

JACOBSEN®

OPERATOR'S MANUAL

TRUCKS

Model 810
Gasoline Engine
Product No. 84017

Litho in U.S.A. 595

Part No. 3003510



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

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 this manual and all publications associated with this equipment (engine, accessories and attachments).
3. Learn the proper use of the machine, the location and 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.

DANGER - Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING - Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury and property damage.

CAUTION - Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury and property damage. It may also be used to alert against unsafe practices.

4. Never allow anyone to operate or service the machine or its attachments without proper training and instructions. Never allow minors to operate any equipment.
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. Pick up all the debris you can find before operating. 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 securely fastened in place.
8. Never disconnect or bypass any switch.
9. Carbon monoxide in the exhaust fumes can be fatal when inhaled. Never operate the engine without proper ventilation.

10. Fuel is highly flammable, handle with care.
11. Keep the engine clean. Allow the engine to cool before storing and always remove the ignition key.
12. Disengage all drives and engage parking brake before starting the engine (motor). Start the engine only when sitting in operator's seat, never while standing beside the unit.
13. Equipment must comply with the latest federal, state and local requirements when driven or transported on public roads.
14. Never use your hands to search for oil leaks. Hydraulic fluid under pressure can penetrate the skin and cause serious injury.
15. Operate the machine up and down the face of slopes (vertically), not across the face (horizontally). Keep vehicle in gear when descending slopes.
16. 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.
17. Drive with both hands on the steering wheel and travel at moderate speeds. Always give clear and correct hand signals before turning.
18. Keep legs, arms and body inside the seating compartment while the vehicle is in motion.



CAUTION:

1. Before leaving operator's position for any reason:
 - a. Engage parking brake.
 - b. Stop engine and remove the ignition key.
2. Keep hands, feet and clothing away from moving parts. Wait for all movement to stop before you clean, adjust or service the machine.
3. Keep the area of operation clear of all bystanders.
4. Never carry more than one passenger.

FOREWORD

By following all the instructions in this manual, you will prolong the life of your machine and maintain its maximum efficiency.

Adjustments and maintenance should be performed by a qualified technician.

If additional information or service is needed, contact your Jacobsen Turf Equipment Dealer who is kept informed of the latest methods to service this equipment and can provide prompt and efficient service.

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

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

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

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

Proposition 65 Warning

Engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, and other reproductive harm.

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

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SPECIFICATIONS

1.0 ENGINE:

Engine	4 cycle, OHC, Twin Cylinder, Gasoline, Air Cooled
Bore and Stroke	2.52 x 1.77 in., (64 x 45 mm)
Displacement	18 cu., in., (295 cc).
Horsepower	8.5 HP (6.3 Kw) @ 3000 RPM
Ignition	Electronic, Solid State
Spark Plug Type	NGK BP5ES
Spark Plug Gap	.030 - .038 in., (.8 - .9 mm)
Compression Ratio	9:1
Fuel Tank Capacity	5.5 Gal (22.7L)
Oil Capacity	1.5 qt. (1.9 L)

1.1 BATTERY:

For normal service use a battery rated 12V, 80 amp hours at 20 hour rate. 12V group 26 maintenance free.

1.2 FUEL

Unleaded gasoline, 87 to 100 octane. When using blended fuel, do not use a blend with more than 10% ethanol. (Section 5.9)

1.3 TIRES:

Front	(2)18.0 x 8.50 - 8 Power Rib
Inflation	12 to 18 psi (82.7 to 124 kPa)
Rear	(2)18 x 8.50-8 Softrac (6 ply)
Inflation	12 to 18 psi (82.7 to 124 kPa)

1.4 TRUCK:

Lighting	Dual Halogen Headlights, Tail and Brake Lights
Top Speed	Governed 15 MPH (24.1 Km/h)
Load Bed Height	24" (61 cm)
Load Bed Capacity	12.2 Cubic Feet (.35 cu.m)
Chassis	Welded tubular steel
Brakes	Dual, rear wheel, auto-adjusting mechanical, drum type; foot-operated parking brake with automatic release; non-asbestos lining
Steering	Double reduction rack and pinion
Seating	Two passenger bench, foam cushion seat and back
Body	Steel body panels, flat truckbed with removable side panels and tailgate; stainless steel trim

1.5 WEIGHTS AND DIMENSIONS:

Weight	885 lbs.
Length	106" (269 cm)
Width (At Rear Wheels)	48" (122 cm)
Tread (Rear Wheels)	39" (99 cm)
Wheel Base	71" (180.3 cm)
Height at Floor	11" (28 cm)
Height @ Steering Wheel	48-5/8" (123.2 cm)
Ground Clearance (At Differential)	5" (12.7 cm)
Load Bed Size	Width 44" (111.7 cm) Length 40" (101.6 cm) Depth 12" (30.4 cm)
Capacity	12.2 cu.' (.35 cu.m)
Total Payload including driver and passenger	1000 Lbs. (435 Kg)

1.6 ACCESSORIES

Contact your Jacobsen Turf Equipment Dealer for a complete listing of options and accessories.

Tail Gate Loading Ramp	84581
Electro/Hyd. Dump Kit	84597
Cab with Wiper	503508
Ball Cage	503540
Windshield	503509
Canopy	503510
Hourmeter	503512
Turn Signals	503513
Light Bar Kit	503541
Paint (Orange, 12 oz. Spray)	554598

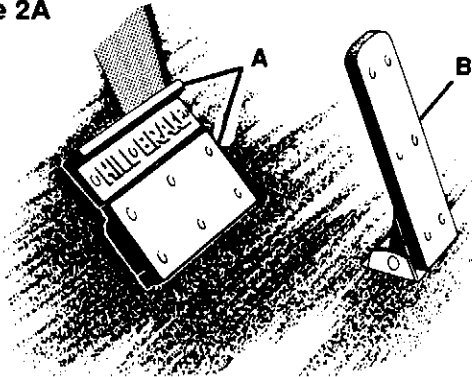


CAUTION: Do not attempt to drive the vehicle unless you have read this Manual. Learn the location and purpose of all the controls and gauges before you operate this vehicle.

A. SERVICE AND PARKING/HILL BRAKE COMBINATION:

1. To engage the parking brake, push down on the Top section of the pedal until it locks in place. The parking/hill brake will release when the service brake is depressed.
2. Depress the bottom of the brake pedal to release the parking/hill brake.
3. Use the *BOTTOM* section of the brake pedal to operate the service brake system.

