



75-72010
440 24.8HP KUBOTA DIESEL

75-72011
440 32.5HP KUBOTA GAS

MAN 4167141
Rev. A 2-20122

PARTS MANUAL 4167140



OPERATOR'S MANUAL

CALIFORNIA

Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.

⚠ WARNING

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

Californie Proposition 65 Avertissement

Les échappements des moteurs diesel et certains de leurs composés sont reconnus par l'Etat de Californie pour être cancérigènes, provoquer des défauts congénitaux et d'autres dangers en matière de reproduction.

⚠ AVERTISSEMENT

L'émission du moteur de ce matériel contient des produits chimiques que l'Etat de Californie considère être cancérigènes, provoquer des défauts congénitaux et d'autres dangers en matière de reproduction.

**California Advertencia
de la Proposición 65**

El estado de California hace saber que los gases de escape de los motores diesel y algunos de sus componentes producen cáncer, defectos de nacimiento y otros daños en el proceso de reproducción humana.

⚠ ADVERTENCIA

El estado de California hace saber que los gases de escape de este producto contienen productos químicos que producen cáncer, defectos de nacimiento y otros daños en el proceso de reproducción humana.

CALIFORNIA

Proposition 65 Warning

Battery posts, terminals, wiring insulation, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.
WASH HANDS AFTER HANDLING.

IMPORTANT MESSAGE

Thank you for purchasing this Schiller Grounds Care, Inc. product. You have purchased a world class product, one of the best designed and built anywhere.

This machine comes with an Owner / Operator's Manual and a separate Illustrated Parts Manual. The useful life and good service you receive from this machine depends to a large extent on how well you read and understand these manuals. Treat your machine properly, lubricate and adjust it as instructed, and it will give you many years of reliable service.

Your safe use of this Schiller Grounds Care, Inc. product is one of our prime design objectives. Many safety features are built in, but we also rely on your good sense and care to achieve accident-free operation. For best protection, study the manuals thoroughly. Learn the proper operation of all controls. Observe all safety precautions. Follow all instructions and warnings completely. Do not remove or defeat any safety features. Make sure those who operate this machine are as well informed and careful in its use as you are.

See a Schiller Grounds Care, Inc. dealer for any service or parts needed. Schiller Grounds Care, Inc. service ensures that you continue to receive the best results possible from Schiller Grounds Care, Inc. products. You can trust Schiller Grounds Care, Inc. replacement parts because they are manufactured with the same high precision and quality as the original parts.

Schiller Grounds Care, Inc. designs and builds its equipment to serve many years in a safe and productive manner. For longest life, use this machine only as directed in the manuals, keep it in good repair and follow safety warnings and instructions. You'll always be glad you did.

Schiller Grounds Care, Inc.
One Bob Cat Lane
Johnson Creek, WI 53038-0469

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NOTICE !!!

Unauthorized modifications may present **extreme** safety hazards to operators and bystanders and could also result in product damage.

Schiller Grounds Care, Inc., strongly warns against, rejects and disclaims any modifications, add-on accessories or product alterations that are not designed, developed, tested and approved by Schiller Grounds Care, Inc. Engineering Department. Any Schiller Grounds Care, Inc. product that is altered, modified or changed in any manner not specifically authorized after original manufacture—including the addition of “aftermarket” accessories or component parts not specifically approved by Schiller Grounds Care, Inc.—will result in the Schiller Grounds Care, Inc. Warranty being voided.

Any and all liability for personal injury and/or property damage caused by any unauthorized modifications, add-on accessories or products not approved by Schiller Grounds Care, Inc. will be considered the responsibility of the individual(s) or company designing and/or making such changes. Schiller Grounds Care, Inc. will vigorously pursue full indemnification and costs from any party responsible for such unauthorized post-manufacture modifications and/or accessories should personal injury and/or property damage result.



This symbol means:
ATTENTION!
BECOME ALERT!

Your safety and the safety of others is involved.

Signal word definitions:

The signal words below are used to identify levels of hazard seriousness. These words appear in this manual and on the safety labels attached to Schiller Grounds Care, Inc. machines. For your safety and the safety of others, read and follow the information given with these signal words and/or the symbol shown above.

⚠ DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.

⚠ WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.

⚠ CAUTION

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

CAUTION

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, **MAY** result in property damage

Schiller Grounds Care, Inc.

One Bobcat Lane
Johnson Creek, WI 53038 U.S.A.
Phone: 920-699-2000
Fax: 920-699-3683

MODEL NUMBER

SERIAL NUMBER

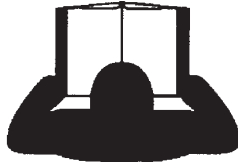
MODEL NUMBER: This number appears on sales literature, technical manuals and price lists.

SERIAL NUMBER: This number appears only on your tractor. It contains the model number followed consecutively by the serial number. Use this number when ordering parts or seeking warranty information.

Operator preparation and training

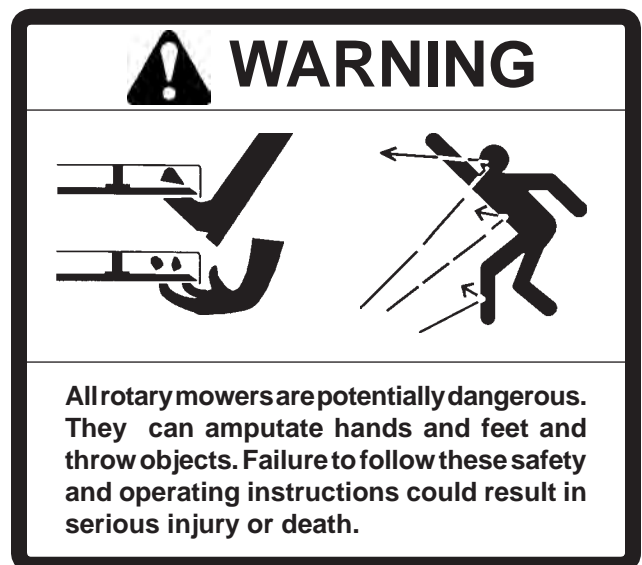
Read the Operation & Safety Manual

- If an operator or mechanic cannot read English or one of the other languages in which this manual is supplied, it is the owner's responsibility to explain this material to them. If any portion of this material is unclear, contact your factory representative for clarification.
- In addition to this manual, read the manual(s) for any attachments to be used, for specific information about the attachment.
- Become familiar with the safe operation of the equipment, operator controls and safety signs. Do not operate or allow another person to operate this machine if there are any questions about safety.
- All operators and mechanics should be trained. The owner is responsible for training the users.
- Wear appropriate clothing, including long trousers and safety goggles or safety glasses with side shields when operating machine. Do not operate barefoot or wearing open sandals. Long hair, loose clothing or jewelry may get tangled in moving parts.
- Wear hearing protection.
- Never allow underage children, unskilled or improperly trained people to operate this equipment. Local regulations can restrict the age of the operator.
- Do not carry passengers, especially small children. They may fall off and be seriously injured.
- Keep warning labels and this operator's manual legible and intact. Replacement labels and manuals are available from the factory.
- Do not operate machine while under the influence of drugs or alcohol.
- The owner/user can prevent and is responsible for accidents or injuries occurring to themselves, other people or property.



Site preparation and circumstances

- Evaluate the terrain to determine what accessories and attachments are needed to properly and safely perform the job. Only use accessories and attachments approved by the manufacturer.
- Clear the area where the equipment is to be used of objects such as rocks, toys, wire or other debris that may be picked up or thrown by the machine.
- Be sure the area is clear of pets and people, especially young children. Never assume they will remain where you last saw them. Stop the machine if any enter the area.
- Operate only in daylight or in good artificial light.
- Turf conditions can affect the stability of the machine.



Machine preparation

- Check operator present interlock system and brake operation. Adjust or repair any problems before using.
- Do not tamper with or defeat safety devices. Keep guards, shields and interlock safety devices in place and in proper working condition. They are for your protection.
- Keep all fasteners such as nuts, bolts and pins well secured.
- Verify that machine and attachments, if any, are in good operating condition.

OPERATING SAFETY

In general

- Use extra care when loading or unloading the machine into a trailer or truck.
- Operate all controls from the operator's seat.
- Watch out for traffic when near or crossing roadways.
- Do not run the engine in an enclosed area where dangerous carbon monoxide fumes can collect.
- Do not place your foot on the ground while operating the machine.
- Before mowing, lower the discharge chute.
- Keep clear of the discharge opening at all times. Never direct the discharge toward a bystander. Stop operation if someone approaches.
- Use care when pulling loads or using heavy equipment.
 - Use only approved drawbar hitch points.
 - Limit loads to those you can safely control.
 - Do not turn sharply. Use care when reversing.
 - Use counterweight(s) when suggested in the attachment manual.
- Never leave a machine unattended. Always turn off the PTO, set parking brake, stop engine and remove keys before dismounting.

Starting

- Start only according to instructions in this manual or on the machine.
- Before attempting to start the engine, make sure:
 - the parking brake is on;
 - the PTO is disengaged;
 - the F-R foot pedal is in NEUTRAL.
- When starting the engine, sit on seat and make sure hands and feet are clear of attachments.
- Do not start the machine while someone is standing in front of the discharge chute or with the chute directed at someone.
- Do not engage PTO at full throttle. Throttle to idle or lowest possible engine speed.
- Do not change engine governor settings or overspeed the engine. Operating the engine at excessive speed can increase the hazard of personal injury.

Interrupting operation

- Before leaving the operator's position:

- Park on level ground.
- Lower attachments.
- Disengage the PTO.
- Set the parking brake.
- Shut off the engine and remove the key.
- Disengage the PTO and wait until the mower blades quit rotating or the attachment stops:
 - before raising cutterdeck;
 - when not mowing;
 - for transport;
 - when crossing surfaces other than grass.
- Stop the engine, disengage the PTO and wait until the blades quit rotating:
 - before refueling;
 - before making height adjustment unless the adjustment can be made from the operator's position.
- Stop the engine, disengage the PTO and disconnect the spark plug wire(s) or remove the key:
 - before clearing blockages or unclogging chute;
 - before checking, cleaning or working on the machine;
 - after striking a foreign object. Inspect the machine for damage and make repairs before restarting.
 - if the machine begins to vibrate abnormally: Inspect and make repairs as needed before restarting;
 - except for repairs or adjustments as specifically noted, such as for carburetor adjustment, where the engine must be running. Keep hands and feet clear of moving parts in these circumstances.
- Allow the blades to come to a complete stop when stopping operation to clear blockages, unclog, inspect the machine, do maintenance or repair.
- Follow the procedure for engine shutdown and, if the engine is provided with a shut-off valve, turn the fuel off at the conclusion of operation.

MANEUVERING SAFETY

In general

- Slow down before turning.
- Always look behind and down for a clear path before and during backing.
- Be aware when approaching blind corners, shrubs, trees, tall grass or other objects that may obscure vision.
- If tires lose traction, disengage the PTO. If on a slope, head down.

