Operator's Guide

R655 Mk IV Regenerative Air

Single Engine Suction Sweeper

From Manufacture Sequence No. 9021

Part No 01289-1-GB

Revision Level A

ECN: 718318

Print date - 27.07.2018

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1 Information

FOREWORD

The Johnston R655 Air Regen Sweeper represents the highest grade of craftsmanship and reliability that makes Johnston probably the world leader in sweeping technology.

This machine is designed for the removal of spoil on traffic or pedestrian areas, and litter collection using the Wanderhose [EN 13019 refers], and should only be driven by trained operatives.

This machine should not be used for sweeping hot or burning substances. In the unlikely event of a fire, normal powder or foam fire fighting equipment can be used on this product.

An operator should receive training in the follow elements:

1 Safety Observations/Notices
2 Transit driving
3 Correct use of body prop
4 In cab controls
5 External controls
6 Sweeping techniques
7 Load discharge
8 Gutter broom (gutter broom) setting changing
9 Nozzle (pick-up head) setting
10 Daily and weekly maintenance items
11 Driving/operation assessment
12 End of day cleaning of body and machine

Johnston Sweepers Limited can provide operator training upon request.

We would point out that it is the employers responsibility to carry out his own Risk Assessment on the equipment in his particular working environment and work application.

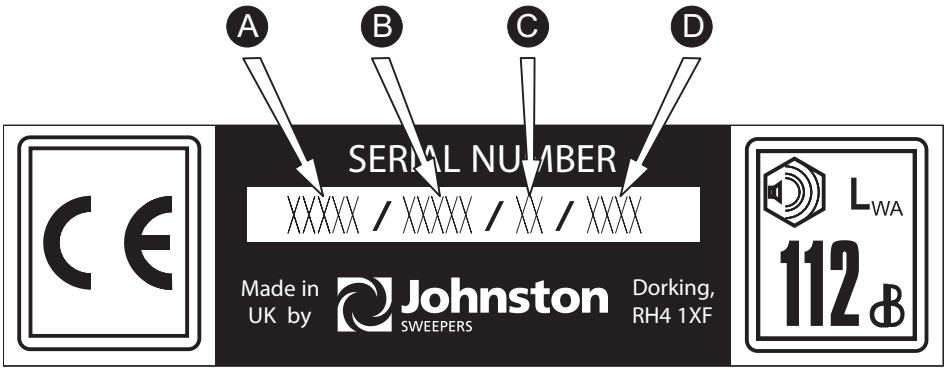
This handbook should be carefully studied. In it you will find instructions for the operation and maintenance of your JOHNSTON SWEEPER.

It is vitally important that the operator and maintenance staff have a copy of this book. The life of the machine will depend upon following these instructions in respect of regular maintenance and correct operating methods.

It is important that only GENUINE JOHNSTON SPARE PARTS are used when servicing and maintaining the sweeper. This is especially important for consumables, filters etc, as the use of non-genuine parts may cause premature failure and invalidation of warranty.

When carrying out maintenance or part replacement, additional explanatory illustrations can be found in the Parts Manual, which shows and lists hardware, and availability of spares with the orientation and positions of the various components.

REPLACEMENT PARTS



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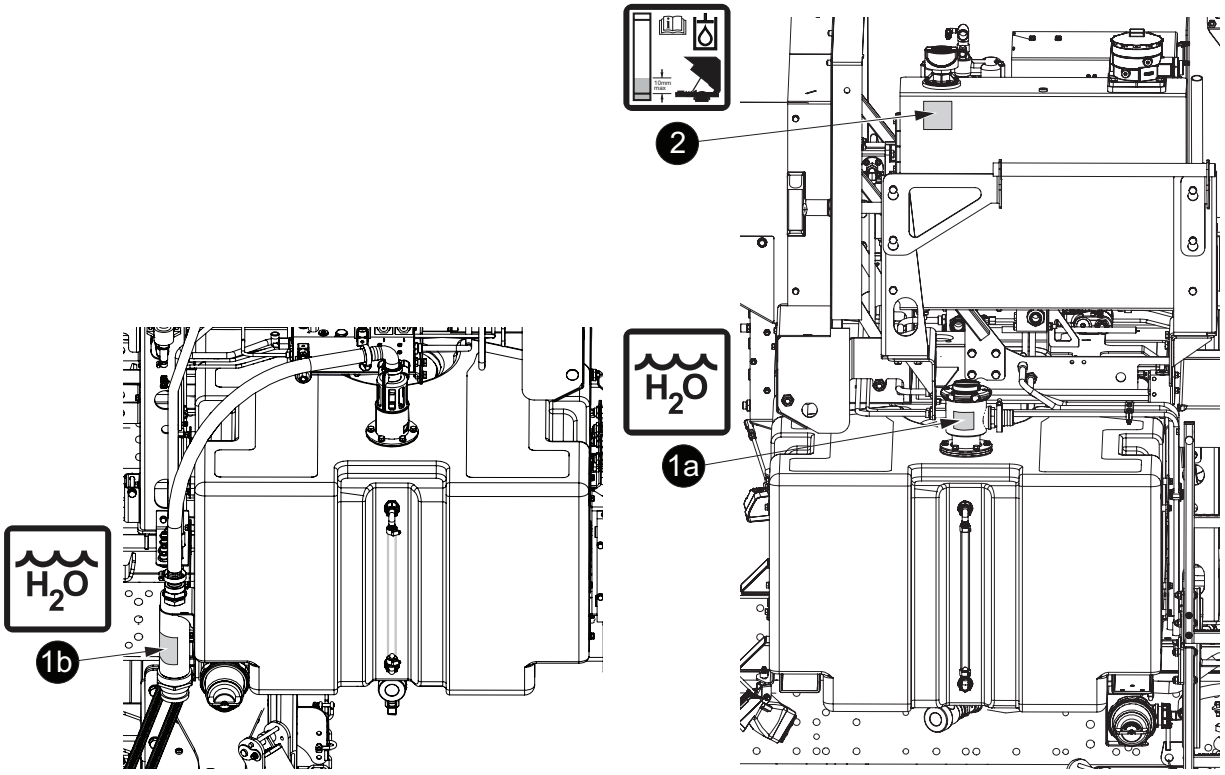
When making enquiries or ordering spare parts the Johnston Serial number should be quoted. The number will be found stamped on a plate similar to that shown below and attached to the rearmost cross-member of the subframe, below the rear door.

Serial number comprises of:

(A)	Model number	RT655 (example)
(B)	EQ number	XXXXXX
(C)	Year of manufacture	XX
(D)	Manufacture sequence number	XXXX

It is important that only GENUINE JOHNSTON SPARE PARTS are used when servicing and maintaining the sweeper. This is especially important for consumables, filters etc. as the use of non-genuine parts may cause premature failure and invalidation of warranty.

For the latest parts information please refer to our on-line interactive catalogues which are available through our E-Shop. To open an account, please follow the instructions on the Johnston Sweepers website: www.johnstonsweepers.com



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INTERNATIONAL SYMBOLS

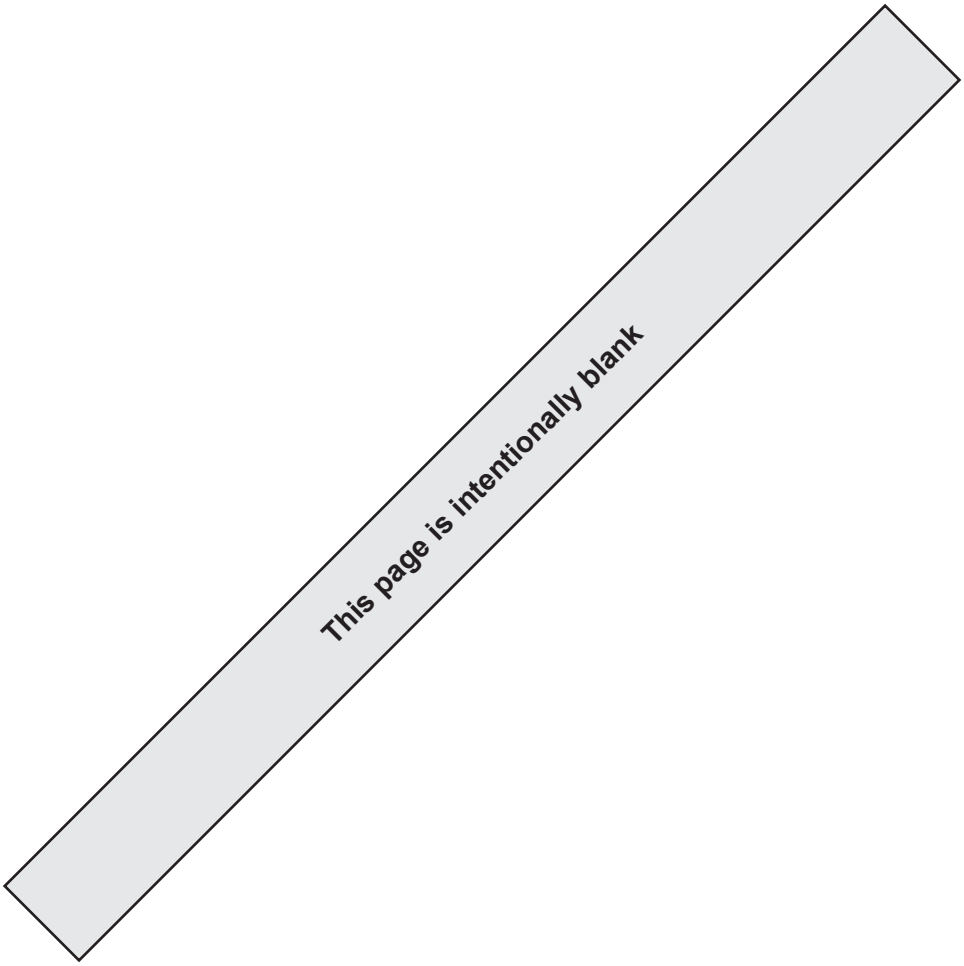
Conforming to ISO 3767

Graphical symbols are used to indicate the water and hydraulic oil tank filler ports.

Their location and descriptions are shown below.

Label	Description	
(1)	Water tank filler ports	**(1a)** = Hose Pipe **(1b)** = Hydrant
(2)	Hydraulic oil tank filler	

2 Safety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FOR YOUR SAFETY

Basic safety precautions are described in Section 3.

Important operating and safety information is marked with the following **SIGNAL** words:
NOTICE, CAUTION, WARNING and **DANGER.**

SIGNAL WORDS AND SYMBOLS ARE SHOWN AS FOLLOWS:-

SIGNAL WORD
Type and source of hazard.
Measures to be taken to protect against the hazard.

The **NOTICE** signal word does not have the triangle safety alert symbol.

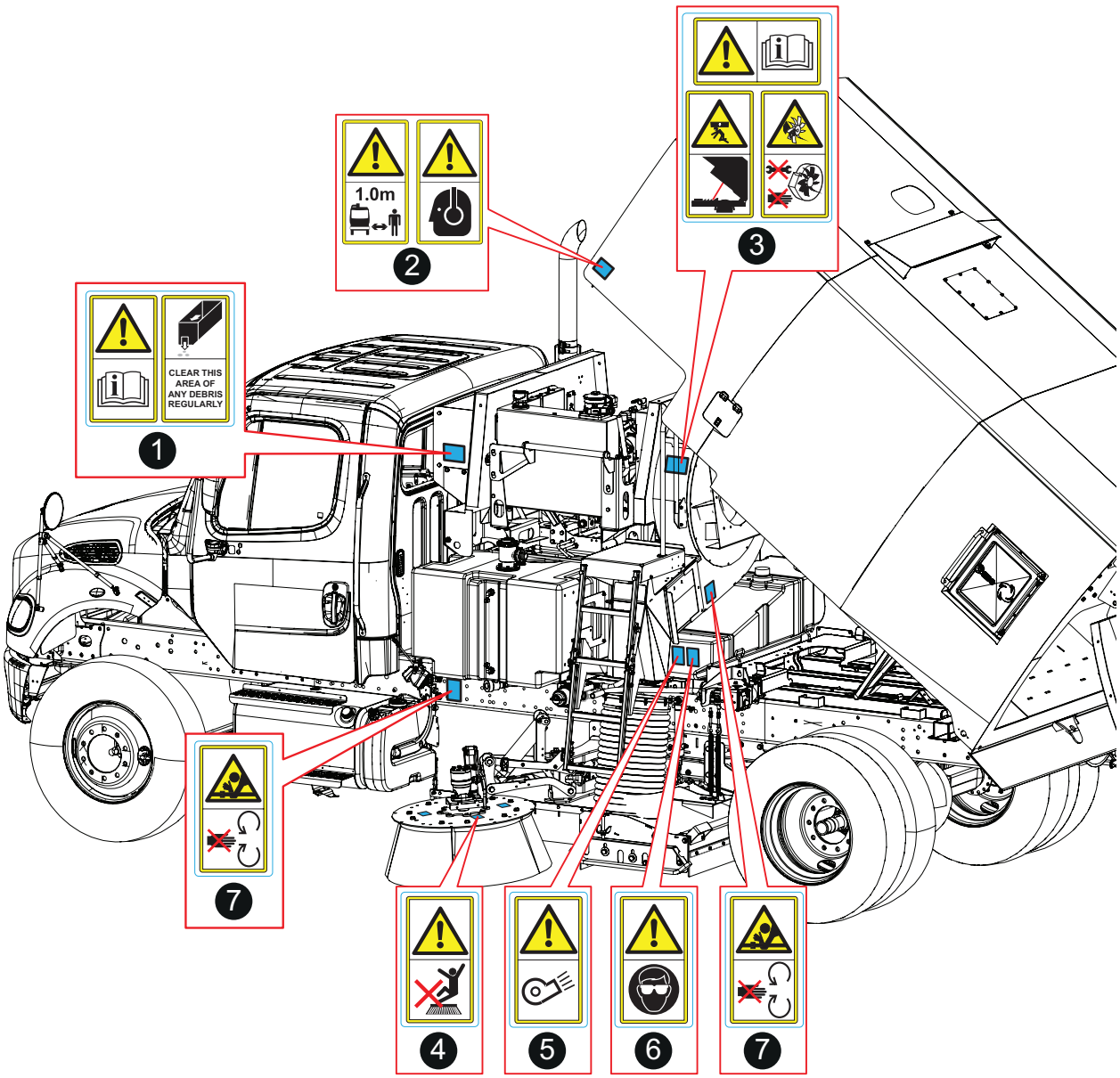
Meanings of signal words used with safety warnings (ISO 3864)

NOTICE:
Indicates a hazardous situation with a risk of damage to equipment (ANSI Z535.6).

CAUTION: Indicates a hazardous situation with a low level of risk. Indicates a potentially hazardous situation which if not avoided may result in minor or moderate injury.

WARNING: Indicates a hazardous situation with a medium level of risk. Indicates an imminently hazardous situation which if not avoided could result in serious injury or death.

DANGER: Indicates an imminently hazardous situation with a high level of risk which if not avoided, will result in serious injury or death.