Figure 2A



B. ACCELERATOR PEDAL: Used to start the engine and control the speed of the vehicle.

Depressing the accelerator will also release the parking/hill brake if engaged. This feature is to assure that the vehicle is not driven with the parking/hill brake engaged.

C. LIGHT SWITCH: Pull switch forward to activate lights.

D. DIRECTION SELECTOR: Two position lever; Forward, Reverse



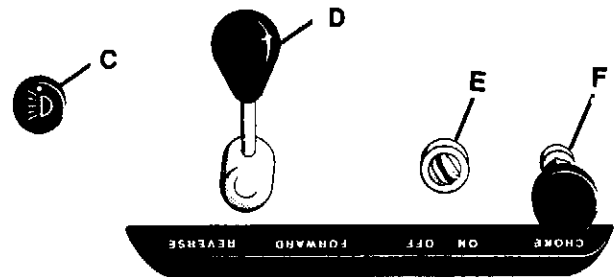
CAUTION: When selecting direction desired, the vehicle must be *completely* stopped before moving the lever.

E. KEY SWITCH: The engine will only start with key in the "ON" position and selector (D) in either forward or reverse.

When the vehicle is left unattended, always remove the key to prevent unauthorized operation of the vehicle.

F. CHOKE: Pull the choke knob out for the first start of the day if the engine is cold or if the vehicle does not start within ten seconds after depressing the accelerator pedal. As the engine warms up, push the choke all the way in.

Figure 2B



FUEL GAUGE (Not Shown): Located under the driver's side seat, is a direct reading, mechanical float, fuel gauge and cap combination.

OPERATION



CAUTION: The Daily Inspection should be performed only when the engine is off and all fluids are cold. Engage parking brake and remove ignition key.

3.1 DAILY CHECK LIST

1. Perform a visual inspection of the entire unit, look for signs of wear, loose hardware, missing or damaged components. Check for fuel or oil leaks.
2. Make sure that the parking/hill brake will hold on a hill and that when disengaged, does not drag or prevent the vehicle from rolling freely.
3. Check the fuel supply.



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.

4. The oil level in the crankcase should be up to the full mark on the dipstick. (Section 5.8).
5. Check tire pressure (Section 5.13).

3.2 OPERATING SUGGESTIONS

1. The operator must be seated on the seat to start the engine, under no circumstances should the engine be started with operator standing next to the vehicle.
2. Do not operate vehicle with loose, damaged or missing components. Whenever possible, operate the vehicle on dry terrain.
3. Study the area to determine the best and safest operating procedure. Consider the height of the grass, type of terrain and condition of the surface. Each condition will require certain adjustments or precautions.
4. Never direct discharge of material toward bystanders, nor allow anyone near the machine while in operation.



CAUTION: Enter a new area cautiously. Always operate at speeds that allow you to have complete control of the vehicle.

5. 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.
6. Always give clear and correct hand signals before turning. Know what is behind you before backing up.
7. Vehicle is limited to 2 occupants maximum.
8. Avoid quick stops and starts. Always remain seated and *hold on* while vehicle is in motion.
9. Turn headlights "on" at dusk to aid your visibility and enable other drivers to see you.
10. Stop and inspect the equipment for damage immediately after striking an obstruction or if the machine begins to vibrate abnormally.

3.3 BREAK-IN PROCEDURE

1. An extensive break-in period is not required. Drive moderately for the first 25 hours, avoid full throttle starts and rapid acceleration until the engine has achieved operating temperature.
2. Change engine oil and filter element after first 25 hours of operation. *Higher than normal oil consumption is not uncommon during the initial break-in period.*
3. Check alternator belt tension after first 15-20 hours of operation. (Refer to Section 5.4) Check and tighten all hardware.

3.4 TO START ENGINE

1. Place the direction selector in "Forward" or "Reverse" position. When the lever is in the "Reverse" position, a warning will sound to indicate that the vehicle is ready to start and run in reverse.
2. Depress the bottom portion of the brake pedal to release the parking/hill brake.
3. Depress accelerator pedal gradually to start the engine and increase speed.



CAUTION: Before shifting from forward to reverse, the vehicle must come to a complete stop. Rapid "on-the-go" shifting will result in extensive transmission damage.

3.5 TO STOP/PARK

1. Remove foot from accelerator and depress service brake.
2. Bring the vehicle to a complete stop.
3. Engage the parking/hill brake by depressing the *top portion* of the brake pedal until it locks in place.
4. Place direction selector in "Forward" and if possible, "curb" the front wheel when parking on an incline.
5. Turn ignition switch to "OFF" and remove the ignition key.

! WARNING

Whenever a vehicle is left unattended, turn the key switch to "Off", engage parking/hill brake or chock the wheels and remove the ignition key.

3.6 HILLSIDE OPERATION

1. The vehicle has been designed for good traction and stability under normal driving conditions; however, use caution while operating on slopes, especially when the grass is wet. Wet grass reduces traction and steering control.

! WARNING

To minimize the possibility of overturning, the safest method of operating on hills and terraces is to travel up and down the face of the slope (vertically), not across the face (horizontally). Avoid unnecessary turns, use extreme caution, travel at reduced speeds and stay alert for hidden hazards.

! CAUTION: Do not operate this machine on slopes greater than 15°.

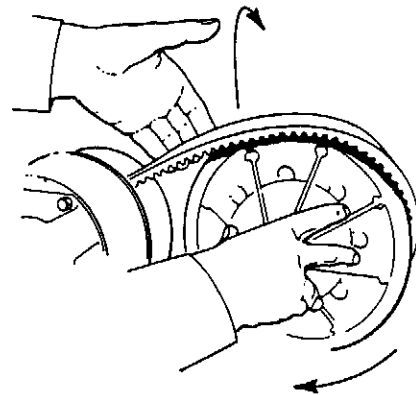
2. When climbing a slope, and the vehicle slides or the tires begin to "mark" the turf, angle vehicle into a less steep grade until traction is regained or tire marking stops.
3. If the vehicle continues to slide, the grade is too steep for safe operation. Do not make another attempt to climb, back down slowly.
4. It is possible for the vehicle to coast downwards at greater than normal speeds when operating on slopes. To prevent loss of vehicle control and severe damage to the drive train, limit speed by applying service brake.
5. Correct tire pressure is essential for maximum traction and stability. Keep tires properly inflated.
6. Block wheels if vehicle is left unattended on an incline.

