Safety, Operation & Maintenance Manual

Jacobsen HR600 / HR700, Kubota ® V2403-CR-TE5, With Reversing Fan, 4WD with ROPS And Cab

Series from: MA500453 -
Series from: MC500327 -
Series from: MG500326 -
Series from: MK500346 -
Product code: JMP653F / JMP653CF / JHR700F / JHR700CF

⚠ WARNING

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

GB
United Kingdom

RJL ACCD

10005279-B-GB

1 CONTENTS

2.1 IMPORTANT

The HR600 / HR700 with Diesel engine is a self propelled rotary mower. With hydraulic systems to power the traction drive, the cutting unit lift and lower, the cutting unit drives and the steering.

IMPORTANT: Do the maintenance indicated in this manual to make sure that the quality of cut is kept at a high level.

This Manual is part of the machine and must stay with the machine always. The suppliers of new, or used, machines need to keep this documentation and supply the owners with a copy.

You must use the machine to cut the grass only and not for any other purpose. The Compliance with these conditions of The operation, service and repair specified by the manufacturer, are understood to be part of the correct use.

ALL operators **MUST** read through this manual and understand the Safety Instructions, controls, lubrication and maintenance procedures.

Make sure that you obey all safety and road traffic regulations.

You must not make any changes to the machine that are not approved by the manufacturer. This type of change can release the manufacturer from the liability for any damage or injury.

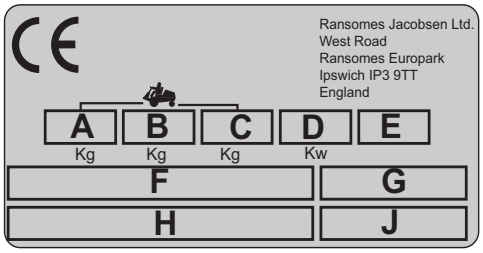
Discard of worn parts in alignment with all local environment protection regulations. Use the local systems available in the country where the machine is used, for these recycled materials. When the machine is at its end of life, there are guidelines in this manual for the removal of the machine from use.

Use only Jacobsen Genuine spare parts to meet the machine type approval regulations specified by the European Union.

2006/42/EC
These instructions are the Original instructions confirmed by Ransomes Jacobsen Limited

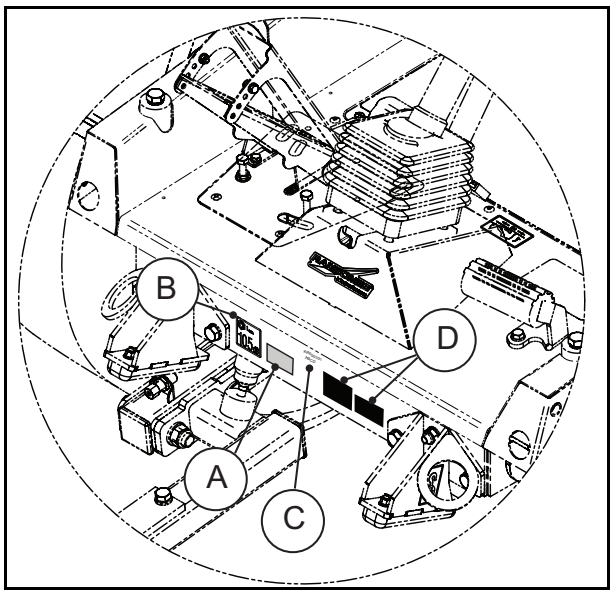
2.2 PRODUCT IDENTIFICATION

A Maximum front axle load in Kg (for all machines being driven on the highway)
B Weight-Mass in Kg
C Maximum rear axle load in Kg (for all machines being driven on the highway)
D Power Rating in Kw
E Date code
F Machine type (Name)
G Product code
H Product name
J Serial number



Location of Serial number plate

The serial number plate (A) is found on the front of the chassis, between the front deck stops next to the environmental noise decal (B).

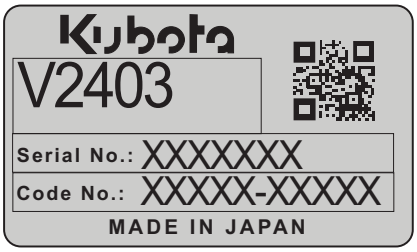


Chassis Stamp

The Serial number and date code (C) are shown on the chassis between the serial plate and engine data decals (D).

Engine Identification

Serial number plate



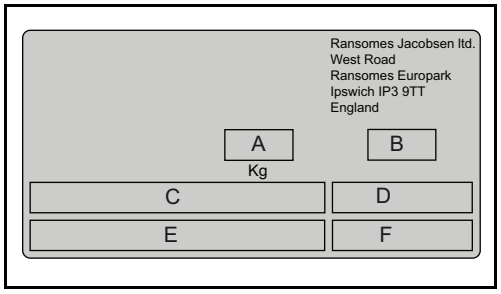
Location of Engine Serial number plate

The engine serial number is found on the top of the valve cover toward the front of the mower. Label shows the engine group and serial number.

The engine serial number is also found on the engine block.

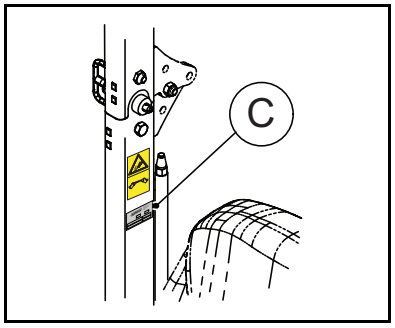
ROPS Serial number plate

A Reference Mass
B Date Code
C Standard Used
D Part Number
E For Product
F Serial Number



ROPS Serial number plate Location

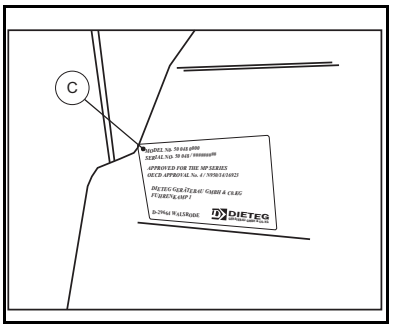
The ROPS serial number plate (C) is found at the base of the front of the ROPS main beam.



Cabin Serial number plate

Cabin Serial number plate Location

The cab serial number plate (C) is located on the front face of the control panel facing forwards.



2.3GUIDELINES FOR THE DISPOSAL OF SCRAP PRODUCTS

2.3.1 DURING SERVICE LIFE

All the used fluids and parts must be controlled as hazardous materials material. Recommended procedures must be followed for their safe removal.

If a fluid leak occurs, contain the spill to make sure that the leak does not flow into the ground or drainage system. Follow the regulations in force to make sure that leaks are controlled.

The maintenance procedures in this manual make sure that the damage that the machine can cause in the local environment is controlled.

When the machine completes its full service life, the following actions must be taken.

2.3.2 END OF SERVICE LIFE

These guidelines must be used with applicable Health, Safety and Environmental laws. Always use the approved local waste disposal and agencies for recycled materials.

- Park the machine in an applicable area to use all of the necessary lifting equipment.
- Use correct tools and Personal Protective Equipment (PPE) and take instruction from the technical manuals applicable to the machine.
- Remove and store correctly
  1. Batteries
  2. Fuel
  3. Engine coolant
  4. Oils
- Read the Technical Manual before you begin to disassemble the machine. Plan the disassembly, give attention to parts that are in a state of mechanical pressure or contain stored energy e.g springs.
- Items that continue to have a service life must be separated and returned to the local dealer.
- Items that are worn must be separated into the material groups and removed according to the agencies for the recycled materials that are available. Common examples.
  - Steel
  - Non ferrous metals
    - Aluminium
    - Brass
    - Copper
  - Plastic materials
    - Identified
    - Can be recycled
    - Can not be recycled
    - Not identified
  - Rubber
  - Electrical and Electronic Components
- Some parts are not easily separated e.g Hydraulic hose. These materials must be added to the “General discarded materials” area.
- Do not burn discarded materials.

Change the machinery records to show that the machine is not in operation and is discarded. Supply this serial number to The Jacobsen Warranty Department to close their records.

2.4 PARTS MANUAL

To meet the standard ISO14001, Ransomes Jacobsen Limited does not send a paper parts manual with every product.

To refer to the parts list for this mower you have four options:

1. Website – www.jacobsen.com. Select the “ONLINE PARTS LOOK-UP” tab. These pages will show the parts list and the line drawings you need to help with the identification of spare parts.

2. Website – www.jacobsen.com. Select the “MANUALS” tab. You have the option to view or “Download” a PDF version of the parts manual.

3. Complete the form included in the technical manual pack supplied with the machine for one of the two options below
   a. A disc that contains an electronic copy of the Parts Book.
   b. A paper copy of the parts manual.

2.5 KEY NUMBERS

Record the key numbers

Starter Switch Key:- -

Diesel tank Filler Cap:- -

Record the machine and the engine numbers.
The machine serial number is found on the registration plate and the engine serial number is on the rocker cover.

Machine Serial Number:- -

Engine Serial Number:- -

NOTES

3.1 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.

3.1.1 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 Ransomes Jacobsen 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.

3.1.2 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. When you mow with a side discharge deck, **DO NOT** operate the cutting unit without the discharge chute installed.

d Inspect the mower before you operate the mower. Check the tyre 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 Manufacture.

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.

3.1.3 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.

3.1.4 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 The ROPS should only be folded if absolutely necessary for storage or when working on flat ground under low obstructions. 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 protections with the ROPS in the folded position

c 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 protections with the ROPS in the folded position.

d Check for clearance before you drive below objects. Do not contact tree branches, electrical wires or other objects with the ROPS.

e Do not use the seat belt with the ROPS in the folded position.

f Inspect the ROPS for damage. Keep the ROPS hardware fastened.

g Do not weld, drill, change or bend the ROPS. Replace a damaged ROPS. Do not try to correct a damaged ROPS.

h Do not remove the ROPS from the mower.

i Jacobsen must approve any changes to the ROPS.

3.1.5 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.

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 (25 mm) 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.

3.1.6 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.

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.

f 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.

g 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.

h 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.

i 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.

j 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.

k Carefully release the pressure from components with stored energy.

l 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.

m 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.

n 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.

o Keep the mower and the engine clean.

p Allow the engine to become cool before storage and always remove the ignition key.

q Keep all nuts, bolts and screws tight to make sure the equipment is in safe condition.

r Replace worn or damaged parts for safety. Replace damaged or worn decals. Only use parts, accessories and attachments approved by Jacobsen.

s To decrease the fire hazard, remove materials that burn from the engine, muffler, battery tray and fuel tank area.

t Disconnect the battery and controller connectors before you weld on this mower.

3.1.7 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.

Make sure that all latches are correctly fastened.

3.1.8 Important Safety Notes

This safety alert symbol is used to alert you to possible hazards.

DANGER:
Indicates a dangerous condition that WILL cause death or injury unless it is prevented.

WARNING:
Indicates a dangerous condition that CAN cause death or injury unless it is prevented.

CAUTION:
Indicates a dangerous condition that can cause injury and property damage unless it is prevented. Also, the label can indicate work procedures that are not safe.

IMPORTANT:
Only drive the machine at road speed when you are on a highway. You must not select road speed on grass areas or rough roads and gravel tracks.

Some illustrations in this manual can show shields, guards or plates removed for clearness. This equipment must not be operated without these devices correctly fastened in position.

⚠ WARNING

The Interlock System on this mower prevents the starting of the mower unless a.) The parking brake is Engaged. b.) The mow switch is in the OFF position, c.) The traction pedal is in the Neutral position. d) The operator is in the seat. The system stops the engine when the operator leaves the seat a.) without the parking brake engaged or b.) the mow switch is not in the OFF position. NEVER operate the mower unless the Interlock System is working.

⚠ WARNING

1. Before leaving the operator's position for any reason:
   a. Return traction pedal to the Neutral position.
   b. Disengage all drives.
   c. Lower all implements to the ground.
   d. Engage parking brake.
   e. Stop the engine and remove the ignition key.
2. Keep your 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 persons and animals.
4. Never carry any passengers.
5. Never operate the equipment without a correctly fastened grass deflector in position.

By following all instructions in this manual, you increase the life of your machine and keep its maximum performance. Adjustments and maintenance must always be done by an approved technician.

If additional information or service is needed. Contact your Authorized Jacobsen Dealer, who knows the latest methods to service this equipment and can give that service.

⚠ WARNING

California Proposition 65
Engine Exhaust, Some Of Its Constituents, And Some Vehicle Components Contain Or Release Chemicals Known To The State Of California To Cause Cancer And Birth Defects Or Other Reproductive Harm.

⚠ WARNING

To Prevent Injury From The Hot Oil At High Pressure, Do Not Use Your Hands To Check For Oil Leaks. Make Sure That You Use Paper Or Cardboard.
Release Of Hydraulic Fluid At High Pressure Has Enough Force To Enter Through The Skin. If The Fluid Enters Through The Skin, The Fluid Must Be Surgically Removed Within Hours By A Specialist Doctor Or Gangrene May Result.

⚠ WARNING

When The Machine Is Driven Off-Road, A Seat Belt Must Be Worn Only When A Rops Frame Is In Position. This Warning Is Because A Seat Belt Must Be Worn With A Rops To Follow The Machinery Directive, 2006/42/EC Sections 3.2.2, Seating & 3.4.3, Rollover. (ANSI B71.4-2012 section 20.7)
Ransomes Jacobsen Limited Recommends That The Owner/User Of The Machine Completes A Local Risk Assessment Of The Machine To Find Any Conditions That Do Not Follow This Rule. E.g. When You Drive The Machine Next To Water Or On The Highway.

⚠ WARNING

Explosive Gases Are Released By Batteries. The Battery Contains Corrosive Acid And Supply An Electrical Current That Is High Enough To Cause Burn Injuries To The Body.

⚠ WARNING

You Must Not Use This Machine To Tow Other Vehicles.

⚠ WARNING

Ear Protection Must Be Worn When You Operate Machines With An Operator Ear Noise Level Of More Than 85 db(A) Leq.

⚠ WARNING

Vibration Exposure Limits
Exposure limits are calculated as a combination of the vibration level (magnitude) of the tool and the Daily Exposure Time (Trigger Time). E.g. A product with 5m/s² vibration can be used up to 2 hours/day to reach the EAV and up to 8 hours/day to reach the ELV.
Exposure Action Value (EAV) - Daily vibration exposure A(8) = 2.5m/s²
Where daily vibration exposure A(8) is below 2.5m/s² the risk is relatively low and no action need be taken
Exposure Limit Value (ELV) - Daily Vibration Exposure A(8) = 5.0m/s²
If several tools are use the exposure values must be combined:
Total exposure is then the combined value of the activities

⚠ WARNING

Never Mow If There Is A Risk Of Lightning Or You Hear Thunder. If You Are In The Middle Of Mowing, Stop In A Safe Place, Turn Off The Engine And Go Inside a Building.

⚠ CAUTION

When You Do Any Welding On The Machine, The Battery, Controller And Display Must Be Disconnected Before You Start. You Must Not Open The Controller. If The Controller Is Opened, This Can Cancel All Of The Warranties And Can Cause The Failure Of The Machine.

⚠ CAUTION

Personal Protective Equipment (PPE), For Example Safety Glasses, Leather Work Shoes Or Boots, A Hard Hat, Leather Work Gloves And Ear Protection Must Be Used After The Owner/User Completes A Local Risk Assessment Of The Mower, To Prevent Injury.
Training In All Manual Operations Must Be Given By An Approved Person Before The Machine Is Used The First Time.

4.1 SAFETY DECALS

A

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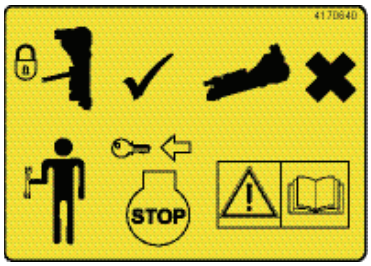
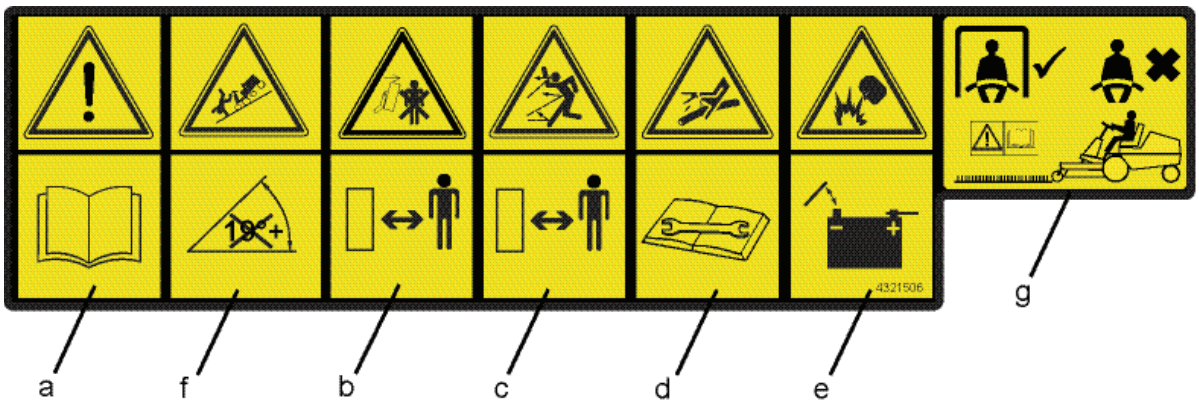


K

L

M

N

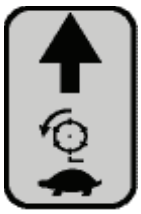


A.	009034920	Caution, Stay Away From Hot Surfaces.
B.	009034880	Caution, Fan Blade, Do Not Open Or Remove The Safety Shields While The Engine Is In Operation.
C.	009034900	Caution, Drive Belt, Do Not Remove The Safety Shields While The Engine Is In Operation.
D.	4324674	Caution, Low Sulfur Diesel Fuel.
E.	4118415	Caution, Engine Coolant Under Pressure.
F.	009034890	Caution, Keep A Safe Distance From The Machine.
G.	009034960	Caution, Rotating Blades
H.	009114380	Caution, Fasten Seat Belt
J	4153197	Caution, Stop The Engine And Remove The Starter Key Before You Pressure Wash The machine.
K.	4170640	Caution, Stop Engine & Remove the Starter Key, Lock Deck in its Vertical Position Before Carrying Out Maintenance Under Deck
L.	4164860	Caution, Hydraulic Oil
M.	4165644	Caution, No Step
N	4321506	Decal, Seal Plate 19°
	4252558	Decal, Seal Plate 15°
	4334846	Decal, Seal Plate 17°
	a.	Read The Operator Manual.
	b.	Crush Hazard.
	c.	Keep A Safe Distance From The Machine.
	d.	Prevent Contact With Hydraulic-Oil Release Under Pressure. Read Operator Manual For Service Procedures.
	e.	Danger Of Explosion If The Battery Terminals Are Short Circuited.
	f.	Maximum Permitted Slope. (See Accessories Section For Correct Limit With Different Accessories).
	g.	When The Machine Is Being Used Off Road, Whether Cutting Grass Or Not, The Seat Belt Must Only Be Worn When A ROPS Frame Is In Place And Deployed.

4.2 INSTRUCTION DECALS

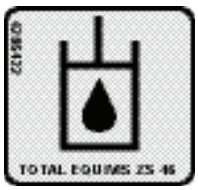
A

B

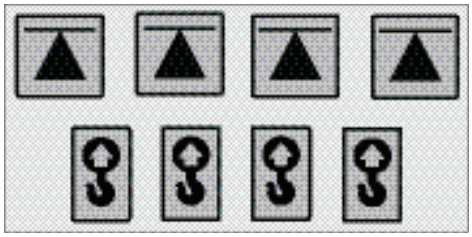


C

D



E



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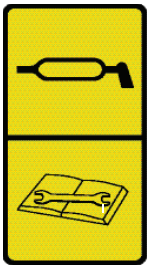

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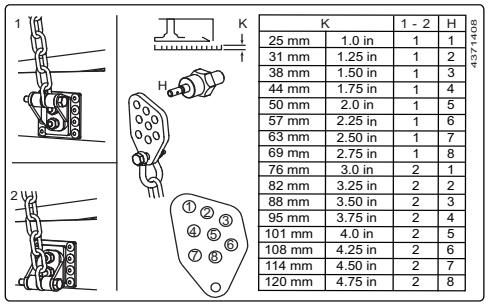
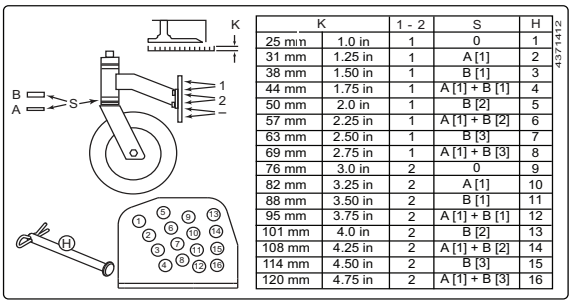


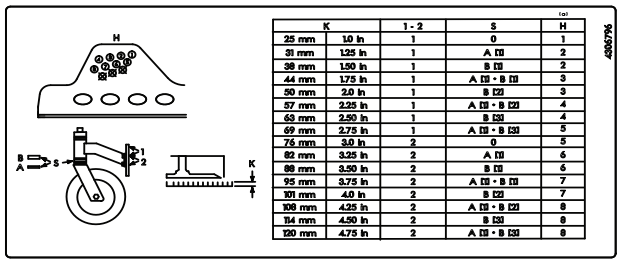
K		1 - 2	H
25 mm	1.0 in	1	1
31 mm	1.25 in	1	2
38 mm	1.50 in	1	3
44 mm	1.75 in	1	4
50 mm	2.0 in	1	5
57 mm	2.25 in	1	6
63 mm	2.50 in	1	7
69 mm	2.75 in	1	8
76 mm	3.0 in	2	1
82 mm	3.25 in	2	2
88 mm	3.50 in	2	3
95 mm	3.75 in	2	4
101 mm	4.0 in	2	5
108 mm	4.25 in	2	6
114 mm	4.50 in	2	7
120 mm	4.75 in	2	8

J

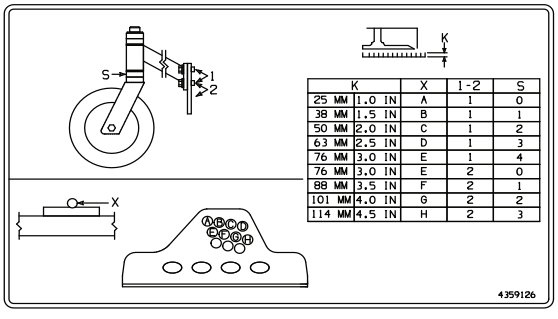


K		1 - 2	S	H
25 mm	1.0 in	1	0	1
31 mm	1.25 in	1	A [1]	2
38 mm	1.50 in	1	B [1]	3
44 mm	1.75 in	1	A [1] + B [1]	4
50 mm	2.0 in	1	B [2]	5
57 mm	2.25 in	1	A [1] + B [2]	6
63 mm	2.50 in	1	B [3]	7
69 mm	2.75 in	1	A [1] + B [3]	8
76 mm	3.0 in	2	0	9
82 mm	3.25 in	2	A [1]	10
88 mm	3.50 in	2	B [1]	11
95 mm	3.75 in	2	A [1] + B [1]	12
101 mm	4.0 in	2	B [2]	13
108 mm	4.25 in	2	A [1] + B [2]	14
114 mm	4.50 in	2	B [3]	15
120 mm	4.75 in	2	A [1] + B [3]	16

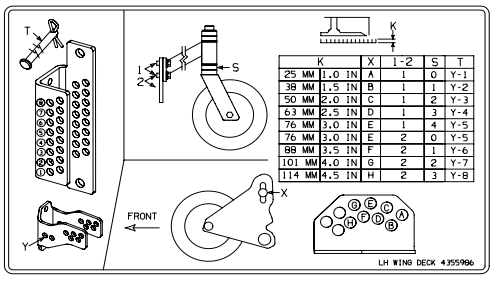
K



L



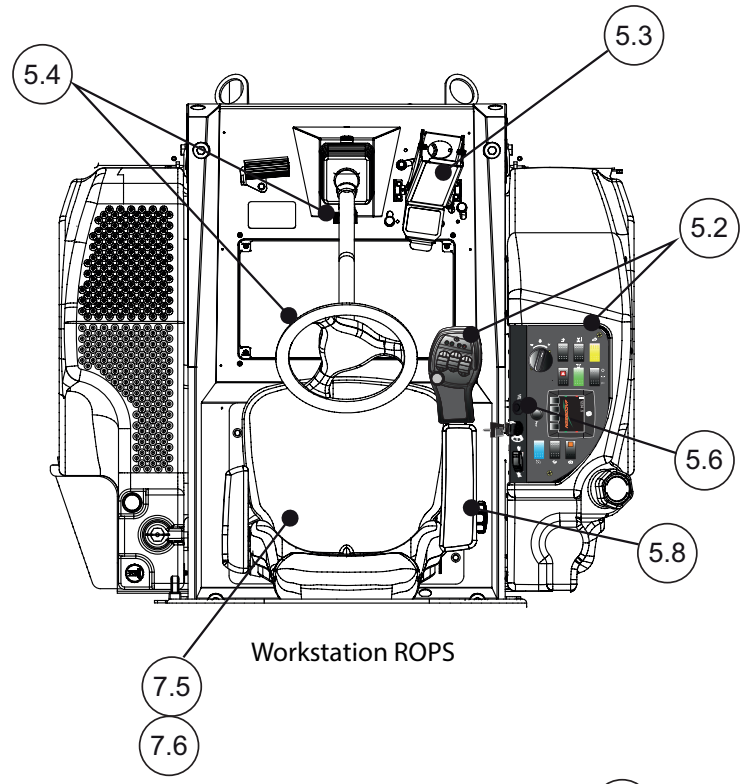
M



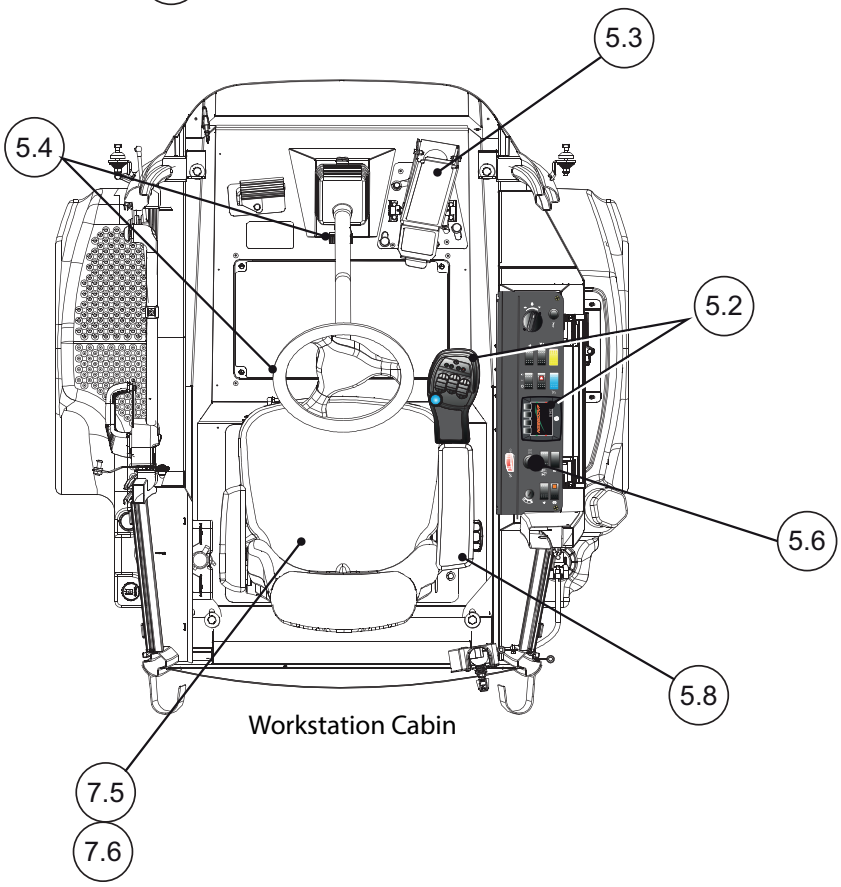
N

		Description
A.	009034770	Guaranteed Sound Power Level
B.	4316826	Mow Selector
C.	4316827	Transport Selector
D.	4164861	Forward / Reverse Traction Pedal
E.	4286422	Hydraulic Fluid
F.	009039870	Jack & Hook Point
G.	4164580	Lubrication Point
H.	4316686	Engine Oil Classification
J.	4371408	Height of cut - Wing decks MP600
K.	4371411	Height of cut - LH Wing deck MP600
	4371412	Height of cut - RH Wing deck MP600
L.	4306796	Height of cut - Front deck MP600
M.	4359126	Height of cut - Front deck HR700
N.	4355986	Height of cut - Wing deck LH HR700
	4363666	Height of cut - Wing deck RH HR700

5.1 OPERATOR WORKSTATION

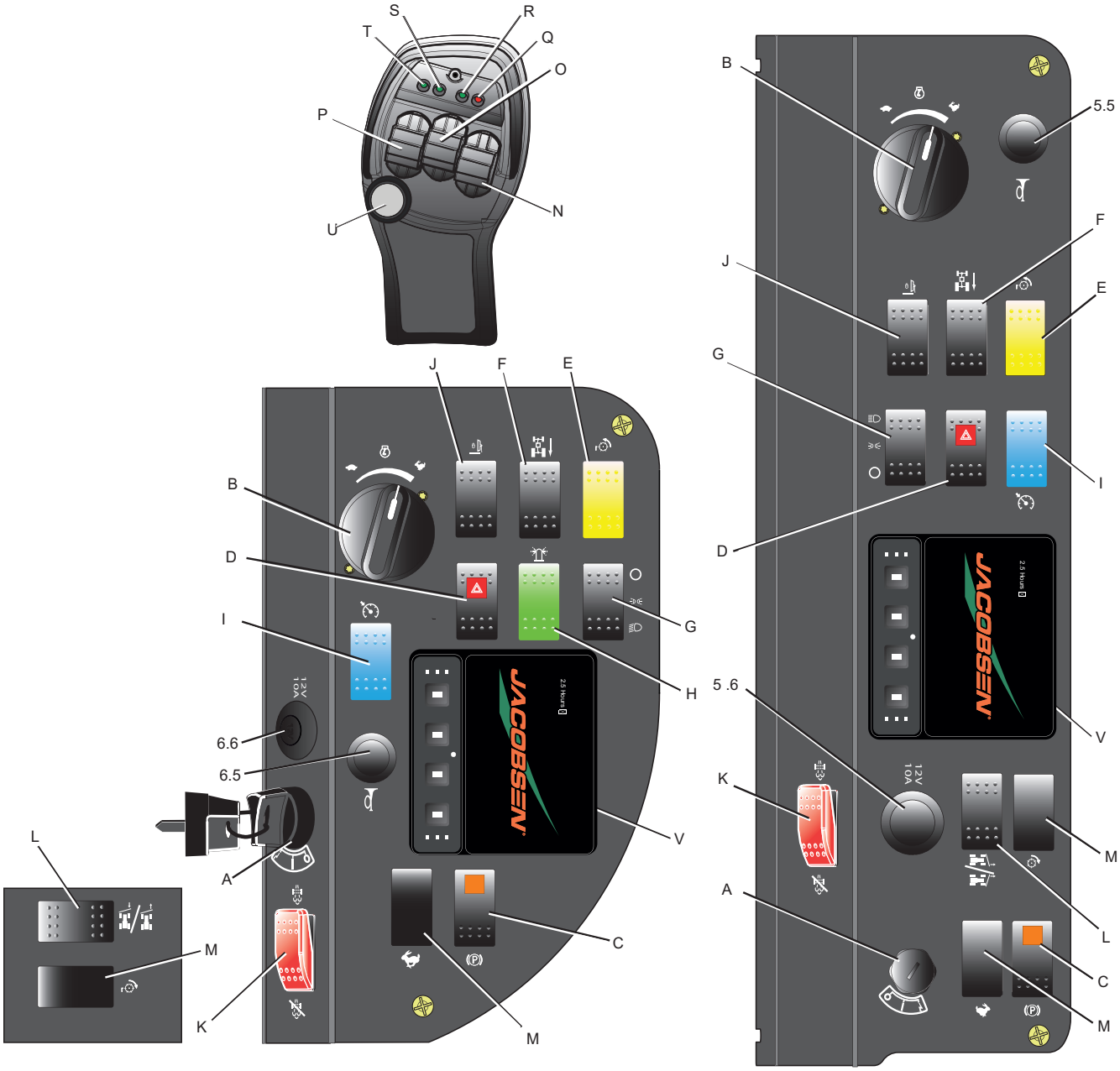


Workstation ROPS



Workstation Cabin

5.2 CONTROL PANEL



ROPS Panel

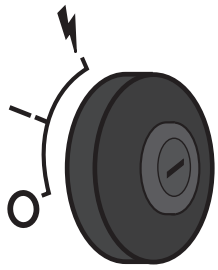
Cabin Panel

A: Starter Key Switch
B: Throttle Control
C: Park Brake Switch
D: Lamp Hazard Warning Switch (Optional)
E: Cutter Switch (PTO)
F: 4WD Reverse Assist
G: Road Light Switch (Optional)
H: Beacon Switch (Optional)
I: Cruise Control Switch
J: Transport Lock Switch
K: DPF Switch
L: Auxiliary Hydraulic Services (Optional)
M: Blank
N: Right Hand Cutting Unit Lift / Lower Control
O: Centre Cutting Unit Lift / Lower Control
P: Left Hand Cutting Unit Lift / Lower Control
Q: Cutters (PTO) LED Indicator
R: Right Hand Cutting Unit LED Indicator
S: Centre Cutting Unit LED Indicator
T: Left Hand Cutting Unit LED Indicator
U: Traction Boost / Weight Transfer Switch
V: Visual Display

5.2.A STARTER KEY SWITCH

The Starter Key (A) must be turned clockwise to the 'start' position to start the engine. After starting, the key must be released and allowed to return automatically to the 'on' position for normal running.

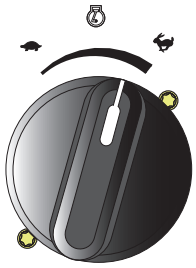
NOTE: The glow plugs will auto pre-heat depending on the coolant temperature before cranking begins.



5.2.B THROTTLE CONTROL ROTARY

Rotate the Throttle Control to the right to increase the engine speed and towards the left to decrease the engine speed.

NOTE: Operate the machine with the engine at full speed.

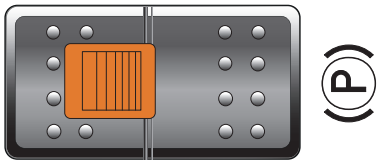


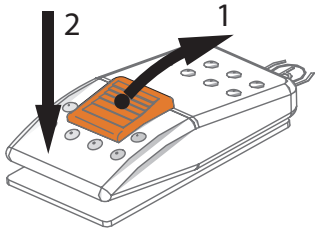
5.2.C PARK BRAKE

When the engine is running the Park Brake is applied by sliding back the orange button (1) on the rocker and depressing the switch (2) on the control panel. When the engine is switched off the Park Brake is automatically applied.