Operating on slopes

- Slopes are a major factor in loss-of-control and tip over accidents that sometimes lead to severe injury or death.
- All slopes require extra caution.
- The operator must be experienced with the Schiller Grounds Care, Inc. tractor and it's unique operational responses.
- If the operator is uncomfortable or unsure of the machines stability, they should cease operation on the slope immediately.
- Ultimate responsibility for safe operation on slopes rests with the operator.
- With ride-on machines, mow up and down slopes, not across.
- With walk-behind machines, mow across slopes, not up and down.
- On uneven, loose or wet ground, the angles should be reduced. Only smooth maneuvers (not erratic) should be made to help maintain stability.
- Machine stability is affected by articulation. When turning the effective width of an articulated machine narrows. Avoid uphill turns.
- Maintain engine RPM and control ground speed with the Forward - Reverse control lever.
- Do not operate on excessively steep slopes.
- Avoid starting or stopping on a slope. If tires lose traction, disengage the PTO and proceed slowly straight down the slope.
- Keep all movement on the slopes slow and gradual. Do not make sudden changes in speed or direction.
- Do not turn on slopes unless necessary, and then turn slowly and downhill when possible.
- Stay away from slopes if the ground is loose or if caught in the rain during operation.

- Use lower speeds on a slope to avoid stopping or shifting.
- Use extra care with attachments. These can change the stability of the machine.
- Avoid driving over ruts, holes, rocks and roots whenever possible. Be alert to dips and rises. Uneven terrain can overturn a machine or cause it to slide.
- Use caution when operating near drop-offs, ditches or embankments. The machine could suddenly turn over if a wheel runs over the edge or an edge caves in.
- Follow the manufacturer's recommendations for wheel weights or counterweights to improve stability. See attachment manual.

Rollover Protection Structure (ROPS)

WARNING

- A Rollover Protection Structure (ROPS) for this tractor is standard. Seat belts must be worn whenever a ROPS is installed on the tractor. Always keep seat belt snugly adjusted. **DO NOT** use seat belts on a tractor without a ROPS.
- If a ROPS is installed and the tractor is overturning, hold onto the steering wheel. Do not attempt to jump out or leave the seat.

MAINTENANCE SAFETY**In general**

- Maintain machine according to manufacturer's schedule and instructions for maximum safety and best mowing results.
- Park machine on level ground.
- Never allow untrained personnel to service machine.
- Adjust or repair only after the engine has been stopped and the blades have quit rotating.
- Replace parts if worn, damaged or faulty. For best results, always replace with parts recommended by the manufacturer.
- Disconnect battery or remove spark plug wire(s) before making any repairs. Disconnect the negative terminal first and the positive last. Reconnect positive first and negative last.
- Do not dismantle the machine without releasing or restraining forces which may cause parts to move suddenly.
- Provide adequate support for lifted machine or parts if working beneath.
- Do not put hands or feet near or under rotating parts.
- Clean up oil or fuel spillage thoroughly.
- Replace faulty mufflers.
- To reduce fire hazards, keep the engine, muffler, battery compartment and fuel storage area free of grass, leaves, debris buildup or grease.

Fuel

- Gasoline and diesel fuels are flammable; gasoline vapors are explosive. Use extra care when handling.
- Store only in containers specifically designed for fuel.
- When refueling or checking fuel level:
 - DO NOT USE E15 fuel. (Use up to E10). Refer to engine manufacturer's recommendations in engine manual.
 - Stop the engine and allow to cool;
 - Do not smoke;
 - Refuel outdoors only;
 - Use a funnel;
 - Do not overfill;
 - If fuel is spilled, do not attempt to start the engine until the spill is cleaned up and vapors have cleared.





- Do not fill containers in a vehicle or on a truck or trailer bed with a plastic liner. Fill containers on the ground away from the vehicle.
- When practical, remove gas powered equipment from the truck or trailer and refuel it on the ground. If equipment must be refueled on the truck or trailer, refuel from a portable container rather than a dispenser nozzle.
- Keep the dispenser nozzle in contact with the rim of the fuel tank or container opening until fueling is complete. Do not use a nozzle lock-open device
- Replace caps on fuel cans and tanks securely.

Sparks from static electricity can start fires or cause explosions. Flowing fuel can generate static electricity. To prevent static electricity sparks:

- Do not fill containers in a vehicle or on a truck or trailer bed with a plastic liner. Fill containers on the ground away from the vehicle.
- When practical, remove gas powered equipment from the truck or trailer and refuel it on the ground. If equipment must be refueled on the truck or trailer, refuel from a portable container rather than a dispenser nozzle.
- Keep the dispenser nozzle in contact with the rim of the fuel tank or container opening until fueling is complete. Do not use a nozzle lock-open device
- Replace caps on fuel cans and tanks securely.

Hydraulic system

The machine's hydraulic system operates under high pressure.

- When checking for leaks, do not use your hands to attempt to find a leak. Instead, use cardboard or paper.  **WARNING**
- Escaping hydraulic fluid can be under sufficient pressure to penetrate skin and cause serious injury. 
- If hydraulic fluid is injected into the skin, it must be promptly removed by a doctor familiar with this form of injury or gangrene may result.
- Check that all hydraulic fluid connections are tight and all hydraulic hoses and lines are in good condition before applying pressure to the system.

Battery

Battery acid is caustic and fumes are explosive and can cause serious injury or death.

To reduce the risk of personal injury when working near a battery:

- When working with battery acid, use protective equipment such as, but not limited to, goggles, face shield, rubber gloves and apron.
- Avoid leaning over a battery.
- Do not expose a battery to open flames or sparks.
- Be sure batteries with filler caps are properly filled with fluid.
- Do not allow battery acid to contact eyes or skin. Flush any contacted area with water immediately and get medical help.
- Charge batteries in an open, well ventilated area, away from sparks and flames. Unplug charger before connecting or disconnecting from battery.



STORAGE SAFETY

- Stop the engine and allow to cool before storing.
- Drain the fuel tank outdoors only.
- Store fuel in an approved container in a cool, dry place.
- Keep the machine and fuel containers in a locked storage place to prevent tampering and to keep children from playing with them.
- When the machine is to be parked, stored or left unattended, close the fuel valve.
- Do not store the machine or fuel container near heating appliances with an open flame such as a water heater or an appliance with a pilot light.
- Keep gasoline storage area free of grass, leaves and excessive grease to reduce fire hazard.

JUMP STARTING

1. Be sure the jumper cables are in good condition. Turn off the ignition and all electrical accessories on both machines.
2. Position the machine with a good (charged) battery next to but not touching the machine with the dead battery so jumper cables will reach.
3. When making cable connections:
 - make sure the clamps do not touch anywhere except to intended metal parts,
 - Never connect a positive ("+" or red) terminal to a negative ("-" or black) terminal.
 - Make sure the cables won't get caught in any parts after the engines are started.
4. Connect one end of the first jumper cable to the **positive** terminal on one battery. Connect the other end to the **positive** terminal on the other battery.
5. Connect one end of the other cable to the **negative** terminal of the machine with a good (charged) battery. Make the final connection on the engine of the machine to be started, away from the battery.
6. Start the vehicle with the good battery, then the machine with the discharged battery.
7. Remove the cables in the exact reverse order of installation. When removing each clamp, take care it does not touch any other metal parts while the other end remains attached.

WARNING

BEFORE STARTING:

- READ AND UNDERSTAND OPERATOR MANUAL AND LABELS.
- WEAR HEARING AND EYE PROTECTION.
- REPLACE LABELS AND OPERATOR MANUAL IF LOST OR DAMAGED.

WARNING

AVOID SERIOUS INJURY OR DEATH:

- DO NOT OPERATE UNLESS TRAINED.
- DO NOT OPERATE UNLESS GUARDS, SHIELDS, AND INTERLOCKS ARE IN PLACE AND WORKING.
- USE EXTRA CAUTION ON SLOPES AND WHEN OTHERS ARE PRESENT.
- STOP ATTACHMENTS AND DRIVE DOWN SLOWLY IF MACHINE SLIDES OR STOPS GOING ON SLOPE.

ADVERTENCIA

- Lea y entienda el manual del operador y las etiquetas.
- Píde que alguien lea y explique el manual y las etiquetas a usted si usted no lee Inglés.
- Use protección ocular y auditiva.
- No haga funcionar sin los protectores en su lugar.
- Mantenga las manos, pies y ropa alejados de las piezas móviles.
- Pare el motor antes de dar servicio.
- La gente a más durante la operación.

4167303
LOCATION: TOP OF FOOT PLATE

WARNING

TO CHECK OR ADD FUEL:

- Do it outdoors.
- Stop engine. Allow to cool.
- Do not smoke.
- Clean up spilled fuel.
- Do not overfill.
- Fill to one inch below bottom of filler neck.

2000570
LOCATION: TOP OF GAS TANK

WARNING

- ROTATING PARTS.
- DO NOT OPERATE WITH COVER REMOVED

2000577
LOCATION: FRONT OF LOWER GRILLE
RIGHT SIDE OF UPPER GRILLE

WARNING

SPARKS OR FLAME CAN START EXPLOSION. DISCONNECT (-) NEGATIVE TERMINAL FIRST. RECONNECT (-) NEGATIVE TERMINAL LAST.

2000590
LOCATION: INSIDE BATTERY BOX



4167299
LOCATION: EXPANSION TANK CAP

WARNING

MACHINE CAN TIP OR LOSE TRACTION ON SLOPES

- USE REAR WEIGHTS WITH ATTACHMENTS
- SEE ATTACHMENT MANUAL FOR CORRECT NUMBER OF WEIGHTS.
- REMOVE WEIGHTS WHEN FRONT ATTACHMENTS ARE REMOVED.

4163040
LOCATION: BACK OF BATTERY BOX

IMPORTANT

SINGLE TIRES: Inflate 5 to 8 lbs. pressure

DUAL WHEELS INNER TIRE: Inflate to 6 lbs. pressure

DUAL WHEELS OUTER TIRE: Inflate to 3 lbs. pressure

INFLATE WITH AIR ONLY

LIQUID IN TIRES VOIDS WARRANTY

On rough terrain, reduce speed and exercise caution.

4167314
LOCATION: BACK OF FUEL TANK

AUXILIARY

FRONT LIFT

- FLOAT -
 - DOWN -
 - HOLD -
 - UP -

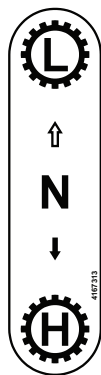
CAUTION

CONSULT OWNERS MANUAL BEFORE TOWING UNIT. SERIOUS DAMAGE TO HYDRAULIC SYSTEM WILL RESULT.