3.7 TOWING

1. Maximum towing speed is 12 MPH (19 KPH).
2. To tow the vehicle, move the direction selector to a point between the 'F' and 'R' positions.
Push the vehicle slightly to insure that the transmission is not engaged. The vehicle may now be towed.
3. If vehicle is to be towed in gear, the drive belt must be removed.
 - a. Stop the vehicle and set the hill (parking) brake.
 - b. Pull the belt upwards to loosen the belt.
 - c. The belt may be rolled off the driven clutch.

! WARNING

Do not start or run the vehicle with the direction selector in the towing position. Inadvertent movement of the direction selector may cause personal injury as a result of sudden and unexpected vehicle movement.

**Figure 3A****3.8 AFTER OPERATION**

1. Park the vehicle on a flat and level surface, engage parking brake, stop the engine and remove key from ignition switch.
2. Wash the vehicle and attachments after each use. (Section 5.5)
3. Grease and lubricate all points immediately after washing.
4. To prevent condensation in the fuel tank, fill tank with fresh, clean fuel at the end of every operating day. Replace and tighten the fuel cap.

ADJUSTMENTS

WARNING

Before you adjust, clean or repair this equipment, engage parking brake, stop engine and remove key from ignition switch, to prevent injury.

Make sure the vehicle is on a solid and level surface. Never work under a vehicle that is only supported by the jack. 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.

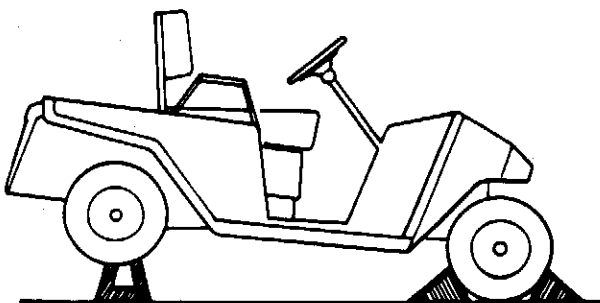
4.0 PROCEDURE

- Adjustments and maintenance should be performed by a qualified technician. If proper adjustment cannot be made, contact an Authorized Jacobsen Turf Equipment Dealer.
- Do not wear jewelry or loose fitting clothing when adjusting or repairing any equipment.
- Do not change governor setting or overspeed the engine.
- Be careful to prevent entrapment of the hands and fingers between moving and fixed components of the machine.

4.1 LIFTING THE VEHICLE

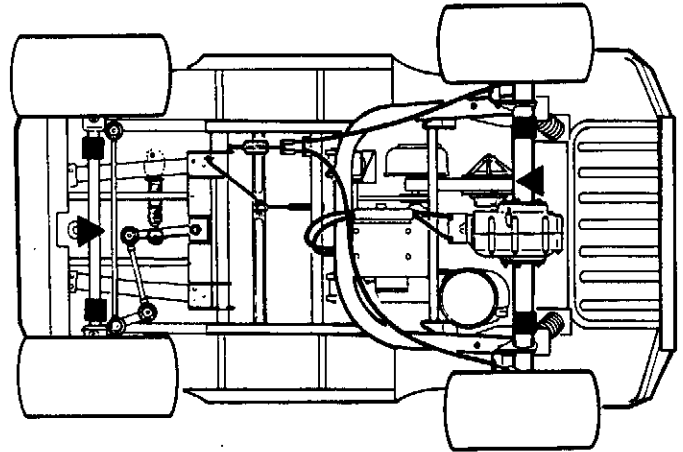
- When lifting the vehicle; position jacks and jack stands only on the areas indicated in Figures 4B.
- Never* lift or support the vehicle on the engine frame components.
- Be careful not to position the jack in an area that could damage the brake cables or hangers.
- Install chocks under the front of and behind each front wheel. Place the jack  under the passenger's side of the rear axle as close to the differential housing as possible. Raise the vehicle, and place a jack stand  under the outer end of each rear axle.

Figure 4A



- Lower the jack  and test the stability of the vehicle on the two jack stands.
- Place the jack at the center of the front axle. Raise the vehicle and position jack stands  under the outer ends of the front axle.
- Lower the jack and test the stability of the vehicle on the four jack stands.

Figure 4B

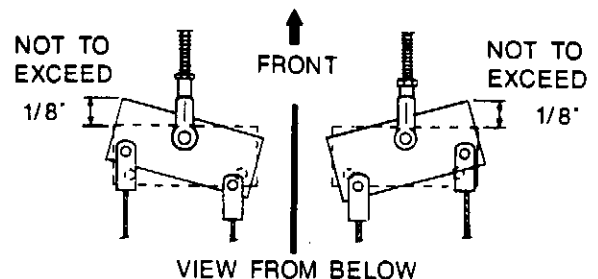


4.2 BRAKES

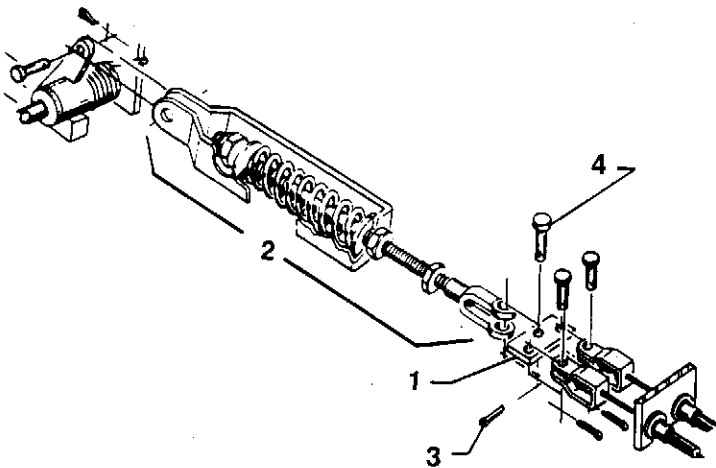
BRAKE LINKAGE

- Raise the vehicle (Refer to Section 4.1) and check the position of the equalizer (Detail A) with parking/hill brake ENGAGED.
 - If dimension exceeds 1/8" proceed to Step 2.
 - If dimension is within specification proceed to Step 6.