To release the parking brake depress the opposite end of the rocker switch.

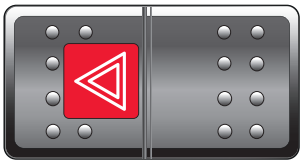
DO NOT apply the brake when the machine is moving.





5.2.D HAZARD WARNING SWITCH (OPTIONAL)

Switches the hazard warning indicators on and off.
The red lens flashes when switched on.

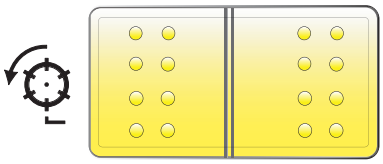


5.2.E CUTTER SWITCH (PTO)

Switches the Cutters On and Off when machine is in Mow mode (See Section 6.10).

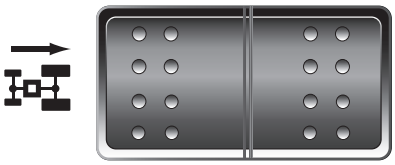
Push top of the PTO rocker switch to start the cutters.

Push bottom of the PTO rocker switch to stop the cutters.



5.2.F 4WD IN REVERSE SWITCH

Engages 4 wheel drive whilst the vehicle is reversing. The switch must be held to engage.

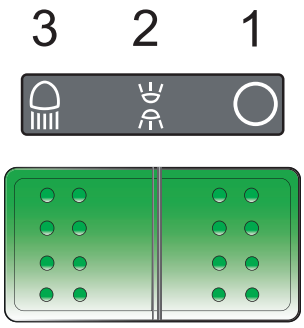


5.2.G LIGHT SWITCH (OPTIONAL)

Switches the road lights on and off.
Position 1. OFF*
Position 2. Side / Marker Lights
Position 3. Main Beam.

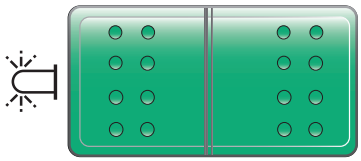
NOTE: Position 3 requires ignition to be on.

*Also there are daylight running lamps installed that automatically come on when the ignition is switched on.

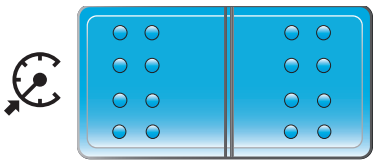


5.2.H ROTATING BEACON (OPTIONAL)

Operates the vehicles rotating beacon when a cab is not fitted.



5.2.I CRUISE CONTROL SWITCH

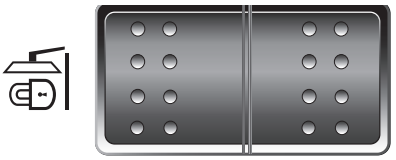


Cruise Control function will only operate whilst in cutting mode. When selected it will automatically hold the desired vehicle speed until further input by the operator is made.

To engage cruise control:

Automatic mode should be selected to enable cruise control.
Press the rocker switch to engage the cruise function.To disengage cruise control press the rocker switch to disengage the cruise function. The cruise control icon shall be displayed when active.

5.2.J TRANSPORT LOCK SWITCH

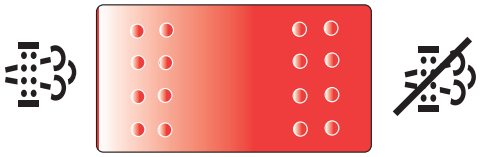


Engages the Wing Cutting Units lift arm locks for transport, preventing unintentional lowering of the cutting units whilst driving.

Press the forward part of the rocker switch to engage. Press the rear part of the switch to disengage.

The wing unit lock icon is displayed on the visual display screen when engaged.

5.2.K DPF SWITCH



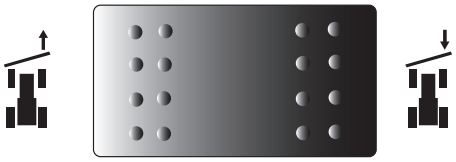
With the switch in the center position (default) it allows automatic Active Regen. Operation of the mower is not changed during Active Regen. See 8.15

When the Regen Request light flashes, press and release the front part of the switch to start the Parked Regen cycle.

To prevent damage to the turf during Parked Regen, park the mower on concrete or gravel. The engine must be warm (above 65° C / 149° F), the traction pedal in NEUTRAL position, PTO switch in OFF position and the parking brake engaged and the throttle in idle position for the Parked Regen cycle to start.

Do not stop the engine, disengage the parking brake or drive the mower until the Regen cycle is completed and the Regen Request light turns off. See 8.15

5.2.L AUXILARY HYDRAULIC SERVICES KIT SWITCH (OPTIONAL)



Used to slew the rotary brush or snow blade to the right or to the left.

Push the front of the rocker switch to slew to the right.

Push the rear of the rocker switch to slew to the left.

5.3 VISUAL DISPLAY

The visual display is activated when the ignition is turned on.

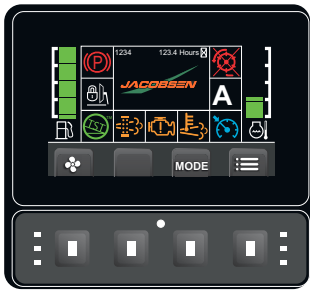
5.3.1 STARTUP SCREEN

When the Ignition Key is turned to the start position, this screen is shown.

The Hour Meter will show total hours of engine operation.

5.3.2 WARNING / SERVICE SCREEN

After the Start-up Screen the Warning Screen is shown, the screen is visible for four seconds. If the machine is within 5 hours of the next service, a warning is shown. An operator input is needed to continue to the Home Screen. If there is no input needed, the main screen will become visible. If a fault condition has occurred during the previous start, a pop up screen will become visible over the top of the warning screen. The operator must confirm the fault before they can move to the Home Screen.



1.	Park Brake Engaged
2.	DPF Inhibit
3.	DPF Regeneration Request
4.	DPF Regeneration Ongoing
5.	TST™ Active (Optional
6.	TST™ Not Active (Optional)
7	Cutter Indicator (Flashes if not in off position on start up)
8.	Water In Fuel Warning
9.	Transport Lock
10.	Foot Pedal Warning (Flashes if not in neutral position on start up)
11.	Seat Warning (Flashes if not occupied or disconnected on start up)
12.	Fuel Indicator (Below bar graph)
13.	Engine Temperature Indicator (Below bar graph)
14.	Check Engine
15.	Traction Boost / Weight Transfer
16.	Engine Able To Start (Green)
17.	Engine Unable To Start (Red)
18.	Fan
19.	Backlap
20.	Mode (Selection Pop Up)
21.	Automatic Mode
22.	Manual Mode
23.	Creep Mode
24.	Cruise Control

5.3.3 HOME SCREEN

This screen shows the Cutter Switch in the OFF position, the TST™ is in operation and the Park Brake is applied.

Note: The TST™ (Tilt Sensor Technology) is an optional active safety device to warn you when the machine is being used in unsuitable conditions.

If TST™ is not installed the TST™ icon will be crossed through.

Jacobsen recommends that the owner/user of the machine completes a site specific risk assessment of the area to be mown prior to operation of the machine

⚠ WARNING

The slope monitoring system “TST™” (Tilt Sensor Technology) is a slope angle warning system only. It does not increase the safe working slope beyond that of the declared safe slope.

5.3.4 ENGINE START

When the Ignition Key is turned to the start position, this screen is shown. If the Park Brake is applied, the Cutting Unit Switch is in the OFF position, the Foot Pedal is in the Neutral position, and the operator is in the seat, the engine will start.

This screen shows the fuel bar graph on the left side. The colour changes from green to red as the fuel level decreases. The engine temperature gauge is on the right side. The colour changes from green to red as the temperature increases.

5.3.5 THE ENGINE WILL NOT START

When the Ignition Key is turned to the start position this screen is shown. If any of the icons flash:

- The Park Brake is not applied.
- The Cutter Switch is not in the OFF position.
- The Foot Pedal is not in the neutral position.
- The operator is not in the seat.
- The vehicle angle is greater than 45º.

Note: The engine will not start until all the items in the list are correct. The red LEDs either side of the display will flash and the key icon in the centre will appear red.

GENERAL NOTES FOR WARNING SCREENS

The number in the bottom right of the screen indicates the total number of faults recorded. Press the button below the ✓ to confirm the fault.

5.3.6 MAIN MENU

The Main Menu is accessed by pressing button 4.

The arrow is moved up and down using **Button 2** and **3, Button 4** then enters the selected page, **Button 1** returns to the Home Screen. There will be four options within this menu:

- Clock
- Service Menu
- Settings
- Language.

5.3.7 CLOCK & DATE ADJUST

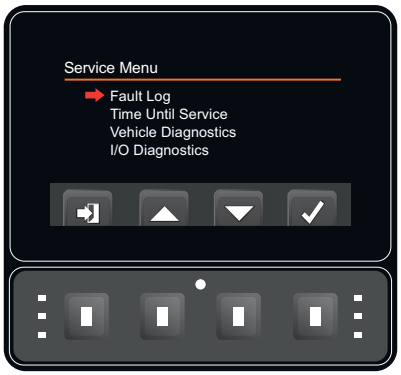
Button 3 is used to traverse the time and date digits, and **Button 2** is used to increment. As well as adjusting the Time and Date, this page can be used to change the Date Time format between EU and US.

Once amended **Button 1** is used to save and exit back to the Main Menu.

5.3.8 SERVICE MENU

The arrow can be moved up and down using **Buttons 2** and **3**, **Button 4** then enters the selected page, **Button 1** returns to the Main Menu. There are five options within this menu:

- Fault Log
- Time Until Service
- Vehicle Diagnostics
- I/O Diagnostics
- Display Inclines



5.4 FAULT LOG

The first page within the Fault Log makes it possible to see any Fault Popup Warnings that have occurred and been cleared, that are however still active. **Button 2 & 3** can be used to scroll through if there is more than one, **Button 1** exits to the Service Menu.

Button 4 takes the screen to the second Fault Log page which displays a list of the last 100 faults along with the Time, Date and Engine Hours that the fault occurred.The number in the top right hand corner shows the total number of faults recorded, and **Button 1** can be used to exit to the Service Menu.

Note: The fault displayed is an example and the actual popup seen by the operator may be different.

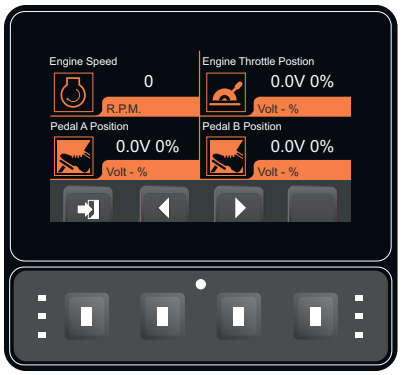
5.4.1 TIME UNTIL SERVICE

This screen gives the number of engine hours until the next service inspection is required.

To reset the service interval press & hold **Button 2, 3 & 4** until the figure changes. **Note:** this should only be done once the required service has been completed.

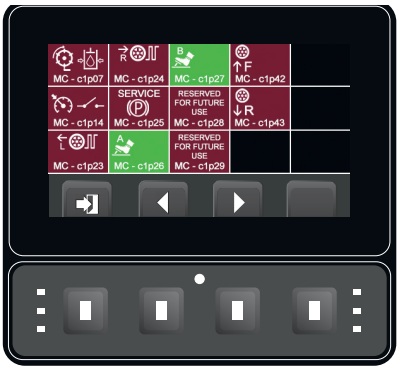
5.4.2 VEHICLE DIAGNOSTICS

These screens give access to various machine parameters. **Buttons 2 & 3** can be used to scroll between the pages, **Button 1** returns to the Service Menu.



5.4.3 I/O DIAGNOSTICS

These screens give access to various controller input and output Pin functions and their state to be used for diagnostic trouble shooting. **Buttons 2 & 3** can be used to scroll between the pages, **Button 1** returns to the Service Menu. (See Following Pages for I/0 screens).



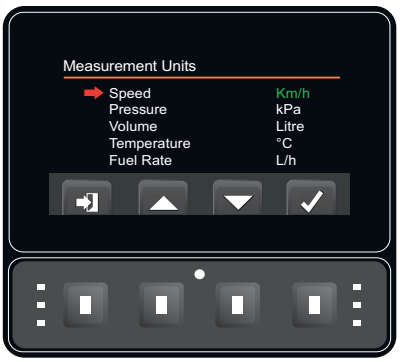
5.5 SETTINGS

Within the settings Menu you will find the three options:

- Measurement Units
- Pin
- Brightness

5.5.1 MEASUREMENT UNITS

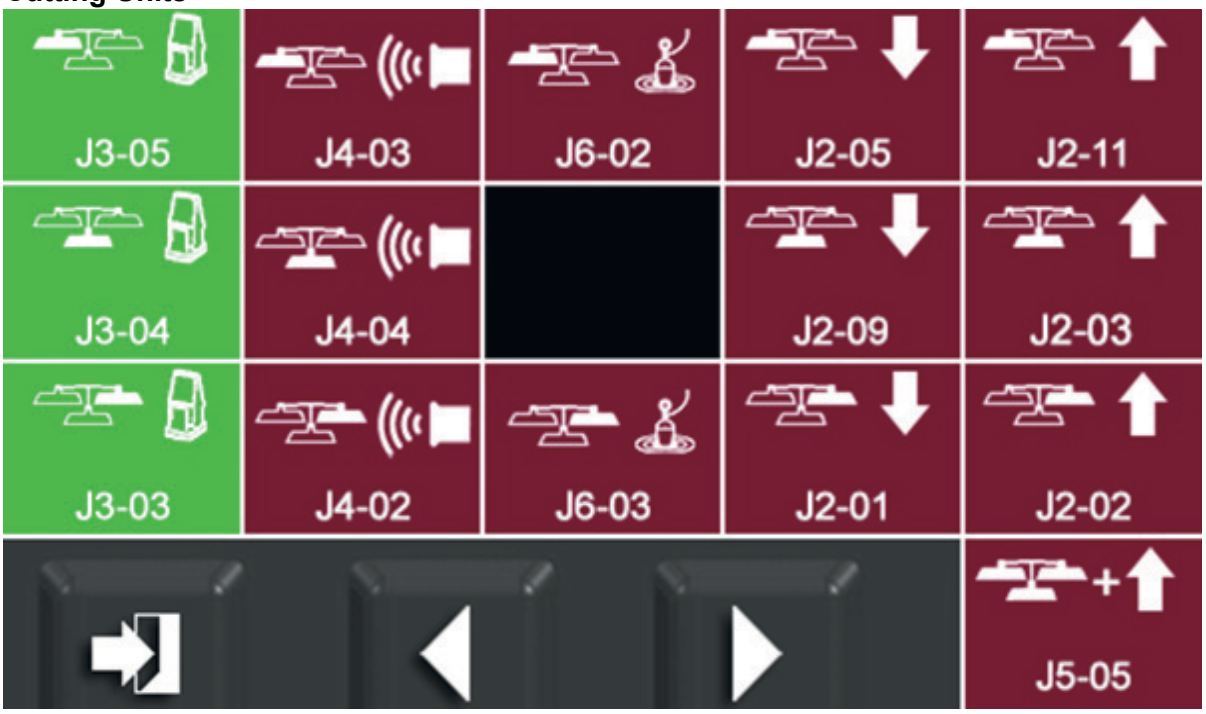
Buttons 2 & 3 move the arrow up and down the list, **Button 4** selects parameter to be altered, then **Button 2 & 3** scroll between the unit types. When amended as necessary **Button 1** then saves the setting.



General

Ref #	Module	Pin Number	Function	
1	Main Controller	J4-07	Engine Ignition Key Input	
2	Main Controller	J4-08	Park Brake Switch Input	
3	Main Controller	J4-05	Hydraulic Oil Level Switch Input	
4	Main Controller	J2-06	Engine Run Interlock Output	
5	Main Controller	J5-07	Reverse Beeper Output	
6	Main Controller	J4-01	Seat Switch Input	
7	Main Controller	J6-10	Hydraulic Oil Filter Switch Input	
8	Main Controller	J6-12	Traction Pedal Neutral Switch Input	
9	Main Controller	J6-01	Engine Start Interlock Output	
10	Main Controller	J1-06	Cooling Fan Direction Output	
11	-	-	-	
12	Main Controller	J3-10	Throttle Input	
13	HMI	c1p10	Fuel Level Sensor Input	
14	Main Controller	J2-10	Park Brake Solenoid Output	
15	Main Controller	J2-12	Cooling Fan Speed Output	

Cutting Units



Ref #	Module	Pin Number	Function	
1	Main Controller	J3-05	Left Hand Joystick Input	
2	Main Controller	J4-03	Left Hand Position Sensor Input	
3	Main Controller	J6-02	Left Hand Float Solenoid Output	
4	Main Controller	J2-05	Left Hand Lower Solenoid Output	
5	Main Controller	J2-11	Left Hand Raise Solenoid Output	
6	Main Controller	J3-04	Centre/Front Joystick Input	
7	Main Controller	J4-04	Centre/Front Position Sensor Input	
8	-	-	-	
9	Main Controller	J2-09	Centre/Front Lower Solenoid Output	
10	Main Controller	J2-03	Centre/Front Raise Solenoid Output	
11	Main Controller	J3-03	Right Hand Joystick Input	
12	Main Controller	J4-02	Right Hand Position Sensor Input	
13	Main Controller	J6-03	Right Hand Float Solenoid Output	
14	Main Controller	J2-01	Right Hand Lower Solenoid Output	
15	Main Controller	J2-02	Right Hand Raise Solenoid Output	
16	Main Controller	J5-05	Raise Enable Solenoid Output	

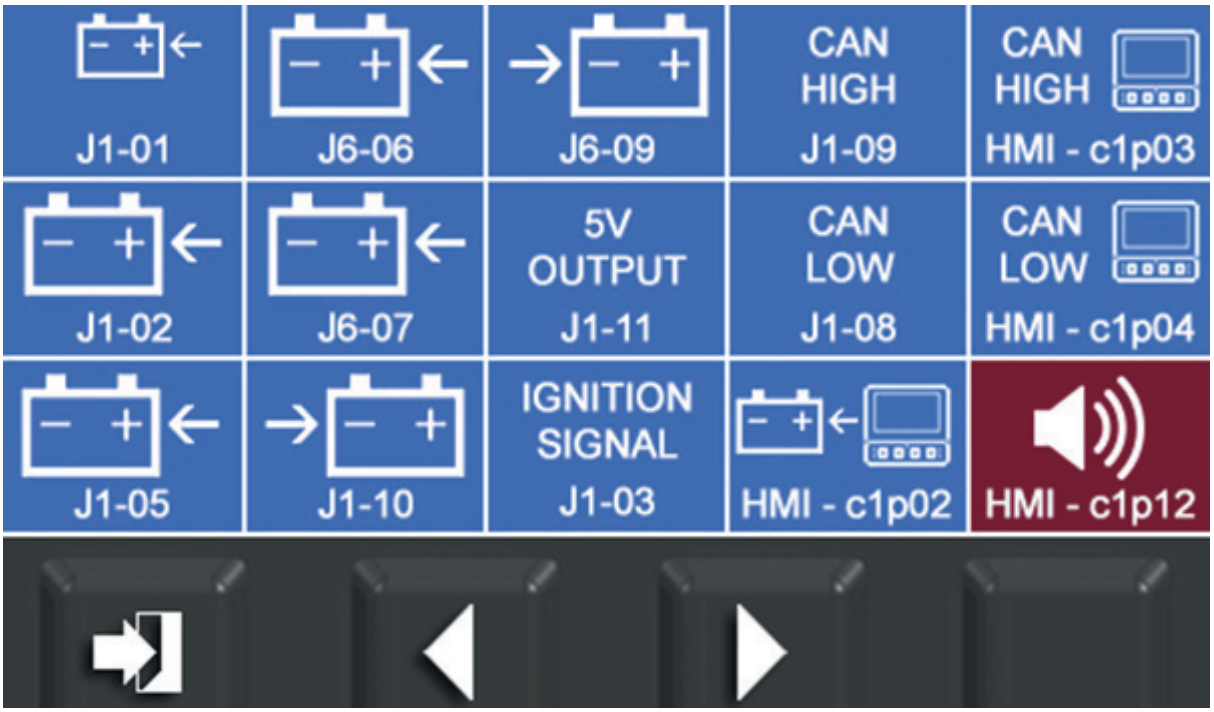
Cutters

Ref #	Module	Pin Number	Function	Note
1	Main Controller	J4-09	Cutter Switch (PTO) Input	
2	Main Controller	J5-02	Left Hand Cut Solenoid Output	
3	Main Controller	J5-04	Centre Cut Solenoid Output	
4	Main Controller	J5-08	Right Hand Cut Solenoid Output	
5	Main Controller	J5-01	Centre Unit Position LED Output	
6	Main Controller	J5-10	Transport Lock Switch Input	
7	Main Controller	J5-03	Left Hand Transport Lock Solenoid Output	
8	Main Controller	J5-06	Right Hand Transport Lock Solenoid Output	
9	-	-	-	
10	-	-	-	
11	Main Controller	J3-06	Traction Boost Switch Input	
12	Main Controller	J6-04	Traction Boost Solenoid Output	
13	Main Controller	J4-06	Backlap Switch Input	
14	Main Controller	J6-05	Backlap Solenoid Output	
15	-	-	-	

Traction

Ref #	Module	Pin Number	Function	Note
1	Main Controller	J5-11	Cutting Circuit Pressure Switch Input	
2	Main Controller	J3-12	Traction Pedal Signal A Input	
3	Main Controller	J2-07	EDC Coil Forwards Output	
4	Main Controller	J4-11	High Speed Switch Input	HR800 Only
5	Main Controller	J2-04	High Speed Solenoid Output	HR800 Only
6	Main Controller	J4-10	Cruise Control Switch Input	
7	Main Controller	J3-01	Traction Pedal Signal B Input	
8	Main Controller	J2-08	EDC Coil Reverse Output	
9	-	-	-	
10	-	-	-	
11	Main Controller	J3-08	Left Hand Wheel Speed Sensor Input	
12	Main Controller	J3-07	Right Hand Wheel Speed Sensor Input	
13	Main Controller	J5-12	Service Brake Switch Input	
14	Main Controller	J2-04	Service Brake LED Output	Reserved
15	-	-	-	

Main Controller Miscellaneous Pins



Ref #	Module	Pin Number	Function	Note
1	Main Controller	J1-01	Battery Positive	
2	Main Controller	J6-06	Starter Power	
3	Main Controller	J6-09	Battery Negative	
4	Main Controller	J1-09	CAN High	
5	HMI	c1p03	CAN High	
6	Main Controller	J1-02	Battery Positive	
7	Main Controller	J6-07	Battery Positive	
8	Main Controller	J1-11	5V Sensor Output	
9	Main Controller	J1-08	CAN Low	
10	HMI	c1p04	CAN Low	
11	Main Controller	J1-05	Battery Positive	
12	Main Controller	J1-10	Battery Negative	
13	Main Controller	J1-03	Ignition Signal	
14	HMI	c1p02	Battery Positive	
15	HMI	c1p12	Alarm Buzzer Output	

Miscellaneous Pins Continued

Ref #	Module	Pin Number	Function	Note
1	Main Controller	J6-08	DPF Regen Start Switch Input	
2	Main Controller	J1-03	Ignition Signal	
3	-	-	-	
4	Main Controller	J1-07	Not Used	
5	Main Controller	J3-11	Not Used	
6	Main Controller	J5-09	DPF Regen Inhibit Switch Input	
7	Main Controller	J3-09	Signal Ground	
8	-	-	-	
9	Main Controller	J1-12	Not Used	
10	Main Controller	J4-12	Not Used	
11	-	-	-	
12	-	-	-	
13	Main Controller	J1-04	Not Used	
14	Main Controller	J3-02	Not Used	
15	Main Controller	J6-11	Not Used	

5.5.2 VEHICLE MODES

The machines transmission operates in one of three selectable modes. In each mode the maximum vehicle speed and maximum engine throttle settings are predefined in the settings menu. (Section 6.5.6)
Maximum defined Transport speed is available when Cutters are switched off. When Cutters are switched on only the predefined Mowing speed is achievable.

• **Manual Mode (M)** – In this mode the operator remains manually in control of the vehicles forward / reverse speeds and the engine throttle by operating the foot pedal (6.11) and the throttle control rotary switch (6.2.B). The cutters can be started whilst in this mode.

• **Automatic Mode (A)** – In this mode the vehicle has additional automated control functions which can control and maintain vehicle speeds and throttle settings without further input from the operator. The Maximum defined speeds cannot be exceeded in this mode but the vehicle may reduce transmission speeds for optimal grass cutting performance. The following drive features are available in Automatic mode:

• **Cruise**
• **AdaptiCut**
• **Auto Idle**
• **Creep** () -The vehicle transmission speed is limited to Creep & the cutters cannot be started.

The mode selection is possible via **Button 3** on the display from the Home screen.

Note it is possible to disable the ability to select Manual mode and therefore encourage the user to use Auto mode. This can be achieved via the display as follows:

1. Press **Button 4** once to enter the **Main Menu**
2. Use **Button 3** to scroll to **Settings** followed by **Button 4** to enter the Settings Menu
3. Use **Button 3** to scroll to **PIN** followed by **Button 4** to enter the **Enter PIN** page
4. Enter the Owner PIN (default 1001) to enter the **PIN Menu** page
5. Use **Button 3** to scroll to **Drive Modes** followed by **Button** 4 to enter the **Drive Modes** settings screen
6. Use **Button 2 & 3** to select either **Enabled** or **Disabled** as necessary, followed by **Button 4** to set
7. **Button 1** is then used to exit to the **Main Menu** or **Home Screen**

5.5.3 CRUISE CONTROL

When Cruise is active the machine will maintain the forward transmission speed that it was traveling at when Cruise was engaged. Note that Cruise is only possible when the machine is set to Automatic (A) transmission mode and Mow speed (the Cutter Switch is on).

To engage Cruise:

• Select Automatic mode using **Button 3** on the display
• Turn the Cutter Switch (PTO) to on and lower units as necessary
• Use the Forward/Reverse pedal to select the desired forward speed
• Press and release the Cruise Control switch

When the Cruise Control icon appears on the screen, remove foot from the Forward/Reverse pedal
Once cruise is engaged the forward speed can be increased or decreased using the **+** or **–** buttons on the display.

To disengage Cruise, Use one of the two methods below:

- Put foot back onto the Forward/Reverse pedal and push the pedal forwards. Note in this scenario the machine will continue to drive forwards.
- Press and release the Cruise Control switch. Note in this scenario the machine will come to a stop.

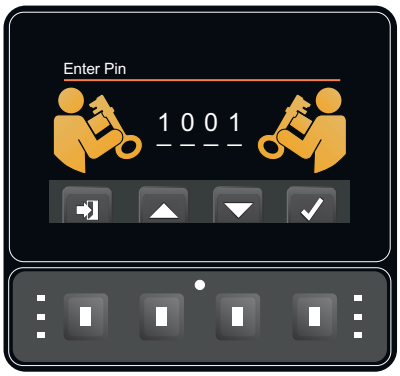
Cruise will also disengage if the Forward/Reverse pedal is moved backwards to brake.

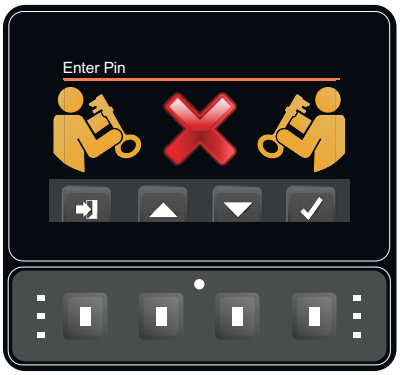
DISABLING CRUISE

Cruise can be disabled via the display as follows:

1. Press **Button 4** once to enter the **Main Menu**
2. Use **Button 3** to scroll to Settings followed by **Button 4** to enter the **Settings Menu**
3. Use **Button 3** to scroll to **PIN** followed by **Button 4** to enter the **Enter PIN** page
4. Enter the **Owner PIN** (default 1001) to enter the **PIN Menu** page
5. Use **Button 3** to scroll to Cruise Control followed by **Button 4** to enter the Cruise Control settings screen
6. Use **Button 2 & 3** to select either Enabled or Disabled as necessary, followed by **Button 4** to set
7. **Button 1** is then used to exit to the Main Menu or Home Screen

5.5.4 PIN





This screen gives access to the following parameters and machine functions that can be altered:

- Cruise Control
- Cross Cut
- Vehicle Speed
- Fan Drive
- Change PIN
- Inclinometer
- Set Default Parameters
- Drive Modes

The default owner's Pin is 1001, however Jacobsen recommend this is changed

5.5.5 ADAPTICUT™

AdaptiCut™ is a load sensing system that maintains optimum cutting performance by adjusting ground speed depending on the machine cutting system loading. It will automatically activate when the vehicle transmission is set to Automatic (A), the speed is set to Mow (Cutter Switch is on), Cruise is active, and the cutting system detects increased load. When active the AdaptiCut™ icon will be displayed on the screen and the green Cutting Unit Position lamps on the armrest pod will turn red.

5.5.6 VEHICLE SPEED

The vehicle forward and reverse transmission speeds are factory set to the defaults stated in this manual however can be adjusted via the display as follows:

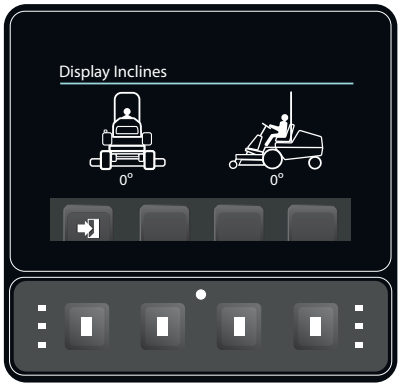
1. Press **Button 4** once to enter the **Main Menu**
2. Use **Button 3** to scroll to **Settings** followed by **Button 4** to enter the **Settings Menu**
3. Use **Button 3** to scroll to PIN followed by Button 4 to enter the **Enter PIN** page
4. Enter the **Owner PIN** (default 1001) to enter the **PIN Menu** page
5. Use **Button 3** to scroll to **Vehicle Speed** followed by **Button 4** to enter the **Vehicle Speed** settings screen
6. Use **Button 2 & 3** to select the speed to be adjusted followed by **Button 4** to select
7. Use **Button 2 & 3** to increase or decrease as desired, followed by **Button 4** to save
8. Adjust the other speeds as necessary or use **Button 1** to exit-the default, minimum and maximum allowable speeds are shown in the table below:

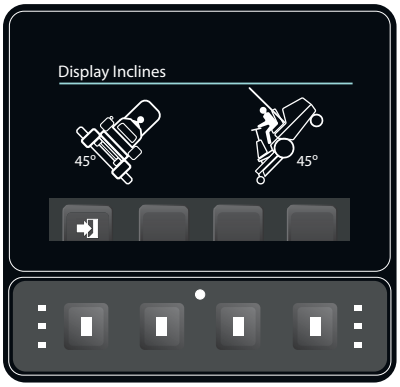
		Default (km/h)	Min (km/h)	Max (km/h)
Transport	Forwards	25	1	25
	Reverse	13	1	13
Mow	Forwards	16	1	16
	Reverse	13	1	13
Creep	Forwards	10	1	10
	Reverse	8	1	8

Note all speeds can be incremented by 1 km/h.

5.5.7 DISPLAY INCLINES

Only Visible if TST™ is installed and enabled showing machine angle. Left/ Right, Forward Backwards. Rotating graphics to illustrate direction. With a central value underneath each picture to show magnitude of angle.
To access this screen go to Main Menu, Service Menu, Display Inclines then **Button 4**.

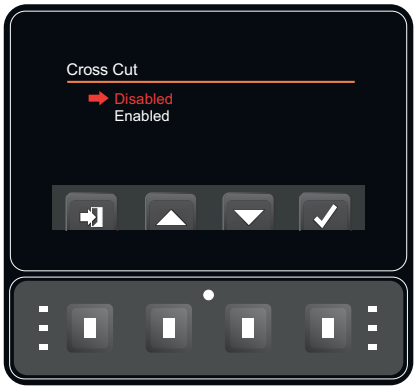




5.5.8 AUTO IDLE

The throttle drops to idle when the Forward/Reverse pedal returns to neutral and the vehicle speed is set to Transport (Cutter Switch is off).

5.5.9 CROSS CUT



Cross Cut function raises the cutting unit to a partially raised position, allowing the operator to avoid obstructions without having to fully lift the cutter deck. The Cutter PTO will disengage within 3 seconds of reaching Cross Cut position. If lowered again within 2 minutes the Cutter PTO will re-engage automatically. After 2 minutes of continued use in Cross Cut the PTO will have to be manually reactivated using the PTO switch.

To activate Cross Cut, with the cutting unit in lowered position move the Lift /Lower switch momentarily to the rear in a quick motion. To deactivate, move the switch lever fully forward. refer to (section 6.7)

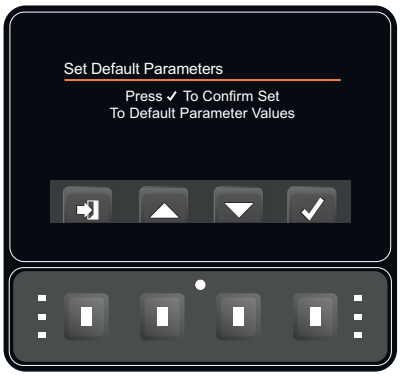
Using the **PIN** Menu **Buttons 2 and 3** to arrow up and down**, Button 4 t**o select **Cross Cut,** this gives you the option to **Enable** or **Disable**

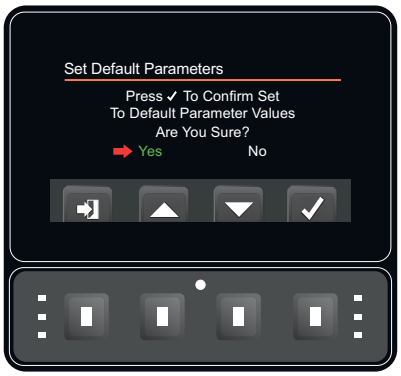
- Disabled - The unit will only lift while the lift joystick is held
- Enabled - The unit will lift to a predetermined height with a short single activation of the lift joystick.

5.5.10 INCLINOMETER

Using the PIN Menu **Buttons 2 and 3** to arrow up and down**,** and **Button 4** to select Inclinometer and this gives you the option to Enable or Disable TST™.
Note: If TST™ is installed, but disabled via the screen, the machine angle when greater than 14° will be displayed, however no alarms or physical interventions will occur.

5.5.11 SET DEFAULT PARAMETERS





The machine will have factory set defaults. You can reset to factory settings by Using the PIN Menu **Buttons 2 and 3** to arrow up and down**,** and **Button 4** to select Set Default Parameters. Press arrow to confirm.

5.5.12 CHANGE PIN

Using the PIN Menu **Buttons 2 and 3** to arrow down to the bottom of the list, and **Button 4** to select Change Pin, this gives you the option to change from the default Owner's PIN Number.