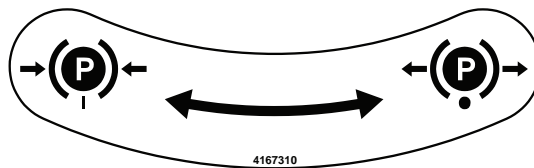
SLOW DOWN ON ROUGH, UNEVEN OR STEEP TERRAIN.

2000307
LOCATION: TOP OF TOOL BOX

STEINER 440

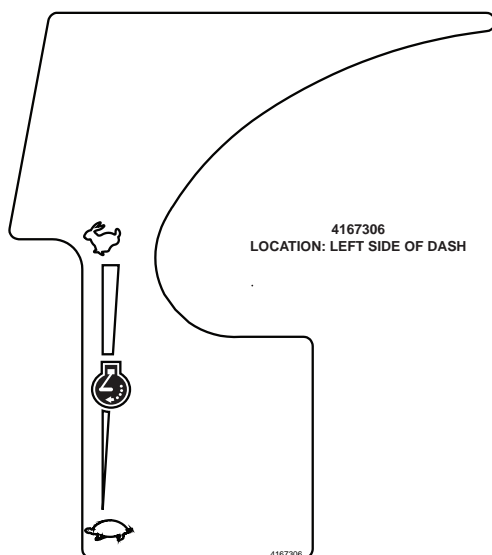
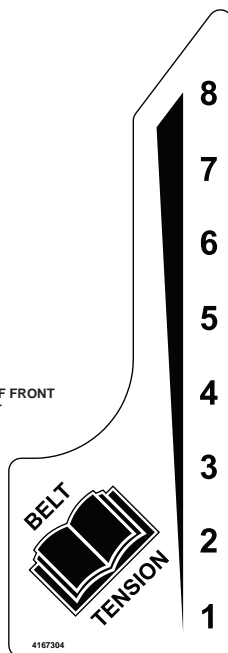


4167313
LOCATION: MIDDLE LEFT SIDE OF FRONT
FRAME

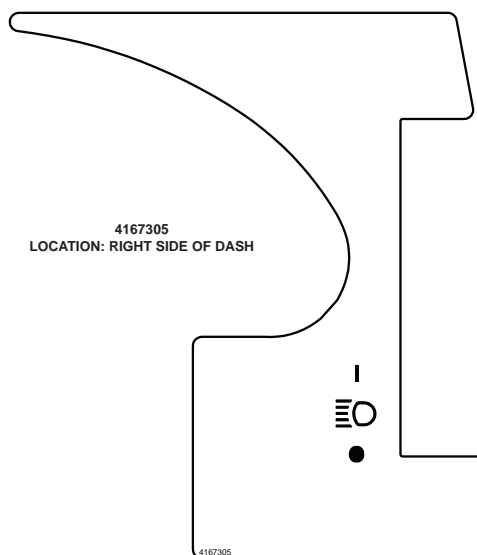


4167310
LOCATION: MIDDLE RIGHT SIDE OF FRONT
FRAME

4167304
LOCATION: LOWER RIGHT SIDE OF FRONT
FRAME ON PTO BRACKET
SEE MANUAL PAGE 16



4167306
LOCATION: LEFT SIDE OF DASH



4167305
LOCATION: RIGHT SIDE OF DASH

The Steiner 440 is designed for the commercial user or homeowner. From the rugged industrial frame to the operator controls the tractor is ready for demanding turf and grounds care assignments.

Power steering and articulated frame, combined with a low center of gravity and high flotation tires, provide exceptional maneuverability. Fully hydrostatic, infinitely variable, foot lever controls let you choose travel speeds to match the task. No clutching, jerking or braking, just smooth power flow to the 4 full time drive wheels for added traction in tough areas.

Front mounted attachments offer a wide range of working tools. They attach to the "Quick Hitch" that is a Steiner exclusive. The front hitch is standardized for all models of Steiner.

You can do many tasks with this one tractor, compared to higher priced single purpose machines, by simply changing attachments in less than 2 minutes. Operator safety and comfort, power, performance and dependability will provide years of enjoyment with your Steiner tractor.

ASSEMBLY INSTRUCTIONS

1. Remove unit and all parts from crate.
2. Install the wheels with valve stems facing outwards. If the wheels are bar type, note the direction of the treads and have the bar tread facing forward (there are 2 left wheels and 2 right wheels). Tighten wheel nuts to 85 ft. lbs.
3. Adjust tire pressures. Refer to Service Schedule on page 17.
4. Check all fluid levels: Engine oil, radiator, and overflow bottle (if water cooled model), and transaxle oil level in the expansion tank. Refer

to transaxle oil level on page 25. It is likely that some Steiner Hydraulic Oil will need to be added when you first receive the machine and begin initial use. It may take several hours or days for all air to work its way out of the system.

5. Do not install rear weights unless there is a front mounted attachment hooked up.
6. Hook up battery cable, located in the right rear battery box.
7. Add fuel.
8. Read Safety and Operation sections of the manual before starting.
9. Start unit and test drive and check all functions.

SPECIFICATIONS

Specifications are subject to change without notice.

Engine:

75-72010.....	Kubota D902-E Diesel
	24.8 HP liquid-cooled
75-72011.....	Kubota WG972-E Gas
	32.5 HP liquid-cooled
75-72012.....	Kohler CH940 Gas
	34 HP air-cooled
75-70013.....	Kohler CH1000 Gas
	40 HP air-cooled

Drive Train:

Transmission.....	Eaton Hydrostatic
	Model 70160 Pump and
	2 Model 74118 Motors
Transaxles.....	Peerless 2600 Series 2-speed
Steering.....	Hydraulic power steering
Parking Brake.....	Disc type

Fuel System:

Tank capacity.....	8 Gallons
Fuel Pump.....	Diaphragm (Kohler)
	Electric (Kubota)

Electrical:

Starting.....	12 volt, Key switch
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Battery.....	12 volt
Charging.....	40 Amp (Kubota)
	45 Amp (Kohler)

Tires:

Traction Type.....	22 x 12.0-10, Field Trax
	21 x 11.0-10, Lug
Turf Type, optional.....	22 x 10.0-10, Grassmaster

Dimensions:

Overall Width.....	44.5"
Overall Length.....	86"
Overall Height.....	73.25"
Wheelbase.....	43.5"
Inside Turning Radius.....	44"
Weight (Kohler).....	1490 lbs.
Weight (Kubota).....	1152 lbs.

Speeds:

Forward:	
(Traction Type Tires) ...	0-10.5 MPH (high range)
	0-5.25 MPH (low range)
Reverse	
(Traction Type Tires) ...	0-5.3 MPH (high range)
	0-2.8 MPH (low range)

1. PTO ELECTRIC CLUTCH SWITCH - The PTO switch controls the front drive belt (Power Take Off or PTO) that supplies power to attachments. Pull the switch out to engage the PTO and start an attachment. Push the switch in to disengage the PTO and stop the attachment.

- Disengage the PTO whenever you stop or leave the operator's position.
- Shut off the engine with the key before making adjustments or unplugging a clogged attachment.
- Do not engage the PTO until you are ready to start operating the attachment.

2. KEYSWITCH

Gasoline engines: The key switch has three positions OFF, RUN, and START. Insert the key and turn it clockwise to move the switch from OFF to RUN. Turn it further to START and hold to engage the starter. Release the key and the switch will return to RUN from START. Turn the key counterclockwise to OFF to stop the engine.

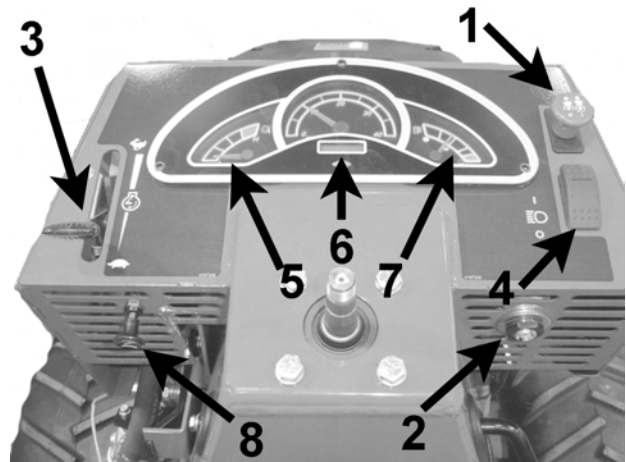
Diesel Engines: The key switch has four positions PREHEAT, OFF, RUN, and START. Insert the key and turn it counterclockwise to move the switch from OFF to PREHEAT until the glow plug indicator lights. Release the key and the switch will return to OFF. Turn the key clockwise to move the switch from OFF to RUN. Turn it further to START and hold to engage the starter. Release the key and the switch will return to RUN from START. Turn the key counterclockwise to OFF to stop the engine.

3. THROTTLE LEVER

Move the throttle lever forward to increase engine speed until the maximum governed engine rpm is reached. Move the lever rearward to decrease engine speed until the engine reaches its idle speed.

4. LIGHT SWITCH

Rock the switch forward to turn the lights on. Rock it rearward to turn the lights off.



5. WATER TEMPERATURE GAUGE- Water cooled engines only.

Displays engine coolant temperature.

VOLTMETER-

Air cooled engines only.

Displays electrical system voltage.

6. TACHOMETER AND HOUR METER

Displays engine rpm and accumulated engine operating hours.

7. FUEL GAUGE

Displays fuel level in fuel tank.

8. CHOKE

Gasoline engines only. Pull the choke control out to set the choke "ON". Push it in to set the choke "OFF".

9. AUXILIARY HYDRAULIC LEVER

Controls flow of hydraulic oil to hydraulic device connected to auxiliary hydraulic couplers. This allows extension or retraction of a hydraulic cylinder, or rotation of a hydraulic motor. There are four positions; HOLD, RAISE, LOWER, and FLOAT. Moving the lever forward from the hold positions lowers the attachment, moving it farther forward locks the lever into the detented FLOAT position that allows a cylinder to float or follow terrain. To raise an attachment move the lever to the rear to the RAISE position. If a function performs the opposite direction of what is intended, reverse the hoses connected to the auxiliary ports.

10. HYDRAULIC FRONT LIFT LEVER

Controls the vertical position of the front attachment hitch. There are four lever positions; HOLD, LOWER, FLOAT, and RAISE. Moving the lever forward from the hold positions lowers the attachment, moving it farther forward locks the lever into the detented FLOAT position. Mower decks should be run in this position as it allows the deck to follow terrain. For attachments where down pressure is desired, do not move the lever into the FLOAT position. To raise an attachment move the lever to the rear to the RAISE position.

11. STEERING WHEEL

Steers the machine. Turning the steering wheel causes the frame to bend in the middle to turn the machine. Turning the wheel clockwise effects a right hand turn, counterclockwise a left hand turn.

12. TRANSAXLE RANGE SELECTOR LEVER

Selects transaxle speed range.

For LO range: Move the lever to the upper position, where it will rest on top of the stop.