Detail A



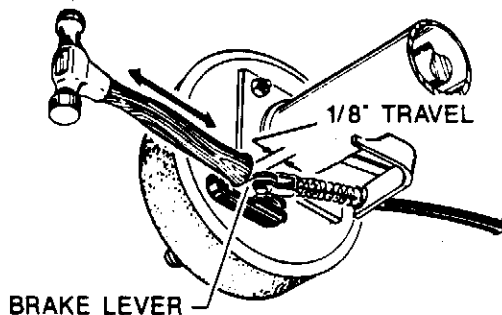
- Remove compensating linkage (2) from equalizer (1) by removing cotter pin (3) and clevis pin (4). (Detail B)

Detail B

3. Remove the wheel and tire corresponding to the position of the equalizer (Detail A).

WHEEL BRAKE

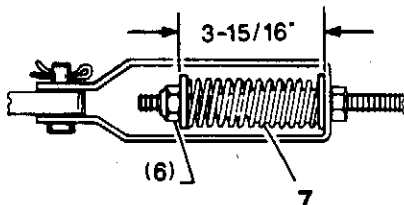
4. To adjust the brake, push the brake lever forward and release (Detail C) - repeat as needed until the lever travel is approximately 1/8 in.

Detail C

5. Reinstall wheel and reconnect compensating linkage (2 - Detail B). Always use a new cotter pin (3 - Detail B).

COMPENSATING SPRING

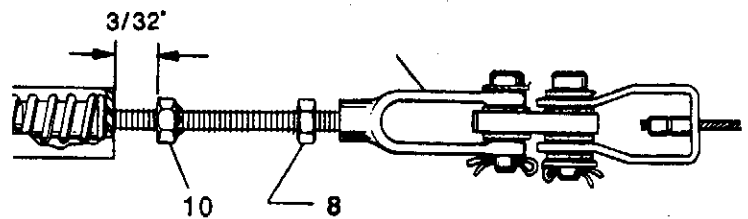
6. With parking/hill brake **DISENGAGED**, the compensating spring length should be 3-15/16 in. Adjust nut (6) to obtain 3-15/16 in.

Detail D**FREE PEDAL TRAVEL**

7. Measure the free pedal play to determine if it is between 1 to 1-1/2 in. To adjust, release jam nut (8) from yoke (9) and adjust at nut (10 - Detail E).

If nut (6 - Detail D) in front of spring (7) does not rotate with the threaded rod, a second wrench will be required.

Service Tip: Installing a 5/16-24 jam nut against the nut (6, Detail D) and locking it in place will eliminate nut movement on the threaded rod and eliminate the need for a second wrench.

Detail E**WITH PARKING (HILL) BRAKE ENGAGED****SEATING BRAKE**

8. Engage the parking/hill brake and then **RELEASE**. Repeat twenty (20) times. Be sure to allow the pedal to return fully after each cycle.
9. **ENGAGE** the parking/hill brake and check for a gap of 3/32 to 5/32 in., (Detail E). If adjustment is required, the adjustment is made at nut (10).

Be sure that nut (6 - Detail D) rotates with the threaded rod.

FINAL SYSTEM CHECK

10. Remeasure the free travel (1 to 1-1/2 in.) If an adjustment is required, the adjustment is made at the welded rod adjusting nut (10) but the gap dimension specified in Detail "D" must be maintained.
11. Tighten jam nut (8) and lower vehicle. Test the brakes. If performance is unacceptable, the brake shoes must be burnished to conform to the brake drum.

ADJUSTMENTS

4.3 PARKING/HILL BRAKE

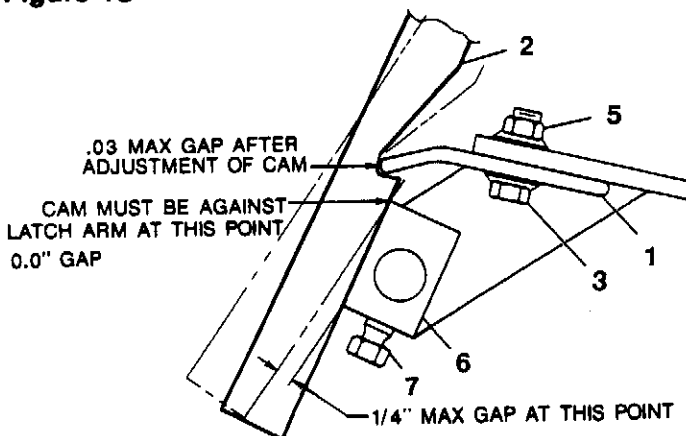
1. To check brake, lift the rear of the vehicle (Refer to Section 4.1) so that both rear tires are off the ground and there are no objects near the tires.

WARNING

To test for the audible "click" of the micro switch, the vehicle forward-neutral-reverse switch must be in the neutral position or have the rear wheels raised to prevent the possibility of injury if vehicle is activated.

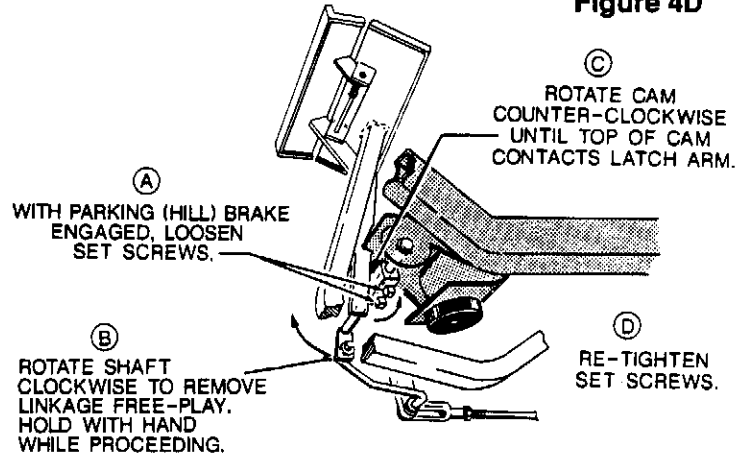
2. Remove the seat, place the direction selector in the "forward" position, turn the ignition switch to the "on" position, and fully engage the parking/hill brake.
3. Slowly depress the accelerator pedal until the "click" of the accelerator switch is detected.
4. If the "click" is detected prior to complete brake disengagement, the cause may be an improperly adjusted kick-off cam or the catch bracket and/or latch arm is worn or damaged.
5. Lower the rear wheels to the ground. Lift the front of the vehicle and remove the left front wheel (driver's side) for better access to the parking/hill brake kick-off mechanism.
 - a. Inspect the catch bracket (1) and latch arm (2) for any damage or wear and replace if necessary.
 - b. Remove the 1/4" x 3/4" bolts (3), lockwashers, and nuts (5). Remove the catch bracket and install a new catch bracket.
6. Check the cam (6) for proper adjustment. When the latch arm is engaging the catch bracket, there must NOT be any gap between the top of the cam and the latch arm (Figure 4C.)