5.5.13 BRIGHTNESS

Using the Settings Menu **Buttons 2 and 3** to arrow down to the bottom of the list, and **Button 4** to select Brightness, this gives you the option to change from day to night mode.

The top line is used to alter the brightness in daytime mode. The middle line is used to alter the brightness in night time mode. Bottom line is used to set the threshold at which the screen automatically changes from daytime to night time mode and vice-versa.

Note: The small white triangle below the 3 lines indicates current light level.

5.5.14 LANGUAGE MENU

When you access the language selection page, the check-mark appears next to the selected language.

When the check-mark is moved up and down, the language does not change until **Button 4** is used to select and store the language. At that point the title bar changes to the new selected language.
The options will always be in the correct language.

English, Deutsch, Francais, Dansk, Svensk, Nederlands and Español.

5.6 WARNING SCREENS

When a fault, warning or hazard presents itself, the following screens are displayed.

5.6.1 SLOPE ANGLE DISPLAY

During work, if the machine is driven on a slope of 16° the machine angle will be displayed in the centre of the screen, until the machine has been driven onto an area of less than 16°.

Note: Whilst in Transport Mode, the TST icon on screen will appear Red with Cross, indicating TST is disabled.

⚠ CAUTION

While in Transport Mode the following audible alarms are disabled for TST™ functions:
Maximum Slope Angle Exceeded, Inhibit Cut and Stop Cut

5.6.2 WARNING SLOPE ANGLE – INHIBIT CUT

If the slope angle continues to increase the screen will display this warning which indicates that the cutters will be prevented from starting if not already running, or re-started if running then stopped. An audible warning will be sounded 4 times at 4 second intervals. This will continue until the machine has been driven to an area with a shallower slope angle. The warning screen and the audible alarm will self-clear as the vehicle angle decreases (i.e. the operator does not need to press Button 4 to clear it). The angle at which this warning occurs varies with machine configuration as follows:

- with ROPS – 22°
- with Cab – 20°

5.5.3 WARNING SLOPE ANGLE – STOP CUT

If the slope angle continues to increase the screen will display this warning which indicates that the cutters have been switched off and disabled. An audible warning will sound continuously for 4 seconds at 4 second intervals, and the red LEDs will flash continuously for 4 seconds at 4 second intervals. This will continue until the machine has been driven to an area with a shallower slope angle. The warning screen and the audible alarm will self-clear as the vehicle angle decreases (i.e. the operator does not need to press Button 4 to clear it). The angle at which this warning occurs varies with machine configuration as follows.

The angle at which this warning occurs varies with machine configuration as follows:

- with ROPS – 25°
- with Cab – 23°

5.6.4 WARNING OIL PRESSURE FAULT

When this screen is shown, the engine oil pressure has decreased below the normal level. If this happens during operation, or does not go off when the engine is run at more than 1000 rpm. Stop the engine and check the oil level. Top up if necessary.
If the fault persists, do not use the machine at all and contact your local Jacobsen dealer.

5.6.5 WARNING ENGINE OVERHEAT

When this screen is shown, the engine temperature has risen above the normal levels.

If not actioned the engine power will be de-rated until fault is resolved.

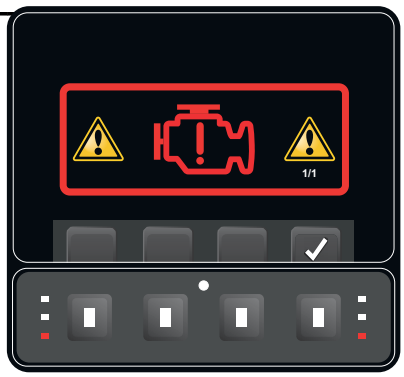
Park the machine in a safe area disengage cutting units, set engine to idle to allow engine temperature to decrease prior to switching off the engine.

Clean the radiator and screens of all grass and debris.

5.6.6 WARNING ENGINE FAULT

When this screen is shown, there is an engine fault. Stop the engine as soon as possible and contact your local Jacobsen Dealer.

When this fault occurs the machine's engine may automatically reduce the power available.



5.6.7 WARNING BATTERY FAULT

When this screen is shown, the battery is not charging or there is a charge circuit fault.

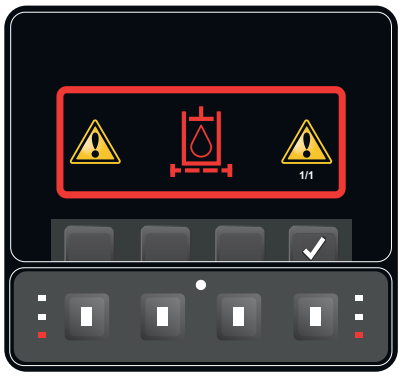
5.6.8 WARNING LOW HYDRAULIC OIL

When this screen is shown, the system has detected Low Hydraulic oil level in the tank. Stop the machine immediately and check for any hydraulic oil leaks that need repair prior to topping up the hydraulic oil reservoir tank.

5.6.9 WARNING CHARGE FILTER BLOCKED

When this screen is shown, the hydraulic-charge filter is blocked and needs replacing.

Replace the filter element at the earliest opportunity.



5.6.10 WARNING SERVICE REQUIRED

When this screen is shown, the machine needs a service. Refer to section 6.4.1 to reset counter.

5.6.11 EMISSION FAULT – DELTA-P SENSOR OR ABNORMAL DELTA-P

When this screen is shown, the engine controller (ECU) is reporting an abnormal DPF Differential Pressure or a fault with the sensor itself. The output from the engine may be reduced. Stop the engine as soon as possible and contact your local Jacobsen Dealer.

5.6.12 EMISSION FAULT – EGR NOx CONTROL

When this screen is shown, the engine controller (ECU) is reporting a fault with EGR system or sensor.The output from the engine will be reduced. Stop the engine as soon as possible and contact your local Jacobsen Dealer.

5.6.13 EMISSION FAULT – MAF SENSOR

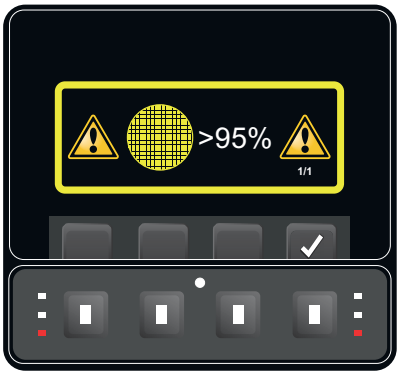
When this screen is shown, the engine controller (ECU) is reporting a fault with the MAF (Mass Air Flow) sensor. The output from the engine will be reduced. Stop the engine as soon as possible and contact your local Jacobsen Dealer.

5.6.14 EMISSION FAULT – DPF SENSOR

When this screen is shown, the engine controller (ECU) is reporting a fault with the DPF (Diesel Particulate Filter). Stop the engine as soon as possible and contact your local Jacobsen Dealer.

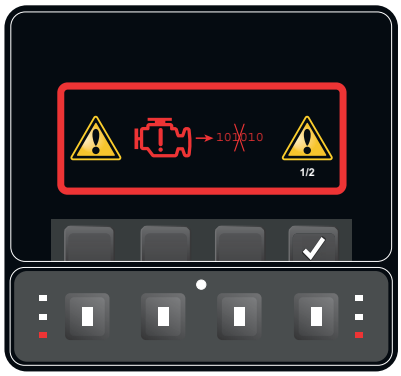
5.6.15 CLEAN DPF ASH

When this screen is shown, the engine controller (ECU) is reporting that the level of ash in the DPF (Diesel Particulate Filter) is in excess of 95% and therefore the DPF needs to be serviced. Contact your local Jacobsen Dealer for information on the procedure for servicing the DPF.



5.6.16 ECU COMMUNICATION FAULT

When this screen is shown, there is a communication fault with the engine controller (ECU). Stop the engine as soon as possible and contact your local Jacobsen Dealer.



5.6.17 MCU / DISPLAY COMMUNICATION FAULT

When this screen is shown, there is a communication fault with the machine controller (MCU) and/or display. Stop the engine as soon as possible and contact your local Jacobsen Dealer.

If a warning appears on the screen that is not listed in this manual, please refer to your authorised Jacobsen support agent/dealer.

5.7 COOLING FAN OPERATION

The mower is equipped with an engine cooling fan that can be reversed to clear debris from the hood intake grilles.

The fan reversal function operates in one of three modes –

- **Disabled** – The fan operates in normal forwards direction only and does not reverse at any time, either Manually or Automatically.
- **Manual** – The fan operates in normal forwards direction and only reverses on demand when **Button 1** on the display is pressed.
- **Timer** – The fan operates in normal forwards direction and reverses automatically at set time period intervals. The fan can also be reversed manually while set to Timer mode.

The fan mode is selected via the Menu in the display as follows –

1. Press **Button 4** to enter the **Main Menu**.
2. Use **Button 3** to scroll to **Settings** followed by **Button 4** to enter the **Settings Menu**.
3. Use **Button 3** to scroll to **PIN** followed by **Button 4** to enter the **Enter PIN** page.
4. Enter the Owner PIN (default 1001) to enter the **PIN Menu** page.
5. Use **Button 3** to scroll to **Fan Drive** followed by **Button** 4 to enter the **Fan Drive Reverse** page.
6. **Buttons 2 & 3** can then be used to scroll to the desired mode setting followed by **Button 4** to set.
7. The Timer time interval is factory set to 30 minutes however can be adjusted from 5 minutes to 40 minutes in 5 minute intervals using **Buttons 2 & 3**, before exiting via **Button 1**.

Note:

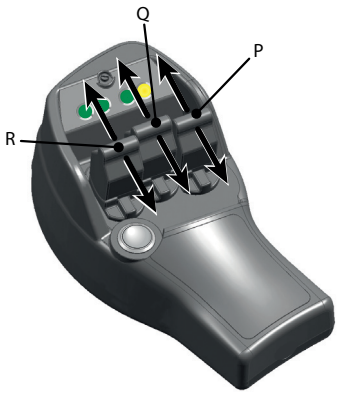
- During a manual or automatic fan reversal a fan icon will be visible on the display screen.
- Fan rotation in normal forwards direction does not start until the engine reaches 70°C. Fan reversal is only possible once the fan has started rotating.
- It is not possible for either a manual or automatic fan reversal to occur for the first 2 minutes following the fan starting to rotate.
- If either a manual or automatic fan reversal cycle has just been completed, it will be necessary to wait 60 seconds before a further manual reversal can be requested.

⚠ WARNING

The fan can start unexpectedly while the engine is running. Always make sure that the correct PPE is worn while cleaning or during maintenance of this vehicle.
Keep hands and loose-fitting clothing, jewellery or hair away from the fan at all times.

5.8 LIFT/LOWER SWITCH'S

P. Right Hand Wing Cutter Deck
Q. Front Cutter Deck
R. Left Hand Wing Cutter Deck



To lower the cutting unit move the switch lever forward.
To raise the cutting unit move the switch lever rearwards

NOTE:
If the cutter switch is engaged when the unit is lowered the green lamp will illuminate when the unit is below 400mm from the ground.

The yellow PTO lamp will illuminate when the cutter switch in ON. When the blades are moving the icon on the display change to green.

If the lever is pulled momentarily rearwards the unit will raise to the cross cut position and continue to rotate for 3 seconds. Lowering the unit within 3 seconds will let the blade continue rotating without stopping.
If the lever is held and the unit lifts above the cross cut position the unit will continue to lift and the blade will stop rotating at 400mm. The lift will stop when the lever is released.

5.9 INDICATOR LAMPS

S. Yellow lamp: Illuminates when the PTO is engaged
T. Green lamp: Illuminates when the Right hand cutter deck is in cutting position.
W. Green lamp: Illuminates when the center cutter deck is in cutting position.
X. Green lamp: Illuminates when the Left hand cutter deck is in cutting position.

NOTE:
The green lamps T, W and X will turn red when a deck begins to stall.

5.10 WEIGHT TRANSFER BUTTON

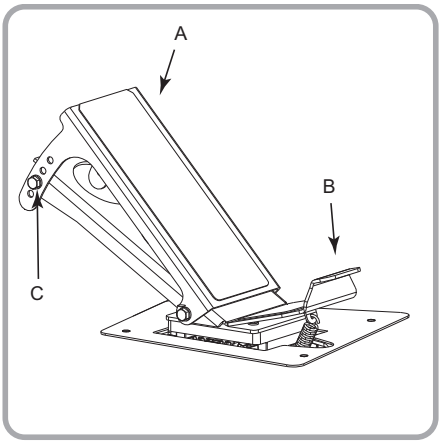
The button will transfer weight by the hydraulic system between the drive wheels and the cutter deck.

To adjust the amount of weight transfer manually on the lift valve.

5.11 TRACTION PEDAL

DRIVING

To enable full forward transport speed, The vehicle needs to be set to either Automatic or Manual mode from the Main menu (Section.6.5.2) and the Cutter PTO switch off. (Section.5.2.E)



1. **Release Brake** - Make sure the Park Brake is released before you try to go forward or in reverse.

2. **Forward** - Carefully push the top (A) of the Forward / Reverse Foot Pedal until desired forward ground speed is achieved.
3. **Reverse** - Carefully push the bottom (B) of the Forward / Reverse Foot Pedal until desired reverse ground speed is achieved.
4. **To Stop** - Carefully return the Forward / Reverse Foot Pedal to the neutral position ensuring your foot remains in contact with the pedal at all times.
5. **To hold** - Whilst the vehicle has stopped on a slope it may be necessary to apply an amount of forward or reverse traction to hold the vehicle stationary on a slope.

NOTES:

- Use complete foot to operate both forward and reverse.

- Unless in an emergency, do not move the pedal suddenly, always operate slowly and carefully. Do not move the pedal with force from forward to reverse or reverse to forward.

- The angle of the Foot Pedal can be altered to obtain the most comfortable angle for long periods of operation. This can be achieved by repositioning screws (C) as required.

⚠ CAUTION

The foot should always be kept firmly on the pedal to maintain full control of the drive pedal, both whilst accelerating and decelerating the vehicle.

MOWING

1. Ensure vehicle is set to either Automatic or Manual mode from Home screen. (Section 5.5.2)

2. Lower the desired cutting units with the Lift/Lower Controls. (Section 5.7)

NOTE: The cutting units cannot be lowered if the Transports locks are applied. (Section 5.2.J).

3. Engage the cutters by pushing on the upper half of the Cutter Switch (PTO). (Section 5.2.E)

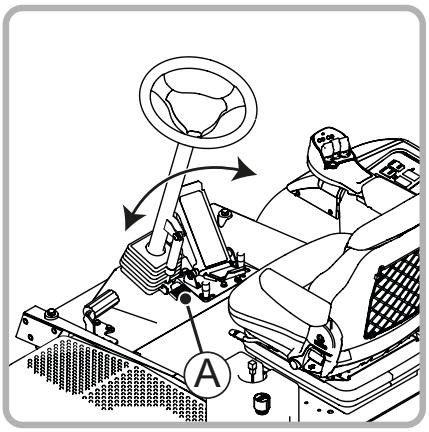
4. Release the Park Brake and begin driving forward.

NOTE: Always set the throttle to full engine speed for mowing especially when the grass is heavy. When the engine is labouring, reduce forward speed by easing back on the Forward / Reverse Foot Pedal. A performance indicator lamp on the control pod will illuminate Red as the cutter unit starts to labour.

If Adapticut™ mode is selected, then the machines forward speed will automatically decrease as the cutting load increase. Section 5.5.5).

5.12 STEERING TILT CONTROL

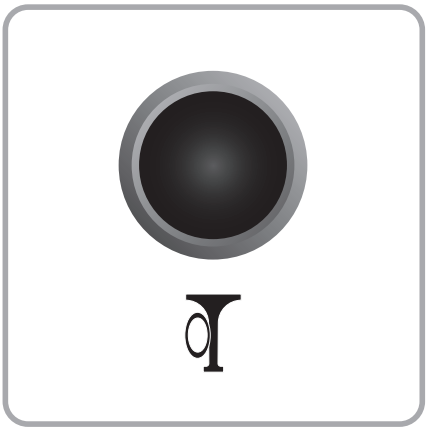
When the operators seat is in the correct position to operate the Traction Pedal comfortably, push the small Foot Pedal (A) at the base of the steering column, and tilt the column backward or forward to the correct position. Release the small Foot Pedal to lock the steering column in position.



5.13 HORN

For machines without the lighting kit.

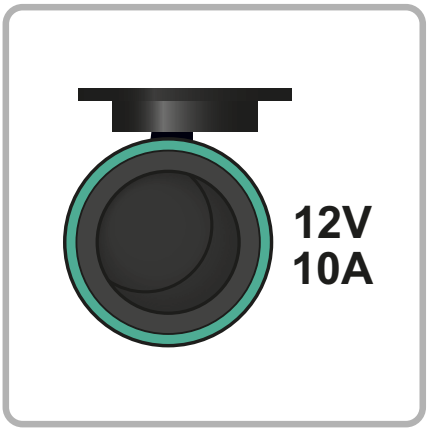
The horn button is situated on the control panel. If the lighting kit is fitted the horn is located on the end of the indicator stalk.



5.14 POWER OUTLET

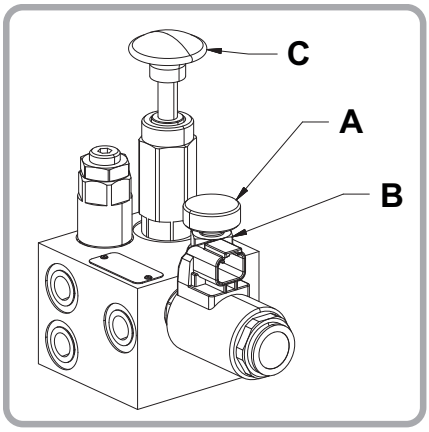
The auxiliary power outlet is located on the side of the control panel. It is for use with mobile phone chargers and accessories.

Automotive 12 Volt, 10 Amp power outlet.



5.15 PARK BRAKE RELEASE VALVE

The Park Brake Release Valve is situated under the footplate, on the left hand chassis rail. It is used to release the parking brake when the engine is not running



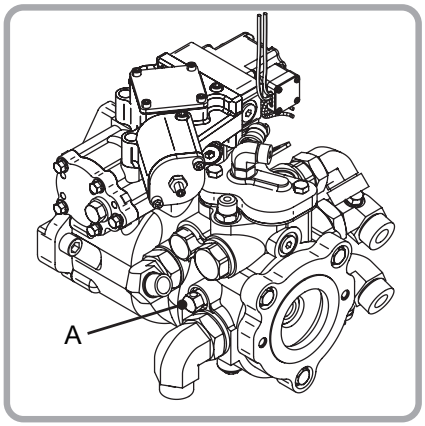
To release the Parking Brake,

- Unscrew Lock wheel (B) by rotating counter-clockwise.
- Rotate Hand wheel (A) clockwise until resistance is felt.
- Using the Hand pump (C), create sufficient pressure to release the brakes (50 to 60 strokes should give 90 seconds of brake release).
- When complete rotate Hand wheel (A) counter-clockwise 3 turns and lock using Lock wheel (B).

5.16 FREE WHEEL

To push the machine, disengage the Park Brake,

- Turn screw (A) located on the left hand side of the transmission pump 1 turn counter-clockwise. Set the steering wheel so that the rear wheels are pointing straight ahead.
- After pushing the machine, return the Park Brake valve to its normal operating position (see section 6.14) and turn screw (A) on the pump clockwise until fully closed.



⚠ WARNING

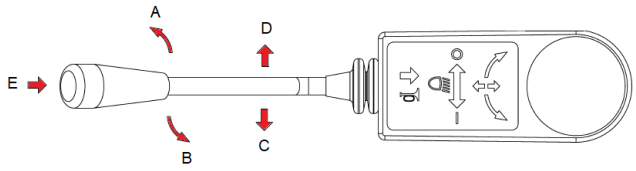
THE FREE WHEEL FACILITY IS FOR RECOVERY PURPOSES ONLY.

DO NOT TOW THE MACHINE FOR MORE THAN A FEW METRES, OR ALLOW THE MACHINE TO FREE WHEEL DOWN SLOPES EVEN WHEN UNLOADING DOWN RAMPS.

5.17 LIGHTING KIT (OPTIONAL)

Lighting Control Stalk

A No function.
B Pull towards operator to flash headlights.
C Move stalk down to indicate left turn.
D Move stalk up to indicate right turn.
E Horn



NOTE: Daylight Running Lamps will operate when ignition is in the run position

When the lighting kit is fitted a brake light function is available. If brake lights are used rear view mirrors must be fitted.

5.18 SEAT RIGHT HAND ARM REST & POD

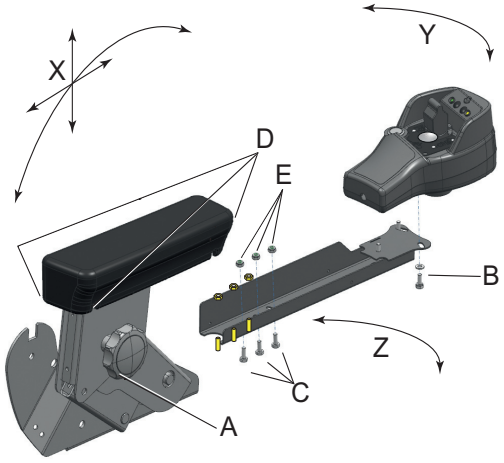
The right hand arm rest of the seat has an extension mounted to it which carries the control pod.

To obtain a comfortable operating position:

a) Release hand wheel (A).

b) Using both hands grip the arm rest and lift or lower the arm rest. It will move in a circular motion (X) either moving up and forward or down and rearwards.

c) When the desired position is obtained lock by tightening the hand wheel (A).



The pod can be pivoted in the horizontal plane (Y), independently of the arm as follows:

a) Loosening the three screws (B) holding the pod to the arm rest extension.
b) Swivel pod to desired position.

c) Tighten the three screws (B).

The whole arm rest extension can be pivoted in the horizontal plane (Z) as follows:

a) Remove the arm rest cushion by removing the four screws (D).

b) Loosen the three locknut's (E) fitted to studs (C).

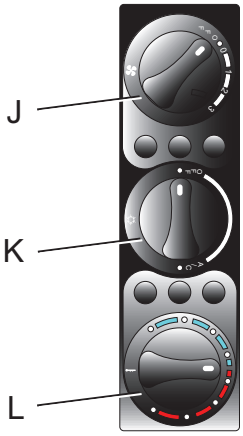
c) Swivel the arm rest extension to the desired position.

d) Tighten the three locknut's (E)

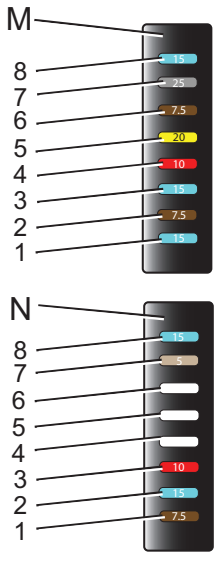
e) Refit the arm rest cushion with the four screws (D)

5.19 CABIN CONTROLS

A	Left Turn Signal Lamp
B	Working Lights Switch (Optional)
C	Beacon Switch
D	Front Screen De-Mist Switch
E	Rear Screen Wiper Switch (Optional)
F	Front Screen Wash Switch
G	Front Screen Wiper Switch
H	Right Turn Signal Lamp
J	Fan Control
K	Air Conditioning Control
L	Temperature Control
M	Fuse Holder
N	Fuse Holder



FUSE HOLDER		
Fuse	**Rating**	**Protected Circuits**
M8	**15A**	**Wiper Front**
M7	**25A**	**Front Screen Heating**
M6	**7.5A**	**Radio (15)**
M5	**20A**	**Working Lights / Locater Lighting Left**
M4	**10A**	**Wiper Rear / Marker Lights**
M3	**15A**	**Air Condition (Fan Condenser)**
M2	**7.5A**	**Air Condition**
M1	**15A**	**Air Condition (Fan)**
N8	**15A**	**Low Beam**
N7	**5A**	**Parking Lights (15)**
N6	**-**	**-**
N5	**-**	**-**
N4	**-**	**-**
N3	**10A**	**Radio (30) / Interior Light**
N2	**15A**	**Beacon**
N1	**7.5A**	**Air Condition (Enable Signal Compressor)**



NOTES

6.1 DAILY INSPECTION

⚠ CAUTION

The Inspection Must Be Done Each day When The Engine Is Turned Off And All Fluids Are Cold. Lower The Cutter Equipment To The Ground, Engage the Parking Brake, Stop the Engine And Remove the Ignition Key.

1. Do a visual inspection of the vehicle and look for indication of wear, loose hardware. Check for any components that are not included on the machine or damaged. Check for fuel and oil leaks to make sure that all connections are tight. Make sure that all hoses and tubes are in good condition.

2. Check the fuel supply, radiator coolant level, engine crankcase oil level and air cleaner is clean. All fluids must be at the full mark with the engine cold.

3. Make sure all cutter decks are adjusted to the same height of cut.

4. Check all tyres for the correct pressure.

5. Test the operator presence and safety interlock system.

6.2 OPERATOR PRESENCE AND SAFETY INTERLOCK SYSTEM

1. The Operator Presence And Safety Interlock System will not allow the engine to start unless the operator is sitting in the seat, the parking brake is engaged and the cutter switch is disengaged. The system stops the engine if the operator leaves the seat with the cutters engaged.

⚠ WARNING

Do Not Operate The Equipment With The Operator Presence And Safety Interlock System Disengaged Or When The Equipment Has Defects. Do Not Disconnect Or Bypass Any Switch.

2. Do each of the tests as shown below, to make sure that the Operator Presence And Safety Interlock Systems operates correctly. If any of the tests fail, stop the test and have the system inspected and repaired.

- The engine will start in test 1;
- The engine does start during tests 2 to 4.
- The engine continues to run during test 5.

3. Refer to the chart below for each test and follow the check (✓) sign across the chart. Turn off the engine between each test.

Test 1: Shows the normal start procedure. The operator must be in the driver seat and the cutter switch disengaged and the park brake switch on. The engine must start correctly.
Test 2: The engine must not start if the cutter switch is engaged.
Test 3: The engine must not start if the park brake is off.
Test 4: The engine will not start if the operator is not in the seat.
Test 5: Start the engine with the normal procedure, then turn mower engagement device on and move your weight from the seat.

Test	Operator in the seat		Parking Brake Engaged		Cutter Switch		Engine Starts	
	Yes	No	Yes	No	On	Off	Yes	No
1	✓		✓			✓	✓	
2	✓		✓		✓			✓
3	✓			✓		✓		✓
4		✓	✓			✓		✓
5	✓	✹	✓		✓		✹	
✹ Remove your weight from the seat. The cutting units must not rotate after three (3) seconds								

6.3 PROCEDURE FOR OPERATION

1. You must not start the engine without the operator in the seat on the tractor.

⚠ CAUTION

To Prevent Injury, Always Wear The Safety Glasses, Leather Work Shoes Or Boots, A Hard Hat And Ear Protection.

2. Do not operate the tractor and attachments with loose or damaged components. All components must be included on the tractor. To get the best results, grass must be cut in dry conditions.

3. First cut in a test area so that you completely understand the operation of the tractor and controls.

4. Inspect the area and find the safest procedure for the vehicle. Check the height of the grass, the type of terrain and the condition of the surface. Each area condition needs the applicable adjustments and precautions.

5. You must not direct the cut material toward persons near the machine. When the vehicle is in operation, do not allow persons to stand near to the machine. The owner/operator is responsible for injuries caused to persons near the machine and any damage to their property.

6. Be careful when you cut surfaces that are near to gravel areas (roadway, parking areas, cart paths). Stones released from the equipment can cause injuries to persons and damage the equipment.

⚠ CAUTION

Remove All Dangerous Material From The Area Before You Cut The Grass. Enter A New Area Carefully And Always Operate At Speeds That Allow You To Control The Mower Safely.

7. When you move across the roads or paths, disengage the cutter motors and lift the equipment. Check for the traffic when you drive on the roads.

8. If you hit an obstruction or if the machine causes vibration that is not normal, stop and inspect the equipment for damage immediately. Repair damaged equipment before operation is continued.

⚠ CAUTION

Before You Clean, Adjust Or Repair This Equipment, Always Disengage All Drives And Lower All Equipment To The Ground. Engage The Parking Brake, Stop The Engine And Remove The Key From The Ignition Switch To Prevent Injuries.

9. Never start the engine without the operator in the seat.

10. If components are not included on the vehicle or equipment is loose and damaged, do not operate the tractor and attachments.

⚠ WARNING

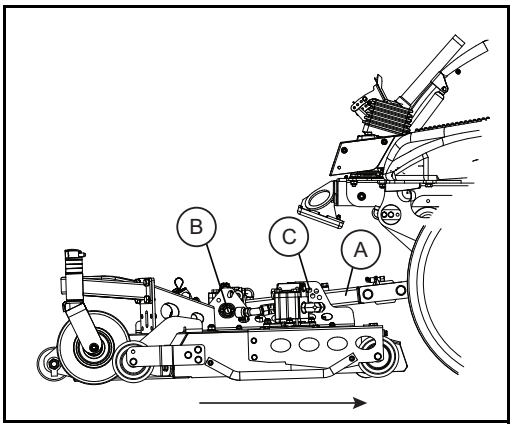
DO NOT USE ON the SLOPES GREATER THAN 20° with ROPS.
DO NOT USE ON the SLOPES GREATER THAN 17° with Cab

6.4 TO FIT THE CUTTER DECKS TO THE MACHINE

NOTE

For height of cut adjustments see section 7.2 and 7.3

Front Deck Mounting



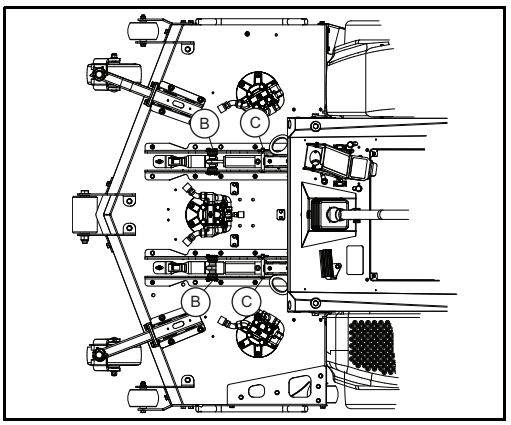
1. Make sure the hydraulic hoses are plugged. Start the engine and lower the lift arms (A), stop the engine and remove the ignition key.

2 Position cutter deck and align the lift arms (A) with mounting brackets.

3 Fit the pin to the front position (B) of the arm and bracket.

4. Fasten with R clips.

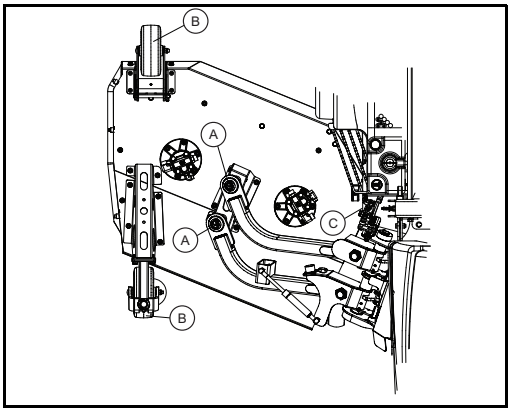
5. Start the engine and lift the deck into the cross cut position, stop the engine and remove the ignition key.



6. Fit the rear pins and R clips in the holes (C) for the height of cut needed.

7. Start the engine and lower the deck to the ground.

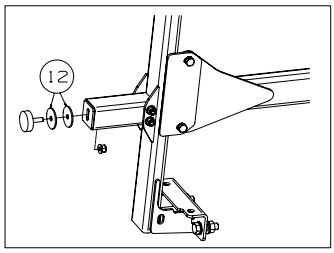
Wing Deck Caster Wheel Initial Setting.



1. Make sure the hydraulic hoses are plugged. Start the engine and lower the lift arms (A), stop the engine and remove the ignition key.

2. Set the 2 outer caster wheels (B) to the lowest height of cut (use decals on the decks).

Wing Deck Anti Mohawk Chain Assembly



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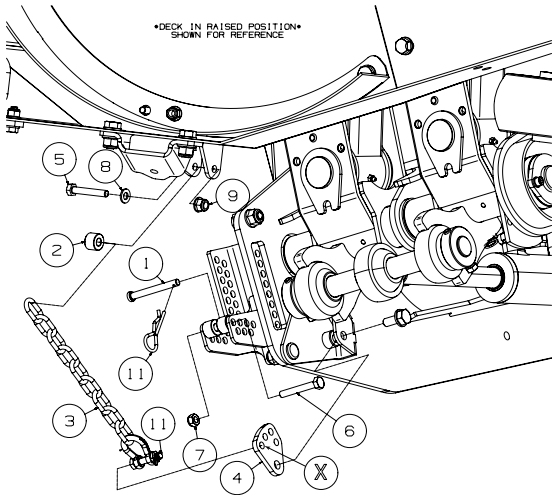

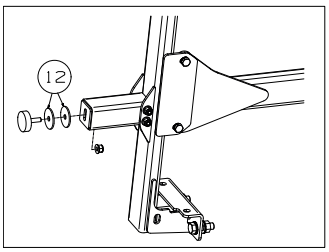

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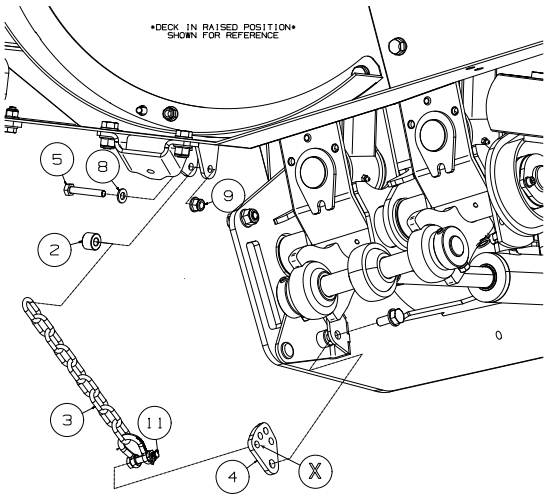


1. Make sure the hydraulic hoses are plugged. Start the engine and raise the lift arms, stop the engine and remove the ignition key.

2. Fit Anti Mohawk chain item 3 shackle end to Anti Mohawk Adjustable Plate item 4. Use hole marked X as datum, make sure the plate is in the orientation shown.

3. Attach end link of Anti Mohawk chain item 3 to Anti Mohawk lower bracket on wing deck using Bolt item 5, Washer item 8, Spacer item 2 and Nut item 9.

NOTE

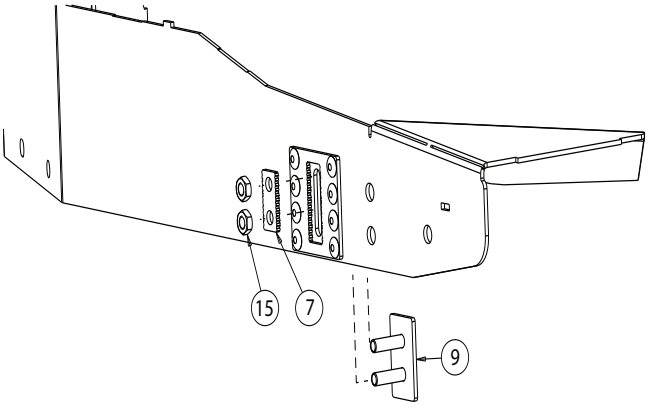
The Anti Mohawk Chain should be taut when the wing deck is in the raised position.

