

**SCARAB**  
**FAYAT GROUP**

## **INSTALLATION MANUAL**

### **M6 and FS6000**

**Manual Z039749**

Issue: 3.2.0. . . . . November 2017

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## FOREWORD

### Important notice to users

This manual is published by the Technical Publications Department of Scarab Sweepers Limited and every effort is made to ensure that the information it contains is correct at the time of publication. Due to a policy of continuous development, however, the Company reserves the right to alter the specification and to supply when so altered without reference to illustrations and descriptions in this manual.

Parts depicted or mentioned in this manual may or may not be fitted to your particular road sweeper due to various options that may or may not have been selected and does not therefore infer that the part should be fitted to your particular road sweeper or is missing. If in doubt then please contact the Scarab Parts Department for clarification.

### Information content

The information content of this manual is separated into sections each dealing with a specific aspect or sub-system. This information is limited to that required to assemble.

### Replacement parts

Where replacement parts are required, additional explanatory illustrations may be found in the appropriate Parts Catalogue.

It is important that only genuine Scarab spare parts are use when servicing and maintaining the sweeper, as the use of non-genuine parts may result in premature failure and invalidation of warranty. It should also be noted that certain components have a safety importance and should only be replaced with genuine spare parts.

### Workshop technicians/personnel

It is important that the personnel conducting testing and commissioning of the Scarab Sweeper unit will be suitably trained in the correct use of the vehicle (REFER TO THE OPERATORS INSTRUCTION HANDBOOK).

It is also assumed that the personnel will be suitably trained in the correct use of standard workshop tools, equipment and disciplines required when conducting the assembly of the Scarab Sweeper.

### Safety notice

When working on the unit the vehicle must be on firm level ground, engine must be OFF, ignition key removed and parking brake applied (unless otherwise stated).

Never carry out work or inspection under a raised hopper or cab without the appropriate safety prop placed in the correct position.

Do not drive the vehicle with the hopper in the raised position.

Before operating the hopper raise or rear door controls, ensure that there is sufficient clearance and it is safe to do so.

Always wear the appropriate personal protection equipment when working on the vehicle.

Keep long hair, loose clothing and hands away from moving parts.








When using the high pressure water system always wear suitable eye protection, and never direct the lance water jet at other persons.



The universal safety symbol with red text is used throughout the manual, and when encountered the related information must be adhered to, as this is essential to the health and safety of all personnel.

It is the responsibility of the employer to carry out they own risk assessment for machine, personal or other persons using or affected by the machine and equipment.

## Symbols used throughout this manual

-  Identifies cautionary information and specific procedures when required.
-  Refers to important information.
-  Goggles or full face protection are recommend to be worn.
-  Protective gloves are recommended to be worn.
-  Ear protection is recommended to be worn.
-  Safety boots are recommended to be worn.
-  Grease points.

## CHASSIS SUITABILITY

- When choosing a chassis the following must be taken into consideration.
- Chassis size, from 12 to 18 tonne GVW. Single rear and front axles (4 x 2).
- The greater the manoeuvrability the better the sweeping performance, therefore a chassis with the shortest wheel base to accommodate the M6/FS600 unit is recommended.
- The chassis height is dependent on the wide sweep assembly clearance. Refer to Section 1.
- The ideal vehicle speed when sweeping should lie between 2.4kph (1.5mph) and 8kph (5mph) without having to 'slip' the clutch. The chassis supplier will be able to advise on the low/high speed performance characteristics of different final drive ratios and the availability of other gearbox options.
- The braking system must be of a pneumatic type (air brakes). This is required as an auxiliary air source to power the sweeping equipment.
- It is strongly recommended the vehicle is equipped with a 'high level' air intake to the engines filtration system. This will ensure that any dust created by the sweeping equipment is not drawn into the engine.

***Mounting of the Scarab equipment on to any chassis should always be carried out in a manner compliant with the chassis manufactures guidelines.***



***If in any doubt concerning the chassis choice, contact Scarab Sweepers Technical Department for assistance.***

## PARTIALLY COMPLETED MACHINERY

The equipment described in these installation instructions is supplied as partially completed machinery. It is the responsibility of the final machine manufacture to ensure that the equipment fulfils the essential health and safety requirements identified in 2006/42/EC or the countries legal directives. A list of the EHSR's which the partially complete machine has fulfilled can be found on the Declaration of Incorporation.

### GENERAL INFORMATION

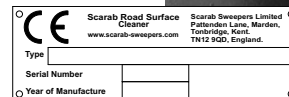
The below information relates to the M6 and FS6000 unit only, before assembly. Any information regarding the chassis should be obtained from the manufacturer.

- WEIGHT (On transportation frame and fully loaded)** . . . . . **4500 kg approx.**
- WEIGHT (Unladen)** . . . . . **3500 kg approx.**
- HOPPER CAPACITY** . . . . . **6.35 m<sup>3</sup>**
- OVERALL LENGTH (Including overhead rear boom)** . . . . . **4370 mm approx.**
- OVERALL WIDTH** . . . . . **2040 mm approx.**
- WIDTH BETWEEN SUBFRAME RAILS (Outside)** . . . . . **.860 mm**
- OVERALL HEIGHT (Subframe base to fan cover)** . . . . . **2140 mm approx.**
- WATER TANK CAPACITY** . . . . . **.1250 litres**
- FUEL TANK CAPACITY (Auxiliary engine)** . . . . . **.120 litres**
- HYDRAULIC OIL TANK CAPACITY** . . . . . **.40 litres**
- VOLTAGE** . . . . . **24 v**

Throughout the manual the terms left hand and right hand refer to the point of view looking forward from the rear of the vehicle.

#### Identification plate

The serial number plate is located on the rear face of the left hand suction nozzle saddle. Please quote this number when ordering parts or consulting our service department, agent or representative on matters pertaining to product support.



#### Limitation of use

The Scarab M6 and FS6000 are classified as truck-mounted suction road sweepers, and as such, are intended only for operation in the sweeping and associated roles for which they have been expressly designed.

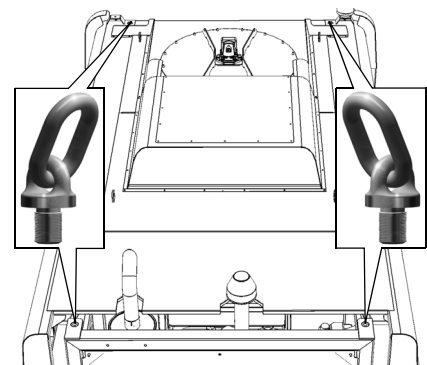
### IMPORTANT INFORMATION

The unit is fitted with 4 lifting point on its upper surface. These lifting points are for the attachment of lifting slings.

**All slings must be the same length and correctly rated for the unit weight.**

**i** *It is the purchasers responsibility to supply the correct lifting equipment for the size and weight of the unit and to safeguard, all personnel involved in the lifting of the unit.*

**Under no circumstances should personnel be permitted under a raised unit.**



**i** *For routine maintenance schedules and repairs. Refer to the M6 & FS6000 Workshop Manual*



# M6 - FS6000

# SECTION 1

## INSTALLATION

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## SKID UNIT PREPARATION

### 1. Upon receipt

Remove all external packaging. Check unit for any damage that may have been sustained during transportation.

All damage should be reported immediately to your local Scarab Agent or Scarab Logistics Department.

#### 1.1 Unloading sundry items

From both left & right hand tool storage cabinets remove all items:

The remaining items are located in the hopper. To remove them, proceed as follows.

1. Remove the strapping securing the auxiliary hand pump to the top of the suction tube saddle.
2. Fix in the appropriate position on the saddle side.

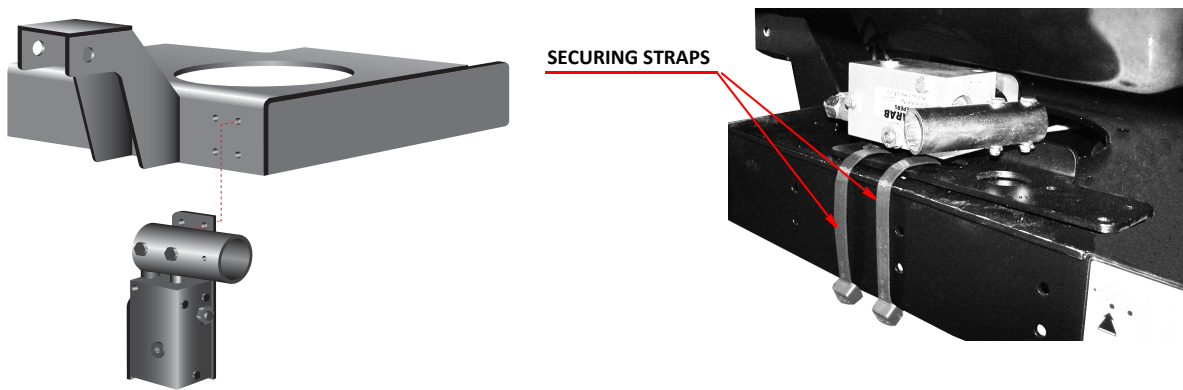


Figure 1 - Hand Pump Fitting

#### Remote Control Buttons

With the hand pump fitted, proceed as follows. Refer to Figure 2

1. Insert the pump handle.
2. Depress the locking button (1) and pull the control ring (2) out. Hold in position and operate the pump handle as shown until the door is fully raised



**Items inside the hopper may have moved from their original packaging position in transit. Therefore extreme care must be taking when raising the hopper door.**

**Never work under a raised rear door without the appropriate prop in the correct position.**

3. Remove all items from the hopper interior.
4. Depress the locking ring (1) and push the control ring (2) in. Hold in position and operate the pump handle as shown until the door is fully closed



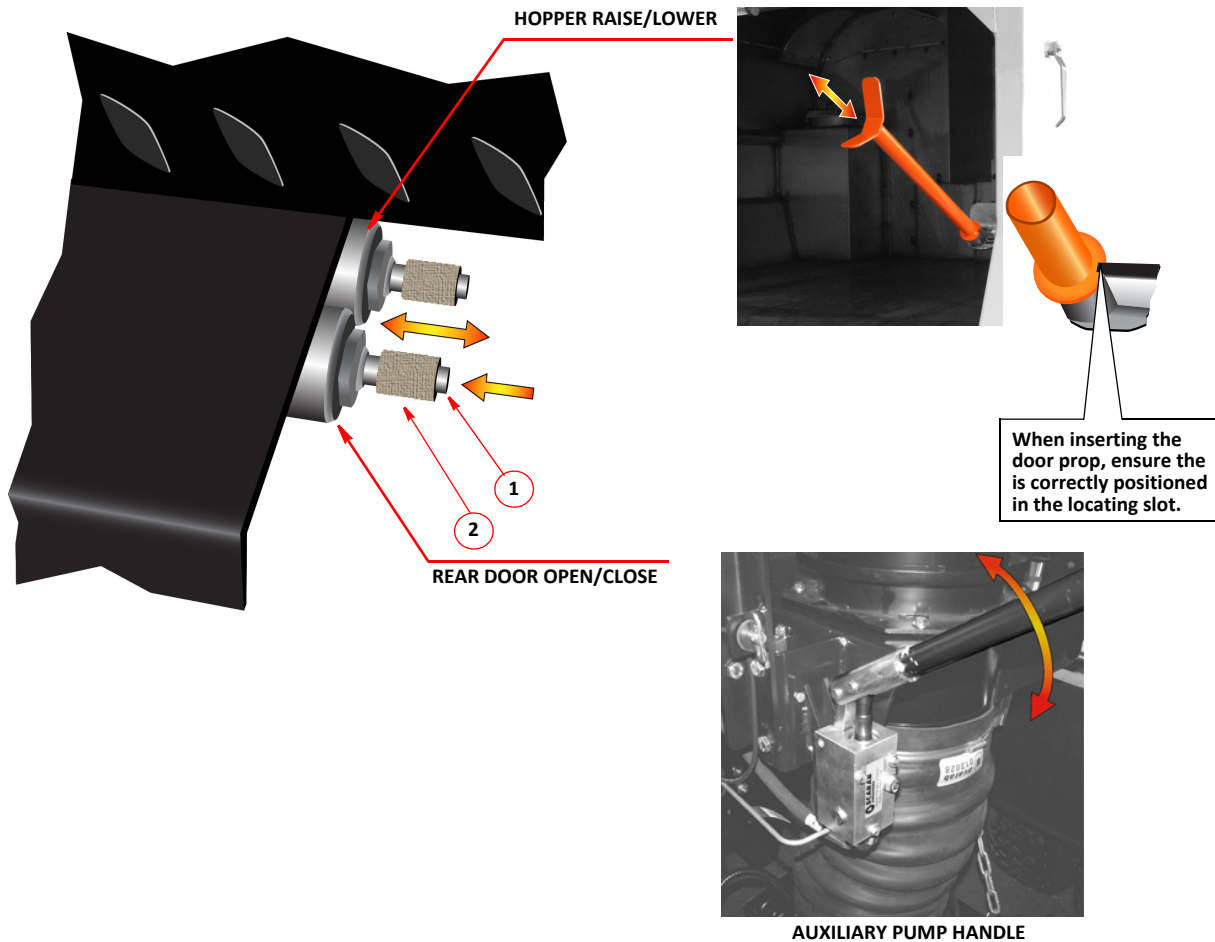


Figure 2 - Remote Control Override

## 1.2 Chassis preparation

**Work must be carried out in accordance with chassis manufactures guidelines.**

The upper surface of the chassis frame must be clear of any attached items or obstructions.

### Fuel tank

If the fuel tank is situated within the free space required on the side(s) of the vehicles chassis, then it is advisable to mount it to the rear of the vehicle. A suitable impact device is needed to protect the fuel tank from damage (this may take the form of an approved rear under-run device).

### Air tanks/air dryer

If the air tanks/air dryer system is situated within the free space required on the side(s) of the vehicle, then these can either be mounted within the vehicle chassis frame or on a manufactured gantry behind the cab. The chassis manufacturer's body builds guidelines must be followed when re-siting such equipment.

### Batteries

If the batteries are situated within the free space required on the side(s) of the vehicle, then these can either be mounted on the side of the chassis outside the required free space or on a manufactured gantry behind the cab.

### Exhaust

The exhaust needs to be either mounted within the vehicle chassis frame or in the free space behind the cab on a manufactured frame.