Figure 4C



- a. Engage the parking/hill brake and loosen the two cam setscrews (7).
- b. Rotate the pivot arm assembly (Figure 4D) upward (clockwise when viewed from the driver's side of the vehicle) to remove the free play in the linkage.
- c. Rotate the cam counterclockwise so that the top of the cam is contacting the latch arm.
- d. While holding the cam and the pivot arm assembly in proper position, tighten the cam setscrews.

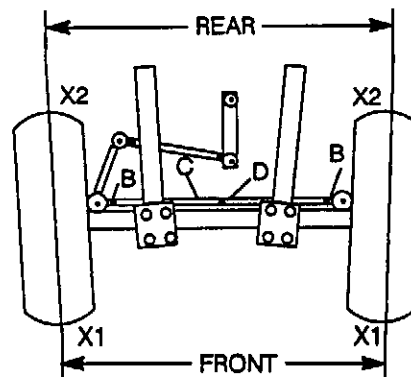
Figure 4D



4.4 WHEEL ALIGNMENT

1. Lift the front of the vehicle (See procedures in Section 4.1) and scribe or chalk a line around the circumference of each tire at approximately the center of the tire.
2. Toe-in front dimension at X1 is to be 1/4" $\pm$ 1/16" smaller than rear dimension X2.
 - a. If toe-in is not within the specified range, loosen nuts "B" on tie rod "C" and rotate tie rod tube as required until the toe-in dimensions are within the acceptable range. Tighten nuts "B".
 - b. On vehicles equipped with the rod with toe pin, after an acceptable range has been achieved, rotate the tie rod tube as required to locate tow pin "D" in a vertical position. Tighten nuts "B" securely.

Figure 4E



WARNING

Before you adjust, clean or repair this equipment, disengage all drives, engage parking brake, stop engine and remove key from ignition switch, to prevent injury.

Make sure the vehicle is on a solid and level surface. Never work under a vehicle that is only supported by the jack. 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

1. Adjustments and maintenance should be performed by a qualified technician.
2. Inspect the equipment on a regular basis, establish a maintenance schedule.
 - a. Keep the vehicle and attachments clean.
 - b. Keep all moving parts properly adjusted and lubricated.
 - c. Replace worn or damaged parts before operating the machine.
 - d. Keep all fluids at their proper levels.
 - e. Keep shields in place and all hardware securely fastened.
 - f. Keep tires properly inflated.
3. Do not wear jewelry or loose fitting clothing when making adjustments or repairs.
4. Use the illustrations in the Parts Catalog as reference for the disassembly and reassembly of components.
5. Recycle or dispose of all hazardous materials (batteries, fuel, lubricants, anti-freeze, etc.) according to local, state or federal regulations.

WARNING

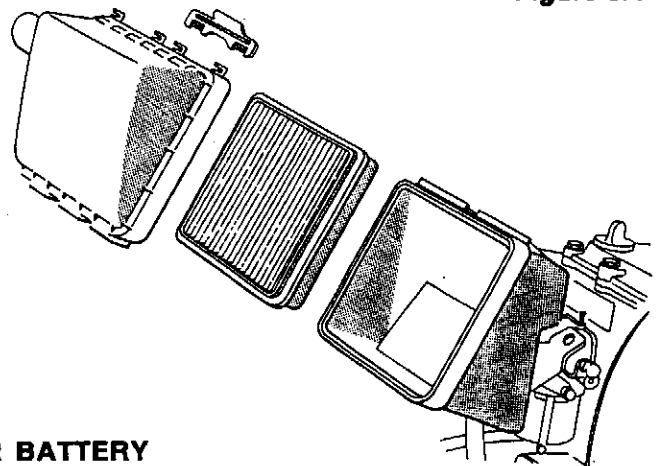
Any servicing to the powertrain while the engine is running, must be made with both drive wheels raised.

Always place chocks in front of and behind the wheels that are not to be raised. Use extreme care since the vehicle is very unstable during this process.

5.1 AIR FILTER

1. Examine the filter element every 75 hours. Under extremely dusty conditions examine the element more frequent.
2. Before installing the filter element, clean the filter housing. Do not allow debris to fall into the engine intake.
3. Remove and examine the element using a 60 watt light bulb. If light can be seen through the bottom pleats, the filter is in acceptable condition. Tap the element lightly with palm of your hand to remove dust.
4. If light cannot be seen, the filter must be replaced. Do not attempt to wash the filter, it was not designed to be washed.
5. Do not use oil on the filter element or any part of the unit.

Figure 5A



5.2 BATTERY

Do not attempt to jump start a vehicle using another vehicle. If the battery is discharged, it must be charged using a 12 volt charger, rated at 10 amps or less.



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.

1. Make absolutely certain the ignition switch is "Off" and the key has been removed before servicing the battery.
2. 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, negative (-) cable last.

5.2 Continued

MAINTENANCE

- b. When removing the battery, always remove the ground, negative (-) cable first and the positive (+) cable last.
3. Check the electrolyte level every 100 hours.
4. 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.
5. 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 Section 5.2. Read the Battery and Charger's manual for specific instructions.

DANGER

Charge battery in a well ventilated area. Batteries generate explosive gases. To prevent an explosion, keep any device that may create sparks or flames away from the battery.