4. To adjust tautness of Anti Mohawk Chain move shackle to one of the other holes in Anti Mohawk adjustable Plate item 4.

5. If after adjusting the Anti Mohawk Chain item 3 is still not as taut as required, use Washer item 12 to adjust position of bump stop.

Height Of Cut chain Set Up MP653 only

Chain Bracket to Deck

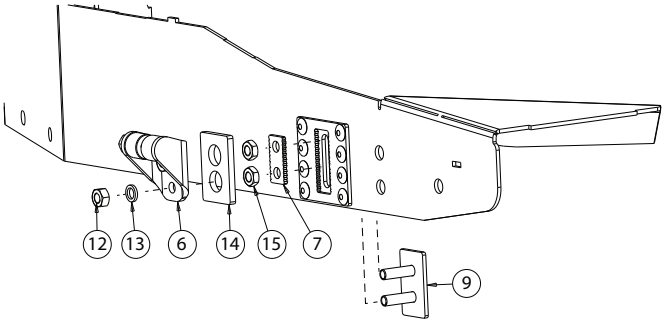


1. Fit the Rear height of cut Locking Plate (9) through the elongated slot from the inside the deck shell. Make sure the deck is lifted and support as required.

2. Install the serrated plate (7) on the weld bolts, engage in the upper end of the serrated slot. Fasten in position with two M8 nuts (15).

NOTE

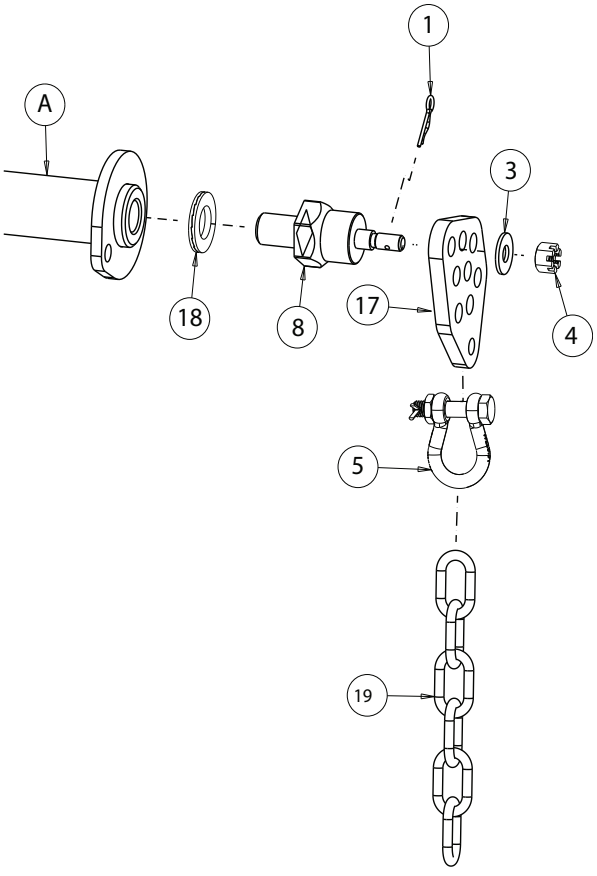
For high-height of cut range It will be necessary to rotate the Rear-height of cut Bracket (6) 180 degrees.



3. Fit the Rear-height of cut Cover Plate (14) on to the Rear height of cut Locking Plate (9).

4. Fit the Rear-height of cut Bracket (6) install M8 Lockwashers (13) and fasten in position with M8 Nuts (12).

Chain To Mounting Frame



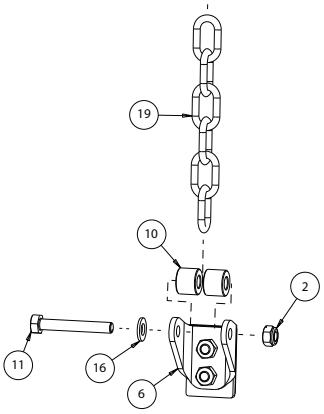
1. Fit the Anti-vibration Washer (18) on the M16 end of height of cut Chain - Stand Off (8).

2. Assemble the height of cut Chain - Stand Off (8) and Anti-vibration Washer (18) together. Apply “thread lock” to the M16 threads and screw into the Pivot Pin (A), tighten to 27Nm.

3. Fit the Rear-height of cut Plate (17) on to height of cut Chain - Stand Off (8) fit the Washer (3). Fasten with the M8 castellated nut (4), make sure that the hole in item (8) is visible for the ‘R’ Clip (1).

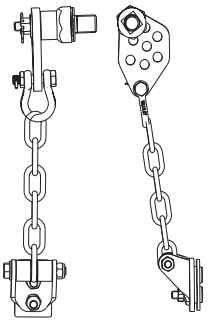
4. Fit the shackle (5) through the first link of the height of cut Chain (19). Installing into the first hole of the Rear-height of cut Plate (17).

5. Fit both Bolt (11) and Washer (16) through the first hole of the Rear height of cut Bracket (6). Install the height of cut Chain Spacer (10) on to Bolt (11) followed by the Chain link (19). Make sure the chain does not pull. fit the second height of cut Chain Spacer (10) to the Rear height of cut Bracket (6).

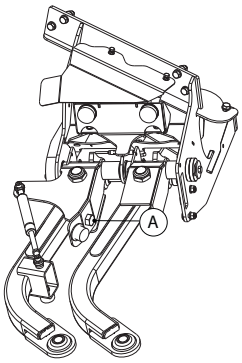


6. Repeat the procedure for other wing deck.

7 The chain should run in a straight line, as shown.



8. If the chain is not straight adjust the pre-tension bolt (A).



Check Wing Deck Chain Tension

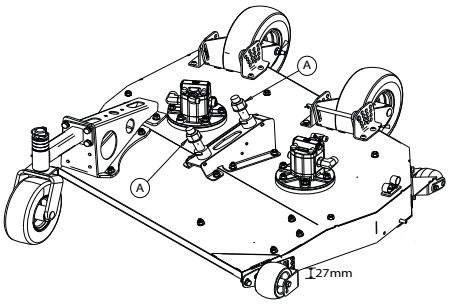
1. Put a 27 mm spacer below the deck shell at the side where the new height of cut Brackets are installed.

2. Make sure the caster wheels are set to the lowest height of cut before you start.

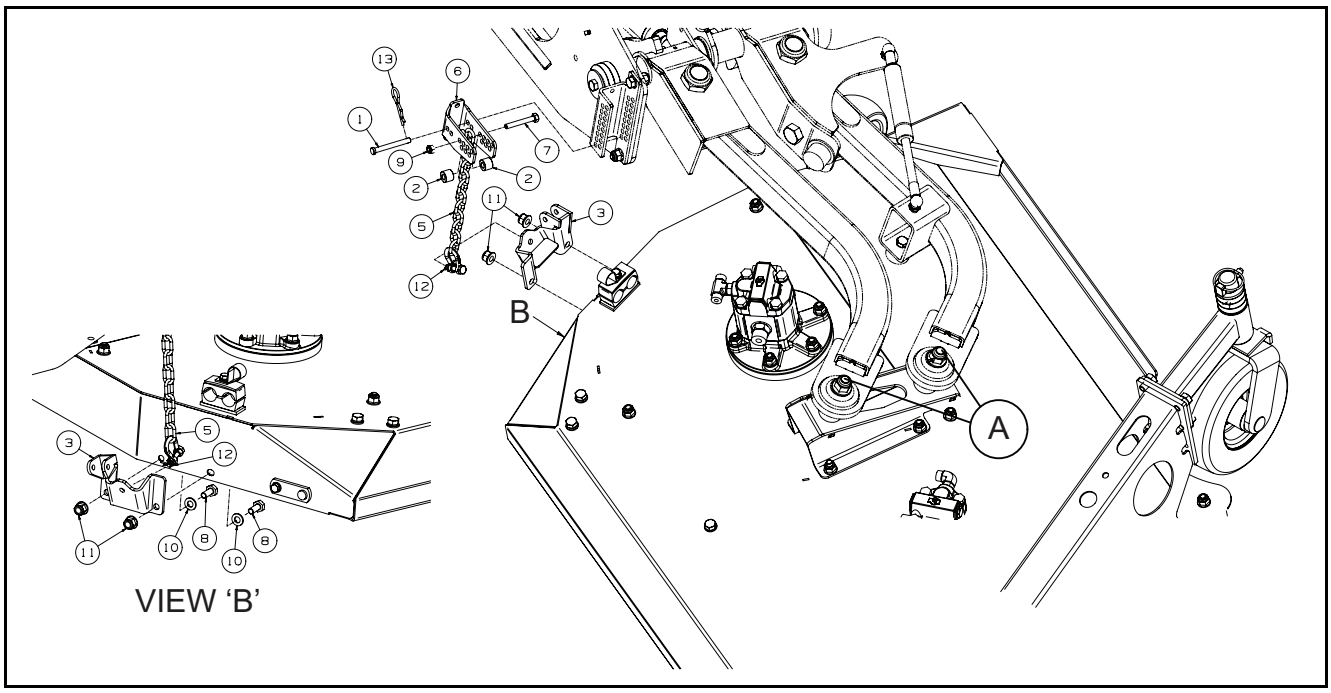
3. If the rear chain is slack, the serrated plate will have to be moved lower in the serrated slot.

4. Remove the 27mm spacer below the deck.

5. Repeat the procedure for other wing deck.



Height Of Cut chain Set Up MP653XC only



1. Make sure the hydraulic hoses are plugged. Start the engine and lower the lift arms (A), stop the engine and remove the ignition key.

2. Move the deck into position and move the ball joints over bolts in bridge (B). Fasten with M16 Nuts.

3. Set the 2 outer caster wheels (B) to the lowest height of cut (use decals on the decks).

4. Make sure the hydraulic hoses are plugged. Start the engine and lift the wing units, stop the engine and remove the ignition key.

5 Fit Anti Mohawk Lower Bracket item 3 onto deck using two screws item 8, two washers item10 and two nuts item 11. See View 'B'

6 Fit Adjustable Bracket item 6 in the lowest hole in the Bracket on the Nelly Frame using Pin tem 1 and secure using R-Clip item 13.

7 Fit Height of Cut Chain item 5 onto Anti Mohawk Bottom Bracket item 3. Only fit the Split Pin item 12 when all adjustments are complete.

8 Take last link of Height of Cut Chain item 5 and fit into centre most hole of Adjustable Bracket item 6 using Bolt item 7, Spacer item 2 and Nut item 9 assemble loosely. Make sure chain is not twisted.

9. Make sure the hydraulic hoses are plugged. Start the engine and lower the lift arms (A), stop the engine and remove the ignition key. Check to make sue deck is level.

10. If the deck is not level, lift into the transport position and repeat steps 8 and 9 using holes above and below to adjust accordingly. Each hole steps ± 3mm.

11. When all adjustments are complete, lower the deck to the ground.

12. Tighten the first link of Height of Cut Chain item 5, using Bolt item 7, Spacer item 2 and Nut item 9.

13 Repeat procedure for other wing deck.

Hydraulic Hoses

1. Assemble the hydraulic hoses to the deck motors. Tighten the hoses finger tight, then use a spanner to tighten a further 1/2 to 3/4 of a flat (approximately).

6.5 OPERATION OF THE MACHINE

1. Check the machine, look for worn, damaged or loose parts. Check the machine for fuel and oil leaks. Make sure that all connections are tight. Make sure that all hoses and tubes are in good condition.

2. Check the fuel level, radiator coolant level, crankcase oil level and air cleaner is clean. All fluids must be at the full mark with the engine cold.

3. Make sure all cutter decks are adjusted to the same height of cut.

4. Check all tyres for the correct pressure.

5. Test the Operator Presence And Safety Interlock System.

NOTE

Adjust the seat to make sure all controls are within reach and will operate through the full range of movement.

1. Set the seat for the operators weight, height and reach.
2. Set the seat so that you can see the cutter decks and the area around them.
3. Set the seat position for distance from the traction pedal. Check you can reach all the controls easily.
4. Check the angle of your foot on the traction pedal (see section 5.3).

6.6 HOW TO START THE ENGINE

How to start a cold engine.

1. Make sure that the Traction pedal is in the NEUTRAL position and the mow switch is turned off. The throttle must be in the center position.

2. Turn the ignition switch to start position, engine cranks when countdown complete. If engine does not start after 3 - 5 seconds return key to off position.

3. When the engine starts, release the key immediately. The key must return to the RUN position and move the throttle to the low idle position.

NOTE

- If the engine does not start after two tries, wait 20 seconds and try again.
- You must not run the starter motor for longer than 30 seconds or the motor can fail.

6.7 HOW TO DRIVE

- Set the throttle to maximum engine speed.
- Release the parking brake before you move in a forward or reverse direction.
- Forward - Carefully press the top of the Traction pedal to engage forward drive.
- Reverse - Carefully press the bottom of the Traction pedal to engage reverse drive.
- To stop - Carefully return the Traction pedal to the Neutral position.

NOTE

- Use complete foot to operate both forward and reverse.
- Always operate the traction pedal carefully. Do not move the pedal from forward to reverse quickly.

6.8 HOW TO MOW

1. To mow the machine should be set to either manual or automatic mode.
2. Release any transport locks and lower the cutting units with the joysticks.
3. To engage the cutter decks, press the upper half of the cutting unit switch, found on the control panel.
4. Release the parking brake and drive in a forward direction.
5. Set a speed compatible with the surface and gradient you are cutting. When you operate at speed, danger is increased and the quality of cut will be compromised.

NOTE

Always set the throttle to the maximum engine speed. If you find wet or thick grass difficult to cut, decrease the forward speed to increase hydraulic pressure to the cutting motors.

6.9 TO STOP THE ENGINE

1. Disengage the drive to the cutting units with the cutting unit switch.
2. Return the Traction pedal to the Neutral position.
3. Set the parking brake.
4. Move the throttle control lever to the SLOW position.
5. Turn the ignition key to the OFF position.

6.10 TO REMOVE A BLOCKAGE FROM CUTTING UNITS

1. Stop and lift the cutter decks before you move the machine to level ground.
2. Turn off the engine and remove the ignition key.
3. If the front cutter deck has become blocked, you will need to tilt front cutter deck refer to section 8.19
4. Wear the personal protective equipment that is applicable for this work, for example eye protection, gloves and correct footwear. Use Bat (4184540), to remove the blockage.
5. Check the blades for damage and replace if necessary.
6. Put the deck into the position for operation.
7. Start the engine and run the cutter decks to check for correct operation.

⚠ WARNING

Always use the Bat (4184540) and heavy duty leather gloves to clean under cutter deck to reduce the risk of injury and infection from foreign objects.

6.11 TRANSPORTING ON A TRAILER

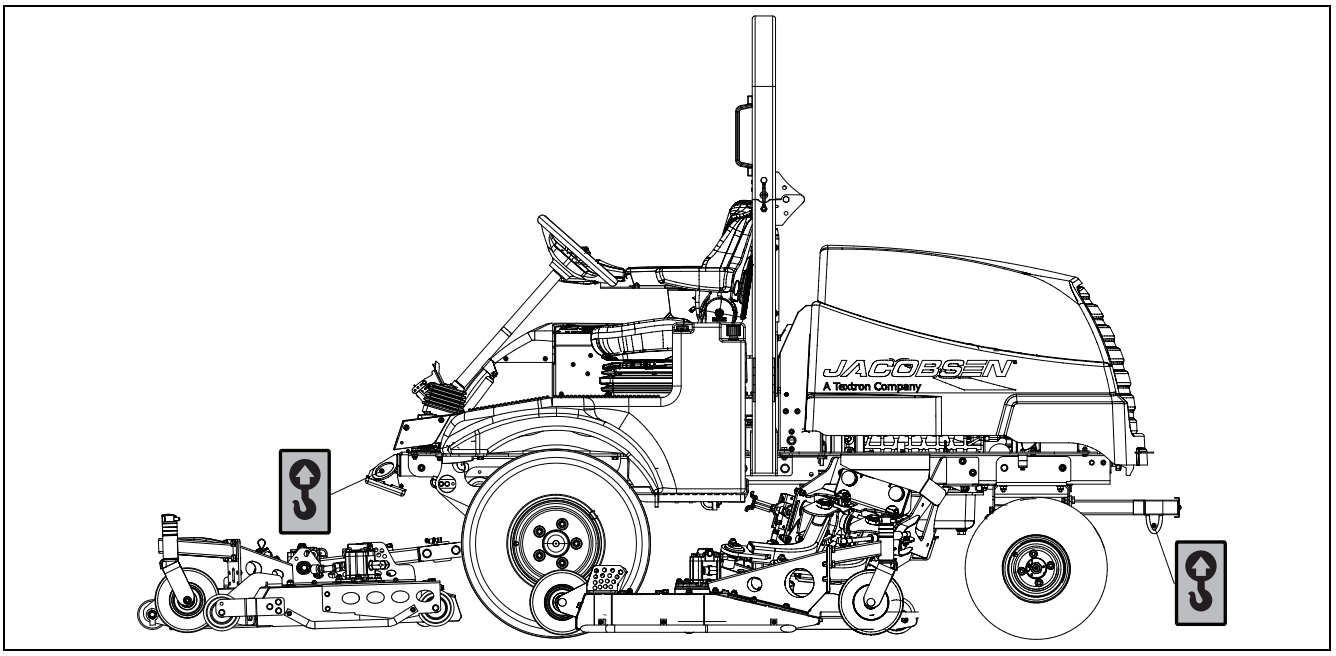
The machine is fitted with tie-down loops front and rear. Always tie down the machine securely to the trailer. Always follow any recommendations for maximum trailer weights given in your towing vehicles handbook.

IMPORTANT

Use the chart in the specification section 12.2 to calculate the total weight of your machine configuration.

Do Not exceed the maximum gross weight shown on the trailer plate.

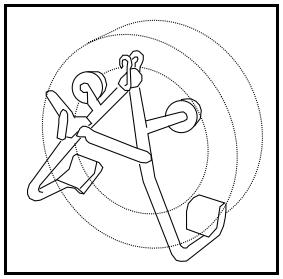
Always read the trailer manufactures and towing vehicle manufactures handbooks before towing.



6.12 SLINGING AND JACKING THE MACHINE

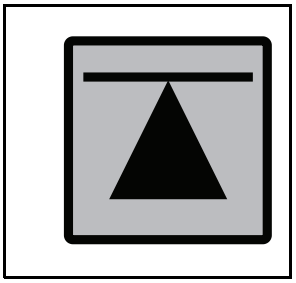
Slinging

When slinging the machine a set of four damage free wheel clamps must be used, similar to the one shown, in conjunction with a certified lifting frame.



Jacking points

There are four jack points indicated on the machine, two on the rear axle and two on the front axle. This decal indicates the correct lift point.



6.13 MOWING ON SLOPES

The mower is designed for good traction and stability in normal conditions for operation. On wet grass slopes use caution, as wet grass decreases traction and steering control.

⚠ WARNING

To decrease the possible cause of overturning. The safest method for operation on slopes and terraces is.

1. To travel up and down the face of the slope (vertically) but not across the face (horizontally).

2. Do not make a turn that is not necessary.

3.Travel at decreased speeds and look for hazards.

For best stability, always cut with all three units.

1. Always mow with the engine at full throttle, control forward speed with the traction foot pedal to maintain correct cutting.

2. Use the weight transfer control as required to improve the weight distribution between decks and mower.

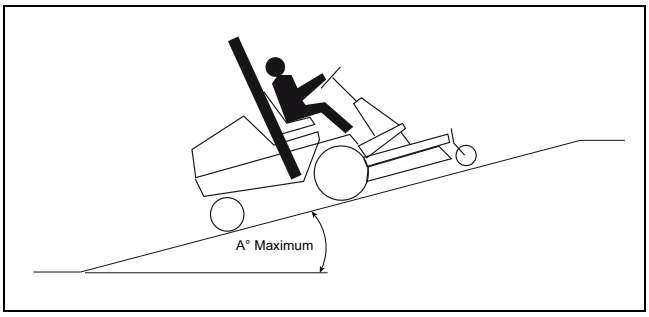
3. If the mower slides or the tyres begin to mark the turf, you can angle the mower into a less steep slope until traction is regained or tyre marking stops.

4. If the mower continues to slide or mark the turf, the slope is too steep for safe operation. Do not make another attempt to climb, and back down slowly.

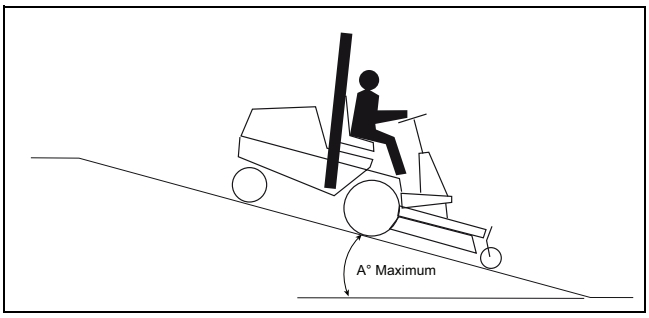
5. When descending a steep slope, always lower implements to the ground to reduce the risk of mower overturning.

Correct tyre pressure is essential for maximum traction.

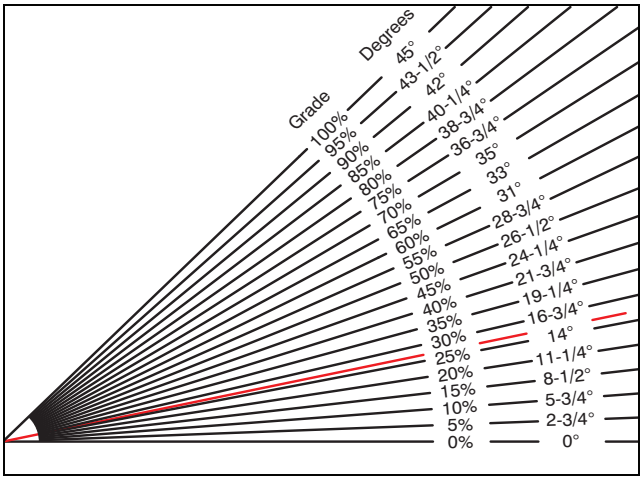
See Specification



A = Maximum Allowed Slope



A = Maximum Allowed Slope



Degrees are shown to the nearest 1/4°.

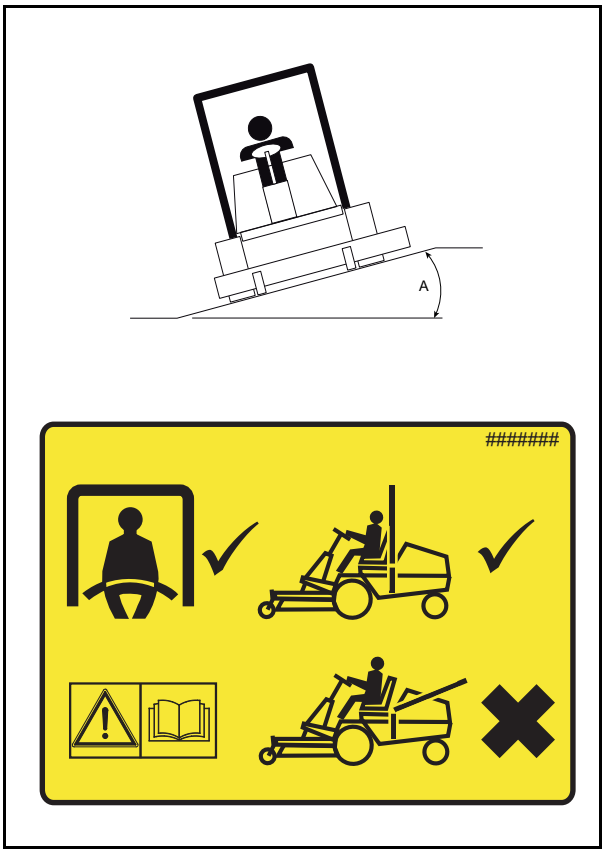
General slope of roadway embankment - 45°
Steepest grass area - 31°
Slope of average roof - 19-1/4°
2nd class highway maximum grade 4-1/2°
Toll road or freeway - 1-3/4°

⚠ WARNING

When The Machine Is Being Used, Whether Cutting Grass Or Not, On Slopes, The Rops Frame Must Be Deployed And The Seat Belt Used.

This Rationale Is Based On The Fact That A Seat Belt Must Be Worn With A Rops To Comply With The Machinery Directive 2006/ 42/EC Sections 3.2.2, Seating & 3.4.3, Rollover

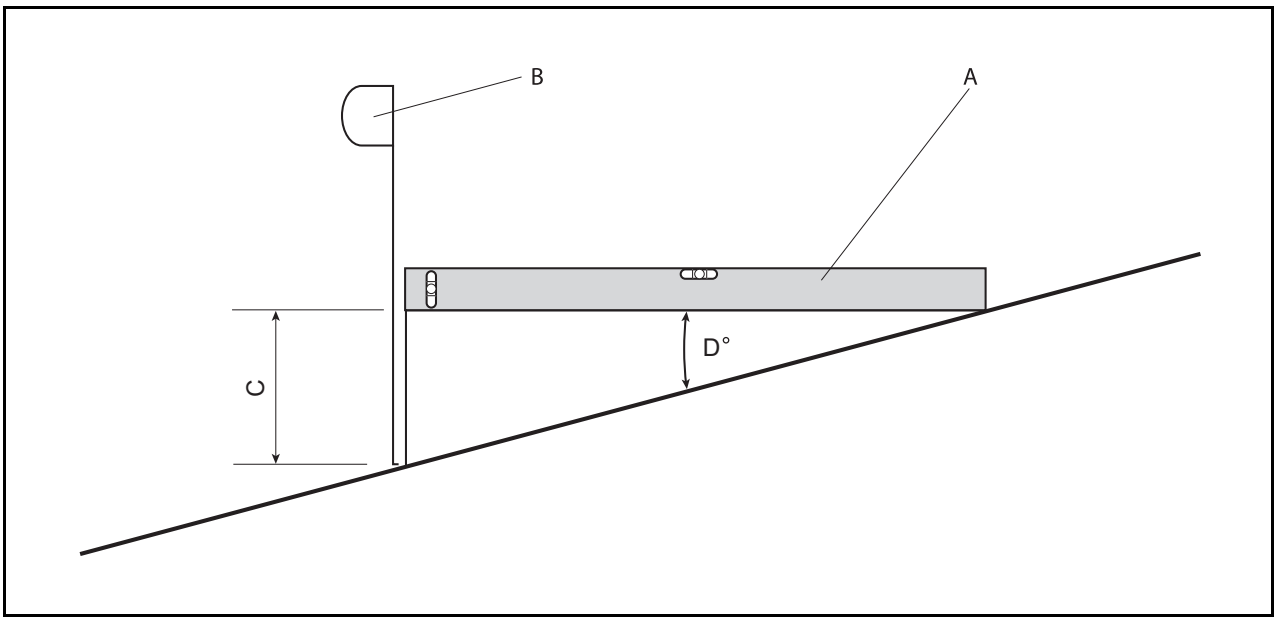
Ransomes Jacobsen Limited Recommends That A Local Risk Assessment Is Completed By The Owner/user Of The Machine To Determine The Risks Associated With Working On Slopes.



HOW TO CALCULATE A SLOPE

Tools:
Spirit level 1 metre long.
Tape measure.

With the spirit level (A) positioned horizontally measure the distance (C) with tape measure (B). Using the chart determine the angle of the ground.



SLOPE CALCULATION CHART

Use Either of these columns but not both		The result of what you are measuring	
Height 'C' in inches measured with a 1 yard horizontal edge 'A'	Height 'C' in millimeters measured with a 1 metre horizontal edge 'A'	Slope Angle 'D' measured in Degrees	Slope Angle 'D' measured in Grade%
3		4.8	8.3
	100	5.7	10.0
	150	8.5	15.0
6		9.5	16.7
	200	11.3	20.0
7.5		11.8	20.8
	225	12.7	22.5
9	250	14.0	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		24.0	44.4
	475	25.4	47.5
18	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	90.0
36	1000	45.0	100.0

NOTES:

7.1 GENERAL PRECAUTIONS

⚠ WARNING

When you clean, adjust or repair this equipment, Lower all the cutting units to the ground. Engage the parking brake switch, stop the engine and remove the key.

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

A trained technician must always do the adjustments and maintenance.

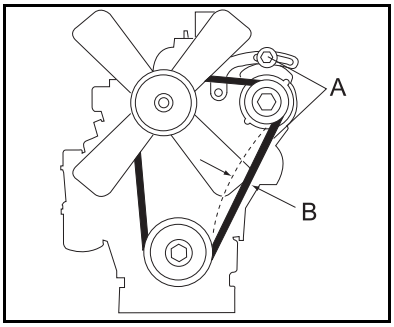
Inspect the equipment according to the maintenance schedule and keep complete records.

a Keep the equipment clean.
b Keep all the moving parts correctly adjusted and lubricated.
c Replace worn or damaged parts before you operate the mower.
d Keep all fluids at the correct level.
e Keep the guards in position and all hardware tight.
f Keep the tyres inflated to the correct pressure.
g Do not wear jewelry or loose fitting clothing, when you make adjustments or carry out maintenance.

Refer to the illustrations in the Parts Manual for the removal and assembly of parts.

When you discard hazardous materials (batteries, lubricants, fuel, anti-freeze), follow your local, state or federal-recommended procedures.

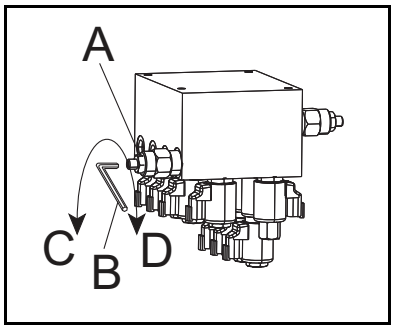
7.2 ENGINE AUXILIARY BELT



Check And Adjust The auxiliry Belt
The auxiliary belt tension is adjusted to prevent the stress on the alternator bearings and to prevent movement on the alternator pulley. Use the procedure shown below to check the belt tension at the center of the belt between crank shaft and alternator pulleys.

1. Loosen the alternator bolt (A) and the pivot bolt below the alternator.
2. Move the alternator to tighten or loosen the belt. A deflection of 7 to 9 mm is needed at the center (B) with a load 10Kgf (98N/22lbs) for a new belt. A deflection of 8 - 10mm is needed for a used belt.
3. Tighten the bolts.

7.3 WEIGHT TRANSFER ADJUSTMENT



The weight transfer bias can be adjusted on the lift valve. The valve is accessible by removing the access panel in the operator platform. The valve is situated on the right hand side.

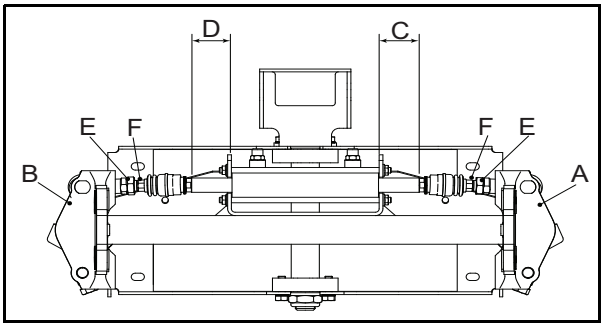
To adjust:

1. Loosen the locknut A whilst holding the threaded shaft still with the Allen Key B.

2. Using an Allen key B rotate the threaded shaft clockwise in direction D to increase weight onto the drive wheels when the traction control button is operated on the control pod. This improves slope climbing performance. To reduce weight on the drive wheels when the traction control button is operated on the control pod, rotate the threaded shaft counter clockwise in direction C. This increases the ground weight of the cutting unit and will reduce the possibility of cutting unit “bounce” when working at high speed on undulating ground. It is recommended that the Allen key is turned a 1/4 turn at a time and the weight transfer tested.

3. Tighten locknut A. whilst holding the threaded shaft still with the Allen Key B.

7.4 STEERING SHAFT ADJUSTMENT



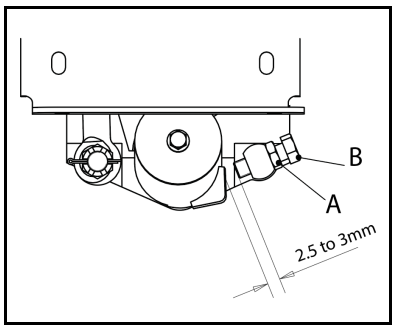
The rear motor mounts (A and B) must be parallel to each other and the machine.
The steering ram shaft must be equal (C and D) on both sides of the steering ram.

1. Apply Loctite 243 to nut (E) and steering link (F).
2. Assemble rod end to steering link on both side of axle.
3. Check motor mounts are parallel and ram shaft is equal on both sides.
4. Torque the nuts (E) to 100Nm (74 lbf-ft).

7.5 AXLE STOP ADJUSTMENT

The rear wheels axle stops are set as follows.

1. Loosen the nut (A) and adjust bolt (B) to give a dimension of 2.5-3mm.
2. Tighten nut (A) to 210Nm (155 lbf-ft)
3. Check that full steering lock is obtainable.
4. Repeat for opposite side of axle.



7.6 HEIGHT OF CUT ADJUSTMENT

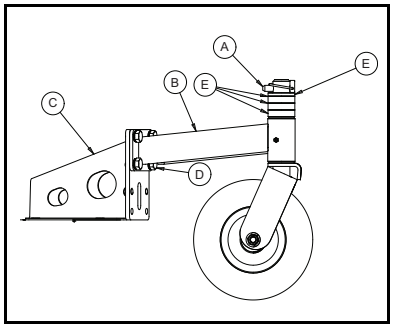
The cutting height is determined by the position of the blades in relation to the caster wheels. Changes to this height are made at all points and can be made in any order. Make adjustment selections for each deck from the height of cut chart for that deck included in this section.

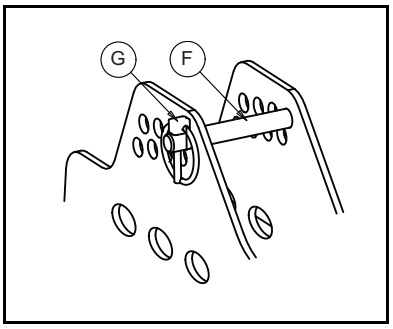
NOTES

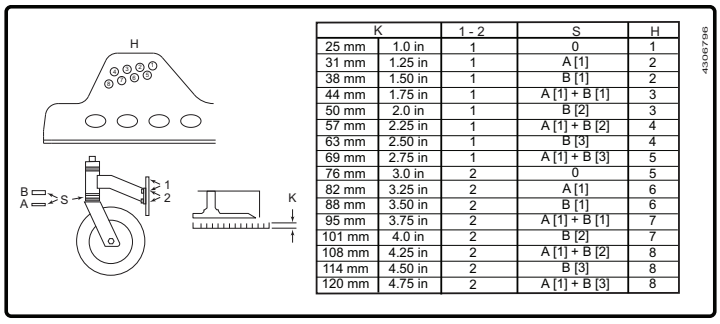
– Cutting height must be set the same for all three cutter decks.
– The actual height may vary slightly from the chart value because of tyre pressure or turf condition.

