



Safety, Operation and Maintenance Manual

R311T-T4I™ Rotary Mower with folding ROPS

69177 – Kubota® V2403-M-T

WARNING

WARNING: If incorrectly used this machine can cause severe injury. Those who use and maintain this 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.



When Performance Matters.™



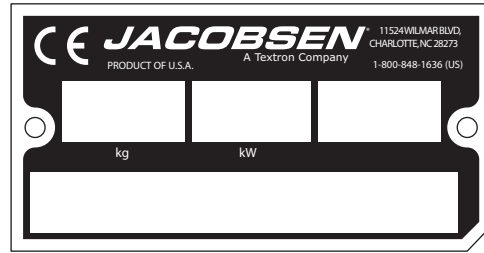
FOREWORD

This manual contains safety, operating, adjustment and maintenance instructions for your new Jacobsen mower. This manual should be stored with the equipment for reference during operation.

Before you operate your mower, you and each operator you employ should read the manual carefully in its entirety. By following the safety, operating, and maintenance instructions, you will prolong the life of your equipment and maintain its maximum efficiency.

If additional information is needed, contact your Jacobsen Dealer.

The serial plate is located on the right rear frame rail. Jacobsen recommends you record these numbers below for easy reference.



Service Parts

Qty.	Part No.	Description	Qty.	Part No.	Description
	4113986	Engine Oil Filter		555771	Hydraulic Return Oil Filter
	4133820	Primary Air Filter		2811255	Hydraulic Charge Oil Filter
	4133821	Safety Air Filter			
	557619	Engine Fuel Filter			

Service Support Material

Part No.	Description
4289794	Safety, Operation, & Maintenance Manual
4289795	Parts Manual
4192126	Kubota Engine Parts Manual
4219160	Operator Training Video (DVD)

Qty.	Description
	Service Manual

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Proposition 65 Warning

This product contains or emits chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

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1 SAFETY

1.1 HOW TO OPERATE SAFELY



WARNING

EQUIPMENT OPERATED INCORRECTLY OR WITHOUT TRAINING CAN BE DANGEROUS.

Know the location and correct operation of controls. Operators without experience must receive instruction from another person that knows the correct operation of the equipment before you operate the mower.

Only use parts, accessories and attachments approved by Jacobsen.

1.1.1 SAFE OPERATION

- a Read the Operator's Manual and other training material. If the operator or technician can not read this manual, the owner is responsible to describe this material to the operators and technicians. Manuals in additional languages may be available on the Jacobsen or RansomesJacobsen website.
- a Read all of the instructions for this mower carefully. Know the controls and the correct operation of the equipment.
- b Children or persons who do not understand these instructions must not use the mower. The local regulations can limit the age of the operator.
- c Never use a mower near persons, including children or animals.
- d Remember that the operator or owner is responsible for accidents or hazards that occur to other persons or their property.
- e Never carry passengers.
- f Never allow persons to operate or service the mower or its attachments without correct instructions.
- g Do not operate equipment while tired, sick or after you use alcohol or drugs.

1.1.2 PREPARATION

- a When you operate the mower, wear correct clothing, slip resistant work shoes or boots, work gloves, hard hat, safety glasses and hearing protection. Long hair, loose clothing or jewelry can be caught in moving parts.
- b Do not operate the equipment with the Interlock System disconnected or the system does not operate correctly. Do not disconnect or prevent the operation of any switch.
- c Never operate equipment that is not in correct order or without decals, guards, shields, deflectors or other protective devices fastened.

- d Inspect the mower before you operate the mower. Check the tire pressure, engine oil level, the radiator coolant level and the air cleaner indicator. Fuel is flammable. Use caution when you add the fuel to the mower.
- e Operate the mower in daylight or in good artificial light. Use caution when you operate the mower during bad weather. Never operate the mower with lightning in the area.
- f Inspect the area to select the accessories and attachments that are needed to correctly and safely do the job. Only use parts, accessories and attachments approved by Jacobsen.
- g Be careful of holes in the terrain and other hazards that are not visible.
- h Inspect the area where the equipment is operated. Remove all objects you can find before you operate. Be careful of obstructions above the ground (low tree limbs, electrical wires) and also underground obstacles (sprinklers, pipes, tree roots). Enter a new area carefully. Look for possible hazards.
- i Inspect the cutting system before you start the mower. Make sure the blades are free to rotate. When you rotate one blade, other blades can rotate.

1.1.3 OPERATION

- a Never operate the engine without enough ventilation or in an enclosed area. The carbon monoxide in the exhaust fumes can increase to dangerous levels.
- b Never carry passengers. Keep other persons or animals away from the mower.
- c Disengage all drives and engage the parking brake before you start the engine. Only start the engine with the operator in the seat. Never start the engine with persons near the mower.

- d Keep your legs, arms and body inside the operator compartment while the mower is in operation. Keep your hands and feet away from the cutting units.
- e Do not use on the slopes greater than the safe slope limit for the equipment.
- f To guard against over turning or loss of control:
 - Operate the mower up and down on the face of slopes (vertically), but not across the face (horizontally).
 - Do not start or stop suddenly on slopes.
 - Decrease the speed when you operate on slopes or when you must turn. Use caution when you change direction. Turf condition can change the mower stability.
 - Use caution when you operate the mower near drop-offs, ditches or embankments.
 - Be careful of holes in the terrain and other hazards that are not visible.
- g When you drive in the reverse direction, look behind you and down to make sure the path is clear. Do not operate the cutting units when you drive in the reverse direction.
- h Use caution when you go near corners, trees or other objects that can prevent a clear view.
- i Equipment must meet the current regulations to be driven on the public roads.
- j Before you move across or operate on the paths or roads, turn off the PTO switch, lift the mowers and travel at decreased speed. Look for traffic.
- k Stop the blades when the mower is on any surface that is not grass.
- l Do not release the cut grass in the direction of persons or allow persons near the mower while in operation.
- m Do not operate the mower with damaged guards or without safety devices in position.
- n Do not change the engine governor setting or over-speed the engine. Never change or tamper with adjusters that are closed with a seal for the engine speed control.
- o Before you leave the operator compartment, for any reason:
 - Disengage all the drives and lower attachments to the ground.
 - Engage the parking brake.
- Stop the engine and remove the key.
- p When you hit an object or mower starts to cause the vibration that is not normal, inspect the mower for damage and make repairs.
- q Decrease the throttle setting before you stop the engine.
- r Do not use this equipment for uses that the mower was not made for.

1.1.4 ROPS

- a The ROPS is a safety device. Keep the ROPS in the vertical and locked position. Always use the seat belt when you operate the mower. Make sure the seat belt can be released quickly in an emergency.
- b Only operate the mower with the ROPS in the folded position on flat and level surfaces when necessary. Do not operate the mower with the ROPS in the folded position on slopes, near sharp edges or near water. There is no roll over protection with the ROPS in the folded position.
- c Check for clearance before you drive below objects. Do not contact tree branches, electrical wires or other objects with the ROPS.
- d Do not use the seat belt with the ROPS in the folded position.
- e Inspect the ROPS for damage. Keep the ROPS hardware fastened.
- f Do not weld, drill, change or bend the ROPS. Replace a damaged ROPS. Do not try to correct a damaged ROPS.
- g Do not remove the ROPS from the mower.
- h Jacobsen must approve any changes to the ROPS.

1.1.5 SAFE HANDLING OF FUELS

- a The fuel and the fuel vapors are flammable. Use caution when you add the fuel to the mower. The fuel vapors can cause an explosion.
- b Never use the containers that are not approved to keep or transfer fuel.
- c Never keep the mower or fuel containers near an open flame or any device that can cause the ignition of fuel or fuel vapors.
- d Never fill the fuel containers inside a vehicle or on a truck or trailer with a plastic liner. Always put the fuel container on the ground away from your vehicle before you fill the container.

1 SAFETY

- e Refuel the mower before you start the engine. When the engine is in operation or while the engine is hot, never remove the fuel cap or add fuel to the mower.
- f Refuel outdoors only and do not smoke when you add fuel. Extinguish all types of ignition.
- g The fuel nozzle must touch the rim of the fuel tank when you add fuel to the mower. Do not use a device to lock the fuel nozzle in the open position.
- h Do not over fill the fuel tank. Leave at least 1 inch (2.5 cm) below the filler neck.
- i Always tighten the fuel tank cap and container cap after you add fuel.
- j If the fuel spills on your clothing, change your clothing immediately.
- j Be careful and wear gloves when you check or service the cutting unit blades. Replace any damaged blades, do not try to correct a damaged blade.
- k Keep your hands and feet away from parts that move. Do not adjust the mower with the engine in operation, unless the adjustment needs the engine in operation.
- l Carefully release the pressure from components with stored energy.
- m To prevent injury from the hot, high pressure oil, never use your hands to check for oil leaks. Use the paper or cardboard to find leaks.
- n The hydraulic fluid pressure can have enough force to enter your skin. If hydraulic fluid has entered your skin, a doctor must remove the hydraulic fluid surgically within a few hours or gangrene can occur.

1.1.6 MAINTENANCE AND STORAGE

- a Before you clean, adjust or repair this equipment, push PTO switch to the OFF position, lower the cutting unit to the ground, engage the parking brake, stop the engine and remove the key.
- b Make sure the mower is parked on a solid and level surface.
- c Never work on a mower that is lifted only by the jack. Always use the jack stands.
- d Never allow persons to service the mower or its attachments without correct instructions.
- e When the mower is parked, put into storage or left without an operator, lower the cutting device unless a positive mechanical lock is used.
- f When you put the mower on a trailer or put the mower in storage, close the fuel valve. Do not keep fuel near flames or drain the fuel inside a building.
- g Disconnect the battery before you service the mower. Always disconnect the negative battery cable before the positive battery cable. Always connect the positive battery cable before the negative battery cable.
- h Charge the battery in an area with good airflow. The battery can release hydrogen gas that is explosive. To prevent an explosion, keep any device that can cause sparks or flames away from the battery.
- i Disconnect the battery charger from the power supply before you connect or disconnect the battery charger to the battery. Wear protective clothing and use insulated tools when you service the battery.
- o When you service the hydraulic system, make sure the hydraulic fittings, tubes and hoses are tightened to the correct torque. Make sure the hydraulic system is in good condition before you start the engine.
- p Keep the mower and the engine clean.
- q Allow the engine to become cool before storage and always remove the ignition key.
- r Keep all nuts, bolts and screws tight to make sure the equipment is in safe condition.
- s Replace worn or damaged parts for safety. Replace damaged or worn decals. Only use parts, accessories and attachments approved by Jacobsen.
- t To decrease the fire hazard, remove materials that burn from the engine, muffler, battery tray and fuel tank area.
- u Disconnect the battery and controller connectors before you weld on this mower.

1.1.7 WHEN YOU PUT THE MOWER ON A TRAILER

- a Be careful when you load or unload the mower on a trailer. Trailer must be wider than the mower and can carry the weight of the mower.
- b Use a full-width ramp to load or unload the mower on a trailer.
- c Use straps, chains, cables or ropes to fasten the mower to the trailer. Both front and rear straps must be sent down and toward sides of trailer.
- d Make sure that all latches are correctly fastened.

1.1 IMPORTANT SAFETY NOTES



This 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.

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.

NOTICE - Indicates a potentially hazardous situation which, if not avoided, **MAY** result in property damage. It may also be used to alert against unsafe practices.

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.



WARNING

The Interlock System on this mower prevents the mower from starting unless the parking brake is Engaged, PTO switch is OFF, cruise control switch is OFF, and traction pedal is in Neutral. The system will stop the engine if the operator leaves the seat without engaging the parking brake, setting the PTO switch OFF, and setting the PTO switch OFF.

NEVER operate mower unless the Interlock System is working.



WARNING

1. Before leaving the operator's position for any reason:
 - a. Return traction pedal to Neutral.
 - b. Disengage all drives.
 - c. Lower all implements to the ground.
 - d. Engage parking brake.
 - e. 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 and pets.
4. Never carry passengers.
5. Never operate mowing equipment without the discharge deflector securely fastened in place.

By following all instructions in this manual, you will prolong the life of your machine and maintain its maximum efficiency. Adjustments and maintenance should always be performed by a qualified technician.

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

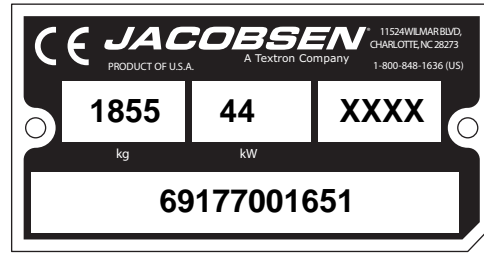
2 SPECIFICATIONS

2.1 PRODUCT IDENTIFICATION

69177 R311T-T4I with folding ROPS.

Serial Number An identification plate, like the one shown, listing the serial number, is attached to the frame of the mower near the center lift arm mount.

Always provide the serial number of the unit when ordering replacement parts or requesting service information.



2.2 ENGINE

Make Kubota
Model V2403-M-T-E3B
Horsepower 59 hp (44 kW) @2600 rpm

Note: Actual sustained horsepower will likely be lower than listed in specifications due to operating limitations and environmental factors

Displacement 148 cu. in. (2434 cc)
Bore and Stroke 3.43 x 4.03 in. (8.7 x 10.24 cm)
Compression Ratio 23.8:1
Torque 120.7 ft. lbs. (163.6 Nm) @ 1800 rpm

Fuel:
Type No. 2 Low or Ultra Low Sulfur Diesel
Rating Min. Cetane rating 45
Capacity 20 U.S. Gal. (75.7 liters)

Fuel Injection Pump Bosch K type Mini Pump
Ignition Timing 19° before TC
Governor Centrifugal ball mechanical
Low Idle 900 RPM
High Idle 2850 RPM
Lubrication:
Capacity 10 quarts (9.5 liter) with filter
Type 10W30
API Classification CJ-4
Air Filter Dual element dry type with evacuator valve and service indicator
Alternator 45 amp
Cooling System Liquid Cooled
Capacity 8 qt. (7.6 l) 50/50 water / ethylene glycol mix
Thermostat 185° F (95° C)

2.3 MOWER

Tires:
Front 26 x 12-12, 6 Ply
Rear 23 x 10.5-12, 4 Ply
Pressure:
Front 16-20 psi (1.10-1.38 BAR)
Rear 12-14 psi (0.83-0.97 BAR)
Battery:
Type 12 Volt Lead/Acid
Group AABM #75NF
Rating 750 CCA at 0° F (-18° C)
Service Brake Dynamic braking through traction circuit.
Parking Brake Integrated in wheel motor, hydraulic release

Speed:
Forward (2WD) 0 - 14.9 mph (0 - 24.0 km/h)
Forward (4WD) 0 - 7.8 mph (0 - 12.5 km/h)
Mow 0 - 7.7 mph (0 - 12.4 km/h)
Reverse 0 - 6 mph (0 - 9.6 km/h)
Hydraulic System:
Capacity 17 U.S. gal. (64.3 liters)
Fluid Type 10W30
Return Filter Full Flow 10 micron
Charge Filter Full Flow 10 micron
Steering Power steering, rear wheels
Mower Lift 3 spool manual valve and single acting cylinders
PTO Drive Fixed Flow Hydraulic

2.4 CUTTING UNITS

Type Three Fully Floating Decks
 Width:
 Front Deck 64 in. (162.5 cm)
 Wing Decks 42 in. (106.7 cm)

Cutting Width:
 Front and both Wings 134 in. (340.3 cm)
 Front and one wing ... 99 in. (251.4 cm)
 Front only 64 in. (162.5 cm)
 Drive Hydraulic Motors
 Cutting Height 1.00 - 5.5 in. (2.5 - 14.0 cm)

2.5 WEIGHTS AND DIMENSIONS

Dimensions:	Inches	(cm)		Turning Radius.....	33	(83.8)
Length	144	(365.7)		Weight:		
Height (ROPS)	84	(213.4)			Lbs.	(kg)
Height (ROPS Folded)	63.5	(161.3)		Hydraulic and Fuel Tanks Full		
Height (Cab Installed)	102	(259.1)		69177	4080	(1851)
Wheel Base	67.8	(172.2)		69177 (Cab Installed).....	4606	(2089)
Width - Transport Position.....	93.5	(237.5)		Hydraulic tank full, Fuel Tank Empty		
Width - Mowing Position.....	139	(353.0)		69177	3958	(1796)
Ground Clearance.....	7	(17.8)		69177 (Cab Installed).....	4481	(2034)

2.6 ACCESSORIES AND SUPPORT LITERATURE

Contact your area Jacobsen Dealer for a complete listing of accessories and attachments.



Use of other than Jacobsen authorized parts and accessories may cause personal injury or damage to the equipment.

Accessories

Mulcher Kit	69174
Care Free Tire Kit.....	2811453
Canopy / Sunshade	68127
Light Kit.....	4207582
Blade Balancer.....	JAC5016
Cab	4265112/4265113
Cab Accessories	1
Brush/Sweeper	u
Snow Blower	s

Support Literature

Safety, Operation, & Maintenance Manual	4289794
Parts Manual.....	4289795
Diesel Engine Parts Catalog.....	4192126
Operator Training Video (DVD).....	4219160

I Contact Customer Service for Cab Accessories

u Contact: M-B Company
 1200 Park Street Box 148
 Chilton, WI 53014-0148
 Phone 888-558-5801/920-898-4203
 Fax 920-898-4588

2 SPECIFICATIONS

2.7 DECLARATION OF CONFORMITY

DECLARATION OF CONFORMITY • ДЕКЛАРАЦИЯ ЗА СЪОТВЕТСТВИЕ • PROHLÁŠENÍ O SHODĚ • OVERENSSTEMMELSESERKLÆRING • CONFORMITEITSVERKLARING • VASTAVUSDEKLARATSIOON • VAATIMUSTENMUKAISUUSVAKUUTUS • DECLARATION DE CONFORMITE • KONFORMITÄTSEERKLÄRUNG • ΔΗΛΩΣΗ ΣΥΜΜΟΡΦΩΣΗΣ • MEGFELELŐSÉGI NYILATKOZAT • DICHIARAZIONE DI CONFORMITÀ • ATBILSTĪBAS DEKLARĀCIJA • ΑΤΙΤΙΚΤΙΕΣ ΔΕΚΛΑΡΑΚΙΑ • DIKJARAZZJONI TAL-KONFORMITÀ • DEKLARACJA ZGODNOŚCI • DECLARAÇÃO DE CONFORMIDADE • DECLARAȚIE DE CONFORMITATE • VYHLÁSENIE O ZHODE • IZJAVA O SKLADNOSTI • DECLARACIÓN DE CONFORMIDAD • DEKLARATION OM ÖVERENSSTÄMMELSE • SAMRÆMISYFIRLÝSING • KONFORMITETSERKLÆRING • 符合性声明 • SAMRÆMISYFIRLÝSING • 適合宣言 • 적합성 선언서 • UYGUNLUK BEYANI • ДЕКЛАРАЦІЯ ПРО ВІДПОВІДНІСТЬ