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

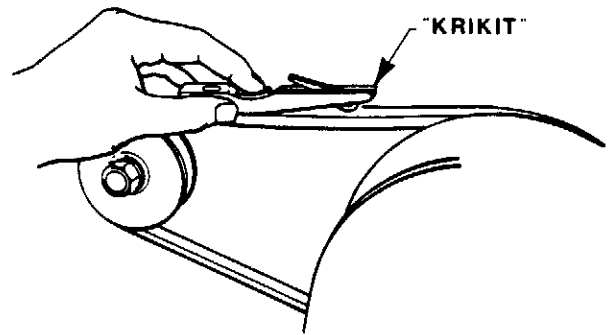
2. Whenever possible, remove the battery from the machine before charging and make sure the electrolyte covers the plates in all the cells.
3. Make sure the charger is "Off", then connect the positive (+) connector from the charger to the positive battery terminal and the negative (-) connector of the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

5.4 BELTS

1. Worn or frayed belts must be replaced, loose belts can cause audible vibration and squeal.
2. Check the starter/generator belt tension after the first 15 - 20 hours of use and set to 75 - 80 lb., (34 - 36 Kg)
3. Tighten a NEW starter/generator belt to 90 - 110 lb. (41 - 50 Kg) tension with a gauge (Gates 'Krikit' available from automotive parts store) is applied half way between the two pulleys.

4. Although not as accurate; the belt may be depressed with a finger. A maximum deflection of 3/8 in., (1 cm) is acceptable on a new belt and 1/2 in., (13 mm) deflection on an existing belt.
5. Re-tighten an EXISTING belt to 75 - 80 lb. (34 - 36 Kg) tension using the same technique. A maximum deflection of 1/2 in., (13 mm) is acceptable.

Figure 5A



5.5 BODY AND UPHOLSTERY

1. Wash the vehicle and implements after each use. Keep the equipment clean.



CAUTION: Do not wash any portion of the equipment while it is hot. Do not use high pressure spray or steam. Use cold water and automotive cleaners.

2. Use compressed air to clean the engine.
3. Do not spray water directly at the ignition switch or other electrical components on the instrument panel.
4. Clean all plastic or rubber trim with a mild soap solution or use commercially available vinyl/rubber cleaners.
5. Repair damaged metal surfaces and use Jacobsen "Orange" touch-up paint (Section 1.6). Wax the vehicle for maximum paint protection.

5.6 COOLING SYSTEM

Every 75 hours check and clean cooling fins and chaff screen. Remove any dust, dirt or oil that may have accumulated.

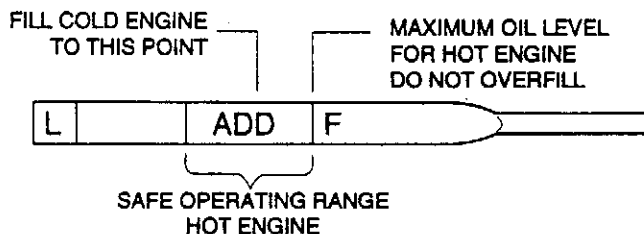
See that nothing obstructs air flow to and from the engine.

5.7 ELECTRICAL SYSTEM

1. Always turn the ignition switch off and remove the negative battery cable before checking connections or wires.
2. Make certain all terminals and connections are kept clean and properly secured. Inspect all wiring after the first 25 hours of operation and every 75 hours thereafter.
3. Keep wire harness and all individual wires away from moving parts to prevent any damage.
4. Keep lights and reflectors clean for maximum visibility.
5. *To prevent premature failure, Halogen bulbs must not be handled with bare hands. Always use a tissue or paper towel when installing.*
6. Test the brake lights by making several test stops.

5.8 ENGINE OIL/OIL FILTER

1. Before checking the oil level, clean the area around the dipstick to prevent debris from falling into the hole when the dipstick is removed.
 - a. Check the oil level when the oil is warm. Park the vehicle on a level surface, engage the hill (parking) brake.
 - b. Check oil level at least every 8 hours of operation.



2. Change crankcase oil and filter after the first 25 hours of operation and every 150 hours thereafter. If operating in extremely dusty, high, or low ambient conditions, change oil and filter more often.
3. Remove 3 bolts securing the oil filter to the engine; Pull the filter from the engine. ('O' ring may remain with the engine)
 - a. Wash filter in any shop degreaser and brush the metal screen clean with a soft brush.
 - b. Blow out the filter with low pressure air 30 psi (207 kPa) or less from no closer than 3 in., (8 cm).

! WARNING

Wear eye protection to prevent splashed solvent from contacting the eyes; wear rubber gloves to protect skin from exposure to the degreaser. Read and obey all the degreaser instructions.

4. Wipe the area around the filter with a lint free cloth and inspect the filter 'O' rings for damage; replace damaged 'O' rings.
5. Install the filter and finger tighten the 3 bolts, install the oil drain plug then tighten all hardware.
6. Fill the engine with 1-1/2 quarts (1.4 L) of SAE 10W-30-SF, SG, CC oil. Do not mix brands or viscosity grades of oil.
7. Inspect the oil fill cap 'O' ring for damage and replace the 'O' ring if it is damaged. Install the oil fill cap.
8. Operate the vehicle for 1 or 2 minutes then check the drain plug and filter for oil leaks. Recheck the oil level.

5.9 FUEL

1. Fill the tank at the end of each operating day with a fresh, clean, regular grade, unleaded gasoline, 87 to 100 octane. Fill to 1 in., (2 cm) below the bottom of the filler neck.
2. When using blended fuel, do not use a blend with more than 10% ethanol.
3. Do not use hi-test gasoline or an oil gasoline mixture.
4. *Do not use gasoline de-icers, they can cause internal damage to carburetor and fuel pump parts. Under no circumstances should you use a blend with methanol.*
5. Handle fuel with care - it is highly flammable. Use an approved container, the spout must fit inside the fuel filler neck.
 - a. Never remove the fuel cap from the fuel tank or add fuel while the engine is running or hot.
 - b. Do not smoke when handling fuel. Never fill the tank or drain fuel indoors.
 - c. Never overfill or allow the tank to become empty. Do not spill fuel and wipe up spilled fuel immediately.
 - d. Never handle or store fuel containers near an open flame or any device that may create sparks and ignite the fuel or fuel vapors.
 - e. Handle fuel as little as possible. Avoid using cans and funnels to transfer fuel.

MAINTENANCE

5.10 FUEL FILTER

Before servicing the fuel filter, thoroughly clean outside of filter housing and fuel hoses, dirt must not be allowed to enter into the fuel system.

Replace in-line fuel filters after every 250 hours of operation.

1. Slide hoses onto new filter with the arrow on the body pointing toward the fuel pump.
2. Inspect the fuel lines and clamps. Replace hoses showing signs of deterioration or damage. Tighten or replace clamps.

5.11 MUFFLER AND EXHAUST

WARNING

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

Never operate an engine without proper ventilation.