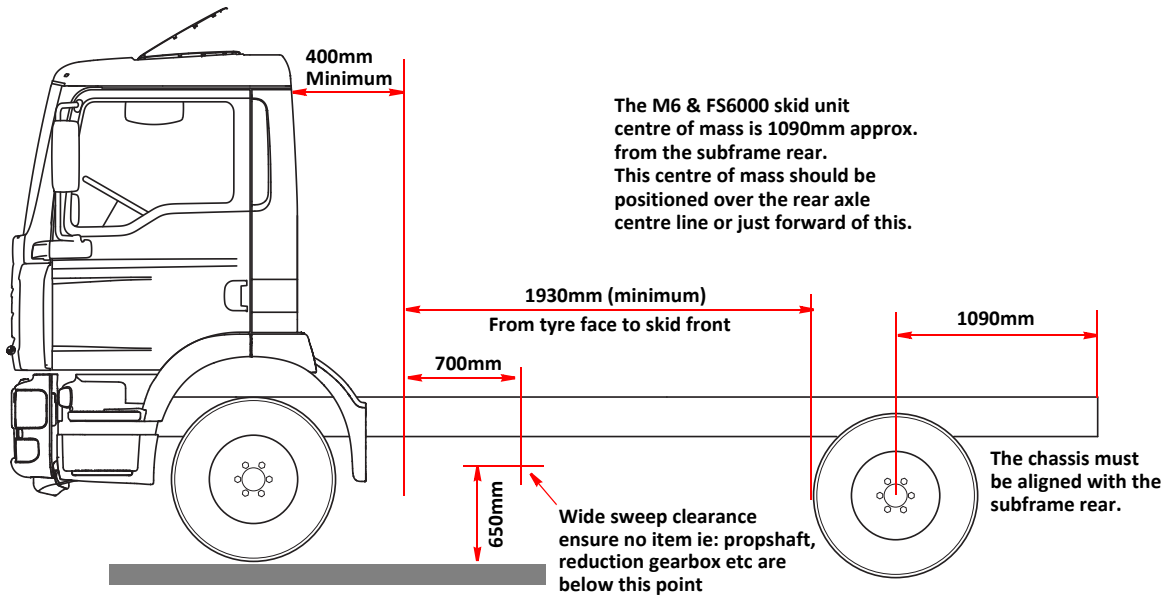


Figure 3 - Chassis clearance dimensions



Before re-siting any items or modifying the chassis contact the chassis manufacture to obtain recommended guidelines and advice.

### 1.3 Pre-installation

#### Chassis rail drilling



Ensure when drilling through the chassis rails that no mounted items are in the drilling path.

If brackets are not supplied with the kit, these will need to be manufactured. The design of these brackets may vary according to chassis type and should be of a steel construction (10mm thick Minimum). Refer to Figure 4 and 5, for drilling dimensions and bolt specifications. Alternatively brackets can be positioned and drilled with skid unit in place.

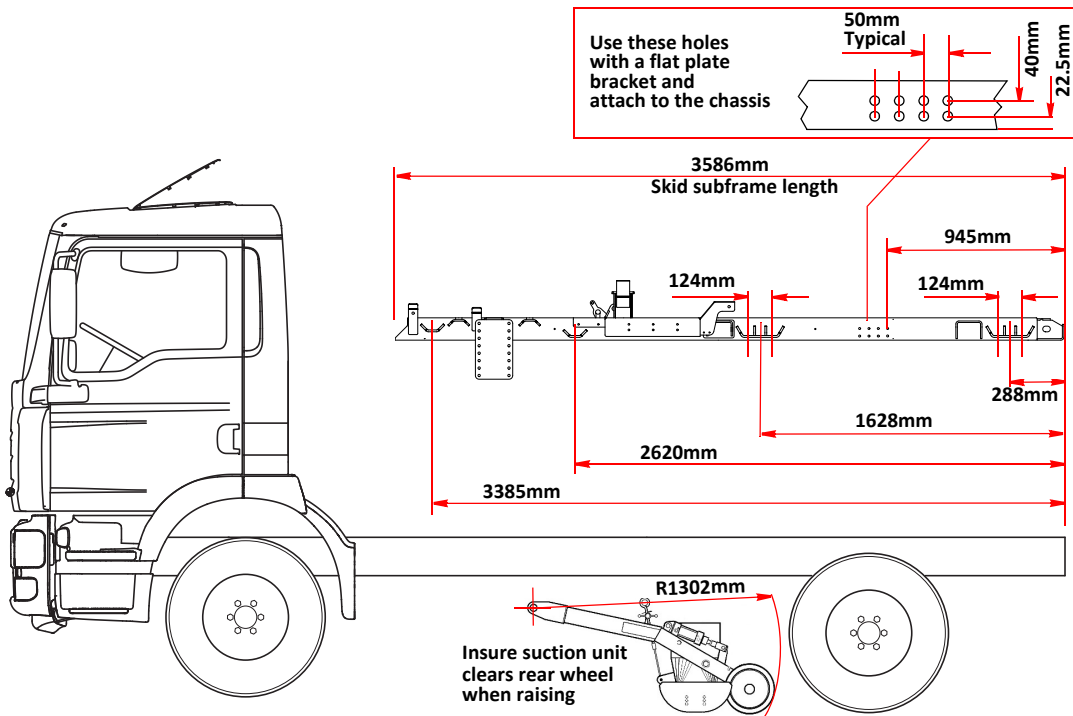
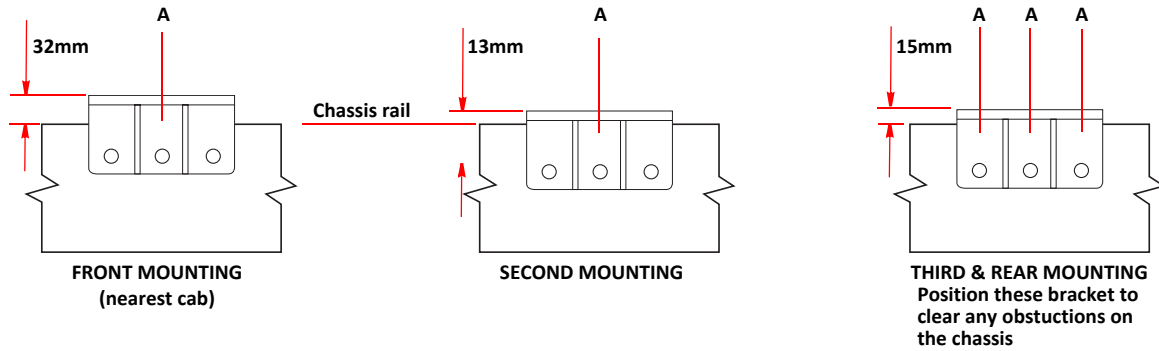


Figure 4 - Skid unit fixing bracket dimensions

A = Centre line through skid unit fixing bracket



Secure the mounting brackets to the chassis with M14 x 1.25 pitch x 25mm long grade 10.9 bolts, plain washers and M14, Grade 10 self locking nuts, torque to 170 Nm (minimum 3 bolts per bracket).

**Figure 5 - Chassis fixing bracket dimensions**



**Always follow the vehicle manufacturer's guidelines when drilling or modifying the chassis.**

**Always wear suitable eye, face and body protection when carrying out any drilling operations.**



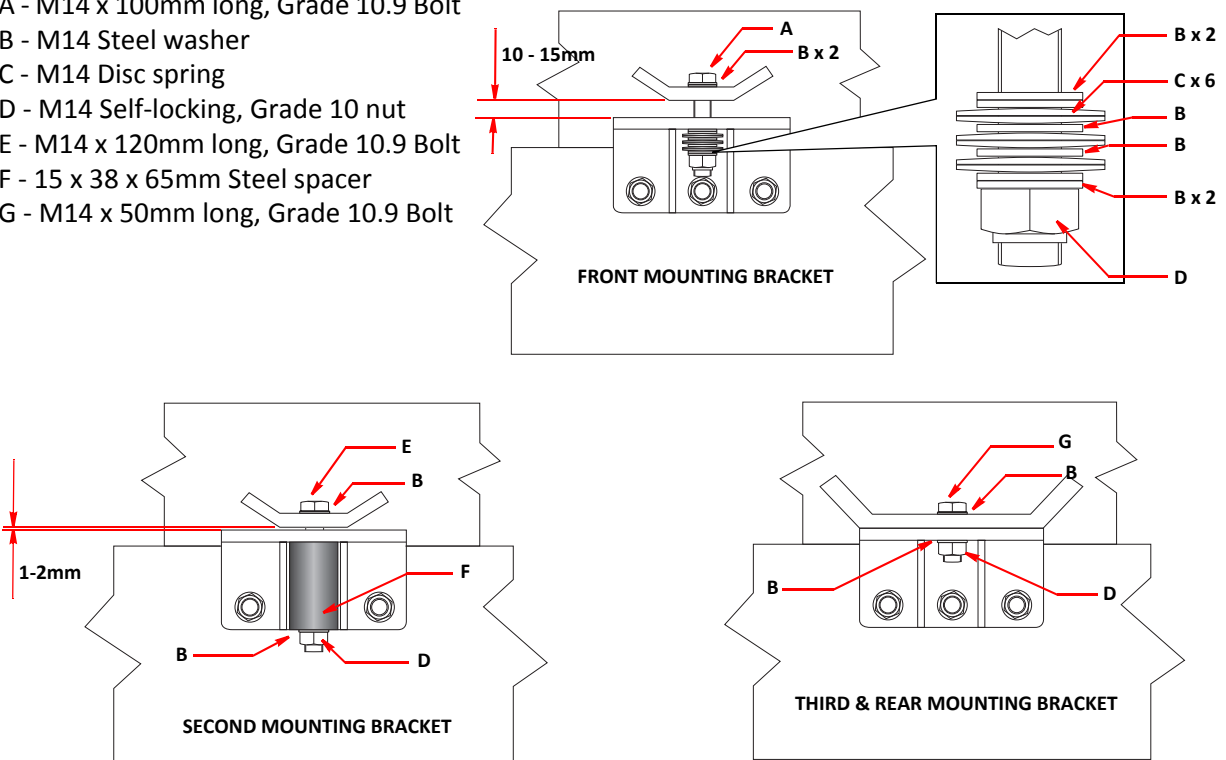
**1.4 Bolting the skid unit to the chassis**



With the skid unit and fixing brackets in the correct position. Refer to Figure 6, for the correct bolting procedure. Tighten the front fixing nut until the disc springs start to compress slightly, continue tightening until 3 - 4mm compression achieved.

Tighten second, third and rear to a torque of 170 Nm.

- A - M14 x 100mm long, Grade 10.9 Bolt
- B - M14 Steel washer
- C - M14 Disc spring
- D - M14 Self-locking, Grade 10 nut
- E - M14 x 120mm long, Grade 10.9 Bolt
- F - 15 x 38 x 65mm Steel spacer
- G - M14 x 50mm long, Grade 10.9 Bolt



**Figure 6 - Skid unit bolting configurations**

## COMPONENT ATTACHMENT

### 2. Fitting the side brush leg(s) and wide sweep bracket(s)



*The following procedure is for either left, right or dual sweep vehicles.*

1. With the leg (A) at the correct height, Refer to Figure 7, select the holes in plate (B) that are the nearest to the leg fixing hole. Secure with 4 x M12 x 35mm long bolts, Grade 8.8 and M12 self-locking nuts, Grade 8.
2. With the leg correctly attached, position the wide sweep bracket (C) at the appropriate height, Refer to Figure 7. Secure with 8 x M12 x 120mm long bolts, grade 8.8 and M12 self-locking nuts, Grade 8.



*The foregoing dimensions are only a guideline. The actual finished dimensions will depend on a variety of varying factors. i.e. propshaft, chassis cross-members etc.*

3. Attach the side work light, securing with a M8 x 30mm long bolt and spring washer.

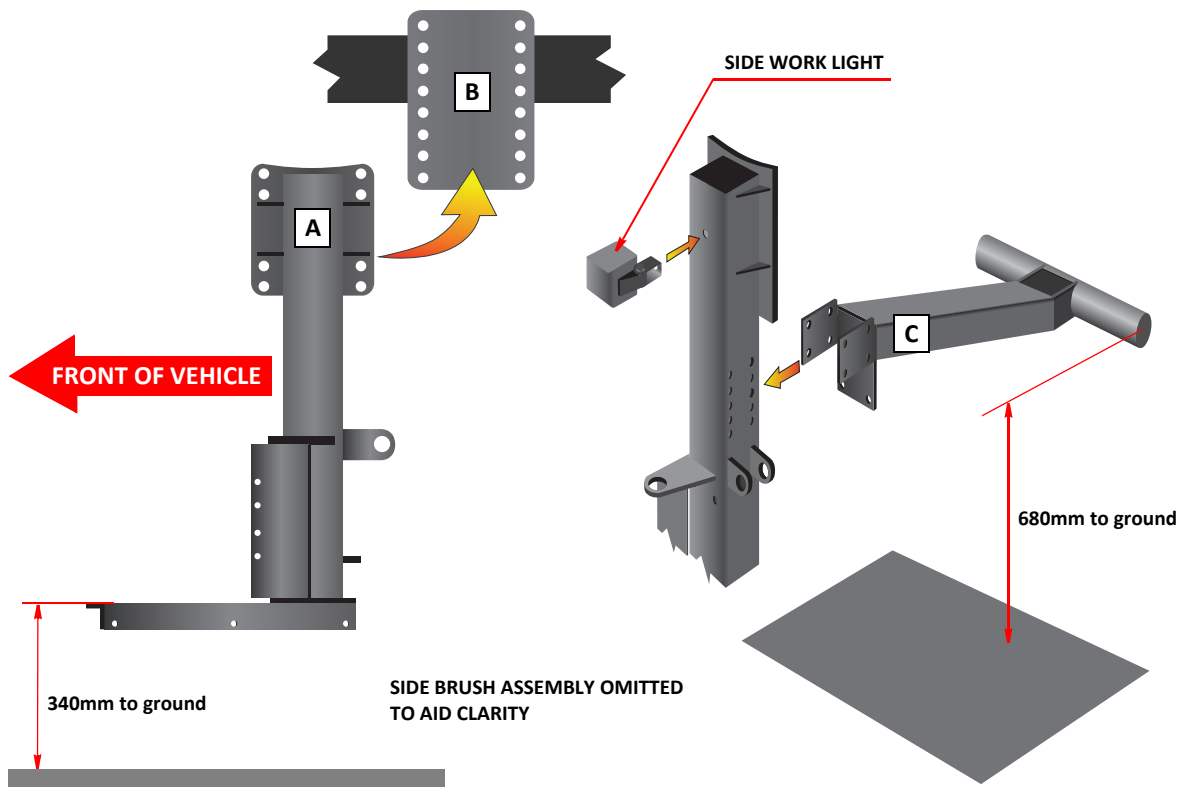


Figure 7 - Side brush leg and wide sweep bracket fixing dimensions (left hand shown)

#### 2.1 Attaching the wide sweep assembly.

1. Place the wide sweep assembly beneath the chassis and aligned with the fixing brackets. Raise the unit and fix in position with the 4 x U-clamps. Avoid damaging the front rubber skirt if fitted.
2. Before securing, ensure the unit is parallel aligned to the side brush legs, this can be achieved by placing a straight-edge across the rear of both side brush legs and measuring to the edge of bracket (D).
3. With the unit secured, exercise the swivel action to confirm adequate clearance during operation (dual sweep vehicles only).