Business name and full address of the manufacturer • Търговско име и пълен адрес на производителя • Obchodní jméno a plná adresa výrobce • Producentens firmanavn og fulde adresse • Bedrijfsnaam en volledig adres van de fabrikant • Tootja ärinimi ja täielik aadress • Valmistajan toiminimi ja täydellinen osoite • Nom commercial et adresse complète du fabricant • Firmenname und vollständige Adresse des Herstellers • Εταιρεία και ταχυδρομική διεύθυνση κατασκευαστή • A gyártó üzleti neve és teljes címe • Ragione sociale e indirizzo completo del fabbricante • Uzņēmuma nosaukums un pilna ražotāja adrese • Verslo pavadinimas ir pilnas gamintojo adresas • Isem kummerçjali u indirizz shiħ tal-fabrikant • Nazwa firmy i pelny adres producenta • Nome da empresa e endereço completo do fabricante • Denumirea comercială și adresa completă a producătorului • Obchodný názov a úplná adresa výrobcu • Naziv podjetja in polni naslov proizvajalca • Nombre de la empresa y dirección completa del fabricante • Tillverkarens företagsnamn och kompletta adress • Fyrirtækiheiti og fullt heimilisfang framleiðanda • Firmanavn og full adresse for produsenten • 製造商の商業名称和完整地址 • Nafn fyrirtækis og fullt heimilisfang framleiðanda • 商号およびメーカーの正式住所 • 제조사의 상호명 및 주소 • İmalatçının ticari ünvanı ve açık adresi • Фірмове найменування і повна адреса виробника	Jacobsen, A Textron Company 11524 Wilmar Blvd. Charlotte, NC 28273, USA
Product Code • Код на продукта • Kód výrobku • Produktkode • Productcode • Toote kood • Tuotekoodi • Code produit • Produktcode • Кодικός προϊόντος • Termékkód • Codice prodotto • Produkta kods • Produkto kodas • Kodici tal-Prodott • Kod produktu • Código do Produto • Cod produs • Kód výrobku • Oznaka proizvoda • Código de producto • Produktkod • Vörunúmer • Produktkode • 产品代码 • Framleiðslunúmer • 製品コード • 제품 코드 • Ürün Kodu • Код виробу	69177
Machine Name • Наименование на машината • Název stroje • Maskinnavn • Machinenaam • Masina nimi • Laitteen nimi • Nom de la machine • Maschinenbezeichnung • Ονομασία μηχανήματος • Gépnév • Denominazione della macchina • Iekārtas nosaukums • Mašinos pavadinimas • Isem tal-Magna • Nazwa urządzenia • Nome da Máquina • Numele echipamentului • Názov stroja • Naziv stroja • Nombre de la máquina • Maskinens namn • Heiti tækis • Maskinnavn • 机器名称 • Nafn vélar • 機械名 • 기기 명칭 • Makine Adı • Назва машины	R311T 4WD
Designation • Предназначение • Označení • Betegnelse • Benaming • Nimetus • Tyypimerkintä • Pažymėjimas • Bezeichnung • Χαρακτηρισμός • Megnevezés • Funzione • Apzīmējums • Lithuanian • Denominazzjoni • Oznaczenie • Designação • Specificație • Označenie • Namen stroja • Descripción • Beteckning • Merking • Konstruksjon • 名称 • Útnefning • 用途 • 지정 • Tanımı • Позначення	Lawnmower, Article 12, Item 32
Serial Number • Серийн номер • Sériové číslo • Seriennummer • Seriennummer • Seerianumber • Valmistusnumero • Numéro de série • Seriennummer • Σειριακός αριθμός • Sorozatszám • Numero di serie • Sērijas numurs • Serijos numeris • Numru Serjali • Numer seryjny • Número de Série • Număr de serie • Sériové číslo • Serijska številka • Número de serie • Seriennummer • Raðnúmer • Seriennummer • 序列号 • Raðnúmer • シリアル番号 • 일련 번호 • Seri Numarası • Серійний номер	6917701651-6917703000
Engine • Двигател • Motor • Motor • Motor • Mootor • Mootori • Moteur • Motor • Μηχανή • Modulnév • Motore • Dzinējs • Variklis • Saħħa Netta Installata • Silnik • Motor • Motor • Motor • Motor • Motor • Motor • Vél • Motor • 发动机 • Afivéi • 엔진 • Motor • Двигун	Kubota V2403-M-T-E3B Diesel
Net Installed Power • Нетна инсталирана мощност • Čistý instalovaný výkon • Installeret nettoeffekt • Netto geïnstalleerd vermogen • Installeeritud netovõimsus • Asennettu nettoteho • Puissance nominale nette • Installierte Nettoleistung • Καθαρή εγκατεστημένη ισχύς • Nettó beépített teljesítmény • Potenza netta installata • Paredzētā tīkla jauda • Grynoji galia • Wisa' tal-Qlugh • Moc zainstalowana netto • Potencia instalada • Puterea instalată netă • Čistý inštalovaný výkon • Neto vgrajena moč • Potencia instalada neta • Nettoeffekt • Nettóafi vélar • Netto installert kraft • 装机净功率 • Netuppsætningarorka • 搭載する正味出力 • 정미 출력 • Net Kurulu Güç • Корисна встановлена потужність	44,1 kW @ 2450 RPM
Cutting Width • Широчина на рязане • Šírka řezu • Skærebredde • Maai breedte • Lõikelaius • Leikkuuleveys • Largeur de coupe • Schnittbreite • Μήκος μισινέζας • Vágási szélesség • Larghezza di taglio • Grišanas platums • Pjovimo plotis • Tikkonforma mad-Direttivi • Szerokosc ciecia • Largura de Corte • Lățimea de tăiere • Šírka záberu • Širina reza • Anchura de corte • Klippbredd • Skurðbreidd • Klippebredde • 剪草宽度 • Breidd sláttar •刈り取り幅 • 절단 폭 • Kesme Genişliği • Ширинна рязання	340 cm
Conforms to Directives • В съответствие с директивите • Splňuje podmínky smérnic • Er i overensstemmelse med direktiver • Voldoet aan de richtlijnen • Vastab direktiividele • Direktiivien mukainen • Conforme aux directives • Entspricht Richtlinien • Ακολουθείτε πιστά τις Οδηγίες • Megfelel az irányelveknek • Conforme alle Direttive • Atbilst direktivām • Atitinka direktivų reikalavimus • Valutazzjoni tal-Konformità • Dyrektywy związane • Cumpre as Directivas • Respectă Directivele • Je v súlade so smericami • Skladnost z direktivami • Cumple con las Directivas • Uppfyller direktiv • Samræmist tilskipunum • I samsvar med direktiv • 符合指令 • Í samræmi við reglugerðir • 適合指令 • 규정 준수 • Şu Yönergelere Uymaktadır • Відповідає директиви	2004/108/EC 2006/42/EC 2000/14/EC, 2005/88/EC 2006/66/EC
Conformity Assessment • Оценка за съответствие • Hodnocení plnění podmínek • Overensstemmelsesvurdering • Conformiteitsbeoordeling • Vastavushindamine • Vaatimustenmukaisuuden arviointi • Evaluation de conformité • Konformitätsbeurteilung • Διαπίστωση Συμμόρφωσης • Megfelelőség-értékelés • Valutazione della conformità • Atbilstības novērtējums • Atitikties įvertinimas • Livell tal-Qawwa tal-Hoss Imkejjel • Ocena zgodności • Avaliação de Conformidade • Evaluarea conformității • Vyhodnotenie zhodnosti • Ocena skladnosti • Evaluación de conformidad • Bedömning av överensstämmelse • Samræmistat • Konformitetsvurdering • 符合性评估 • Samræmistat • 適合性評價 • 적합성 평가 • Uygunluk Değerlendirmesi • Оцінка відповідності	2006/42/EC Annex VIII
Measured Sound Power Level • Измерено ниво на звукова мощност • Naměřený akustický výkon • Målte lydsterkeniveau • Gemeten geluidsniveau • Mõõdetud helivõimsuse tase • Mitattu äänitehotaso • Niveau de puissance sonore mesuré • Gemessener Schalldruckpegel • Σταθμισμένο επίπεδο ηχητικής ισχύος • Mért hangteljesítményszint • Livello di potenza sonora misurato • Izmērtais skaņas jaudas līmenis • Išmatuotas garso stiprumo lygis • Livell tal-Qawwa tal-Hoss Iggarantit • Moc akustyczna mierzona • Nivel sonoro medido • Nivelul măsurat al puterii acustice • Nameranā hladina akustiského výkonu • Izmjerjena raven zvočne moči • Nivel de potencia sonora medido • Uppmätt ljudeffektsnivå • Mælt hljóðafsstig • Målt lydteffektivit • 测得声功率级 • Mældur hljóðstyrkur • 音出力レベル測定値 • 측정된 음향 파워 레벨 • Ölçülen Ses Gücü Düzeyi • Вимірний рівень звукової потужності	102 dB(A) ± 0.71 LWA
Guaranteed Sound Power Level • Гарантирано ниво на звукова мощност • Garantovaný akustický výkon • Garanteret lydsterkeniveau • Gegarandeerd geluidsniveau • Garantēitud helivõimsuse tase • Taattu äänitehotaso • Niveau de puissance sonore garanti • Gemessener Schalldruckpegel • Garantierter Schalldruckpegel • Εγγυημένο επίπεδο ηχητικής ισχύος • Szavatolt hangteljesítményszint • Livello di potenza sonora garantito • Garantētais skaņas jaudas līmenis • Garantuotas garso stiprumo lygis • Livell tal-Qawwa tal-Hoss Iggarantit • Moc akustyczna gwarantowana • Nivel sonoro garantido • Nivelul măsurat al puterii acustice • Garantovaná hladina akustického výkonu • Zajamčena raven zvočne moči • Nivel de potencia sonora garantizado • Garanterad ljudeffektsnivå • Hljóðafsstig sem ábyrgð er tekin á • Garanter lydteffektivit • 保证声功率级 • Trygður hljóðstyrkur • 音出力保証レベル • 보장된 음향 파워 레벨 • Garantili Ses Gücü Düzeyi • Гарантований рівень звукової потужності	103 dB(A) LWA

<p>Conformity Assessment Procedure (Noise) • Оценка за съответствие на процедурата (Шум) • Postup hodnocení plnění podmínek (hluk) • Procedure for overensstemmelsesvurdering (Støj) • Procedure van de conformiteitsbeoordeling (geluid) • Vastavashindamismenettus (müra) • Vaatimustenmukaisuuden arviointimenettely (Melu) • Procédure d'évaluation de conformité (bruit) • Konformitätsbeurteilungsverfahren (Geräusch) • Διαδικασία Αξιολόγησης Συμμόρφωσης (Θόρυβος) • Megfelelőség-értékelési eljárás (Zaj) • Procedura di valutazione della conformità (rumore) • Atbilstības novērtējuma procedūra (troksnis) • Atīktības ivertinimo procedūra (garsas) • Procedura tal-Valutazzjoni tal-Konformità (Hoss) • Procedura oceny zgodności (poziom hałas) • Processo de avaliação de conformidade (nivel sonoro) Procedura de evaluare a conformității (zgomot) • Postup vyhodnocovania zhodnosti (hluk) • Postopek za ugotavljanje skladnosti (hrup) • Procedimiento de evaluación de conformidad (ruido) • Procedur för bedömning av överensstämmelse (buller) • Samræmismatsaðferð (hávaði) • Prosedyre for konformitetsvurdering (støy) • 符合性评估程序 (噪声) • Aðgerð fyrir samræmismat (hávaði) • 適合性評価の手順 (騒音) • 적합성 평가 절차 (소음) • Uygunluk Değerlendirme Prosedürü (Gürültü) • Регламент оцінки відповідності (шум)</p>	<p>2000/14/EC Annex VI, Part 1</p>
<p>UK Notified Body for 2000/14/EC • Нотифициран орган в Обединеното кралство за 2000/14/EO • Úřad certifikovaný podle směrnice č. 2000/14/EC • Det britiske bemyndigede organ for 2001/14/EF • Engels adviesorgaan voor 2000/14/EG • Ühendkuningriigi teavitatud asutus direktiivi 2000/14/EÜ mõistes • Direktiivin 2000/14/EY mukainen ilmoitettu tarkastuslaitos Isonsa-Britanniassa • Organisme notifié concernant la directive 2000/14/CE • Britische benannte Stelle für 2000/14/EG • Κοινοποιημένος Οργανισμός Ηνωμένου Βασιλείου για 2000/14/EK • 2000/14/EK – egyesült királyságbeli bejelentett szervezet • Organismo Notificato in GB per 2000/14/CE • 2000/14/EK AK registrētā organizācija • JK notifikuotais istaigos 2000/14/EC • Korp Notifikat tar-Renju Unit ghal 2000/14/KE • Dopuszczona jednostka badawcza w Wielkiej Brytanii wg 2000/14/WE • Entidade notificada no Reino Unido para 2000/14/CE • Organism notificat in Marea Britanie pentru 2000/14/CE • Notifikovaný orgán Spojeného královstva pre smernicu 2000/14/ES • Britanski priglašeni organ za 2000/14/ES • Cuerpo notificado en el Reino Unido para 2000/14/CE • Anmält organ för 2000/14/EG i Storbritannien • Tilkyntur aðili í Bretlandi fyrir 2000/14/EC • Britisk teknisk for 2000/14/EF • 英国 2000/14/EC 认证机构 • Bretland Upplýsingar fyrir 2000/14/EB • UK (英國) 公認機關 • 2000/14/EC 에 대한 영국 인증 기관 • 2000/14/EC için BK Onaylı Kuruluş • Британский уполномоченный орган для 2000/14/EC</p>	<p>Number: 1088 Sound Research Laboratories Limited Holbrook House, Little Walsingham Sudbury, Suffolk CO10 0TH</p>
<p>Operator Ear Noise Level • Оператор на нивото на доловим от ухото шум • Hladina hluku v oblasti uší operátora • Støjniveau i førers ørehøjde • Geuldinsniveau oor bestuurder • Múratase operaatori kõrvas • Melutaso käyttäjän korvan kohdalla • Niveau de bruit à hauteur des oreilles de l'opérateur • Schallpegel am Bedienerohr • Επίπεδο θορύβου σε λειτουργία • A kezelő fülénél mért zajszint • Livello di potenza sonora all'orecchio dell'operatore • Trokšņa līmenis pie operatora auss • Dirbančiojo su mašina patiriamio triukšmo lygis • Livell tal-Hoss fil-Widna tal-Operatur • Dopuszczalny poziom hałasu dla operatora • Nivel sonoro nos ouvidos do operador • Nivelul zgomotului la urechea operatorului • Hladina hluku pôsobiaci na sluch operátora • Raven hrupa pri ušesu upravljavca • Nivel sonoro en el oído del operador • Ljudnivá vid förarens öra • Hávaðastig fyrir stjórnanda • Støynivá ved operatørens øre • 操作人员耳旁噪声级 • Hljóðstyrkur fyrir stjórnanda • オペレータが感じる騒音レベル • 사용자 청각 소음 레벨 • Operatör Kulak Gürültü Düzeyi • Рівень шуму, що впливає на оператора</p>	<p>90 dB(a) ± 0.71 Leq (2006/42/EC)</p>
<p>Harmonised standards used • Използвани хармонизирани стандарти • Použité harmonizované normy • Brugte harmoniserede standarder • Gebuikte geharmoniseerde standaards • Kasutatud ühtlustatud standardid • Käytetyt yhdenmukaistetut standardit • Normes harmonisées utilisées • Angewandte harmonisierte Normen • Εναρμονισμένα πρότυπα που χρησιμοποιήθηκαν • Harmonizált szabványok • Standard armonizzati applicati • Izmantotie saskaņotie standarti • Panaudoti suderinti standartai • Standards armonizzati uzati • Normy spójne powiązane • Normas harmonizadas usadas • Standardele armonizate utilizate • Použité harmonizované normy • Uporabljeni usklajeni standardi • Estándares armonizados utilizados • Harmoniserade standarder som används • 所采用的协调标准 • Samstilltir staðlar notaðir • 整合規格 • 적용되는 조화 표준 • Kullanilan uyumlu standartlar • Використані гармонізовані стандарти</p>	<p>BS EN ISO 20643 BS EN ISO 5349-1 BS EN ISO 5349-2 BS EN ISO 5395-3</p>
<p>Technical standards and specifications used • Използвани технически стандарти и спецификации • Použité technické normy a špecifikace • Brugte tekniske standarder og specifikationer • Gebuikte technische standaards en specificaties • Kasutatud tehnilised standardid ja spetsifikatsioonid • Käytetyt tekniset standardit ja eritelmät • Spécifications et normes techniques utilisées • Angewandte technische Normen und Spezifikationen • Τεχνικά πρότυπα και προδιαγραφές που χρησιμοποιήθηκαν • Műszaki szabványok és specifikációk • Standard tecnici e specifiche applicati • Izmantotie tehnikie standarti ir specifikācijas • Panaudoti techniniai standartai ir techninė informacija • Standards u specifikacijonijiet tehnici uzati • Normy i specyfikacje techniczne powiązane • Normas técnicas e especificações usadas • Standardele tehnice și specificațiile utilizate • Použité technické normy a špecifikácie • Uporabljeni tehnični standardi in specifikacije • Estándares y especificaciones técnicas utilizadas • Tekniska standarder och specifikationer som används • Samræmdir staðlar sem notaðir eru • Benyttede • harmoniserede standarder • 所采用的技术标准 and 规范 • Tæknistaðlar og -kröfur notaðar • 技術規格および仕様書 • 적용되는 기술 표준 및 규격 • Kullanilan teknik standartlar ve şartnameler • Використані технічні стандарти і умови</p>	<p>B71.4 ISO 2631-1 ISO 21299</p>
<p>The place and date of the declaration • Място и дата на декларацията • Misto a datum prohlášení • Sted og dato for erklæringen • Plaats en datum van de verklaring • Deklaratsiooni väljastamise koht ja kuupäev • Vakuutuksen paikka ja päivämäärä • Lieu et date de la déclaration • Ort und Datum der Erklärung • Τόπος και ημερομηνία δήλωσης • A nyilatkozat kelte (hely és idő) • Luogo e data della dichiarazione • Deklarācijas vieta un datums • Deklarācijas vieta ir data • Il-post u d-data tad-dikjarazzjoni • Miejsce i data wystawienia deklaracji • Local e data da declaração • Locul și data declarației • Miesto a dátum vyhlásenia • Kraj in datum izjave • Lugar y fecha de la declaración • Plats och datum för declarationen • Tæknistaðlar og tæknilysingar sem notaðar eru • Benyttede tekniske standarder og specifikasjoner • Staður og dagsetning yfirlýsingar • Sted og dato for erklæringen • 声明的地点与日期 • Staður og dagsetning yfirlýsingarinnar • 宣言場所および日付 • 선언 장소 및 일자 • Beyan yeri ve tarihi • Місце і дата укладення декларації</p>	<p>Jacobsen, A Textron Company 11524 Wilmar Blvd. Charlotte, NC 28273, USA September 2nd, 2014</p>

2 SPECIFICATIONS

<p>Signature of the person empowered to draw up the declaration on behalf of the manufacturer, holds the technical documentation and is authorised to compile the technical file, and who is established in the Community.</p> <p>Подпис на човека, упълномощен да състави декларацията от името на производителя, който поддържа техническата документация и е оторизиран да изготви техническия файл и е регистриран в общността.</p> <p>Podpis osoby oprávněné sestavit prohlášení jménem výrobce, držit technickou dokumentaci a osoby oprávněné sestavit technické soubory a založené v rámci Evropského společenství.</p> <p>Underskrift af personen, der har fuldmagt til at udarbejde erklæringen på vegne af producenten, der er indehaver af dokumentationen og er bemyndiget til at udarbejde den tekniske journal, og som er baseret i nærområdet.</p> <p>Handtekening van de persoon die bevoegd is de verklaring namens de fabrikant te tekenen, de technische documentatie bewaart en bevoegd is om het technische bestand samen te stellen, en die is gevestigd in het Woongebied.</p> <p>Ühenduse registrisse kantud isiku allkiri, kes on volitatud tootja nimel deklaratsiooni koostama, kes omab tehnilist dokumentatsiooni ja kellel on õigus koostada tehniline toimik.</p> <p>Sen henkilöön allekirjoitus, jolla on valmistajan valtuutus vakuutuksen laadintaan, jolla on hallussaan tekniset asiakirjat, joka on valtuutettu laatimaan tekniset asiakirjat ja joka on sijoitautunut yhteisöön.</p> <p>Signature de la personne habilitée à rédiger la déclaration au nom du fabricant, à détenir la documentation technique, à compiler les fichiers techniques et qui est implantée dans la Communauté.</p> <p>Unterschrift der Person, die berechtigt ist, die Erklärung im Namen des Herstellers abzugeben, die die technischen Unterlagen aufbewahrt und berechtigt ist, die technischen Unterlagen zusammenzustellen, und die in der Gemeinschaft niedergelassen ist.</p> <p>Υπογραφή ατόμου εξουσιοδοτημένου για την σύνταξη της δήλωσης εκ μέρους του κατασκευαστή, ο οποίος κατέχει την τεχνική έκθεση και έχει την εξουσιοδότηση να ταξινομήσει τον τεχνικό φάκελο και ο οποίος είναι διορισμένος στην Κοινότητα.</p> <p>A gyártó nevében meghatalmazott személy, akinek jogában áll módosítani a nyilatkozatot, a műszaki dokumentációt őrizi, engedéllyel rendelkezik a műszaki fájl összeállításához, és aki a közösségben letelepedett személy.</p> <p>Firma della persona autorizzata a redigere la dichiarazione a nome del fabbricante, in possesso Della documentazione tecnica ed autorizzata a costituire il fascicolo tecnico, che deve essere stabilita nella Comunità.</p> <p>Tās personas paraksts, kura ir pilnvarota deklarācijas sastādīšanai ražotāja vārdā, kurai ir tehniskā dokumentācija, kura ir pilnvarota sagatavot tehnisko reģistru un kura ir apstiprināta Kopienā.</p> <p>Asmuo, kuris yra gana žinomas, kuriam gamintojas suteikė įgaliojimus sudaryti šią deklaraciją, ir kuris ją pasirašė, turi visą techninę informaciją ir yra įgaliotas sudaryti techninės informacijos dokumentą.</p> <p>Il-firma tal-persuna awtorizzata li ffassal id-dikjarazzjoni f'isem il-fabbrikant, għandha d-dokumentazzjoni teknika u hija awtorizzata li tikkompila l-fajl tekniku u li hija stabbilita fil-Komunità.</p> <p>Podpis osoby upowaznionej do sporządzenia deklaracji w imieniu producenta, przechowującej dokumentację techniczną, upowaznioną do stworzenia dokumentacji technicznej oraz wyznaczonej ds. wspólnotowych.</p> <p>Assinatura da pessoa com poderes para emitir a declaração em nome do fabricante, que possui a documentação técnica, que está autorizada a compilar o processo técnico e que está estabelecida na Comunidade.</p> <p>Semnátura persoanei împuternicite să elaboreze declarația în numele producătorului, care deține documentația tehnică, este autorizată să compileze dosarul tehnic și este stabilită în Comunitate.</p> <p>Podpis osoby poverenej vystavením vyhlásenia v mene výrobcu, ktorá má technickú dokumentáciu a je oprávnená spracovať technické podklady a ktorá je umiestnená v Spoločenstve.</p> <p>Podpis osebe, pooblaščene za izdelavo izjave v imenu proizvajalca, ki ima tehnično dokumentacijo in lahko sestavlja spis tehnične dokumentacije, ter ima sedež v Skupnosti.</p> <p>Firma de la persona responsable de la declaración en nombre del fabricante, que posee la documentación técnica y está autorizada para recopilar el archivo técnico y que está establecido en la Comunidad.</p> <p>Undertecknas av den som bemyndigad att upprätta deklarationen å tillverkarens vägnar, innehar den tekniska dokumentationen och är bemyndigad att sammanställa den tekniska informationen och som är etablerad i gemenskapen. Undirskrift aðilans sem hefur umboð til að gera yfirlýsinguna fyrir hönd framleiðandans, hefur undir höndum tæknigögnin og hefur leyfi til að taka saman tækniskýrsluna, og er viðurkenndur innan evrópska efnahagssvæðisins.</p> <p>Signatøren til personen som har fullmakt til å utferdige erklæringen på vegne av produsenten, er i besittelse av den tekniske dokumentasjonen, har autorisasjon til å utarbeide den tekniske filen og som har tilhold i EU.</p> <p>获得授权代表制造商起草声明者的签名，此人保留技术文档并获授权编译技术文件，且在社区中获得认可者。</p> <p>Undirskrift starfsmanns sem hefur heimild til að rita yfirlýsinguna fyrir hendri framleiðandans, hefur umsjón með tæknigögnum og hefur heimild til að setja saman tæknilega skýrslu og sem er tengdur inn í samfélagið.</p> <p>メーカーを代表して宣言書を起草し、技術文書を保有し技術ファイルを編集する権限を有し、地域において確固たる地位を築いている人物の署名。</p> <p>제조사를 대신하여 선언서를 작성하도록 위임받은 서명자는 기술 문서를 보유하고 기술 자료 수집의 허가를 받았으며 지역 공동체 내에 속해 있습니다.</p> <p>Imalatçı adına beyanı hazırlama yetkisi olan, teknik dokümantasyonu elinde bulunduran ve teknik dosyayı derleme yetkisine sahip, Topluluk içinde yerleşik kişinin imzası.</p> <p>Підпис особи, що уповноважена укласти декларацію від імені виробника, має технічну документацію, уповноважена укласти технічний паспорт і має добру репутацію в суспільстві.</p>	<p>2006/42/EC Annex II 1.A.2</p> <p>Christian D. Clifford Senior Engineering Manager Ransomes Jacobsen Limited West Road, Ransomes Europark, Ipswich, IP3 9TT, England</p> <p>2006/42/EC Annex II 1.A.10 Derek Mookhoek Director of Engineering Jacobsen, A Textron Company 11524 Wilmar Blvd, Charlotte, NC 28273, USA</p>
<p>Certificate Number • Номер на сертификат • Číslo osvědčení • Certifikatnummer • Certificaatnummer • Sertifikaadi number • Hyväksyntänumero • Numéro de certificat • Bescheinigungsnummer • Αριθμός Πιστοποιητικού • Hitelesítési szám • Numero del certificato • Sertifikāta numurs • Sertifikato numeris • Numru tač-Certifikat • Numer certyfikatu • Número do Certificado • Număr certificat • Číslo osvedčenia • Številka certifikata • Número de certificado • Certifikatsnummer • Númer skirteinis • Sertifikatnummer • 证书编号 • Skirteinisnúmer • 認證番号 • 인증 번호 • Sertifika Numarası • Номер сертификата</p>	<p>4289794 Rev B</p>



2.8 VIBRATION LEVEL

When the machine was tested for hand/arm vibration levels, the operator was seated in the normal operating position with both hands on the steering mechanism. The engine was running and the cutting device was rotating with the machine stationary.