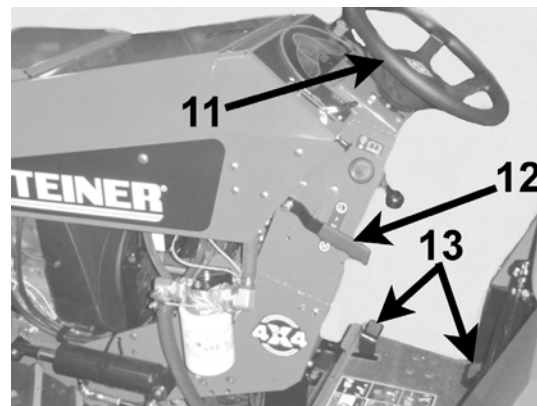
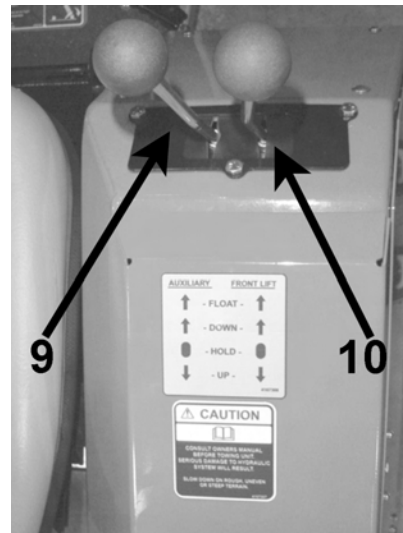
For HI range: Move the lever to the lower position, where it will be under the bottom of the stop.
See page 18 for HI-LO Range selection information.

13. FORWARD-REVERSE FOOT PEDAL

Controls infinitely variable forward and reverse speeds.

NOTE: To operate the foot pedal the parking brake must be released.

- FORWARD: Place the ball of your foot on the front pedal, and slowly press downward. The farther the front pedal is pushed down, the faster the machine will travel up to its maximum speed.



- REVERSE: Place the heel of your foot on the rear pedal, and slowly press downward with your heel. The farther the rear pedal is pushed down, the faster the machine will travel up to its maximum speed.

NOTE: For best control on rough terrain:

- When traveling forward, place your heel on the floor plate.
- When traveling in reverse, place the front of your foot on the floor plate.

NOTE: Single Pedal Kit (75-71211) single piece pedal is available for frequent forward and reverse machine movement.

14. FRONT HITCH RELEASE LEVER

Rotate up and back to unlatch quick hitch to allow disconnecting attachment from tractor. Rotate forward and down to latch the attachment to the tractor.

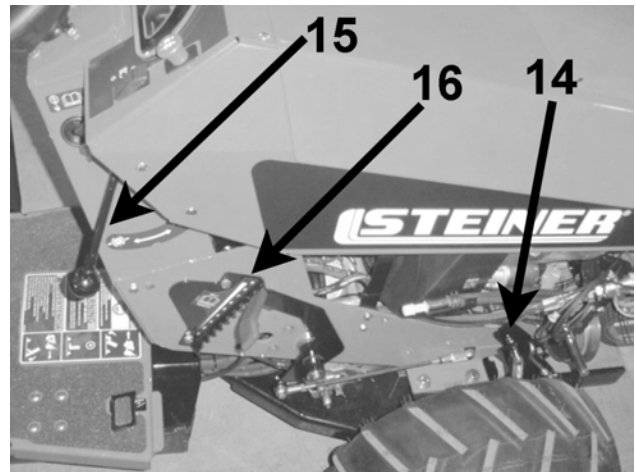
15. PARKING BRAKE LEVER

(On right side)

Pull lever to engage parking brake. Push lever forward to disengage parking brake.

16. BELT TENSION ADJUSTMENT LEVER

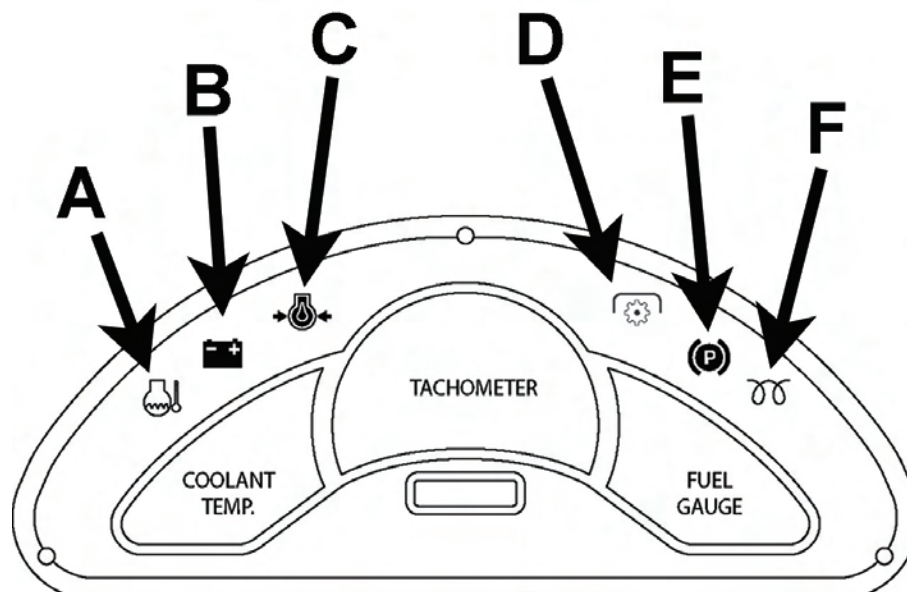
Adjusts the PTO Belt Tension. Adjust the belt tension after every attachment installation.



DASH INDICATOR LIGHTS

ITEM	SYMBOL	COLOR	INDICATES
A	HI TEMP	RED	HIGH ENGINE TEMP.
B	ALTERNATOR	RED	NO CHARGE
C	OIL PRESSURE	RED	LOW ENGINE OIL PRESSURE
D	PTO	AMBER	PTO ENGAGED
E	PARKING BRAKE	RED	PARKING BRAKE ON
F*	GLOW PLUG*	AMBER	WAIT TO START-PREHEATING

*Glow plug used on Diesel engine only. Indicates glow plugs not heated enough for a cold engine to start. When light is out engine is preheated.



FUELING

- GASOLINE: Fill tank with clean, fresh, regular or unleaded fuel.
- DIESEL: Fill tank with clean, fresh No. #2 diesel fuel. In extreme cold temperatures No. #1 diesel fuel may be used. **Do not use kerosene or damage to engine may result.** Refer to engine manual for fuel bleeding instructions.
- Use a funnel to avoid spillage.

DANGER

NEVER FILL FUEL TANK WITH THE ENGINE RUNNING.
ENGINE OIL

Refer to the engine manual for oil specifications.

TRANSAXLE HYDRAULIC OIL

Fill transaxle to the safe range with Steiner hydraulic oil (Benzoil THL 303D Tractor Hydraulic Fluid.) **Do not use automatic transmission fluid, motor oil, or any other type of hydraulic oil.**

If the oil level is below the "LOW" level in the expansion tank, add Steiner Hydraulic Oil up 1" above the "LOW" level See page 25.

NOTE:

THE USE OF ANY OIL OTHER THAN STEINER TRANS-HYDRAULIC OIL (BENZOIL THL 303D TRACTOR HYDRAULIC FLUID) IS NOT RECOMMENDED. IF A SUBSTITUTE OIL CAUSES OR SUBSTANTIALLY CONTRIBUTES TO A FAILURE, THAT FAILURE MAY NOT BE COVERED BY WARRANTY.

CAUTION

BE ALERT! STOP RUNNING THE UNIT AT THE FIRST SIGN OF ANY ABNORMAL HYDRAULIC FUNCTION. SERIOUS DAMAGE TO THE HYDRAULIC SYSTEM CAN RESULT!

COOLANT

Use only commercial grade antifreeze (for cast iron liquid cooled engines) and deionized water in a 50/50 mix. Mix outside of engine. Don't mix Propylene Glycol and Ethylene Glycol.

BEFORE STARTING THE ENGINE

- **READ SAFETY DECALS.**
- Be familiar with all controls, how each functions and what each operates.
- Check engine and transaxle oil levels and add if necessary.
- Visually check tires.
- Visually check for loose or missing parts or bolts.
- Check coolant level. (Kubota)
- Check fuel level.

STARTING THE ENGINE

1. To start the engine: Forward - Reverse foot pedal must be in NEUTRAL, the PTO must be OFF and the parking brake engaged.
2. Open throttle approximately one-fourth of its travel.
3. GASOLINE ENGINES: Pull choke.
DIESEL ENGINE: Turn key counterclockwise to "preheat" until indicator light goes off. No "preheat" is required when the engine is warm.
4. Turn the key to operate the electric starter to start the engine. Release the key when the engine starts.
5. If the engine does not start immediately, do not crank for more than 10 seconds at a time. Allow 60 seconds for the starter motor to cool down between starting attempts to prevent the starter motor from burning out.
6. Warm up engine at low to medium speed with no load for several minutes. See Engine Manual.
7. If the choke is "ON" when the engine starts, gradually back it off until the engine runs with no choke at all.
8. In cold weather, allow the hydraulic oil to warm up a few minutes at medium engine speed before using tractor.
9. Check to see that the oil pressure lamp and charge lamp are off. If the lamps are on, immediately stop the engine, and determine the cause.

CAUTION

NEVER USE ETHER AS A STARTING AID, SEVERE ENGINE DAMAGE MAY OCCUR.

OPERATING NOTES

- **OBSERVE SAFETY DECALS.**
- Practice at slow engine and travel speeds with the PTO off until fully familiar with the controls.
- Do not operate mower with other persons in the area. Irregularities in ground surface can permit foreign material to be propelled from beneath deck to cause serious injury or death.
- Before leaving operator's seat, disengage PTO, set PARKING BRAKE and STOP ENGINE.
- Remove key from ignition if maintenance procedures are to be performed or tractor is to be left unattended.
- Tire pressures are very important! Check tire pressures according to Service Chart on page 20.

CAUTION

Slow down on rough, uneven or steep terrain and for operation of power driven mounted attachments.

CAUTION

Stop running the unit at the first sign of any abnormal hydraulic function. Serious damage to the hydraulic system can result.

CAUTION

Rear weights must be used with attachments over 120 pounds for stability. See attachment operator's manual for weight requirements.

Always remove all rear weights when front mounted attachments are removed, or when using attachments less than 120 pounds, to reduce the possibility of unit tipping over backward while climbing steep slopes or loading ramps.

TIRE BALLAST

Liquid, foam, rubber or powder ballast in tires causes excess loads on the drive train. **Failures caused by excess loading may not be covered by warranty.**

Modified or makeshift weights are not acceptable.

MAXIMUM ENGINE INCLINATION RECOMMENDATIONS

See page 7 Operating on Slopes, to ensure safe operation. When using an engine in an inclined position continuously, the following points must be remembered:

- The effective volume of the fuel tank becomes less, so air suction must be prevented.
- The effective volume of the engine oil sump is reduced, increasing the possibility of improper engine lubrication.