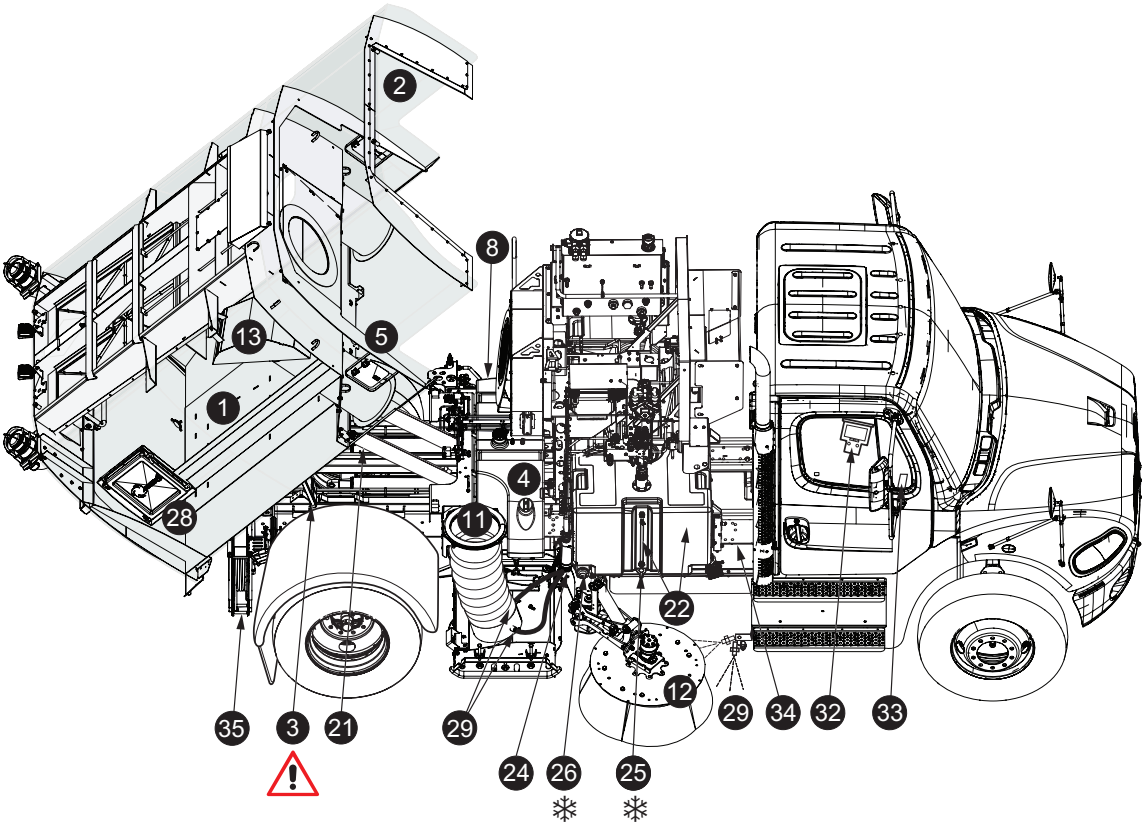

1.0m
CLEAR THIS AREA OF ANY DEBRIS REGULARLY
1
2
3
4
5
6
7
7

MACHINE WARNING LABELS

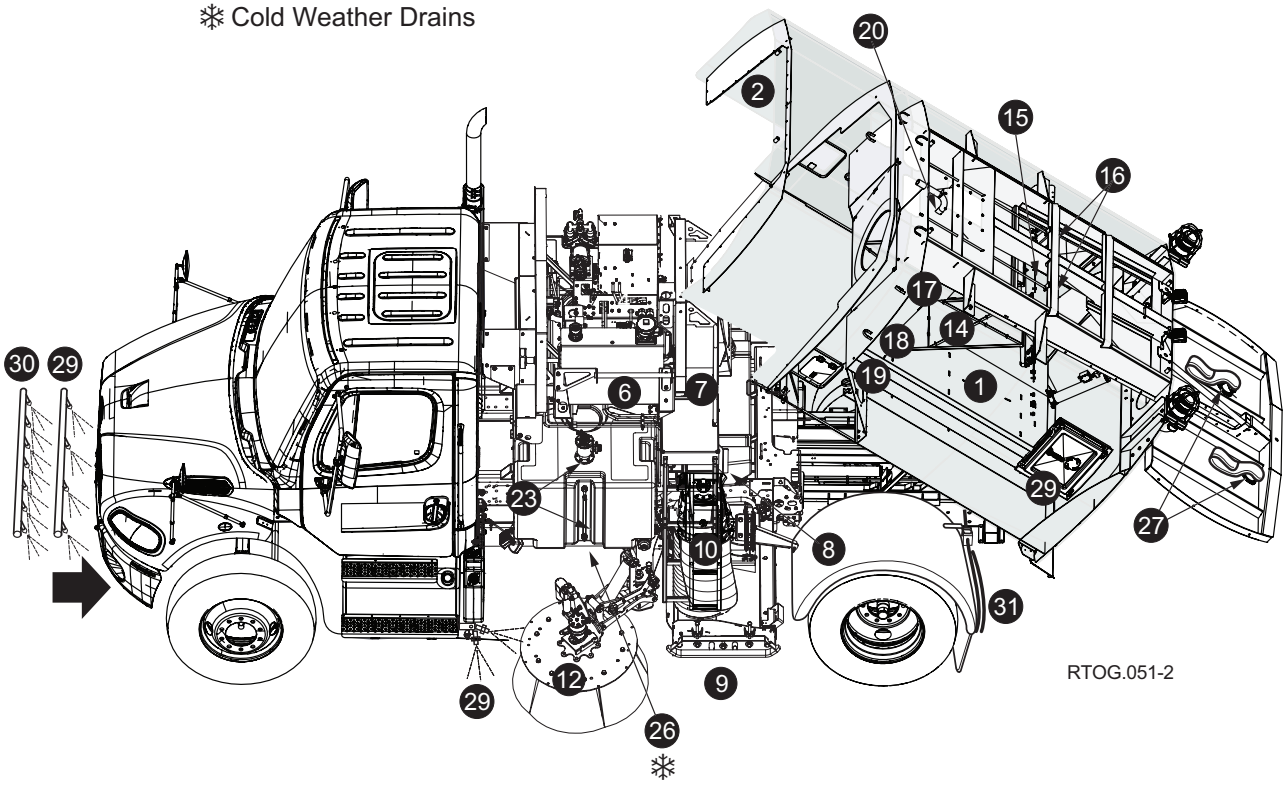
Label	Description
(1)	**CAUTION** Read Operator's Guide. Clear area of debris regularly
(2)	**CAUTION** Wear ear defenders when working in this area. Keep 1.0 clear of vehicle.
(3)	**WARNING** Read Operator's Guide. Crushing of whole body - force applied from above Body prop correctly engaged. Severing of fingers or hand - Impeller blade. Never reach in or drop tools into the fan case
(4)	**WARNING** Keep clear of brushes
(5)	**DANGER** Beware/keep clear of fan blast
(6)	**DANGER** Wear safety goggles when working in this area.
(7)	**DANGER** Arm entanglement. Never touch rotating shaft.

NOTICE:
Ensure that all safety labels are always kept clean and visible.
Replace any missing or illegible safety labels.
Ensure any safety labels are affixed to replacement parts as required.

3 General Arrangements



❄ Cold Weather Drains

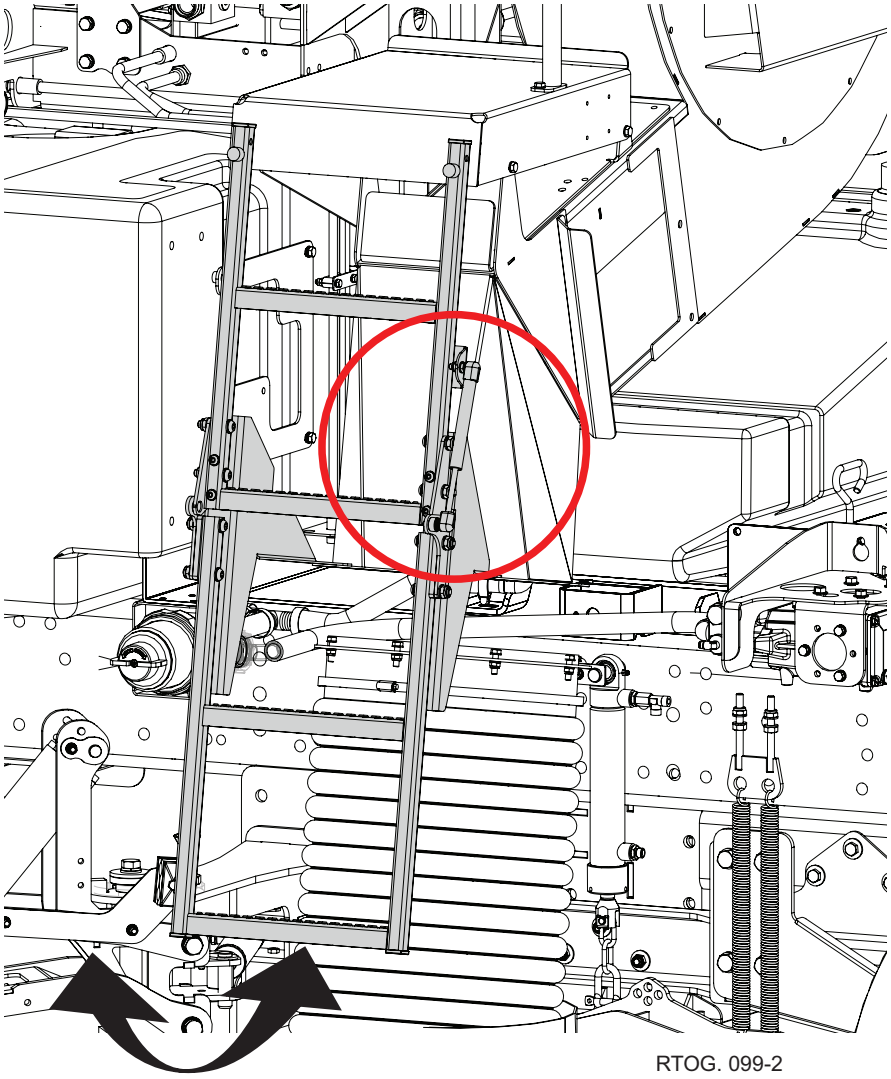


RH Sweep machine shown

GENERAL ARRANGEMENT

Item	Component	See Chapter
1	Hopper/load compartment	-
2	Cowl	-
3	Body (hopper and cowl) prop	3
4	Additional water tank	-
5	Additional water tank access flap	-
6	Hydraulic oil reservoir	6
7	Suction fan case	6
8	Variable exhaust gate (VEG)	-
9	Pick-up head (hood)	6
10	Blaster duct	-
11	Suction duct	-
12	Gutter broom	6
13	Wear plate	-
14	Filter screen	6
15	Filter screen curtain	6
16	Filter screen water sprays	6
17	'SepaVac' separator box	3
18	'SepaVac' access panel	-
19	'SepaVac' discharge door	3
20	'SepaVac' water flush	3
21	'SepaVac' water flush hydrant connection	3
22	* R.H. Water tank and contents gauge	6
23	* L.H. Water tank, contents gauge and hose filler	6
24	Water tank(s) hydrant filler	6
25	Water tank drain tap - under both tanks	6
26	Water pump suction filter	6
27	Rear door drainage hoses	3
28	Access door	3
29	Low pressure water spray jets	-
30	High pressure Water spray jets	-
31	Washdown hose	-
32	Master control panel	2
33	Door controller	6
34	Hydrant hose stowage - optional	-
35	Supawash hose reel and handlance	4

* Total water capacity 950 litres



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EQUIPMENT ACCESS

WARNING: Before using the ladder ensure the body is raised and the body prop is securely located in the rack.

Do not use a faulty ladder.

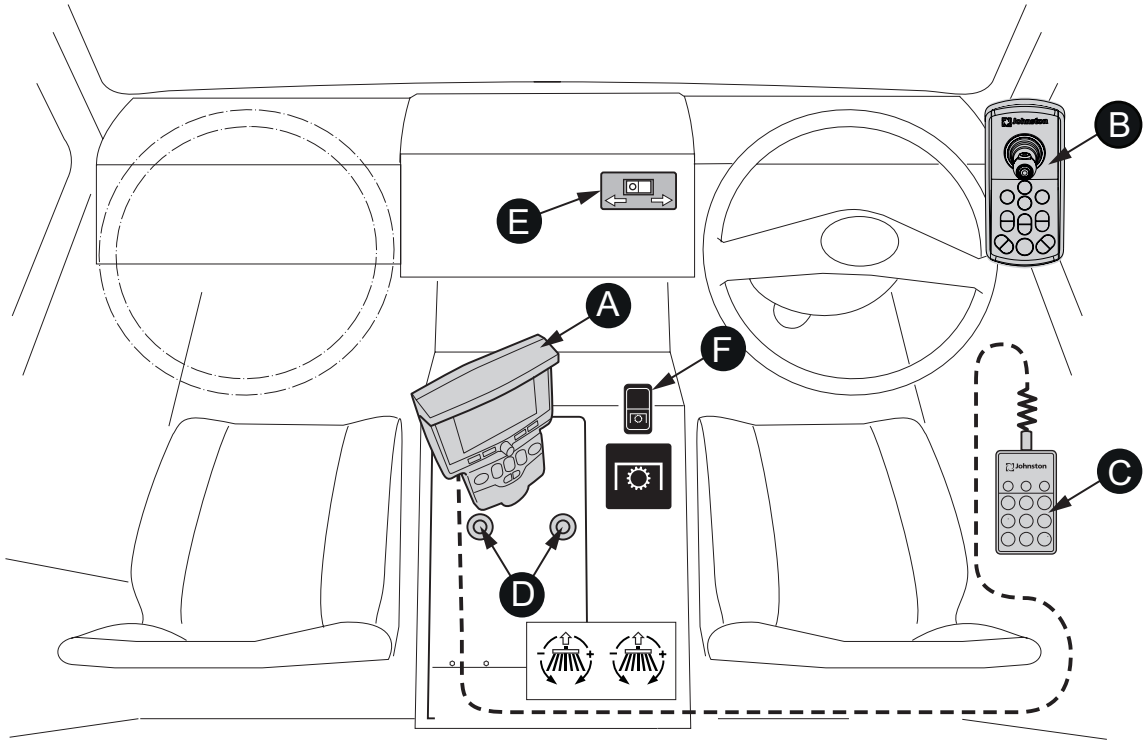
Always maintain 3 point contact with the ladder.

Always ensure the ladder is securely stowed prior to operating the equipment or driving the vehicle.

NOTICE: The ladder can only be stowed when the body is in the raised position.

To gain access to any equipment mounted above ground level a folding ladder is provided together with appropriate grab handles. With the body raised and supported on the body prop, pull down the ladder from it's stowed position, the gas strut will securer the ladder in its extended position.

4 Controls



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CAB MOUNTED CONTROLS

Item	Description
(A)	Johnston Visual Module (JVM) / Centre Console
(B)	Door Controller
(C)	Body Discharge / Pendent
(D)	Powasave Regulators
(E)	Dual Steer change over (Chassis Dependant)
(F)	PTO Activation Switch (on chassis switch panel)

RTOG.094

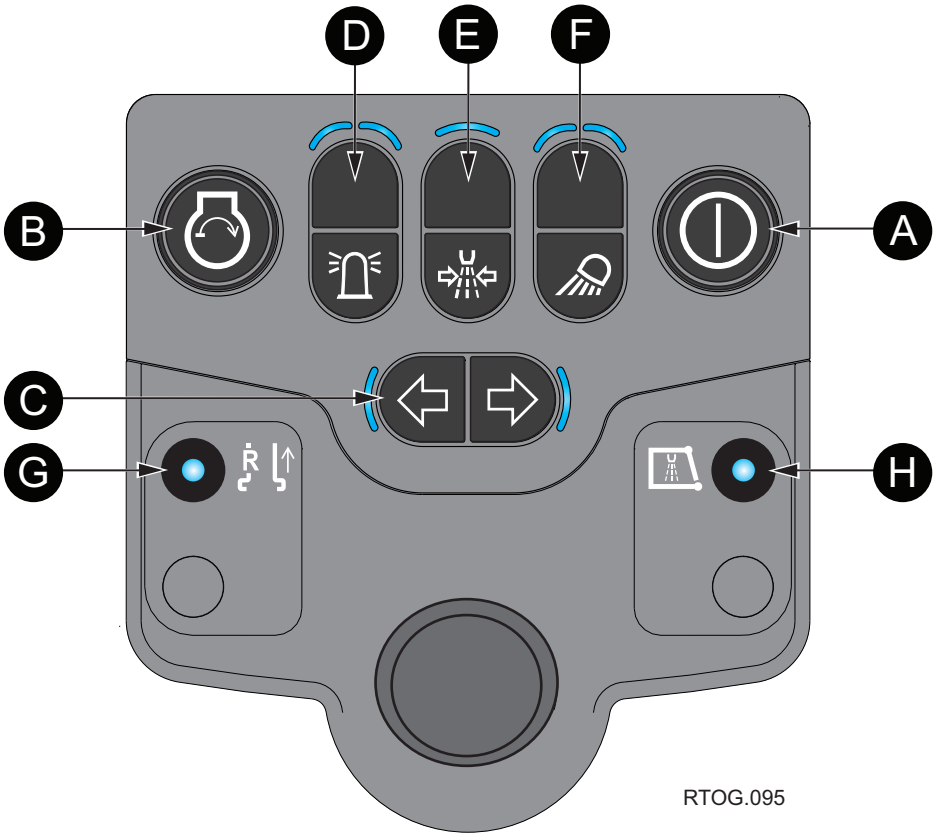
WARNING LED'S

Description	
Transit Mode	
Work Mode	
Suction Fan Active	
Electrical Faults	
Hydraulic oil low level and audible warning	
Low air pressure and audible warning	
Vehicle overload and audible warning	
Body raise and audible warning	

RTOG.093

INFORMATION BAR LED'S

Description	
Service intervals	
1st 50 Hour	✓
A 500 Hour	✓
B 1000 Hour	✓
C 2000 Hour or 12 Monthly	✓
D 4000 Hour or 24 Monthly	✓
Water Tank low level	
Hydraulic Oil Temperature	
Hydraulic Filter State Indicator	
Mute internal buzzer	
Discharge buzzer muted	


D
E
F
B
A
C
G
H
RTOG.095

CENTRE CONSOLE

Switch	Description
(A)	Equipment Ignition
(**B)**	Extra Boost Mode Provides full suction for configurable duration (30s, 60s, 2min, 5min). Requires ECOmode override to be already active.
(C)	Sweep Select
(D)	Beacons
(E)	Supawash
(F)	Worklamps
(G)	Reverse Override
(H)	Hopper Spray

M02OG-112

A

B

C

D

E

F

G

H

I

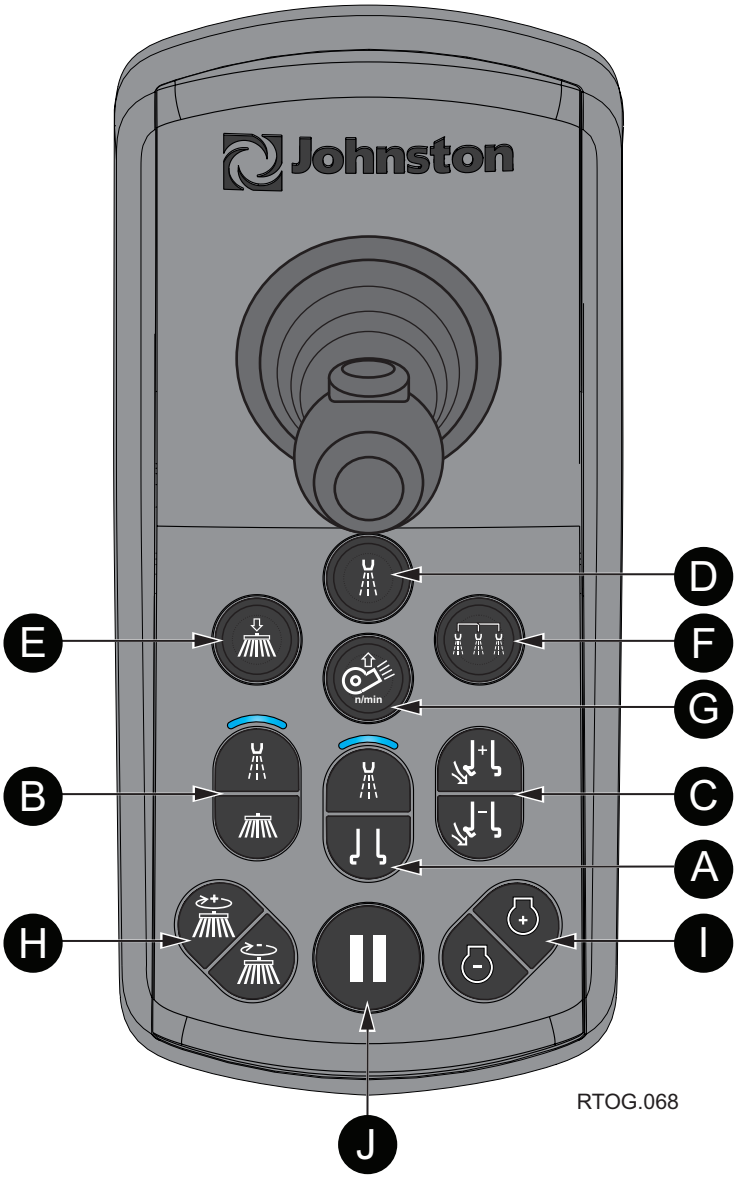
J

SOFT KEYS AND ENCODER

Multifunctional Soft Keys F1 - F4 Icon displayed above key.