7.6.1 HEIGHT OF CUT ADJUSTMENT (FRONT DECK)

1. Raise the deck to mid position.
2. Remove the quick pin (A) from the top of the caster wheel pivot spindle
3. Remove the caster wheel from caster support (B).
4. Select either Position 1 or Position 2 for wheel mounting bracket (C). To change, remove (4) mounting bolts (D), move to the alternate location and bolt in place.
5. Place the selected size and number of spacers (E) below the caster support. Both A-size (6.5 mm) HR600 only and B-size (12.5 mm) HR600 and HR700 spacers are provided. Place the remaining spacers above the caster support.
6. Replace the quick pin.
7. Place pin (F) into the proper hole of bracket for the selected height of cut and fit quick pin.

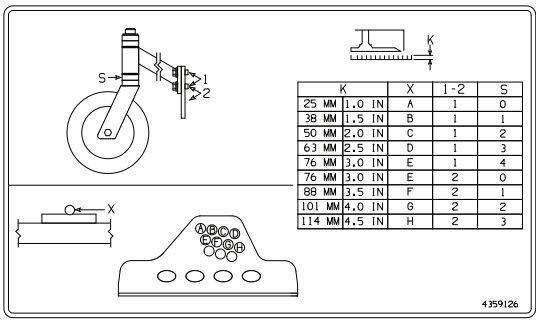






K		1 - 2	S	H
25 mm	1.0 in	1	0	1
31 mm	1.25 in	1	A [1]	2
38 mm	1.50 in	1	B [1]	2
44 mm	1.75 in	1	A [1] + B [1]	3
50 mm	2.0 in	1	B [2]	3
57 mm	2.25 in	1	A [1] + B [2]	4
63 mm	2.50 in	1	B [3]	4
69 mm	2.75 in	1	A [1] + B [3]	5
76 mm	3.0 in	2	0	5
82 mm	3.25 in	2	A [1]	6
88 mm	3.50 in	2	B [1]	6
95 mm	3.75 in	2	A [1] + B [1]	7
101 mm	4.0 in	2	B [2]	7
108 mm	4.25 in	2	A [1] + B [2]	8
114 mm	4.50 in	2	B [3]	8
120 mm	4.75 in	2	A [1] + B [3]	8

HR600



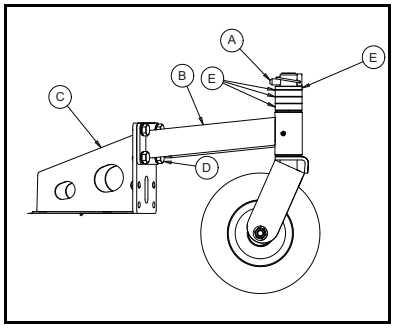
K		X	1-2	S
25 MM	1.0 IN	A	1	0
38 MM	1.5 IN	B	1	1
50 MM	2.0 IN	C	1	2
63 MM	2.5 IN	D	1	3
76 MM	3.0 IN	E	1	4
76 MM	3.0 IN	E	2	0
88 MM	3.5 IN	F	2	1
101 MM	4.0 IN	G	2	2
114 MM	4.5 IN	H	2	3

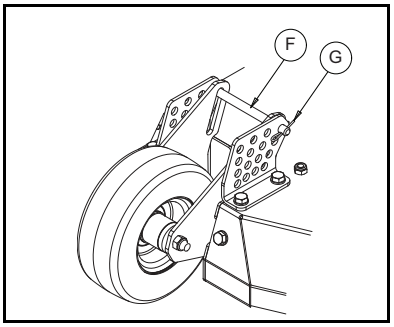
HR700

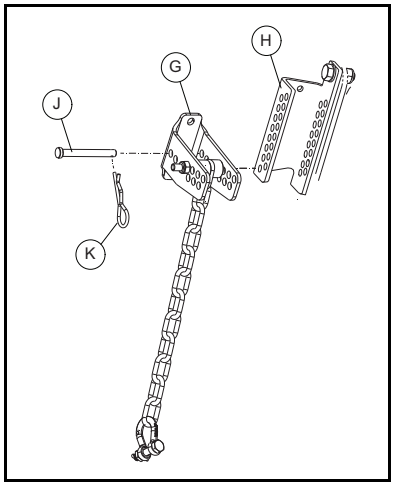
7.6.2 HEIGHT OF CUT ADJUSTMENT (WING CUTTER DECKS)

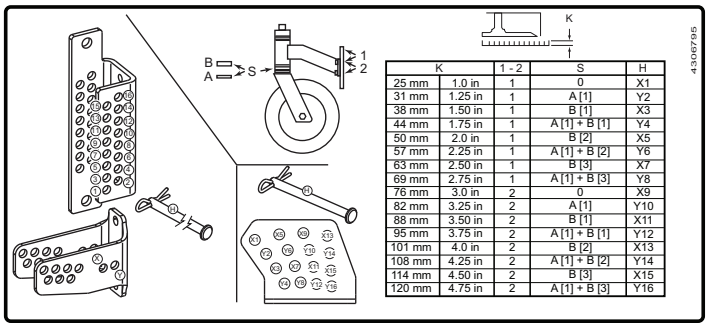
1. Raise the deck to mid position.
2. Engage transport lock
2. Remove the quick pin (A) from the top of the caster wheel pivot spindle
3. Remove the caster wheel from caster support (B).
4. Select either Position 1 or Position 2 for wheel mounting bracket (C). To change, remove (4) mounting bolts (D), move to the alternate location and bolt in place.
5. Place the selected size and number of spacers (E) below the caster support. Both A-size (6.5 mm) HR600 only and B-size (12.5 mm) HR600 and HR700 spacers are provided. Place the remaining spacers above the caster support.
6. Replace the quick pin.
7. Place pin (F) into the proper hole of bracket for the selected height of cut and fit quick pin (G).
8. To change level of deck - remove R clip (K) from pin (J) and move bracket (G) to required hole position on bracket (H). Refit pin (J) and secure with R clip (K)

Note. The holes (L) in bracket (G) are to take up any slack in the chains.



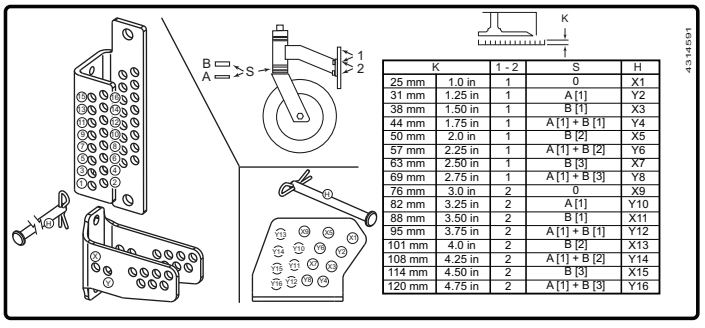






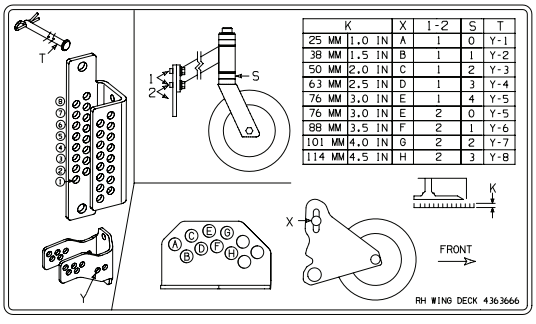
K		1 - 2	S	H
25 mm	1.0 in	1	0	X1
31 mm	1.25 in	1	A [1]	Y2
38 mm	1.50 in	1	B [1]	X3
44 mm	1.75 in	1	A [1] + B [1]	Y4
50 mm	2.0 in	1	B [2]	X5
57 mm	2.25 in	1	A [1] + B [2]	Y6
63 mm	2.50 in	1	B [3]	X7
69 mm	2.75 in	1	A [1] + B [3]	Y8
76 mm	3.0 in	2	0	X9
82 mm	3.25 in	2	A [1]	Y10
88 mm	3.50 in	2	B [1]	X11
95 mm	3.75 in	2	A [1] + B [1]	Y12
101 mm	4.0 in	2	B [2]	X13
108 mm	4.25 in	2	A [1] + B [2]	Y14
114 mm	4.50 in	2	B [3]	X15
120 mm	4.75 in	2	A [1] + B [3]	Y16

HR600



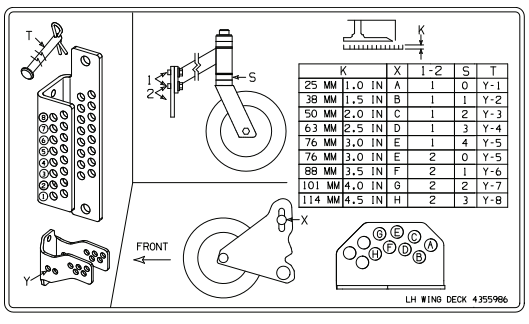
K		1 - 2	S	H
25 mm	1.0 in	1	0	X1
31 mm	1.25 in	1	A [1]	Y2
38 mm	1.50 in	1	B [1]	X3
44 mm	1.75 in	1	A [1] + B [1]	Y4
50 mm	2.0 in	1	B [2]	X5
57 mm	2.25 in	1	A [1] + B [2]	Y6
63 mm	2.50 in	1	B [3]	X7
69 mm	2.75 in	1	A [1] + B [3]	Y8
76 mm	3.0 in	2	0	X9
82 mm	3.25 in	2	A [1]	Y10
88 mm	3.50 in	2	B [1]	X11
95 mm	3.75 in	2	A [1] + B [1]	Y12
101 mm	4.0 in	2	B [2]	X13
108 mm	4.25 in	2	A [1] + B [2]	Y14
114 mm	4.50 in	2	B [3]	X15
120 mm	4.75 in	2	A [1] + B [3]	Y16

HR600



K		X	1-2	S	T
25 MM	1.0 IN	A	1	0	Y-1
38 MM	1.5 IN	B	1	1	Y-2
50 MM	2.0 IN	C	1	2	Y-3
63 MM	2.5 IN	D	1	3	Y-4
76 MM	3.0 IN	E	1	4	Y-5
76 MM	3.0 IN	E	2	0	Y-5
88 MM	3.5 IN	F	2	1	Y-6
101 MM	4.0 IN	G	2	2	Y-7
114 MM	4.5 IN	H	2	3	Y-8

HR700



K		X	1-2	S	T
25 MM	1.0 IN	A	1	0	Y-1
38 MM	1.5 IN	B	1	1	Y-2
50 MM	2.0 IN	C	1	2	Y-3
63 MM	2.5 IN	D	1	3	Y-4
76 MM	3.0 IN	E	1	4	Y-5
76 MM	3.0 IN	E	2	0	Y-5
88 MM	3.5 IN	F	2	1	Y-6
101 MM	4.0 IN	G	2	2	Y-7
114 MM	4.5 IN	H	2	3	Y-8

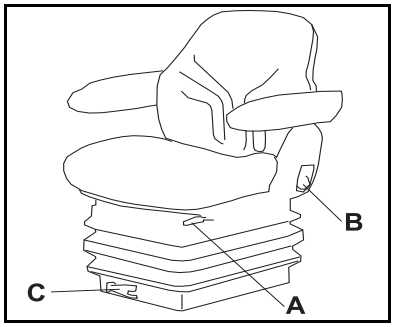
HR700

7.7 GENERAL INSTRUCTIONS FOR GRAMMER SEATS

To identify seat type, slide seat forward on its runners to reveal seat label.
All The seat adjustments are to be done while the vehicle is stopped.

- After removal of the backrest cover, hold the backrest frame in position with a support before the backrest adjuster is operated. If you do not lock the frame in position safely, the backrest frame can move forward suddenly and can cause injury.
- Use approved GRAMMER parts.
- Only GRAMMAR approved changes are to be made to the seat. During the removal and installation of the GRAMMER driver seat, follow the instructions supplied by the vehicle manufacturer.
- When you lift the driver seat, do not hold the covers. The covers are not a load bearing component and injury can occur.
- Before you remove the driver seat, disconnect all plug-in connectors between the seat and the vehicle supply network. When you replace the plug-in connectors, make sure the connectors are tight so that dust and water does not enter.
- Fasten seat belts before operation.
- Replace the seat belt after an accident.
- After an accident with a vehicle that has seat belts installed, have the seat and seat mounting checked by the safety personnel.
- Check the seat fasteners to make sure that the seat is installed correctly.
- If the seat does not operate correctly, have the seat repaired in a GRAMMER workshop. Check the seat for damage to the seat suspension and bellows or for an incorrect curve in the lumbar support.
- If you do not correct problems that occur in the seat, the seat can damage your health and increase the risk of an accident.
- Before the vehicle is used, check the load sensor, installed in the seat, for correct operation. If the driver leaves the seat, this sensor stops the vehicle.
- If a problem is found, you must not drive the vehicle. – INCREASED RISK OF ACCIDENT –
- Do not put the loads on to seats that have a load sensor. A load on the seat can cause the vehicle to move and cause an accident. – INCREASED RISK OF ACCIDENT –
- If you drive the vehicle and remove the weight from the seat, the vehicle will stop.
- Do not load the bellows while there is a load on the driver seat. – RISK OF INJURY FROM BELLOWS –
- Make sure that dirt and liquids can not get inside the drivers seat.
- The driver seat is not waterproof.
- Any changes or adjustment to a GRAMMER driver seat must be done in authorised workshops by approved personnel. The changes must follow the operation instructions and must be in compliance with all national regulations.
- Incorrect installation and assembly hold the risk of personal injury or property damage. Your warranty will also be invalidated.

7.8 SEAT (GRAMMER MSG85)



To get a good seat position to operate the machine you need to adjust the leg reach, the backrest angle and the operator weight.

A. FRONT AND REAR ADJUSTMENT
To Adjust:
The adjusting lever (A) is on the right side of the seat. Lift the lever and the seat can move backward and forward. When the seat is in the correct position, release the lever to put the seat into one of the preset positions.

B. BACKREST ADJUSTMENT
To Adjust:
The position of the release lever (B) is on the left side of the seat. When the driver is on the seat, lift the release lever to release the backrest. The backrest is spring loaded to fold on to the seat cushion. Move backward in the seat to get the correct position for the backrest. Lower the release lever to put the seat into one of the preset positions.

C. WEIGHT ADJUSTMENT
To Adjust:
The position of the operator weight adjust lever (C) is on the front of the seat. To change the operator weight setting with the driver on the seat, lift and rotate the lever.

D. HEIGHT ADJUSTMENT
To adjust:
Adjust the height when you are on the seat. Hold the edge of the seat cushion and lower the seat. Lift when the cushion and the suspension returns to its normal position. There are three preset positions for the seat. When the seat has lifted to the highest position, the seat returns to its lowest position.

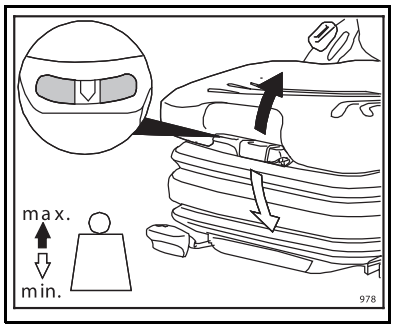
NOTE:The seat has a microswitch to sense the operator in the seat.

When the machine has a ROPS frame or a ROPS cab, the driver must wear the lap belt that is installed in the machine.

7.9 AIR SUSPENSION SEAT (GRAMMER MSG75 -521)

7.9.1 WEIGHT ADJUSTMENT

To adjust the seat for the driver weight, pull or press the lever for the seat weight adjustment with the driver on the seat.



When the arrow is in the center clear area of the view window, the driver weight is adjusted correctly.

Within this view area, you adjust the specified height of the driver to its minimum spring movement.

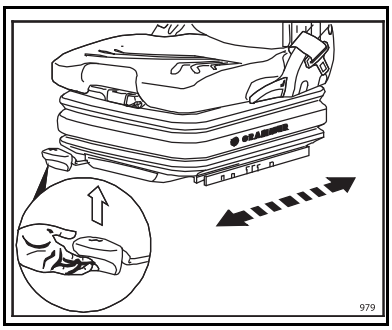
When you reach the minimum/maximum weight, you hear the adjustment reach the upper or lower end stop.

Adjust the setting for each driver weight before the vehicle can be driven safely.

To prevent damage to the compressor during the weight adjustment, the compressor must be operated for less than 1 minute.

7.9.2 FRONT AND BACK ADJUSTMENT

To release the front and rear adjustment lift the locking lever.



WARNING! Risk of accident!
Do not operate the locking lever when you drive.

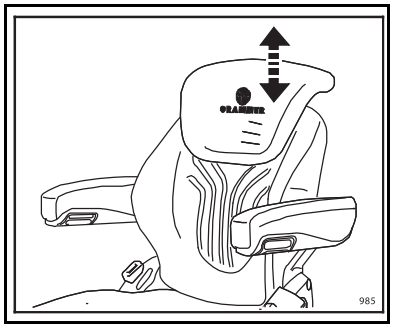
WARNING! Risk of injury!
Operate the lever at the grip section, do not reach below the lever.

After the adjustment, the locking lever must lock into the correct position with an audible click. The seat will not move into another position with the lever locked.

Do not lift the locking lever with your upper or lower leg.

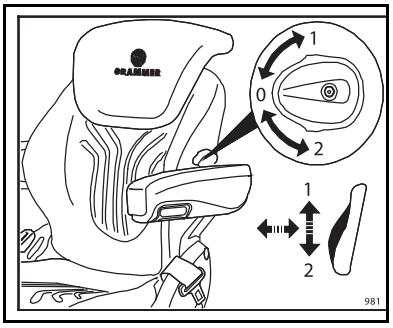
7.9.3 BACKREST EXTENSION

To adjust the backrest extension for each driver, move the extension to the correct lock position.



To remove the backrest extension, move the extension over the end stop.

7.9.4 LUMBAR SUPPORT (OPTION)

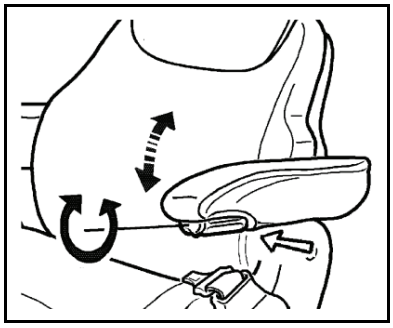


The lumbar support improves the quality of the seat and increases the performance of the driver.

To adjust the curve in the upper part of the backrest cushion, rotate the adjustment knob to the top.
To adjust the curve in the lower part of the backrest cushion, rotate the adjustment knob to the bottom.

0 = No curve angle
1 = Maximum curve angle at the top
2 = Maximum curve angle at the bottom

7.9.5 LEFT HAND ARMRESTS



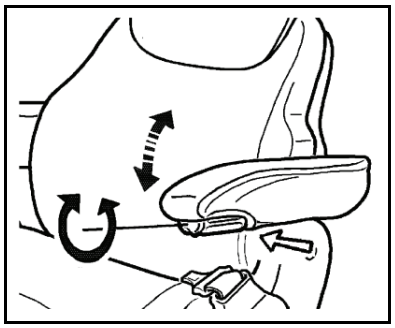
The armrests can fold away and adjustments can be made to the height of armrest.

To adjust the armrests for height, separate the round cap (see the arrow) from the cover. Loosen the hexagon nut (size 13 mm) below the cover. Adjust the armrests to the correct position (5-steps) and tighten the nut again.

Replace the cap above the nut.

For right hand arm rest adjustments, see Controls section

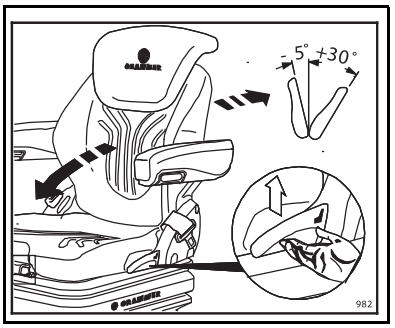
7.9.6 ARMREST ADJUSTMENT



To change the angle of the armrests, turn the adjustment knob.

The front part of the armrest is lifted when you turn the knob to the outside (+). The armrest is lowered when you turn the knob to the inside (-).

7.9.7 BACKREST ADJUSTMENT

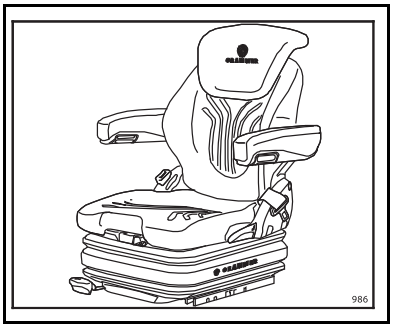


To loosen the notches of the backrest adjustment, move the locking lever to the upper position.

After the adjustment, the locking lever must lock into the correct position. if the lever has locked the backrest will not move into another position.

For the best ergonomic use, adjust the backrest within the range of –5 to +30 degrees (15 steps of 2.5 degrees each).

7.9.8 MAINTENANCE



If there is dirt in the seat, the seat can operate incorrectly. Make sure that the seat is kept clean.
Do not remove the seat for cleaning.

CAUTION: Be careful with the backrest - it can move forward and cause injury. Lock the backrest in position when you clean the backrest cushion.

Attention: Do not use a pressure washer to clean the seat.

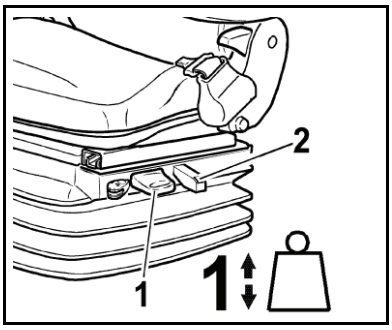
When you clean the seat cover, make sure that the seat cover does not become wet on each side.

Use a standard commercially available plastic cleaning agent. Test on a small area to make sure that it is compatible

7.10 AIR SUSPENSION SEAT (GRAMMER MSG95 -721)

7.10.1 WEIGHT ADJUSTMENT

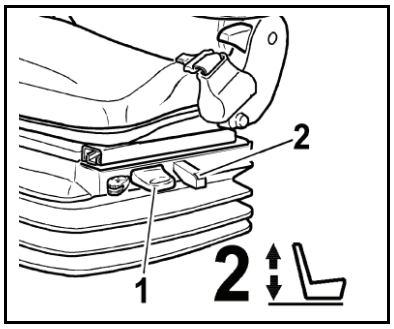
The seat should be adjusted for the driver's weight with the driver sitting on the seat. The adjustment is made by pulling out or pushing in the actuator lever (1) until the green marking is visible in the weight-and-height indicator (2).



- To prevent damage to yourself, the setting for the driver's weight must be checked and adjusted as necessary before the vehicle is driven.

7.10.2 HEIGHT ADJUSTMENT

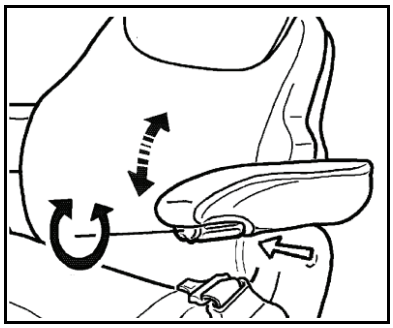
The seat height can be altered by fully pulling out or pressing in the actuator lever (1).



- The green marking in the weight-and-height indicator (2) should be visible.
- In order to avoid damage, do not operate compressor for more than 1 minute.

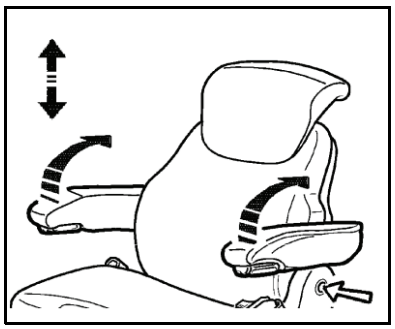
7.10.3 ARMRESTS ADJUSTMENT (OPTION)

The inclination of the armrests can be modified by turning the adjustment knob (arrow).



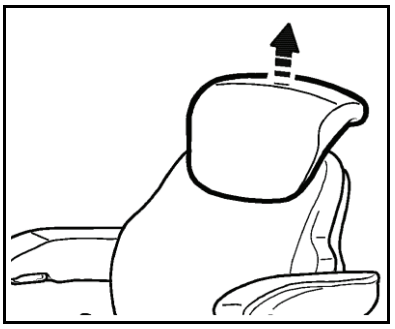
7.10.4 ARMREST (OPTION)

The armrests can be folded up if required and the height individually adjusted. To adjust the armrests for height, seperate the round cap (see arrow) from the cover, loosen the hexagon nut (size 13mm) and adjust the armrest to the desired position and tighten the nut again.



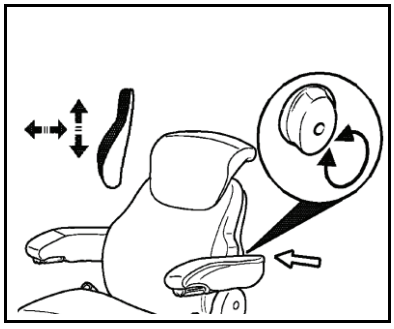
7.10.5 BACKREST ADJUSTMENT (OPTION)

The backrest extension can be individually adjusted for height by pulling it upwards over the various increments up to the end stop.
To remove the backrest extension, pull it over the end stop.

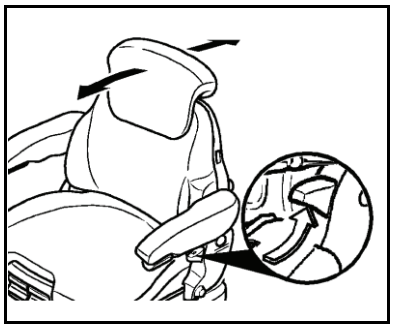


7.10.6 LUMBER SUPPORT (OPTION)

By turning the adjustment knob (arrow) to the left or right, both the height and curvature of the backrest cushion can be individually adjusted.
This increases both the seating comfort and the performance of the driver.



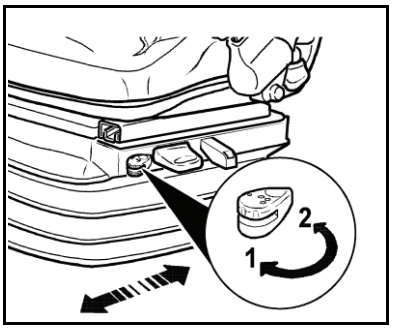
7.10.7 BACKREST ADJUSTMENT (OPTION)



The backrest is adjusted using the locking lever (arrow).

- The locking lever must latch into the desired position. It should not be possible to move the backrest into another position when it is locked.

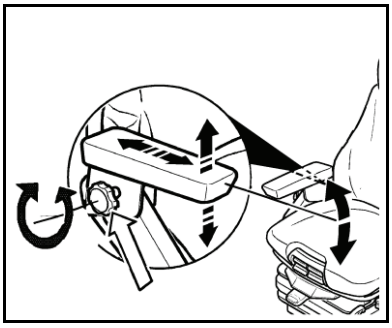
7.10.8 FORE / AFT ISOLATOR (OPTION)



Under certain driving conditions (for example with a trailer attached), it is useful to activate the fore/aft isolator. This means that shock impacts in the driving direction can be better absorbed by the driver seat.

Position 1 = fore/aft isolator off
Position 2 = fore/aft isolator on

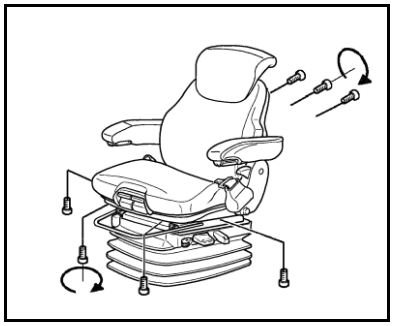
7.10.9 MULTIFUNCTION ARMREST (OPTION)



After releasing the hand wheel (arrow), the operator can adjust the armrest vertical and longitudinal direction; the armrest inclination can be adjusted as well. The vertical and longitudinal adjustment are effected at the same time in perceptible steps.

- After adjustment has been terminated, tighten the hand-wheel safely

7.10.10 MAINTENANCE



Dirt can impair the function of the seat, so make sure you keep your seat clean.

Upholstery can be quickly and simply removed from the seat frame for easy cleaning, or replacement.

Caution: take care with the backrest frame - it may jerk forward and cause injury!

During cleaning the upholstery should not be soaked through.

Use a standard commercially available upholstery or plastics cleaning agent. Test first for compatibility on a small, concealed area.

NOTES

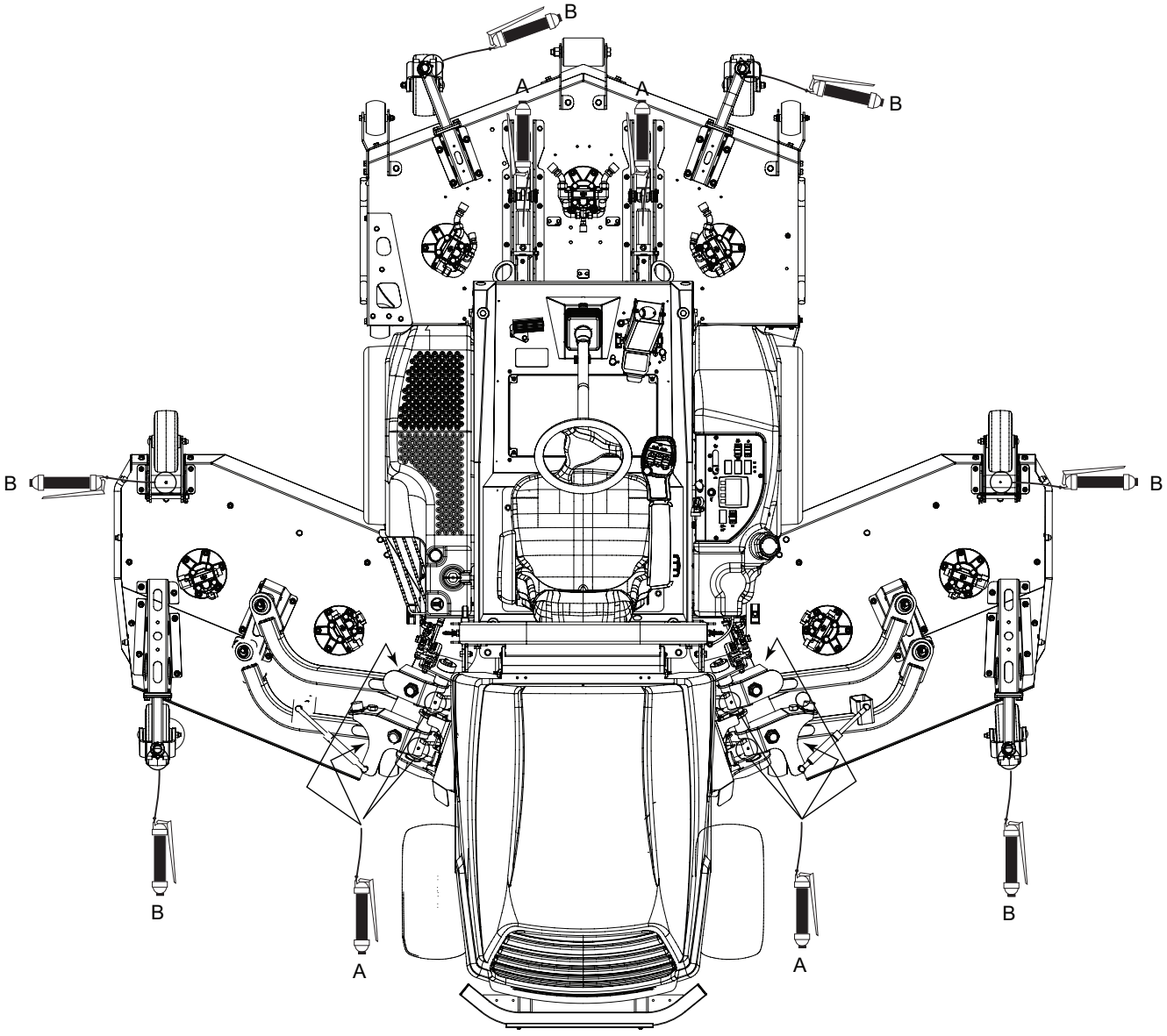
8.1 MAINTENANCE AND LUBRICATION CHARTS

MACHINE SERVICE INTERVAL CHART		
Interval	**Item**	**Section**
First 50 hours	● **Change the Hydraulic Filter Elements**	**8.7**
Each day **10 hours**	● **Check Safety Interlock System** ● **Check the Hydraulic Fluid Level** ● **Check Tyre Pressure** ● **Check Engine Bay for Dirt**	**6.2** **8.6** **8.17** **8.22**
Each week **Every 50 hours**	● **Check for Loose Components** ● **Check Cutter Blades** ● **Check for Hydraulic Leaks**	**8.12** **8.20** **3.1.8**
End of season **Every 1000 hours**	● **Check Battery Condition** ● **Change the Hydraulic Oil and Filters**	**8.12** **8.6**
Lubricate these fittings every week **A = All Lift Arm Pivots.** **B = All Cutter Deck Caster Wheel Pivots.**		

FLUID REQUIREMENTS				
	Quantity			Type
Engine Oil (with filter)	9.5 litres	2.1 Imp gals	2.51 US gals	10-30W (see specification below)
Hydraulic Oil (with filter)	50.2 litres	11.0 Imp gals	13.3 US gals	Total Equivis ZS46 (ISO VG 46)
Radiator Coolant	7.6 litres	1.67 Imp gals	2.0 US gals	50% Anti-Freeze
Fuel	77.1 litres	17 Imp gals	20.3 US gals	#2-D (ASTM D975) Diesel

Engine oil:Must be to A.P.I. Classification CJ-4 grade.	
TEMPERATURE	VISCOSITY
Above 25°C (77°F)	SAE30 or SAE10W-30 or 15W-40
0°C to 25°C (32°F to 77°F)	SAE10W-30 or 15W-40
Below 0°C (32°F)	SAE10W-30