POSITION	LESS THAN 10 MINUTES CONTINUOUS OPERATION	CONTINUOUS OPERATION
FRONT UP	30°	25°
FRONT DOWN	30°	25°
LEFT OR RIGHT SIDE DOWN	30°	25°

DRIVING

1. Select desired engine speed with the throttle. For power driven attachments, the engine is normally run at maximum RPM.
2. Vary vehicle speed with the Forward - Reverse foot pedal. If the attachment or a steep slope causes excessive drop in engine RPM; reduce ground speed. **Do not lug the engine at reduced RPM.**
3. Operate mower and other similar front mounted attachments with front lift lever in "FLOAT" position.
3. Safety seat switch requires operator to be seated when PTO is "ON" or engine will stop. Disengage PTO before attempting to start engine.
4. The hydrostatic transmission provides a braking action when the Forward - Reverse foot pedal is returned to neutral.
5. Set parking brake and stop engine before dismounting.
6. **DO NOT TOW!** Serious damage to hydraulic system will result. See below for emergency moving instructions.

HIGH-LOW RANGE SELECTION

The units are shipped with the transaxle gear range selector in HIGH (H) range. This range selection is recommended for most of the operating tasks. If slower speeds and more responsive F-R control is needed, use LOW (L) range selection.

EMERGENCY TOWING INSTRUCTIONS FOR A STALLED UNIT

1. Both transaxles must be in neutral before moving a stalled unit. Neutral position is between HIGH (H) and LOW (L) range position.
2. Move the transaxle range selector lever to the Neutral (N) position.
Failure to shift transaxles into "Neutral" will cause serious damage to the hydrostatic system.

INSTRUCTIONS FOR TRANSAXLE RANGE SELECTION

Do not attempt to select ranges on slopes or when the unit is traveling. Select ranges only when unit is stopped on level surfaces.

1. Stop the unit on a level surface and set PARKING BRAKE.
2. To move the transaxle range selector lever from high (H) to low (L), grasp the lever and pull outwards on the lever until the lever rests on top of the center stop.

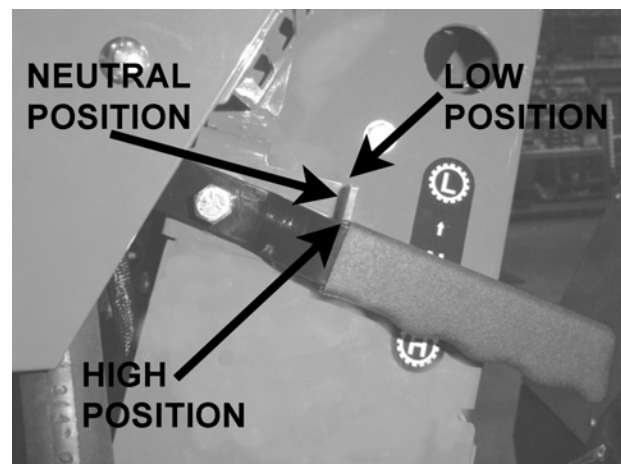
NOTE: The tractor may require a rocking motion so that the disengagement of the gears and the re-engagement of the gears/alignment occurs.

CAUTION

BE SURE TO SHIFT BOTH TRANSAXLES SHIFT INTO THE SAME RANGE OR SERIOUS MECHANICAL DAMAGE WILL RESULT!

3. Reverse the procedure to go from low (L) to high (H).

NOTE: The lever does should rest against the center stop as shown.



PTO BELT DRIVE

A belt drive is provided for power transfer to attachments.

⚠ CAUTION

DO NOT ENGAGE THE PTO CLUTCH WITH THE ENGINE AT FULL THROTTLE ALWAYS REDUCE ENGINE RPM BEFORE ENGAGING PTO. STARTING HEAVY LOADS AT FULL THROTTLE WILL SHORTEN CLUTCH AND BELT LIFE

When no attachment is installed, move the PTO lever to the top notch for greater operator comfort.

The attachment drive belt is installed around the left hitch arm before the attachment is connected to the front lift Quick Hitch (Figure 1).

To install the drive belt:

1. Pull up on the Hitch Control Handle **B** to open latches. Install the attachment to the front lift. Push down on Hitch Control Handle to lock latches.
2. Stop the engine and release the belt tension adjustment lever **A** by pulling the lever out away from the unit and pushing it down past the #1 adjustment notch.
3. Install the attachment drive belt on the outside double idler pulley **C**.
4. Lift up on the adjustment lever **A** until the slack is out of the belt.

⚠ WARNING

DO NOT ATTEMPT TO INSTALL BELTS OR MAKE BELT ADJUSTMENTS WITH THE ENGINE RUNNING.

5. PROPER TENSION IS VERY IMPORTANT

The proper tension setting is obtained by moving the belt tension adjustment lever **A** one notch after all slack is taken out of the drive belts. If drive belt slips tighten one additional notch.

6. The PTO clutch is engaged or disengaged with the push/pull switch located on the dash. Engage the PTO clutch with the engine at approximately 1/2 throttle.

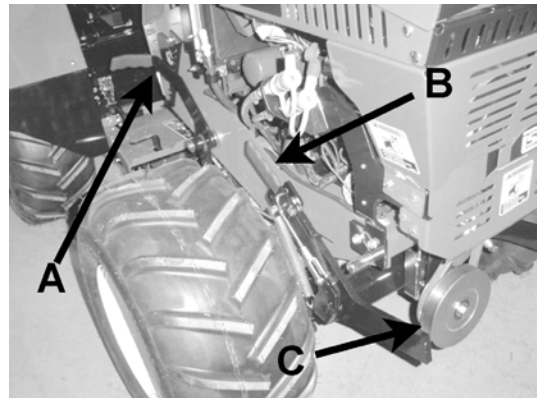


Figure 1

NOTE: THE OPERATOR MUST BE SEATED FOR THE PTO CLUTCH TO OPERATE. DO NOT ATTEMPT TO BYPASS THIS SAFETY DEVICE.

AUXILIARY HYDRAULICS

The auxiliary valve and quick couplers are standard equipment. Keep dust covers in place when couplers are not in use. Float position is provided for those attachments which require float.

STOPPING THE ENGINE...COOL DOWN PROCEDURE

Run at reduced throttle for several minutes, then shut down. See engine manual.

SERVICE CHART	DAILY	EVERY 25 HOURS	EVERY 50 HOURS	EVERY 100 HOURS	EVERY 250 HOURS
Read safety decals.	X				
Check fuel level.	X				
Check engine oil level.	X				
Check coolant level. (Liquid cooled engines only)	X				
Visual inspection of:					
Bolts and fittings for signs of loosening.	X				
Accumulation of dirt or foreign matter around engine, restricting engine cooling.	X				
Oil leaks or hydraulic hoses, belts, electrical wiring, showing signs of wear.	X				
Tires for low pressure or signs of abnormal wear.	X				
Change engine oil and filter:					
Kohler engine: Initial change at 5 hours Kubota engine: Initial change at 35hours	Refer to the engine manufacturer's manual for oil and filter change intervals after initial change.				
Check air cleaner:					
Clean or replace. (More frequently in dusty conditions.)			X		
Check battery water level:					
If battery is serviceable, fill to cover the plates 1/4".				X	
Transaxles:					
Check transaxle oil level.	X		X		
<i>Use only Steiner Hydraulic oil (Benzoil THL303D tractor hydraulic fluid) Fluid. Do not use automatic transmission fluid or motor oil.</i>					
Initial hydraulic oil filter change at 25 hours.					
Change hydraulic oil and filter every 250 hours, or annually (whichever occurs first).					X
Replace hydraulic oil and filter every 250 hours, or at the first sign of abnormal hydraulic function.					X
Fuel system:					
Check or replace filter.				X	
Lubrication:					
Grease PTO slider bracket pivot, double idler pivot, PTO tensioner arm pivot, mid frame pivot, lower pivot straps, lift cylinder pivot, foot pedal, saddle, and rod.		X			
Use chain lube, WD-40 or light motor oil on all pivot points, hood hinges, tie rod ends, center link, etc.		X			
Grease drive shaft U-joints, centerpivot and PTO idler arm			X		
Check tire pressure:					
Air Pressure- 5 to 8 lbs. (Duals 3 to 4 lbs.) Outside Duals should have nomore than 50% of the inner tire pressure			X		
Storage:					
Drain fuel tank.					
Maintain proper tire pressure.					
Remove battery and maintain charge.					
Grease exposed cylinder shafts of fully retract cylinder.					

CAPACITIES CHART*	
CAPACITY OF:	QUANTITY
Engine Oil (Kubota Gas)	3 U.S. Quarts (2.8 liters)
Engine Oil (Kubota Diesel)	3.9 U.S. Quarts (3.7 liters)
Engine Oil (Kohler)	2.9 U.S. Quarts (2.8 liters)
Engine Coolant (Kubota Gas)	3.3 U.S. Quarts (3.1 liters)
Engine Coolant (Kubota Diesel)	3.3 U.S. Quarts (3.1 liters)
Fuel Tank	8.0 U.S. Gallons (30.3 liters)
Hydraulic Oil (Front Axle)	6.0 U.S. Quarts (5.7 liters) See page 25.
Hydraulic Oil (Rear Axle)	6.0 U.S. Quarts (5.7 liters) See page 25.
Expansion Tank	1.5 U.S. Quarts (1.4 liters) See page 25.

*APPROXIMATE QUANTITIES

CHECK DAILY

Operator Presence Interlock System - Start Operation

For the engine to crank, the parking brake must be on, locking the Forward-Reverse foot pedal in neutral and the PTO off. The engine should not crank with the PTO on, or the parking brake off while sitting in the seat.

Operator Presence Interlock System - Run Operation

The operator must be in the seat for the engine to run with the PTO on.

To check:

- 1. Start the engine and run at 1/2 throttle with the operator on the machine but raised off the seat.
- 2. Turn the PTO on. This check should kill the engine after 1/2 second.

Repair machine before using if the Operator Presence Interlock System does not operate correctly in start or run. Contact your authorized Schiller Grounds Care, Inc. dealer.

Hardware

Tighten any nuts and bolts found loose. Replace any broken or missing cotter pins. Repair any other problems before operating.

Hydraulic System

Check fluid level at expansion tank, when fluid is cold. Check for leaks and repair before operating.

Tire pressure

Tire pressures are important! Check tire pressures according to the Service Chart on page 20.

Battery



Battery acid is caustic and fumes are explosive and can cause serious injury or death.

Use insulated tools, wear protective glasses or goggles and protective clothing when working with batteries. Read and obey the battery manufacturer's instructions.

Be certain the ignition switch is "OFF" and the key has been removed before servicing the battery.