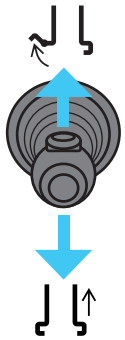
Rotary Encoder
Enables both navigation and access of the menus. Press to select.

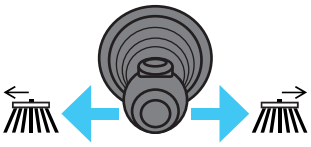
Symbol	Description
(A)	Trip Hours
(B)	Grand Total Hours
(C)	Data Logging
(D)	Daily Totals
(E)	Download to USB
(F)	Service Hours
(G)	Camera
(H)	Camera Full Screen
(I)	Camera Part Screen
(J)	Main Menu


Johnston
n/min
D
E
F
G
B
C
A
H
I
J
RTOG.068

DOOR CONTROLLER

Symbol	Description
(A)	**Suction Hood** Water sprays ON / OFF Raise / Lower Fan Activates Automatically
(B)	**Gutter Broom** Water sprays ON / OFF Raise / Lower
(C)	**VEG Variable Exhaust Gate** + Pulse/Hold Increases Regen (close) - Pulse/Hold Decreases Regen (open)
(D)	**Gutter sprays** ON / OFF
(E)	**Powathrust** ON / OFF Increases Gutter Broom ground pressure.
(F)	**Low Pressure Water** ON / OFF Front Spraybar
(G)	**ECO Mode Override** ON / OFF. Activates fan boost when sweeping. Activates fan only when using Wanderhose.
(H)	**Gutter Broom Speed Control** + Pulse/Hold Increases brush speed - Pulse/Hold Decreases brush speed
(I)	**Engine Speed Control (RT only)** + Pulse/Hold Increases engine speed - Pulse/Hold Decreases engine speed
(J)	**Pause** ON / OFF Suspends active sweep functions and stows equipment Re-activates equipment to the previous settings





MULTIFUNCTIONAL JOYSTICK CONTROLS

Function A - Maxigap/Varagap

Operating the Joystick up - Opens leaf pickup (optional).

Operating the Joystick down - Activates hood hop.

Function B - Prime Side Gutter broom

Prime-side Gutter broom with Optional Variabrush feature:
Operating the Joystick left/right positions Prime-side Gutter broom as required.

Function B - Secondary Side Gutter broom

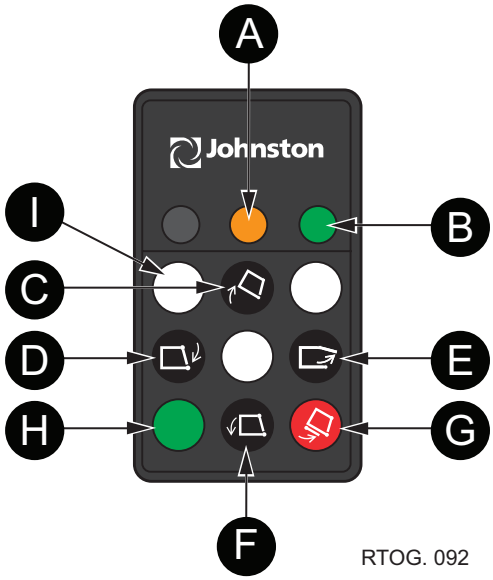
Secondary-side Gutter broom with Optional Variabrush feature:
Operating the Joystick left/right together with the push button positions the Secondary-side. Gutter broom as required.

Function C - Prime Side Rotatilt

Prime-side Rotatilt
Moving the Joystick left/right together with the button on the top Moves the Prime-side Rotatilt.

Function C - Secondary Side Rotatilt

Secondary-side Rotatilt Moving the Joystick left/right together with both the button on the top and the end moves the Secondary-side Rotatilt.



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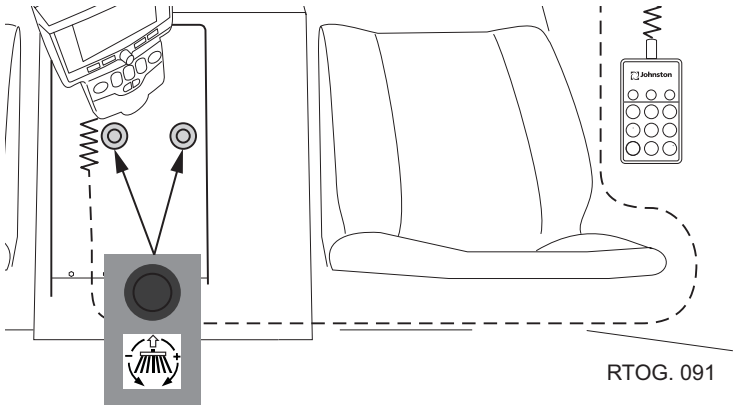


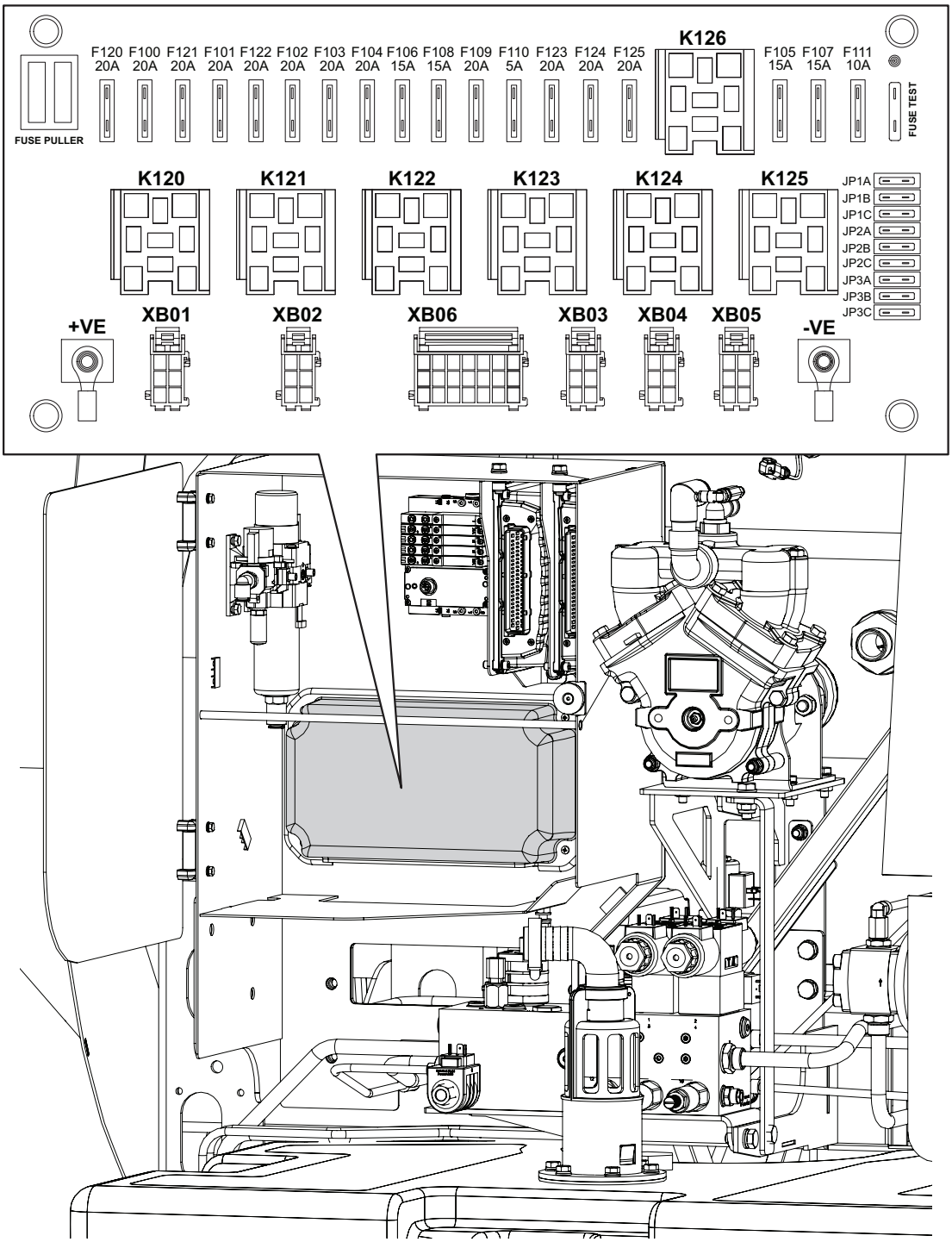
RTOG. 091

MULTIFUNCTION PENDANT

Function A - Load Discharge	
Symbol	**Description**
A	**Amber LED On - Hand brake off** Pendant not ready for operation
B	**Green LED On - Hand brake on** Pendant ready for operation
C + H	Raises body
D + H	Closes rear door
E + H	Opens rear door
F + H	Lowers body
G + H	Stows body prop when body is raised and not resting on it
H	Green safety switch must be pressed to enable all discharge functions
H + I + Parameter set	Temporally cancels audible safety warning (bleep)

POWASAVE REGULATOR

Powasave; - In cab regulator sets a Light Sweep to maximise brush life.
With the brush working, turn the regulator Anti-clockwise to set the ground pressure to its maximum, now turn Clockwise to reduce the pressure to the required setting.

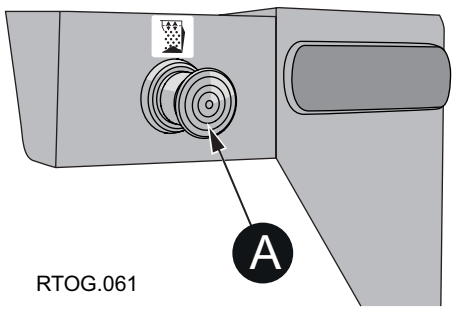

FUSE PULLER
F120 20A
F100 20A
F121 20A
F101 20A
F122 20A
F102 20A
F103 20A
F104 20A
F106 15A
F108 15A
F109 20A
F110 5A
F123 20A
F124 20A
F125 20A
K126
F105 15A
F107 15A
F111 10A
FUSE TEST
K120
K121
K122
K123
K124
K125
JP1A
JP1B
JP1C
JP2A
JP2B
JP2C
JP3A
JP3B
JP3C
+VE
XB01
XB02
XB06
XB03
XB04
XB05
-VE

RTOG. 100-2

SYSTEMS WAFER FUSES

Fuse No	Function	AMPS
F120	Left Hand Work Lights	20
F100	Node 1	20
F121	Right Hand Work Lights	20
F101	Node 2	20
F122	Standard Rear Beacons	20
F102	Rotatilt	20
F103	VEG	20
F104	Auxillary Engine (RT only)	20
F106	N/A	15
F108	Front Beacon	15
F109	Cab Controls	20
F110	N/A	5
F123	Additional Rear Beacons	20
F124	Cowl/Engine Work Lights	20
F125	Additional Work Light	20
F105	Out-put Chassis Ignition Switched	15
F107	Out-put Chassis Ignition Switched	15
F111	Out-put Chassis Ignition Switched	10

Relay	Function
K120	Left Hand Work Lights
K121	Right Hand Work Lights
K122	Standard Rear Beacons
K123	Additional Rear Beacons
K124	Cowl/Engine Work Light
K125	Additional Work Light
K126	Chassis Ignition Switched (Fuses 105 - 107 - 111)



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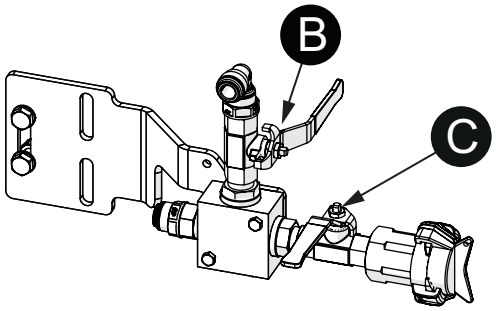


RTOG. 062

EXTERNAL CONTROLS

Item	Description
A	**Rear Mesh Shaker** Push Button Press to activate
B	**Wanderhose Water** Manual tap
C	**Wash Down Hose** Bayonet fitting

5 Operation


10:34
02.11.2017
USB
F1
F2
F3
F4
B
D
E
F
A
G
H
C
I
RTOG.065-2

COMMENCING SWEEPING

Start chassis engine
the JVM, will power up and display the following:-

Water Tank Level - Clock - VEG Position

Engage the PTO using the chassis mounted PTO switch **'I'**

Chassis engine on RPM will increase to 1100rpm
Activate Sweeper ignition using button **'A'** JVM displays 'Ignition page'
Water Tank Level - Fan Speed - VEG position

Ensure the low air pressure warning lamp and buzzer are off

Selecting the hand of sweep
Activate button **'C' to switch between single (left or right) or Simultaneous sweep**

Dual sweep machines featuring Simultaneous sweeping option.
For Single Sweep Operation: The equipment can be set to operate on either side, Left or Right hand, to change the hand of sweep first select the side that is not illuminated before de-selecting the other side.

For Simultaneous Sweep Operation:
Select the side that is not illuminated, both sides will now be illuminated indicating the Simultaneous sweep mode.

Activating the Sweeping Equipment using the Door Controller:
Pressing the corresponding symbol activates the equipment to its sweeping position, the symbol is displayed on the JVM. The top of the switch activates the corresponding water jets. Activating the hood will automatically activate the suction fan.

Gutter Sprays.
Pressing the top of the switch activates the corresponding gutter spray.

Commence Sweeping:
Select the lowest gear to give a road speed between 2-8 mph (2 to 12 km/h).
Always use the slowest brush and engine speeds consistent with satisfactory cleaning.

Eco Mode Override
Increases fan speed to extra boost, including fan speed to maximum, for heavy sweeping conditions.

TO TERMINATE SWEEPING

1. Turn off the active switches, turn off sweeper ignition.
2. Turn off chassis mounted PTO switch.

WARNING
Before switching the vehicle's isolator off, it is important to ensure that the both the chassis and auxiliary engines have completed their Adblue / DPF purging procedure. Detailed information can be found in both the auxiliary engine handbook and the chassis handbook.

Note:

To interrupt the sweeping, press the pause button. The switch will flash and suspend the sweeping modes. - Deselecting the pause button re-activates the sweeping equipment as previously selected.

Water Drainage

If the sweepings are waterlogged, excess water can be drained off using the drain valve attached to the rear door.

Load De-Watering Option

Open the drain de-watering valve mounted on the rear door.

Blocked Duct

If it is apparent that the suction hood is not picking up debris it may be that it is blocked or that the body is full.

1. Switch off the engine(s), open the body access door and check that the mesh screens are clear and that the body is not full.

2. If the screens are blocked, clean them and providing the body is not full return the machine to service and check the performance.

3. If the body is over half full the machine should be emptied at the nearest waste site.

4. If the screens are clear, the body less than half and debris is still not being picked up,it may be that the hood or inlet tube is blocked.

5. With the vehicle on level ground carefully raise the body and rest it on the lowest body prop position, raising the body any higher may affect the vehicle's stability due to the load moving within the body. Switch off the engine(s).

6. Clear any obstruction in the hood or inlet duct.

LOAD DISCHARGE AND AUTO BODY PROP

WARNING:
Before carrying out the load discharge operations ensure the following safety aspects are observed:

Ensure the machine is standing on firm, level ground and there are no obstructions above or to the rear before raising the body.

The rear door must be fully open before raising a loaded body.

Ensure no-one is near the load discharge area when opening or closing the rear door.

Ensure the body rests on the auto prop when the body is left in the raised position, or when working under the body or cowl.

Do not shunt the load in order to aid discharge or drive with the body raised.

Do not raise a loaded body on any gradient greater than 5% as stability could be affected.

Do not tip the body when fully loaded to clear blocked inlet ducts or service the auxiliary engine. Tipping the loaded body without opening the rear door could cause load movement and the vehicle to become unstable.

A safety interlock prevents the body from being tipped without the handbrake being applied.

NOTICE:
The disposal of sweepings should be in accordance with the local waste disposal regulations.

Tipping the Load

1. Start the chassis to ensure the air pressure is at maximum. Air pressure is required to disengage the Auto prop.

2. Open the rear door by pressing the green safety switch together with the door open switch.

WARNING: Do not lean under the body to release the prop.
The pendant control has a green safety switch which must be pressed to enable each of the discharge functions.

3. Raise the body by pressing the green safety switch together with the body raise switch. The body prop is automatically deployed to index into the locking rack ensuring a number of possible safety locking elevations for the body.

Lowering the Body

1 First raise the body to disengage the body prop from the rack.

2 Press the green safety switch together with the auto prop, keeping these held press the body lower switch.

3 Press the green safety switch together with the rear door close. After the door has closed continue holding the buttons for 5 seconds to ensure the locks are fully engaged.

4 If you have finished sweeping leave rear door partially open to allow moisture to escape and prolong the life of the rear door seal.

END OF DAY CLEANING

CAUTION
After the load has been discharged, lower the body to rest on the prop

A warning light on the JVM illuminates and an audible warning will sound when the body is not fully lowered.

Do not direct high pressure washdown equipment, directly onto the engine, or ancillary electronic or electrical control systems, care should also be taken when washing the paintwork.