The Machinery Safety Directive 2006/42/EC

By compliance to:

The Lawnmower Standard BS EN ISO 5395-3

Referenced to Hand/Arm: BS EN ISO 20643:2008

Information Supplied for Physical Agents Directive 2002/44/EC

By reference to:

Hand/Arm Standards: BS EN ISO 5349-1 (2001)

BS EN ISO 5349-2 (2001)

R311T Hand/Arm Acceleration Level	69177 R311T
	Maximum Left Hand or Right Hand Accelerations m/s ²
	Mean Value of X, Y, Z Aeq
	0.678 ± 2.5

When the machine was tested for Whole Body vibration levels, the operator was seated in the normal operating position with both hands on the steering mechanism. The cutting device was rotating with the machine driven in a straight line at 6 Km/hr on a level freshly cut lawn.

The Machinery Safety Directive 2006/42/EC

By compliance to:

Whole Body EN1032:2003

Information Supplied for Physical Agents Directive 2002/44/EC

By reference to:

Whole Body Standards BS EN ISO 2631-1 (1997)

R311T Whole Body Acceleration Level	69177 R311T
	Maximum Seat Pad Accelerations m/s ²
	Mean Value of X, Y, Z Aeq
	0.257 ± 0.155

3 DECALS

3.1 DECALS

Familiarize yourself with the following decals. They are critical to the safe operation of the machine. **REPLACE DAMAGED DECALS IMMEDIATELY.**



DANGER

Serious injury or death can result from blade contact or from objects being thrown very long distances.

- Do not operate machine with discharge chute or guards flipped up or removed.
- Do not operate machine with bent or damaged components or with cutting units in the raised position.
- Keep yourself and others away from the mower when in operation.

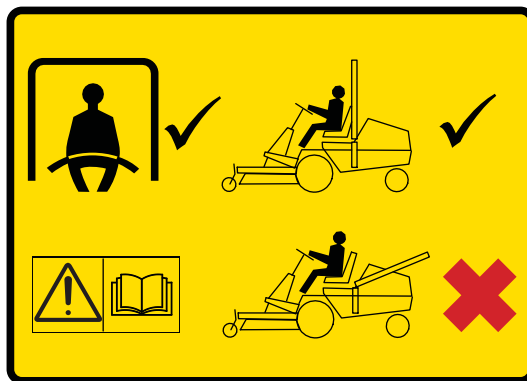


WARNING

Charge filter is under pressure. Remove filter slowly to avoid bodily injury.

CAUTION

Fill oil tank to 2 inches (5.1 cm) below filler neck. Do not overfill.



WARNING

Seat belts must be worn whenever operating the mower with the ROPS in the raised and locked position. Always keep seat belt snugly adjusted. **DO NOT** use seat belts with the ROPS folded down.

NEVER operate the mower with the ROPS folded down on slopes, or near drop offs or water. Only operate in these areas with the ROPS in the raised and locked position.



WARNING

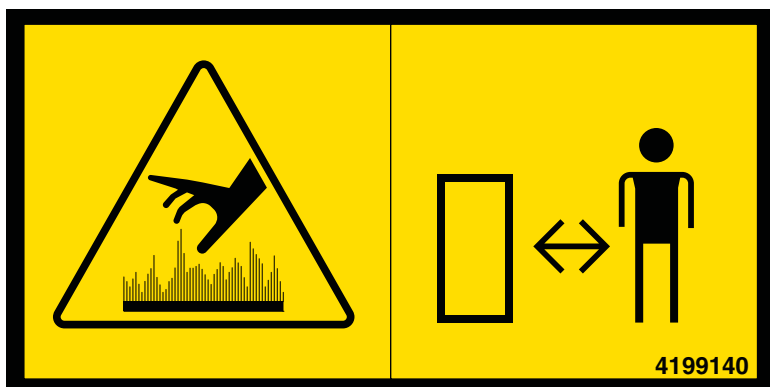
Radiator is under pressure. Remove cap slowly to avoid personal injury.



IMPORTANT

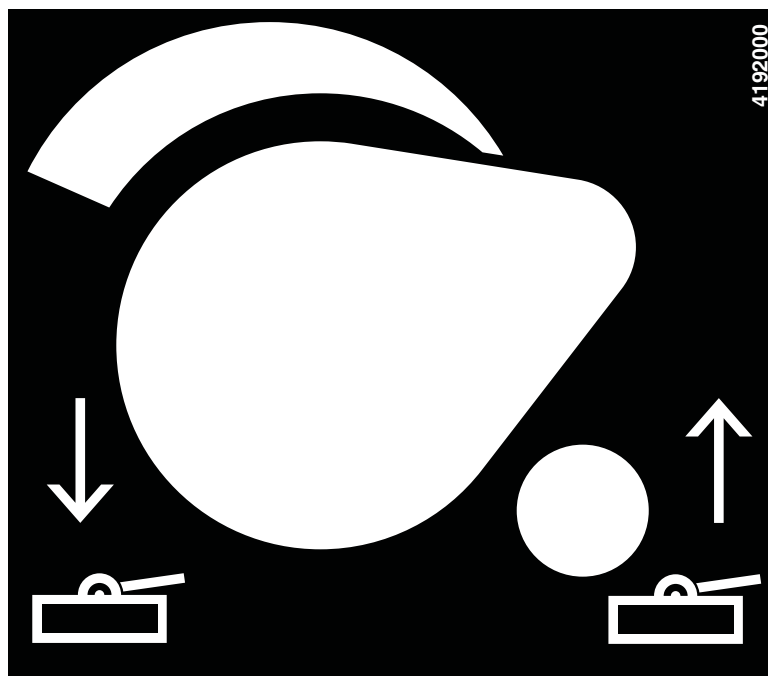
DO NOT USE STARTING ASSIST FLUIDS

Use of starting assist fluids in the air intake system may be potentially explosive or cause a “runaway” engine condition. This could result in serious engine damage.



WARNING

To prevent burns, do not touch muffler or muffler shield. Temperatures may exceed 150° F (66° C).



Weight Transfer

To transfer weight to mower, turn knob clockwise.

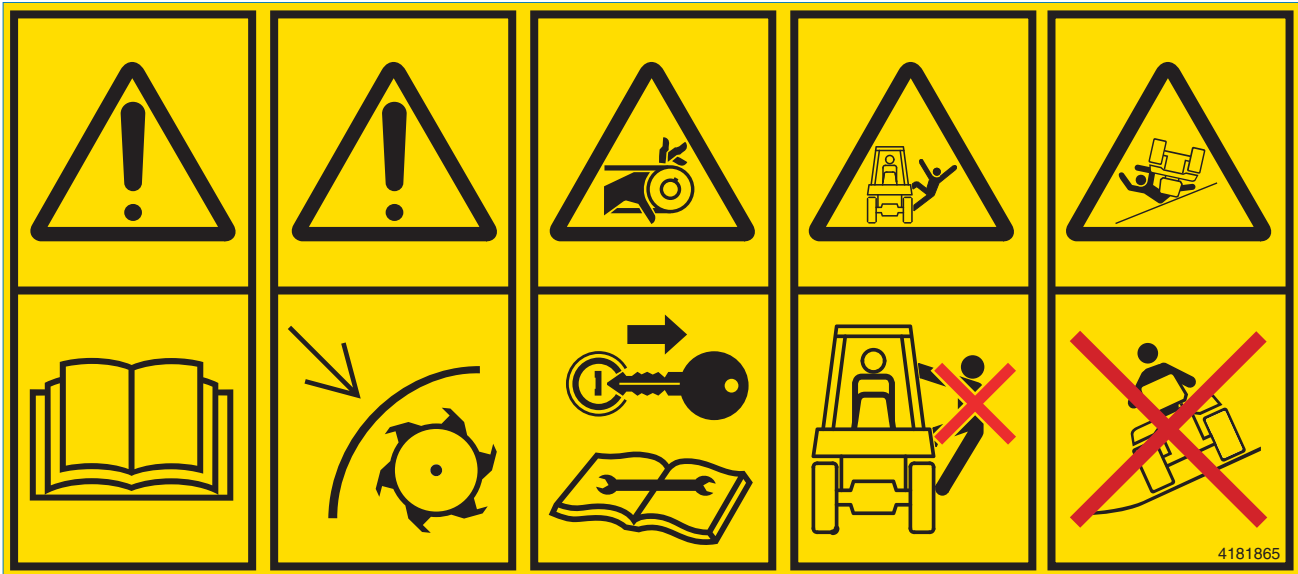
To transfer weight to cutting unit, turn knob counter-clockwise.

**PUSH TO LATCH
WING ARMS.
PULL TO RELEASE.**
366608

**USE AUTHORIZED
HYDRAULIC FLUID
SEE MANUAL FOR
SPECIFICATIONS**
352487

3 DECALS

Familiarize yourself with the following decals. They are critical to the safe operation of the machine. REPLACE DAMAGED DECALS IMMEDIATELY.



- Read operator's manual. Do not allow untrained operators to use machine.
- Keep shields in place and hardware securely fastened.
- Keep hands, feet, and clothing away from moving parts.

- Before you clean, adjust, or repair this equipment, disengage all drives, engage parking brake, and stop engine.
- Never carry passengers.
- Keep bystanders away.
- Do not use on slopes greater than 16°.

**THIS RADIATOR CONTAINS
ANTI-FREEZE
PROTECTED TO -26°F (-32°C)**

Mix equal parts of clean water and a premium quality ethylene glycol based anti-freeze to maintain the boil over, rust and corrosion protection.

Drain and discard coolant yearly. Read manual for additional instructions.

363995



Horn Button



No longer used.

Cruise Relay

Not used

Fuel Solenoid Relay

Horn Relay

Accessory Relay

! WARNING

This structure's protective capability may be impaired by structural damage, overturn, or alteration. If any of these conditions occur, the structure must be replaced.

557844

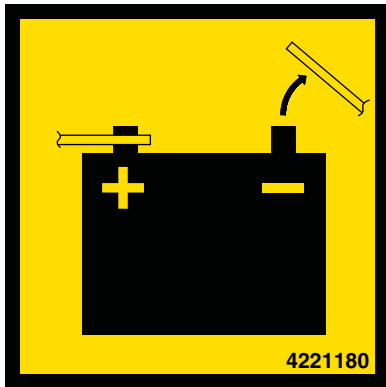
3008521

Traction Pedal
Forward
Reverse

4205183

WARNING
Do Not use for towing.

3 DECALS



WARNING

Connecting Jumper Cables:

1. Connect positive cable to positive remote terminal first.
2. Connect negative cable to negative remote terminal last.

Disconnecting Jumper cables:

1. Remove negative cable first.



WARNING

Use caution when connecting and disconnecting jumper cables. Battery explosion may result if remote terminals are shorted.



Danger

To avoid injury when working with battery:

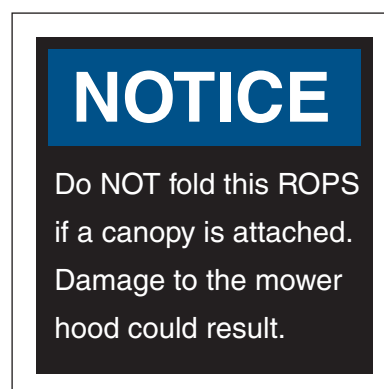
1. Always connect the black (-) ground last and remove it first.
2. Keep sparks and flames away, and avoid contact with acid.

To avoid injury when jumping battery:









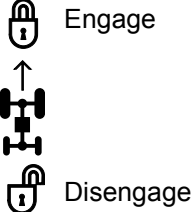
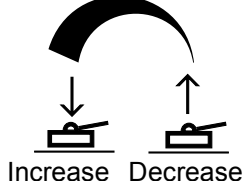
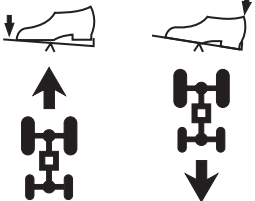
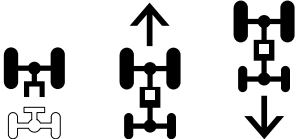

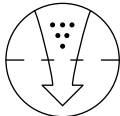

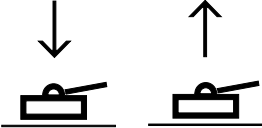






1. Connect positive (+) terminal to positive (+) terminal.
2. Connect negative (-) terminal on good battery to frame of vehicle that has dead battery.



Sound Power Level



4.1 ICONS

<p>Read Manual</p> 	<p>Hour Meter</p> 	<p>Engine Throttle High Low</p> 	<p>Engine Off Run Start</p> 
<p>Coolant Temperature</p> 	<p>Parking Brake</p> 	<p>Diesel Fuel</p> 	<p>Implement Position Left Center Right</p> 
<p>Cruise Control Engage Disengage</p> 	<p>Weight Transfer to Decks Increase Decrease</p> 	<p>Traction Forward Reverse</p> 	<p>Drive Mode 2WD 4WD 4WD Momentary</p> 
<p>Engine Oil</p> 	<p>Air Filter</p> 	<p>Filter Service</p> 	<p>Cutting Units Raise Lower</p> 
<p>Horn</p> 	<p>Filter Service</p> 	<p>PTO Switch Engage Disengage</p> 	<p>Hydraulic Oil Temperature Pressure</p> 
<p>Glow Plug</p> 	<p>Lights Work Road</p> 		

 **WARNING**

Never attempt to drive the mower unless you have read the Safety, Operation, & Maintenance Manual and know how to operate all controls correctly.

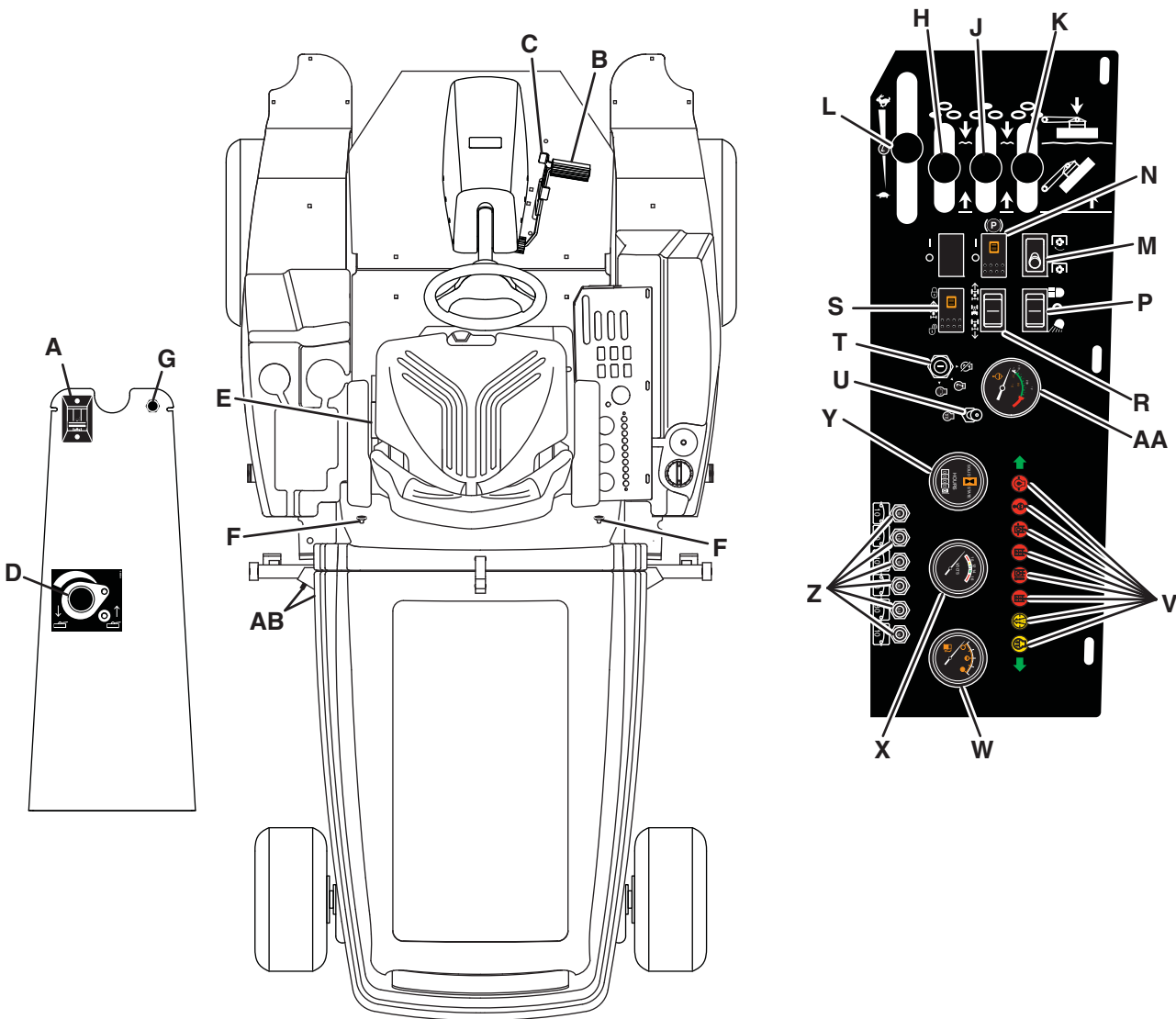
Familiarize yourself with the icons shown above and what they represent. Learn the location and purpose of all the controls and gauges before operating this mower.

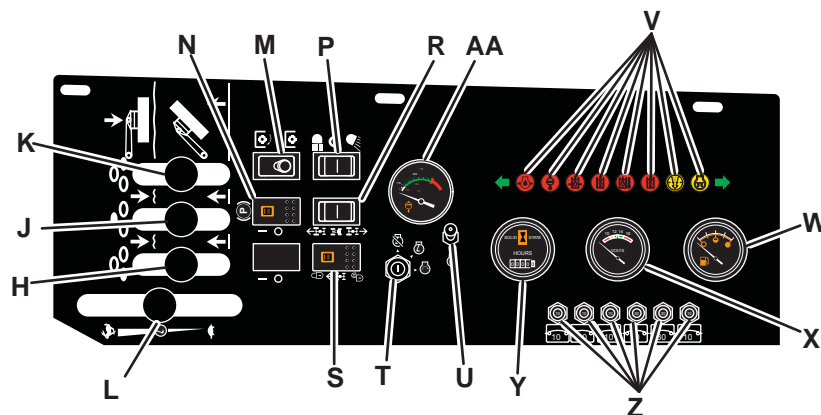
4 CONTROLS

- A Steering Tilt Lever
- B Traction Pedal
- C Mow Speed Stop
- D Weight Transfer
- E Seat Tilt Lever
- F Transport Latches
- G Horn / Test Switch
- H Left Wing Lift/Lower Lever
- J Front Lift/Lower Lever
- K Right Wing Lift/Lower Lever

- L Throttle Lever
- M PTO Switch
- N Parking Brake Switch
- P Light Switch (Optional)
- R 2WD / 4WD Switch
- S Cruise Control Switch
- T Ignition Switch
- U Glow Plug Switch
- V Warning Lights
- W Fuel Gauge

- X Volt Meter
- Y Hour Meter
- Z Circuit Breakers
- AA Temperature Gauge
- AB Remote Battery Terminals





4.2 CONTROL DESCRIPTIONS

A. Tilt Steering Lever



Pull lever up to release steering column. Tilt column up or down to position desired. Release lever to lock steering column in place.

CAUTION

Never adjust steering while mower is moving. Stop unit and engage parking brake switch before adjusting.

B. Traction Pedal

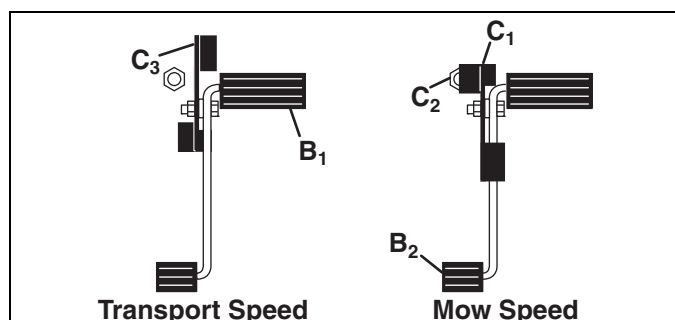
Press front of pedal (**B₁**) down for forward travel. Release pedal to slow mower and stop.

Press rear of pedal (**B₂**) down for reverse travel. Release pedal to slow mower and stop. Allow mower to come to a complete stop before reversing directions.

NOTICE

Engine will stop if traction pedal is depressed in either direction with the parking brake engaged.

Disengage parking brake before attempting to drive mower.



C. Mow Speed Stop

Limits forward speed while mowing. To operate at lower travel speed while mowing, rotate lever (**Position C₁**) so it contacts stop screw on floor board when forward travel pedal is pressed. To travel at full speed, set lever in position shown (**Position C₃**). Stop screw (**C₂**) can be adjusted to set specific mow speeds. See **Section 8.4**.

D. Weight Transfer

Used to adjust the ground pressure of the decks. See **Section 8.13**.