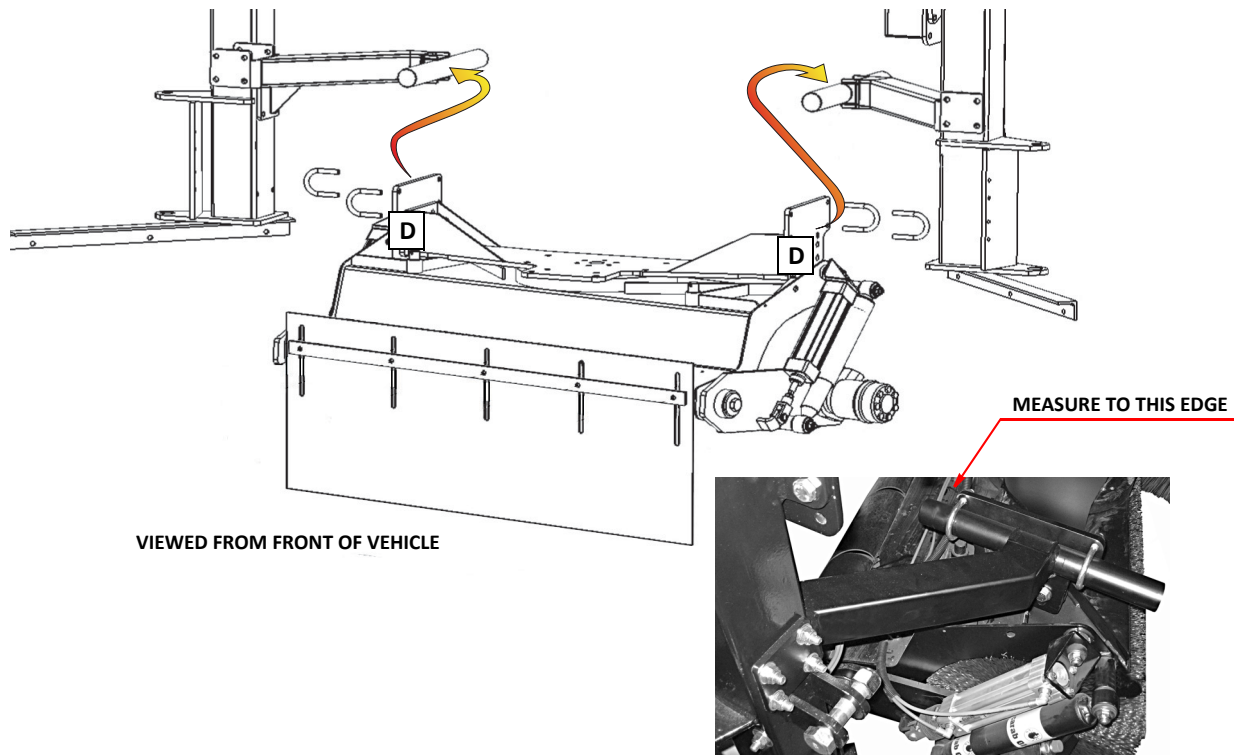


Figure 8 - Attaching the wide sweep assembly

**2.2 Assembling the wide sweep brush**

Remove the end plate (if fitted) from the brush core, slide one brush element down to the fixed end plate, then a spacer. Proceed with this configuration until the brush core is full, ending with a brush element. Re-fit the end plate.

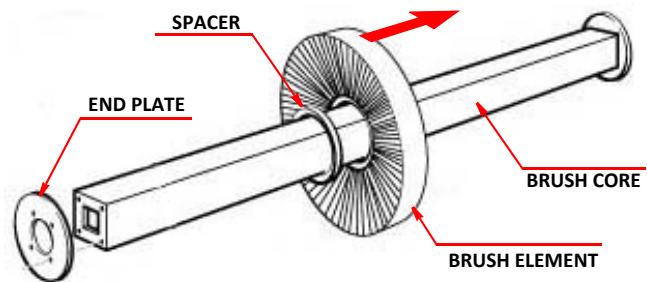


Figure 9 - Assembling the wide sweep brush

**2.3 Fitting the wide sweep brush**

Remove the bearing assembly (E). Position the brush assembly onto the motor drive shaft (F) ensure it is fully against the drive shaft face. Insert the bearing assembly into the brush core and securely bolt back in position

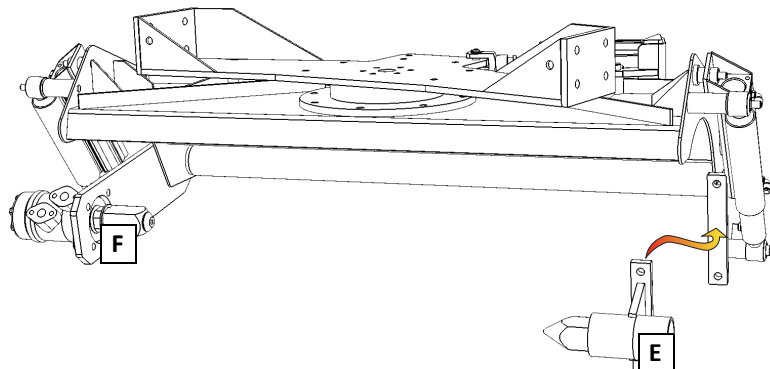


Figure 10 - Fitting the wide sweep brush

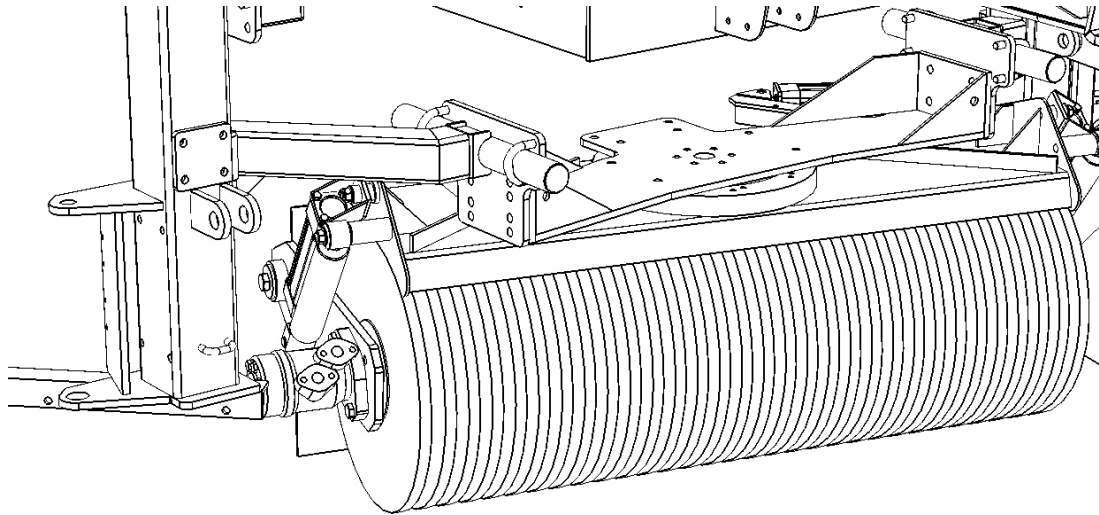


Figure 11 - Wide sweep assembly installed

### 3. Attaching the side brush linkage assembly

1. Remove the kingpin (A) from the side brush leg assembly. Apply a thin layer of grease to the upper and lower faces of the king post.
2. Place the dust shield (B) over the upper face of the king post (C) and position the assembly between the leg (D) mounting plates.
3. Insert the kingpin (A) through the lower mounting plate, brush assembly and upper mounting plate.
4. Remove all traces of grease from the thread.
5. Refit the washer and self-locking nut, and tighten to secure.
6. Using the upper and lower greasing points, apply grease until the kingpin is full.

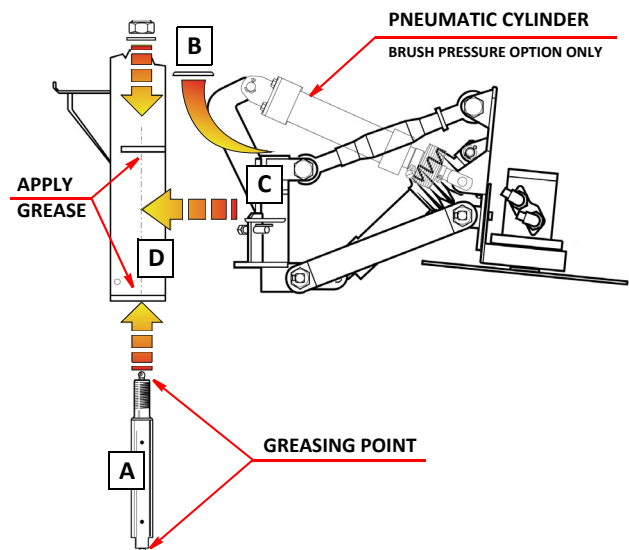


Figure 12 - Side brush linkage attachment

#### 3.1 Swing-out assembly attachment

1. Attach arm (E) to the leg base and secure with the 2 supplied M10 bolts and self-locking nuts.
2. Attach the cylinder clevis (F) to the swing-out lever with the clevis pin and safety clip.

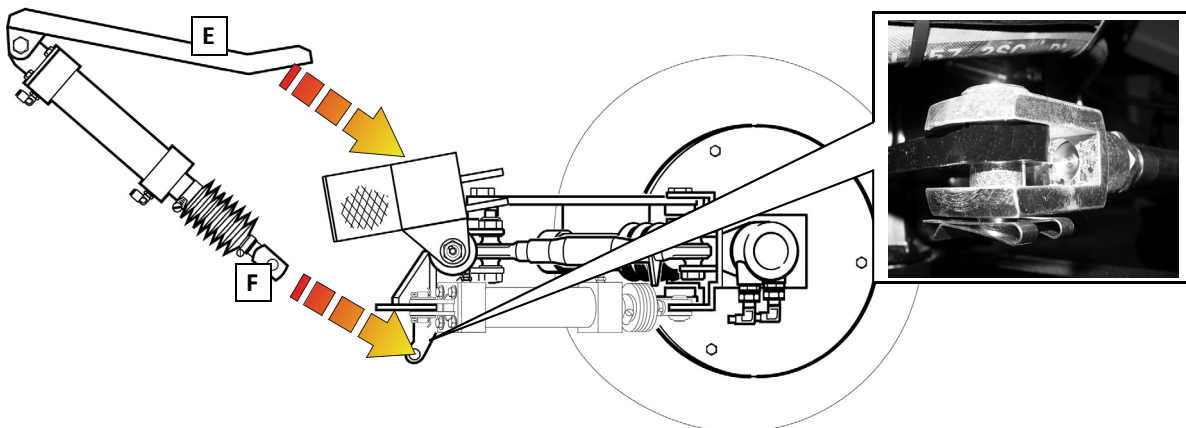


Figure 13 - Swing-out assembly attachment

#### 4. Attaching the suction nozzle

1. Fit flexible tube (A) over the upper section of suction box (B), ensuring an overlap of at least 150mm. Secure with an appropriate sized worm drive hose clamp.
2. Position a second worm drive hose clamp loosely over the upper section of tube (A).
3. Position unit (B) as illustrated in Figure 14. Raise the tow bar to position it between the lugs of the tow point, apply a layer of copper-based grease to a M20 x 110mm bolt and insert into the tow point.
4. Remove all traces of grease from exposed thread and secure with a M20 self-locking nut.
5. Position the suction spigot (C) and any shims in its mounting on the subframe so that it fits into the upper section of the tube (A), secure with 4 x M12 x 35mm long bolts and M12 self-locking nuts.
6. Attach the lifting chains to the pneumatic cylinder as shown in Figure 14, ensuring the carabiner is completely closed.

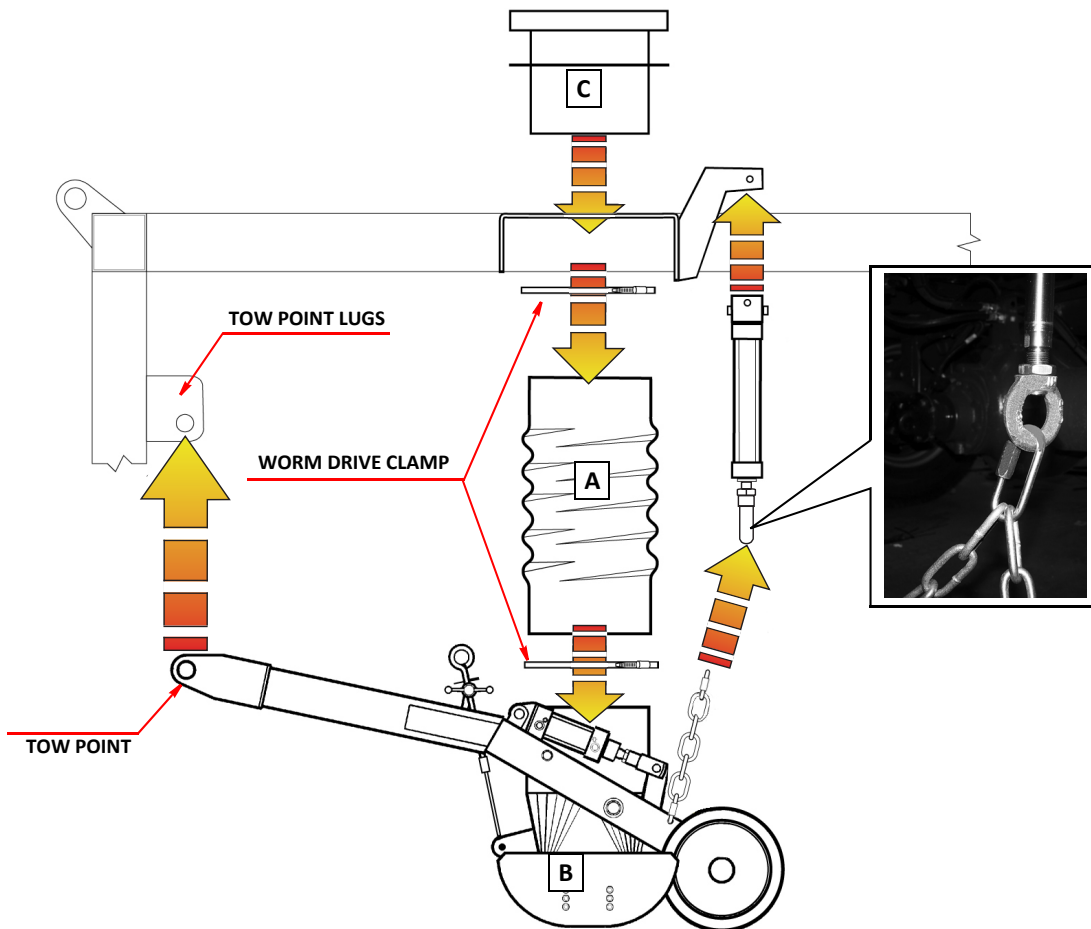


Figure 14 - Suction nozzle attachment

## 5. Attaching the low pressure water pump (hydraulically driven)

Place the low pressure water pump assembly onto its mounting bracket (A) situated on the right hand side brush leg, and secure with 4 x M10 x 35mm long and M10 self-locking nuts.