The use of Needle stick gloves is recommended when working with this equipment

Recommendation
After washing the machine out it is recommended to leave the rear door slightly open to enable any moisture to escape and prolong the life of the rear door seal.

COLD WEATHER PRECAUTIONS

NOTICE
The machine is designed for operating between -15°C and 46°C.

Pressadrain
To avoid the possibility of frost damage to the water system when the machine is left during cold weather, it is essential to drain the system adequately. In order to assist this process the machine is equipped with an automated Pressadrain feature. This feature is accessed via the JVM menu following the on screen instructions the system will automatically purge the water system with air, displacing any surplus water.

1. Drain the water tank. Running Supawash and Low pressure water will quicken the draining process
2. Close the Supawash taps, Wanderhose/Littasnatch water taps (if fitted), and water tank drain taps. Open additional water jet taps (if fitted).
3. Start the Chassis engine.

Using JVM
Select Main Menu (4)
Select Service Menu (11)
Select Pressadrain Menu (5)

4. Follow the on screen instructions.
5. Run the electronic water valve purge. Ensure air pressure rebuilds if the low air warning light comes on.
6. Run the manual water taps purge.
7. Operate the hand lance, Supawash taps, and Wanderhose/Littasnatch water taps one at a time for 5-10 seconds each.
8. Turn off manual tap water tap purge.
9. Open the water tank drains again to drain any additional water that has collected and empty the secondary water filter by removing the red drain plug. Refit the drain plug.

SWEEPING IN COLD TEMPERATURES

Operating Temperature 0°C To +5°C

For sweeping in cold conditions above freezing, it is possible to use the water system providing the machine has been left in a warm garage overnight.

Care must be taken to ensure water sprayed onto the road does not freeze.

Do not use full suction capacity as the air speed up the nozzle could cause the water to freeze.

Operating Temperature 0°C To -15°C

It is possible to use the machine for short periods without water in the tanks.

Sweeping can be carried out using low to medium suction.

NOTICE

When operating the equipment without water dust will be emitted from the fan outlet, and premature wear will be experienced on some components.

TOWING OR CRANING THE VEHICLE

CAUTION

The air system needs to be charged to ensure sweep gear is raised.

The vehicle may be lifted using conventional lifting systems that are slung from the vehicle road wheels. However, it is necessary to ascertain the centre of gravity as it can be up to 20% from the mid point of the wheelbase. The exact position is dependent upon chassis type and vehicle build. Refer to the chassis handbook.

CLEANING THE VEHICLE

WARNING:
The use of safety goggles is recommended in case of deflected spray/debris.

NEVER direct a high pressure nozzle at the skin as the fluid may penetrate the underlying tissue etc. and cause serious injury.

NOTICE:
Care MUST be taken not to damage sign written areas when cleaning.
See special notes for cleaning vehicles with vinyl livery below.

ALWAYS keep pressure equipment in good condition and regularly maintained, particularly at joints and unions.

Special notes for cleaning vehicles with vinyl livery or reflective markings

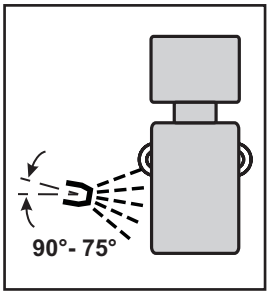
The Supawash handlance or similar can be used for cleaning areas of the vehicle with vinyl or reflective markings subject to the following precautions being taken

The spray pattern should be a wide fan pattern

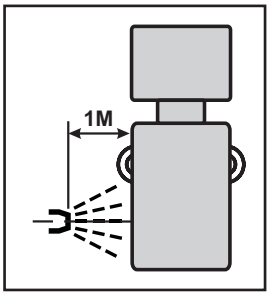
The nozzle pressure should be 80 bar (1000PSI) max

The water temperature should not exceed 60 ºC

Do not use acid or solvent cleaning solutions



The spray angle should be maintained between 90 and 75 degrees to the panel

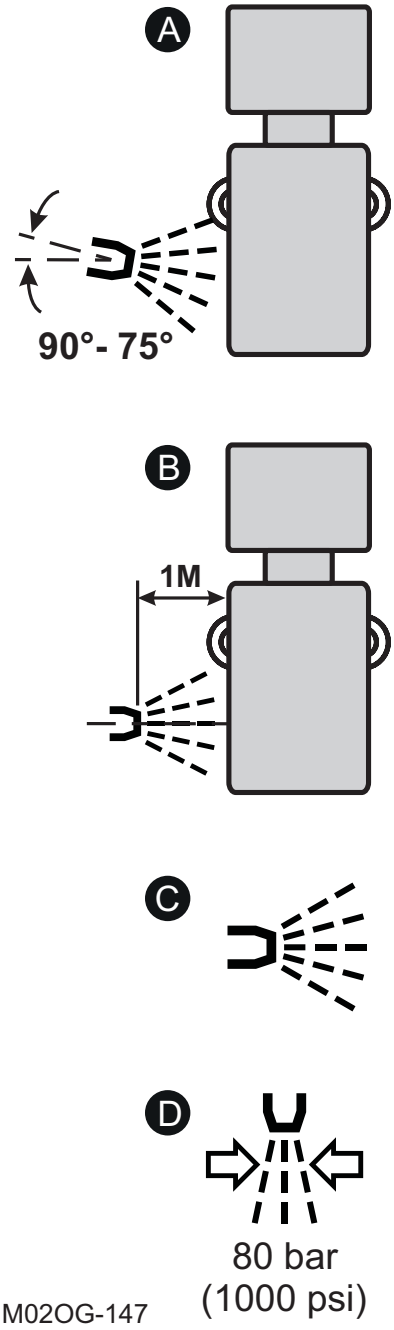


The nozzle distance should be greater than 1 metre minimum from the panel

Alternative Methods

Clean with a sponge or soft cloth using cold or warm water with a soap or detergent, followed by a cold water rinse

6 Optional Equipment



M02OG-147

SUPAWASH OPTION

WARNING
The use of safety goggles is recommended in case of deflected spray/debris.

NEVER direct a high pressure nozzle at the skin as the fluid may penetrate the underlying tissue etc. and cause serious injury.

NOTICE
Care MUST be taken not to damage sign written areas when cleaning. See special notes for cleaning vehicles with vinyl livery below.

ALWAYS keep pressure equipment in good condition and regularly maintained, particularly at joints and unions.

Special notes for cleaning vehicles with vinyl livery or reflective markings

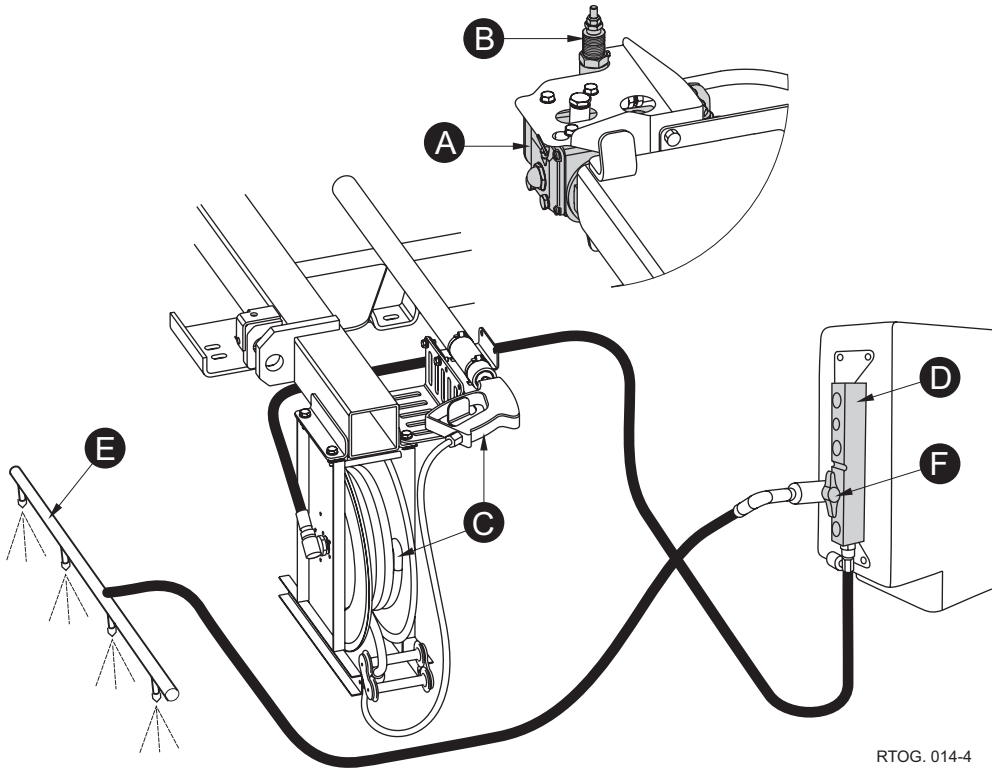
The Supawash Handlance or similar can be used for cleaning areas of the vehicle with vinyl or reflective markings subject to the following precautions being taken

Item	Description
(A)	The spray angle should be maintained between 90 and 75 degrees to the panel.
(B)	The nozzle distance should be greater than 1 metre minimum from the panel.
(C)	The spray pattern should be a wide fan pattern.
(D)	The nozzle pressure should be 80 bar (1000 PSI) max.

- The water temperature should not exceed 60 ºC.
- Do not use acid or solvent cleaning solutions.

Alternative Methods

- Do Clean with a sponge or soft cloth using cold or warm water with a soap or detergent, followed by a cold water rinse.

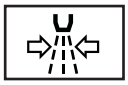

B
A
D
F
E
C
RTOG. 014-4

Supawash Operation

Description

The equipment comprises a hydraulically driven high pressure water pump **(A)** and unloader valve **(B)** fitted to the subframe centre crossmember. A hand lance with 15 metres of hose on a recoiling reel **(C)** mounted to the subframe rear crossmember and a manifold **(D)** attached to the nearside water tank. An optional front spraybar **(E)** is available with isolating valve **(F)**. The spraybar can be used during sweeping operations to jet wash the road prior to, or after, sweeping.

Operation



Press switch on the Centre Console to activate the water pump.

Hand Lance

Remove the lance from its holster. Two jets are provided at the nozzle; a fan spray and a pencil jet. To change between jets the trigger should be released and the gun rotated through 180°, this will automatically select the alternative jet.

Spraybars

The spraybars are activated by the isolating valves located on the manifold adjacent to the hose reel. The valves should be closed when the hand lance is to be used.

Note:.

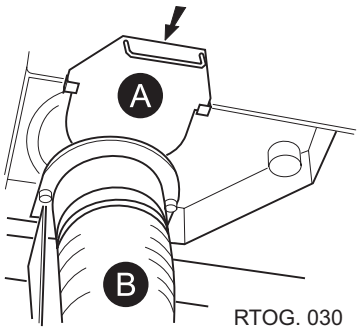
The Supawash pump will not operate if the water tank is nearly empty.

If the vehicle is being used exclusively for street washing (no sweeping), the water tank capacity can be extended after firstly thoroughly washing out the body and removing the plug in the body of the floor and installing the optional filter assembly.

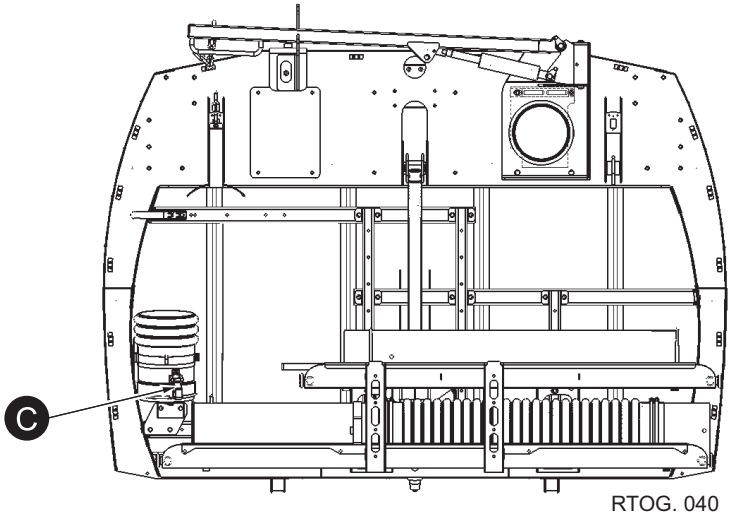
The body can be filled with water using the offside hydrant filler (when the machine is equipped with the optional re-circulating water) or via the side access doors to the level of the water tank overflow, thereby extending your on station time.

Note:

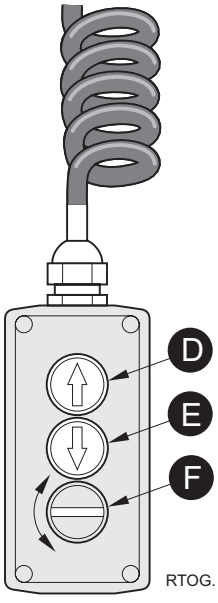
The plug must be replaced before sweeping or dirt will enter the water tanks and cause damage/blockages to the water pumps.



RTOG. 030



RTOG. 040



RTOG. 025-2

WANDERHOSE OPTION

CAUTION
The use of safety goggles is recommended in case of deflected spray/debris.

The use of Needle stick gloves and ear defenders is recommended when working with this equipment.

PREPARATION

Before using the Wanderhose it is necessary to blank off the intake hood ducting to prevent air passing into the body via the hood. The duct has to be manually blanked using the blanking plate. This plate **(A)** is stowed on the underside of the body adjacent to the intake duct and must be positioned on the seat at the top of the flexible nozzle duct **(B)**. The body must be raised slightly to position the plate, and lowered afterwards.

OPERATION - Once the intake duct(s) have been blanked:

1. Before using the Wanderhose, always fully open the VEG gate
2. Raise the body and blank off suction duct
3. Unclip the Wanderhose end from the option frame stowage **(C)**
4. Clip on extension hose
5. Use Powaboom controls to release Boom from Stowage and manoeuvre

The hose and boom are hydraulically lifted and can be used to the left or right hand side of a stationary vehicle with a single operator. With a second operator, the hose can be used whilst the vehicle is moving slowly along. The hose operator should position them self at the rear of the vehicle, moving onto the footpath to clean around obstructions as they are encountered. Additional extensions can be added to the equipment for cleaning deep drains, gullies and catchpits. The Wanderhose can also be employed effectively on surface flood water.

Note :
The correct operation of the Wanderhose is achieved by holding the pipe just above the water or debris being picked up.

Wanderhose - Control

When using the controls for a single user:

1. Apply the vehicle handbrake.

2. Press button **(D)** to raise the unit from its stowage position and rotate to the working position.

Press button **(E)** to lower as required.

(F) Up - Fan on / Switch between environmental & boost mode.
Down - Fan off

EMERGENCY DISCHARGE

In the event of a malfunction, or discharging a load, tipping can be achieved as follows.

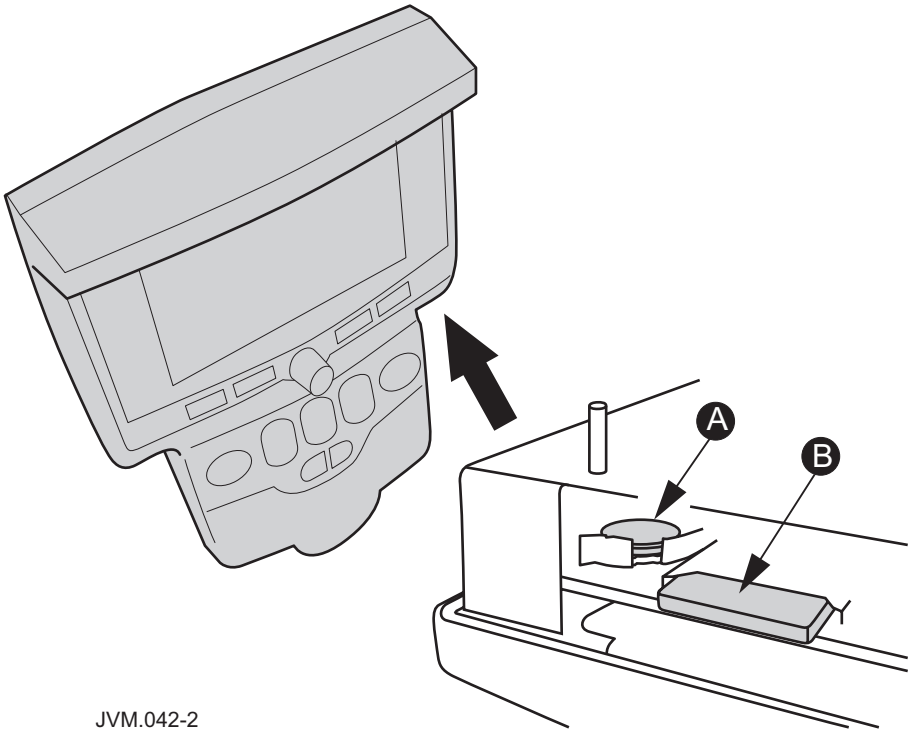
1. Apply vehicle brake and leave the chassis engine running.
2. Push sweeper ignition
3. Use discharge pendant to raise body or open rear door

EMERGENCY HOOD LIFT

To raise the hood if the engine malfunctions when the hood is in the working position, the following routine should be adopted to raise it.

1. Apply vehicle handbrake
2. Switch sweeper ignition.
3. Check hood switch is in its off position
4. Activate hood hop by pulling door controller joystick down. Wait until hood is fully raised.

7 Johnston Visual Module (JVM)



JVM.042-2

SAFETY NOTICE

WARNING
Remove ignition key when working on the vehicle. Ensure all personnel are clear of the vehicle before restarting engine.

NOTICE
Don't disconnect the battery within 15 seconds of operating the ignition key to the off position.

