7.1/7.3.....	H	
Transfer Case.....			I***.....		R.....	7.1/7.3.....	C	
Wheel Alignment.....				A.....	4.7			
Wiring.....	I.....			I.....	5.6			
A - Add or Adjust C - Clean I - Inspect R - Replace * - First 25 hours then yearly ** - First 25 hours then every 75 hours. *** - First 75 hours then yearly.								

7.3 LUBRICANTS

- A -** Use pressure gun grease - (NLGI Grade O). Apply with grease gun
- B -** Use fibre based, nonmetallic, additive type wheel bearing grease - (NLGI Grade 2).
- C -** Use SAE 90 weight gear lubricant, classification GL5.
- D - Diesel Engine**
Use API Classification CC/CD/CE 10W30.
- E - Gasoline Engine**
Use a API classification SG, SG/CC or SG/CD 10W30.
- F -** Use SAE 30 weight oil
- G -** Use Jacobsen hydraulic oil. 5 gallon container - Part No. 502693 or two 2-1/2 gallon container - Part No. 502696.
- H -** Use automotive transmission fluid similar to Dextron II ATF.

HYDRAULIC SCHEMATIC



LIMITED WARRANTY

Product No. 84018 – Gasoline Engine Truck

Product No. 84019 – Diesel Engine Truck

1. Warranty

Jacobsen Division of Textron Inc. (Jacobsen) warrants only to the original retail purchaser ("Warrantee") that this product shall be free from defects in material and workmanship for a period of two years★ or 1500 hours from the date of the first retail purchase. (90 days if used for rental purposes).

2. Items Not Warranted

Jacobsen makes no warranties or representations with respect to repairs performed by anyone other than a Jacobsen Turf Equipment Dealer or with respect to engines★, batteries and tires, which are separately warranted by their respective manufacturers. Routine adjustments or normal maintenance items such as belts, lubricants and filters are not covered by this warranty.

3. Conditions Which Will Void Warranty

- A) The speed of the unit is increased beyond factory specifications or the product is modified in any way which would adversely affect its safety or performance;
- B) The unit is not maintained or serviced in accordance with the Jacobsen "Operator's Manual";
- C) The unit is abused, or is not used in its intended manner.
- D) The use of attachments and allied equipment not approved by Jacobsen.

4. Exclusive Remedy

The warrantee's sole and exclusive remedy for breach of this warranty or any other defect or failure of the product, including any remedy provided by applicable federal or state law, statutory or common, is that Jacobsen will, at its sole option, repair or replace the product or any defective parts and cover the cost of labor associated with such repair or replacement. Transportation costs are not covered by this warranty.

5. How to Obtain Warranty Service

If warranty repair is necessary, contact your nearest Jacobsen Turf Equipment Dealer. All defective parts must be returned to the Dealer and become the property of Jacobsen.

6. Disclaimer

- * *This warranty is made in lieu of all other warranties, implied or express, including any warranty of merchantability or fitness for a particular purpose.*
- * *Jacobsen further disclaims any liability for incidental, direct or consequential damages, to include but not limited to, personal injury or property damage, arising from a breach of this warranty or any other defect or failure of the product to the extent allowed by law.*

No agent, employee or representative of Jacobsen, or any other person, has any authority to bind Jacobsen to any other affirmation, representation, or warranty concerning the goods sold under this Warranty.

For further information, call (414) 637-6711 or write to Jacobsen, Division of Textron Inc. at:

**Warranty Department
1721 Packard Avenue
Racine, Wisconsin 53403-2561**

★ The Kubota Engine is warranted by Jacobsen for a period of two years from the date of purchase.

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