E. Seat Tilt Lever

Used to adjust the rear seat angle. Lift up on lever and tilt seat back as required until seat is in the desired position. Release the lever to lock the seat in position.

F. Transport Latches

Used to prevent accidental lowering of the wing cutting units during transport.

G. Horn/Test Switch

Used to sound horn and test system warning lights. Depress switch, horn should sound and all warning lights, except for glow plug, engine oil and charge pressure, should light.

Figure 4A

4 CONTROLS

4.3 CONTROL PANEL LEVERS

H. *Left Wing Lift/Lower Lever*

Raises and lowers left wing deck. Push lever forward to lower left wing deck. Pull lever back to raise left wing deck. Deck will start automatically when lowered if PTO **(M)** switch is engaged.

J. *Front Lift/Lower Lever*

Raises and lowers front deck. Push lever forward to lower front deck. Pull lever back to raise front deck. Deck will start automatically when lowered if PTO **(M)** switch is engaged.

K. *Right Wing Lift/Lower Lever*

Raises and lowers right wing deck. Push lever forward to lower right wing deck. Pull lever back to raise right wing deck. Deck will start automatically when lowered if PTO **(M)** switch is engaged.

L. *Throttle Lever*

Regulates engine speed. Push lever forward to increase speed or pull lever back to decrease speed. Always operate mower at full throttle during normal operation.

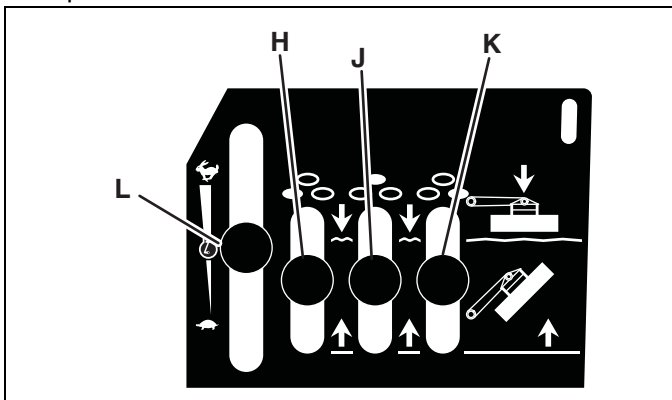


Figure 4B

4.4 CONTROL PANEL SWITCHES

M. *PTO Switch*

Lift up and push switch lever forward to engage decks. Pull switch lever back to disengage.

Mower will automatically switch to 4WD with PTO switch is engaged.

N. *Parking Brake Switch*

To engage parking brake, slide lock forward and depress top of switch.

To disengage parking brake, depress rear of switch.

NOTE: Mower will not start with parking brake switch in the Disengaged position.

P. *Light Switch*

Press front of switch for road lights. Press rear of switch for work lights. Return switch to center position to shut off lights.

R. *2WD / 4WD Switch*

Used to switch mower between 2WD and 4WD mode. Depress front of switch for 4WD in forward direction only. Place switch in center position for 2WD. Depress rear of switch for momentary 4WD in

reverse. Do not engage or disengage 4WD while mower is moving.

4WD is automatically put in 4WD when PTO switch is engaged.

S. *Cruise Control Switch*

Depress traction pedal for desired speed, slide lock forward and press front of switch to engage cruise control. To disengage cruise control, press rear of cruise control switch, press rear of parking brake switch (**N**), or turn ignition switch (**T**) to the OFF position.

Cruise control switch must be in the OFF position to start the engine.

T. *Ignition Switch*

Used to start and stop the engine. The ignition switch has three positions OFF, RUN, and START. To prevent unauthorized use of this mower, remove ignition key when not in use.

U. *Glow Plug Switch*

Used to energize the glow plugs before starting. Do not hold switch for more than 7 seconds. Glow Plug light will be on when switch is depressed.

4.5 GAUGES AND CIRCUIT BREAKERS

V. *Warning Lights*

Alerts the operator to conditions requiring immediate action. **See Section 4.6.**

W. *Fuel Gauge*

Displays fuel level in tank. Do not allow mower to run out of fuel.

X. *Voltmeter*

Displays electrical system voltage.

Y. *Hour Meter*

Records engine operating hours. The hour meter can be used to time maintenance intervals or mowing operations.

Z. *Circuit Breakers*

Used to protect electrical system. Push down on rubber boot to reset circuit breaker.

AA. *Temperature Gauge*

Displays engine coolant temperature. Do not operate mower if temperature is above 230° F (110° C).

AB. *Remote Battery Terminals*

Used for connecting jumper cables with wing decks in raised position. Keep red boot of positive remote terminal in place when not in use.

4 CONTROLS

4.6 WARNING LIGHTS

The R311T-T4I mower monitors vital machine systems. It uses a combination of warning lights and an audible alarm to alert the operator of conditions requiring immediate action. When an alert occurs follow the general guidelines listed in the chart below, and any specific actions outlined by the grounds superintendent or service manager.

To test alarm system:

Turn ignition switch to RUN. The engine oil light (V₁) and charge pressure light (V₃) should come on. All lights should go out once engine is started.

Press horn/test switch (G). Horn will sound and Engine Coolant Temperature (V₂), Return Filter (V₄), Hydraulic Oil Temperature (V₅), Charge Filter (V₆), and Air Filter (V₇) lights will come on.

With engine off, press glow plug switch (U). Glow plug light (V₈) will come on.

Turn signal lights (V₉) are currently not used.

This system monitors:

- V1. Engine oil pressure
- V2. Engine coolant temperature
- V3. Charge pressure
- V4. Hydraulic return oil filter
- V5. Hydraulic oil temperature
- V6. Hydraulic charge filter
- V7. Air filter
- V8. Glow Plug

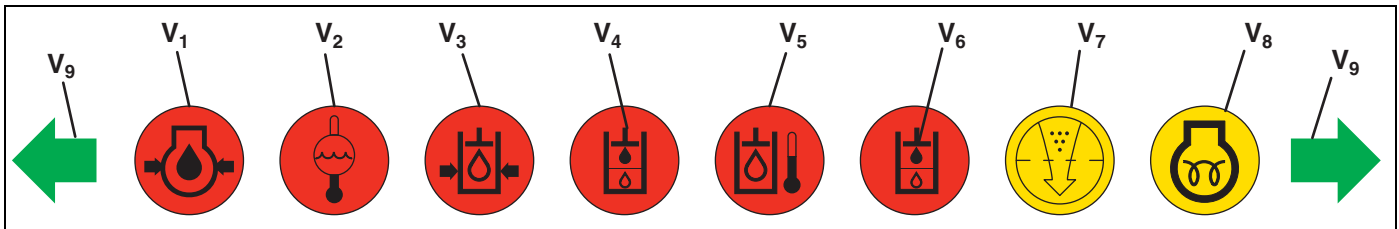



Figure 4C

Alert	Action
V1. Engine Oil Pressure - Alarm sounds and oil pressure light comes on. Oil pressure low.	Stop mower immediately, lower implements and shut off engine! Inspect oil level in engine. If oil light remains on with oil at proper level, shut off engine and tow or trailer mower back to service area. NEVER operate engine with oil light on, severe damage to the engine can occur.
V2. Engine Coolant Temperature Horn sounds. Engine coolant temperature high.	Stop mower immediately, lower implements and shut off engine! Remove debris such as leaves and grass clippings that may be restricting air flow through rear screen on hood and area between radiator and oil cooler. If engine continues to run hot, return mower to service area. CAUTION: Engine coolant is under pressure. Turn engine off and allow fluid to cool before checking fluid level or adding coolant to radiator.
V3. Charge Pressure Light stays on after starting engine or comes on during operation. Indicates low charge pressure in traction system.	Stop mower immediately, lower implements and shut off engine! Check hydraulic oil level in main tank. Visually inspect mower for obvious signs of leaks around connections, hoses and tubes. Tow or trailer mower back to service area. Never operate mower with charge pressure light on, severe damage to hydraulic system components can result. CAUTION: Hydraulic system is under pressure. Turn engine off and allow oil to cool before checking oil level or adding oil to tank.
V4. Hydraulic Return Oil Filter - Oil filter warning light comes on.	Return mower to a service area as soon as possible. Change hydraulic return oil filter.

Continued on next page

Alert	Action
<p>V5. Hydraulic Oil Temperature - Horn sounds. Hydraulic oil temperature high.</p>	<p>Stop mower, disengage drives and lower implements. Run engine at low idle for a few minutes until light goes off. If light remains on, shut off engine and allow hydraulic system to cool. Remove debris such as leaves and grass clippings that may be restricting air flow through rear screen on hood and area between radiator and oil cooler. If hydraulics continues to run hot, return mower to service area.</p> <p> CAUTION: Hydraulic system is under pressure. Turn engine off and allow oil to cool before checking oil level or adding oil to tank.</p>
<p>V6. Hydraulic Charge Oil Filter - Oil filter warning light comes on.</p>	<p>Return mower to a service area as soon as possible. Change hydraulic charge oil filter.</p>
<p>V7. Air Filter - Air filter warning light comes on.</p>	<p>Return mower to a service area as soon as possible. Change air filter.</p>
<p>V8. Glow Plug - Glow plug light comes on.</p>	<p>Glow plug switch depressed. Do not energize glow plugs with engine running.</p>

5 OPERATION

5.1 DAILY INSPECTION

CAUTION

The daily inspection should be performed only when the engine is off and all fluids are cold. Lower decks to the ground, engage the parking brake, stop engine, and remove ignition key.

1. Perform a visual inspection of the entire unit. Look for signs of wear, loose hardware, and missing or damaged components. Check for fuel or oil leaks to ensure connections are tight and hoses and tubes are in good condition.

2. Check the fuel supply, radiator coolant level, crankcase oil, and air cleaner indicator. All fluids must be at the full level mark with engine cold.
3. Make sure all decks are adjusted to the same cutting height.
4. Visually check tires for proper inflation.
5. Test the Interlock System.

Note: For more detailed maintenance information, adjustments, and maintenance/lube charts, see the appropriate sections in this manual.

5.2 INTERLOCK SYSTEM

1. The Interlock System prevents the engine from starting unless the parking brake switch is ON, traction pedal is in Neutral, cruise control switch is OFF and the PTO switch is OFF. The system also stops the engine if the operator leaves the seat with the PTO switch ON, traction pedal out of neutral, cruise control switch on, or parking brake switch OFF.

WARNING

Never operate equipment with the Interlock System disconnected or malfunctioning. Do not disconnect or bypass any switch.

2. Perform each of the following tests to insure the Interlock System is functioning properly. Stop the test and have the system inspected and repaired if any of the tests **fail** as listed below:
 - 1 the engine **does not** start in test 1;
 - 1 the engine **does** start during tests 2, 3, 4, or 5;
 - 1 the engine **continues** to run during tests 6 or 7.

3. Refer to the chart below for each test and follow the check (4) marks across the chart. Shut engine off between each test.

Test 1: Represents normal starting procedure. The operator is seated, parking brake switch is ON, traction pedal is in Neutral, cruise control switch is ON, and the PTO switch is OFF. The engine should start.

Test 2: The engine must not start if the PTO switch is ON.

Test 3: The engine must not start if the parking brake switch is OFF.

Test 4: The engine must not start if the traction pedal is not in Neutral.

Test 5: The engine must not start if the cruise control switch is ON.

Test 6: Start the engine in the normal manner then turn the PTO switch ON and lift your weight off the seat. H

Test 7: Start the engine in the normal manner then turn parking brake switch OFF and lift your weight off the seat. H

Test	Operator Seated		Parking Brake Switch		Traction Pedal in Neutral		PTO Switch		Cruise Control Switch		Engine Starts	
	Yes	No	ON	OFF	Yes	No	ON	OFF	ON	OFF	Yes	No
1	4		4		4			4		4	4	
2	4		4		4		4			4		4
3	4			4	4			4		4		4
4	4		4			4	4			4		4
5	4		4		4			4	4			4
6	4	H	4		4		4				H	
7	4	H		4	4			4			H	

H Lift your weight off seat. The engine will shut down.

5.3 OPERATING PROCEDURES

WARNING

A folding Roll Over Protection Structure (ROPS) is included with this mower. Seat belts must be worn whenever operating the mower with the ROPS in the raised and locked position. Always keep seat belt snugly adjusted. **DO NOT** use seat belts with the ROPS folded. See **Section 5.12**.

If the mower is overturning and the ROPS in the raised and locked position, hold onto the steering wheel. Do not attempt to jump out or leave the seat.

CAUTION

To prevent injury, always wear safety glasses, leather work shoes or boots, a hard hat, and ear protection.

1. Under no circumstances should the engine be started without the operator seated on the mower.
2. Do not operate mower or attachments with loose, damaged, or missing components. Whenever possible mow when grass is dry.
3. First mow in a test area to become thoroughly familiar with the operation of the mower and control levers.
4. 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.
5. Never direct discharge of material toward bystanders, nor allow anyone near the machine while in operation. The owner/operator is responsible for injuries inflicted to bystanders and/or damage to their property.
9. Stop and inspect the equipment for damage immediately after striking an obstruction or if the machine begins to vibrate abnormally. Have the equipment repaired before resuming operation.

WARNING

Before you clean, adjust, or repair this equipment, always disengage all drives, lower implements to the ground, engage parking brake, stop engine, and remove key from ignition switch to prevent injuries.

10. Slow down and use extra care on hillsides. Read **Section 5.8**. Use caution when operating near drop offs.
11. Look behind and down before backing up to be sure the path is clear. Use care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.
12. Never use your hands to clean blades. Use a brush to remove grass clippings from blades. Blades are extremely sharp and can cause serious injuries.
13. Never use the cruise control when maneuvering in tight operating areas, such as crossing bridges, areas around lakes and ponds, steep hillside conditions, waterways, and ditches. Disengage the cruise control if obstacles or other hazards are present in the mowing area.

CAUTION

Before mowing, pick up all debris such as rocks, toys, and wire which can be thrown by the machine. Enter a new area cautiously. Always operate at speeds that allow you to have complete control of the mower.

6. Use discretion when mowing near gravel areas (roadway, parking areas, cart paths, etc.). Stones discharged from the implement may cause serious injuries to bystanders and/or damage the equipment.
7. Always turn PTO switch OFF to stop blades when not mowing.
8. Disengage the drive motors and raise the decks when crossing paths or roadways. Look out for traffic.

5 OPERATION

5.4 STARTING

CAUTION

IMPORTANT: *Do not use starting assist fluids.* Use of such fluids in the air intake system may be potentially explosive or cause a “Runaway” engine condition and could result in serious engine damage.

1. Make sure fuel shut off valve is completely open and the tow valve (**See Section 5.10**) is closed.
2. Sit in operator's seat, make sure the PTO switch (**M**) is OFF, traction pedal is in Neutral, cruise control switch (**S**) is OFF, and the parking brake switch (**N**) is ON.
3. Move throttle lever (**L**) between 1/4 to 1/3 throttle. Turn ignition switch (**T**) to RUN.
4. Press glow plug switch (**U**) for about 3 to 7 seconds. The colder the temperature, the longer it will take to energize plugs. Do not press switch for more than 7 seconds. Energizing glow plugs is not necessary when starting a warm engine.
5. Turn ignition switch (**T**) to START position. Release switch as soon as engine starts. Do not hold key in start position for more than 15 seconds at a time. If engine does not start, turn ignition switch off, wait 30 seconds, and try again.
6. Allow the engine to become warm and properly lubricated before operating at high RPM.

NOTICE

Allow engine to operate at low idle for at least one minute before operating mower.

When starting engine at temperatures below 40° F (4° C), operate the engine at low idle for five minutes to prevent damage to engine or hydraulic system.

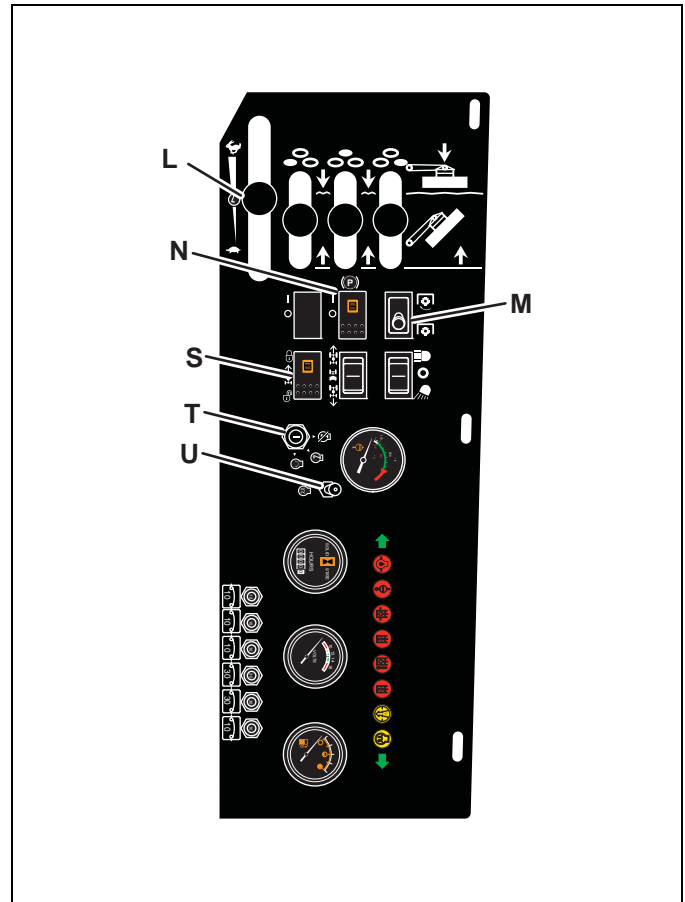


Figure 5A

5.5 STOPPING / PARKING

To stop:

Remove your foot from traction pedal to slow the mower speed. The mower will automatically brake when the traction pedal returns to Neutral.

To park the mower under normal conditions:

1. Disengage the PTO switch, raise the decks, engage transport latches, and move away from the area of operation.
2. Select a flat and level area to park.
 - a. Release traction pedal to bring the mower to a complete stop.
 - b. Disengage all drives, disengage transport latches, lower decks to the ground, reduce throttle to slow, and allow engine to operate at no load for a minute.

5.6 TO DRIVE / TRANSPORT

Read and follow all safety notes contained in this manual when driving or transporting mower. Refer to **Section 5.3** for general operating instructions. When operating in reverse look behind you to ensure you have a clear path.

Important: If this mower is driven on public roads, it must comply with federal, state, and local ordinances. Contact local authorities for regulations and equipment requirements.

5.7 TRANSPORT LATCHES

1. The wing decks are equipped with a latch to prevent accidental lowering of the cutting units during transport or maintenance operations. The latch knobs are located on the engine fire wall, behind and to the left and right of the operator's seat.
2. Fully raise the wing decks and push the latch knobs in to secure the deck. The weight of the deck/lift arm must not rest on the latch.



CAUTION

To prevent injury to bystanders, or damage to the equipment, do not rest the weight of the deck and lift arm on the latch. Weight of deck and lift arm may cause the deck to fall when the latch is released.

NOTICE

Permanent damage to the turbocharger may occur if the engine is shut down without allowing the turbocharger time to cool.

To prevent damage, operate the engine with no load and at half throttle for 3 to 5 minutes before shutting off engine.

3. Engage parking brake, stop the engine, and always remove the ignition key.

If an emergency arises and the mower must be parked in the area of operation, follow the guidelines outlined by the grounds superintendent. If the mower is parked on an incline, chock or block the wheels.

1. Disengage all drives and raise implements to the transport position and engage transport latches when driving to and from the area of operation.
2. Shift mower to 2WD.
3. Disengage parking brake and move throttle lever to FAST. Depress traction pedal slowly.
4. Always bring the mower to a complete stop before changing travel direction or shifting from 2WD to 4WD.

3. To release latch, pull the latch knob out and lower the deck to the ground.

NOTICE

Do not transport with the arms resting on the latch. Transport latches are only used to prevent accidental lowering of the cutting units.

5 OPERATION

5.8 HILLSIDE OPERATION

WARNING

To minimize the possibility of overturning, the safest method for 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, travel at reduced speeds, stay alert for hidden hazards, and drop offs.

CAUTION

Do not operate this mower on slopes greater than 16° angle or 29% grade.

The mower has been designed for good traction and stability under normal mowing conditions; however, use caution when operating on slopes, especially over rough terrain, or when the grass is wet. Wet grass reduces traction and steering control.

1. Always mow with the engine at full throttle but reduce forward speed for safe operation.
2. If the mower tends to slide or the tires begin to "mark" the turf, angle mower into a less steep grade until traction is regained or tire marking stops.
3. If mower continues to slide or mark the turf, the grade is too steep for safe operation. Do not make another attempt to climb, back down slowly.
4. When descending a steep slope, always lower implements to the ground to reduce the risk of mower overturning.
5. Correct tire pressure is essential for maximum traction.