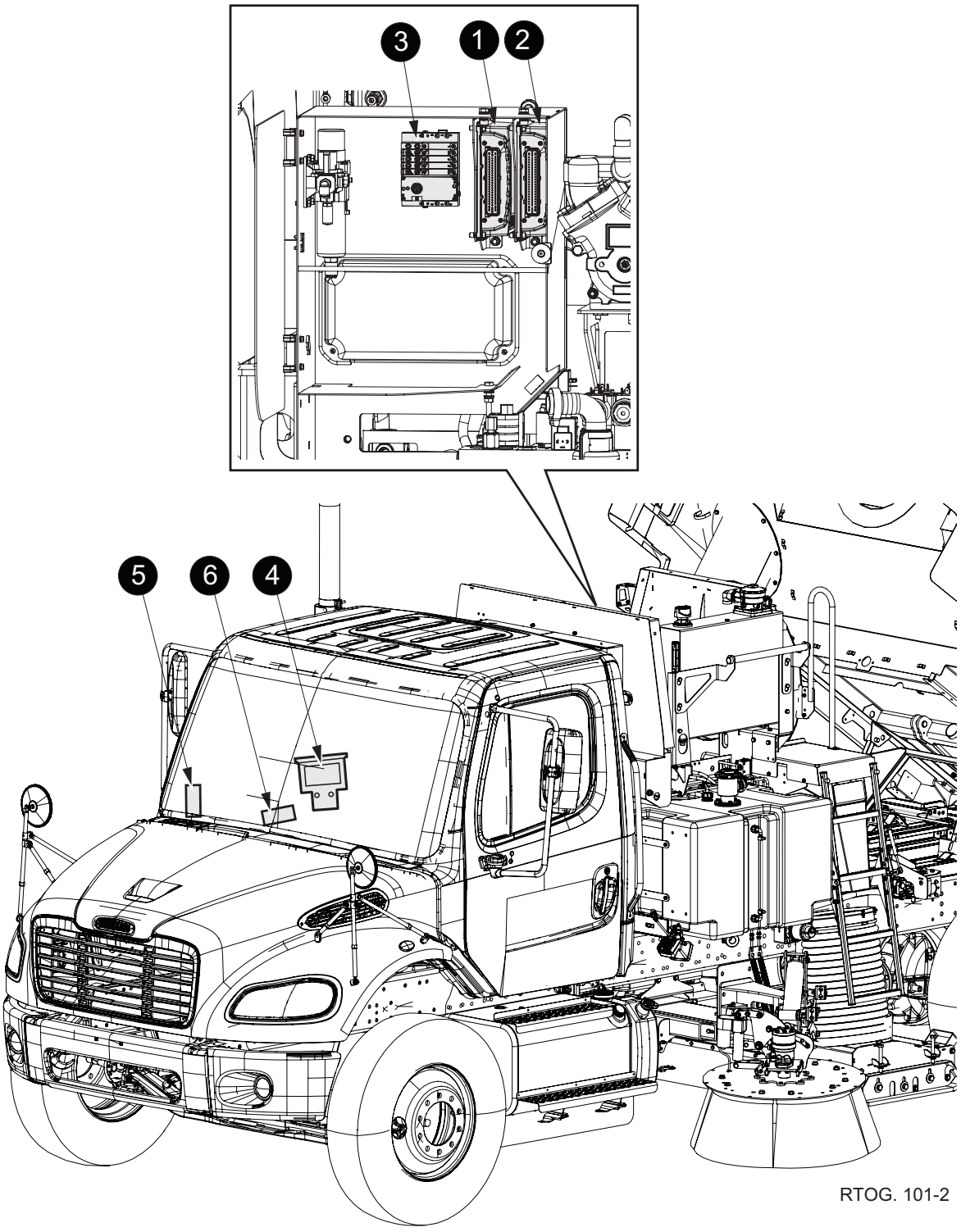
Don't connect or disconnect any nodes or in cab controllers unless the machine's battery is isolated.

Disconnect the vehicle battery and all the CANbus nodes when working on the electrical system or when carrying out any welding on the vehicle. Failure to observe this can cause damage to the nodes.

JVM Date and Time Memory

Incorporated within the JVM is a Battery to support the Time and Date Functions, if the date displayed on the screen is **01-01-2000** this indicates that the Battery requires replacing.

Item	Description
(A)	Battery Location
(B)	SD card location



RTOG. 101-2

DESCRIPTION

J-Plex - The Johnston Sweeper Control System

J-Plex II is an electronic road sweeper control system which uses multiplex technology to enable multiple control signals to be combined into one common signal which can then be transmitted and received down a pair of wires (serial communication). This eliminates a substantial number of wires and connections from the vehicle's electrical system, which in turn reduces the size of wiring harnesses and increases reliability. Wiring from Input/Output (I/O) devices such as switches or hydraulic valves is via a local I/O collecting module called a node. On the R655 sweeper, the J-Plex control system consists of a Johnston Visual Module (JVM) screen, 3 Key Pad nodes, CAN controlled air island and 2 remote I/O nodes. The JVM acts as the master control unit and communicates between each external node via a CANbus control network.

JVM Provides:

The operator interface with the powerful diagnostic features provided by J-Plex.
The ability to check the status of Inputs and Outputs.
Information regarding the machine operating status, fuel tank contents, etc.
Data capture - hours sweeping, distance travelled, etc.
Fully customised modern sweeping experience.
Clear display showing current operation status.
Direct communication with the Chassis.

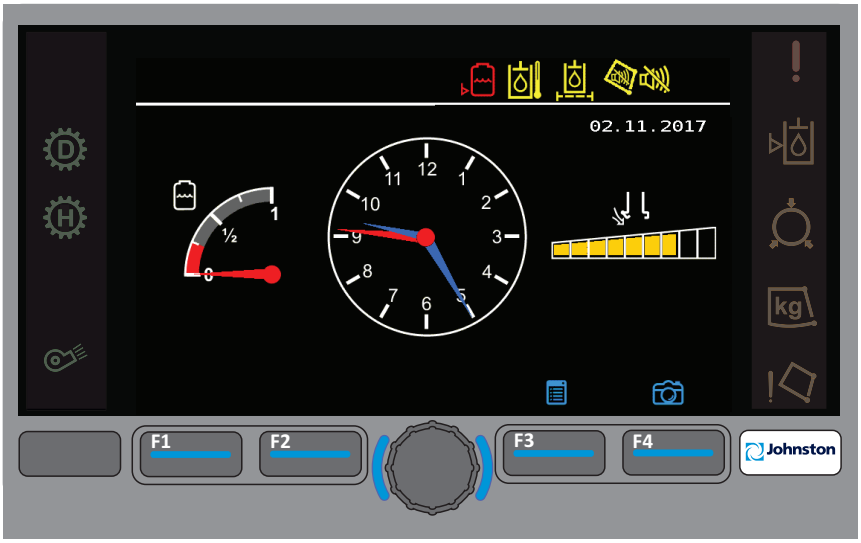
Operating Instructions:

Throughout the J-Plex, pictorial icons are used to both confirm the current status and when required communicate instructions.

LOCATION OF J-PLEX COMPONENTS

Node	Description
(1)	Node 1
(2)	Node 2
(3)	Air island
(4)	Centre Console
(5)	Door Controller
(6)	Pendent


J-Plex2
Johnston
SWEEPERS
S/W Pack 00.32
HMI Version 00.30
F1
F2
F3
F4
Johnston


02.11.2017
F1
F2
F3
F4
Johnston


10:34
02.11.2017
F1
F2
F3
F4
Johnston

SWITCHING ON

JVM Display Screens.

Switching on the vehicle ignition:
The JVM will display a Splash Screen for 2.5 seconds;

After which the Standby Screen is displayed showing:
Water tank level, Clock and VEG Gauge.

Activating the ignition switch:
Prepares the system for sweeping and displays the fan speed gauge.
Relevant soft key functions will be displayed.


10:34
02.11.2017
F1
F2
F3
F4
Johnston


4.0
10:04
F1
F2
F3
F4
Johnston


4.1
10:20
Serial No
209999
0 V
F1
F2
F3
F4
Johnston

Activating Soft Key F3:
Opens the Main Menu 4.00.

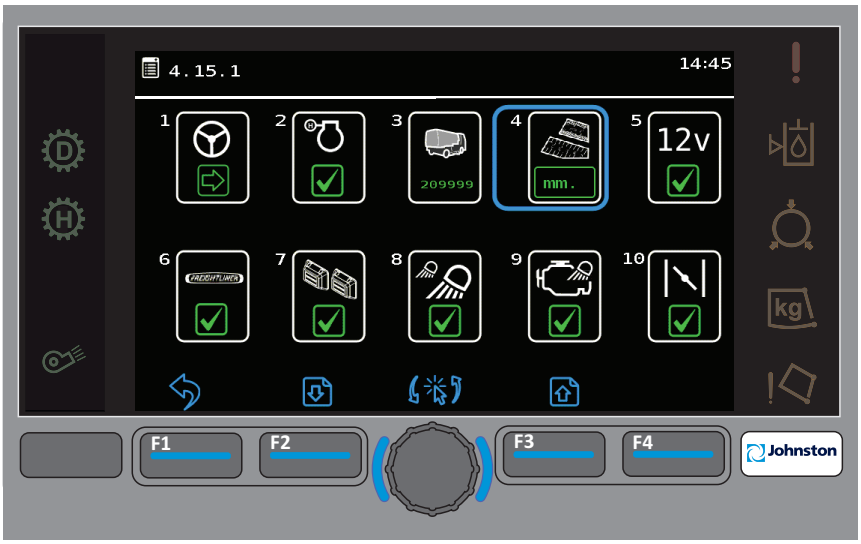
MAIN MENU

Menu 4.00
Rotating the central encoder enables navigation of the various menus, with required menu highlighted; press encoder to select.

Main Menu descriptions:

(1) Equipment Information
(2) CAN Bus Information
(3) Valve Outputs
(4) Door Controller Switches
(5) Switch Inputs
(6) Special Inputs
(7) Special Outputs
(8) Chassis Information
(9) N/A
(10) N/A
(11) Service Menu
(12) Set Pressures
(13) Display Settings
(14) Set Security Level
(15) Machine Setup
(16) User Preference Settings

Menu 4.01 - Vehicle Serial Number
This number should be quoted when contacting Johnston Sweepers for servicing and maintenance issues.


4.15.1
14:45
1
2
3
4
5
12v
209999
mm.
6
7
8
9
10
F1
F2
F3
F4
Johnston


4.0
10:04
1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
F1
F2
F3
F4
Johnston

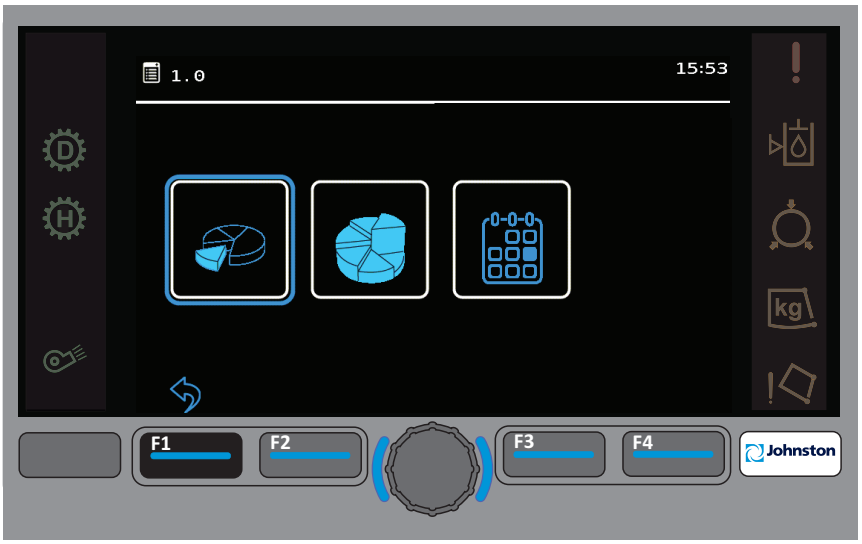
Menu 4.15 - Machine Setup

Shows the configuration of the vehicle for all standard and optional equipment.

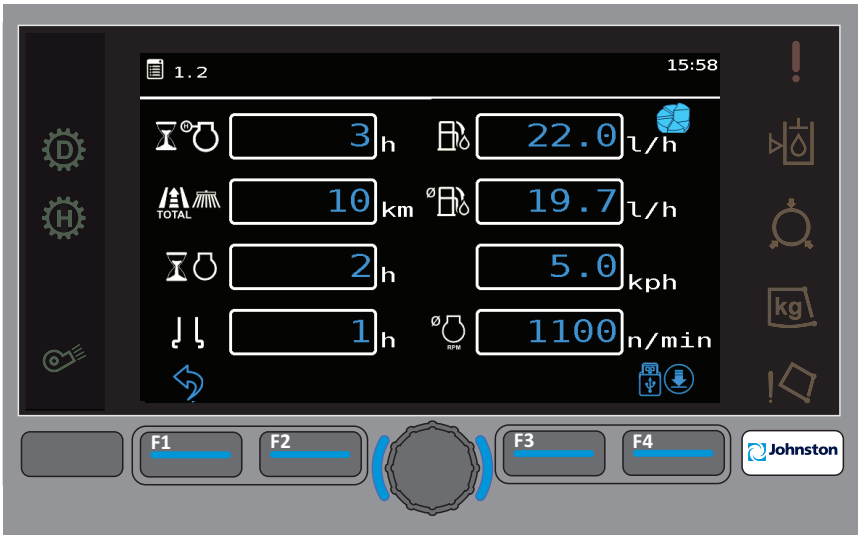
MENU NAVIGATION

Activating Soft Key F3: Opens Main Menu 4.00

- Rotate the central encoder to highlight menu
- Press the encoder to select.


1.0
15:53
F1
F2
F3
F4
Johnston


1.1
15:57
2:22 h
22.0 l/h
9.2 km
0:42 h
0:42 h
0:44 h
0:41 h
F1
F2
F3
F4
Johnston


1.2
15:58
3 h
22.0 l/h
TOTAL
10 km
19.7 l/h
2 h
5.0 kph
1 h
1100 n/min
F1
F2
F3
F4
Johnston

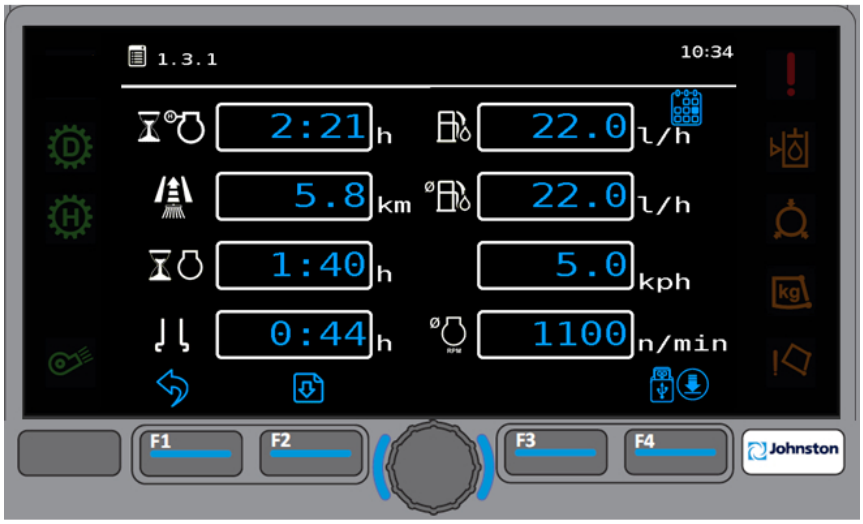
Menu 1.00 - Hours Menu

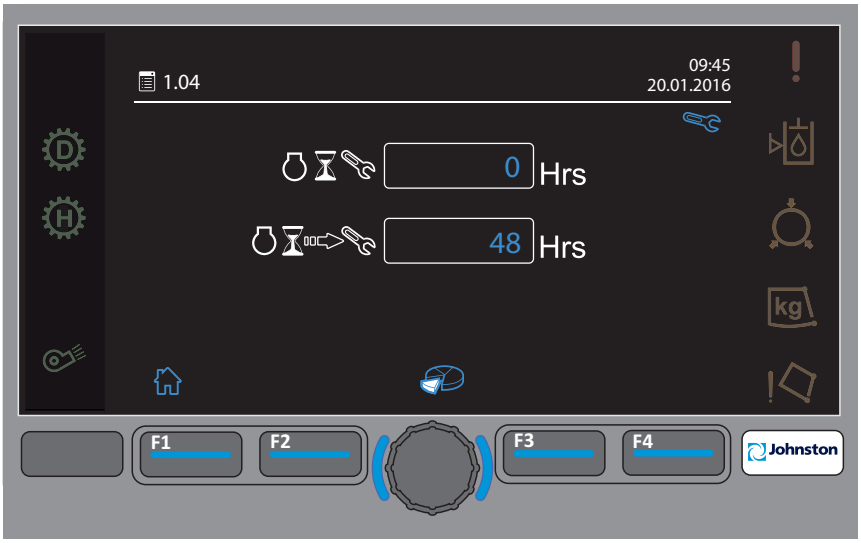
Use encoder to select data values to display.

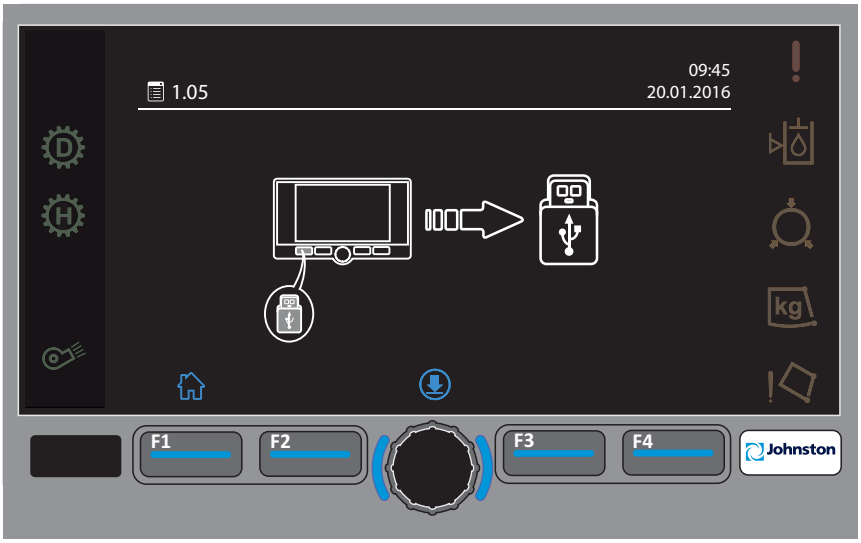
Menu 1.01 - Part Totals

Pressing the reset soft key (F3) will reset the part totals back to zero.