- 1. Verify battery polarity before connecting or disconnecting the battery cables.
- 2. When installing the battery, always assemble the RED, positive (+) battery cable first and the ground, BLACK, negative (-) cable last.

- 3. When removing the battery, always remove the ground, negative (-) cable first and the red, positive (+) cable last.
- 4. Check the electrolyte level every 100 hours of operation.
- 5. 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.
- 6. 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.

ENGINE

Do not perform engine maintenance without the engine off, spark plug wires (gasoline engines) disconnected and PTO disengaged.

NOTE:

THE USE OF ANY ENGINE OIL FILTER OTHER THAN THOSE SPECIFIED BY THE ENGINE MANUFACTURER IS NOT RECOMMENDED. IF A NON-GENUINE PART CAUSES OR SUBSTANTIALLY CONTRIBUTES TO A FAILURE, THAT FAILURE MAY NOT BE COVERED BY WARRANTY.

ENGINE OIL AND FILTER CHANGE PROCEDURE

While the engine is warm:

1. Release the oil drain hose assembly from the engine clip **J**.
KUBOTA: Route the line through the frame to allow proper drainage.
KOHLER: Route to the front of the unit to allow proper drainage.
2. Remove the rubber cap **D** from the tip of the hose assembly and open the drain valve to allow oil to drain from the engine. Dispose of used oil in accordance with local requirements.
3. Clean and close the drain valve. Replace rubber cap **D** over the tip of the valve. Replace hose assembly back into engine clip **J**.
4. Change oil filter.
5. Fill the crankcase with fresh oil to the full mark. Do not overfill. See engine manual for oil specifications.

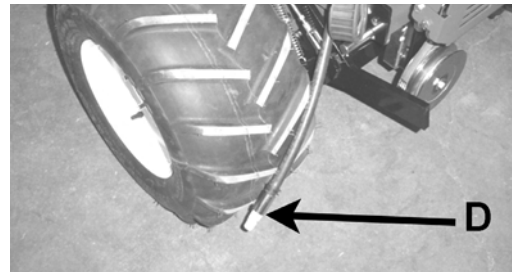
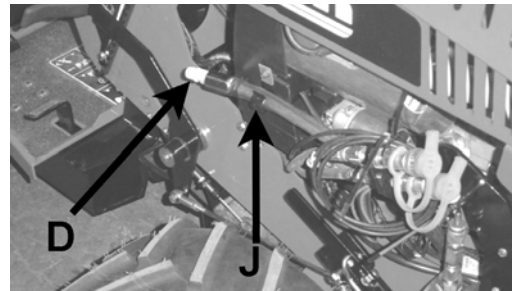
DAILY

1. Check oil level with the dipstick.
2. If oil is needed, add fresh oil of proper viscosity and grade. Refer to engine manual for oil specifications. Do not overfill.
3. Replace dipstick before starting engine.

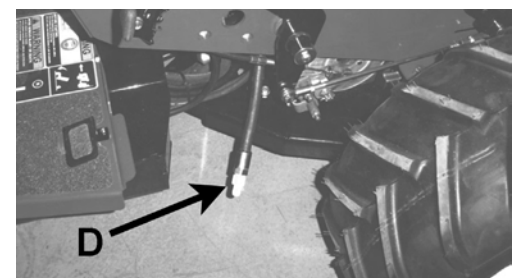
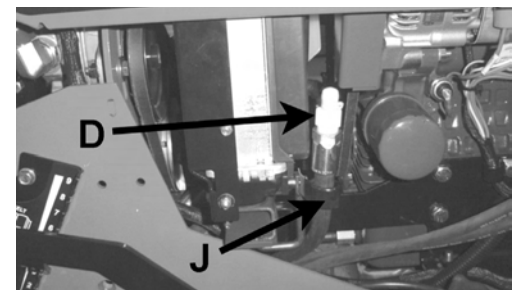
PERIODIC OIL CHANGES

1. Refer to the engine manual for oil and filter change intervals.

KOHLER



KUBOTA



FUEL FILTERS

- Use only O.E.M. brand filters.
- Buy your fuel from a reputable supplier. Recommended gasoline is 87 octane. Recommended diesel fuel is No. 2. Store your fuel properly - keep moisture out.
- Shelf life of fuel is about 3 months - gasoline and diesel.
- Store fuel in proper, clean containers.
- Be aware there is a shelf life on fuel.

AIR FILTERS

See engine manual for cleaning /replacement intervals and servicing.

- Install filters properly, do not over tighten and deform element.

Kohler

- Keep an extra foam wrap oiled and ready - Can keep the extra foam wrap in tool box.

Kubota

- Don't over service, remove end cap only to clean out dust. Don't tap dirt out.
- Don't blow out with compressed air.
- Check intake hoses and fittings for damage or leaking.

COOLING

- Keep chaff screen clean. - Air cooled and liquid cooled.
- Keep engine block clean. Grass, dirt, misc. debris will act as an insulator.
- Do not pressure wash a hot or running engine.
- Keep radiators clean. - Do not use high pressure air or washers to clean. Use only low air or water pressure. Blow directly through fins and not on an angle so as not to damage or close fins.
- Use only commercial grade antifreeze (for cast iron liquid cooled engines) and deionized water in a 50/50 mix. Mix outside of engine. Don't mix Propylene Glycol and Ethylene Glycol.
- Do not remove thermostat.

NOTE:

THE USE OF ANY AIR FILTER, OIL FILTER OR ENGINE OIL FILTER OTHER THAN THOSE SPECIFIED BY THE ENGINE MANUFACTURER IS NOT RECOMMENDED. IF A NON-GENUINE PART CAUSES OR SUBSTANTIALLY CONTRIBUTES TO A FAILURE, THAT FAILURE MAY NOT BE COVERED BY WARRANTY.

HYDRAULIC SYSTEM

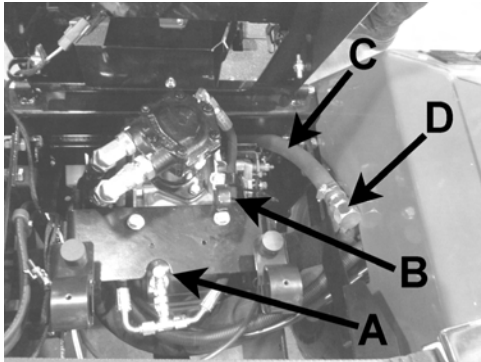
NOTE:

THE USE OF ANY OIL OTHER THAN STEINER TRANS-HYDRAULIC OIL (BENZOIL THL303 TRACTOR HYDRAULIC FLUID) IS NOT RECOMMENDED. IF A SUBSTITUTE OIL CAUSES OR SUBSTANTIALLY CONTRIBUTES TO A FAILURE, THAT FAILURE MAY NOT BE COVERED BY WARRANTY.

1. Keep system filled with proper fluid.
 - Check expansion tank level daily.
 - Check when oil is cold.
 - Use only clean containers. Keep it clean!
 - Do not fill expansion tank more than 1" above the low oil level to allow for hot oil expansion.
2. Keep oil and filter changed.
 - Initial filter change 25 hours, then oil and filter change at 250 hours.
 - Change oil and filter every 250 hours thereafter or annually. (whichever occurs first)
 - Change oil when warm (not hot).
 - Make sure filter is primed.
 - Use only O.E.M. filter and Schiller Grounds Care, Inc. fluid or Benzoil THL303 Tractor Hydraulic Fluid.
 - Check oil level after 30 minutes of operation.
 - Do not over tighten drain plug.
 - Make sure filter is tight.
 - Change hydraulic oil and filter at the first sign of abnormal hydraulic functions.
3. Check for leaks daily (Never operate a unit if a leak is detected).
 - Inspect hoses for leaks or chafing.
 - Inspect fittings and hose ends for seepage.
4. Keep tractor/unit clean.
 - Keep auxiliary hoses and couplers clean and plugged.
 - Grass and debris will hold in heat.
 - A clean unit is easier to work on and safer to operate. And it is easier to do regular checks.
 - See your dealer for a high pressure filter of the entire system if drive system has been opened (such as hoses removed, pump or motors removed).

TRANSAXLE OIL LEVELS

Fill oil expansion tank to low level or 1" above when cold.



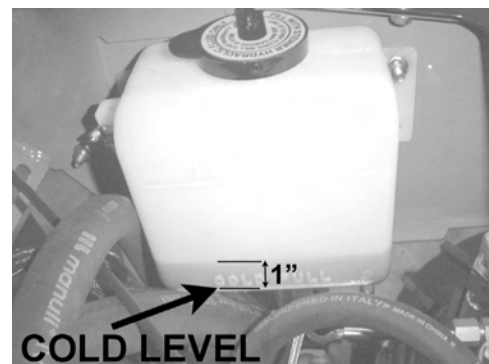
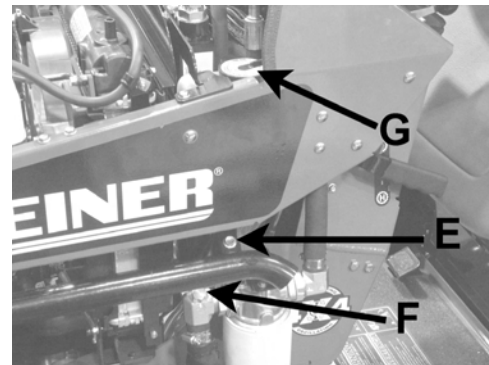
TRANSAXLE OIL CHANGE PROCEDURE

Change oil and filter at any time contamination is suspected. Approximately 11.5 quarts of approved hydraulic oil are needed to change oil.

1. Lift seat and remove vent cap (A).
2. Remove full hose (C) from clamp (B) and orientate so any oil in hose will not leak out.
3. Remove fill hose cap (D).
4. On left side front of tractor, remove bolt (E) from air intake hose and move aside.
5. Remove fill port cap (F) from filter head fitting.
6. Remove drain plugs (not shown) from front and rear transaxles.
7. Allow the oil to drain.
8. Remove hydraulic oil filter and wipe filter base clean.
9. Fill the new O.E.M. hydraulic filter with approximately .82 quarts of hydraulic oil and lube the filter gasket.
10. Install the new hydraulic oil filter. Tighten 3/4 to 1 turn after gasket makes contact with the filter base. Do not overtighten.
11. Re-install drain plugs in both transaxles.
12. Fill front transaxle through filter head fitting with approximately 6 quarts of oil.
13. Reinstall port cap (F) to the filter head.
14. Reinstall the air intake hose with bolt (E).
15. Fill the rear transaxle through the fill tube with approximately 1.25 quarts of oil. Replace the fill port fitting.

NOTE: You may need to fill the tank multiple times and allow to drain.

16. Reinstall vent cap (A), fill hose cap (D) and fill hose (C) to clamp (B).
17. Fill the expansion tank (G) to approximately 1" above the cold line.
18. Run engine, and turn steering wheel extreme right to extreme left several times to purge all air from the circuit.
19. Drive the unit back and forth about 50 feet to purge air from the drive circuit.
20. Repeat steps 17-20 as needed to purge all air from system.