Front - 16 to 20 psi (1.10 to 1.38 BAR)
Rear - 10 to 12 psi (0.69 to 0.83 BAR)

6. If additional traction is required, adjust the weight transfer knob as described in **Section 8.13**.

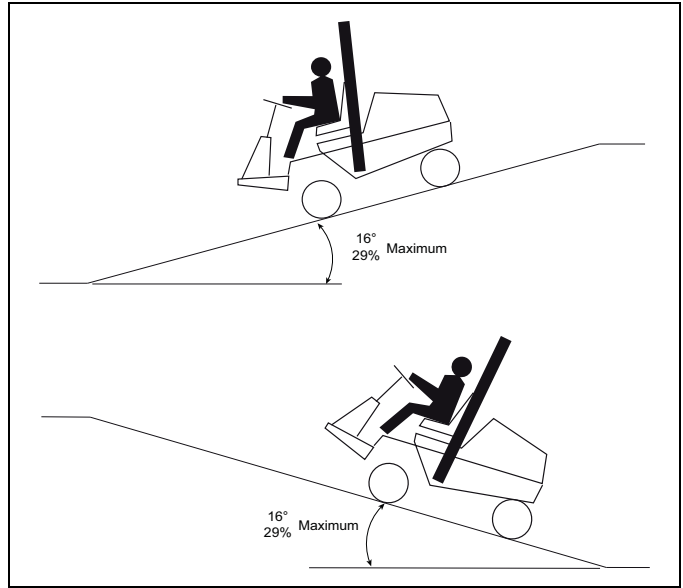


Figure 5B

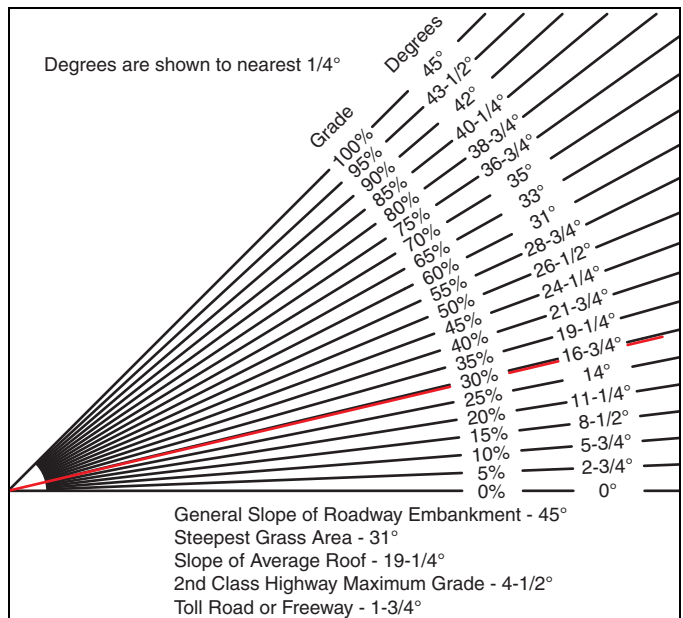


Figure 5C

How to calculate a slope:

Tools Required:

Level (A), either 1 yard, or 1 meter long.

Tape measure (B).

With the level (A) positioned horizontally, measure the distance (C) with tape measure (B). Use the chart to calculate either the slope angle or the % grade of the slope (D).

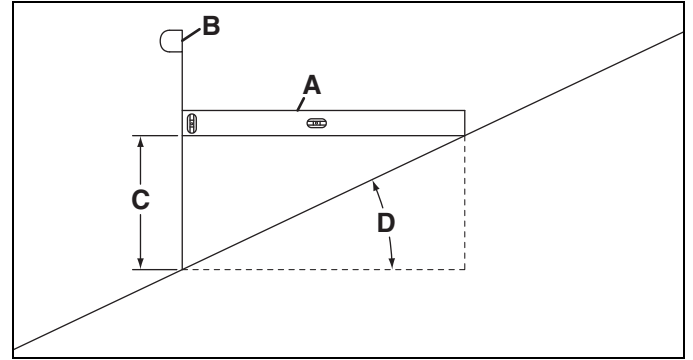


Figure 5D

Height (C)		Result (D)	
Inches with 1 Yard Level (A)	Millimeters with 1 Meter Level (A)	Slope in Degrees	Slope Grade %
3		4.8	8.3
	100	5.7	10.0
	150	8.5	15
6		9.5	16.7
	200	11.3	20.0
7.5		11.8	20.8
	225	12.7	22.5
9		14	25.0
	275	15.4	27.5
10		15.5	27.8
	300	16.7	30.0
11		17.0	30.6
	325	18.0	32.5
12		18.4	33.3
	350	19.3	35.0
13		19.9	36.1
	375	20.6	37.5
14		21.3	38.9
	400	21.8	40.0
15		22.6	41.7
	425	23.0	42.5
16		24	44.4
	475	25.4	47.5
18		26.6	50.0
	500	26.6	50.0
20		29.1	55.6
	600	31.0	60.0
25		34.8	69.4
	800	38.7	80.0
30		39.8	83.3
	900	42.0	90
36		45.0	100
	1000	45.0	100

5 OPERATION

5.9 MOWING



WARNING

To prevent serious injuries, keep hands, feet, and clothing away from cutting unit when the blades are moving.

NEVER use your hands to clean cutting units. Use a brush to remove grass clippings from blades. Blades can be sharp and could cause injuries.

To clear obstructions from cutting unit, disengage PTO switch, engage parking brake, stop engine, and remove key from ignition switch then remove obstruction.

To mow:

1. Start the engine and lower the decks to the ground.
2. Turn PTO switch to ON, depress front of desired deck switch(es), shift mower to 4WD, and turn parking brake switch OFF.

5.10 FOLDING ROPS

A folding Roll Over Protection Structure (ROPS) is included with this mower.



WARNING

There is no roll over protection with the ROPS folded down. NEVER operate the mower with the ROPS folded down on slopes, or near drop offs or water. Only operate in these areas with the ROPS in the raised and locked position.

Study the area of operation to determine if folding the ROPS is required. Be aware of overhead obstructions and turf conditions. Only operate the mower with the ROPS folded down when absolutely necessary.

Seat belts must be worn whenever operating the mower with the ROPS in the raised and locked position. Always keep seat belt snugly adjusted. **DO NOT** use seat belts with the ROPS folded down.

To fold ROPS, push top portion of ROPS towards front of mower, remove pins, and fold ROPS towards rear of mower. Secure ROPS in folded position with pins.

3. Move throttle lever to FAST then slowly depress traction pedal to the desired mowing speed.
 - a. For complete even cutting, overlap swaths by a few inches.
 - b. When cutting tall grass, cut grass higher than desired the first time so deck will clear unseen obstructions and will not scalp if ground is rough.
 - c. Stop and raise the decks to the transport position when crossing paths or roadways. Look out for traffic.
4. For better traction and handling, adjust weight transfer.
5. When operating in reverse and additional power is required to climb out of a small depression, press and hold the 2WD/4WD in the momentary 4WD Reverse position.

5.11 TOWING / TRAILERING

If the mower experiences problems and must be shut down and removed from the area, it should be loaded onto a trailer for transport. If a trailer is not available, the unit can be towed slowly short distances.

NOTE: Do not exceed 2 MPH (3.2 KPH) while towing. Long distance towing is not recommended.

Use care when loading and unloading mower. Fasten mower to trailer to prevent mower from rolling or shifting during transport.

Before towing, open tow valve. The tow valve permits moving the mower without starting the engine and prevents possible damage to hydraulic components.

The tow valve (**Z**) is located on the drive pump beneath the seat. Remove hardware and tilt seat towards left side deck. To open valve, use a small wrench to turn the valve counterclockwise 90°.

The brakes must be manually released to allow the mower to be moved. Remove access panel in floorboard and rotate brake release lever to brake release position. To release the brakes, turn steering wheel for right hand turn until resistance is felt.

After towing, rotate brake release lever to closed position, close tow valve completely and make certain seat and access panel are closed and secured.

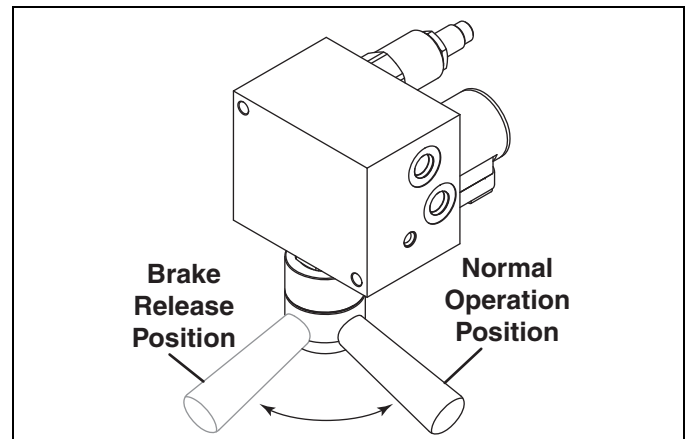


Figure 5F

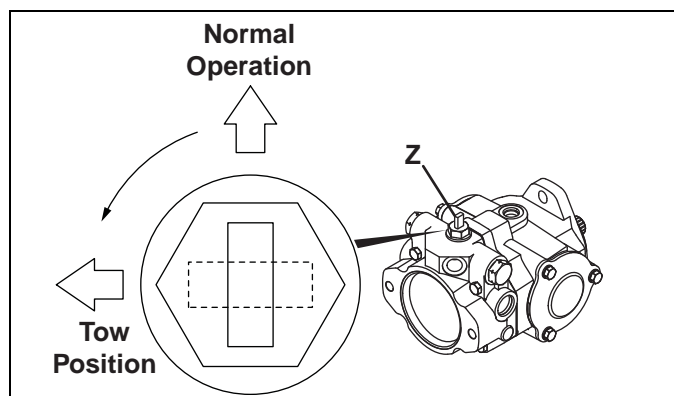


Figure 5E

5 OPERATION

5.12 DAILY MAINTENANCE

Important: For more detailed maintenance information, adjustments, and maintenance/lubrication charts, see the appropriate sections of this manual.

1. Park the mower on a flat, level surface. Fully lower the implements to the ground, engage parking brake, stop the engine, and remove key from ignition switch.
 2. Grease and lubricate all points if required. To prevent fires, wash the cutting units and mower after each use.
 - a. Use only fresh water for cleaning your equipment.
- Note:** *Use of salt water or effluent water has been known to encourage rust and corrosion of metal parts resulting in premature deterioration or failure. Damage of this nature is not covered by the factory warranty.*
- b. Do not use high pressure spray.
 - c. Do not spray water directly at the instrument panel, or any electrical components.
 - d. Do not spray water into the cooling air intake or the engine air intake.

NOTICE

Do not wash a hot or running engine. Use compressed air to clean the engine and radiator fins.

3. Fill mower's fuel tank at the end of each operating day to within 1 in. (2.5 cm) below the filler neck.

Use clean, fresh #2 low or ultra-low sulfur diesel fuel. Minimum Cetane Rating 45.
4. Handle fuel with care - it is highly flammable. Use an approved container, the spout must fit inside the fuel filler neck. Avoid using cans and funnels to transfer fuel.
 - a. Never remove the fuel cap from the fuel tank, or add fuel, when the engine is running or while the engine is hot.
 - b. Do not smoke when handling fuel. Never fill or drain the tank indoors.
 - c. Never overfill or allow the tank to become empty. Do not spill fuel. Clean any 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.

5. Store fuel according to local, state, or federal ordinances and recommendations from your fuel supplier.



WARNING

To prevent serious injury from hot, high pressure oil, never use your hands to check for oil leaks, use paper or cardboard.

Hydraulic fluid escaping under pressure can have sufficient force to penetrate skin. If fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this form of injury or gangrene may result.

6. Inspect hydraulic hoses and tubes daily. Look for wet hoses or oil spots and replace worn or damaged hoses and tubes before operating the machine.
7. Check the engine oil and hydraulic oil at the start of each day, before starting the engine. If the oil level is low, remove the oil filler cap and add oil as required. Do not overfill.

NOTICE

Care must be used at all times to avoid any contamination of the hydraulic system. Follow recommended maintenance practices and adhere to scheduled intervals for hydraulic oil and filter changes. Introduction of any type of contamination may result in operating issues by causing valves to stick or leak internally.

6.1 GENERAL

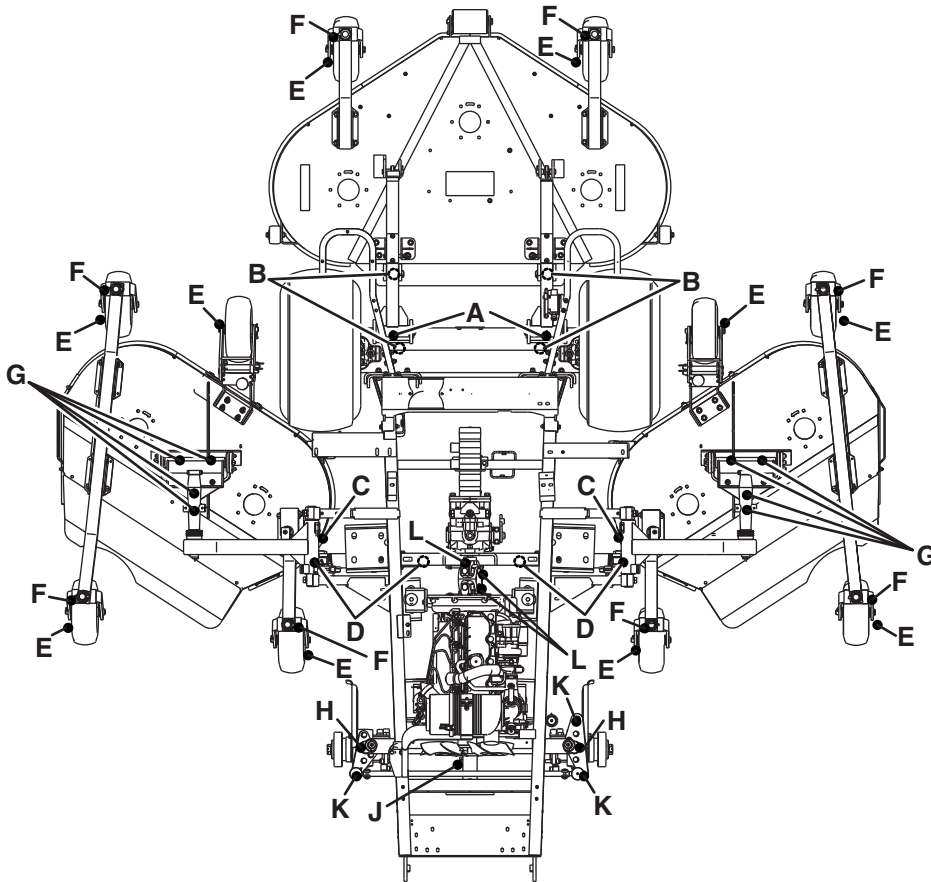
! WARNING

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

1. Always clean the grease fitting before and after lubricating.

2. Lubricate with grease that meets or exceeds NLGI Grade 2 LB specifications. Apply grease with a manual grease gun and fill slowly until grease begins to seep out. Do not use compressed air guns.
3. Periodically apply a small amount of lithium based grease to the seat runners.
4. For smooth operation of all levers, pivot points and other friction points that are not shown on the lubrication chart apply several drops of SAE 30 oil every 40 hours or as required.
5. Grease fittings every 25 hours.

6.2 LUBRICATION CHART



Description	Fittings		
A Front mower arm pivot	(2)	G Deck Pivot Housing	(8)
B Front lift cylinders	(4)	H Steering Axle Spindle Housing	(2)
C Wing mower arm pivot	(2)	I Steering Axle Pivot	(1)
D Wing mower lift cylinders	(4)	J Steering Axle Ball Joints	(4)
E Caster Wheels	(10)	K Pump Drive Shaft Crosses	(2)
F Caster Arms	(8)	M Pump Drive Shaft Spline	(1)

6 MAINTENANCE & LUBRICATION CHARTS

6.3 MAINTENANCE CHARTS

Recommended Service and Lubrication Intervals

	Every 8-10 Hours	Every 25 Hours	Every 100 Hours	Every 250 Hours	Every 400 Hours	Every 500 Hours	Every 1000 Hours	Yearly	See Section	Lubricant Type
Air Filter (Cab)	I			R						
Air Filter (Engine)	I							R****	7.6	
Battery Charge		I							7.9	
Belts	I-A*	I-A				R			4., 8.2	
Cooling System	I-C-A							R	7.21	IV
Electrical System		I*	I						7.15	
Engine Oil	I	R*	R						7.5	II
Engine Oil Filter		R*	R							
Fuel System		I							7.8	
Fuel Filter								R	7.8	
Grease Fittings - All	L	L	L			L			6.2	I
Hydraulic Hoses and Tubes	I***			I					7.12	
Hydraulic Oil	I-A			R**					7.13	III
Hydraulic Oil Filter (2)		R*		R****					7.14	
Muffler and Exhaust		I							7.16	
Radiator Screens	I-C/AR								7.21	
Tires	I-A	A							7.17	

A - Add or Adjust C - Clean I - Inspect L - Lubricate R - Replace AR - As Required

* Indicates initial service for new machines.

** Or every two years whichever comes first.

*** Inspect visible hoses and tubes for leaks or oil marks.

**** Or when service indicator light comes on.

I - Manual grease gun with NLGI Grade 2 (Service Class LB).

II - Engine Oil - See Section 7.5.

III - Use Jacobsen hydraulic fluid: Capacity: 5 gallons (19 Liters). Order Part No. 2500548 carton, containing two 2-1/2 gal. (9.5 liter) bottles or Part No. 2500546 containing 5 gal. (19 liters), pail.

IV - Capacity: 3qt. (2.8 l) 50/50 water ethylene glycol mix.

7.1 GENERAL

WARNING

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

Make sure the mower is parked on a solid and level surface. Never work on a mower that is supported only by the jack. Always use jack stands.

1. Adjustment and maintenance should always be performed by a qualified technician. If proper adjustments cannot be made, contact an Authorized Jacobsen Dealer.
2. Inspect the equipment on a regular basis, establish a maintenance schedule and keep detailed records.
 - a. Keep the equipment 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. Long hair, jewelry, or loose fitting clothing may get tangled in moving parts.
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.

7.2 INSPECTING BLADES

1. Every 50 hours of operation or whenever blades are removed from mower, carefully examine the blades to make sure they are in good operating condition. Blades showing any bends (**G**), grooves (**H**) or cracks (**J**) must be replaced.

produce a crack (**J**) permitting a piece of the vane to break off.

CAUTION

Use care when checking blades to avoid pinching hands and fingers between blade ends.

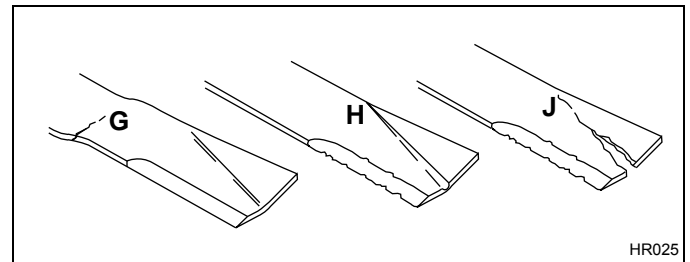


Figure 7A

WARNING

Never attempt to straighten, weld, or repair a damaged blade. Always replace a damaged blade.

2. Any of the above conditions can cause a piece of the blade to break away and be thrown from the mower causing very serious injury to bystanders or property damage.
3. A bent blade could have a microscopic crack (**G**) that can grow and allow a piece of the blade to break. Bent blades will also create vibration and other stress on the machinery.
4. Dust or sand particles can wear a dangerous groove in the blade (**H**) between the air vanes and the flat portion of the blade that will rapidly grow and

7 MAINTENANCE

7.3 SHARPENING BLADES

1. Place a wooden block between the blade and mower housing to stop the blade from moving. To remove blade, turn screw holding blade counterclockwise.



WARNING

The mower blades can develop sharp edges. Use caution whenever servicing and handling.

2. When dressing or sharpening the blade, do not follow the original pattern of grind as shown in (A). Grind new cutting edges at an angle as shown in (B).

If the maximum total loss of the blade reaches 1/2 in. (1.3 cm), do not sharpen further, replace blade.



WARNING

Resharpenering the blade beyond the allowable 1/2 in. (1.3 cm) may allow blade tip to break off and be thrown from the mower. Such an incident can cause very serious injury to bystanders and/or property damage.

3. Make sure an equal amount of material is removed from both sides of blade to prevent having an unbalanced blade. An unbalanced blade will cause excessive vibration and may damage the mower.
4. Use a blade balancer (JAC 5016) to check the blade after sharpening.
5. Identify the three clockwise rotation (D) and four counter-clockwise rotation (E) blades. The blades for clockwise rotation are installed on the left front deck motor, the outside left wing deck motor, and the inside right wing deck motor. (Rotation is determined by normal motor rotation viewed from top of deck).
6. Install blades so cutting edges (C) face the direction of rotation as shown in **Figure 7C**. Air vane of blade must face in toward deck housing.

Torque center mounting screw holding blade to 75 ft. lb. (102 Nm).

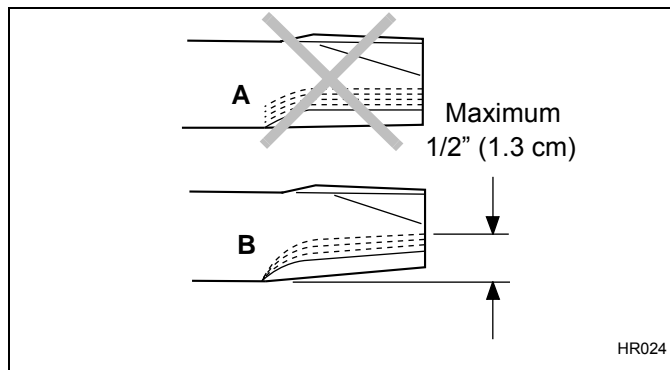


Figure 7B

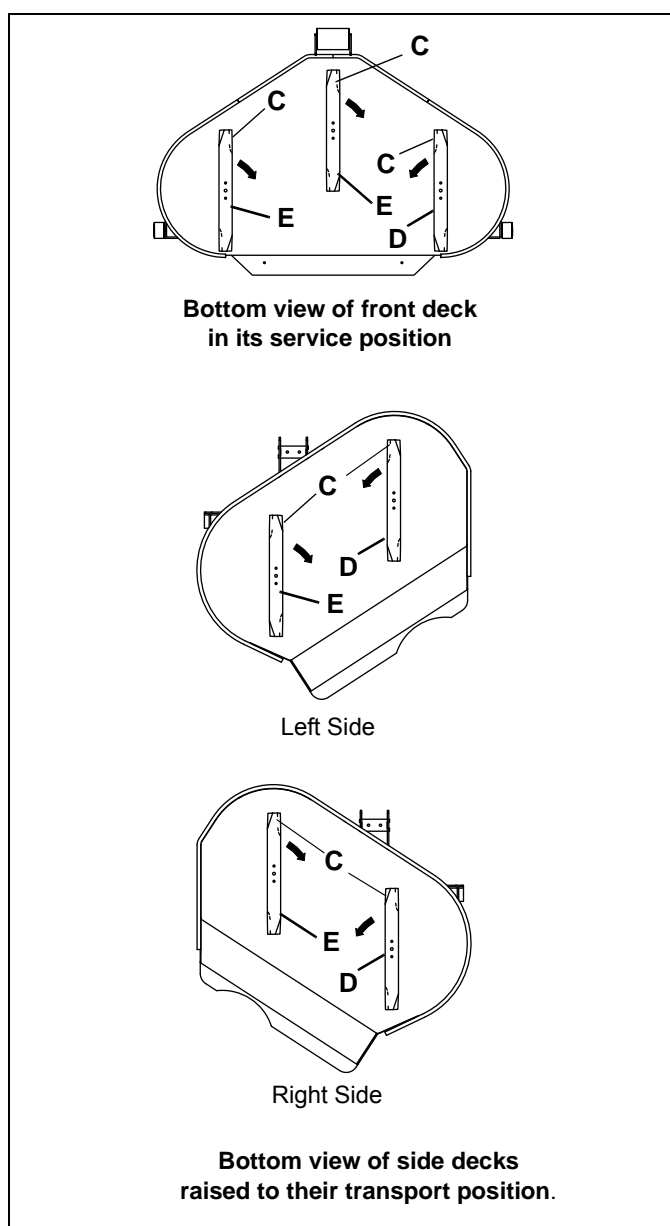


Figure 7C

7.4 ENGINE

IMPORTANT: A separate Engine Manual, prepared by the engine manufacturer, is supplied with this mower. Read the Engine Manual carefully until you are familiar with the operation and maintenance of the engine. Proper attention to the engine manufacturer's directions will assure maximum service life of the engine. To order replacement engine manuals contact the engine manufacturer.