*If an electric low pressure water pump is fitted this will already be attached to the subframe.*

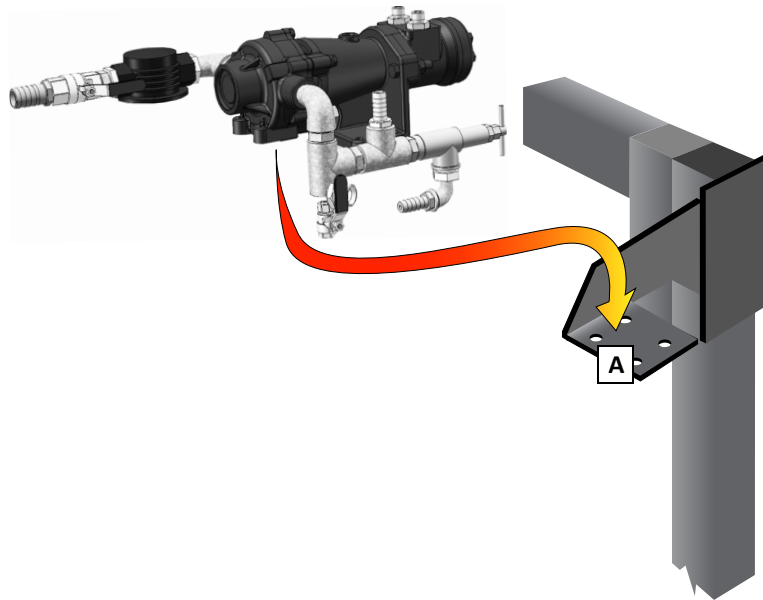


Figure 15 - Low pressure pump attachment

## PNEUMATIC PIPE CONNECTIONS

The pneumatic valves operating the various components are situated within the electrical enclosure. At the rear of the enclosure are the bulkhead connectors. Green plastic tubing links the bulkhead connectors to the appropriate cylinders.

### 6. Wide sweep raise/lower

1. The raise/lower pipes are coiled along with the other cylinder pipes towards the front left hand side of the subframe.
2. The correct pipes are marked (2) and (3). If no marking is visible, identify them at their bulkhead connectors, Refer to Figure 16.
3. Insert them into the appropriate tee connectors, situated on the upper face of the widesweep cover, Refer to Figure 16. Ensure pipes are inserted fully.
4. Appropriately anchor the pipes, ensuring they are free of interference from moving parts, excessive heat, chafing and if fitted with the swivel action are free from any kinks.

#### 6.1 Wide sweep swivel (optional)

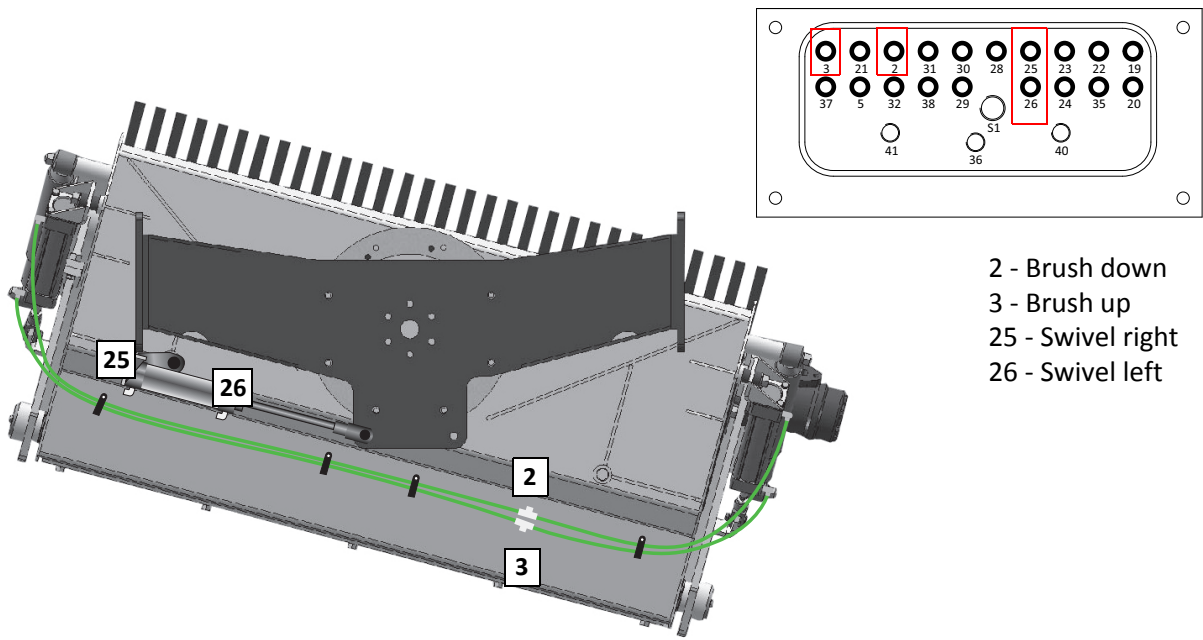
1. The wide sweep swivel pipes are coiled along with the other cylinder pipes towards the front right hand side of the subframe.
2. The correct pipes are marked (25) and (26). If no marking is visible, identify them at their bulkhead connectors, Refer to Figure 16.



*These pipes are joined with the auto-blanking pipes.*

3. insert them into the cylinder connectors, Refer to Figure 16. Ensure pipes are inserted fully.
4. Appropriately anchor the pipes, ensuring they are free of interference from moving parts, excessive heat, chafing and free from any kinks.





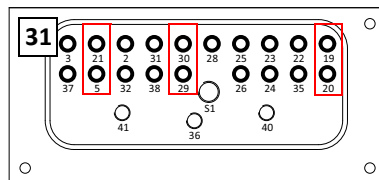
- 2 - Brush down
- 3 - Brush up
- 25 - Swivel right
- 26 - Swivel left

Figure 16 - Wide sweep pneumatic piping

**6.2 Side brush swing-out**

1. The side brush swing-out cylinder pipes are coiled along with the other cylinder pipes towards the front left/right hand side of the subframe.
2. The correct pipes are marked (19) and (20) for the left hand cylinder, (29) and (30) for the right hand cylinder. If no marking is visible, identify them at their bulkhead connectors, Refer to Figure 17.
3. Insert them into the cylinder connectors, Refer to Figure 17. Ensure pipes are inserted fully.
4. Appropriately anchor the pipes, ensuring they are free of interference from moving parts, excessive heat, chafing and free from any kinks.

- 5 - Right hand pressure down
- 29 - Right hand swing-out
- 30 - Right hand swing-in



- 21 - Left hand pressure down
- 19 - Left hand swing-out
- 20 - Left hand swing-in

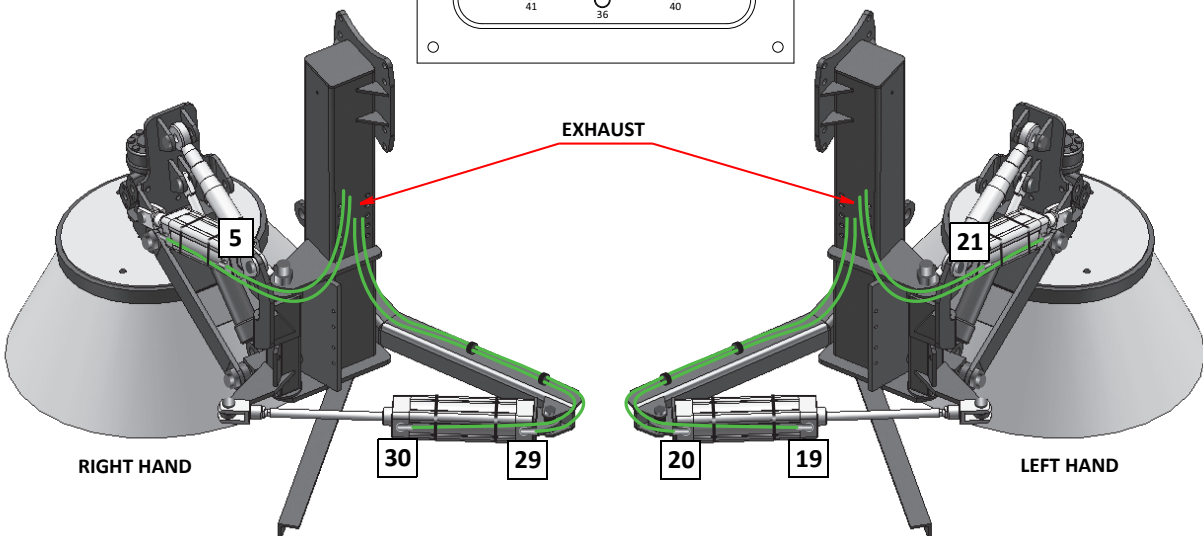


Figure 17 - Side brush pneumatic piping

### 6.3 Side brush down pressure (optional)

1. The side brush pressure cylinder pipes are coiled along with the other cylinder pipes towards the front left/right hand side of the subframe.
2. The correct pipes are marked (21) for the left hand cylinder, (5) for the right hand cylinder. If no marking is visible, identify them at their bulkhead connectors, Refer to Figure 17.
3. insert them into the cylinder connectors, Refer to Figure 17. Ensure pipes are inserted fully.
4. Appropriately anchor the pipes, ensuring they are free of interference from moving parts, excessive heat, chafing and free from any kinks.



*When up and down pressure is fitted. Refer to Section 2 to for piping details.*

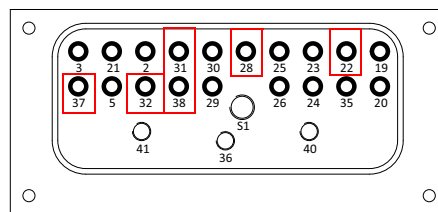
### 6.4 Suction nozzle

1. The nozzle tilt cylinder pipes are coiled along with the other cylinder pipes towards the front left/right hand side of the subframe. The nozzle raise pipes are situated at the cylinder connecting bracket.
2. The correct pipes are marked (37) and (38) for the left hand tilt cylinder, (31) and (32) for the right hand cylinder. The pipes for the left hand raise cylinder are marked (22), and for the right hand cylinder (28). If no marking is visible, identify them at their bulkhead connectors, Refer to Figure 18.
3. insert them into the cylinder connectors, Refer to Figure 18. Ensure pipes are inserted fully.
4. Appropriately anchor the pipes, ensuring they are free of interference from moving parts, excessive heat, chafing and free from any kinks.



*Pneumatic exhaust pipes are unmarked.*

28 - Right hand nozzle raise  
37 - Right hand nozzle tilt ON  
38 - Right hand nozzle tilt OFF



22 - Left hand nozzle lift  
31 - Left hand nozzle ON  
32 - Left hand nozzle OFF

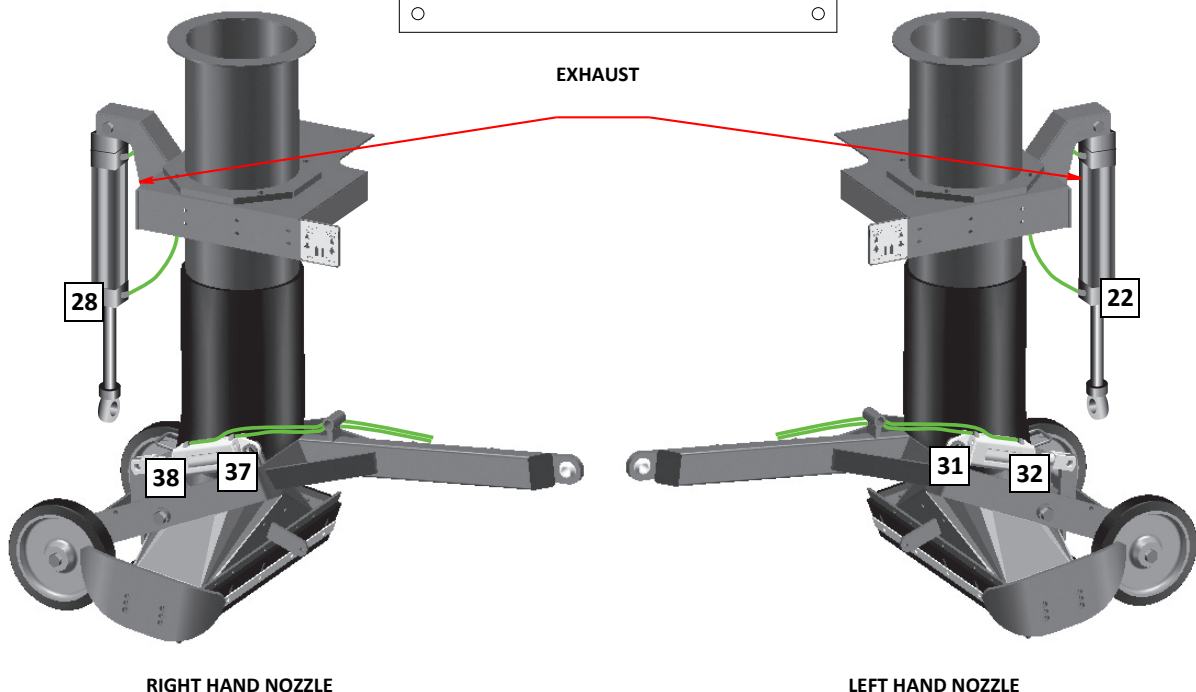


Figure 18 - Suction nozzle piping

### 6.5 Connecting the pneumatic system

The pneumatic supply pipe (Black) is generally coiled along with the low pressure front spray bar hose, at the front centre of the subframe. Alternatively the pipe can be traced from the pneumatic regulator mounted on the side of the electrical enclosure. Refer to Figure 19.



**Ensure the shut-off valve is in the closed position**



1. Locate the chassis pneumatic multi protection valve.
2. Connect the supply pipe to the correct port, (the normal Port is 24, but always seek guidance from the chassis manufacturer). Ensure it is inserted fully.
3. Appropriately anchor the pipe, ensuring that it is free of interference from moving parts, excessive heat, chafing and free from any kinks.
4. With the vehicle air tanks full, turn ON the shut-off valve.



**Exercise extreme care when turning ON the valve as the wide sweep and side brush assemblies will activate. Ensure all personnel are clear.**

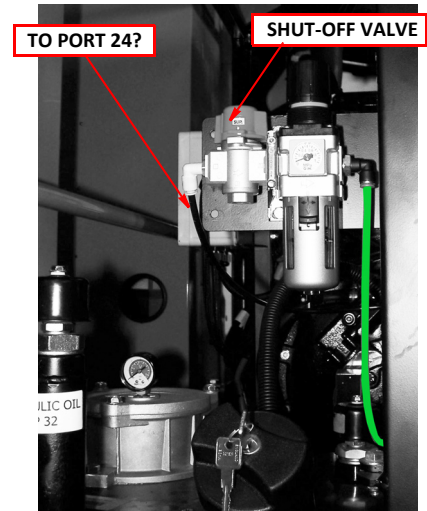


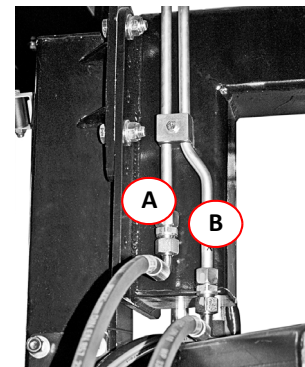
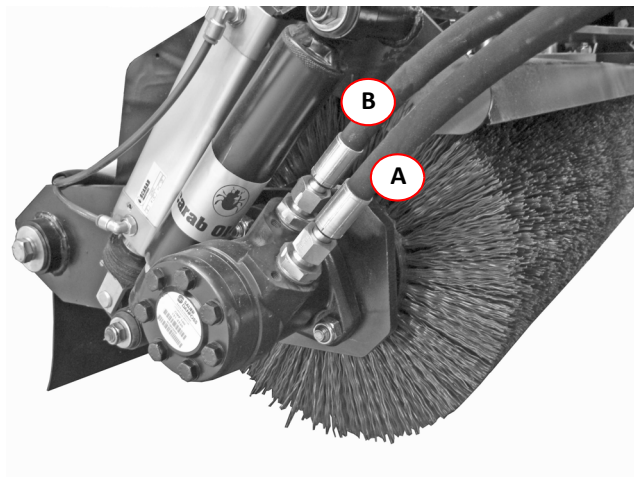
Figure 19 - Pneumatic Regulator

## HYDRAULIC HOSE CONNECTION

### 7. Wide sweep drive motor

The wide sweep motor hoses are coiled on the front left hand side of the subframe, and are connected to steel pipes on the rear of the side brush leg.