TYRE PRESSURE						
Product	Front Wheel			Rear Wheel		
	Tyre Size	Tyre Type	Tyre Pressure	Tyre Size	Tyre Type	Tyre Pressure
HR600 HR700	26 x 12.00 - 12	Grassmaster 6pr	1.37 - 1.72 bar (20-25 psi)	20.00 x 10.00 - 8	Grassmaster 4pr	1.37 - 1.72 bar (20-25 psi)
	26 x 12.00 - 12	Armour 6pr	1.37 - 1.72 bar (20-25 psi)	20.00 x 10.00 - 8	Armour 6pr	1.37 - 1.72 bar (20-25 psi)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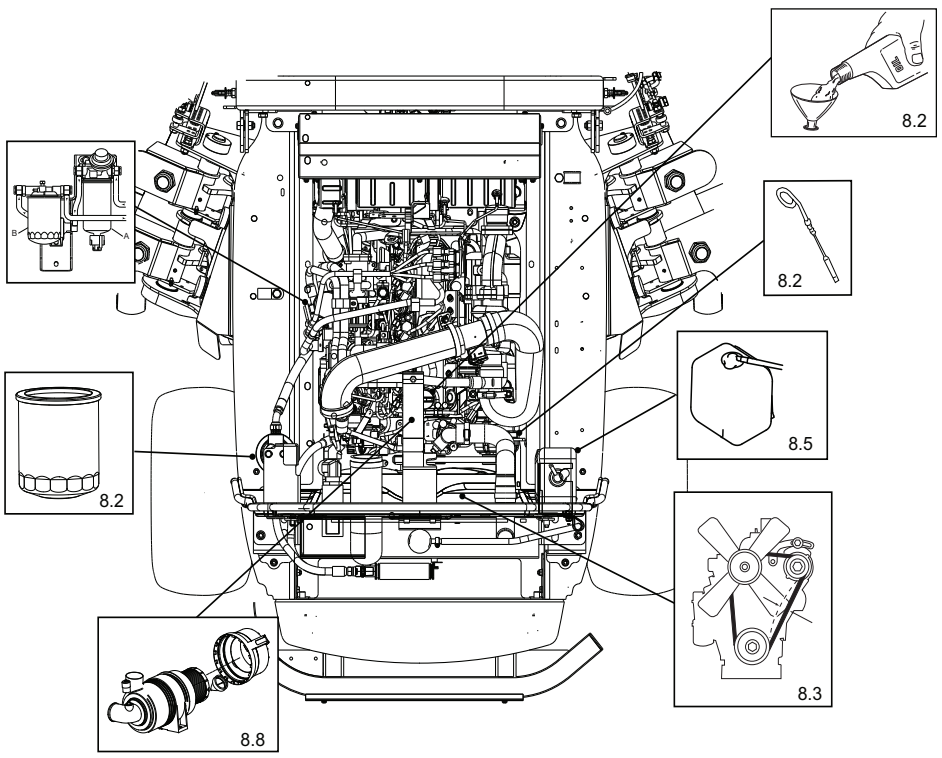
ENGINE SERVICE INTERVAL CHART				
Interval	**Item**	**Section**		
Daily **10 hours**	● **Check Engine Oil Level.** ● Check Fuel Level. ● **Check Coolant Level.** ● **Check Auxiliry Belt Tension.**			
Every 50 hours	● **Check Fuel Pipes and Clamps.** ● **Drain Water S**eparator (A).	 **8.10**		
Every 100 hours	● Check the Air Cleaner Service Indicator. ● **Clean Fuel Filter.** ● **Check Auxiliry Belt Tension** ● **Drain Water S**eparator (A).	 **8.10**		
Every 250 hours	● **Check Radiator Hoses and Clamps.** ● **Check Air Cleaner |Element.** ● **Adjust Auxiliry Belt Tension.** ● **Check Air Intake Hose.**			
Every 400 hours	● **Change Engine Oil.** ● **Change Engine Oil. Filter Cartridge.**		○ ○	
Every 500 hours	● **Replace Fuel Filter Cartridge (B).** ● Clean Water Separator (A). ● **Remove the Sediment in Fuel Tank.** ● **Clean Water Jacket and Radiator internally** ● **Replace the Auxiliary Belt.**	**8.10** **8.10**	***3** ***3** ***3** ***3** ***3**	
Every 1000 hours	● **Check the Valve Clearances.**		***3**	
Every 1500 hours	● **Check Fuel Injector Tip.** ● **Check EGR Cooler.** ● **Change Oil Separator Element.**		***3** ***3** ***3**	**@** **@** **@**
Every 3000 hours	● **Check Turbocharger.** ● **Clean DPF.** ● **Check EGR System.**		***3** ***3** ***3**	**@** **@** **@**
Every Year	● **Check DPF Related Piping.** ● **Check EGR Piping.** ● **Check Air Intake Hoses.** ● **Check Exhaust Manifold for Cracks or Gas Leak, looseness or Damage.**		***3** ***3** ***3** **-** **-**	

Interval	Item	Section		
Every 2 Years	● **Replace Oil Separator Related Rubber Piping.**		***3**	
	● **Replace DPF Related Rubber Piping.**		***3**	
	● **Replace Intake Air Line and Suction Air Pressure takeout Rubber Piping.**		***3**	
	● **Replace Boost Sensor Pressure Rubber Piping.**		***3**	
	● **Replace EGR Cooler Rubber Piping.**		***3**	
	● **Replace Water Rubber Piping.**		***3**	
	● **Replace Lubricant Rubber Piping.**		***3**	
	● **Change Radiator Coolant.**		**-**	
	● **Replace Radiator Hoses and Clamp Bands.**		***3**	
	● **Replace Fuel Pipes and Clamp Bands.**		***3**	
	● **Replace Intake Air Line.**		***3**	
	● **Replace Auxiliry Belt (or Every 500 Hours)**		***3**	
● The jobs indicated by ○ must be done after the first 50 hours of operation. *3 Consult your local Kubota Dealer for this Service. ● The items listed above (@ marked) are registered as emission related critical parts by Kubota in the U.S.EPA non road emission regulation. As the engine owner you are responsible for the performance of the required maintenance on the engine according to the above instruction. Please see Warranty Statement for detail. ● The items listed above other than @ marked items are not necessary to keep the emission-related warranty valid. ● Failure to perform the maintenance will cause problems that will significantly degrade the engine performance.				
IMPORTANT **Refer to Engine Manufacturers Manual for the Complete Engine Maintenance Procedures**				



8.2 GENERAL PRECAUTIONS

⚠ WARNING

Before you clean, adjust or repair this equipment, push PTO switch to the OFF position, lower front and wing cutter Decks to the ground, turn on the parking brake switch, stop the engine and remove the key.

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

A qualified technician must always do adjustments and maintenance. If the correct adjustments can not be made, contact your Jacobsen Dealer.

Inspect the equipment according to the maintenance schedule and keep complete records.

a Keep the equipment clean.
b Keep all moving parts correctly adjusted and lubricated.
c Replace worn or damaged parts before you operate the mower.
d Keep all fluids at the correct level.
e Keep the shields in position and all hardware tight.
f Keep the tyres correctly inflated.

When you make the adjustments or repairs, do not wear jewelry or loose fitting clothing.

Refer to the illustrations in the Parts Manual for the removal and assembly of parts.

When you discard hazardous materials (batteries, lubricants, fuel, anti-freeze), follow your local, state or federal-recommended procedures.

NOTICE

Only use the tool attached to the key ring to open the engine hood catches.

8.3 ENGINE

IMPORTANT - The mower includes a separate Engine Manual prepared by the engine manufacturer. Read the Engine Manual and know the operation and maintenance of the engine. When you follow the engine manufacturer instructions, you will make sure of the maximum service life of the engine. The replacement engine manuals are available from the engine manufacturer.

The operation and maintenance during the first 50 hours of a new engine can make a difference to the performance and life of the engine.

During the first 50 hours of operation, Jacobsen recommends the following.

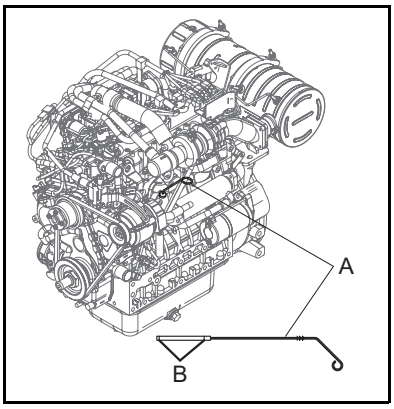
- Allow the engine to reach a temperature of at least 60° C (140° F) before operation at full load.
- Check the engine oil level two times each day. Higher than normal oil use can occur during the first 50 hours.
- Change the engine oil and oil filter after the first 50 hours of operation.
- Check the fan belt.
- Refer to the Engine manual for specified maintenance intervals.

If the injection pump, injectors or the fuel system need service, contact your Jacobsen Dealer.

NOTICE

The mower operates and cuts correctly at the preset governor setting. Do not change the engine governor setting or over speed the engine.

8.4 ENGINE LUBRICATION



Check Engine Oil Level

Check the engine oil level before you start or at least five minutes after you stop the engine.

(a) Park the machine on level ground, remove the dipstick (A), clean with a cloth and replace in position.

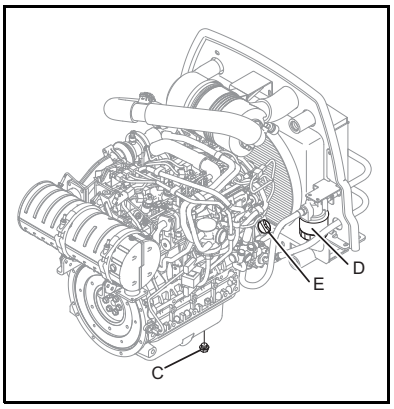
(b) Remove the dipstick (A) again and check the oil level. The oil must be between the two level indicators (B) on the dipstick.

Change Engine Oil

(a) Start the engine to increase the temperature, then turn off the engine. Remove oil drain plug (C) from the bottom of the crankcase and clean with a cloth.

(b) Drain engine oil into a container.

(c) Replace the drain plug (C) and fill the engine with the correct quantity and grade of oil through the filler (E).



Change Engine Oil Filter

(a) Remove the oil filter cartridge (D).

(b) Let the engine oil flow into a container.

(c) Clean area on the crankcase.

(d) Apply a thin layer of oil to cartridge gasket before you install the filter.

(e) Only use your hand to tighten the filter cartridge (D).

(f) Check for oil leaks around the cartridge gasket after the engine is started.

⚠ CAUTION

The Engine Oil Can Damage Your Skin. Use Gloves. If Engine Oil Touches Your Skin, Clean The Area Immediately.

⚠ CAUTION

Discard Engine Oil As Shown In Local Regulations

8.5 ENGINE COOLANT

⚠ WARNING

To prevent injury from the hot-engine coolant or steam, never remove the radiator cap with the engine in operation. Stop the engine and wait until the radiator is cool. When radiator is cool, use caution to remove the radiator cap.

⚠ CAUTION

Do not put cold coolant mixture into a hot radiator. Do not operate the engine without a correct coolant mixture. Install the radiator cap correctly.

Check coolant level each day. The radiator must be full and the recovery bottle must be at the cold mark.

Drain and fill the cooling system each year. Empty and clean the recovery bottle.

Mix clean water with anti-freeze for the coldest ambient temperature. Read and follow the instructions on the anti-freeze container and the Engine manual.

Keep the radiator, engine oil cooler and hydraulic oil cooler air passages clean. Do not use compressed air to clean the fins. Only use low pressure water to clean radiator.

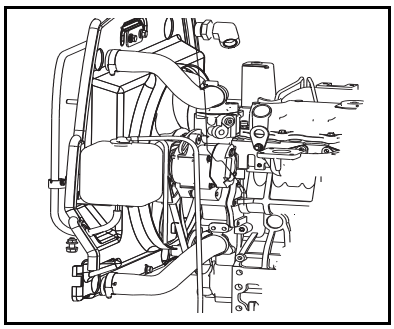
⚠ CAUTION

Stop Engine & Remove the Starter Key Before Pressure Washing. Do not use a pressure washer near the instrument panel or Engine radiator to prevent damage.

Check and tighten the engine fan belt (see maintenance chart) and replace the belt (see maintenance chart). Replace the clamps and hoses (see maintenance chart).

Have your Jacobsen Dealer check the cooling system if you need to add coolant more than one time a month or you add more than a litre of coolant at a time.

Check The Engine Coolant Level

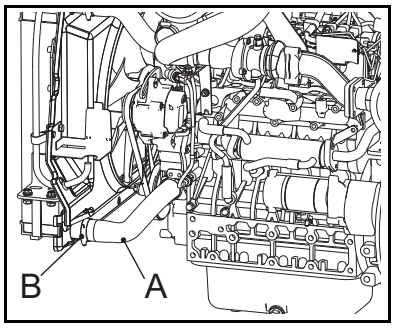


(a) The level of coolant in a cold expansion tank must be between the indicators.

(b) If you need to fill the tank, remove the plastic cap and fill with the correct anti-freeze mixture (see section 8.1).

(c) Replace the plastic cap.

How To Change Coolant



(a) To drain coolant, remove the bottom hose (A) from the radiator. Drain the engine coolant into a container.

(b) Replace the bottom hose (A) on to the radiator. Make sure all the hose clips (B) are tight.

(c) Fill the cooling system with the correct anti-freeze mixture, see section 8.1. Fill system through the radiator cap.

(d) The level of coolant in a cold expansion tank must be between the indicators.

(e) Run the engine for approximately 5 minutes or until the thermostat opens.

(f) Check the level of coolant in expansion tank. Fill the tank if more coolant is needed.

⚠ CAUTION

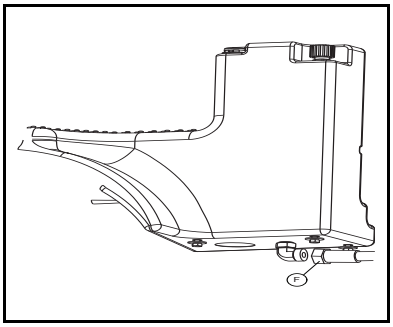
The Anti-freeze Can Damage Your Skin. Use Gloves When You Use Anti-freeze. If Anti-freeze Touches Your Skin, Clean The Area Immediately.

⚠ CAUTION

Discard Anti-freeze As Shown In Local Safety Regulations.

8.6 HYDRAULIC SYSTEM

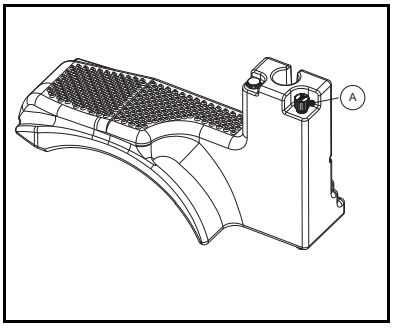
Drain and replace the hydraulic oil if one of the following occur.



- Component failure
- Water or foam is in the hydraulic fluid
- The hydraulic fluid has a rancid odor (indication of high heat)
- When required by maintenance schedule.

Always replace the hydraulic filter when you replace the hydraulic fluid.

Change The Hydraulic Oil



a Clean the area around the oil cap to prevent dirt to enter the hydraulic system.

b Remove the hose (F) from the bottom of the tank.

c After the oil has drained, reinstall the hose and fill the tank with hydraulic fluid through filler (A).

d Start the engine and remove the air from the hydraulic system. Operate all mower functions for 5 minutes to remove the air and to balance the hydraulic fluid level.

e When all air is removed from the hydraulic-fluid, check the level, add hydraulic fluid to the tank to the recommended level.

IMPORTANT

If you open the closed hydraulic transmission circuit, you need to fill the circuit with oil before the circuit is used again. When you fill the hydraulic tank, use only clean oil. The hydraulic oil must go through a 25micron filter before the oil enters the tank.

⚠ CAUTION

The Hydraulic Oil Can Damage Your Skin. Use Gloves When You Use Hydraulic Oil. If Hydraulic Oil Touches Your Skin, Clean The Area Immediately.

⚠ CAUTION

Discard Used Hydraulic Oil As Shown In Local Safety Regulations.

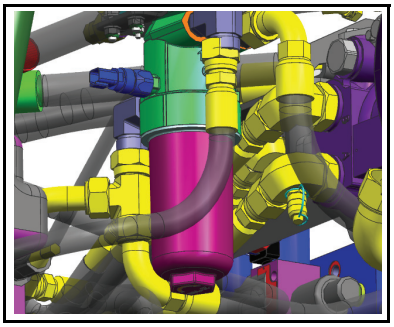
8.7 HYDRAULIC FILTER

The hydraulic system is protected by two 10 micron filters. Flow through the filter is monitored while you operate the mower. When the difference in hydraulic pressure across the filter is greater than 16 to 20 psi (1.1 to 1.4 BAR), the hydraulic oil filter warning light on the combination gauge will illuminate. To make sure continued protection of the hydraulic system, replace filter as soon as possible after light illuminates.

NOTICE

During cold weather, the oil filter warning light can illuminate until the hydraulic fluid becomes warm. Wait until the oil becomes warm and the warning light turn off before you operate the mower.

When you replace the filter, -



a Fill the new filter with hydraulic fluid and lubricate the filter O-ring with hydraulic fluid before you assemble the new filter. Tighten the filter with your hand.

b Operate the engine at idle speed for five minutes to remove the air from the hydraulic system. The oil-level light can illuminate and the horn can activate during the five minutes.

c Stop the engine and check the level of hydraulic fluid in the tank. Add the hydraulic fluid to the Full mark on the dipstick.

⚠ CAUTION

The Hydraulic Oil Can Damage Your Skin. Use Gloves When You Use Hydraulic Oil. If Hydraulic Oil Touches Your Skin, Clean The Area Immediately.

⚠ CAUTION

Discard Used Hydraulic Oil As Shown In Local Safety Regulations.

8.8 HYDRAULIC TEST PORTS

If you have any problems with the hydraulic system, check the hydraulic pressures with the service ports that are supplied.

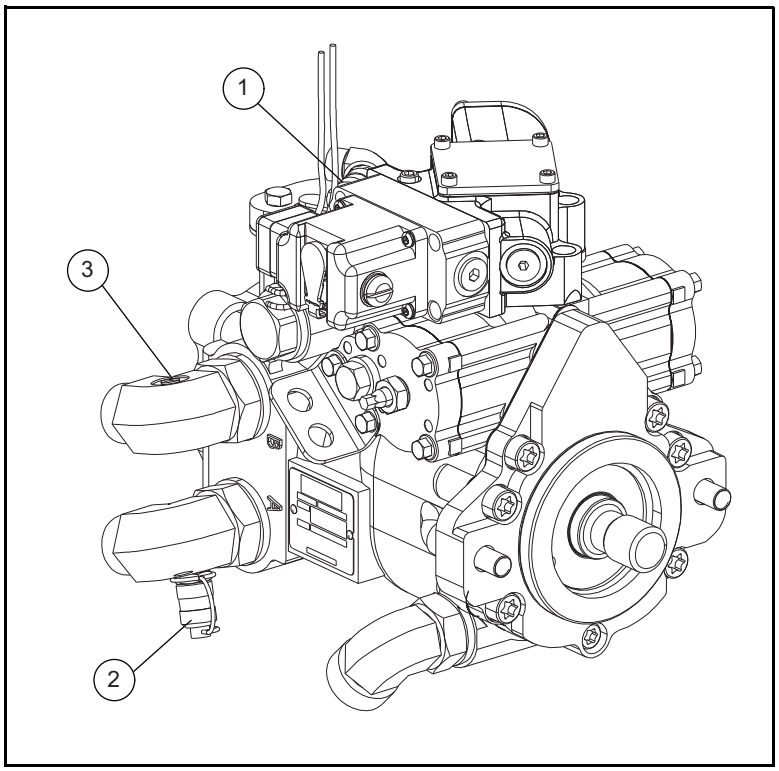
All tests must be done with the hydraulic oil at the normal temperature of the engine, unless specified at a different temperature.

TEST PORTS:

1. Charge pressure: 20 Bar ± 2 Bar (290 psi + - 29 psi)

2. Forward traction pressure, engine running, no drive (Wheel restraints installed). Should balance charge pressure constant 250 Bar (3629 psi), Peak 280 Bar (4061 psi).

3. Reverse traction pressure (plugged port). Engine running, no drive (Wheel restraints installed), should balance charge pressure, maximum 210 Bar (3045 psi), peak 250 Bar (3629 psi).



NOTE: Only approved personnel must service the hydraulic system.

8.9 FUEL

Diesel fuel is flammable. Use caution when you add the fuel to the mower. Only use an approved container. The spout on the container must fit inside the fuel filler neck. Never use the containers that are not approved to keep or transfer fuel.

⚠ WARNING

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.

Refuel outdoors only and do not smoke when you add fuel.

If the fuel spills, do not try to start the engine, but move the mower away from the area. Until fuel vapors are removed, do not allow the sparks, open flame or other types of ignition.

Never keep fuel containers near an open flame or any device that can cause the ignition of fuel or fuel vapors.

Always tighten the fuel tank cap and container cap after you add fuel.

Fill the fuel tank to less than 25 mm (1 inch) below the filler neck.

Use clean Ultra low sulfur Diesel fuel to the recommended specification. The use of Diesel fuel additives is not recommended. If fuel additives are used, the fuel additives must be approved for use in the engine type used in your machine. Refer to the engine manual for additional information.

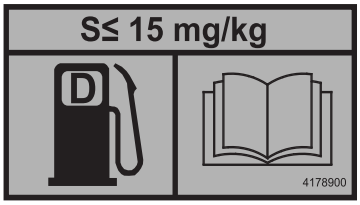
Check fuel hoses and clamps at service interval (see chart). Replace the fuel hoses and clamps at first indication of wear or damage.

Keep the fuel according to your local, state or federal regulations. Below are some items you should be aware of.

What you need to do	Reasons to do it
Inspect your Diesel fuel tank, pipes and fittings. If there is Brass, Copper, Lead or Zinc in contact with the fuel, plan to change the parts.	Low emission Diesel engines use higher pressure injection equipment. The presence of Copper, Lead and Zinc in Diesel fuel can accelerate wear in fuel pumps and injectors. Diesel fuel can absorb these metals when in prolonged contact.
Check your fuel supplier is supplying ultra low sulfur Diesel. It has to meet ASTM D975 S15 or EN590:2009 or equivalent fuel with a sulfur content of less than 15 ppm (parts per million)	Low emission Diesel engines, use Particle Filters (DPF). The use of high sulfur fuel will block the DPF and damage the engine. Any engine damage caused by high sulfur fuel is not covered by warranty.
Ask your fuel supplier if there are records showing the amount of water mixed in with the Diesel fuel supplied.	Water in the fuel is harmful to the high-pressure injection equipment. Kubota recommends that water content must not be more than 0.05%
Ensure that Bio content to your Diesel fuel does not exceed 5% as described in ASTM D6751 or EN 14214	Higher Bio Diesel content has been proven to absorb more moisture from the atmosphere. The moisture and Bio content can result in the development of molds and bacteria. These accelerate the blocking of fuel filters.
Ask your fuel supplier to verify that fuel being delivered meets the lubricity level required set in ASTM D6079	Low emission Diesel engines use higher pressure injection equipment. The tolerances in the injection equipment require the fuel to provide lubrication.
Ask your fuel supplier to verify that fuel being delivered has less than 1milligram of solid contaminant per litre of fuel.	Any particles in the fuel can damage parts within the fuel injection system, reducing performance. The vehicle fuel system will provide protection, but the cleaner the fuel into the vehicle, the lower the chance of a particle by passing the filtration system.

8.10 FUEL SYSTEM

Use Diesel to B.S. EN590 or ASTM D975 (Ultra Low Sulfur)



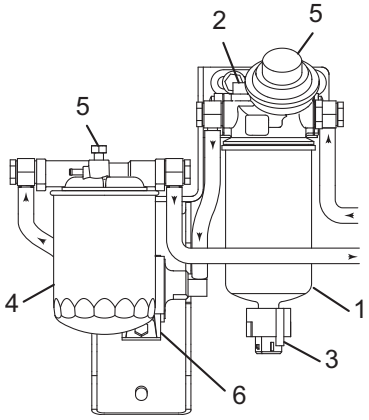
Water Separator

If the water is not removed from the fuel, damage to the fuel-injection system can occur. When the fuel filter light on the filter light module is illuminated or at service interval, drain the water from the water separator.

a. Stop the engine. Open the air vent at the top of water separator.

b. Open the drain valve at the bottom of the water separator and drain the water. Water will drain before the fuel. When fuel drains from the valve, close the valve.

c. Close the vent at the top of the water separator.



1 Water Separator
2 Air Vent
3 Drain Valve
4 Fuel Filter
5 Air Vent
6 Fuel Pump

Fuel Filter

Replace the fuel filter

a. Stop the engine.

b. Open the air valve at the top of the filter to release system pressure.

c. Remove fuel filter cartridge. Clean any fuel that spills.

d. Assemble new filter cartridge to the filter base. Tighten the cartridge with your hand.

e. Bleed air from the fuel system.

How To Bleed The Air From The Fuel System

After water is drained from the fuel system, fuel filter cartridge is replaced or the fuel hoses are replaced, bleed the air from the fuel system.

a. Open the air vent at the top of the water separator.

b. Press and release the hand pump until air bubbles at separator air vent stop and fuel starts to spill. Close the vent. Clean any fuel that spills.

c. Open the air vent on the fuel filter. Turn the ignition switch to the RUN position, but do not start the engine. Operate the fuel pump until air bubbles at filter vent stop and fuel starts to spill. Close the air vent. Clean any fuel that spills.

d. Start the engine. The engine will remove any air remaining in the fuel hoses

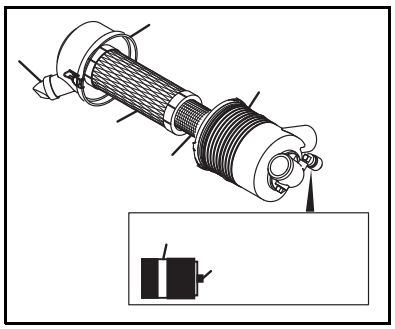
⚠ CAUTION

The Diesel Fuel Can Damage Your Skin. Use Gloves When You Use Diesel Fuel. If Diesel Fuel Touches Your Skin, Clean The Area Immediately.

⚠ CAUTION

Discard Diesel Fuel As Shown In Local Safety Regulations

8.11 AIR CLEANER



Check the service indicator each day. If the red band become visible in the window, replace the filter elements.

Do not remove the elements to inspect or clean. Removal of the filter that is not necessary increases the risk of dust and other particles to enter the engine.

When service is needed, first clean the outside of the filter housing, then remove the old elements carefully.

Clean the inside of the filter housing. Make sure dust and other particles do not get into the engine inlet hose.

Inspect the new elements. Do not use a damaged element and never use an incorrect element.

Assemble the secondary and primary filter elements. Make sure the elements seat correctly. Press the button to set the service indicator.

Assemble the cap to the filter housing. Make sure the cap seals around the filter housing. The dust valve on the cap must be at the bottom of the filter. Fasten the cap with the two clips.

Check the air filter hoses for wear or damage. Make sure the hose clamps are tight and hold the hoses in position.

8.12 BATTERY

Before you service the battery, make sure the ignition switch is in the OFF position and the key is removed.

⚠ CAUTION

When you service the battery, always use the tools with insulation, wear protective glasses and protective clothing.

Discard used batteries as shown in your local regulations.

⚠ WARNING

The battery contains corrosive acid. Prevent contact with the battery acid.

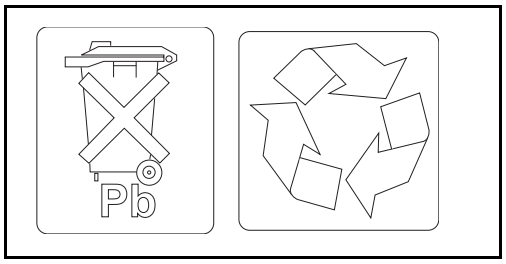
Always wash your hands after you service a battery.

⚠ WARNING

The battery posts, battery terminals and related accessories contain lead and lead compounds, chemicals know to the State of California to cause cancer and other reproductive harm.

Tighten the battery cables on the battery terminals, To prevent corrosion, apply a layer of silicone dielectric grease to battery terminals and ends of cables. Keep the vent caps and battery terminal covers in position.

Before you do any welding operation on the mower, always disconnect the battery cables from the battery and the connectors from the controllers.



Confirm the battery polarity before you connect or you disconnect the battery cables.

When you install the battery, always connect the positive (RED) battery cable before the negative (BLACK) battery cable.

When you remove the battery, always disconnect the negative (BLACK) battery cable before the positive (RED) battery cable.

Jump-Starting the Mower

a Before you try to jump-start the mower, check the condition of the drained battery.

b Connect the positive (+) battery terminal of the charged battery to positive battery terminal of the drained battery.

c Connect the negative (–) battery terminal of the charged battery to frame of vehicle with the drained battery.

⚠ WARNING

The battery can release hydrogen gas that is explosive. To decrease the risk of an explosion, prevent sparks near the battery. Always connect the negative jumper cable to the frame of the mower with the drained battery.

d When the cables are connected, start the engine on the vehicle with the good battery, then start the mower.

8.13 CHARGE THE BATTERY

⚠WARNING

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.

When the battery charger is turned on, to prevent injury, stay away from the battery. A battery that is damaged can cause an explosion.

Read the battery charger manual for specified instructions on the operation of the charger.

When possible, remove the battery from the mower before you charge the battery. If the battery is not sealed, check and make sure the level of the electrolyte is above the plates in all of the cells.

Make sure the battery charger is turned OFF, then connect the battery charger to the battery terminals as specified in the battery charger manual.

Always turn OFF the battery charger before you disconnect the battery charger from the battery terminals.

8.14 ENGINE EXHAUST

⚠ WARNING

The exhaust fumes contain carbon monoxide. The carbon monoxide in the exhaust fumes can increase to dangerous levels. To protect you from carbon monoxide poisoning, inspect the complete exhaust system every month and replace damaged components immediately.

NEVER operate the engine without enough ventilation.

The temperature of the exhaust components can be greater than 300° F (149° C). To prevent the burns, do not touch a hot exhaust system.

If you sense 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 equally. Tighten or replace the exhaust clamps.

8.15 DIESEL PARTICULATE FILTER

During the operation of the mower, the level of particle material will increase in the Diesel Particulate Filter (DPF) system. The periodic Regen of the DPF system is needed to remove particle material. During an Active or Parked Regen, the engine will use more fuel. The DPF system operates in one of four states

⚠ WARNING

During active or parked regeneration, the temperature of the exhaust components can be more than 1150° F (625° C). To prevent burns, do not touch a hot exhaust system and do not stand or reach into exhaust gas area from exhaust pipe outlet. To prevent fires, make sure the engine area is kept clean and the grass clippings are not near exhaust components. During parked regeneration turn rear wheels fully to the right.

Make sure the exhaust gas from the exhaust pipe is not blocked and there is enough space between the exhaust pipe and objects. Park the mower on concrete or gravel during parked regeneration. During Active or parked regeneration exhaust gas from the exhaust pipe can cause turf damage or fire.

Passive Regen State - The engine operates in the Passive Regen state during normal engine operation. The exhaust temperature can be more than 572° F (300° C).

Inhibit Regen State - When the front of the Regen Inhibit switch is momentarily pressed, the engine can not enter the Active or Parked Regen states. Inhibit Regen does not prevent the Passive Regen. If the fuel tank is near empty, press the Regen Inhibit switch to the INHIBIT until the fuel tank is filled.

Active Regen State - When the level of particle material reach a certain point, the engine will enter Active Regen state. Operation of the mower is not changed. The exhaust temperature can be more than 1150° F (625° C) during Active Regen. The high exhaust temperatures during Active Regen will illuminate the High Exhaust Temperature light.

Parked Regen State - When a Parked Regen is needed, the Regen Request on the display will be illuminated. Park the mower on concrete or gravel to prevent damage to the turf. Engage the parking brake, but do not stop the engine. Press and release the front part of the Inhibit Regen switch to start the Parked Regen. During the Parked Regen, the Regen Request display will illuminate. The high exhaust temperatures during Parked Regen will illuminate the High-Exhaust Temperature light. Do not disengage the parking brake, stop the engine or move the mower during the Parked Regen.

A Regen cycle that is not completed will move the engine through six different levels of control.

Level 0 - Normal operation of mower with Passive Regen. When particles reach the Active Regen level, the engine controller will change to Level 1. When the engine controller is at Level 0, the Active and Parked Regen is disabled.

Level 1 - Engine will enter Active Regen state unless Inhibit Regen switch is in the INHIBIT position. Normal Active Regen is completed in approximately 20 minutes. If the particle material level does not decrease to the Passive Regen level in 30 minutes (1800 seconds), the engine controller will change to Level 2. When the engine controller is at Level 1, the Parked Regen is disabled

Level 2 - Regen Request display will illuminate. Engine will enter Active Regen state unless the Inhibit Regen switch has been pressed. When the mower is parked and the parking brake is engaged, the Parked Regen state is available. If the engine is operated at Level 2 without a Regen for approximately 1 to 1-1/2 hours, the engine controller will change to Level 3.

Level 3 - Regen Request will illuminate. The engine power output is decreased and Active Regen is disabled. When the mower is parked and the parking brake is engaged, the Parked Regen state is available. If the engine is operated at Level 3 without a Regen for approximately 1 to 1-1/2 hours, the engine controller will change to Level 4.

Level 4 - High Exhaust Temperature display will illuminate. The engine power output is decreased significantly. Active and Parked Regen is disabled. The Kubota Diagmaster tool is needed to start a Regen. If the engine is operated at level 4 without a Regen for approximately 1 to 1-1/2 hours, the engine controller will change to Level 5.

Level 5 - High Exhaust Temperature display will flash quickly. The engine power output is decreased significantly. An authorized Kubota Engine Service Center must clean the DPF before the mower is used.

8.16 HYDRAULIC HOSES

⚠ WARNING

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.

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.

Always lower the cutting units to the ground, disengage all drives, engage parking brake, stop the engine and remove the key before you inspect or disconnect hydraulic lines or hoses.

Check visible hoses and tubes each day. Look for wet hoses or oil marks. Replace worn or damaged hoses and tubes before you operate the mower.

The replacement tube or hoses must follow the same path as the original hose. Do not move the clamps, brackets and cable-ties to a new location.

Completely inspect all tubes, hoses and connections in accordance with the maintenance chart.

IMPORTANT: If the hydraulic fluid becomes dirty, damage to the hydraulic system can occur. Before you disconnect any hydraulic component, clean the area around the fittings and the ends of the hoses to stop the entry of dirt into the system.

Before you disconnect any hydraulic component, tag or mark the location of each hose then clean the area around the fittings.

To stop the entry of dirt into the system when you disconnect the component, be prepared to assemble plugs or caps to the ends of hoses and open ports. Clean any hydraulic fluid that spills.

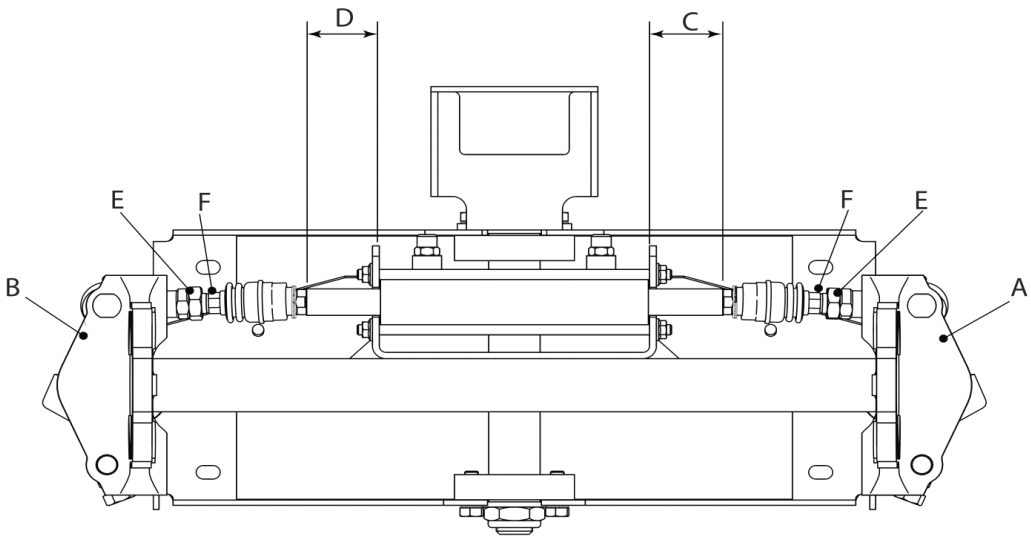
Make sure “O” rings are clean and hose fittings are correctly installed before you tighten.