The proper break-in of a new engine can make a considerable difference to the performance and life of the engine.

NOTICE

The mower is designed to operate and cut most efficiently at the preset governor setting. Do not change the engine governor settings or overspeed the engine.

During the break-in period, Jacobsen recommends the following:

1. During the first 50 hours of operation, a new engine should be allowed to reach an operating temperature of at least 140°F (60°C) prior to operation at full load.

7.5 ENGINE OIL

Check the engine oil at the start of each day before starting the engine. If the oil level is low, remove oil filler cap, and add oil as required.

Perform initial oil change after first 25 hours of operation and every 100 hours thereafter. See Engine Manual.

Use only engine oils with API classification CJ-4.

Above 77°F (25°C)	SAE 30W or SAE 10W30/10W40
32 to 77°F (0 to 25°C)	SAE 20W or SAE 10W30/10W40
Below 32° (0°C)	SAE 10W or SAE 10W30/10W40

See the engine manufacturer's Engine Manual for detailed service information.

After adding or changing oil, start and run engine at idle with all drives disengaged for 30 seconds. Shut engine off. Wait 30 seconds and check oil level. Add oil to bring up to FULL mark on dipstick.

2. Check the engine oil level twice daily during the first 50 hours of operation. Higher than normal oil consumption is not uncommon during the initial break-in period.
3. Change engine oil and oil filter element after first 25 hours of operation.
4. Check and adjust fan and alternator belts.
5. Refer to **Section 6.3** and Engine Manual for specific maintenance intervals.

If the injection pump, injectors, or the fuel system require service, contact an authorized Jacobsen Dealer.

Important: The normal engine operating temperature is less than 220° F (104° C). If the engine temperature rises by more than 10° F (6° C) above normal, there is an indication that the cooling system may not be functioning properly.

The warning horn will sound when the temperature reaches 230° F (110° C). To prevent damage to the engine, never allow the engine to operate above 230° F. Stop the machine, disengage all drives and operate the engine at low idle for 5 minutes.

7 MAINTENANCE

7.6 AIR FILTER

Do not remove the element for inspection or cleaning. Unnecessary removal of the filter increases the risk of injecting dust and other impurities into the engine.

Air cleaner servicing is required when air cleaner service light **(F)** comes on during normal operation. Empty dust cup daily.

When service is required, first clean the outside of the filter housing, then remove the old element as gently as possible and discard.

1. Carefully clean the inside of the filter housing without allowing dust into the air intake.
2. Inspect the new element. Do not use a damaged element and never use an incorrect element.

3. Assemble the new element and make sure it seats properly.
4. Reassemble cap making sure it seals completely around the filter housing. Dust evacuator must be facing down.
5. Check all hoses and air ducts. Tighten hose clamps.

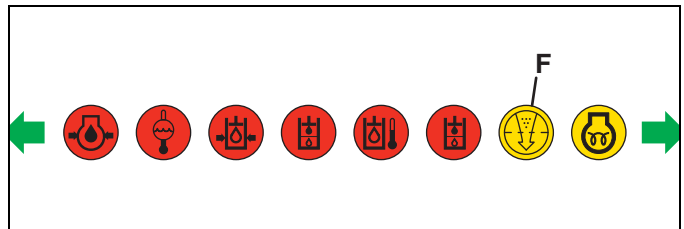


Figure 7D

7.7 FUEL

Handle fuel with care - it is highly flammable. Use an approved container, the spout must fit inside the fuel filler neck. Avoid using cans and funnels to transfer fuel.

WARNING

Never remove the fuel cap from the fuel tank or add fuel when the engine is running or while the engine is hot.

Do not smoke when handling fuel. Never fill or drain the fuel tank indoors.

Do not spill fuel. Clean spilled fuel immediately.

Never handle or store fuel containers near an open flame or any device that may create sparks and ignite the fuel or fuel vapors.

Be sure to reinstall and tighten fuel cap securely.

- Fill the fuel tank to within 1 in. (2.5 cm) of the bottom of the filler neck.
- Store fuel according to local, state, or federal ordinances and recommendations from your fuel supplier.
- Never overfill or allow the tank to become empty.
- Check fuel lines and clamps every 50 hours. Replace fuel lines and clamps at the first sign of damage.
- Use clean, fresh, #2 low or ultra-low sulfur Diesel fuel. Minimum Cetane rating 45. Refer to Engine Manual for additional information.

7.8 FUEL SYSTEM

Refer to **Section 6.3** for specific maintenance intervals.

Before replacing any filter, thoroughly clean the filter housing, and the area around the filter. Dirt must not be allowed to enter into fuel system.

For diesel engines, turn the key switch to the ON position to start the fuel pump, and bleed the fuel system if the fuel filter and lines have been removed or the fuel tank has become empty. See Engine Manual.

7.9 BATTERY

Make absolutely certain the ignition switch is OFF and the key has been removed before servicing the battery.

CAUTION

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

Tighten cables securely to battery terminals and apply a light coat of silicone dielectric grease to terminals and cable ends to prevent corrosion. Keep vent caps and terminal covers in place.

Check the electrolyte level every 100 hours. Keep the cable ends, battery, and battery posts clean.

Verify battery polarity before connecting or disconnecting the battery cables.

1. When installing the battery, always assemble the RED, positive (+) battery cable first and the ground, BLACK, negative (-) cable last.
2. When removing the battery, always remove the ground, BLACK, negative (-) cable first and the RED, positive (+) cable last.
3. Make sure battery is properly installed and secured to the battery tray.

WARNING

Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. **Wash your hands after handling.**

7.10 JUMP STARTING

Before attempting to "jump start" the mower check the condition of the discharged battery. See **Section 7.9**

WARNING

Batteries generate explosive hydrogen gas. To reduce the chance of an explosion, avoid creating sparks near battery. Always connect the negative jumper cable to the frame of the mower with the discharged battery away from the battery.

When connecting jumper cables:

1. Stop the engine on the vehicle with a good battery.
2. Connect RED jumper cable to the positive (+) terminal on the good battery and to the positive (+) terminal on the "discharged" battery.
3. Connect the BLACK jumper cable from the negative (-) terminal on the good battery to the frame of the mower with the discharged battery.

After cables have been connected, start the engine on the vehicle with the good battery then start the mower.

7.11 CHARGING BATTERY

WARNING

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 mower before charging. If battery is not sealed, check that the electrolyte covers the plates in all the cells.
3. Make sure the charger is "Off". Then connect the charger to the battery terminals as specified in the charger's manual.
4. Always turn the charger "Off" before disconnecting charger from the battery terminals.

1. Refer to **Section 7.9**. Read the Battery and Charger's manual for specific instructions.

7 MAINTENANCE

7.12 HYDRAULIC HOSES



WARNING

To prevent serious injury from hot, high pressure oil, never use your hands to check for oil leaks, use paper or cardboard.

Hydraulic fluid escaping under pressure can have sufficient force to penetrate skin. If fluid is injected into the skin it must be surgically removed within a few hours by a doctor familiar with this form of injury or gangrene may result.

NOTICE

Care must be used at all times to avoid any contamination of the hydraulic system. Follow recommended maintenance practices and adhere to scheduled intervals for hydraulic oil and filter changes. Introduction of any type of contamination may result in operating issues by causing valves to stick or leak internally.

1. Always lower implements to ground, disengage all drives, engage parking brake, stop engine, and remove key before inspecting or disconnecting hydraulic lines or hoses.
2. Check visible hoses and tubes daily. Look for wet hoses or oil spots. Replace worn or damaged hoses and tubes before operating the machine.

3. The replacement tube or hoses must be routed in the same path as the existing hose, do not move clamps, brackets, or ties to a new location.
4. Thoroughly inspect all tubes, hoses, and connections every 250 hours.

IMPORTANT: The hydraulic system can be permanently damaged if the oil becomes contaminated. Before disconnecting any hydraulic component, clean the area around the fittings and the hose ends to keep impurities out of the system.

- a. Before disconnecting any hydraulic component, tag or mark the location of each hose then clean the area around the fittings.
- b. As you disconnect the component, be prepared to assemble plugs or caps to the hose ends and open ports. This will keep impurities out of the hydraulic system and also prevent oil spills.
- c. Make sure "O" rings are clean and hose fittings are properly seated before tightening.
- d. Keep the hose from twisting. Twisted hoses can cause couplers to loosen as the hose flexes during operation resulting in oil leaks.
- e. Kinked or twisted hoses can restrict the oil flow causing the system to malfunction and the oil to overheat and also lead to hose failure.

7.13 HYDRAULIC OIL

Refer to **Section 6.3** for specific maintenance intervals.

Drain and replace the hydraulic oil after a major component failure, if you notice the presence of water or foam in the oil, or a rancid odor (indicating excessive heat).

Always replace the hydraulic filter when changing oil.

To change hydraulic oil:

1. Clean the area around the oil cap to prevent impurities from entering and contaminating the system.
 - a. Oil temperature should be between 60° to 90°F (16° to 32°C). Do not check oil level when oil is hot.
 - b. The main oil tank level should be 2 inches below filler neck. Do not overfill.

2. Drain and replace the hydraulic oil yearly or after a major component failure, or if you notice the presence of water, foam, or a rancid odor.
3. Remove drain plug from bottom of main tank and loosen or remove breather cap. Check and clean the breather cap, replace as necessary.
4. After oil has drained install drain plug and fill with Jacobsen Hydraulic oil.
5. Purge air from system.
6. Operate all mower functions for about 5 minutes to purge air out of the system and stabilize the oil level. Fill tank to full level.

7.14 HYDRAULIC OIL FILTERS

The hydraulic system is protected by two 10 micron filters.



WARNING

Charge filter is under pressure. Remove filter slowly to prevent personal injury.

To replace hydraulic oil filter:

1. Remove the old filter.
2. Fill new filter with oil then install new filter. Hand tighten only.
3. Operate engine at idle speed with hydraulic system in neutral for five minutes.
4. Check hydraulic oil level and fill as required.

7.15 ELECTRICAL SYSTEM


CAUTION

Always turn the ignition switch off and remove the negative battery cable (Black) before inspecting or working on the electrical system.


General precautions that can be taken to reduce electrical problems are listed below.

1. Make certain all terminals and connections are clean and properly secured.
2. Check the Interlock System, and circuit breakers regularly.

If the Interlock System does not function properly and the problem cannot be corrected contact an authorized Jacobsen Dealer.

3. Keep the wire harness and all individual wires away from moving parts to prevent damage.
4. Make sure the seat switch harness is connected to the main wire harness.
5. Check the battery and battery charging circuit.
6. Do not wash or pressure spray around electrical connections and components.

7.16 MUFFLER AND EXHAUST


WARNING

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, and always replace a defective muffler.

If you notice a change in the color or sound of the exhaust, stop the engine immediately. Identify the problem and have the system repaired.

Torque all exhaust manifold hardware evenly. Tighten or replace exhaust clamps.

7.17 TIRES

1. Keep tires properly inflated to prolong tire life. Check inflation pressure while the tires are cool. Inspect tread wear.
6. Check the pressure with an accurate, low pressure tire gauge.
7. Keep tires inflated to:
 - Front - 16-20 psi - (1.10-1.38 BAR)
 - Rear - 12-14 psi (0.83-0.96 BAR)
 - Casters - 20-25 psi (1.38-1.72 BAR)


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.

7 MAINTENANCE

7.18 WHEEL MOUNTING PROCEDURE

WARNING

Make sure the mower is parked on a solid and level surface. Never work on a mower that is supported only by the jack. Always use jack stands.

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

1. Remove dirt, grease, and oil from stud thread. Do not lubricate threads.
2. Position wheel on hub and inspect to insure full contact between mounting surface of wheel and hub.
3. Finger tighten all hardware then torque hardware in criss-cross order; always tighten nuts in the top position.
4. Check and retorque daily until torque is maintained. See **Section 8.16**.

7.19 CARE AND CLEANING

Wash the mower and implements after each use. Keep the equipment clean.

NOTICE

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

1. Use compressed air to clean engine and radiator fins. A special blow gun is available through your Jacobsen Dealer.
2. Use only fresh water for cleaning your equipment.

NOTICE

Use of salt water or affluent water has been known to encourage rust and corrosion of metal parts resulting in premature deterioration or failure. Damage of this nature is not covered by the factory warranty.

3. Do not spray water directly at the instrument panel, ignition switch, controller, or any other electrical components, or at bearing housings and seals.
4. Clean all plastic and rubber trim with a mild soap solution or use commercially available vinyl/rubber cleaners.

Repair damaged metal surfaces and use Jacobsen touch-up paint. Wax the equipment for maximum paint protection.

CAUTION

Clean grass and debris from cutting units, drives, muffler, and engine to prevent fires.

WARNING

NEVER use your hands to clean cutting units. Use a brush to remove grass clippings from blades. Blades are extremely sharp and can cause serious injuries.

7.20 ROLLOVER PROTECTION STRUCTURE (ROPS)

A Rollover Protection System (ROPS) is included with this mower. Inspect it periodically and follow operating procedures described in Safety and Operation Manual.

CAUTION

Do not loosen or remove bolts, do not weld, drill, modify, bend, or straighten a damaged structure.

1. The seat, the seat belt, mounting hardware, and any accessories within the ROPS should be inspected regularly and all damaged parts replaced immediately.
2. Once the ROPS has been subjected to any form of impact it should be replaced.
3. Check and retorque all hardware. All replacement components used for the ROPS must be as specified in the Jacobsen Parts List.
4. Only operate the mower with the ROPS folded when absolutely necessary. **There is no roll over protection with the ROPS folded.**
5. Seat belts must be worn whenever operating the mower with the ROPS in the raised and locked position. Always keep seat belt snugly adjusted. **DO NOT** use seat belts with the ROPS folded.

7.21 RADIATOR AND OIL COOLER

 **WARNING**

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

 **CAUTION**

Do not pour cold water into a hot radiator. Do not operate engine without a proper coolant mixture. Install cap and tighten securely.

1. Check coolant level daily. Radiator should be full and recovery bottle should be up to the **cold** mark.
2. Drain and refill annually. Remove the radiator cap, open the engine block drain and the radiator drain. Empty and clean the recovery bottle.
3. Mix clean water with ethylene glycol based anti-freeze for the coldest ambient temperature. Read and follow the instructions on the anti-freeze container and engine manual.
4. Keep the hood and screen clean. Remove leaves or grass clippings from screen daily.
5. Open trap door under the radiator and engine oil cooler.

 **WARNING**

To prevent burns, do not touch muffler or muffler shield when opening trap door. Surface temperatures may exceed 150° F (66° C).

6. Use compressed air, up to 30 psi (2.06 BAR), to clean the radiator and engine oil cooler fins.
7. Direct air through the engine side of radiator towards rear of mower and through rear of oil cooler towards the front of mower.
8. Clean the entire compartment underneath the radiator and close trap door.
9. Check and tighten the fan belt. Replace clamps and hoses every two years.
10. If you continue to experience engine or hydraulic system overheating, have to add coolant more than once a month, or add more than one quart at a time, have a authorized Jacobsen Dealer check the cooling system.

7 MAINTENANCE

7.22 STORAGE

General

1. Wash the mower thoroughly and lubricate. Repair and paint damaged or exposed metal.
2. Inspect the mower, tighten all hardware, replace worn or damaged components.
3. Drain and refill radiator.
4. Clean the tires thoroughly and store the mower so the load is off the tires. If mower is not on jack stands, check tires at regular intervals and re-inflate as necessary.
5. Keep the machine and all its accessories clean, dry and protected from the elements during storage. Never store equipment near an open flame or spark which could ignite fuel or fuel vapors.

Battery

1. Remove, clean and store battery in upright position in a cool, dry place.
2. Check and recharge battery every 60 to 90 days while in storage.
3. Store batteries in a cool, dry place. To reduce the self discharge rate, room temperature should not be above 80°F (27°C) or fall below 20°F (-7°C) to prevent electrolyte from freezing.

Engine (General)

1. While the engine is warm, remove the drain plug, drain the oil from the crankcase, and change oil filter. Install drain plug and refill with fresh oil. Let engine cool before storing.
2. Clean exterior of engine. Paint exposed metal or apply a light coat of rust preventative oil.
3. Add a fuel conditioner or biocide to prevent gelling or bacterial growth in fuel. See your local fuel supplier.
4. If storing indoors, drain fuel from tank.
5. Close fuel shut off valve.

Cutting Units

1. Wash the cutting units thoroughly, then repair and paint any damaged or exposed metal.
2. Lubricate all fittings and friction points.



CAUTION

To prevent personal injury and damage to the cutting edges, handle the blades with extreme care.

After Storage

1. Check and reinstall battery.
2. Check or service fuel filter and air cleaner.
3. Check the radiator coolant level.
4. Check oil level in the engine crankcase and hydraulic system.
5. Fill the fuel tank with fresh fuel. Open fuel shut off valve and bleed the fuel system.
6. Make certain that the tires are properly inflated.
7. Remove all oil from the blades. Adjust the cutting height.
8. Start and operate the engine at 1/2 throttle. Allow enough time for the engine to become properly warmed and lubricated.



WARNING

Never operate the engine without proper ventilation; exhaust fumes can be fatal when inhaled.

8.1 GENERAL

WARNING

To prevent injury, lower implements to the ground, disengage all drives, engage parking brake, stop engine, and remove key from ignition switch before making any adjustments or performing maintenance.

Make sure the mower is parked on a solid and level surface. Never work on a mower that is supported only by the jack. Always use jack stands.

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

1. Adjustments and maintenance should always be performed by a qualified technician. If proper adjustment cannot be made, contact an authorized Jacobsen Dealer.

2. Replace, do not adjust, worn or damaged components.
3. Long hair, jewelry, or loose fitting clothing may get tangled in moving parts.

CAUTION

Be careful to prevent entrapment of the hands and fingers between moving and fixed components of the machine.

4. Do not change governor settings or overspeed the engine.

8.2 BALL JOINTS

When adjusting ball joints, be sure cut-out in ball joint is parallel to the mounting bracket, then secure in place.

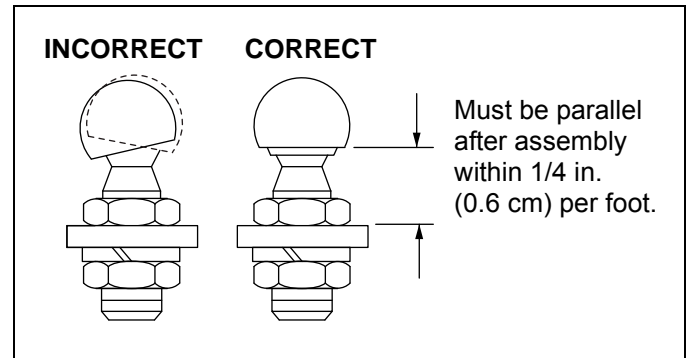


Figure 8A

8.3 ENGINE ALTERNATOR BELT

1. Inspect and adjust new alternator belt after the first 10 hours of operation. Check and adjust every 100 hours thereafter.
2. Adjust the alternator pulley so the belt deflects 9/32 to 11/32 in. (0.7 - 0.9 cm) with 22 lb. (10 kg) push at midpoint between pulleys. Refer to your engine manual.
3. To adjust, loosen alternator mounting bolts (A), and adjust alternator until the proper belt tension is achieved.

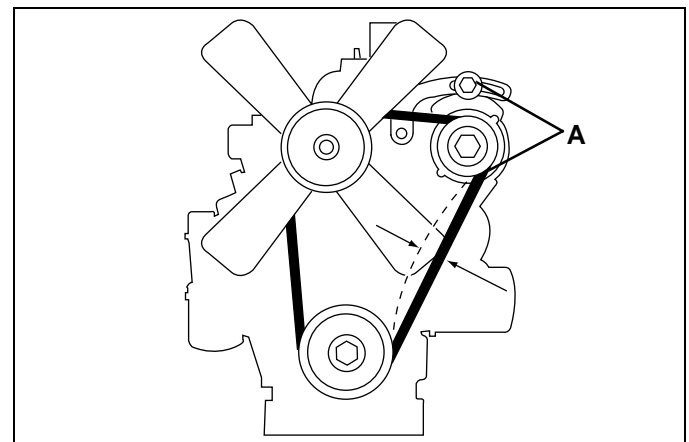


Figure 8B

8 ADJUSTMENTS

8.4 MOW SPEED

Cutting quality is better at speeds well below the transport speed of the mower. An initial mow speed of seven to eight mph is set at the factory and should be satisfactory for most cutting conditions. Local turf conditions however may respond better to a different speed.

To set mow speed, loosen jam nut **(R)**, and adjust stop screw up to reduce speed, down to increase speed. Tighten nut to hold adjustment in place.

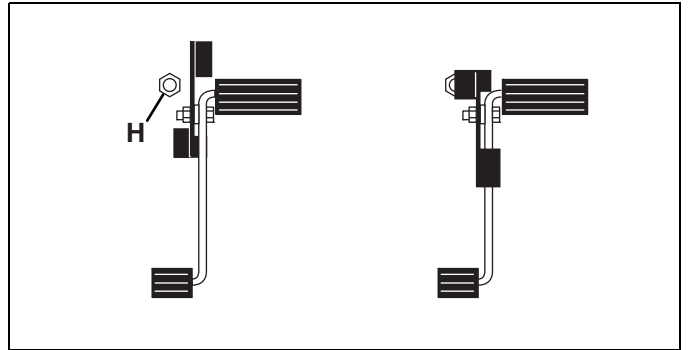


Figure 8C

8.5 REVERSE SENSING SWITCH

1. Loosen switch hardware **(R)**.
2. Adjust switch **(S)** so switch contacts are open with switch roller contacting the adjustment block **(T)** and the traction pedal in Neutral and close when pedal is moved in the forward direction.
3. Secure switch adjustment and test operation.
4. If adjustment cannot be made, contact your authorized Jacobsen Dealer.