1. Remove the plastic caps from the motor fittings and hoses.
2. Connect the hoses to the appropriate fitting, Refer to Figure 20, and tighten to seal.
3. Appropriately anchor the hoses, ensuring they are free of interference from moving parts, excessive heat, chafing and free from any kinks.



Valve block ports

A = WSB1. Feed  
B = WSB2. Return

Figure 20 - Wide sweep hose connection

### 7.1 Side Brush Drive Motor

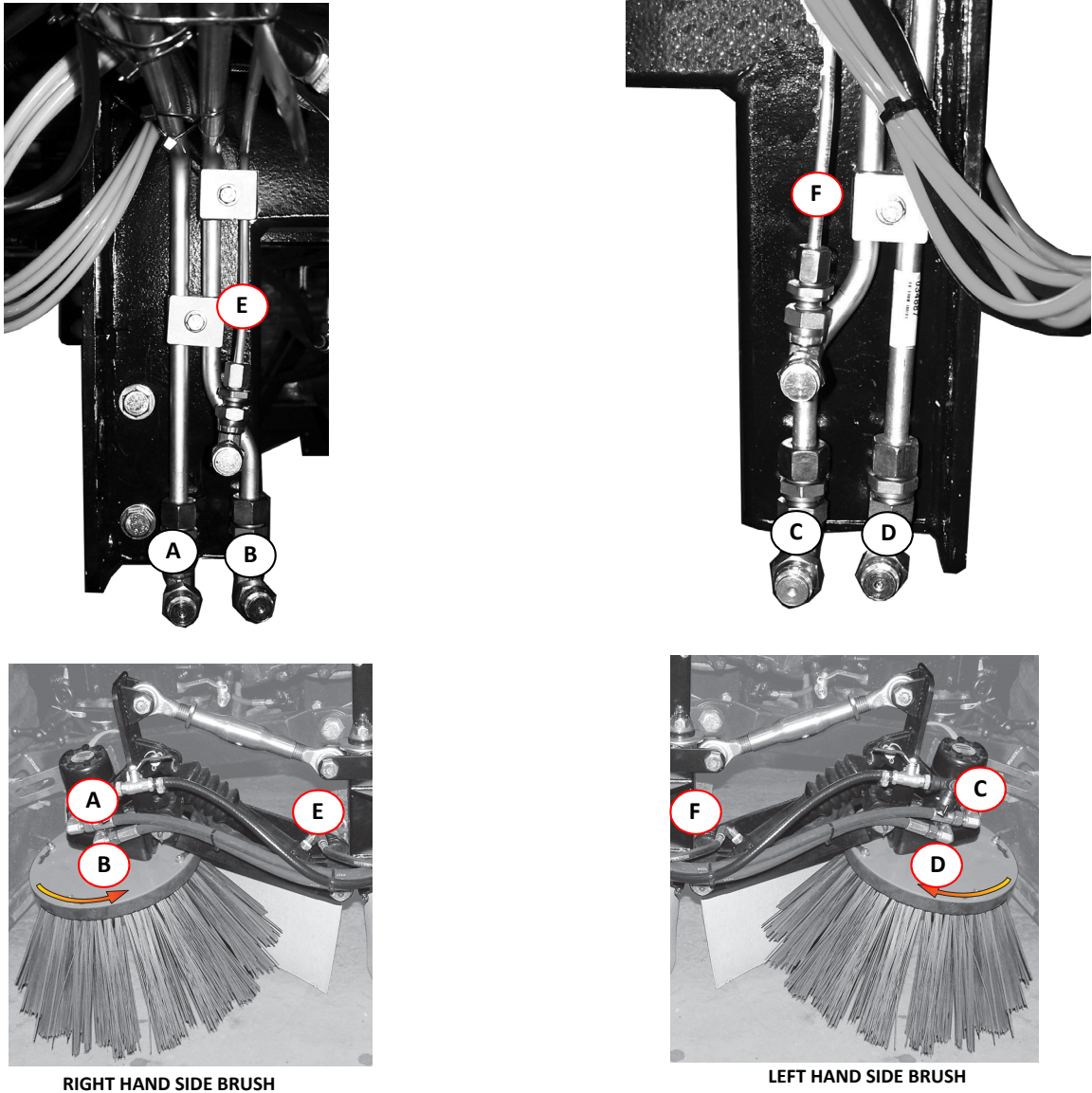
The side brush motor hoses are connected to the brush motor along with the brush raise hose and water pipe.

1. Remove the sealing caps from the steel pipes and hoses.
2. Connect the hoses to the appropriate fitting, Refer to Figure 21, and tighten to seal.
3. Appropriately anchor the hoses, ensuring they are free of interference from moving parts, excessive heat, chafing and free from any kinks.

**7.2 Side brush raise** 

1. Remove the sealing cap from the steel pipe and hose.
2. Connect the hoses to the appropriate fitting, Refer to Figure 21, and tighten to seal.
3. Appropriately anchor the hoses, ensuring they are free of interference from moving parts, excessive heat, chafing and free from any kinks.

**i** *If in any doubt trace the steel pipes back to the valve block, to locate the correct ports*



Valve block ports

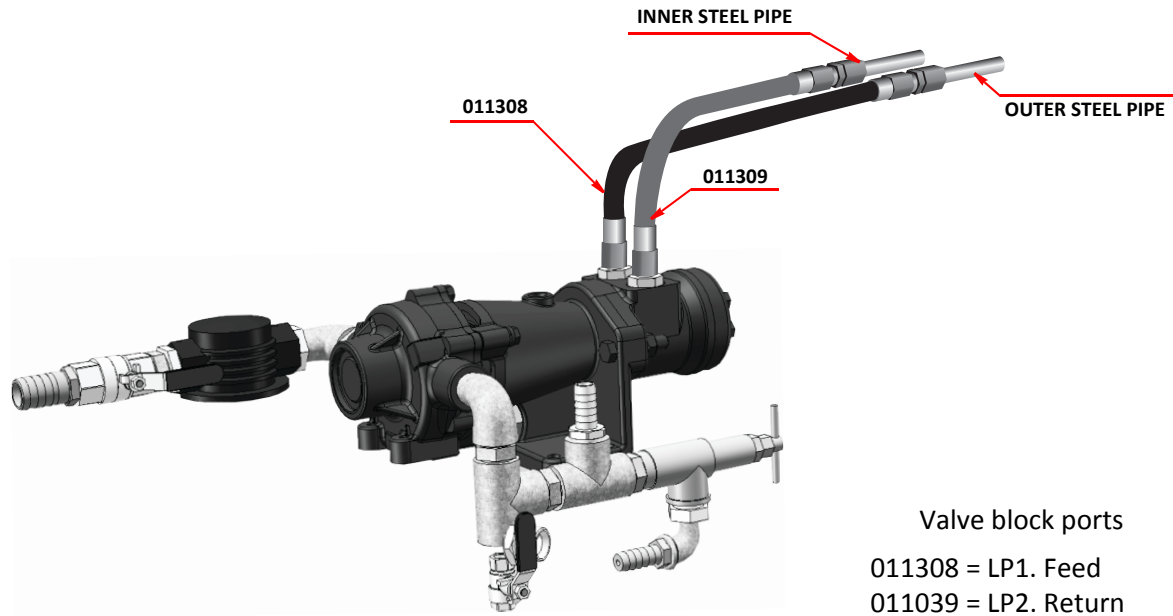
Right hand side brush			Left hand side brush		
A	RHB2	Return	C	LHB1	Feed
B	RHB1	Feed	D	LHB2	Return
E	BL2	Feed	F	BL1	Feed

**Figure 21 - Side Brush Hose Connections**

**7.3 Low pressure water pump (Hydraulically driven)** 

The low pressure pump hoses are connected to the pump motor.

1. Remove the sealing caps from the steel pipes and hoses.
2. Connect the hoses to the appropriate fitting, Refer to Figure 22, and tighten to seal.  
Appropriately anchor the hoses, ensuring they are free of interference from moving parts, excessive heat, chafing and free from any kinks.




**Figure 22 - Low pressure pump hose connections**

**WATER SYSTEM CONNECTION**

**8. Low pressure system**

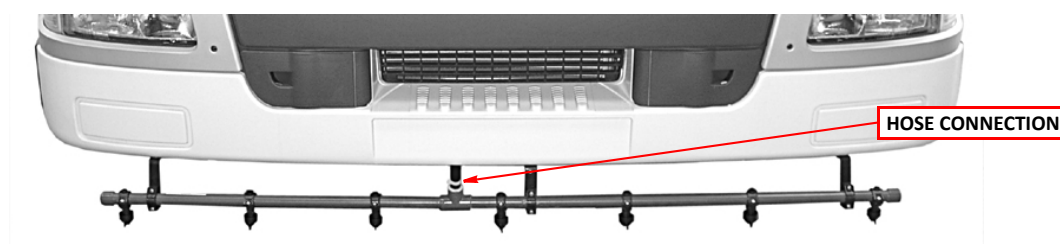
**8.1 Attaching the front spray bar**

 *If high pressure water is fitted a dual spray bay is used. Ignore this paragraph and Refer to paragraph 8.3.*

The recommended position for the spray bar is under the front bumper. Refer to Figure 23. The manufacture of steel brackets is required to enable fixing.

A distance of 200-300mm from the spray nozzle to the ground is recommended.

1. With the spray bar in position, connect the appropriate hose, this is normally coiled along with the pneumatic feed pipe at the front of the subframe, and secure with a worm drive hose clamp. If in doubt this can be traced back to the water valve block assembly.
2. Appropriately anchor the hose, ensuring It is free of interference from moving parts, excessive heat, chafing and free from any kinks.



**Figure 23 - Front spray bar normal position**

## 8.2 Side brush and suction nozzle hose connection

The water hoses are coiled at the front left/right hand side of the subframe.

1. Attach to the appropriate fitting, securing with a worm drive clamp. If in doubt this can be traced back to the water valve block assembly.
2. Appropriately anchor the hose, ensuring they are free of interference from moving parts, excessive heat, chafing and free from any kinks.
3. If additional suction tube sprays are fitted also attach these.

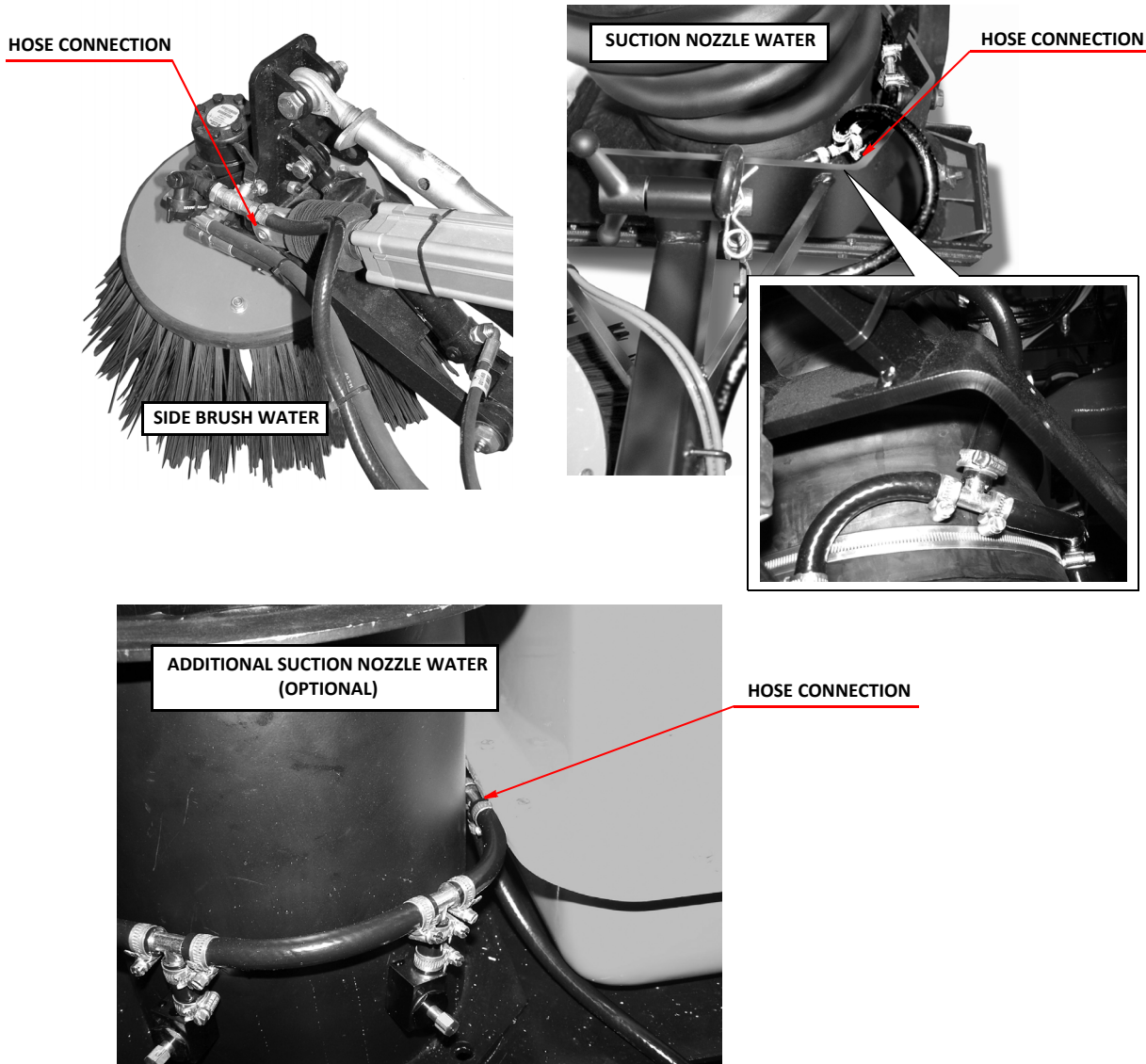


Figure 24 - Low pressure water connections

## 8.3 Low pressure pump (Electrically driven)

The low pressure pump is attached to the right hand side of the machine. It is fully connected and only requires the filter element and housing to be connected.

1. Screw the filter assembly together (1), ensure the filter element is in the correct orientation and the seal is correctly fitted. Refer to Figure 25.