To protect from carbon monoxide poisoning inspect the complete exhaust system regularly.

1. Exhaust fumes are colorless, if you notice a change in the color or sound of the exhaust, stop the engine immediately and repair the cause.
2. Ensure that exhaust manifolds are secure and are not warped by unevenly torqued bolts.
3. Always replace a defective muffler.

5.12 SPARK PLUGS

Check and regap spark plugs every 250 hours of operation to 0.030" - .038" gap. Replace spark plugs that show signs of fouling or electrode erosion. Torque to 18 ft/lb.



CAUTION: To prevent damage to the cylinder heads, do not overtighten the spark plug.

5.13 TIRES

1. Keep tires properly inflated to prolong the life of the tire. Pressure should be checked while the tires are cool.
2. Check the pressure once a month. Use an accurate, low pressure tire gauge.
3. Tire pressure should be between 12 to 22 psi (83 to 152 kPa).
4. On hard turf, slightly higher inflation pressure is desirable and on very soft turf, lower pressure prevents tires from cutting into the turf.
5. All tires should have the same pressure for optimum handling characteristics. Be careful not to overinflate. (Refer to Section 5.18)



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 vehicle. Check the engine oil. Replace oil filters.
2. Wash the vehicle thoroughly. Repair and paint damaged or exposed metal.
3. Inspect the vehicle, tighten all hardware, replace worn or damaged components.
4. Clean the tires thoroughly and store the vehicle so that the load is off the tires and protected from sunlight. If the vehicle is not on jack stands, check the tires at regular intervals and reinflate as necessary.
5. Never store fuel or equipment near an open flame or any device that may create sparks and ignite the fuel or fuel vapors.

6.1 BATTERY

1. Remove, clean and store battery in upright position, in a cool, dry place.
2. Storage above 80° F (26.7°C) increases self-discharge. Discharge batteries will freeze when stored below 20°F (-7°C).
3. Check and recharge battery every 60 to 90 days while in storage.

6.2 ENGINE

1. While the engine is still warm, drain the oil from the crankcase and change the oil filter. Refill with fresh oil.
2. Clean exterior of engine. Paint the exposed metal or apply a light coating of rust preventative oil.

3. Raise the rear of the vehicle and support on jack stands. (Refer to Section 4.1)

- a. Disconnect the fuel line from the engine AT THE FUEL TANK. Start the engine and allow to run until the engine stops due to lack of fuel.
- b. Remove the air filter and spray a commercial fogging oil (such as WD-40) into the carburetor while operating the starter for 2 - 3 seconds.
- c. Reinstall the air filter and attach the fuel line to the tank.

4. To prevent the build up of gum residues and varnish films, Jacobsen recommends you fill the tank with stabilized fuel. Use an anti-oxidant fuel conditioner, such as STA-BIL®. Read and follow the instructions carefully.

Operate 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.

6.3 AFTER STORAGE

1. Check and recharge the battery.
2. Check or service the fuel filter and air cleaner
3. Check oil level in the crankcase.
4. Before driving the vehicle, make certain that the tires are properly inflated.
5. Move the vehicle outside before starting the engine or open doors and/or windows for ventilation to prevent danger from carbon monoxide gas in the exhaust.
6. Start the engine and operate at 1/2 throttle. Allow enough time for the engine to become properly warmed and lubricated.

LUBRICATION

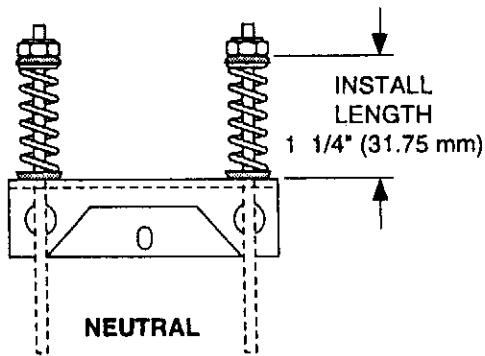
7.0 GENERAL

1. Lubrication coupled with cleanliness is the most inexpensive preventive maintenance tool.
2. Always clean the grease fitting before and after lubricating. Apply grease with a manual grease gun and fill slowly until grease begins to seep out.
3. For smooth operation of all levers, pivot points, ball joints and other friction points, apply several drops of SAE 30 oil every 75 hours or as required.
4. Do not lubricate the parking (hill) brake latch arm or latch bracket nor any cable controls.

7.1 "F and R" SWITCH

The direction selector cables are sealed and do not require lubrication, but may require occasional adjustment. The only other maintenance required is periodic lubrication of the linkage and related moving parts.

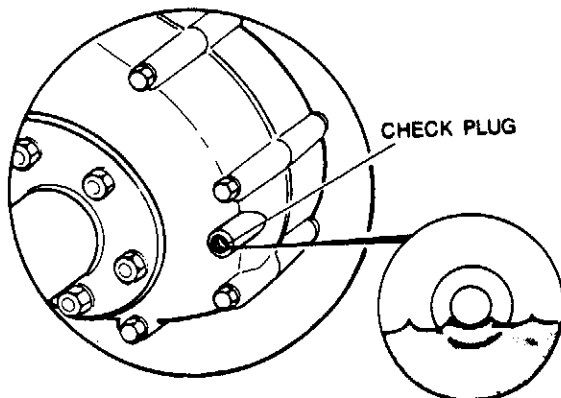
Figure 7A



7.2 DIFFERENTIAL

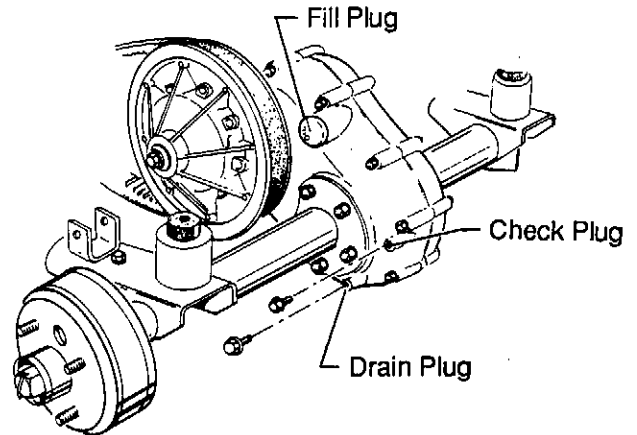
1. Check lubricant at 250 - 300 hour intervals or annually, whichever comes first.
2. Park the vehicle on a level surface and clean the area around the "check" and "fill" plugs. Figure 6C.
3. Remove the check plug. The fluid should always be level with the bottom of the plug hole.