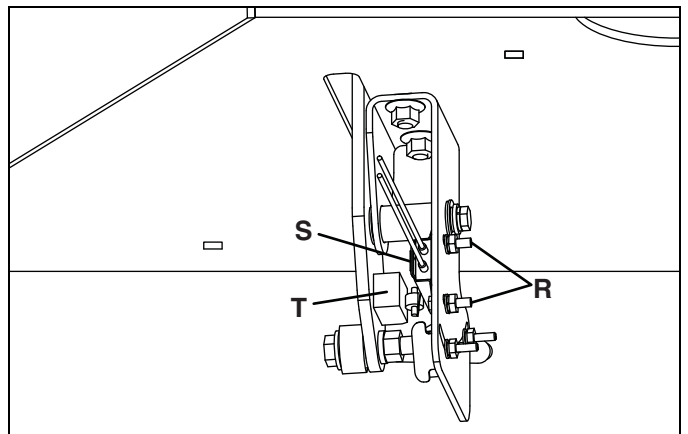


Figure 8D

8.6 NEUTRAL SWITCH

1. Loosen switch hardware **(A)**.
2. With traction pedal in Neutral, adjust switch **(B)** so pedal linkage screw **(C)** is centered over switch target.
3. Secure switch adjustment and test operation.
4. If adjustment cannot be made, contact your authorized Jacobsen Dealer.

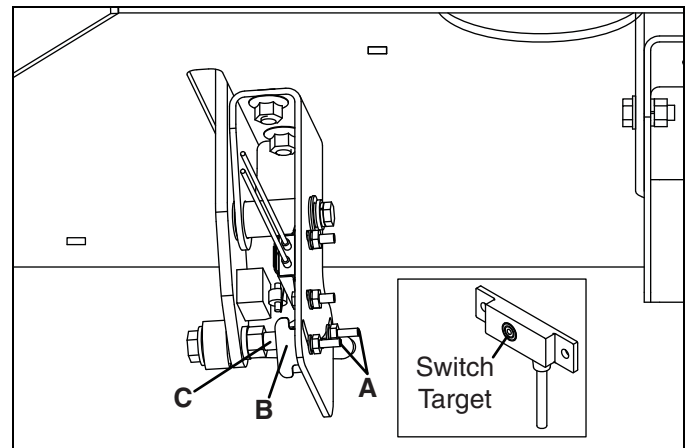


Figure 8E

8.7 HYDRO NEUTRAL

If the mower “creeps” in either direction, the Neutral position must be adjusted. The mower may tend to “creep” if the hydraulic oil is cold. Operate mower for 15 minutes before determining if adjustment is needed.

WARNING

Carbon monoxide in the exhaust fumes can be fatal when inhaled. Any adjustments or repairs performed while the engine is running must be made with ample ventilation.

1. Place a small amount of lubricating oil on all linkage pivot points.
2. Hoist mower so all four tires are off the ground and place jack stands under the frame to prevent accidental lowering of the mower during adjustment. Place jumper wire across seat switch connector.
3. Start engine and set throttle to full speed.
4. Disengage parking brake and place 2WD/4WD Switch in 2WD position.
5. Remove lower centering spring hardware **(S)**. Check rotation of drive tires and adjust traction return control **(L)** with the engine running.
 - a. To adjust for forward creep, loosen nut **(M)**, and turn nut **(N)** in until tires stop rotating. Hold nut **(N)** in place and tighten nut **(M)**.
 - b. To adjust for reverse creep, loosen nut **(M)**, and turn nut **(N)** out until tires stop rotating. Hold nut **(N)** in place and tighten nut **(M)**.
 - c. After adjusting for creep, loosen jam nut **(U)** and adjust rod end **(V)** as required so hole in ball joint aligns with hole in bracket **(Item R)**. Tighten jam

nut and assemble hardware **(S)**.

6. If mower continues to creep, check position of traction return control **(L)** and centering spring **(T)**.
 - a. The return control **(L)** and centering spring **(T)** must be parallel to cruise control plate **(O)**.
 - b. Loosen hardware **(P)** and adjust brackets **(Q and R)** until controls are parallel to arm.

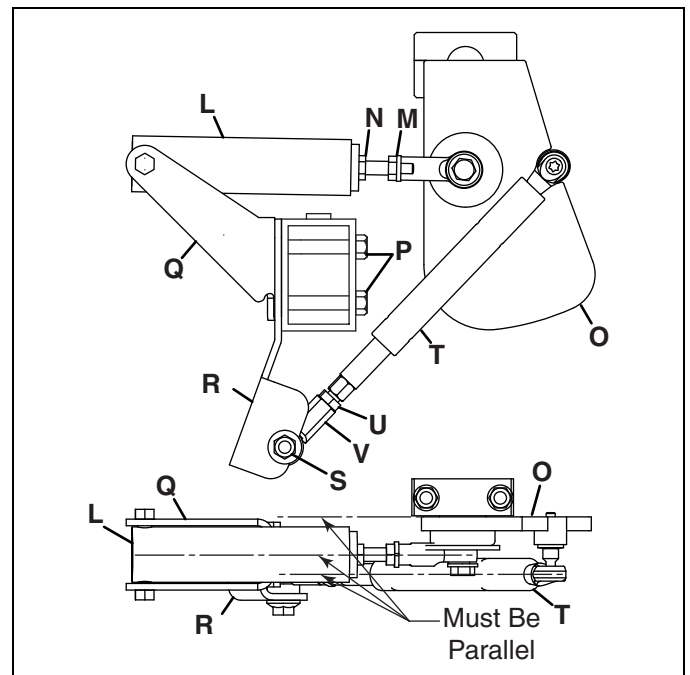


Figure 8F

8 ADJUSTMENTS

8.8 STEERING TOE IN

“Toe in” should be adjusted from $X + 1/16$ in. (0.15 cm).

1. Turn wheels to straight ahead position.
2. Loosen tie rod jam nuts (**U**).
3. Adjust tie rod and re-tighten jam nuts.
4. After adjusting “Toe in” it may be necessary to re-adjust steering stop bolts.

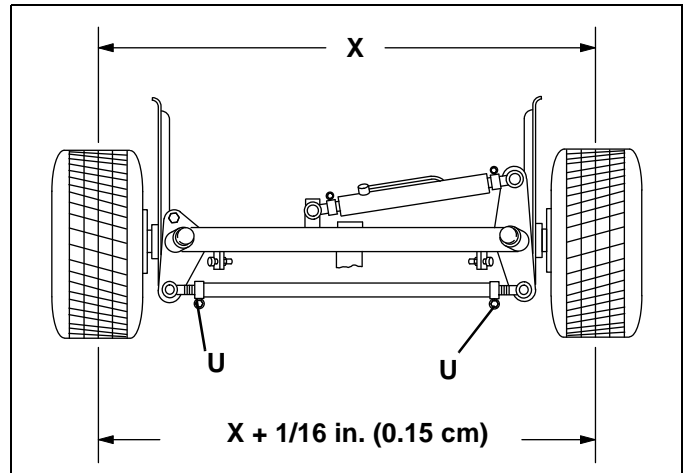


Figure 8G

8.9 TURNING RADIUS

1. Adjust steering cylinder (**V**) for equal angle steering in both directions. Check that ball joints are threaded equally into both ends.
2. Loosen both nuts (**Y**) and turn bolts completely in against mounting block.
3. Loosen screw and nut (**W**) on locking clamp. Turn cylinder rod to obtain desired length then re-tighten hardware.
4. Fully extend and retract steering cylinder and readjust steering stop bolts.

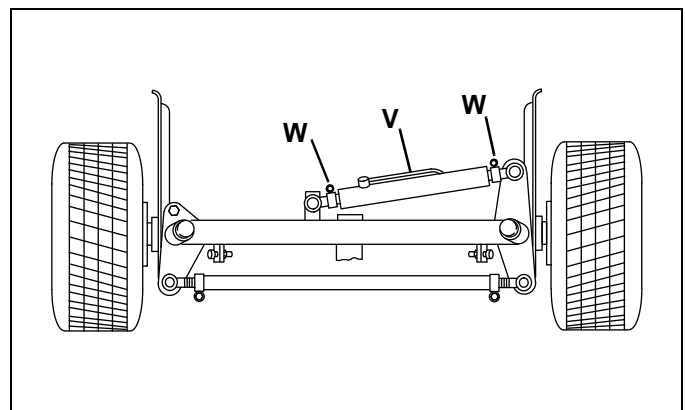


Figure 8H

8.10 STEERING STOP BOLTS

Do not adjust the stop bolts until the “Toe in” and steering cylinder have been adjusted.

1. Loosen both nuts (**Y**) and turn bolts completely in against mounting block.
2. Fully retract steering cylinder. Adjust left side stop bolt until it just touches steering arm. Tighten left side nut (**Y**).
3. Fully extend steering cylinder. Adjust right side stop bolt until it just touches steering arm. Tighten right side nut (**Y**).

NOTE: *Steering stop bolts must not limit the travel of the steering cylinder rod stroke.*

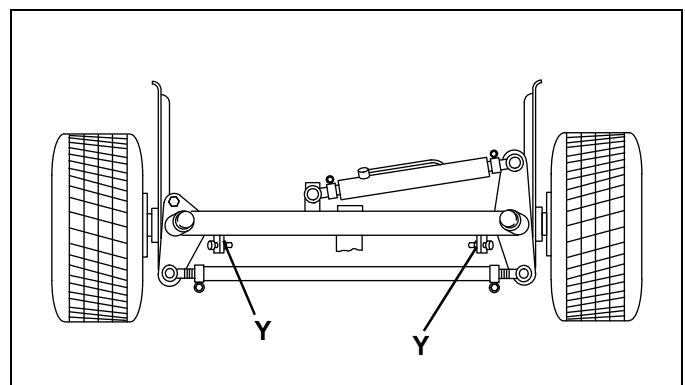


Figure 8I

8.11 CUTTING HEIGHT

Level the front mower before setting the cutting height for the first time. Do not remove the cutting units from the mower to change cutting height.

Cutting height for decks can be adjusted from 1 to 5-1/2 in. (2.5-14.0 cm) in 1/2 in. (1.3 cm) increments. Actual cutting height may vary somewhat from the heights given depending on turf conditions, tire variances and other factors.

NOTICE

When cutting undulating areas, lower cutting heights may cause scalping. Adjust height accordingly to prevent turf damage.

1. Park the mower on a flat, level surface. Raise the decks until the caster wheels are raised off the ground enough so caster wheels can be removed from deck. Place blocks under decks so they are supported on all sides.

! WARNING

To prevent serious injury, lower deck until it is resting completely on the supports. This will prevent it from accidentally lowering while making adjustments. Disengage all drives, engage parking brake, stop engine, and remove ignition key.

2. **Figure 8J** shows the height adjustment decal for the casters.

- Column 1 - Height of Cut
- Column 2 - Arrangement of Spacers
- Column 3 - Arm Position
- Column 4 - Wing Mower Mounting Location
- Column 5 - Front Mower Mounting Location

3. Adjust spacers in quantity listed. Store extra spacers on top of spindle. Always leave one thin spacer above and below caster arm.
4. For cutting heights 3 in. (7.6 cm) and below, caster arms should be assembled to upper set of holes **(A)**. For cutting heights above 3 in. (7.6 cm), caster arms should be assembled to lower set of holes **(B)**.

NOTICE

After setting cutting height, fully lower cutting units onto a flat, hard surface, stop engine, and measure the distance from the blade tips to the ground. If the distance is different from the desired cutting height, make adjustments as necessary. Cut in a small test area and make any final adjustments for desired turf appearance.

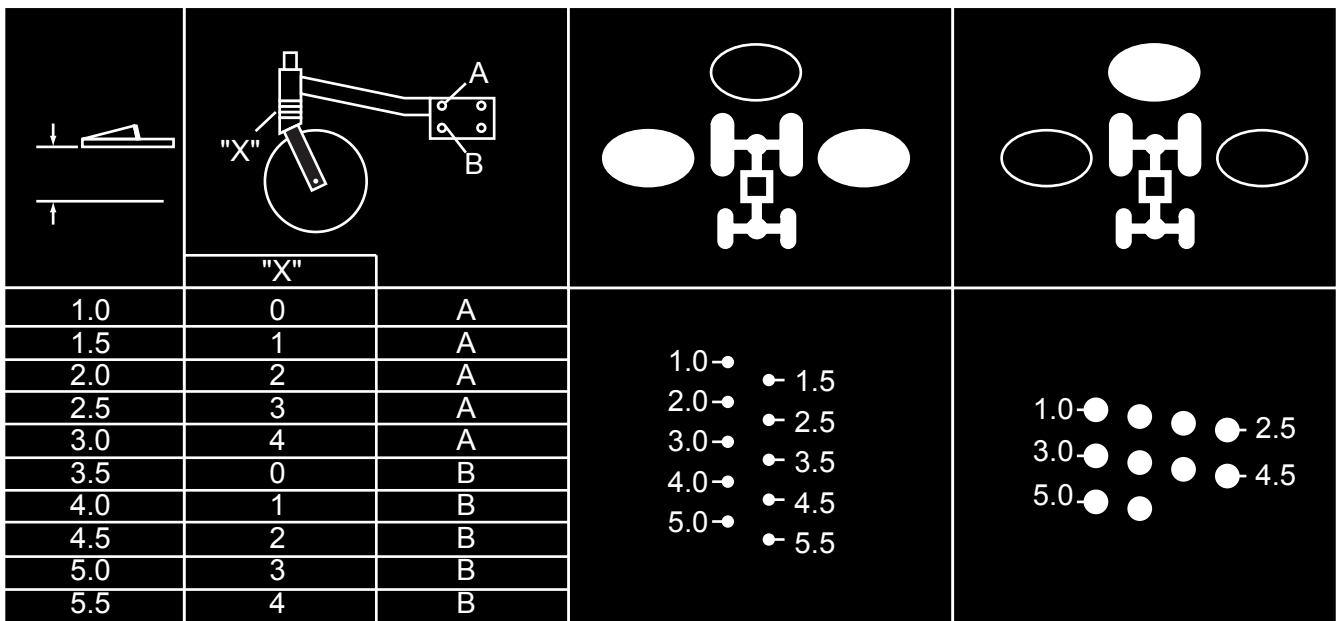


Figure 8J

8 ADJUSTMENTS

8.12 LEVELING FRONT MOWER

1. Before leveling the front deck, the mower tires, and caster wheels must be properly inflated. The cutting height is directly related to the radius of the tire.
2. Set the cutting height of the front mower to 5-1/2 in. (14.0 cm).
3. Rotate all blades so that one end of the blade (**A**) is pointing forward.
4. Fully lower front deck. Measure from the ground to point (**A**) and from the ground to point (**B**). Point (**B**) must be 1/8 in. (0.3 cm) higher than point (**A**).
5. Add or remove shims (**C**) as required between bumper pad (**D**) and lift arm (**E**).
6. Once the front mower has been properly leveled, the cutting height may be readjusted without changing the shims. It may be necessary to re-level the deck if there is a change to the tires.

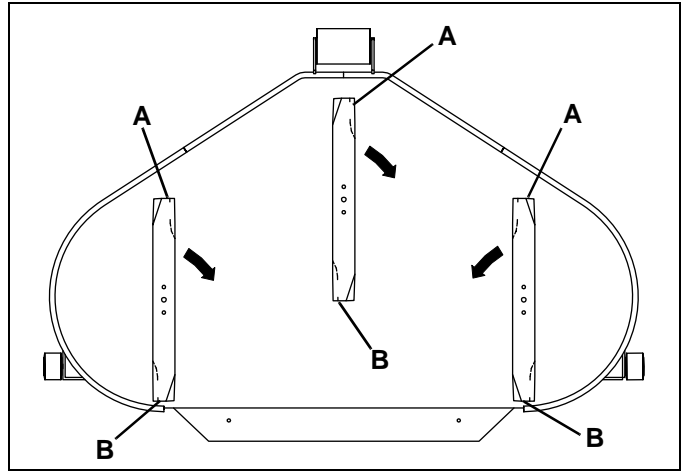


Figure 8K

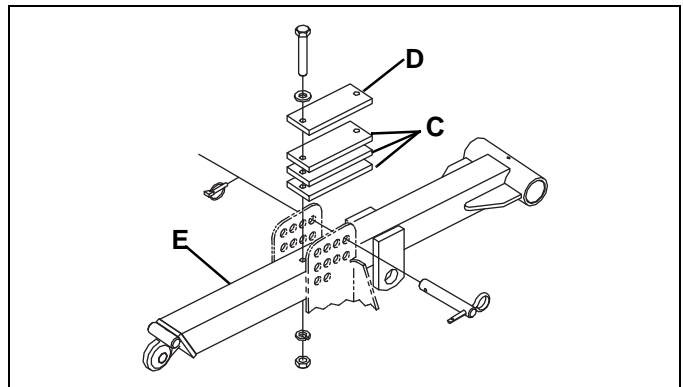


Figure 8L

8.13 WEIGHT TRANSFER

1. Adjusting weight transfer knob affects lowering time of the lift arms and also affects ground pressure at each tire.
2. Loosen thin knob (**J**), and adjust large knob (**K**) to increase or decrease cutting unit weight. Knob adjusts all three mowers simultaneously.
 - a. Increasing cutting unit weight allows mowers to follow contours of ground better and reduces mower ground pressure.
 - b. Decreasing cutting unit weight increases mower weight, which increases traction on slopes.
 - c. Once desired ground pressure has been obtained, tighten thin knob (**J**).

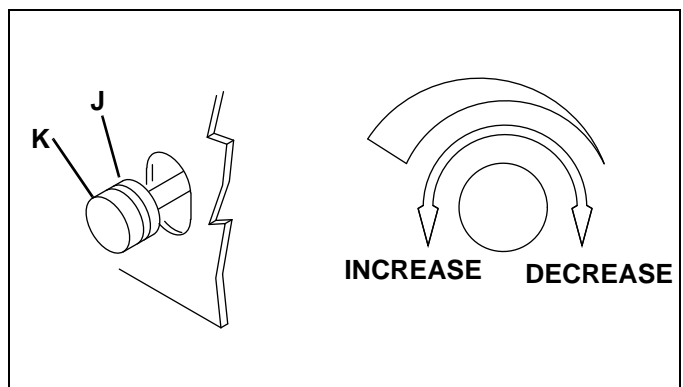


Figure 8M

NOTICE

If cutting unit weight is set too low, wing cutting units will not lower to the ground from transport position.

8.14 SERVICING FRONT DECK

The front deck can be raised and tilted up to improve access to the cutting unit and blades for service and cleaning. Be sure to disengage all drives, engage parking brake, stop engine and remove ignition key before working around deck.

To tilt front deck up to its service position:

1. Fully raise front and right wing deck. Stop engine.
2. Remove height of cut pins from front deck and carefully lift deck to a perpendicular position.
3. Use height of cut pin on left front lift arm to pin deck in service position.
4. Start engine and lower front deck to the ground. Stop engine and remove ignition key.

To return deck to service:

1. Start engine and fully raise front deck. Stop engine. Remove pin from left front lift arm and slowly lower front deck.
2. Install height of cut pins in correct set of holes. Start engine and lower front deck.

8 ADJUSTMENTS

8.15 TORQUE SPECIFICATION





NOTICE

All torque values included in these charts are approximate and are for reference only. Use of these torque values is at your sole risk. Jacobsen is not responsible for any loss, claim, or damage arising from the use of these charts.





Extreme caution should always be used when using any torque value.

Jacobsen uses Grade 5 Plated bolts as standard unless otherwise noted. For tightening plated bolts use the value given for lubricated.

AMERICAN NATIONAL STANDARD FASTENERS

SIZE	UNITS					SIZE	UNITS				
		GRADE 5		GRADE 8				GRADE 5		GRADE 8	
		Lubricated	Dry	Lubricated	Dry			Lubri-cated	Dry	Lubri-cated	Dry
#6-32	in-lb (Nm)	–	20 (2.3)	–	–	7/16-14	ft-lb (Nm)	37 (50.1)	50 (67.8)	53 (71.8)	70 (94.9)
#8-32	in-lb (Nm)	–	24 (2.7)	–	30 (3.4)	7/16-20	ft-lb (Nm)	42 (56.9)	55 (74.6)	59 (80.0)	78 (105)
#10-24	in-lb (Nm)	–	35 (4.0)	–	45 (5.1)	1/2-13	ft-lb (Nm)	57 (77.2)	75 (101)	80 (108)	107 (145)
#10-32	in-lb (Nm)	–	40 (4.5)	–	50 (5.7)	1/2-20	ft-lb (Nm)	64 (86.7)	85 (115)	90 (122)	120 (162)
#12-24	in-lb (Nm)	–	50 (5.7)	–	65 (7.3)	9/16-12	ft-lb (Nm)	82 (111)	109 (148)	115 (156)	154 (209)
1/4-20	in-lb (Nm)	75 (8.4)	100 (11.3)	107 (12.1)	143 (16.1)	9/16-18	ft-lb (Nm)	92 (124)	122 (165)	129 (174)	172 (233)
1/4-28	in-lb (Nm)	85 (9.6)	115 (13.0)	120 (13.5)	163 (18.4)	5/8-11	ft-lb (Nm)	113 (153)	151 (204)	159 (215)	211 (286)
5/16-18	in-lb (Nm)	157 (17.7)	210 (23.7)	220 (24.8)	305 (34.4)	5/8-18	ft-lb (Nm)	128 (173)	170 (230)	180 (244)	240 (325)
5/16-24	in-lb (Nm)	173 (19.5)	230 (26.0)	245 (27.6)	325 (36.7)	3/4-10	ft-lb (Nm)	200 (271)	266 (360)	282 (382)	376 (509)
3/8-16	ft-lb (Nm)	23 (31.1)	31 (42.0)	32 (43.3)	44 (59.6)	3/4-16	ft-lb (Nm)	223 (302)	298 404	315 (427)	420 (569)
3/8-24	ft-lb (Nm)	26 (35.2)	35 (47.4)	37 (50.1)	50 (67.8)	7/8-14	ft-lb (Nm)	355 (481)	473 (641)	500 (678)	668 (905)

METRIC FASTENERS

SIZE	UNITS									Non Critical Fasteners into Aluminum
		4.6		8.8		10.9		12.9		
		Lubricated	Dry	Lubricated	Dry	Lubricated	Dry	Lubricated	Dry	
M4	Nm (in-lb)	–	–	–	–	–	–	3.83 (34)	5.11 (45)	2.0 (18)
M5	Nm (in-lb)	1.80 (16)	2.40 (21)	4.63 (41)	6.18 (54)	6.63 (59)	8.84 (78)	7.75 (68)	10.3 (910)	4.0 (35)
M6	Nm (in-lb)	3.05 (27)	4.07 (36)	7.87 (69)	10.5 (93)	11.3 (102)	15.0 (133)	13.2 (117)	17.6 (156)	6.8 (60)
M8	Nm (in-lb)	7.41 (65)	9.98 (88)	19.1 (69)	25.5 (226)	27.3 (241)	36.5 (323)	32.0 (283)	42.6 (377)	17.0 (150)
M10	Nm (ft-lb)	14.7 (11)	19.6 (14)	37.8 (29)	50.5 (37)	54.1 (40)	72.2 (53)	63.3 (46)	84.4 (62)	33.9 (25)
M12	Nm (ft-lb)	25.6 (19)	34.1 (25)	66.0 (48)	88.0 (65)	94.5 (70)	125 (92)	110 (81)	147 (108)	61.0 (45)
M14	Nm (ft-lb)	40.8 (30)	54.3 (40)	105 (77)	140 (103)	150 (110)	200 (147)	175 (129)	234 (172)	94.9 (70)

8.16 SPECIFIC TORQUE

Tie Rod Ball Joints (2): 30 ft lb. (40 Nm).
 Steering Cylinder Ball Joints (2): 40 ft lb (54 Nm).
 Blade Adapter Bolts (14): 35 - 40 ft lb (47 - 54 Nm).
 Center Blade Bolts (7): 67-83 ft lb (91-112 Nm).