Prevent the hose twist. The twisted hoses can cause the hose connections to loosen as the hose moves while you operate the mower and can cause oil leaks.

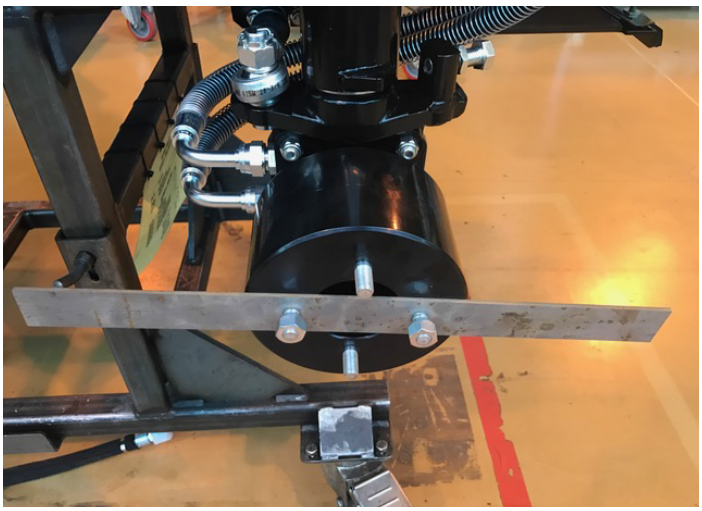
The hydraulic hoses that are twisted or have sharp bends can decrease the oil flow and cause damage to the hoses. The decreased oil flow can cause system problems and increase the temperature of the hydraulic flui

8.17 WHEEL ALIGNMENT PROCEDURE

1. Park machine on a flat and level surface, turn the steering wheel so that the steering ram shafts are equal on both sides of the ram (Dimensions ‘C’ and ‘D’ below).



2. Fully lower the cutting units/decks to the ground, engage the parking brake, reduce engine speed to idle and stop engine then remove key from the ignition switch.
3. Loosen the four-wheel nuts on both rear wheels.
4. Lift the rear of the machine at the rear axle, and support it close as possible to the wheel motors with the appropriately rated axle stands.
5. Remove both rear wheels.
6. Using two wheel nuts (With flat sides towards plate) fasten each alignment tool (Part Number 4390586) plate to each rear wheel hub (See below)

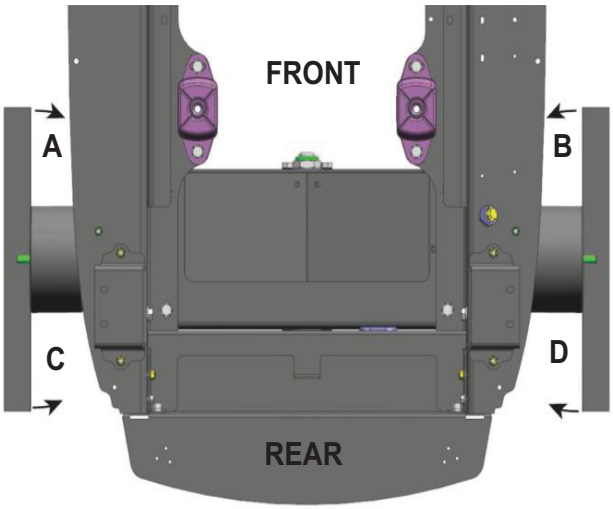


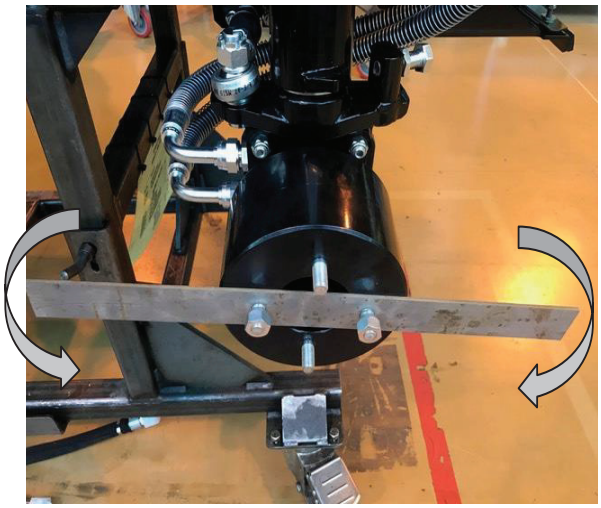
NOTICE

Alignment tool in illustration may vary to tool provided under part number 4390586.

7. Take a measurement between the front of the left-hand and right-hand alignment tool plates and compare this with the measurement between the rear of the alignment tool plates.
8. The measurements should be equal between the front and the rear of the alignment tool plates, i.e. there is a 0 mm toe-in.
9. If the measurements are not equal, hold steering link ‘F’ with a ?? mm spanner and using a ?? mm spanner undo nut ‘E’.
10. Keeping distances ‘C’ and ‘D’ equal, adjust steering link ‘F’ on both sides of the machine so that the motor mounts ‘A’ and ‘B’ (Including both alignment tool plates) are parallel to the machine’s chassis and each other.
11. Re-check that the tow-in is 0mm, as per step 7 above.
12. Apply Loctite 243 to nuts ‘E’ tighten and torque to 100 Nm (74 lb-ft), repeat on the opposite side of machine.

8.18 STEERING ROD AND STEERING LINK CHECK





1. With the steering in a straight position and the Alignment Tools still fitted (after the Wheel Alignment procedure) inspect the “free movement” of the steering linkage can be checked to see if it is within specification.
2. With the Alignment Tools secured with the wheel nuts, pull and push the alignment tool, making sure not to apply too much force so as not to extend or retract the Hydraulic Steering Cylinder.
3. Using Fig 1 check the “free movement” does not exceed a combined movement of 3 mm for A & C or B & D.
4. If excessive movement is noted, carefully inspect where the movement is originating from; either the Rod Ends or the Steering Link.
5. Replace only components that are noted to experience “free movement” greater than 3mm.
6. Replace the rear wheels and wheel nuts.
7. Remove the axle stands and lower the machine to the floor.
8. Tighten the wheel nuts and torque to 75 Nm (55 ft-lbf).

8.19 TYRES

Keep the tyres correctly inflated to increase tyre life. Inspect the tread wear.

Check the tyre pressure each day, while the tyres are cool. Use an accurate low-pressure tyre gauge.

Keep tyres inflated at the correct pressure (see section 8.1)

⚠ CAUTION

DO NOT try to put a tyre on a rim unless you have the correct training, tools and experience. Incorrect mounting can cause an explosion which can cause injury.

8.20 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.

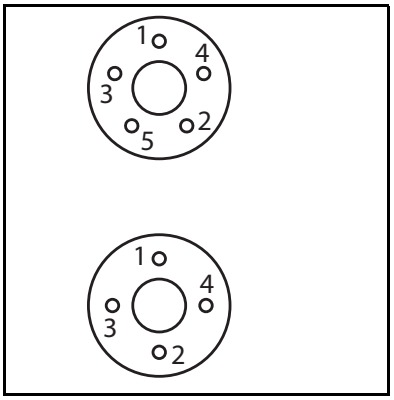
If only the front or rear of the mower is lifted, put the chocks in front of and behind the wheels that are not lifted.

Remove dirt, grease and oil from the stud threads. Do not lubricate threads.

Put the wheel on the hub. Inspect the wheel to make sure of full contact between surface of wheel and hub.

Tighten all hardware with your fingers, then torque hardware in the order shown. When possible, tighten nuts in the top position.

Check and torque hardware each day until torque is kept at 85-95 ft.lb. (115-128Nm).



8.21 BLADE CHANGE

Front Cutter Deck

1. Raise the deck to the cross cut position. This will allow the setting pin D to lift clear of the arm and be easier to remove.

2. Remove the pins at position D on both sides of the machine which lock the deck in its working position.

3. Lift the cutter deck to its full height.

4. Rotate cutter deck to the Inclined position.
5.Insert one of the height of cut pins at position (E) to lock deck in its vertical position.

All Cutter Decks

6. Remove blade bolt (A).

7. Remove blade (B) from deck.

8. Fit new blade.

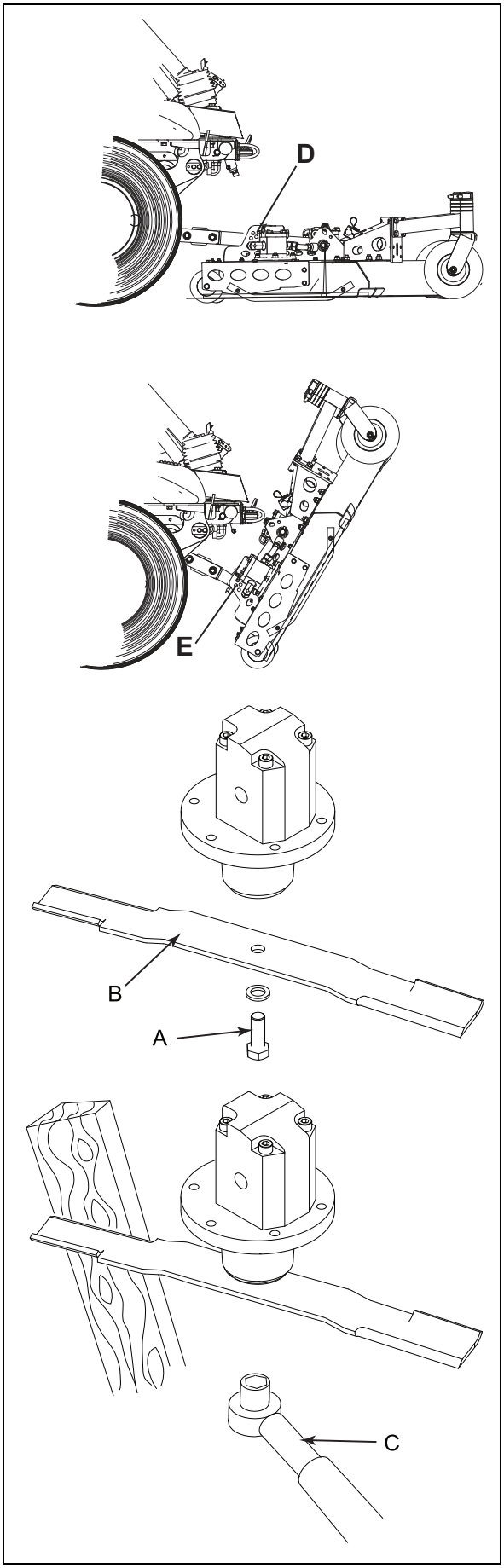
9. Replace blade bolt A to hydraulic motor spindle.

10. Tighten blade bolt with torque wrench (C) set to 95N-m (70 ft.-lb.) torque.

Front Cutter Deck

11. Remove the pin which holds the cutter deck in the vertical position and return deck to its working position.

12. Refit the locking pins to position (D).



⚠ WARNING

Blades Are Extremely Sharp And Can Cause Severe Cuts. For Your Protection, Hold Blades With Thick Leather Work Gloves Only.

8.22 INSPECTING BLADES

Inspected the blade in accordance with the maintenance chart or when the cutting unit is removed from the mower, carefully inspect the blades to make sure the blades are in good condition. Replace any blade that has bends, grooves or cracks.

⚠ CAUTION

Be careful when you check blades to prevent pinching hands and fingers between ends of the blades.

⚠ WARNING

Never try to correct or repair a damaged blade. Always replaced a damaged blade.

The bends, grooves or cracks can cause a piece of the blade to become loose and be discharged from the mower. The broken blade pieces can cause injury to persons or property damage.

A bent blade can have a small crack that can increase and cause a piece of the blade to break. The bent blades can cause vibration and other stress on the mower.

The dust or sand particles can wear a dangerous groove in the blade between the air vanes and the flat part of the blade. The groove can quickly increase in size and allow a piece of the blade to break.

8.23 SHARPENING BLADES

Put a wooden block between the blade and cutting unit housing to prevent the blade to rotate.

⚠ WARNING

The cutting unit blades can have sharp edges. To prevent injury, use caution when you service or hold the blade.

When you remove more than one half inch of material, the blade tip can break and be discharged from the mower. The broken blade pieces can cause injury to persons or property damage.

When you prepare or sharpen the blade, do not follow the original grind pattern. Grind new cutting edges at an angle. If the maximum of one half inch (13 mm) blade loss has occurred, do not sharpen more, replace the blade.

To stop blade balance problems, make sure an equal amount of material is removed from both ends of the blades. A blade that is not balanced will cause vibration and can damage the mower. Use a blade balancer to check the blade after you sharpen.

Torque center blade bolt to 75 to 90 ft.Lb. (100 to 120 Nm).

8.24 FOLDING ROPS

A folding Roll Over Protective Structure (ROPS) is included with this mower. Inspect the ROPS weekly for loose hardware or damage.

⚠ CAUTION

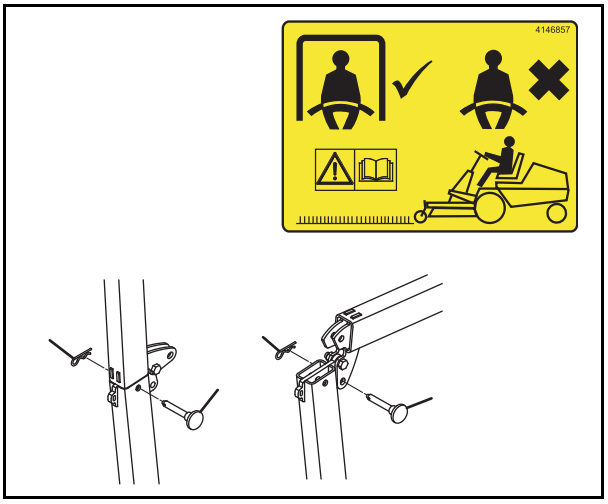
Keep the ROPS hardware correctly fastened. Do not do any welding operations, Do not drill, change or bend the ROPS. Replace damaged ROPS. Do not try to correct a damaged ROPS.

Inspect the seat, seat belt, ROPS mounting hardware and ROPS frame for damage in accordance with maintenance chart. Replace all damaged parts immediately. All replacement parts for the ROPS must be as specified in the Parts Manual.

Check and torque all ROPS hardware in accordance with maintenance chart.

Do not operate the mower with the ROPS in the folded position.

There is no roll over protection with the ROPS in the folded position.



Folding the ROPS.

a Remove the R clip and ROPS pin from both sides of the ROPS.

b Fold the ROPS toward the mower hood.

c Assemble the ROPS pin and R clip to lock the ROPS in the folded position. **Never** wear the seat belt with the ROPS in the folded position.

⚠ DANGER

In off road or transport mode, the seat belt must always be worn. The ROPS frame must be in the position for operation. This instruction is given to meet:
The machinery directive, 2006/42/EC sections 3.2.2, seating & 3.4.3, rollover.
Ransomes Jacobsen Limited. recommend that the owner operator of the machine complete a local risk assessment on the machine to find any conditions that do not follow this rule.

⚠ WARNING

To prevent injury when you fold the ROPS, use caution to prevent your fingers being crushed between moving and rigid parts of the ROPS.

Always wear the set belt with the ROPS frame in the vertical and locked position.

Never wear the seat belt with the ROPS in the folded position.

NOTICE

To prevent damage to the ROPS or the mower hood, do not operate the mower without the ROPS frame locked in the vertical or folded position.

8.25 CARE AND CLEANING

Clean the mower and cutting units after each use. To prevent damage to the engine, do not wash the mower with the engine in operation. When possible, clean the mower with compressed air.

NOTICE

Do not wash any part of the mower that is hot. Use cold water and automotive cleaners.

⚠ CAUTION

It is important not to use high pressure water or air to clean radiator fins. Do not pressure wash engine.

Use clean water to wash your equipment.

NOTICE

To use salt water or drain water is known to cause rust and corrosion of metal parts and can cause damage or failure. This damage is not included by the factory warranty.

Do not spray water at the instrument panel, ignition switch, controller or other electrical components or at bearing housings and seals.

Clean all plastic or rubber parts with a weak soap solution or use commercially available rubber cleaners.

To keep the original high polish of the plastic parts, wax with a good grade of one-step cleaner wax.

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

⚠ CAUTION

To prevent fire, clean grass clippings and dirt from the cutting units, drives, engine and exhaust components.

⚠ WARNING

Never use your hands to clean cutting units. Use a brush to remove grass clippings from the blades. The blades are sharp and can cause injuries.

8.26 MOWER STORAGE

General

- Clean the mower and lubricate. Repair and paint damaged or open metal.
- Inspect the mower, tighten all hardware, replace worn or damaged components.
- Drain and fill the radiator.
- Clean the tyres
- When the vehicle is not being used for an extended period, the tyre pressures must be increased. Inflate to the maximum rating on the tyre wall to make sure that flat spots do not occur. Decreased the tyre pressure before the vehicle is put into operation.
- Keep the mower and all accessories clean, dry and protected from the elements. Never keep the mower near an open flame or spark which can cause ignition of the fuel or fuel vapors.
- When a label is damaged or removed from the machine, make sure that the label is replaced. See the Decals section of this manual or the Parts Manual.

Battery

- Remove, clean and keep the battery in the upright position on a surface that is not metal in a cool dry location. To prevent increased battery discharge, do not keep the battery on a metal surface.
- Check and charge the battery every 60 to 90 days.
- Keep the battery in a cool dry location. To decrease the self discharge rate, the temperature must not be more than 80° F (27° C) or less than 20° F (-7° C).

Engine

- While the engine is warm, remove the drain plug, drain the oil from the crankcase and change the oil filter. Install the drain plug torque the drain plugs to 22 ft. Lb. (30 Nm) and fill the engine with oil
- Clean the outside surface of the engine. Paint bare metal or apply a thin layer of rust preventative oil.

Cutting Units

- Completely clean the cutting units. Repair and paint any damaged or bare metal surfaces.
- Lubricate all grease fittings and friction points.
- Apply a thin layer of rust preventative oil to the sharpened edges of the blades.

CAUTION

The cutting unit blades can have sharp edges. To prevent injury, use caution when you service or hold the blade.

After Storage

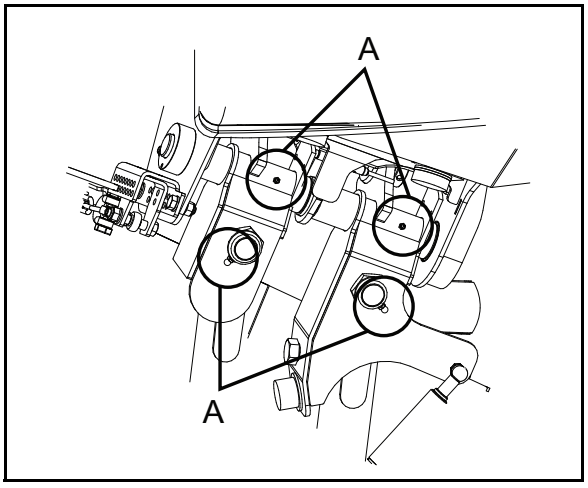
- Check and install the battery. If necessary, charge the battery.
- Check or service the fuel filter and air cleaner
- Check the radiator coolant level.
- Check the level of engine oil and hydraulic fluid.
- Fill the fuel tank with fuel. Bleed the fuel system.
- Make sure the tyres are correctly inflated.
- Remove all oil from the blades. Adjust the cutting height.
- Start the engine at 1/2 throttle. Allow the engine to become warm and lubricated.
-

WARNING

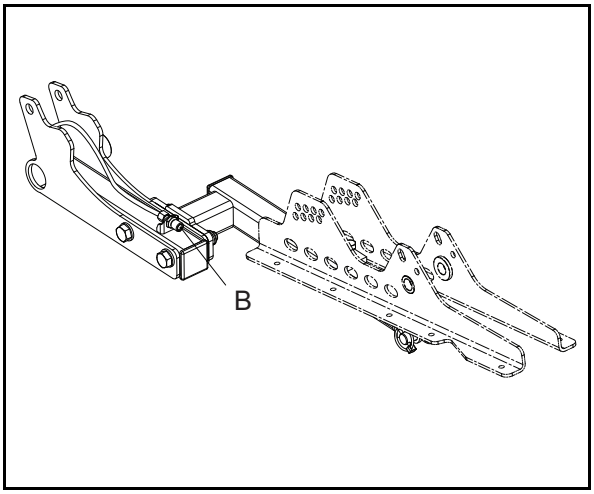
Never operate the engine without enough ventilation or in an enclosed area. The carbon monoxide in the exhaust fumes can increase to dangerous levels.

8.25 LUBRICATION OF CUTTING UNIT

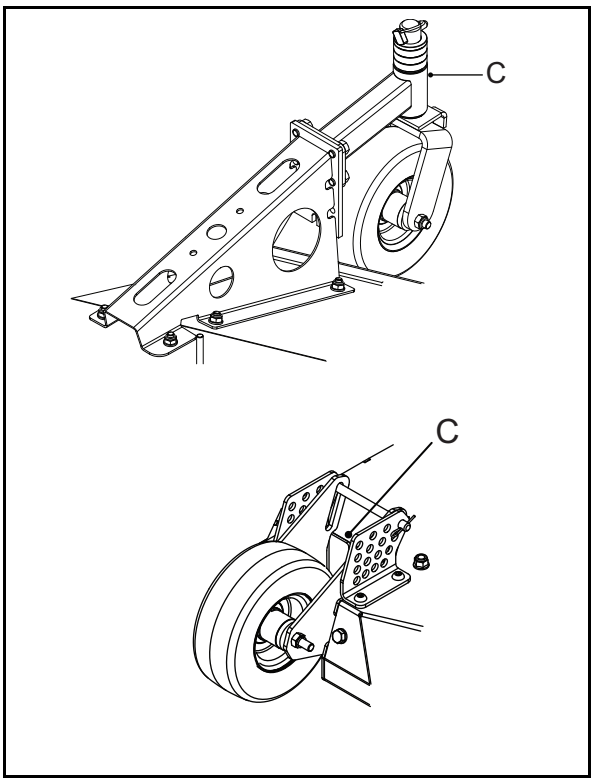
Wing Pivot Arm (A)



Front Pivot Arm (B)



Caster Wheel Mounting Pivot (C)



NOTES

9.1 ENGINE PROBLEM DIAGNOSTICS

The Engine is difficult to start	
Cause	**Action**
The fuel is thick and does not flow.	Check the fuel tank and fuel filter.
	Remove any contamination from the fuel system.
	Clean the fuel filter with kerosene.
Air or water mixed in fuel	The fuel system is a pressure type. Air in the system will cause a problem. Bleed the Fuel System.
	To get correct fuel injection pressure, check carefully for loose fuel line couplings and loose cap nut.
	Loosen the joint bolt stop, fuel filter and air vent screws of fuel injection pump to remove all the air in the fuel system.
The Engine oil becomes thick in cold weather and engine cranks slowly.	Change the grade of oil according to the average temperature.)
The Battery is discharged and the engine will not crank	Charge the battery.
	In The winter, always remove the battery from the machine. Keep the battery charged and store in a dry, safe environment.

Loss of Power	
Cause	**Action**
No fuel.	Check the fuel system.
Moving parts at more than operating temperature.	Check lubricating oil system.
	Make sure that the lubricating oil filter flow is not decreased.
	A dirty filter element can cause loss of lubrication. Change the filter element.
The air cleaner is dirty	Clean the filter element every 100 hours of operation.
Injection pump wear	Use the correct grade of fuel. Low grade fuel will cause the fuel pump to wear. Only use the specified Diesel fuel.

The Engine stops	
Cause	**Action**
There is no Fuel	Check the fuel tank and fill with fuel.
	Check the fuel system for air leaks.
Bad Nozzle	If necessary, replace the nozzle.
Moving parts at more than operating temperature. Not enough lubrication.	Check amount of engine oil with oil level gauge.
	Check lubricating oil system.
	The oil filter cartridge must be replaced at every second oil change.

Dirty Smoke or carbon increase on the Exhaust	
Cause	**Action**
Wrong fuel	Only use Diesel fuel specified in specification section.
Bad Nozzle	If necessary, replace the nozzle.

Engine must be stopped immediately	
Cause	**Action**
The colour of The exhaust turns dark.	Check the fuel system and the fuel injection nozzle.
The bearings are at more than operating temperature.	Check the lubricating system.
The oil-temperature light is illuminated.	Check the lubricating system
	Check the function of the relief valve in the lubricating system.
	Check the pressure switch.
	Check the fuel filter base gasket.

Engine Temperature above Safe Maximum.	
Cause	**Action**
Engine oil low.	Check oil level. Fill to specified level.
The fan belt is broken or has defects.	Change the belt or adjust the belt tension.
Coolant low.	Fill to the specified level.
The Anti-freeze solution is too strong.	Add clean water only or change to coolant of the correct ratio.
The radiator screen or radiator fins are dirty.	Clean screen or fin carefully.
The radiator or coolant lines are dirty	Clean or replace the radiator and parts.
The fan, radiator or radiator cap has defects.	Replace the parts.
The Thermostat has defects.	Check the thermostat and replace if necessary.
The Temperature gauge or sensor has defects.	Check the temperature with thermometer and replace if necessary.
Engine is operated at more than maximum load.	Decrease the load.
Head gasket has defects or water leakage.	Replace the parts.
Incorrect fuel used	Use specified fuel.

10.1 QUALITY OF CUT PROBLEM SOLVING

Do a “test-cut” to measure the performance of the mower before you begin the repairs.

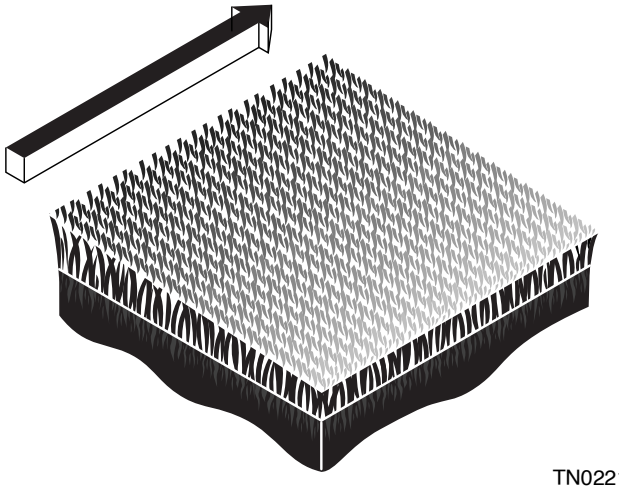
An area must be available for “test cuts.” Use this area to give a base line with which to measure the mower performance.

When the work is completed, repeat the “test-cut” to check the mower performance.

The following items must be checked to make sure of an accurate “test cut.”

1. Mowing (Ground) Speed
2. Blade Sharpness
3. Height-of-Cut (HOC)
4. Roller and Roller Bearing Condition
5. Blade Speed
6. Forward pitch of decks

10.2 THE STEP CUT



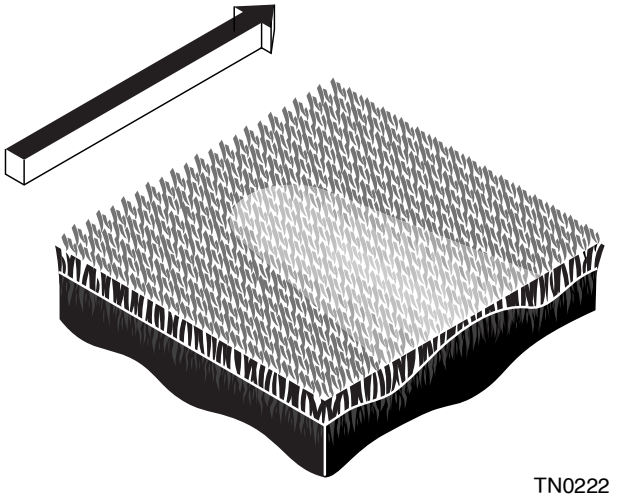
TN0221

NOTE: The Arrow indicates direction of travel.

"Step cutting" occurs when the grass is cut higher on one side. The cause is mechanical wear or incorrect setting of the roller or deck caster.

Possible Cause	Correction
The HOC (height-of-cut) settings are different on the side of one cutting unit or the cutting cutter decks are set at different heights.	Check HOC adjustment of cutting units. (Refer to Parts and Maintenance Manual.)
Worn roller bearings or deck caster wheels.	Check and replace the roller bearings, deck caster wheels.
Cutting unit movement is decreased.	Check and remove the cutting unit movement limit.
Changes in turf density	Change the direction of cut.
The Machine ride height is not equal from side to side.	Check and adjust the tyre pressure. (Refer to Parts and Maintenance Manual.)
Cutting unit height is not equal from side to side.	Check and adjust the mower weight distribution.

10.3 SCALPING

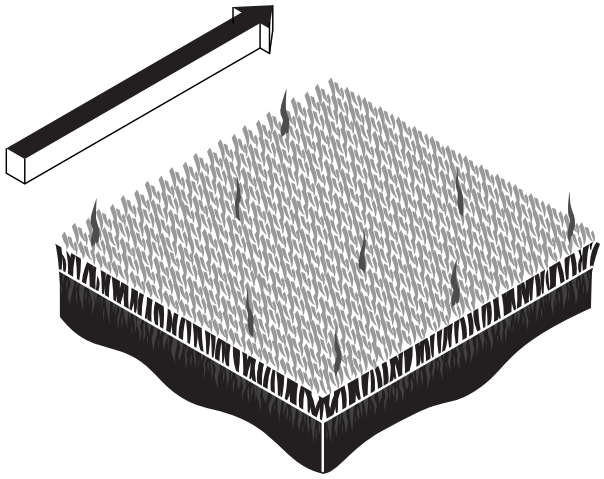


"Scalping" is a condition in which some areas are cut shorter than the set height of cut. This results in very short grass or brown areas. The cause is a low height-of-cut (HOC) setting, rough surface.

NOTE: *The Arrow indicates direction of travel.*

Possible Cause	Correction
The HOC (height-of-cut) settings are low for the conditions.	Check and adjust the HOC settings.
The mower can not follow the ground in this direction.	Change the direction of cut.
You try to cut deep grass in one try.	Increase the HOC.
Cutting at more than the recommended speed.	Decrease the cutting speed.

10.4 STRAGGLERS



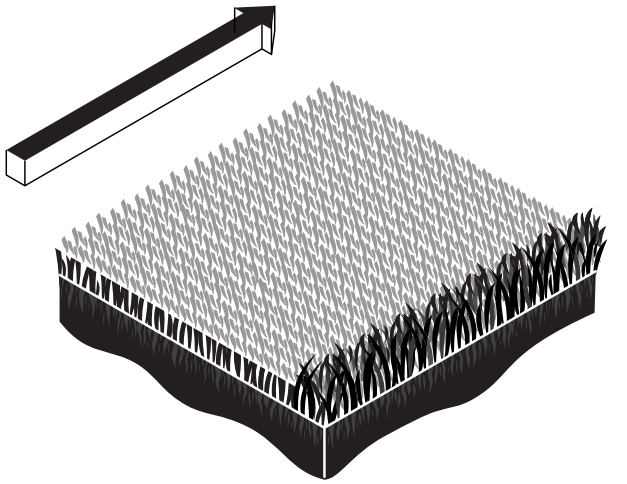
TN0223

"Stragglers" are separated blades of not cut or incorrectly cut grass.

NOTE: *The Arrow indicates direction of travel.*

Possible Cause	Correction
The cutting blade is blunt	Sharpen or replace the blade.
Cutting at more than the recommended speed.	Decrease the cutting speed.
You try to cut deep grass in one try.	Increase the number of cuttings
Mowing in the same direction.	Change the direction of cut on each cut.

10.5 STREAKS



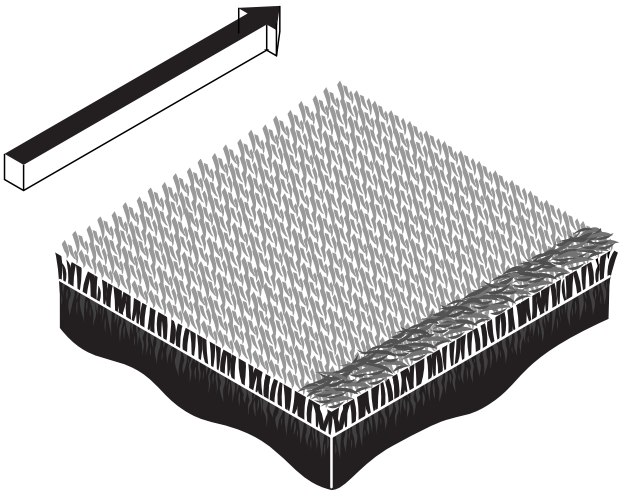
TN0224

A streak is a strip of longer grass in the cutting area. The cause is a damaged blade or you turn quickly when you mow.

NOTE: *The Arrow indicates direction of travel.*

Possible Cause	Correction
Damaged blade.	Replace the blade.
When you turn suddenly, the cutting units do not cut all the area.	Make the turns slow and allow the cutting units to cut the complete area. Change the cut pattern on side hills.
The tire mats down grass before the cut.	Check and adjust the tyre pressure. (Refer to Maintenance Section.)
Wet grass is compressed before the cut.	Mow when grass is dry.
Wet grass is compressed before the cut.	Mow when grass is dry.

10.6 WINDROWING

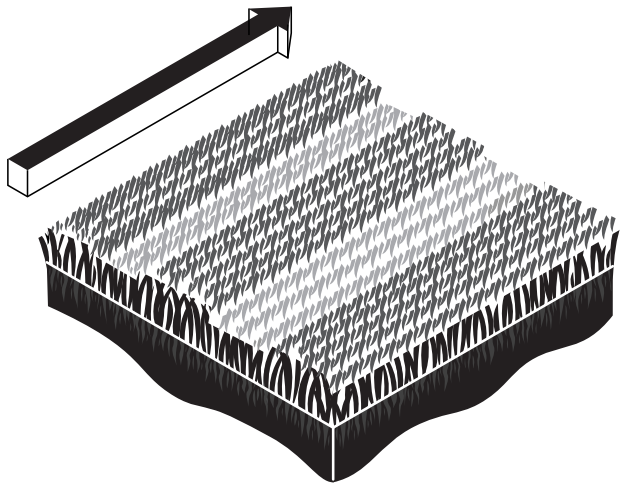


"Windrowing" is a increase of cut grass in the corner of the cutting units or between the cutting units, that leaves lines in the direction of travel.

NOTE: The 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.
Grass built up on roller.	Clean rollers and scrapers.
Grass collecting on mower or cutting unit frame.	Clear cutting unit(s) discharge deflector.