Figure 7B



4. To add lubricant, remove the "fill" plug and add lubricant slowly until lubricant starts to seep from the check plug. Install the check plug and the fill plug.
5. To change the oil remove drain plug while the lubricant is warm to allow more impurities to be drained out.

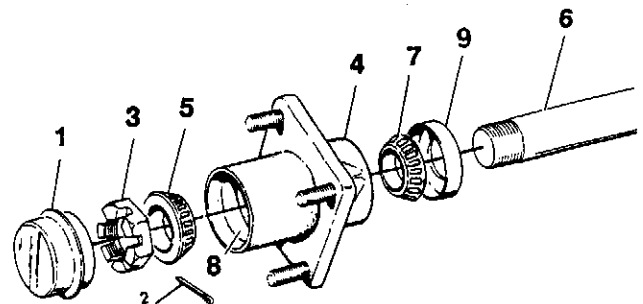
Figure 7C



7.3 WHEEL BEARINGS

1. Loosen the front wheel lug nuts one turn. Chock the rear wheels, lift the front of the vehicle and install jack stands. Remove the lug nuts and the wheels.
2. Remove cap (1), cotter pin (2), slotted nut (3), hub (4) and bearing (5) from the spindle (6).
 - a. To remove the inside bearing and seal, insert a punch from the outside of the hub and lightly tap around the bearing cone (7).
 - b. Clean the bearings, hub, seal and dust cap with solvent and dry thoroughly. Inspect for wear or damage and replace if necessary.

Figure 6D



3. Repack the bearings with wheel bearing grease, making sure that grease is forced down between all of the rollers and race.



CAUTION: Be sure that the seal retaining surface of the hub is clean and free of grease. Install seal and lubricate the seal with oil.

7.4 LUBRICATION CHART

<i>Recommended Inspection and Lubrication Intervals</i>						
A - Add or Adjust	C - Clean	I - Inspect	L - Lubricate	R - Replace		
Hours	8	25	75	250	500	Section
Air Filter	I-C		C	R		5.11
Battery Charge	I					5.3
Bearing, Wheels			I	I-L		6.4
Belts		I		A		5.4
Brakes	I		A	A		4.2
Brakes, Parking/Hill		I		A		4.3
Cooling System			I-C			5.6
Differential Oil Level			I-A		R	6.3
Engine Oil	I	R		R		5.8
Engine Oil Filter		R		R		5.15
Fuel Filter (Gas)			I-C	R		5.10
Muffler and Exhaust				I		5.14
Shock Absorbers			I			
Springs			I			
Suspension			I			
Steering Gear		I	L			
Timing Belt		I				
Tires	I		I			1.3 - 5.18
Wheel Alignment		I		I-A		4.4
Wiring	I					5.5

7.5 TORQUE SPECIFICATION HEX HEAD CAP SCREWS

- The torque values shown should be used as a general guideline when specific torque values are not given.

Grade	Marking	Screw Shank Size or Diameter, Fine or Coarse Thread	Torque Values English Units	Torque Values Metric
SAE Grade 5 ASTM A449		1/4	8 ± 2 lbs. ft.	8 to 13 N.m
		5/16	16 ± 2 lbs. ft.	19 to 24 N.m
		3/8	28 ± 2 lbs. ft.	36 to 40 N.m
		7/16	46 ± 4 lbs. ft.	56 to 70 N.m
		1/2	69 ± 5 lbs. ft.	90 to 100 N.m
SAE Grade 8		5/16	24 lbs. ft.	32 to 33 N.m
		3/8	45 lbs. ft.	61 to 62 N.m

DECALS

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

⚠ WARNING SAFETY AND OPERATION INSTRUCTIONS

- OPERATE FROM THE DRIVER'S SIDE ONLY. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SEVERE PERSONAL INJURY. RESTRICTED TO 2 OCCUPANTS. ALL OCCUPANTS MUST BE SEATED, KEEP ENTIRE BODY INSIDE VEHICLE AND HOLD ON WHEN VEHICLE IS IN MOTION.
- LOAD LIMIT IS 1000 LBS. (453 KG) AND INCLUDES WEIGHT OF DRIVER, PASSENGER, ACCESSORIES, OPTION(S) AND PAYLOAD.
- BE SURE OCCUPANTS ARE SEATED, MOVE DIRECTION SELECTOR LEVER TO DESIRED POSITION AND APPLY SERVICE BRAKE BEFORE TURNING KEY 'ON'.
- TO RELEASE PARKING (HILL) BRAKE, DEPRESS SERVICE (LOWER) BRAKE PEDAL TO STOP, RELEASE ACCELERATOR PEDAL AND APPLY SERVICE BRAKE.
- BEFORE LEAVING VEHICLE, TURN KEY 'OFF'. MOVE THE DIRECTION SELECTOR LEVER TO 'FORWARD' POSITION AND ENGAGE PARKING (HILL) BRAKE.
- THE CENTER OF GRAVITY OF THE LOAD MUST NOT EXCEED 5 INCHES (12 CM) ABOVE THE BED FLOOR. THE LOAD MUST BE AS FAR FORWARD AS POSSIBLE AND SECURE. TOP HEAVY LOADS MAY CAUSE VEHICLE INSTABILITY OR TIP OVER. DRIVE SLOWLY STRAIGHT UP AND DOWN SLOPES AND IN TURNS. USE EXTRA CARE WHEN IN REVERSE. IN CONGESTED AREAS, OR ON WET/LOOSE TERRAIN.
- VEHICLE MUST BE SERVICED BY QUALIFIED PERSONNEL ONLY AND IN ACCORDANCE WITH THE OPERATION AND SERVICE MANUAL.

LUBRICATION RECORDS

Date	Hours Used	Oil Change	Lubrication	Remarks

LIMITED WARRANTY

Product No. 84017

Model 810 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 one year 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 tires, which are separately warranted by their respective manufacturers. Routine adjustments or normal wear and maintenance items 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 this publication;
- C) The unit is abused, or is not used in its intended manner.

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 53403-2564**

JACOBSEN TEXTRON

Jacobsen Division of Textron Inc.