Rear Wheel Bolts (10): 40 - 50 ft lb (54 - 68 Nm).
 Front Wheel Bolts (10): 85-95 ft lb (115 - 129 Nm)

9.1 GENERAL

The problem solving chart below lists basic problems that may occur during start-up and operation. For more detailed information regarding the hydraulic and electrical systems contact your area Jacobsen Dealer.

Symptoms	Possible Causes	Action
Engine will not start.	<ol style="list-style-type: none"> 1. Parking brake switch OFF, traction pedal not in neutral, cruise control switch ON, or PTO switch on. 2. Battery low on charge or defective. 3. Fuel tank empty or dirty. Fuel shut off valve closed. 4. Circuit breaker blown. 	<ol style="list-style-type: none"> 1. Check Interlock system and start-up procedure. 2. Inspect condition of battery and battery connections. 3. Fill with fresh fuel. Change fuel filter. Bleed fuel lines. Open fuel shut off valve. 4. Reset circuit breaker.
Engine hard to start or runs poorly.	<ol style="list-style-type: none"> 1. Fuel level low, fuel or fuel filter dirty. 2. Air cleaner dirty. 3. Injectors, fuel pump. 4. Engine problem. 	<ol style="list-style-type: none"> 1. Fill with fresh fuel. Change fuel filter. Bleed fuel lines. 2. Inspect and replace air filter. 3. Consult engine manual. 4. Consult engine manual.
Engine stops.	<ol style="list-style-type: none"> 1. Fuel tank empty. 2. Interlocks not set before leaving operator's seat. 	<ol style="list-style-type: none"> 1. Fill with fresh fuel and bleed fuel lines. 2. Engage parking brake, set PTO switch to OFF, set cruise control switch to OFF, and traction pedal in Neutral.
Engine overheating.	<ol style="list-style-type: none"> 1. Coolant level low. 2. Air intake restricted. 3. Water pump belt broken or loose. 4. Engine overload. 	<ol style="list-style-type: none"> 1. Inspect and add coolant. 2. Clean cooling air intake. 3. Tighten or replace belt. 4. Reduce forward speed.
Battery not holding charge.	<ol style="list-style-type: none"> 1. Loose or corroded battery terminals. 2. Low electrolyte. 3. Alternator belt loose or broken. 4. Charging system defective. 	<ol style="list-style-type: none"> 1. Inspect and clean terminals. 2. Refill to correct level. 3. Tighten or replace belt. 4. See engine manual.
Mowers do not cut or cut unevenly.	<ol style="list-style-type: none"> 1. Cutting units not fully lowered. 2. Engine speed too low. 3. Low hydraulic oil. 	<p>Lower cutting units to ground.</p> <p>Check engine speed. Run engine at full throttle.</p> <p>Check reservoir level and fill if needed.</p>
Mower does not react to traction pedal.	<ol style="list-style-type: none"> 1. Parking brake switch ON. 2. Tow Valve Open. 3. Low hydraulic oil. 	<p>Turn parking brake switch OFF.</p> <p>Close Tow Valve.</p> <p>Check reservoir level and fill if needed.</p>
Implement does not raise or lower.	<ol style="list-style-type: none"> 1. Low hydraulic oil. 	<p>Check reservoir level and fill as needed.</p>
Gauges/Indicator not operating.	<ol style="list-style-type: none"> 1. Circuit Breaker blown. 2. Loose wiring. 	<p>Reset circuit breaker, check bulb.</p> <p>Check electrical connections.</p>

10 QUALITY OF CUT

10.1 QUALITY OF CUT TROUBLESHOOTING

It is recommended that a “test cut” be performed to evaluate the mower’s performance before beginning repairs.

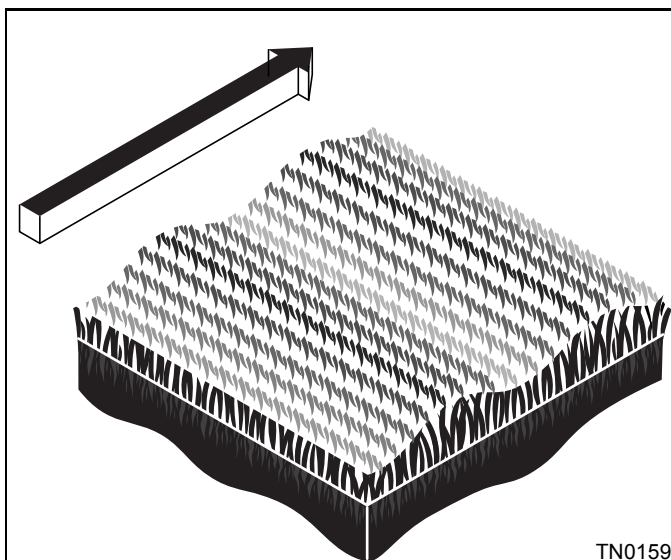
An area should be available where “test cuts” can be made. This area should provide known and consistent turf conditions to allow accurate evaluation of the mower’s performance.

Another “test cut” should be performed after the completion of the repairs and/or adjustments to verify the mower’s performance.

Before performing a “test cut” to diagnose cut appearance and mower performance, the following items should be verified to ensure an accurate “test cut.”

1. Mowing (Ground) Speed
2. Blade Sharpness
3. Height-of-Cut (HOC)
4. Decks Leveled
5. Blade Speed
6. Deck Rake not Set

10.2 WASHBOARDING



TN0159

NOTE: Arrow indicates direction of travel.

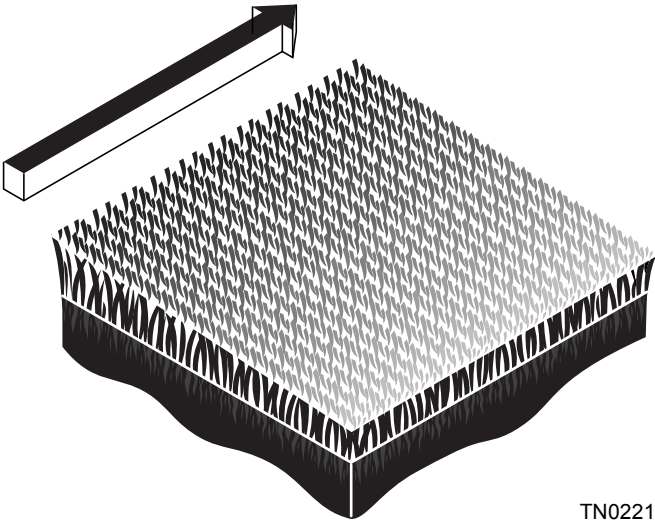
Washboarding is a cyclical pattern of varying cutting heights, resulting in a wave-like cut appearance.

This condition is usually caused by the weight transfer not set correctly.

Washboarding may also be caused by variations in the turf.

Probable Cause	Remedy
Decks have too much or too little weight on them.	Adjust weight transfer valve to put more weight on decks. (Refer to Section 8.13.)

10.3 STEP CUTTING



Step cutting occurs when grass is cut taller on one side of a deck than the other. This is usually caused by mechanical wear or deck caster adjustment.

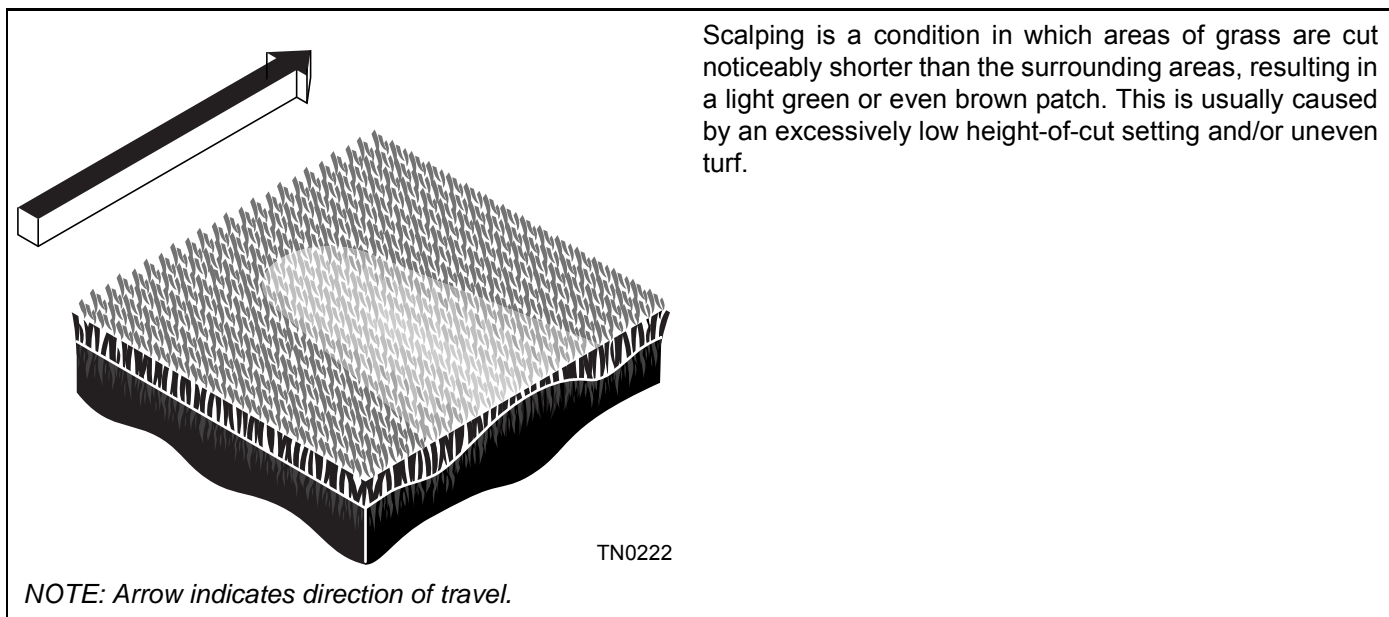
TN0221

NOTE: Arrow indicates direction of travel.

Probable Cause	Remedy
HOC (height-of-cut) settings are different from one side of a deck to the other or from one deck to another.	Check HOC adjustment of decks. (Refer to Section 8.11.)
Worn deck caster wheel bearings or fork bushings.	Check/replace deck caster wheel bearings and fork bushings.
Tire pressure uneven.	Check/adjust proper tire inflation pressure. (Refer to Section 7.17.)

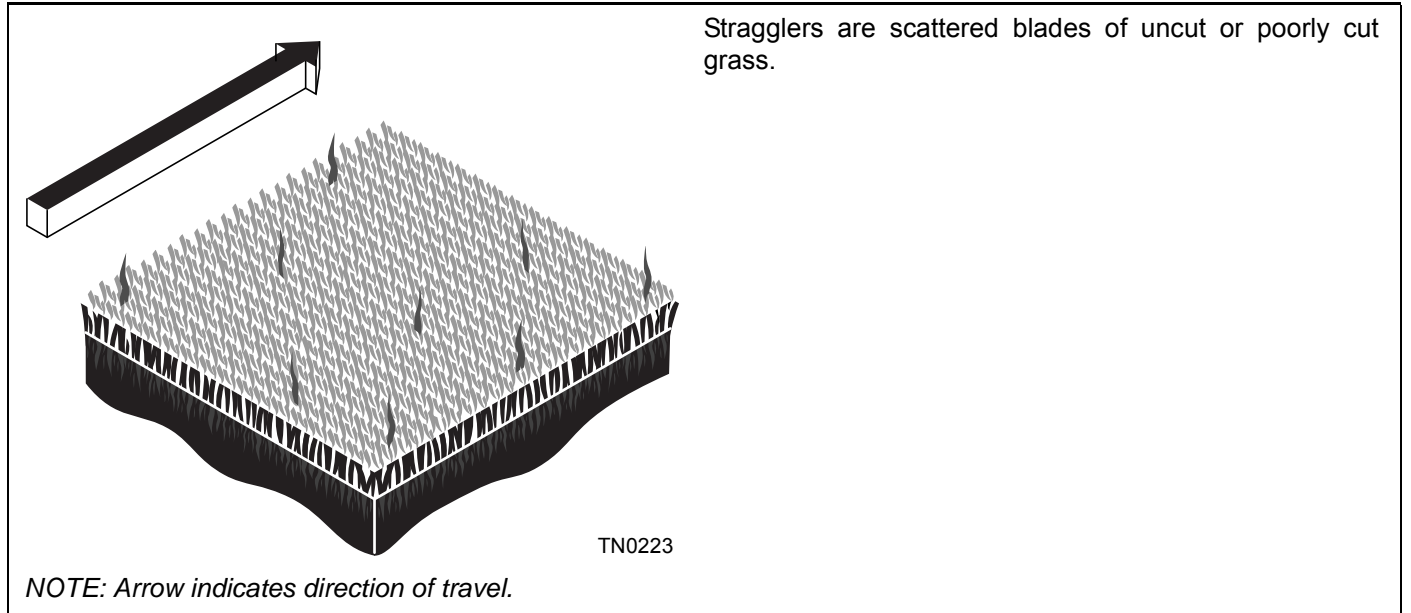
10 QUALITY OF CUT

10.4 SCALPING



Probable Cause	Remedy
HOC (height-of-cut) settings are lower than normal.	Check and adjust the HOC settings. (Refer to Section 8.11.)
Turf too uneven for the mower to follow.	Change mowing direction or raise HOC setting.

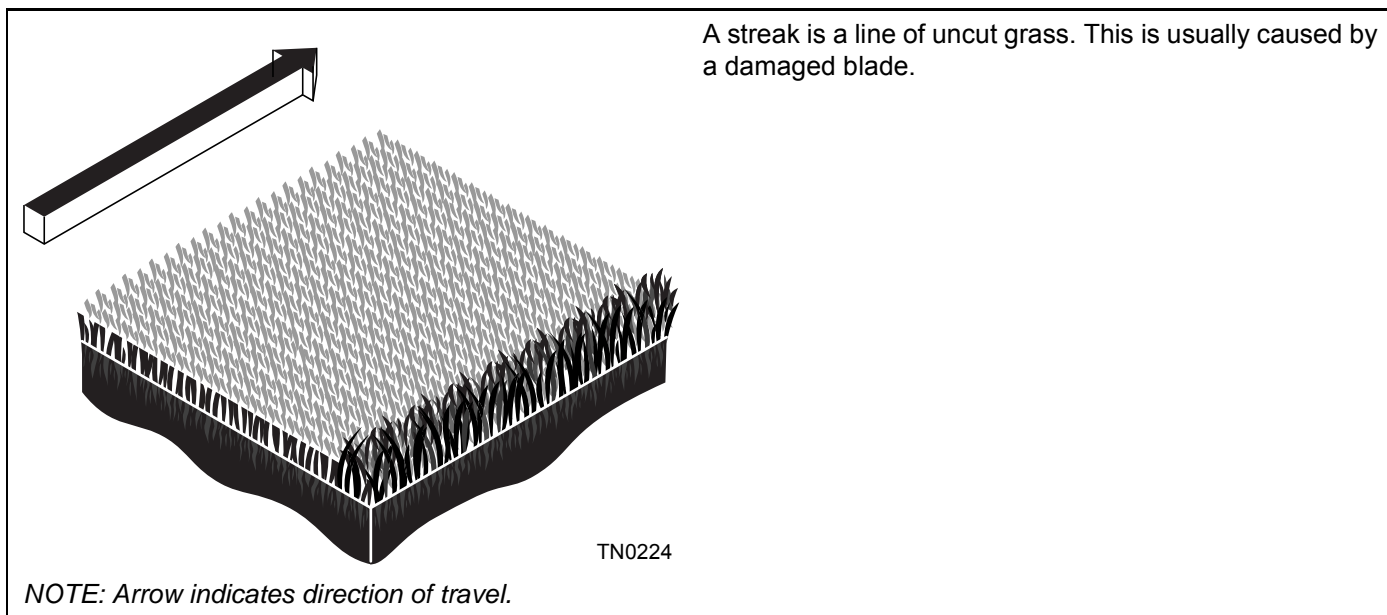
10.5 STRAGGLERS



Probable Cause	Remedy
Dull cutting blade(s).	Sharpen blade(s). (Refer to Section 7.3.)
Mowing (ground) speed is too fast.	Reduce mowing (ground) speed.
Grass is too tall.	Mow more often.
Mowing in the same direction.	Change mowing direction regularly.
Blade speed too slow	Inspect and repair hydraulic system.

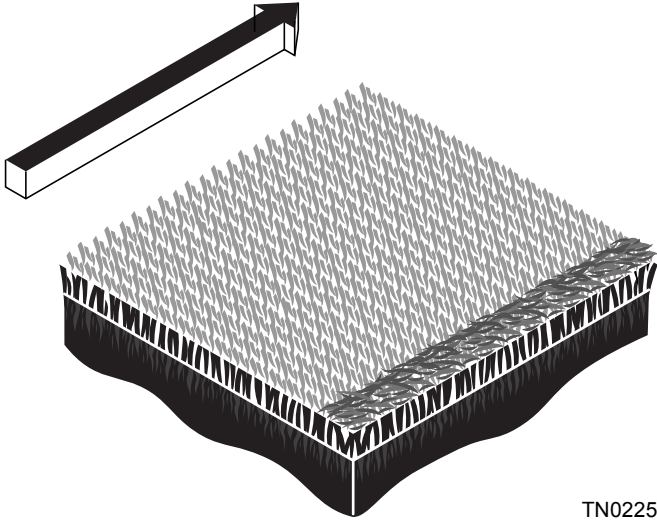
10 QUALITY OF CUT

10.6 STREAKS



Probable Cause	Remedy
Damaged blade(s).	Replace blade(s).
Turning too aggressively. Cutting units don't overlap during turns or on side hills.	Turn less aggressively to allow cutting units to overlap. Change mowing direction or pattern on side hills.
Tire mats down grass before it is cut.	Install high lift blades.
Blades installed incorrectly.	Check for proper clockwise/counter-clockwise blade installation.

10.7 WINDROWING



Windrowing is the deposit of clippings concentrated at one end of cutting unit(s) or between cutting units, forming line(s) in the direction of travel.

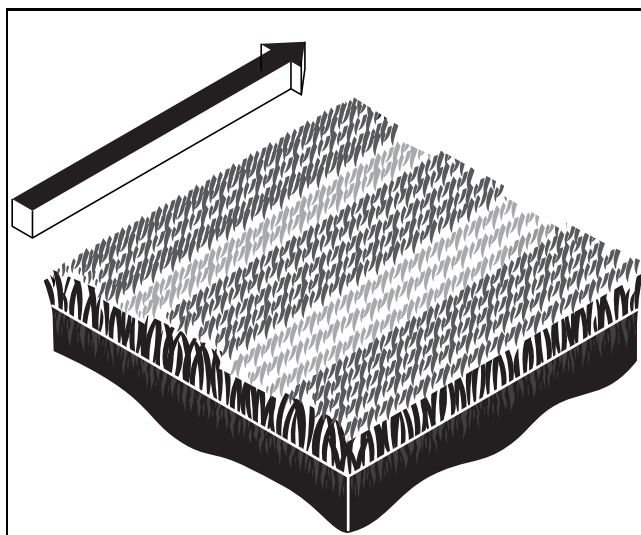
TN0225

NOTE: Arrow indicates direction of travel.

Probable Cause	Remedy
Grass is too tall.	Mow more often.
Mowing while grass is wet.	Mow when grass is dry.

10 QUALITY OF CUT

10.8 MISMATCHED CUTTING UNITS



Mismatched decks is a pattern of varying cutting heights, resulting in a stepped cut appearance, usually due to mismatched HOC (height-of-cut) adjustment from one deck to another.

TN1278

NOTE: Arrow indicates direction of travel.

Probable Cause	Remedy
HOC inconsistent from one deck to another.	Check/adjust HOC on decks to same height. (Refer to Section 8.11.)
Difference in blade speeds.	Check operation of rotary cutting motor(s) and repair/replace as necessary.
Difference in deck ride height side to side.	Check/adjust tire inflation pressure. (Refer to Section 7.17.)
Decks not level.	Level decks. (Refer to Section 8.12.)
Deck rake not set.	Adjust decks so that front of blade is 1/8 in. (.125 cm) lower than rear of blade. (Refer to Section 8.12.)

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