Menu 1.02 - Grand Totals


1.3.1
10:34
2:21 h
22.0 l/h
5.8 km
22.0 l/h
1:40 h
5.0 kph
0:44 h
1100 n/min
F1
F2
F3
F4
Johnston


1.04
09:45
20.01.2016
0 Hrs
48 Hrs
F1
F2
F3
F4
Johnston


1.05
09:45
20.01.2016
F1
F2
F3
F4
Johnston

Menu 1.03 - Daily Totals

Menu 1.04 - Service Hours

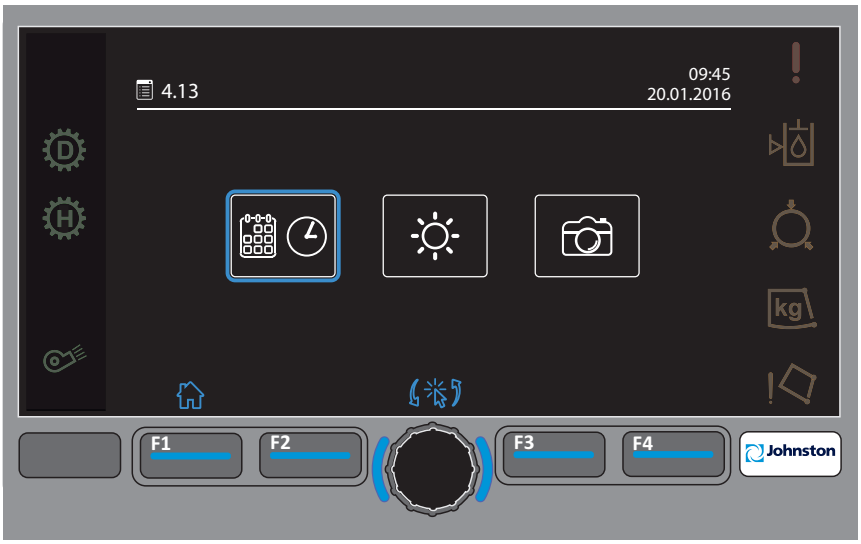
USB Download (Press F4)

Menu 1.05 - Data Capture

Insert an approved Johnston USB stick into the USB port (located on front of the JVM - bottom left hand side). Press centre encoder on JVM to download Data Capture file.


10:58
F1
F2
F3
F4
Johnston


F1
F2
F3
F4
Johnston


4.13
09:45
20.01.2016
F1
F2
F3
F4
Johnston

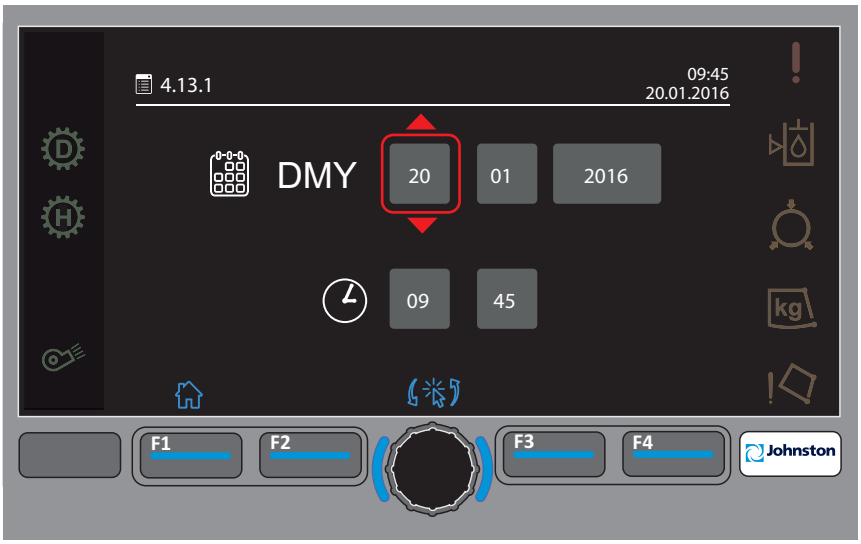
Camera (Press F4 on Base Screen)

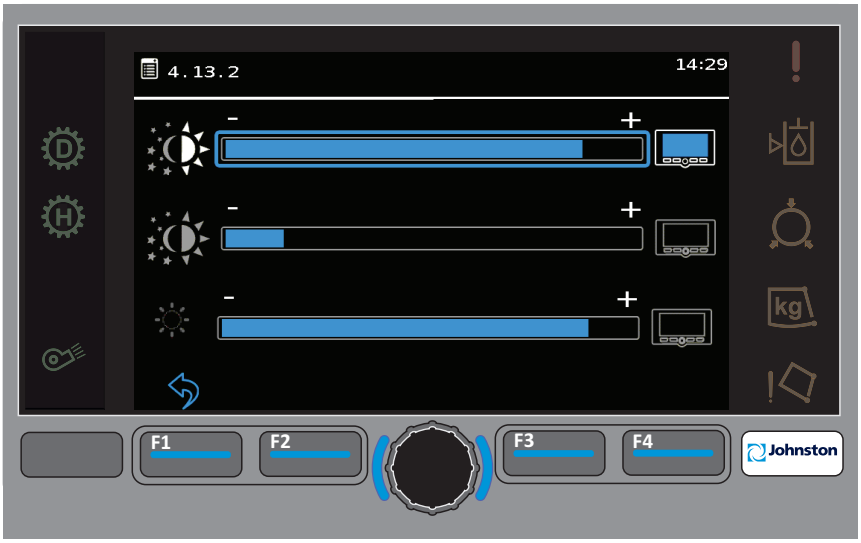
Pressing the Camera Maximise soft key (F4) will display the camera in full screen display mode.

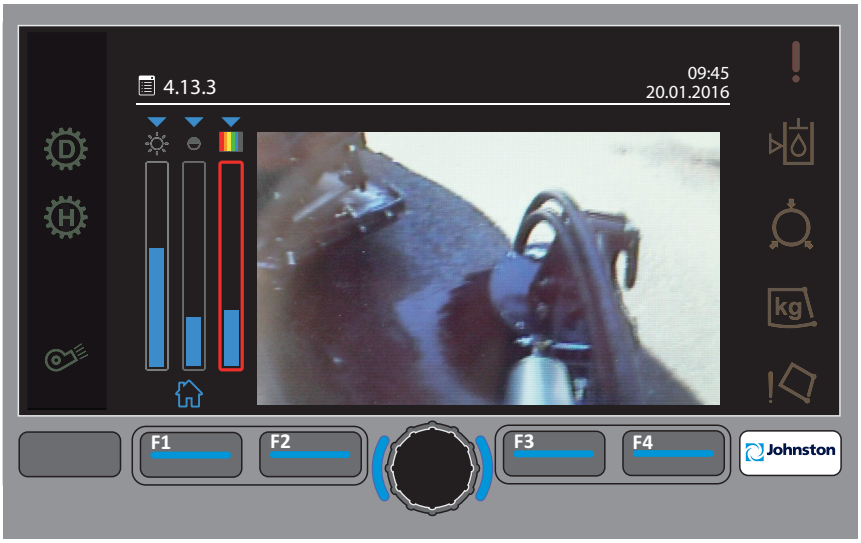
Pressing the Camera Minimise soft key will return the camera to normal display mode.

DISPLAY SETTINGS

Menu 4.13
Allows the operator to set preferred settings for the following:
4.13.1 Date and Time. 4.13.2 Screen and Buttons Brightness and Contrast.
4.13.3 Camera Brightness, Contrast and Colour Saturation.
Rotate centre encoder to move the halo and press to select display setting menu as required.


4.13.1
09:45
20.01.2016
DMY
20
01
2016
09
45
F1
F2
F3
F4
Johnston


4.13.2
14:29
F1
F2
F3
F4
Johnston


4.13.3
09:45
20.01.2016
F1
F2
F3
F4
Johnston

Display Settings (continued)

Menu 4.13.1 - Date and Time

Rotate centre encoder to move halo. Press encoder to select item, halo colour will change to red. Rotate encoder to adjust. Press encoder to store value.

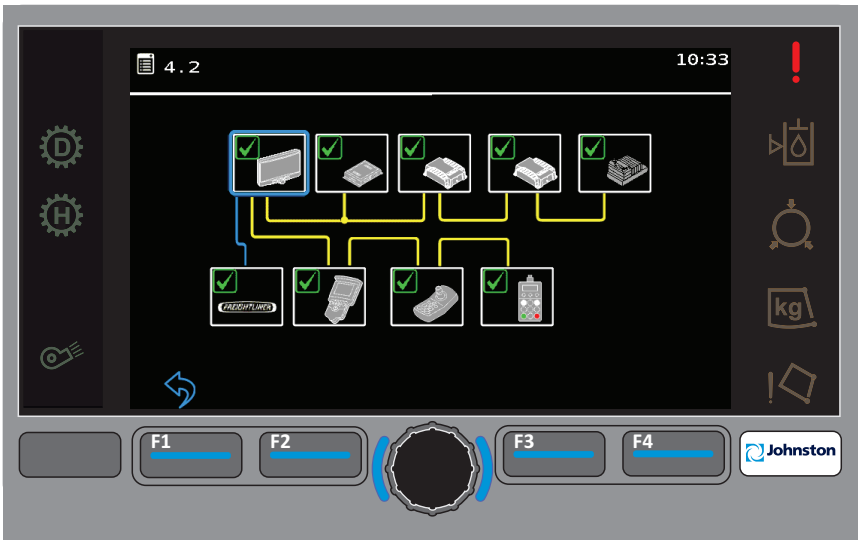
Menu 4.13.2 - Display, Soft Key Brightness

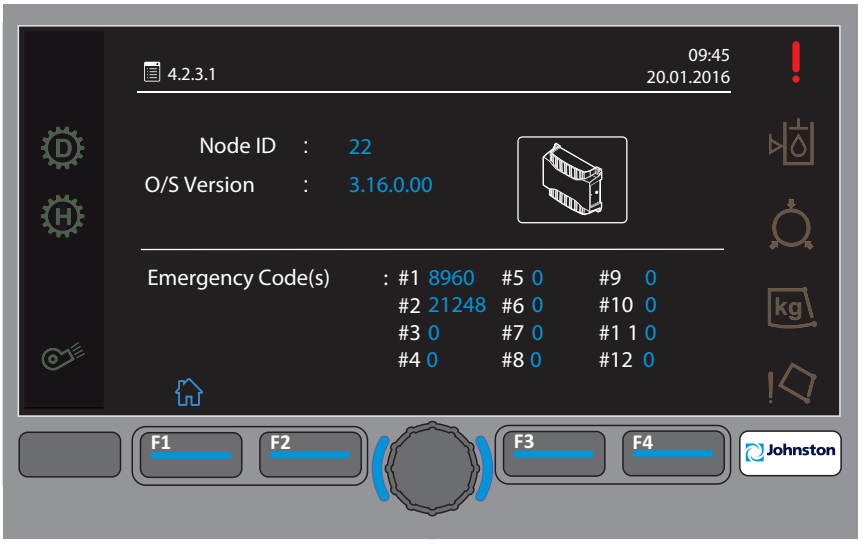
The brightness of both the JVM display and soft keys may be altered as required Rotate the Encoder to move halo. Press to select item, halo colour will change to red. Rotate Encoder to change setting. Press Encoder to store.

Menu 4.13.3 - Camera Brightness, Contrast and Colour Saturation

Brightness, contrast and colour saturation of the camera may be altered to suit the operator's requirements. Rotate centre encoder to move halo. Press to select item, halo colour will change to red. Rotate encoder to change setting. Press encoder to store.


10:34
02.11.2017
F1
F2
F3
F4
Johnston


4.2
10:33
F1
F2
F3
F4
Johnston


4.2.3.1
09:45
20.01.2016
Node ID : 22
O/S Version : 3.16.0.00
Emergency Code(s) : #1 8960 #5 0 #9 0
#2 21248 #6 0 #10 0
#3 0 #7 0 #11 0
#4 0 #8 0 #12 0
F1
F2
F3
F4
Johnston

SYSTEM FAULTS

Should a fault occur in any of the equipment operating systems the fault icon **(!)** is displayed over soft key **F2.**
Selecting **F2** automatically opens Menu 4.2 (CANbus Network) which highlights the location of the affected Node.

Menu 4.2 - CANbus Network, Faults

Rotate the encoder to highlight the indicated area.
Press the encoder to display the fault.

CAN Node 1

Example:-
Should a fault occur it will be accompanied by one or more emergency codes (EMCY), which will be logged in the system. Simultaneously pressing F2 + F4 will clear the error.

8 Routine Maintenance

MAINTENANCE SCHEDULE

NOTICE
These procedures should be carried out by qualified service personnel.

Daily Maintenance - This can be carried out by a suitably trained operator.

Check the following items:

1. Oil level in hydraulic reservoir - top up if required.
3. Oil cooler is not obstructed.
4. Mesh screen in body is clean and fitted correctly.
5. Mechanical damage to brush gear and report damage to Supervisor.
6. Brushes for adjustment and wear - adjust or replace as required.
7. Spray jets for correct operation - clean if necessary.
8. With the nozzle (pick-up head) lowered, check nozzle (pick-up hood) suspension springs for proper tension. The springs should be tensioned just enough to allow the skids to lightly contact the road surface. If the spring tension is inadequate, the hood will drag heavily on the road surface, resulting in premature skid wear.
9. Check channel brush(es) (gutter brooms) for proper adjustment. The brush angle should be set using the adjuster bolts so that only about 120^{o} of the circumference towards front and kerbside is in contact with the road.
10. Oil/water/fuel leakages.
11. Chassis items as recommended in chassis manufacturer's handbook.

Weekly Maintenance - This can be carried out by a suitably trained operator.

Attend to/check the following:

1. Fan/engine bay is clean of oil etc.
2. Suction fan impeller, wear plate hood for wear, renew if necessary.
3. Routing of electrics and hydraulic services for chafing.
4. Lubricate all grease points - see lubrication chart later in this chapter.
5. Water pump suction filters.
6. Oil level and condition in Supawash pump if fitted.

Service A - Every 500 Hours - To be carried out by workshop personnel.

1. Clean duct in body roof.
2. Check Supawash pump (if fitted) for correct operation of jets and any plunger seal leaks. Service as necessary.

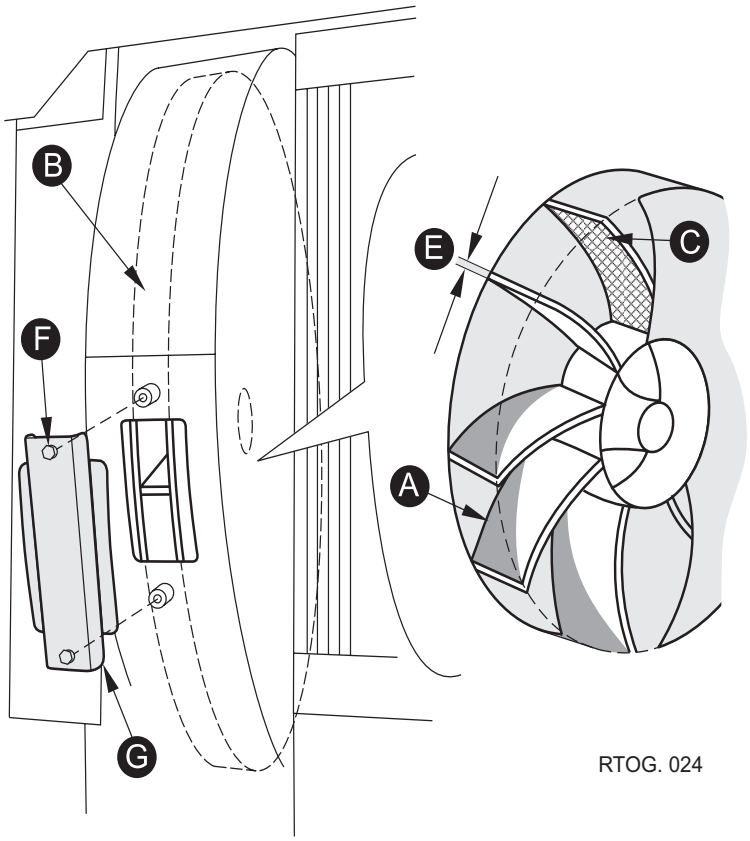
Service B - Every 1000 Hours - To be carried out by workshop personnel.

1. Carry out 500 hour service; plus
2. Renew hydraulic return filter element.
3. Renew water pump suction filters.
4. Check security of sweeping equipment to chassis.

Service C - 12 monthly maintenance - or every 2000 hours - To be carried out by workshop personnel.

1. Carry out 1000 hour service; plus
2. Drain hydraulic reservoir.
3. Clean suction filter and refill hydraulic reservoir.
4. Drain and refill Supawash pump (if fitted).

NOTICE
Used oils and filters should be disposed of in accordance with local waste disposal regulations.



RTOG. 024

SUCTION FAN IMPELLER AND CASING

DANGER
Ensure the engine is not running and isolated before fan maintenance or replacement is attempted.