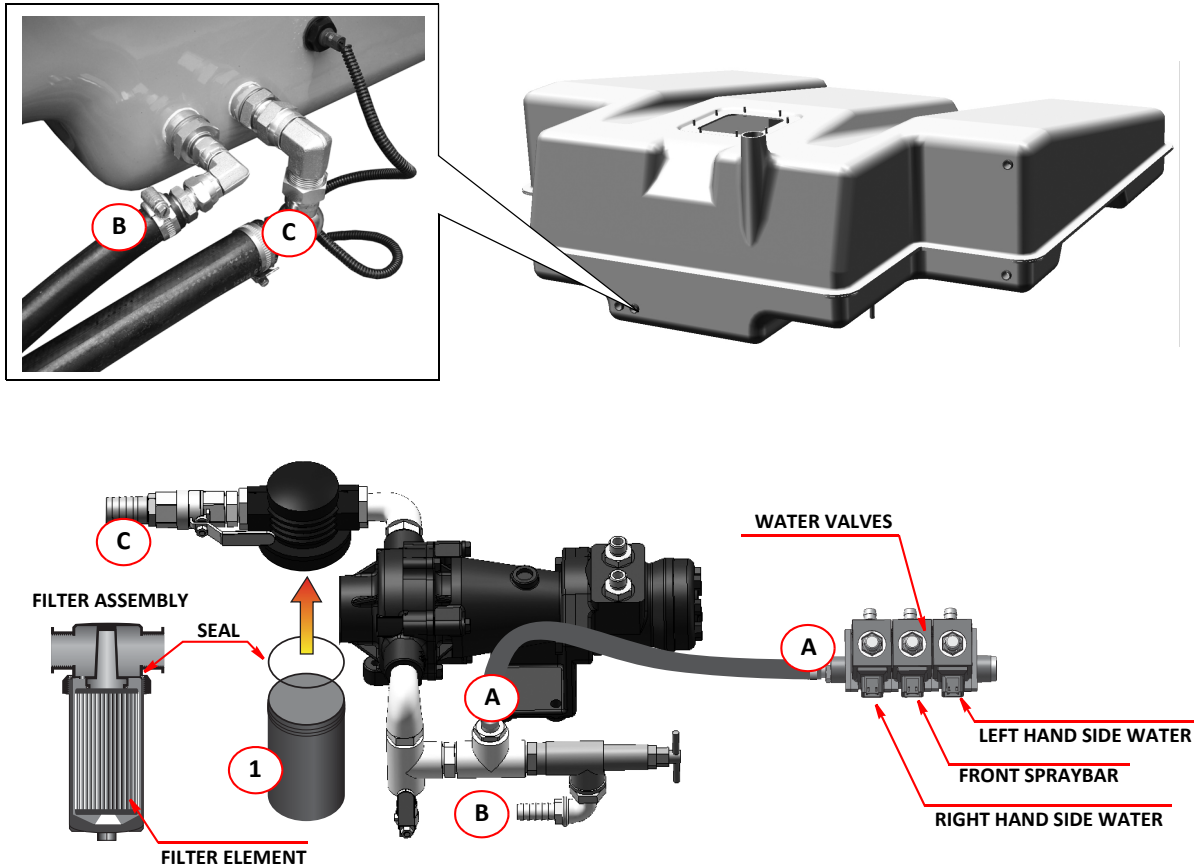


Figure 25 - Low pressure pump water hose connection (Hydraulically driven pump)

## 9. High pressure system (optional)

### 9.1 Attaching the front spray bar

The recommended position for the spray bar is under the front bumper. The manufacture of steel brackets is required to enable fixing.

A distance of 200-300mm from the spray nozzle to the ground is recommended.

1. Assemble the spray bar as shown in Figure 26.
2. With the spray bar assembled and in position, connect the appropriate low pressure hose, this is normally coiled along with the pneumatic feed pipe at the front of the subframe, and secure with a worm drive hose clamp. If in doubt this can be traced back to the water valve block assembly.
3. Appropriately anchor this hose, ensuring it is free of interference from moving parts, excessive heat, chafing and free from any kinks.

### 9.2 Attaching the shut-off valve

**i** *The most common fixing position is the fixed section of the nearside front mudguard, although any suitable rigid structure can be used, but any position is dependent on the feed pipe length.*

1. Assemble the valve unit,
2. Attach to the chosen position with a M10 bolt and nut.
3. Connect the spray bar feed hose to the unit and spray bar. Also the supply hose to the unit and pump. Tighten the hose connector nuts to seal.
4. Appropriately anchor the hoses, ensuring they are free of interference from moving parts, excessive heat, chafing and free from any kinks.

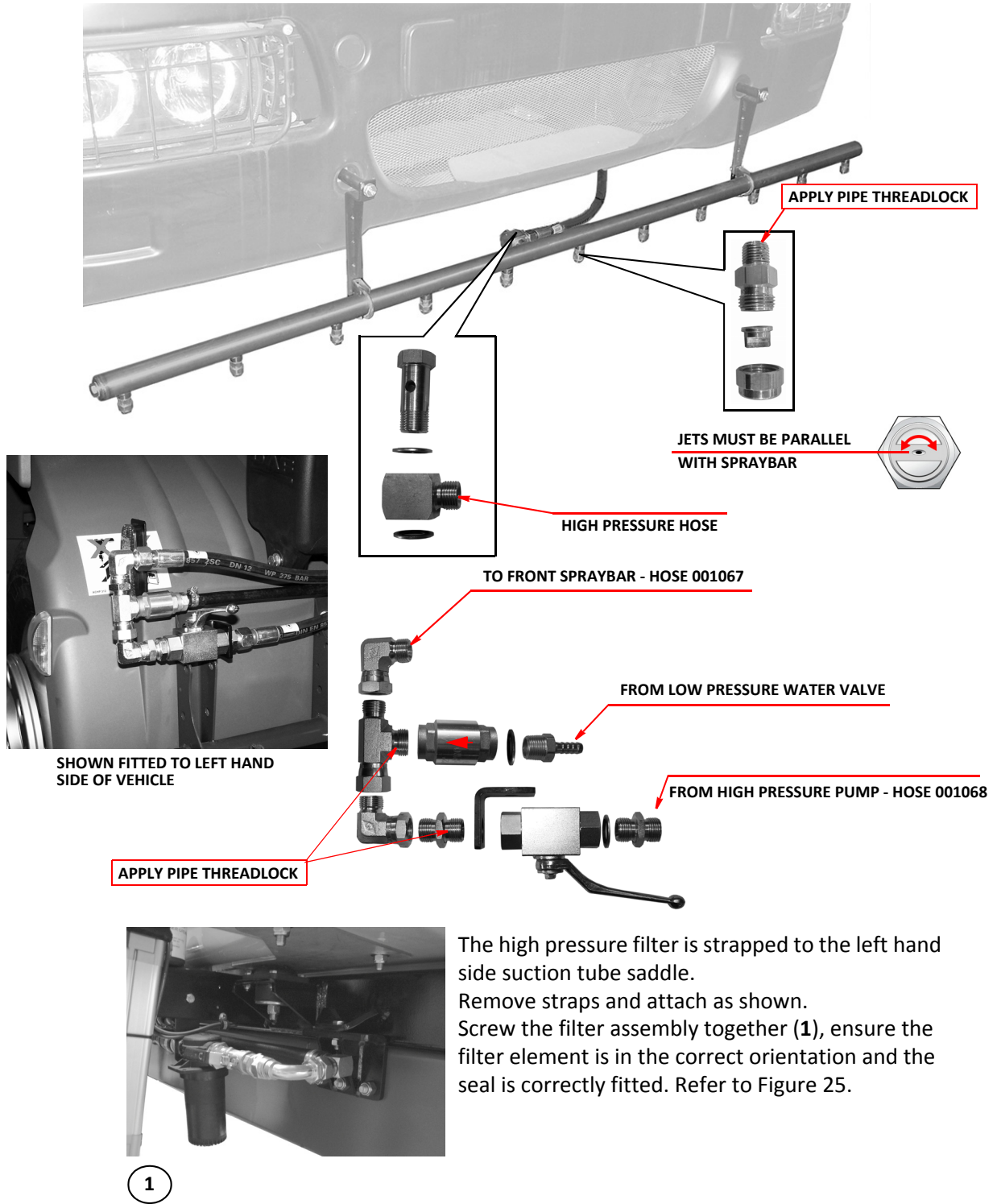


Figure 26 - High pressure spray bar attachment and hose connection



## ELECTRICAL CONNECTION

### 10. In-cab equipment

#### 10.1 Slave nodes

The slave nodes need to be mounted in an appropriate position behind the dashboard, as these connect to the main control panel, auxiliary control panel and LCD screen. Careful consideration should be taken in their positioning.

#### 10.2 Main control panel.

The main control panel is attached to an adjustable mounting. This mounting should be positioned to enable the operator easy access to the control panel functions.

#### 10.3 Auxiliary control panel

The auxiliary control panel is generally mounted on the driver's side. It is normally attached to the upper fixing point of the grab handle.

#### 10.4 LCD screen

The LCD screen is attached to an adjustable mounting. This mounting should be positioned to enable the operator to view all the displayed information without obstructions.

#### 10.5 Fuse box and relays

Mount these in appropriate positions as near to the chassis fuses as possible.

#### 10.6 Remote control switch box

The remote control switch box holder is generally situated to the outside of the driver's seat. The remote control unit connecting plug should be positioned behind the driver's seat.



**Extreme care must be taken when attaching any items to the cab interior. If in doubt contact the chassis manufacturer.**

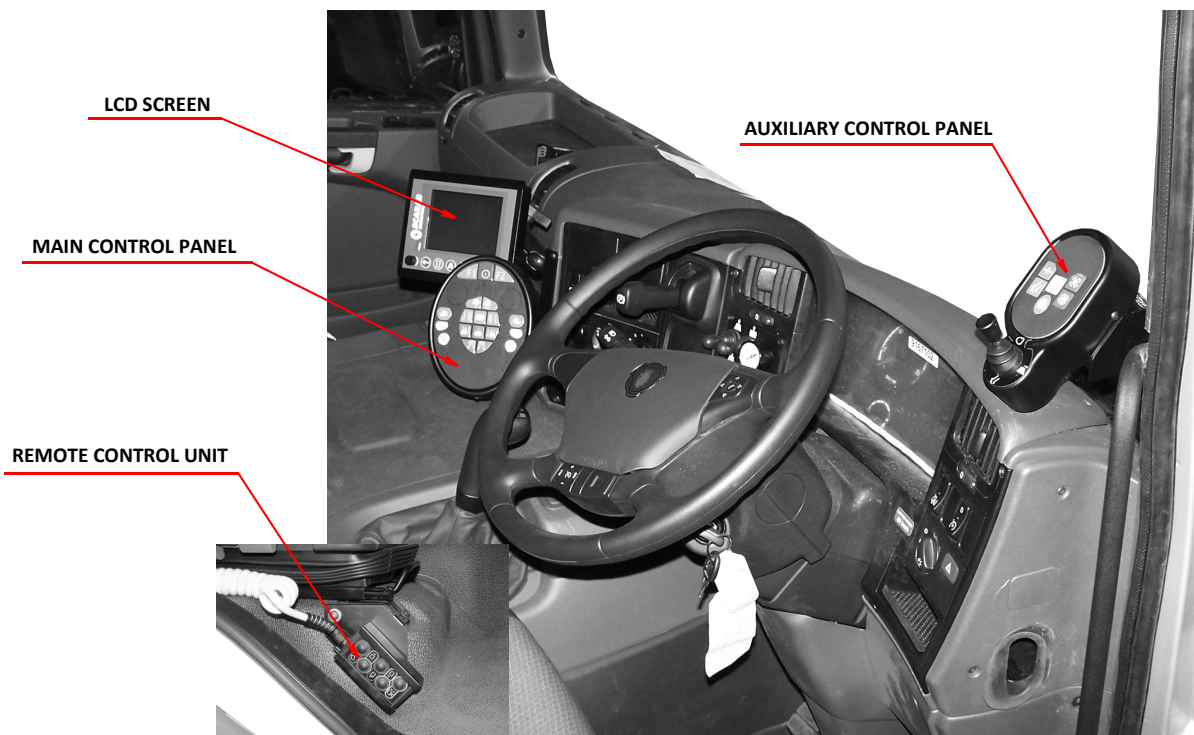


Figure 27 - Typical in-cab installation

**10.7 Connecting the cab loom**

Connect the cab loom and all its connecting looms to all the in-cab equipment, ignition and beacon connections. Refer to Table 1,2 and Figure 28. Once connected thread this loom to the connections inside the electrical enclosure. All connectors are clearly numbered.



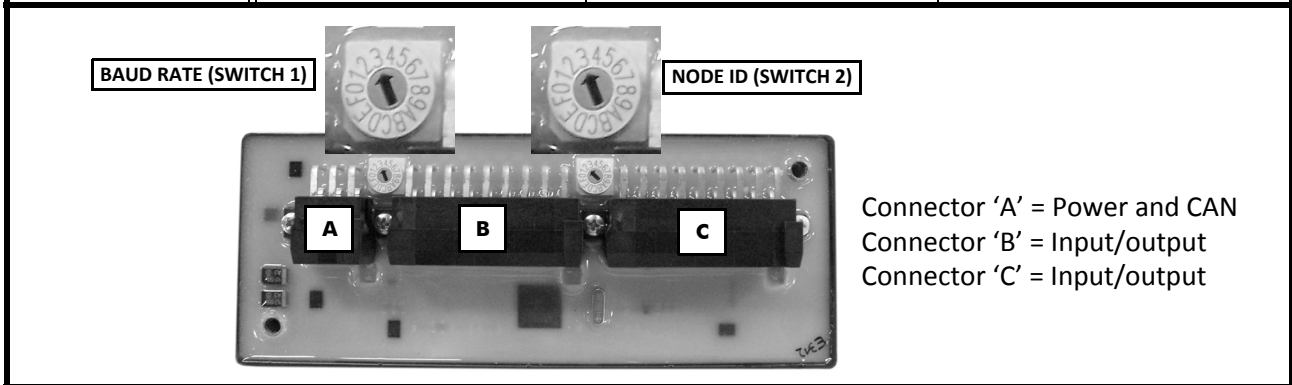
***It is advisable to follow an existing loom going from the cab to the rear of the vehicle.***

Appropriately anchor this loom, ensuring it is free of interference from moving parts, excessive heat, chafing, kinks, and has enough free play when the cab is raised.

Once the above has been carried out, connect the battery Positive and Negative cables. These are normally situated beneath the auxiliary engine.