HYDROSTATIC TRANSMISSION

⚠ CAUTION

When servicing any part of the hydrostatic system, observe clean shop practices. A small amount of contamination in the high pressure circuit will cause damage to the system. Improper hoses can cause injury. See your Schiller Grounds Care, Inc. dealer for quality service parts and service of the high pressure hydrostatic system.

LUBRICATION

- Grease all fittings as recommended on Service Chart on page 20.
- Lubricate all pivots points after washing.

FRAME

1. Check for loose or missing fasteners after first 10 hours. - Every 100 hours thereafter.
 - Torque transaxle mount bolts 60 - 90 ft. lbs.
 - Torque all standard hardware bolts to standard grade 5 spec.
 - Steering cylinder mount bolts, torque to 96 ft. lbs.
 - Center link bolts, torque to 96 ft. lbs. Tighten 1" center bolt to 350 ft. lbs.
 - Torque ROPS bolts to 80 ft. lbs. Do not cut, weld, drill or modify roll bar in any way. Replace if roll bar becomes bent or damaged.
2. Do not remove guards, shields or lock straps.
 - Repair or replace any broken parts.
 - Keep frame parts clean, it makes it easier to find loose or broken parts.
 - Wash after each use around fertilizer, manure, etc., to prevent corrosion.
3. Keep parking brake adjusted properly.
 - Ensure that brake holds unit from creeping. See parking brake adjustment section page 28.

WHEELS AND TIRES

- Use only factory recommended wheels and tires.
- Tire pressure can be increased with heavy attachments to reduce tire "bulge."
- Never use different sizes in any combination.
- Maintain proper air pressure.
- Do not load tires with ballast or use wheel weights.
- Tire sealer may be used.
- Be sure dual wheels are installed correctly and the tire pressures are correct.
- Duals must be checked for tightness every day until they are seated in. Torque center bolt to 80 ft. lbs.
- Avoid close operating conditions with duals installed.
- Check lug nuts for torque.... 85 ft. lbs.
- Seal beads with Permatex Liquid Sealer.

ELECTRICAL SYSTEM

- Do not bypass or eliminate safety devices.
- Keep all electrical connections clean and dry.
- Do not add extra electrical equipment.
- If wire replacement is necessary, replace with the same gauge and color code.
- Make certain there is a ground strap between engine and frame.
- Follow recommended jump starting procedures.
- Use only factory recommended size batteries.
- Make a periodic visual inspection of all wiring to ensure it is not damaged.
- Maintain battery by keeping terminals and top of battery clean.

PTO AND BELTS



DO NOT ATTEMPT TO INSTALL BELTS OR MAKE BELT ADJUSTMENTS WITH THE ENGINE RUNNING.

It is necessary to check the PTO belt adjustment:

- Every time attachments are changed.
- If the PTO drive belt slips or does not release properly.

BELT DRIVE

- Steiner belts are recommended. (See Belt Chart on page 31 for sizes). Steiner specification belts are Aramid fiber reinforced to take back bend and retain a consistent Length to keep belt to pulley geometry consistent.
- Check for excessive play in the single idler pulley pivot. Replace bearings if necessary.

PROPER TENSION IS VERY IMPORTANT

The proper tension setting is obtained by moving the belt tension adjustment lever **D** one notch after all slack is taken out of the drive belts. If drive belt slips tighten one additional notch.

NEUTRAL ADJUSTMENT

Absolute neutral is when the tractor will not creep with the engine running and the Forward - Reverse foot pedal in neutral.

If the unit creeps it is necessary to adjust the NEUTRAL LINKAGE.

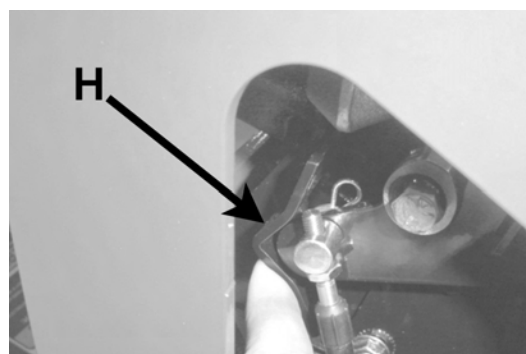
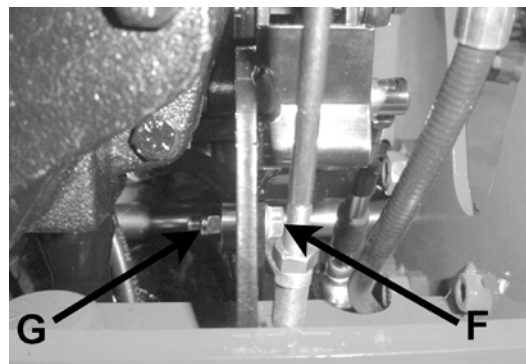
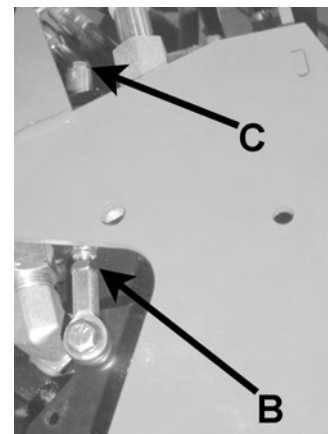
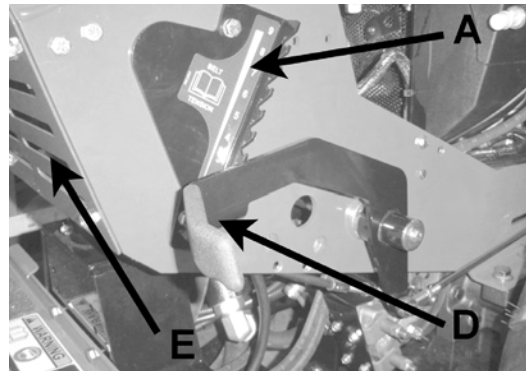
If the unit makes a whining noise when the parking brake is engaged, it is necessary to adjust the NEUTRAL LOCK.

NEUTRAL LINKAGE ADJUSTMENT

1. Remove the top bolt on the PTO Adjustment Bracket **A** located on the right side of unit. Loosen the bottom bolt and swing the bracket out of the way.
2. Loosen the jam nut **B**.
3. Turn the adjustment bolt **C** until the desired setting is reached.
Lengthen bolt if unit creeps forward.
Shorten bolt if unit creeps backward.
4. Tighten the jam nut **B** when neutral setting is correct.
5. See Neutral Lock Adjustment.

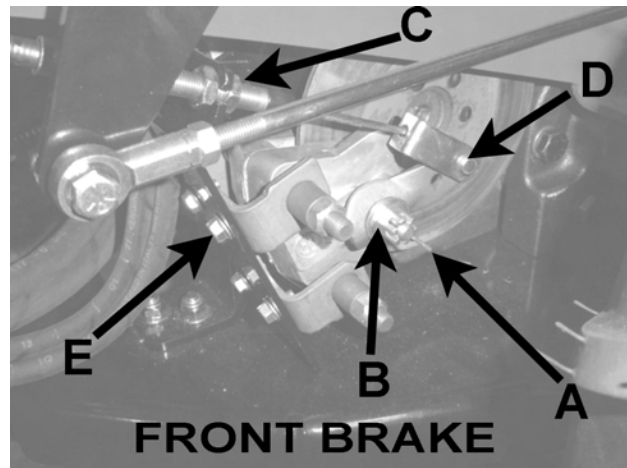
NEUTRAL LOCK ADJUSTMENT

1. Place the unit into neutral and release the parking brake.
2. Remove the pump cover **E**, located under the steering wheel.
3. Remove the top bolt on the PTO Adjustment Bracket **A** located on the right side of unit. Loosen the bottom bolt and swing the bracket out of the way.
4. Loosen bolt **F** and nut **G**.
5. Push the lock plate **H** to center it as show and retighten nut **G** and bolt **F**.
6. Replace PTO adjustment bracket **A** and hardware. Verify all hardware is tight.



FOOT PEDAL ADJUSTMENT

1. Turn off unit and set the parking brake.
2. Remove 4 bolts securing floor plate.
3. Raise the floor plate on the pedal side loosen LH and RH jam nut on connecting rod.
4. Turn rod until desired pedal position is reached.
Increase rod length to increase the distance between the forward pedal and the floor plate.
Decrease the rod length to decrease the distance between the forward pedal and floor plate.
5. Tighten jam nuts. Reinstall 4 bolts to secure floor plate.



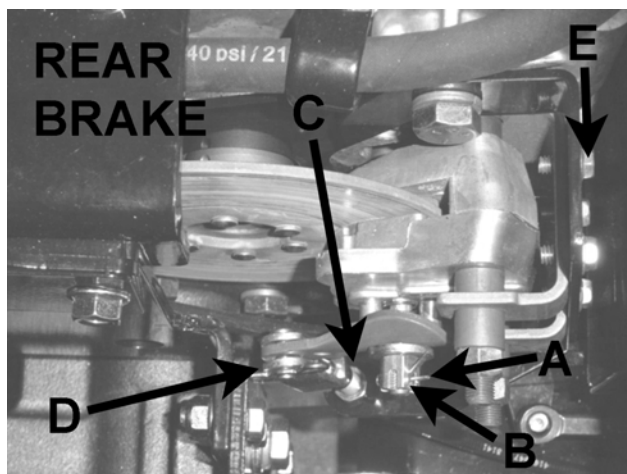
PARKING BRAKE ADJUSTMENT

The parking brake is a dry disc type located on the front and rear transaxle. As the friction pads wear it may be necessary to adjust the brake.

NOTE: Check brake disc periodically to ensure it will float on the brake shaft. Remove and coat with anti-seize annually.

CALIPER ADJUSTMENT:

1. Release the brake and remove the cotter pin **A** from the adjusting nut.
2. Tighten the adjusting nut **B** carefully until the disc cannot be moved by trying to rotate the side by hand, then back off just far enough to allow the disk to move freely.
3. Align nut **B** and reinstall cotter pin **A**.



PARKING BRAKE LEVER ADJUSTMENT:

1. Remove the clevis pin **D** to disconnect the brake cables .
5. Verify the brake equalizer plate is level within 1/2". If not adjust brake cables, using jam nuts **C** until it is level.
6. Adjust brake cables using jam nuts **C** until the parking brake lever applies with approximately 5-10 lbs. of force.

1. Remove the clevis pin **D** to disconnect the brake cables.
2. Remove the 4 bolts **E** that hold the caliper to the mounting bracket.
3. Slide the caliper and rotor off the shaft as the same time.
4. Remove the caliper and replace the brake pads.
5. Reassemble caliper and rotor on shaft, reinstall bolts, and reconnect the brake cables.
6. Adjust parking brake.