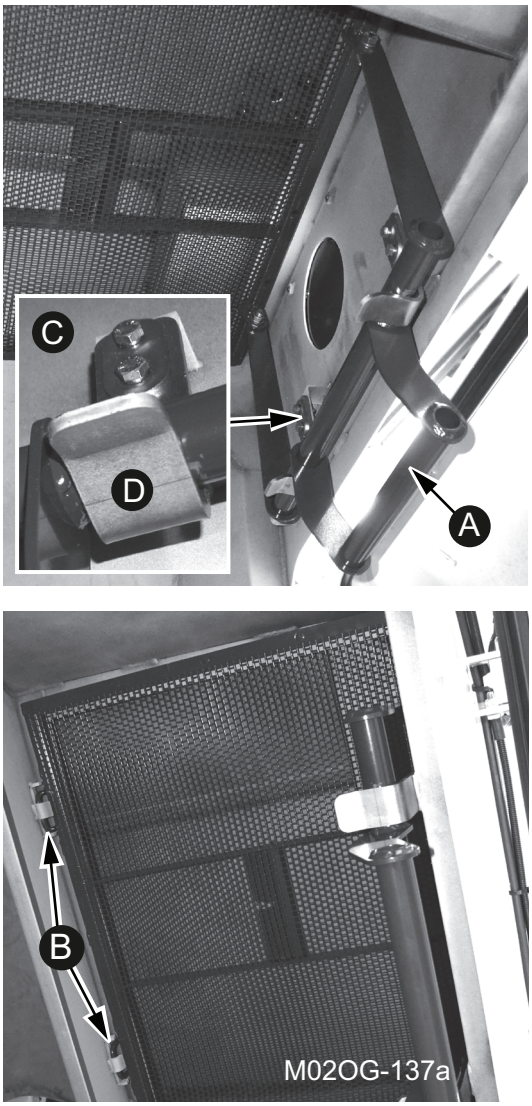
WARNING
The fan impeller is finely balanced as an assembly in manufacture.
NEVER remove or replace the hub.

Suction Fan Impeller and Casing

In operation the impeller and casing can be subjected to wear in the form of erosion resulting from dust or small abrasive particles passing through the fan system and must be inspected as instructed in the Weekly Maintenance Schedule.

In cases where excessive dust could pass through the system, these inspections should be made more frequently, the blades should be clean of any debris **(C)** to prevent dirt build up and premature failure due to vibration.

Remove the 2 setscrews **(F)** and remove the inspection plate **(G)**. The impeller blades can be seen through the inspection port and the blades cleaned with a scraper (part no. 283665-1) if required.


C
D
A
B
M02OG-137a

FILTER SCREENS AND ROOF DUCT

CAUTION
Ensure the screen is lowered slowly. If the mesh is allowed to 'free fall' and bounce off of the baffle, there is a possibility of it being dislodged from the hinge point.

Filter Screen Removal and Refit
The body filter screens and roof duct must be kept clean, otherwise suction performance can be affected. The screens should be lowered when cleaning.

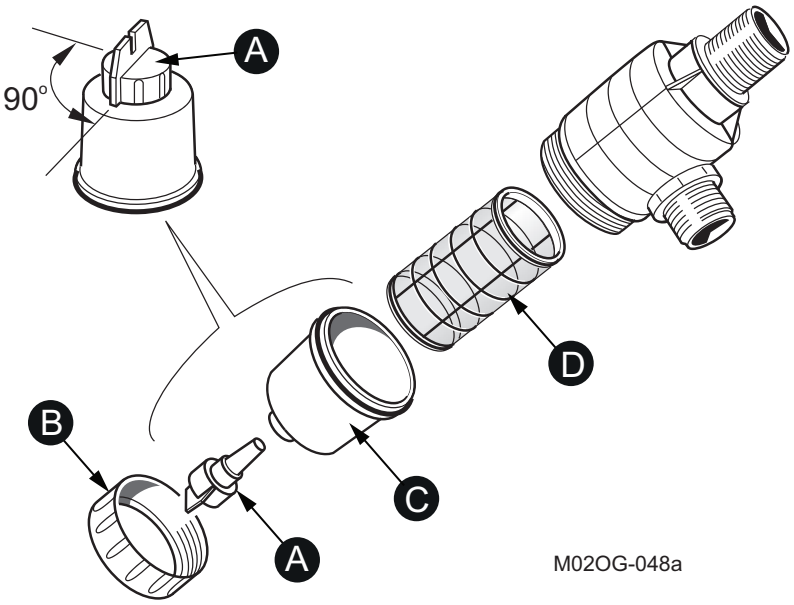
Ensure the release handle (A) is held while lowering:-
Pushing the release handle **(A)**, unlocks the screen(s) and enables them to be lowered against the panel. If fitted disconnect the air pipe to the mesh shaker unit.

The screens can now be lifted out of the hooks **(B)** for thorough cleaning. With the screens removed and the body raised (resting on its safety prop), wash out all debris from the roof duct which runs along the top of the body, Care should be taken not to get excessive water in the fan case.

When refitting a screen, ensure a close fit to the body is maintained to prevent debris from entering the fan.

Filter Screens and Roof Duct

The body filter screen and roof duct must be kept clean, otherwise suction performance can be affected. The screen can be cleaned in situ, but it is preferable to remove it. To remove, release the lynch pin, which will allow the screen to swing down, disconnect the air pipe to the mesh shaker unit if fitted. The screen can then be lifted out of the hooks on the rear sloping panel for thorough cleaning. Also hose out the roof ducts to ensure they are clean while the filter screen has been lowered.


90°
A
B
C
D
A
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WATER SYSTEM

Secondary Water Filter

1 Before dismantling the filter, activate the shut off valve actuator **(A)** located in the filter housing. It has a bayonet type mechanism. Press in and turn anti-clockwise to activate the shut off valve.

2 To access filter element, unscrew the securing ring **(B)** around the outside of the filter housing **(C)** and remove. The filter element **(D)** can now be withdrawn.

3 Clean the element by flushing with clean water or an air line from the inside out. Visually inspect the element for damage and replace if necessary.

4 When reassembling the filter, ensure that the filter element is correctly located in the filter housing before tightening the securing ring.

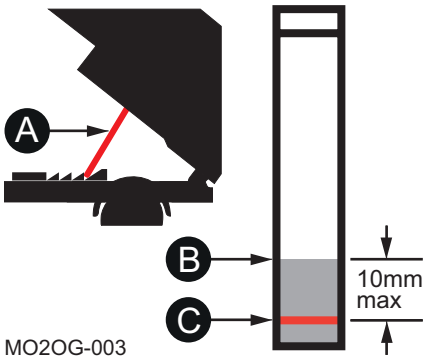
5 Refit the shut off valve actuator. Pushing in and turn clockwise to open the valve ready for use.

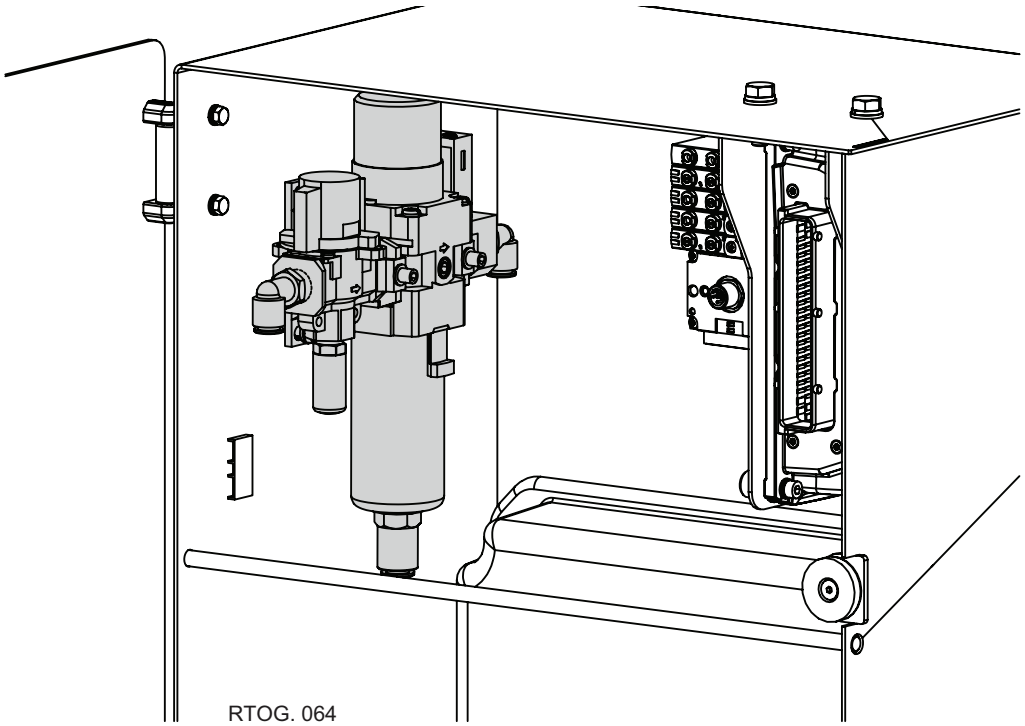
Filling

The water tank can be filled with a hose pipe via fillers located on either side of the body or, alternatively, hydrant connection is provided adjacent to the nozzle trunking. This facility is provided with a filter cartridge to prevent particles entering the tank. The filter is mounted vertically allowing particles to be back washed and fall out once the hydrant hose is released.

Water system draining

An automated Pressadrain feature is fitted to this machine - see page 54.


A
B
C
10mm
max
MO2OG-003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HYDRAULIC RESERVOIR

Checking Oil Level

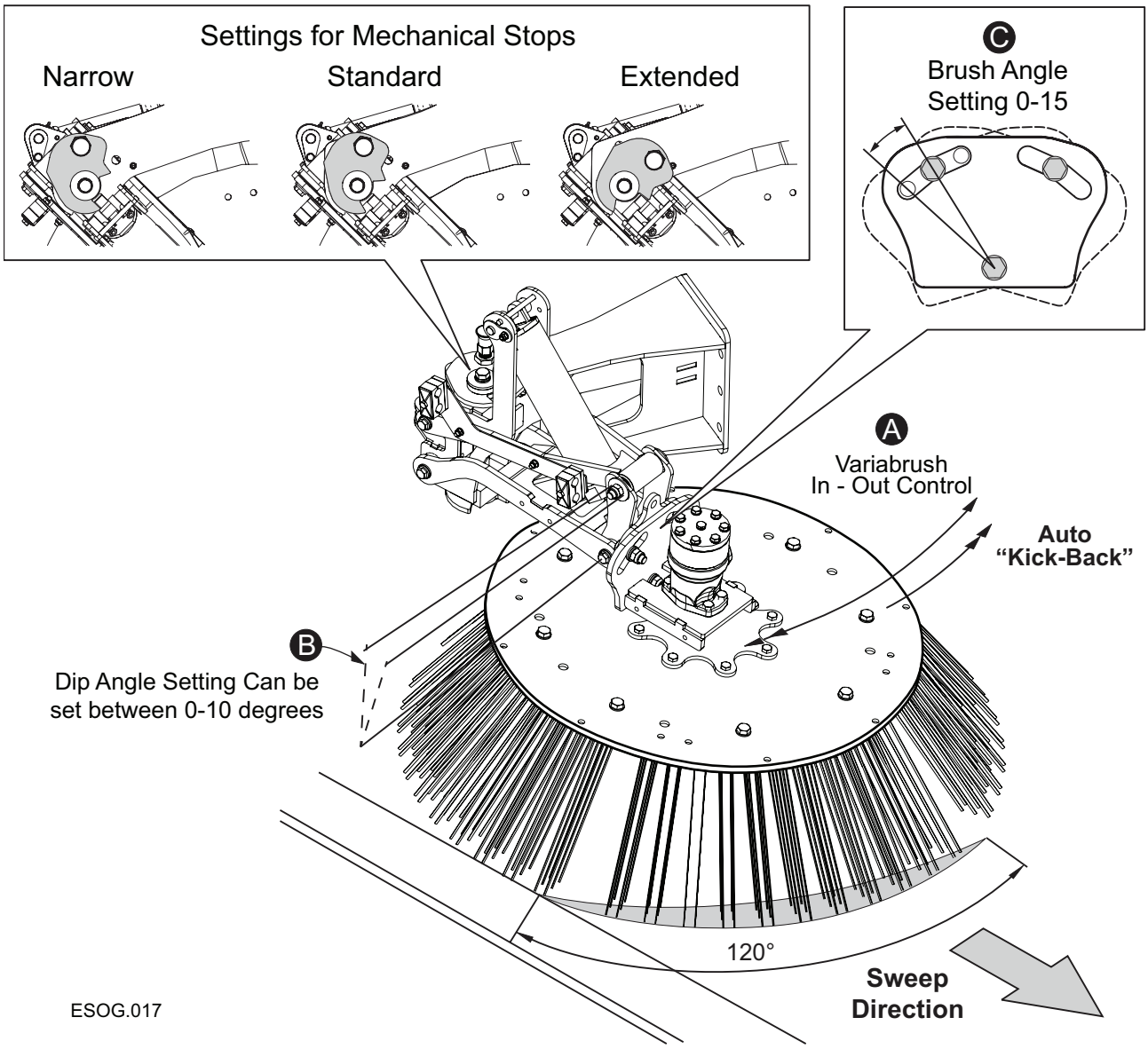
Raise the body and engage the body prop **(A)** in its highest position. The level **(B)** should be 10mm above the lower red line **(C)** on the gauge. It is important that the correct level is maintained as under filling can adversely affect the heat dissipation rate of the oil, whilst over filling can cause oil to overflow when the body is lowered. The recommended oil is shown in the lubrication chart at the end of this chapter.

Pneumatic Filter Regulator Unit

The filter regulator unit comprises an isolation tap and pressure regulator.

The air is isolated and drained by turning the gate valve on the unit.

The air filter features an automatic drain.


Settings for Mechanical Stops
Narrow
Standard
Extended
C
Brush Angle
Setting 0-15
A
Variabrush
In - Out Control
Auto
"Kick-Back"
B
Dip Angle Setting Can be
set between 0-10 degrees
120°
Sweep
Direction
ESOG.017

EQUIPMENT ADJUSTMENT / MAINTENANCE

WARNING
The use of safety goggles is recommended in case of deflected spray/debris.

NEVER direct a high pressure nozzle at the skin as the fluid may penetrate the underlying tissue etc. and cause serious injury.

NOTICE
Care MUST be taken not to damage sign written areas when cleaning. See special notes for cleaning vehicles with vinyl livery below.

ALWAYS keep pressure equipment in good condition and regularly maintained, particularly at joints and unions.

Introduction

This chapter highlights some of the basic adjustment and maintenance procedures required to keep the machine performing efficiently.

Gutter Broom Adjustment

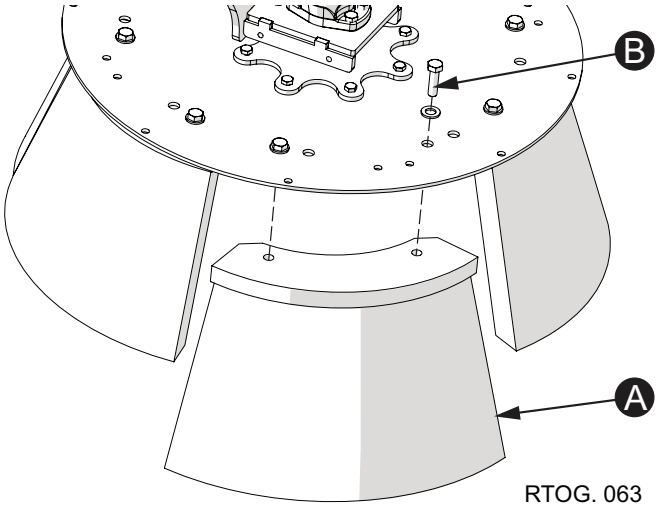
This section highlights the Gutter Broom adjustment. The machine can sweep with single brush, kerb (nearside) or offside (road side) or simultaneously brushes working. When the offside is deployed its important to set the brush close into the chassis by using either the mechanical stop or the Variabrush control. Maintain a visual eye on its position when sweeping so as to avoid other road traffic.

The Gutter Broom(s) are supported on a forward facing arm that is controlled by its lifting cylinder, which allows for 'float' and 'light sweep' (Powasave) ground pressure control. The Gutter Broom head drives itself out to the stopped position (variable) by the action of the rotating brush on the ground.

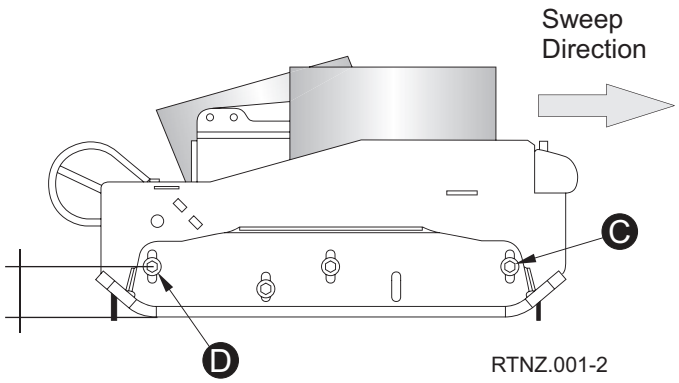
The brush angle should be set using adjustment **(C)** and **(D)** so that only about 120^{o} of the circumference towards the front kerb is in contact with the road.

If a 'light sweep' brush pressure is set, then the brush may not position itself outwards. In this case reset the 'light sweep' regulator for a lower pressure. The brush pressure can be adjusted by the Variabrush feature **(A)** allowing the brush to be brought forward, (recommended for the off side brush when deployed) or outwards to position the brush for its best sweeping position. This is a very useful feature when sweeping between trees, driveways and other items, as you can move the brush quickly in and out to any position, maintaining the chassis in a straight line.

The brushes have automatic 'kick-back' should they come into contact with an object during the sweeping mode. The head does have a 'dip angle' to maintain optimum brush angle. This can be adjusted as shown below.