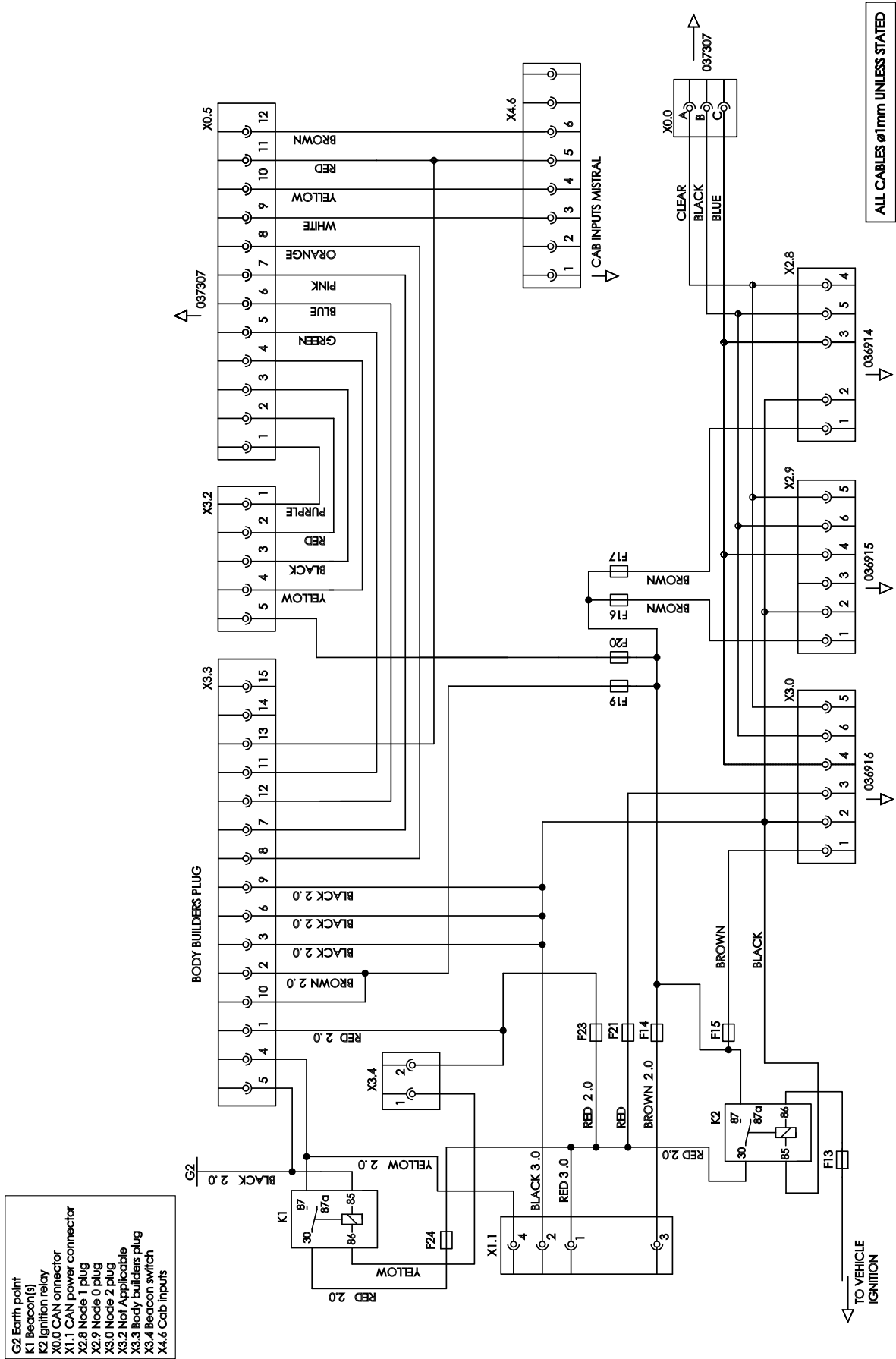
**Table 1 - Slave node connector ID's**

Node ID	CONNECTOR ( A )	CONNECTOR ( B )	CONNECTOR ( C )
0. 0	X5. 0 (Loom 036915)	X5. 5 (Auxiliary control panel)	X5. 6 (Auxiliary control panel)
1. 0	X5. 1 (Loom 036914)	X5. 7 (Main control panel)	X5. 8 (Main control panel)
1. 1	X5. 2 (Loom 036914)	X5. 9 (Main control panel)	X6. 0 (Main control panel)



**Table 2 - Slave node switch positions**

SWITCH ID	SWITCH POSITION	Node ID
1, Baud rate	3	0. 0, 0. 1, 1. 1
2, Node ID	1	0. 1
2, Node ID	2	1. 1
2, Node ID	3	0. 0



**Figure 28 - Cab loom (038013)**

# M6 - FS6000

## SECTION 2 SCHEMATICS

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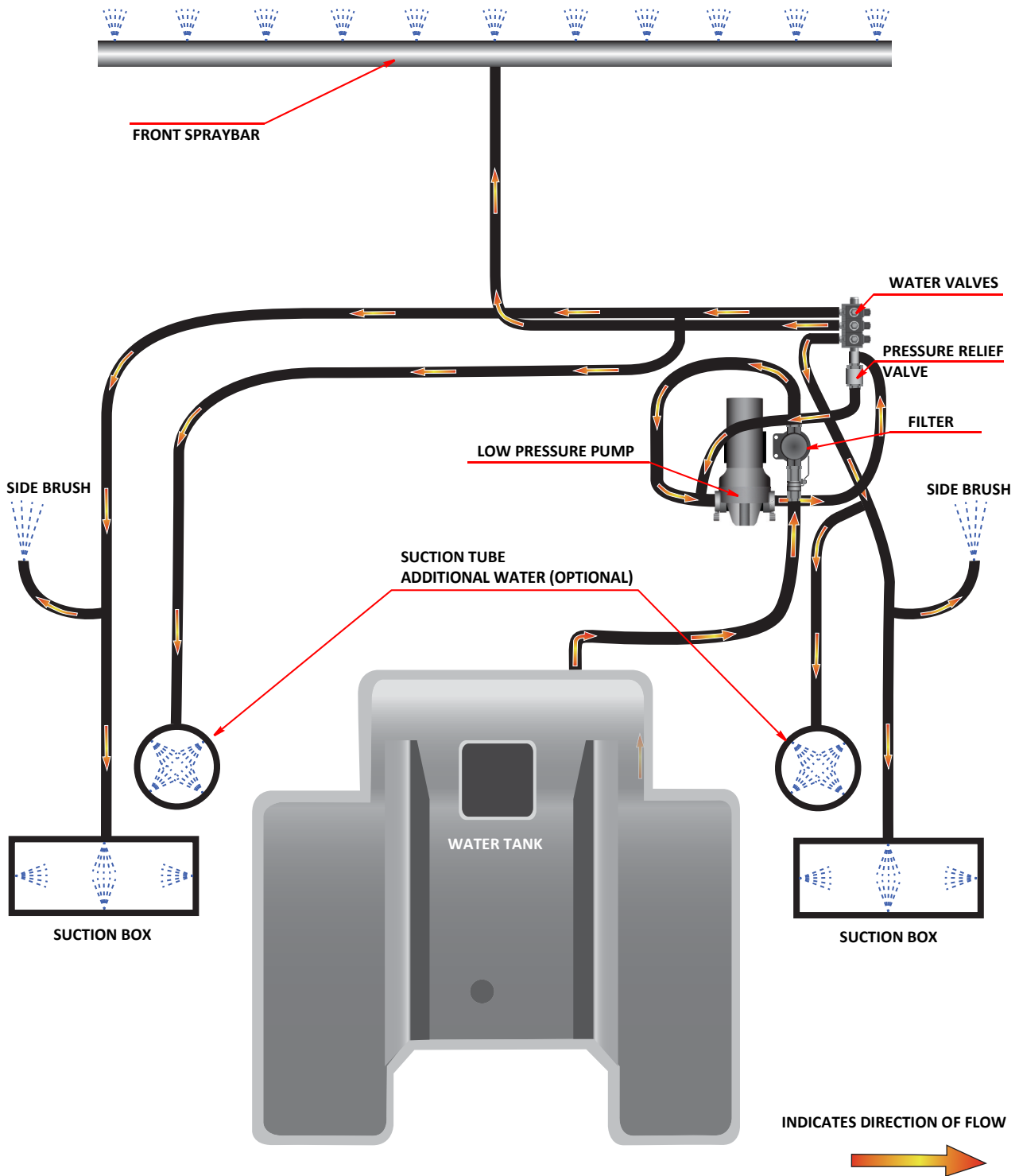