BRAKE PAD REPLACEMENT:

THROTTLE ADJUSTMENT

KOHLER GAS & KUBOTA DIESEL:

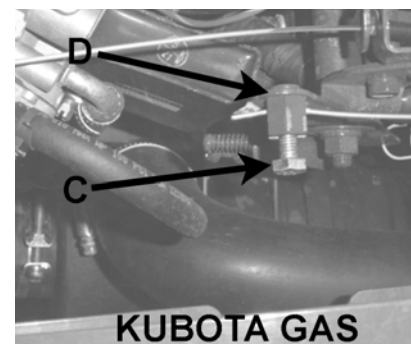
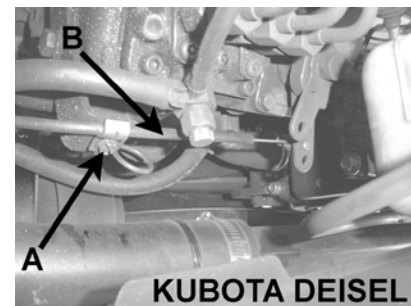
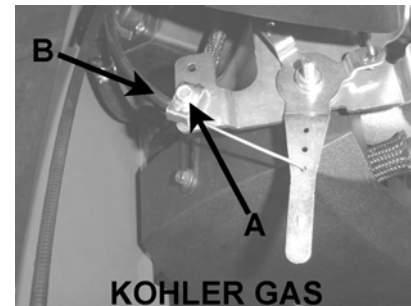
1. Push throttle lever all the way forward to open throttle.
2. Loosen Cable clamp **A**.
3. Pull on cable **B** to remove any slack.
4. Reinstall cable clamp **A**.
5. Pull throttle lever all the way back and verify that the throttle reaches the stop. If not readjust.

KUBOTA GAS:

1. Push throttle lever all the way forward to open throttle.
2. Loosen bolt **C**.
3. Pull throttle arm **D** to the high idle stop.
4. Tighten bolt **C**.
5. Pull throttle lever all the way back and verify that the throttle reaches the stop. If not readjust.

ENGINE	LOW IDLE	HIGH IDLE
KOHLER GAS	1800 RPM	3600 RPM
KUBOTA GAS	1400 RPM	3600 RPM
KUBOTA DIESEL	1600 RPM	3600 RPM

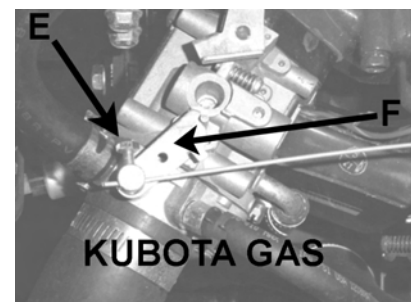
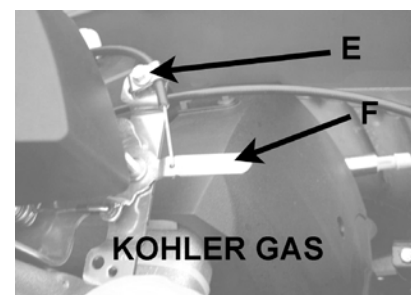
Low idle can be adjusted higher to reduce vibration and shaking.



CHOKE ADJUSTMENT

KOHLER GAS & KUBOTA GAS:

1. Push choke all the way closed.
2. Loosen bolt **E**.
3. Pull choke arm **F** to the closed stop.
4. Tighten bolt **E**.
5. Pull choke all the way out and verify that the choke closes fully. If not readjust.



SYMPTOM	POSSIBLE CAUSE	REMEDY
Engine will not turn over.	Parking brake not set.	Set parking brake.
	PTO engaged.	Disengage PTO.
	Battery dead.	Check battery, charge or replace.
	Defective wiring, broken or loose connections.	Visually check, or check with test light for continuity on the circuits.
	Forward-Reverse control lever not in neutral.	Adjust neutral linkage (See page 27).
	Defective starter or starter solenoid.	Check by using a jumper from the battery terminal to the solenoid terminal.
	Safety switches out of adjustment.	Adjust switches so they are fully depressed.
Engine difficult to start, or runs poorly.	Fuel valve partly closed or plugged.	Open fuel valve all the way or remove and clean.
	Fuel filter dirty.	Replace fuel filter.
	Air cleaner dirty.	Replace air cleaner element.
	Water or dirt in fuel.	Drain and refill with fresh, clean fuel.
	Engine running too hot.	Clean engine screen and fins.
	Air in fuel system.	Bleed air out of fuel system.
	Defective fuel pump.	Check fuel pump.
Power steering slow and/or front lift will not lift.	Oil level to low in transaxle	Check transaxle oil level and refill to proper oil level.
	Hydraulic oil filter dirty or plugged	Replace with O.E.M. filter.
	Low charge pump pressure.	See Steiner dealer for pump service.
Implement drive belt slips.	Drive belt tension need adjusting.	Adjust PTO drive belt tension (see page 24).
	Wrong size drive belt.	Use correct belt size.
	Excessive load on attachment drive system.	Check implement attachment for worn or damaged drive parts, blades, bearings, or excessive foreign material buildup.
Tractor will not move with engine running and Forward-Reverse foot pedals in forward or reverse position.	Parking brake set.	Release parking brake.
	Oil level to low in transaxle	Check transaxle oil level and refill to proper oil level.
	Hydraulic oil filter dirty or plugged.	Replace hydraulic oil filter with O.E.M. filter.
	Air leak in suction line.	Check for loose fittings or damaged suction line.
	Drive coupling failure.	Check drive coupling to determine if pump input shaft is turning.
	Pump control linkage failure.	Check pump control linkage and repair.
	Transaxle shift lever(s) in neutral.	Check transaxle shift lever(s). Be sure shift lever(s) is completely engaged in both transaxles.
	Low charge pump pressure or faulty hydrostatic system.	See Steiner dealer for pump service.
PTO will not run.	Operator not seated.	With Operator seated, restart PTO.
	Electrical problem.	See Steiner dealer for electrical service.
	Belt slipping.	Check for broken or wrong size engine drive belt.

STEINER BELT CHART												
MODEL	220	230	230 Diesel	235	410	415	420	430	440	425	525	UMA28
Tractor PTO Belt	81-A034 W/O El Clutch 81-B033 W/El Clutch	81-B055	81-B039	4165347	81-B039	81-B039	81-A038 SN 1001-2000 81-B039 SN 3000-5000	81-B039	81-B039	81-B042 W/O El Clutch 81-B040 W/El Clutch	81-B042	81-B029
MR, MW, MD, MX, Rotary mowers	81-A040	81-A040	81-B041	81-B041	81-A040	81-A040	81-A040	81-A040	81-A040	81-B041	81-B041	81-B040
81A425 Boom Mower	N/A	N/A	N/A	N/A	N/A	N/A	81-A040	81-A040	81-A040	81-B041	81-B041	N/A
MC444 Tree Farm Mower	N/A	N/A	N/A	N/A	N/A	N/A	81-A040	81-A040	81-A040	81-B041	81-B041	N/A
RC466 Rough Cut Mower	81-A042 W/O El Clutch 81-A040 W/El Clutch	81-A040	81-B041	81-B041	N/A	N/A	81-A040	81-A040	81-A040	81-B041	81-B041	81-B040
RM474 & 684 Reel Mowers	81-A045 W/O El Clutch 81-A043 W/El Clutch	81-A043	81-B043	81-B043	N/A	N/A	81-A043	81-A043	81-A043	81-B043 W/O El Clutch 81-B042 W/El Clutch	81-B043	81-B042
CS312 Chipper Shredder	N/A	N/A	N/A	N/A	N/A	N/A	81-B041	81-B041	81-B041	81-B041	81-B041	81-B040
GN10KW Generator	81-B050	81-B050	81-B050	81-B050	81-B050	81-B050	81-B050	81-B050	81-B050	81-B050	81-B050	81-B050
LB300 Loader	N/A	N/A	N/A	N/A	N/A	N/A	81-A026	81-A026	81-A026	N/A	N/A	N/A
PB100 & PB200 Power Blower	81-A042 W/O El Clutch 81-A040 W/El Clutch	81-A040	81-B041	81-B041	81-A040	81-A040	81-A040	81-A040	81-A040	81-B041 W/O El Clutch 81-B042 W/El Clutch	81-B041	81-B040
PR348 Power Box Rake	81-A045 W/O El Clutch 81-A043 W/El Clutch	81-A043	81-B043	81-B043	N/A	N/A	81-A043			81-B044 W/O El Clutch 81-B042 W/El Clutch	81-B043	81-B043
RE350 small Rotary Sweeper	81-A042 W/O El Clutch 81-A040 W/El Clutch	81-A040	81-B040	81-B040	81-A040	81-A040	81-A040	81-A040	81-A040	81-B041 W/O El Clutch 81-B040 W/El Clutch	81-B040	81-B040
RS454 large Rotary Sweeper	81-A046 W/O El Clutch 81-A044 W/El Clutch	81-A046	81-B046	81-B046	81-A046	81-A046	81-A046	81-A046	81-A046	81-B046	81-B046	81-B044
SB348 Snowblower SN:1001-1713	81-A053 W/O El Clutch 81-A051 W/El Clutch	81-A053	81-B054	81-B054	81-A053	81-A053	81-A053	81-A053	81-A053	81-B054 W/O El Clutch 81-B053 W/El Clutch	81-B054	81-B053
SB348 Snowblower SN:1714-7570665	81-A053 W/O El Clutch 81-A051 W/El Clutch	81-A051	81-B051	81-B051	81-A051	81-A051	81-A051	81-A051	81-A051	81-B053 W/O El Clutch 81-B051 W/El Clutch	81-B051	81-B051
SB448 Snowblower		105803	105829	105829	105803	105803	105803	105803	105803			
SB454 Snowblower		105803	105829	105829	105803	105803	105803	105803	105803			
SC101 Stump Cutter	N/A	N/A	N/A	N/A	81-A043	81-A043	81-A043	81-A043	81-A043	81-B045 W/O El Clutch 81-B043 W/El Clutch	81-B044	81-B042
TH300 Tractor	N/A	N/A	N/A	N/A	N/A	N/A	81-B050	81-B050	81-B050	81-B045 W/O El Clutch 81-B043 W/El Clutch	81-B044	81-B040
TL348 Tiller	81-A042 W/O El Clutch 81-A040 W/El Clutch	81-A040	81-B041	81-B041	81-A040	81-A040	81-A040	81-A040	81-A040	81-B041 W/O El Clutch 81-B040 W/El Clutch	81-B041	81-B040
V242 Vertical Auger	N/A	N/A	N/A	N/A	N/A	N/A	81-A027	81-A027	N/A	N/A	N/A	N/A

SCHILLER GROUNDS CARE, INC.
ONE BOB-CAT LANE
P.O. BOX 469
JOHNSON CREEK, WI 53038
920-699-2000
www.schillergc.com



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