RTOG. 063



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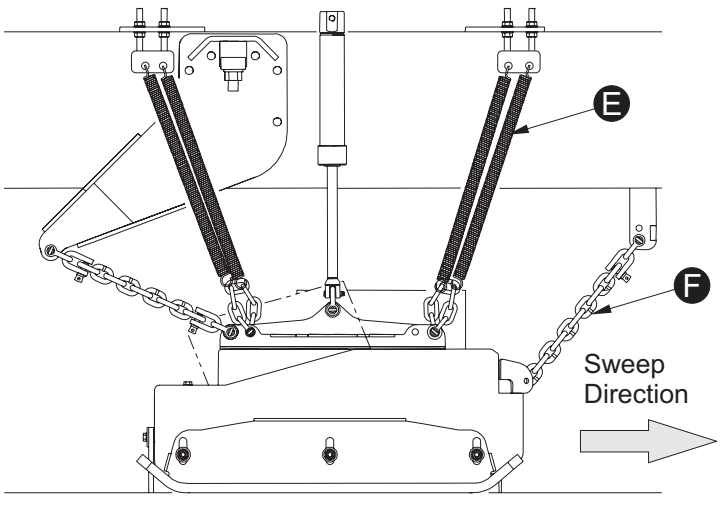


RTNZ.002-2

Gutter broom Replacement

Isolate the chassis engine. Turn off the air at the filter regulation unit (item 2 on lubrication diagram). Pull the Gutter broom arm out to the working position.

The brush segmented heads **(A)** are held to the top plate by 2 off 5/8" bolts **(B)** per segment (8 in total), or 4 off 3/8" bolts (16 in total). Loosen these bolts and remove each segment at a time, replacing with new filled segments as you go.

In this way the brush top drive plate will remain level during the removal and refitting. Whilst refitting the brush segments check to see that no wire or tine material has been caught up under the brush top plate. Remove as required.

Good quality brush segments are recommended.

Pick-up Hood

The pick-up hood is towed by 4 chains **(F)** positioned at the front and rear. This allows the machine to sweep forwards and backwards, as the pick-up hood will be guided during the travel mode. The pick-up hood is lifted by two hydraulic cylinders, one either side that connect directly to the head. The positive hydraulic check valve system will support the nozzle in the stowed position during transit. Additional chains are located at the lift point and anchored to the chains support to prevent excess sideways movement during sweeping.

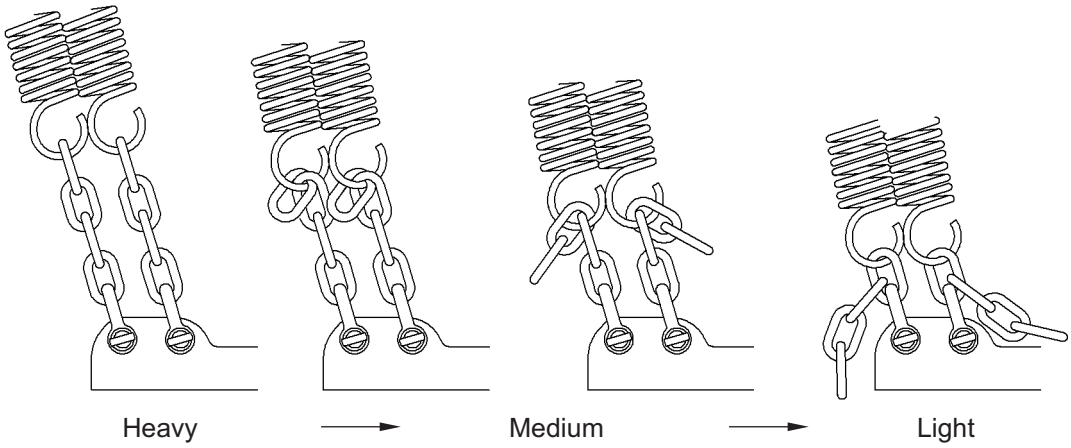
Pick-up Hood Skate System

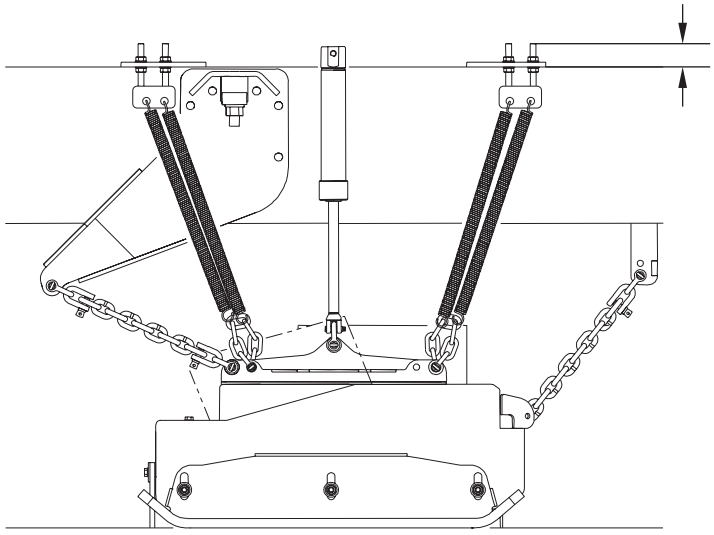
The pick-up hood runs on adjustable side skates that are carbide faced to improve wear. The water system provides for front under skate lubrication on dry days for the carbide faces. These skates are non-handed and are mounted to the hood side plates by three locking nuts **(C)** and one bolt **(D)** that locates into the rear side assembly skate.

The initial setting of the skate is on the centre line of the skate side slots and the skate can be lowered as it wears by moving the skate down into the slots. Re-tighten firmly the three locating nuts and the locating bolt. The skate adjustment is mainly for wear, but you can set the front of the pick-up hood higher to allow for a larger opening when sweeping bulky items such as leaves. The rear of the side skate should retain the rear setting of the internal rubber so as to maintain a close contact to the road surface.

Pick-up Hood Suspension

The pick-up hood is suspended on eight springs **(E)**, four each side, two at the front and two at the rear. These are set to reduce the weight of the pick-up hood on the ground and will reduce marking of the ground surface. The initial setting ex-factory should suit most conditions and provides for a light (downward) force to seal the hood via its internal flaps whilst working under the suction pressure.





The settings can be 30-50mm.
The factory setting is 30-35mm.

RTNZ.003

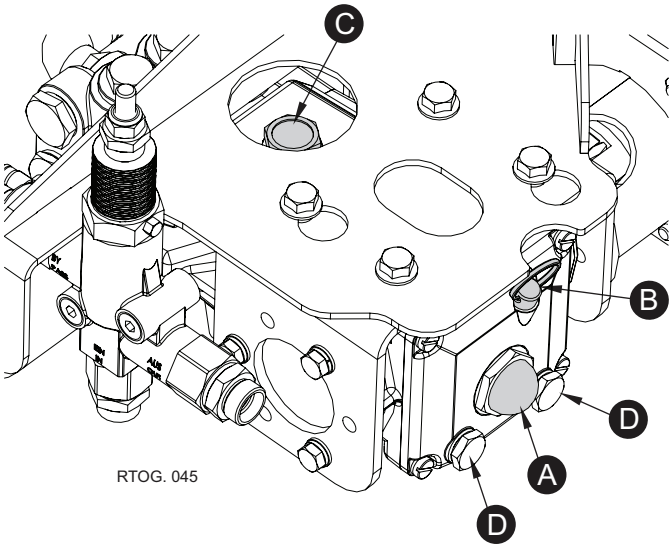
Spring Adjustments

The springs locate to the hood via chains which allow for adjustment by resetting the chain length. The chains length can be set longer by locating the spring into a longer chain loop to create a heavier force to the ground where needed.

The machine ex-factory is set for light sweeping with one chain link spring connection. Once set this does not normally need to be adjusted.

By moving the spring support upwards to 50mm you can tension the springs to fine adjustment. The initial factory setting is 30 - 35mm. Both sides on the pick-up hood should be adjusted in the same way, although subject to road camber you might want to alter these settings to suit conditions.

Always try to set the pick-up hood to the lightest ground pressure.


C
B
D
A
D
RTOG. 045

Supawash Pump

The oil level in the Supawash pump should be checked weekly. There is a sight level glass and dipstick at the front end of the pump.

It is recommended that the oil is changed after the first 50 hours of operation and then changed at every C Service.

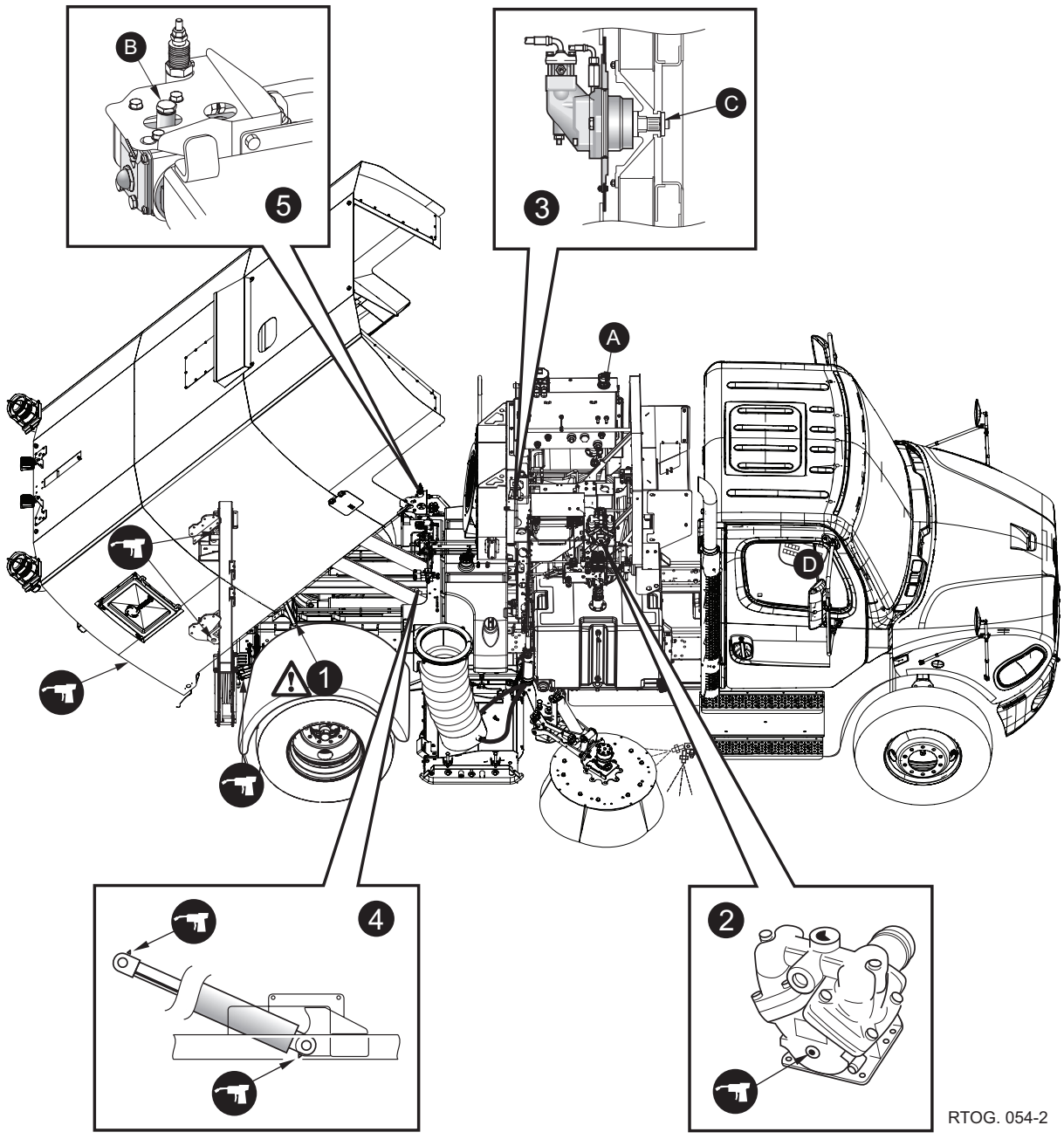
Oil Level / Changing

The water pump is mounted on the offside end of the central crossmember near to the tip rams.

The pump oil level should be checked weekly and is visible through window **(A)** and a dipstick **(B)** is provided with high and low level marks. The oil is introduced via filler port **(C)**. The pump oil is drained via either of plugs **(D)**. The oil colour should be clear, if it is frothy/milky when seen through window **(A)**, then water has entered the oil and it should be changed immediately and the cause investigated. The recommended oil is shown in the lubrication chart.

CYLINDER MAINTENANCE

Periodically inspect the cylinder rods for damage, blemishes or build up of material such as tar, cement, paint etc. The rods can be cleaned with fine wire wool and/or spirit to ensure long seal life. When cleaning the machine avoid playing the washdown hose over the body tip cylinder when in the fully raised condition.


B
5
C
3
A
D
1
4
2
RTOG. 054-2

LUBRICATION DIAGRAM

Refer to Maintenance Schedules for lubrication intervals

Item	Description
(1)	Body Prop - **Ensure autoprop has engaged when body is raised.**
(2)	Water pump.
(3)	'Z' drive gearbox and Fluid Coupling.
(4)	Body tip cylinders.
(5)	Supawash pump - option.

Approved Lubricants				
	Capacity	**ISO Oil Grade**	**Johnston Part No.**	**Fuchs**
A Hydraulic System	65L	-	39677-5	-
B Supawash Pump	0.37L	API GL-4	63684-5	Titan Cytrac HSY 75W -90
C Drive Splines	-	-	94-24	**Kluberpaste (46 MR 401)**
D Chassis PAS - Auto Gearbox	See Chassis Handbook	-	39661	-
Grease Points		-	94-69	Renolit EP 2
Battery Terminals	-	-	**PETROLEUM JELLY**	
	The above oils are those approved by Johnston Sweepers. Other manufacturer's oils must be of equivalent grade.			

9 Conformity Certificates

EC DECLARATION OF CONFORMITY CERTIFICATES

EC DECLARATION OF CONFORMITY CE

Manufacturer's Name: Johnston Sweepers Limited

Manufacturer's Address: Curtis Road, Dorking, Surrey, England, RH4 1XF

Declares that:

Product Name: Johnston Road Surface Cleaner

Product Type(s): VT501, VT651, VT801
VS501, VS651, VS801
ES351, RT655

Product Options: All

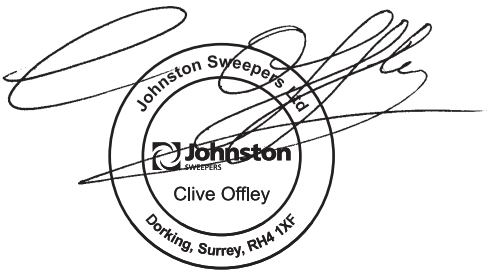
Product Serial Number:

Conforms to the following standards:

E.C. Council Directive 2006/42/EC and amendments.

BS EN 13019 : 2008. Machines for Road Surface Cleaning Safety Requirements

Clive Offley
Engineering Director
Johnston Sweepers Ltd.
20/07/2015



TMS Issue : 17 - GB

EC DECLARATION OF CONFORMITY (NOISE EMISSION IN THE ENVIRONMENT BY EQUIPMENT FOR USE OUTDOORS: DIRECTIVE 2000/14/EC)

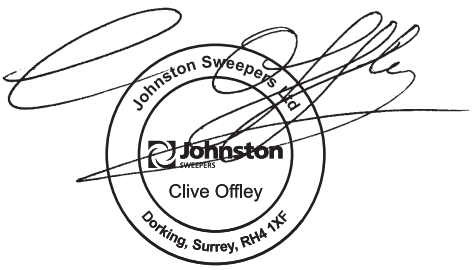
Manufacturer's Name:	Johnston Sweepers Limited
Manufacturer's Address:	Curtis Road, Dorking, Surrey, RH4 1XF, England.
Technical Documentation maintained by:	Research and Development Department, Johnston Sweepers Limited, Curtis Road, Dorking, Surrey, RH4 1XF, England.

Johnston Sweepers Ltd. hereby declares that the following equipment conforms to the requirements of EC Directive 2000/14/EC:

Description of Equipment:	EC Directive 2000/14/EC, Annex 1, Item 46: Power sweeper
Product Name and Description:	Johnston RT655 chassis-mounted powered air regenerative sweeper, with HP turbo-charged auxiliary engine pack.
Maximum Measured Sound Power Level (L_{WA}):	**107dB(A)**
Guaranteed Maximum Sound Power Level (L_{WA}):	**108dB(A)**
Conformity Assessment Procedure:	Internal control of production (Ref: Annex V - 2000/14/EC)
Other EC Directives applied to this equipment:	98/37/EC and amendments
Place and Date of this Declaration:	Johnston Sweepers Limited, Curtis Road, Dorking, Surrey, RH4 1XF England.

January 2006

Signed by:
Clive Offley
Engineering Director
Johnston Sweepers Ltd



RT655 Issue: 01 - GB

NOISE AND VIBRATION

WARNING
Ear defenders are recommended when working around the machine

Noise Levels

All noise levels are given at maximum operating speeds, but in normal operation are likely to be lower than the figures quoted.

In-cab noise levels with the windows closed 68 dB(A) nominal, dependent upon chassis.

External noise levels at one metre distance of the side of the machine, i.e. Wanderhose operation, are 93 dB(A).

Noise levels at 3 metres in front of the machine (manual pavement sweeping into the gutter) are 83 dB(A).

For maximum sound power level see Noise Declaration Certificate.

Vibration

Vibration levels in accordance with 2002/42/EC as amended.

Hand-Arm

The vector sum weighted root mean square acceleration values ($a_{h.w}$) during recommended sweeping/ washing activities do not exceed 2.5 m/s^2.

Whole Body

The dominant axis weighted root mean square acceleration values (a_w) during recommended sweeping/ washing activities do not exceed 0.5 m/s^2.
Conditions of test - body empty and water tanks full on public thoroughfare.

The Control of Vibration at Work Regulations 2005 Directive 2002/44/EEC.
In accordance with the above Regulation the operators of the machine over a typical duty cycle will be subjected to an 8 hour energy equivalent acceleration A(8) below the Exposure Action Level (EAV) for both Hand-arm and Whole Body Vibration.

These Limits are:

Hand-arm: EAV 2.5m/s^2
Whole body: EAV 0.5m/s^2