10.7 MISMATCHED CUTTER DECKS



TN1278

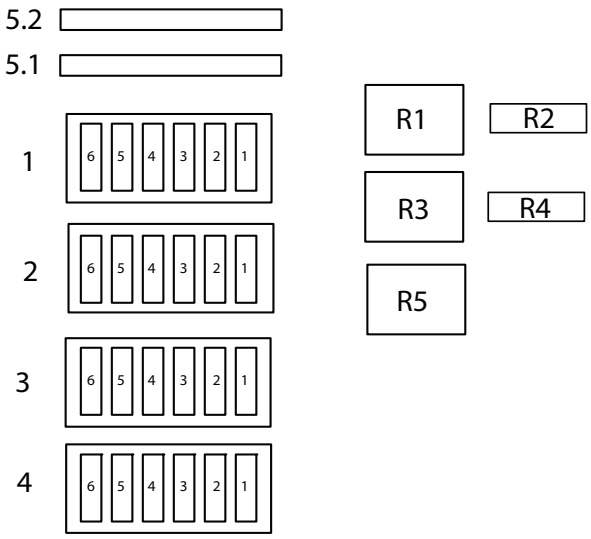
"Mismatched cutting units." This problem is identified by the pattern shown, that of different height of cut or the cut has a step appearance. When the cutting units are set at different heights or the motors turn at different speed, you will see this pattern.

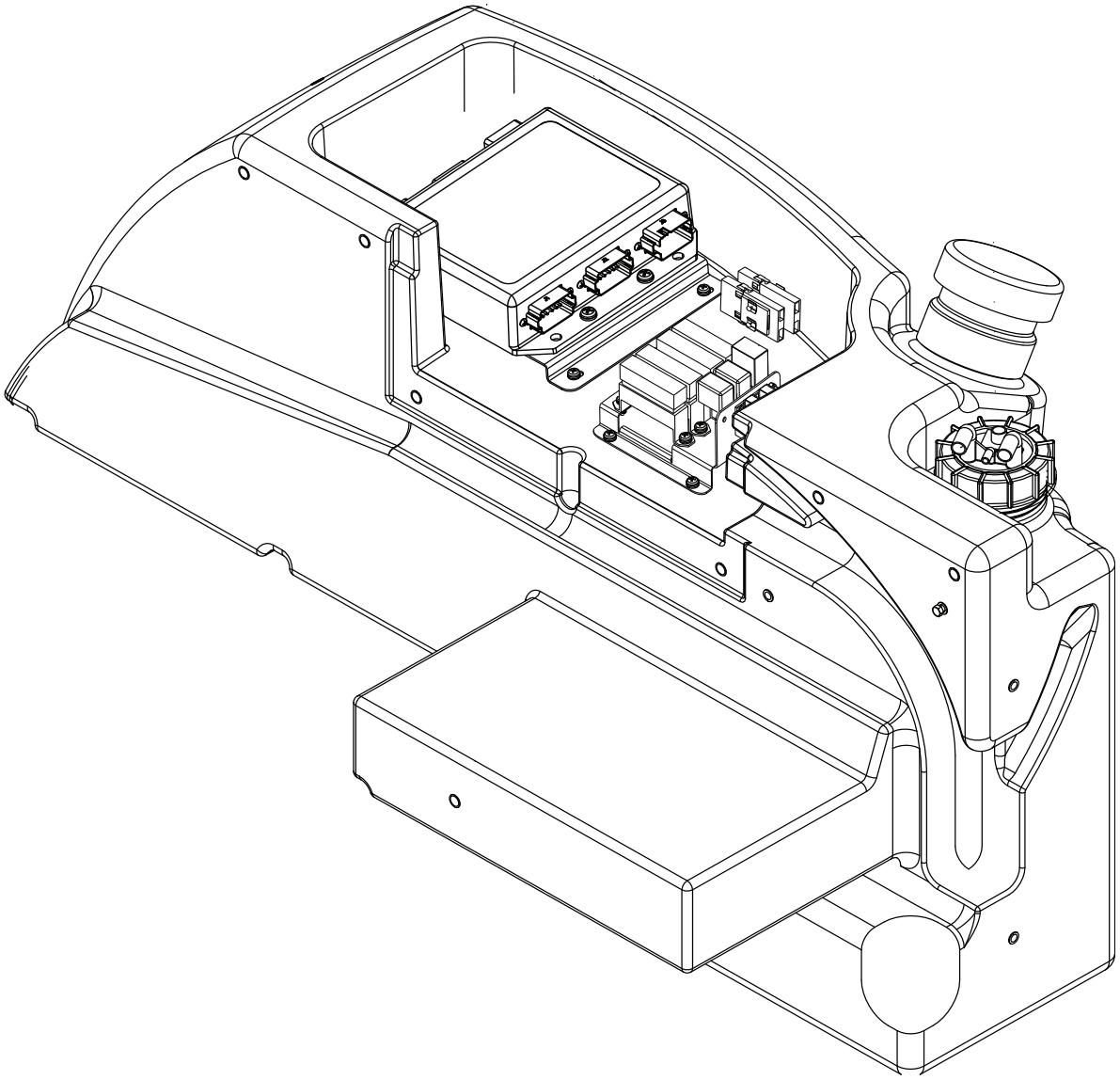
NOTE: *The Arrow indicates direction of travel.*

Possible Cause	Correction
The HOC is not set equally on all the units.	Check and adjust the HOC on all cutting units to same height. (Refer to Maintenance Section.)
Difference in rotary cutting unit speeds.	Check operation of the cutting motors, repair or replace as required.
The difference in the mower ride height from side to side.	Check and adjust the tire pressure. (Refer to Maintenance Section.)
	Check and adjust the mower weight distribution.

NOTES

11.1 FUSE AND RELAY/COMPONENT IDENTIFICATION





FUSES

FUSE HOLDER 1		
Fuse	**Rating**	**Protected Circuits**
1		
2		
3	7.5A	EM Positive to Fuel Pump
4	10A	Key Switch to Beacon And Horn
5	10A	Key Switch to Proximity Switches and Pressure Switches
6	10A	Key Switch to Accessory Sockets

FUSE HOLDER 2		
Fuse	**Rating**	**Protected Circuits**
1	20A	Key Switch to Machine Control Unit
2	10A	Key Switch to Air Seat
3	5A	Key Switch to Mow Switch
4	5A	Key Switch to Visual Display
5	5A	Key Switch to Alternator
6	5A	Key Switch to Transport Lock Solenoids

FUSE HOLDER 3		
Fuse	**Rating**	**Protected Circuits**
1	5A	Battery Positive Distribution Box to DSG Tracker
2	10A	Battery Positive Distribution Box to Hazard Switch
3	5A	Key Switch to Indicators
4	15A	Key Switch to Front Head Lights
5	7.5A	Key Switch to Side, Rear, Brake And Reverse Lights
6		

FUSE HOLDER 4		
Fuse	**Rating**	**Protected Circuits**
1	20A	Battery Positive Distribution Box to Machine Control Unit Positive Splice A
2	20A	Battery Positive Distribution Box to Machine Control Unit Positive Splice B
3	25A	Battery Positive Distribution Box to Engine Master Relay
4	5A	Splice to Start Circuit Signal
5	20A	I/P from M Positive Splice to O/P to Engine Control Unit
6	10A	I/P from M Positive Splice to EGR, MAF And SVC Connectors

MAXI FUSE 5		
Fuse	**Rating**	**Protected Circuits**
1	40A	Battery Positive Distribution Box to Glow Plug Relay
2	40A	Battery Positive Distribution Box to Cab Connector

RELAYS

Relay	Rating	Circuits
R1	40A	Ignition Relay
R2	Micro	Start Relay
R3	70A	Glow Plug Relay
R4	Micro	Engine Master Relay
R5	40A	Indicator Relay

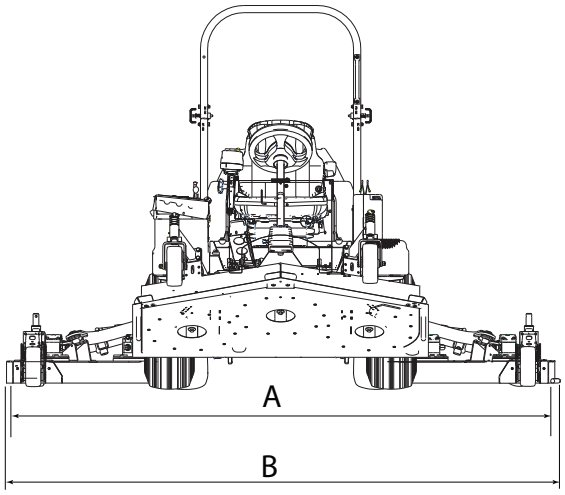
NOTES

12.1 ENGINE SPECIFICATION

Model:	V2403-CR-TE5
Type:	Vertical, water-cooled, 4-cycle diesel engine
Number of Cylinders	4
Bore and Stroke	87mm x 102.4mm (3.43 in. x 4.04 in.)
Total Displacement	2.434 litres (148.53 cu.in.)
Combustion Type	Direct Injection
SAE Net Intermittent kW / rpm H.P. (SAEJ1349) (HP / rpm)	48.6 kW @ 2700 rpm (66.1 HP @ 2700 rpm)
Maximum Torque / Rotating Speed	198.5 N-m / min (1600 rpm) 20.2 kg-m / min (1600 rpm)
Maximum Bare Speed:	2850 ± 50 rpm
Idle Speed:	1400 ± 100 rpm
Firing order	1-3-4-2
Direction of Rotation	Counter-clockwise (viewed from flywheel side)
Compression Ratio	18.1
Fuel:	Diesel to BS EN590 or ASTM D975 (Ultra Low Sulfur)
Lubrication (API Class)	Above CJ4
Dimensions (length x width x height)	869mm x 517mm x 735mm (34.2 in. x 20.4 in. x 28.9 in.)
Dry Weight (BB Spec.)	233kg (513 lbs)
Starter	Cell starter
Starter motor	12V, 2.0kW
Generator	12V, 480w

12.2 DIMENSIONS & WEIGHTS (ROPS MACHINE)

A	Width Of Cut With 89 cm (35 inch) Wing Cutter Decks	299.5 cm	118 in.
A	Width Of Cut With 101.6 cm (40 inch) Wing Cutter Decks	328.4 cm	129.3 in.
A	Width Of Cut With 112 cm (44 inch) Wing Cutter Decks	347.9 cm	137 in.
A	Width Of Cut With 152.4 cm (60 inch) Wing Cutter Decks	427 cm	168 in.
B	Overall Width With 89 cm (35 inch) Wing Cutter Decks	311.5 cm	122.6 in.
B	Overall Width With 101.6 cm (40 inch) Wing Cutter Decks	343.5 cm	135.2 in.
B	Overall Width With 112 cm (44 inch) Wing Cutter Decks	363.5 cm	143.1 in.
B	Overall Width With 152.4 cm (60 inch) Wing Cutter Decks	448 cm	176.4 in.
C	Maximum Width Transport With Wing Deck Set At 25mm Height Of Cut	167 cm	65.7 in.
C	Maximum Width Transport With Wing Deck Set At 50mm Height Of Cut	172 cm	67.7 in.
D	Maximum Height With ROPS Frame Up	210 cm	82.7 in.
E	Maximum Height With ROPS Frame Down And 89 cm (35 inch) Wing Cutter Decks Up In Transport Position	170 cm	67 in.
E	Maximum Height With ROPS Frame Down And 101.6 cm (40 inch) Wing Cutter Decks Up In Transport Position	189 cm	74.4 in.
E	Maximum Height With ROPS Frame Down And 112 cm (44 inch) Wing Cutter Decks Up In Transport Position	199 cm	78.3 in.
E	Maximum Height With ROPS Frame Down And 152.4 cm (60 inch) Wing Cutter Decks Up In Transport Position	233.7cm	92.0 in.
H	Total Length Working:	358 cm	141 in.
J	Total Length For Storage	342cm	134.6 in.
K	Wheel Base	165 cm	65 in.
L	Wheel Track Front	128 cm	50.4 in.
M	Wheel Track Rear	106 cm	41.7 in.
	Ground Clearance	15.2 cm	6 in.
	Turning Circle, Curb to Curb (Units in Transport Position)	493 cm	194 in.
	Uncut Turning Circle With 89 Cm (35 inch) Wing Cutter Decks	53 cm	20.8 in.
	Uncut Turning Circle With 101.6 Cm (40 inch) Wing Cutter Decks	37 cm	14.6 in.
	Uncut Turning Circle With 112 Cm (44 inch) Wing Cutter Decks	23 cm	9 in.
	Weight Of HR600 Machine With ROPS, No Decks And Fuel Tank Empty	1437 Kg.	3168 lb.
	Weight Of HR700 Machine With ROPS, No Decks And Fuel Tank Empty	1443 Kg.	3181 lb.
	Maximum Front Axle Loading	1500 kg.	3307 lb.
	Maximum Rear Axle Loading	850 kg.	1874 lb.
	Weight Of Front Deck	143 Kg.	315.3 lb.
	Weight Of Wing Deck 89 cm (35 inch):	88.5 Kg.	195.1 lb.
	Weight Of Wing Deck 101.6 cm (40 inch)	94.5 Kg.	208.3 lb.
	Weight Of Wing Deck 112 cm (44 inch)	99.5 Kg.	219.4 lb.
	Weight Of Wing Deck 152.4 cm (60 inch)	144.5 Kg.	318.5 lb..
	Weight Of Light and Mirror Kit LMAC556	22 kg	48.5 lb.
	Weight Of Beacon Kit LMAC531	3.5 kg	7.7 lb.
	Weight Of Number Plate (When Light Kit Not Fitted)	2.5 kg	5.5 lb.
	Weight Of 77.1 Litres (20.36 US Gallons) Of Diesel Fuel	64 Kg.	141 lb.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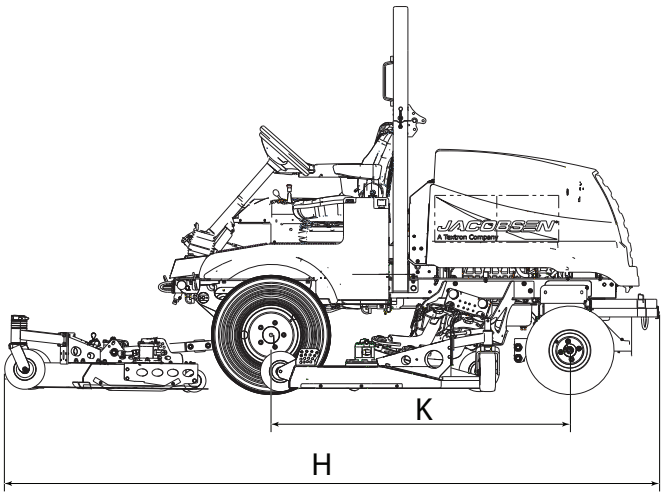
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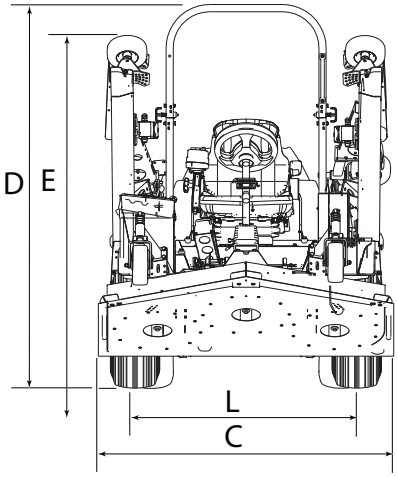
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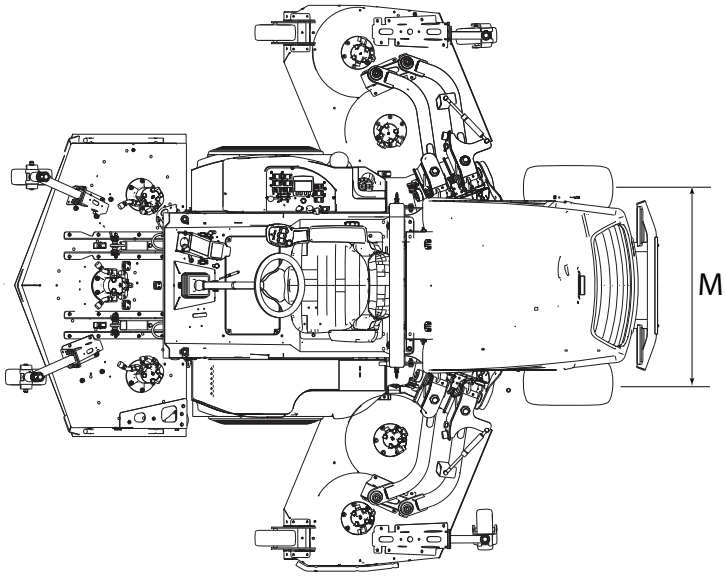
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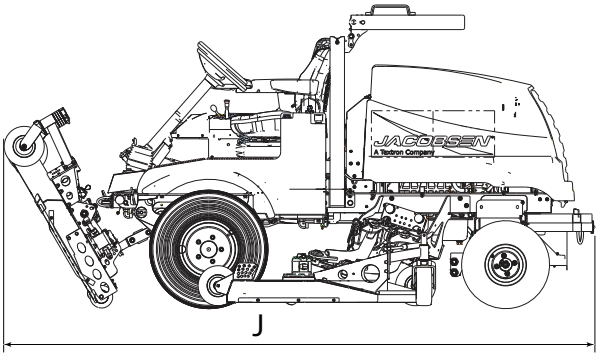
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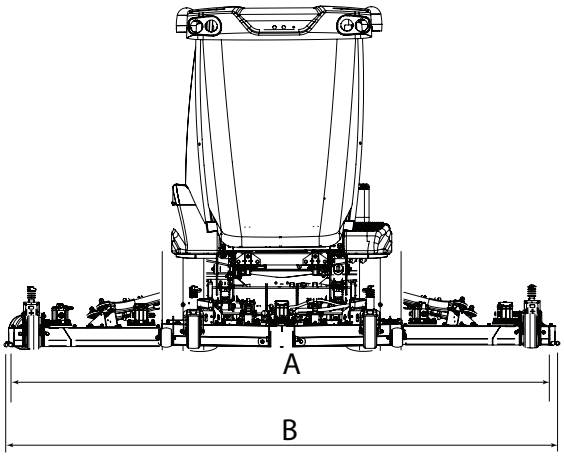
12.3 DIMENSIONS & WEIGHTS (CAB MACHINE)

A	Width Of Cut With 89 cm (35 inch) Wing Cutter Decks	299.5 cm	118 in.
A	Width Of Cut With 101.6 cm (40 inch) Wing Cutter Decks	328.4 cm	129.3 in.
A	Width Of Cut With 112 cm (44 inch) Wing Cutter Decks	347.9 cm	137 in.
A	Width Of Cut With 152.4 cm (60 inch) Wing Cutter Decks	427 cm	168 in.
B	Overall Width With 89 cm (35 inch) Wing Cutter Decks	311.5 cm	122.6 in.
B	Overall Width With 101.6 cm (40 inch) Wing Cutter Decks	343.5 cm	135.2 in.
B	Overall Width With 112 cm (44 inch) Wing Cutter Decks	363.5 cm	143.1 in.
B	Overall Width With 152.4 cm (60 inch) Wing Cutter Decks	448 cm	176.4 in.
C	Maximum Width Transport With Wing Deck Set At 25mm Height Of Cut	167 cm	65.7 in.
C	Maximum Width Transport With Wing Deck Set At 50mm Height Of Cut	172 cm	67.7 in.
D	Maximum Height With ROPS Frame Up	210 cm	82.7 in.
E	Maximum Height With ROPS Frame Down And 89 cm (35 inch) Wing Cutter Decks Up In Transport Position	170 cm	67 in.
E	Maximum Height With ROPS Frame Down And 101.6 cm (40 inch) Wing Cutter Decks Up In Transport Position	189 cm	74.4 in.
E	Maximum Height With ROPS Frame Down And 112 cm (44 inch) Wing Cutter Decks Up In Transport Position	199 cm	78.3 in.
E	Maximum Height With ROPS Frame Down And 152.4 cm (60 inch) Wing Cutter Decks Up In Transport Position	233.7cm	92.0 in.
H	Total Length Working:	358 cm	141 in.
J	Total Length For Storage	342cm	134.6 in.
K	Wheel Base	165 cm	65 in.
L	Wheel Track Front	128 cm	50.4 in.
M	Wheel Track Rear	106 cm	41.7 in.
	Ground Clearance	15.2 cm	6 in.
	Turning Circle, Curb to Curb (Units in Transport Position)	493 cm	194 in.
	Uncut Turning Circle With 89 Cm (35 inch) Wing Cutter Decks	53 cm	20.8 in.
	Uncut Turning Circle With 101.6 Cm (40 inch) Wing Cutter Decks	37 cm	14.6 in.
	Uncut Turning Circle With 112 Cm (44 inch) Wing Cutter Decks	23 cm	9 in.
	Weight Of HR600 Machine With Cab, Air Conditioning and No Decks And Fuel Tank Empty	1644 kg.	3624 lb.
	Weight Of HR700 Machine With Cab, Air Conditioning and No Decks And Fuel Tank Empty	1650 kg.	3638 lb.
	Maximum Front Axle Loading	1500 kg.	3307 lb.
	Maximum Rear Axle Loading	850 kg.	1874 lb.
	Weight Of Front Deck	143 Kg.	315.3 lb.
	Weight Of Wing Deck 89 cm (35 inch):	88.5 Kg.	195.1 lb.
	Weight Of Wing Deck 101.6 cm (40 inch)	94.5 Kg.	208.3 lb.
	Weight Of Wing Deck 112 cm (44 inch)	99.5 Kg.	219.4 lb.
	Weight Of Wing Deck 152.4 cm (60 inch)	144.5 Kg.	318.5 lb..
	Weight Of Light and Mirror Kit LMAC556	22 kg	48.5 lb.
	Weight Of Beacon Kit LMAC531	3.5 kg	7.7 lb.
	Weight Of Number Plate (When Light Kit Not Fitted)	2.5 kg	5.5 lb.
	Weight Of 77.1 Litres (20.36 US Gallons) Of Diesel Fuel	64 Kg.	141 lb.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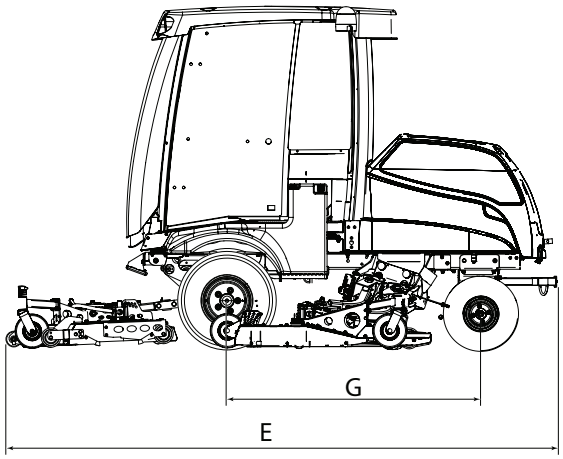
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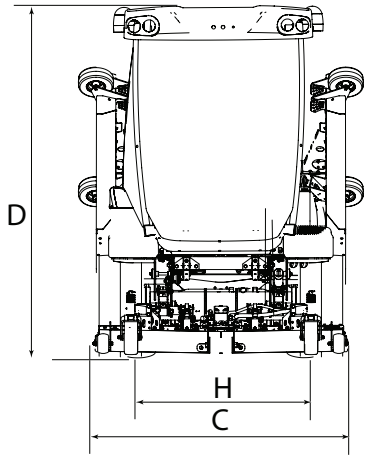
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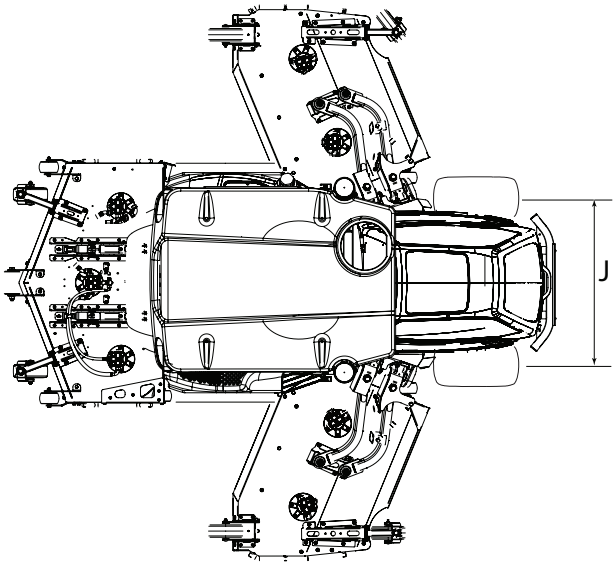
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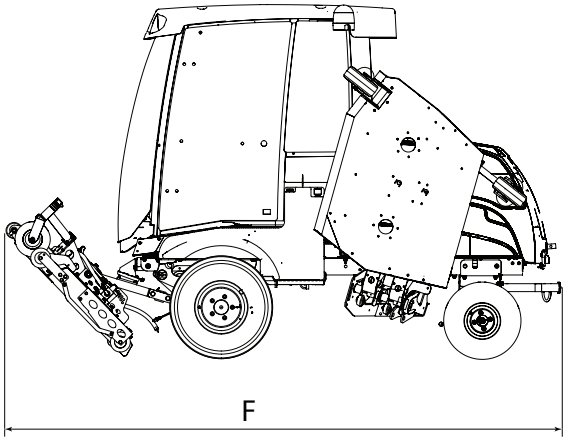
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12.4 MACHINE SPECIFICATION

Frame construction: Heavy duty steel chassis with formed steel frame rails.

Cutter Deck Drive: HR600, Seven individual hydraulic motors with self lubricating integral bearings.
Cutter Deck Drive: HR700, Nine individual hydraulic motors with self lubricating integral bearings

Transmission: Hydrostatic closed loop parallel cross series SureTrac system. Variable displacement piston pump. Front high torque fixed displacement piston wheel motors. Full time auto 4WD forward, on demand 4 WD in reverse.,

Speeds:

Cutting:	0 - 12 km/h (0 - 7.5 mph) Forward
	0 - 6.4 km/h (0 - 4 mph) Reverse
Transport:	0 - 25 km/h (0 - 15.5 mph) Forward
	0 - 6.4 km/h (0 - 4 mph) Reverse
Creep	0 - 8 km/h (0 - 5 mph) Forward
	0 - 5 km/h (0 - 3.1 mph) Reverse

Steering: Q-AMP® variable rate hydrostatic powered equal displacement cylinders to rear wheels.

Ground pressure: Depends on the tyre pressures and the accessories installed.

Brakes: Hydrostatic braking with wet disc parking brakes on the front wheels.

Battery: BBMS 678 80-capacity 20 Amp Hours 540A

Cab Climate Control:

Technical data	
Air conditioning system	
Heating Performance	6.0 kW
Cooling performance	4.5 kW
Refrigerant	R 134A
Recommended refrigerant level	800 g
Operating voltage	12 V
Power consumption, clutch	max.49W
Refrigerant Oil	135 cc
Refrigerant Oil - in the compressor	50 cc

12.5 VIBRATION

The machine was tested for hand and arm vibration levels. The operator was in the normal position to drive the vehicle, with two hands on the steering mechanism. The engine was in operation and the cutting device was in rotation. No drive was engaged.

The Machinery Safety Directive 2006/42/EC
By compliance to:
The Lawnmower Standard BS EN ISO5395-3:2013
Referenced to Hand/Arm: BS EN ISO20643:2008

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 (2002)

HR600 Hand / Arm Acceleration Level	Series MR with ROPS	HR600 Hand / Arm Acceleration Level	Series PB with Cab
	Maximum Accelerations m/s²		Maximum Accelerations m/s²
	0.31 ± 0.40		0.31 ± 0.40

HR700 Hand / Arm Acceleration Level	Series XB with ROPS	HR700 Hand / Arm Acceleration Level	Series YB with Cab
	Maximum Accelerations m/s²		Maximum Accelerations m/s²
	0.31 ± 0.40		0.31 ± 0.40

Whole-body vibration measurement was carried out with the machine traveling in a straight line at a speed close to 6 km/h on a flat horizontal level surface. The height of cut was set at the lowest position and the cutting means engaged.

Each reading shall be obtained from a signal time suitable f
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)

HR600 Whole Body Acceleration Level	Series MR with ROPS	HR600 Whole Body Acceleration Level	Series PB with Cab
	Maximum.Acceleration m/s²		Maximum Acceleration m/s²
	0.38 ± 1.57		0.38 ± 1.57

HR700 Whole Body Acceleration Level	Series XB with ROPS	HR700 Whole Body Acceleration Level	Series YB with Cab
	Maximum.Acceleration m/s²		Maximum Acceleration m/s²
	0.38 ± 1.57		0.38 ± 1.57

12.6 NOISE

When the machine was tested for sound pressure (Operator Ear).

The Machinery Safety Directive 2006/42/EC
And exposure Of Workers To The Risks Arising From Physical Agents (Noise) Directive 2003/10/EC
By compliance to:
The Lawnmower Standard BS EN ISO 5395:2013
And sound Pressure Standard EN ISO 3746: 2010

ROPS machine: Measured Sound Pressure 89 dB(A) ± 1.05 LWA
Cab machine: Measured Sound Pressure 81 dB(A) ± 1.05 LWA (Best case, windows closed)
Cab machine: Measured Sound Pressure 88 dB(A) ± 1.05 LWA (Worst case, windows open)

When the machine was tested for sound power (Noise in the Environment).

The Machinery Safety Directive 2006/42/EC
And
Noise Emission In The Environment By Equipment For Use Outdoors
Directive 2000/14/EC
By compliance to:
Sound Power Standard EN ISO 3744:1995

HR600 Measured Sound Power 102 dB(A) ± 1.05 LWA
HR700 Measured Sound Power 104 dB(A) ± 1.05 LWA

12.7 SLOPES

DO NOT USE ON the SLOPES GREATER THAN 17° HR700, 19° HR600 with ROPS.
DO NOT USE ON the SLOPES GREATER THAN 15° HR700, 17° HR600 with Cab.
The slope was calculated using static stability measurements according to the requirements of BS EN ISO 5395:2013.

12.8 CUTTING PERFORMANCE

3.0 m (9ft 6in) width of cut:
3.24 hectares/hr. At 12 kph.
8.0 acres / at 7.5mph
(10% allowance is included for normal overlaps and turning at the end of each cut).

3.28 m (10ft 7in) width of cut:
3.56 hectares/hr. At 12 kph.
8.74 acres / at 7.5mph
(10% allowance is included for normal overlaps and turning at the end of each cut).

3.48 m (11ft 5in) width of cut:
3.76 hectares/hr. At 12 kph.
9.30 acres / at 7.5mph
(10% allowance is included for normal overlaps and turning at the end of each cut).

4.27m (14ft) width of cut:
4.70 hectares/hr. At 12 kph.
11.60 acres / at 7.5mph
(10% allowance is included for normal overlaps and turning at the end of each cut)

12.9 CUTTER DECK SPECIFICATION

Product	HR600	HR700
Deck Width	152 cm (60 inch) Deck (Front)	
Construction	Bull nose profile, steel construction. Solid bumper rails, bolted assembly of all impact and wearing parts.	
Blade Length	533.4 mm (21 inch)	533.4 mm (21 inch)
Number of Blades	3	3
Blade Tip Speed	4207 m/minute (13 802 feet/minute)	
Height of Cut	25 mm - 120 mm (1 inch - 4.75 inch) 6.5 mm (0.25 in) increments. Tools-less adjustment.	25 mm - 127 mm (1 inch - 5 inch) 12.7 mm (1/2 in) increments. Tools-less adjustment.
Height of Cut Adjustment Front	Two castor wheels, with spacers. tyres 9 x 3.50 - 4.00 smooth, semi pneumatic puncture proof, sealed precision ball bearings.	Two castor wheels, with spacers. tires 11 X 4.00 - 5 smooth, pneumatic, taper roller bearings.
Height of Cut Adjustment Rear	Front deck pin and slot.	
“Anti Scalp” Roll	Three anti scalp rollers on the front of deck and four anti scalp rollers on the rear.	
Transmission	By Hydraulic motor to each cutter blade.	

Product	HR600			HR700
Deck Width	89 cm (35 inch) Deck (Wing)	101.6 cm (40 inch) Deck (Wing)	111.8 cm (44 inch) Deck (Wing)	152 cm (60 inch) Deck (Wing)
Construction	Bull nose profile, steel construction. Solid bumper rails, bolted assembly of all impact and wearing parts.			
Blade Length	457.2 mm (18 inch)	533.4 mm (21 inch)	585.5 mm (23 inch)	533.4 mm (21 inch)
Number of Blades	2	2	2	3
Blade Tip Speed	4940 m/minute (16 207 feet/minute)	4207 m/minute (13 802 feet/minute)	4608 m/minute 15 118 feet/minute)	4207 m/minute (13 802 feet/minute)
Overall Width Of Cut	299.5 cm (118 inch)	328.4 cm (129.3 inch)	347.9 cm (137 inch)	427 cm (168 inch)
Height of Cut	25 mm - 120 mm (1 inch - 4.75 inch) 6.5 mm (0.25 in) increments. Tools-less adjustment.			25 mm - 127 mm (1 inch - 5 inch) 12.7 mm (1/2 in) increments. Tools-less adjustment.
Height of Cut Adjustment Front	Two castor wheels, with spacers. tyres 9 x 3.50 - 4.00 smooth, semi pneumatic puncture proof, sealed precision ball bearings.			Two castor wheels, . tires 11 X 4.00 - 5 smooth, pneumatic, taper roller bearings.
Height of Cut Adjustment Rear	Chain and Pin			One castor wheel, with spacers. tires 11 X 4.00 - 5 smooth, pneumatic, taper roller bearings. Wing deck chain and Pin
“Anti Scalp” Roll	Three anti scalp rollers on the front of deck and four anti scalp rollers on the rear.			Two anti scalp rollers 5 X 2.75 on the front of deck and one anti scalp roller 3in on the rear.
Transmission	By Hydraulic motor to each cutter blade.			

12.10 RECOMMENDED LUBRICANTS

Grease:
For rear axle: K NATE (RJL No. 4213860), or equivalent to MIL-G-23549C, MIL-G-2345C, DIN 51 825, DIN 51 818

All other applications: Shell Darina R2 lithium based grease or equivalent.

12.11 ACCESSORIES

Air Suspension Seat (MSG75) Kit

Kit number LMAC560

Lights and mirror Kit

Kit number LMAC556

Beacon Kit

Kit number LMAC531

Armaturf Tyre Kit

Kit number WL065

Bat (for clearing blockages) 4184540

Rotary Blade Balancer 425450

13.1 GUARANTEE

WARRANTY

Warranty is subject to specific terms and conditions, e.g. wearing parts, unapproved modifications, etc. are not included. For a full set of warranty conditions, contact your local dealer or distributor.

NOTICE

The use of components not provided by the manufacturer under this warranty or maintenance or repair that is improperly or incorrectly performed may void this warranty.

SERVICE

A network of authorised Sales and Service dealers has been established and these details are available from your supplier.

When service attention, or spares, are required for the machine, within or after the warranty period your supplier or any authorised dealer should be contacted. Always quote the registered serial number of the machine.
If any damage is apparent when delivery is made, report the details at once to the supplier of the machine.

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