Figure 1 - Water schematic - electric low pressure pump

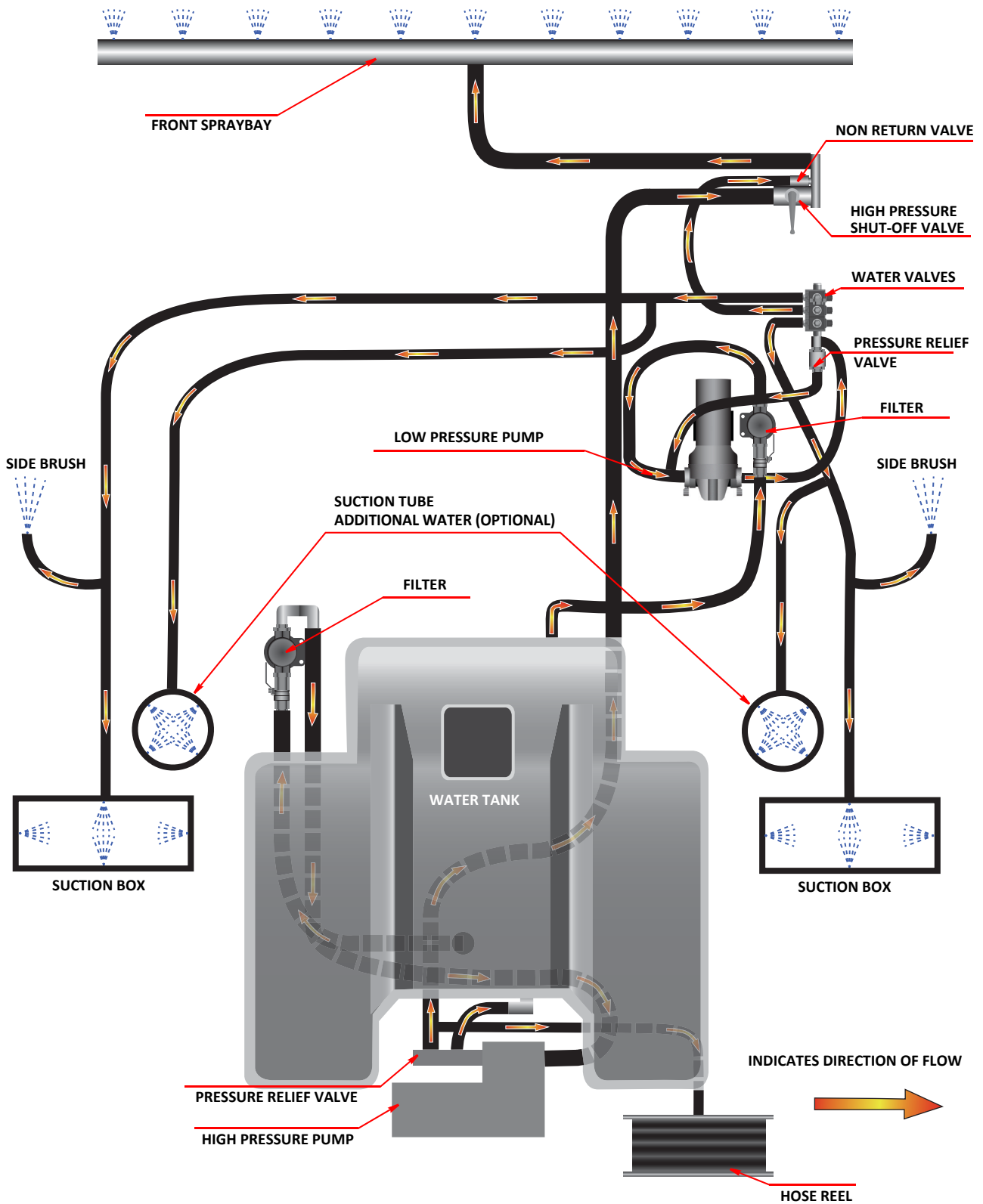


Figure 2 - Water schematic - electric low and hydraulic high pressure pumps

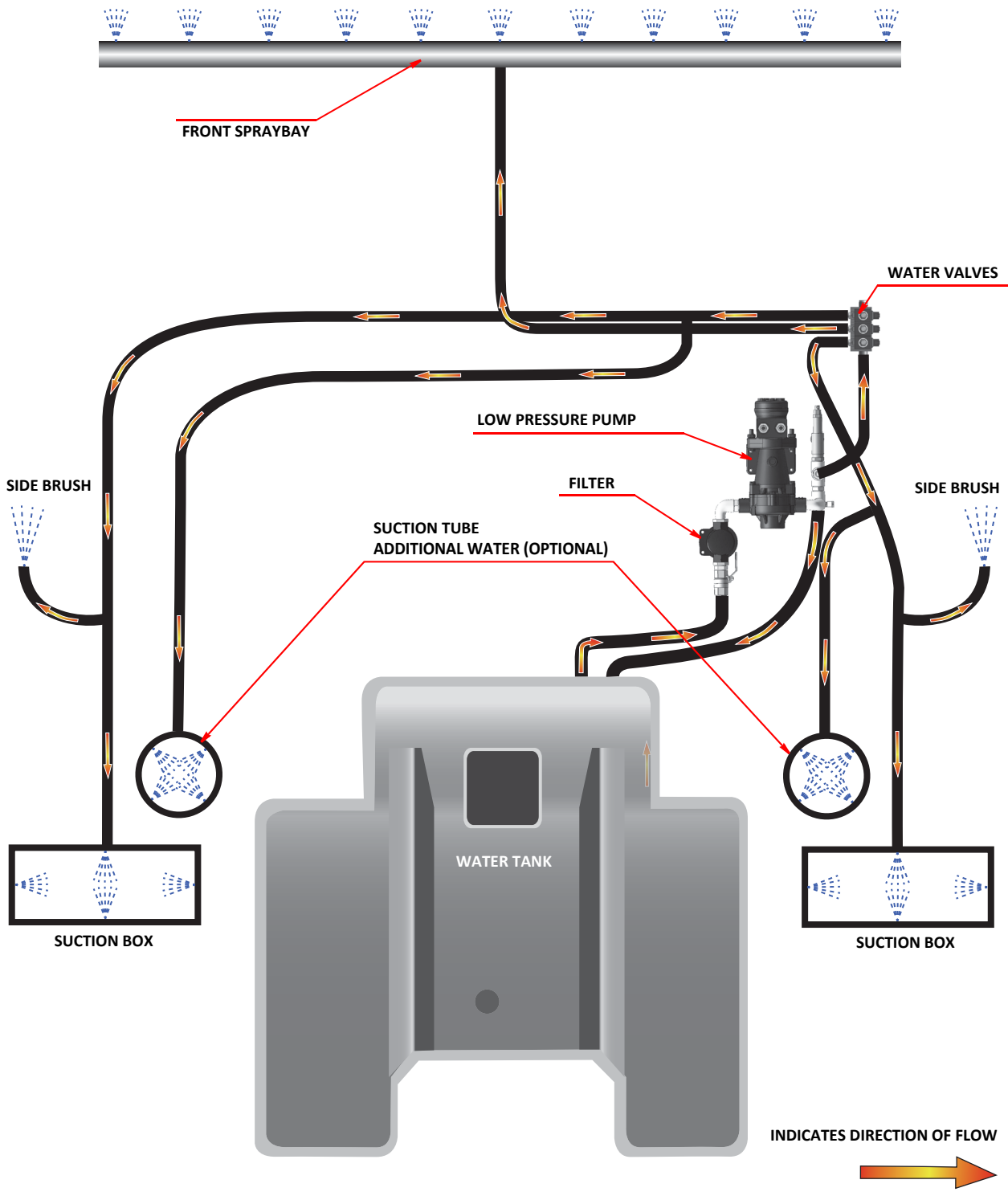


Figure 3 - Water schematic - hydraulic low pressure pump



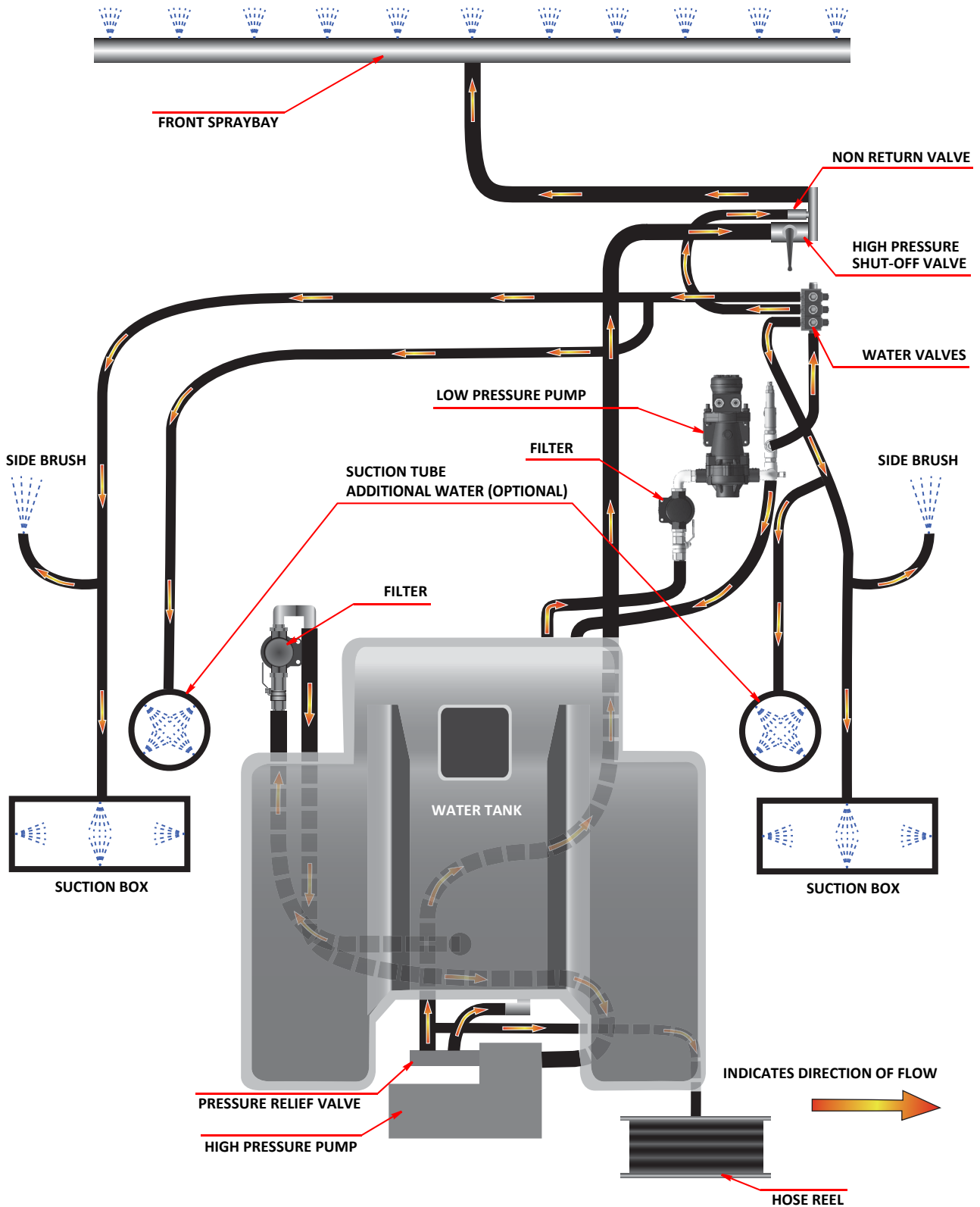


Figure 4 - Water schematic - hydraulic low and high pressure pumps

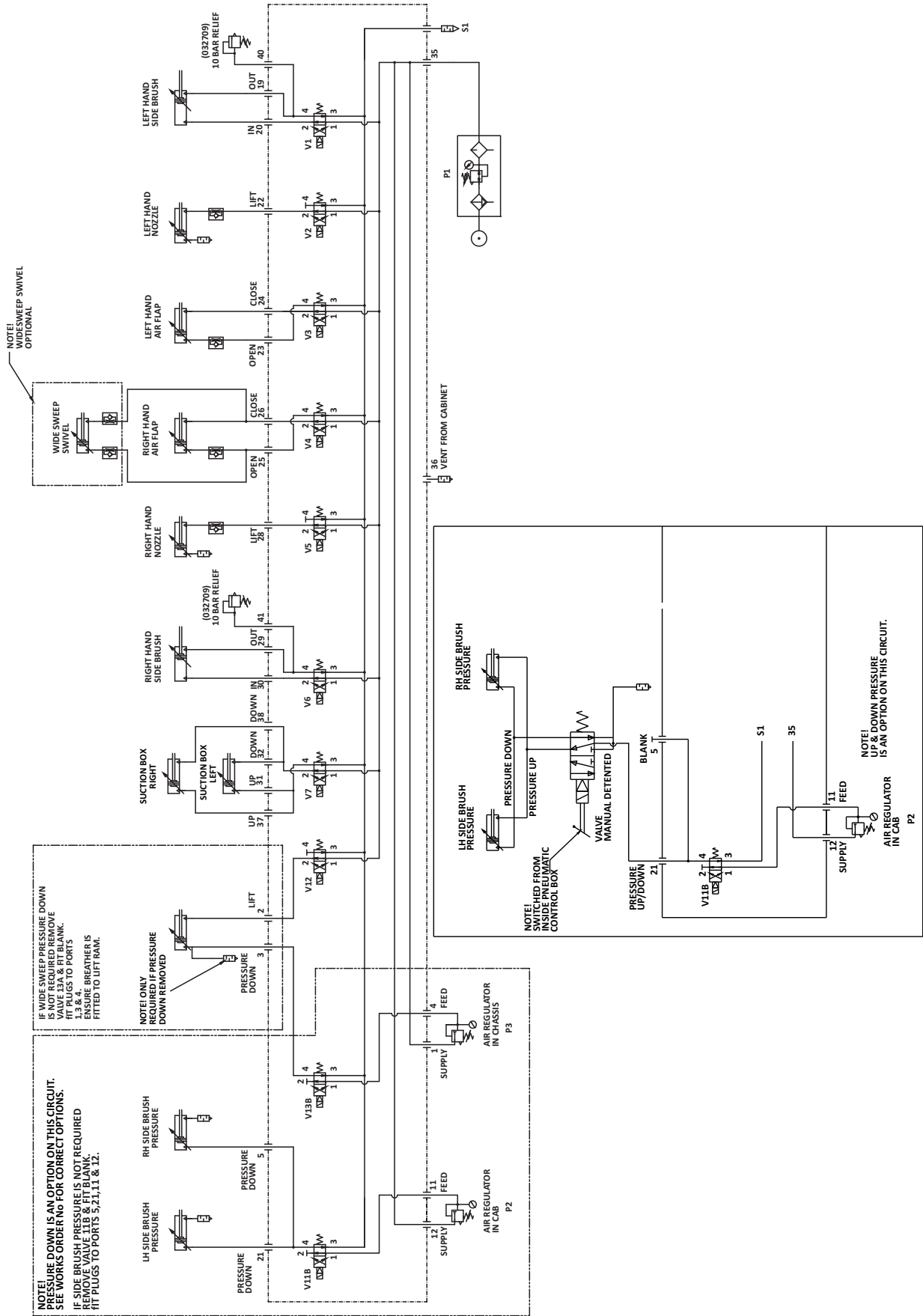
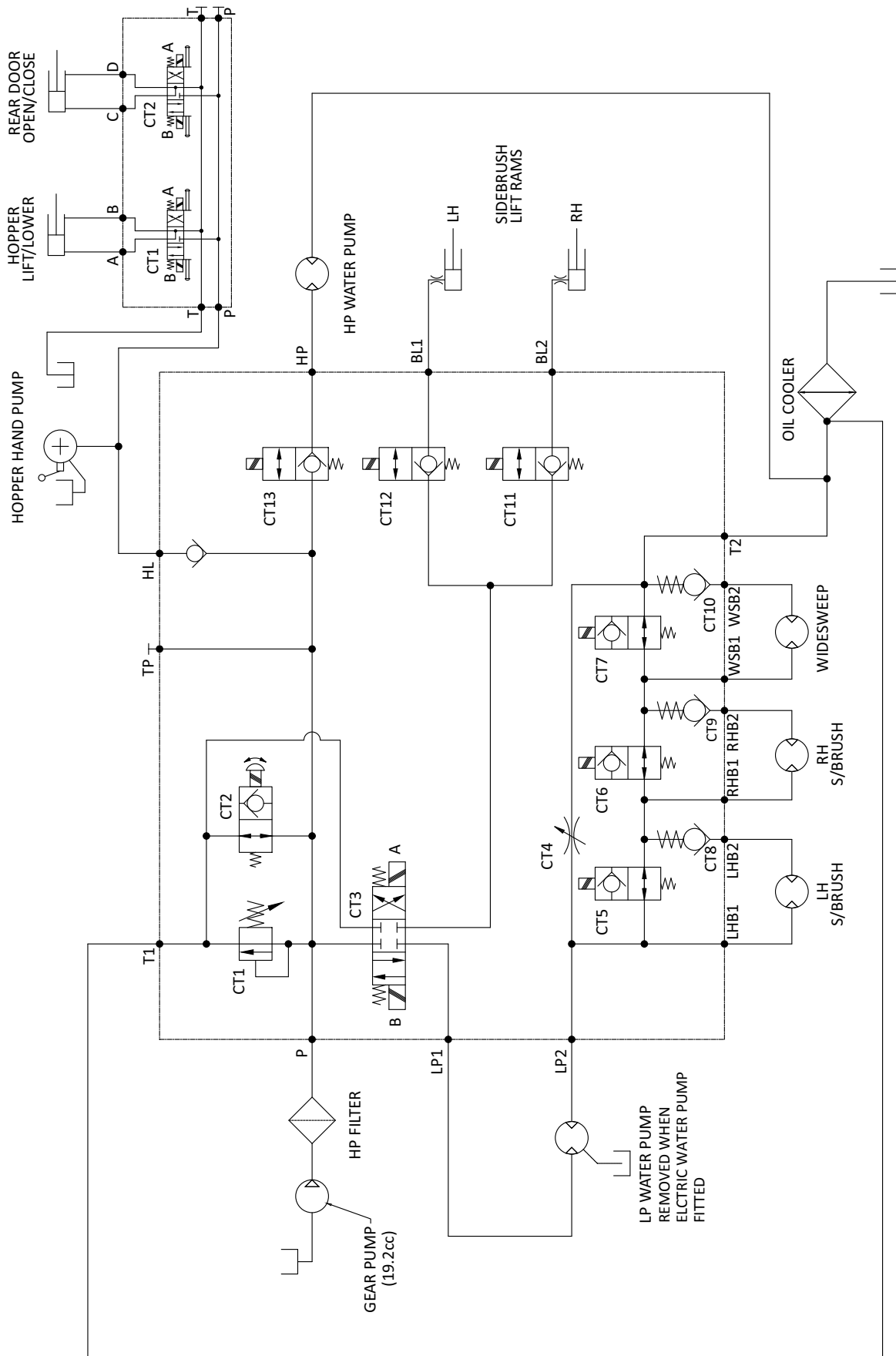


Figure 5 - Pneumatic circuit



**Figure 6 - Hydraulic circuit remote control unit**

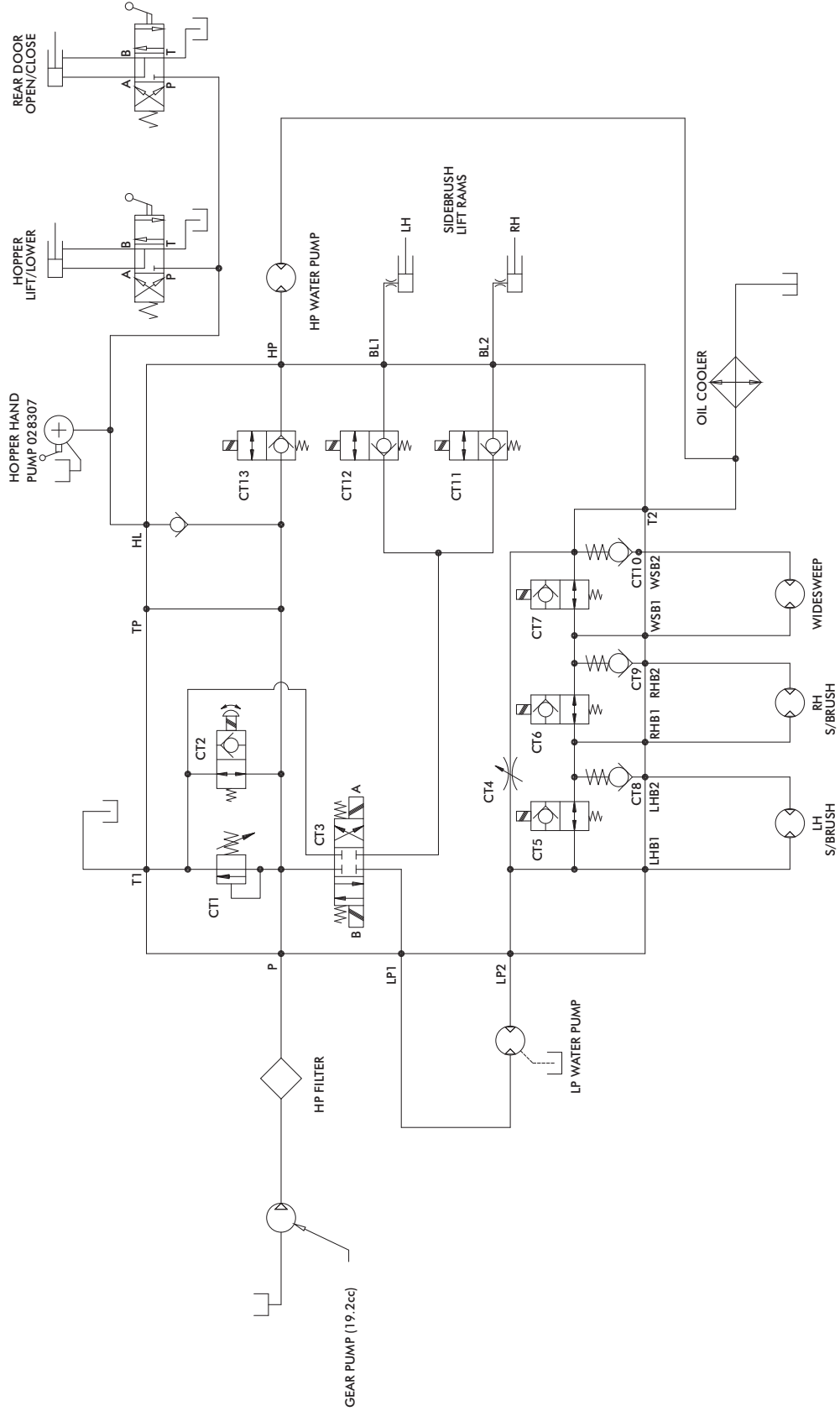
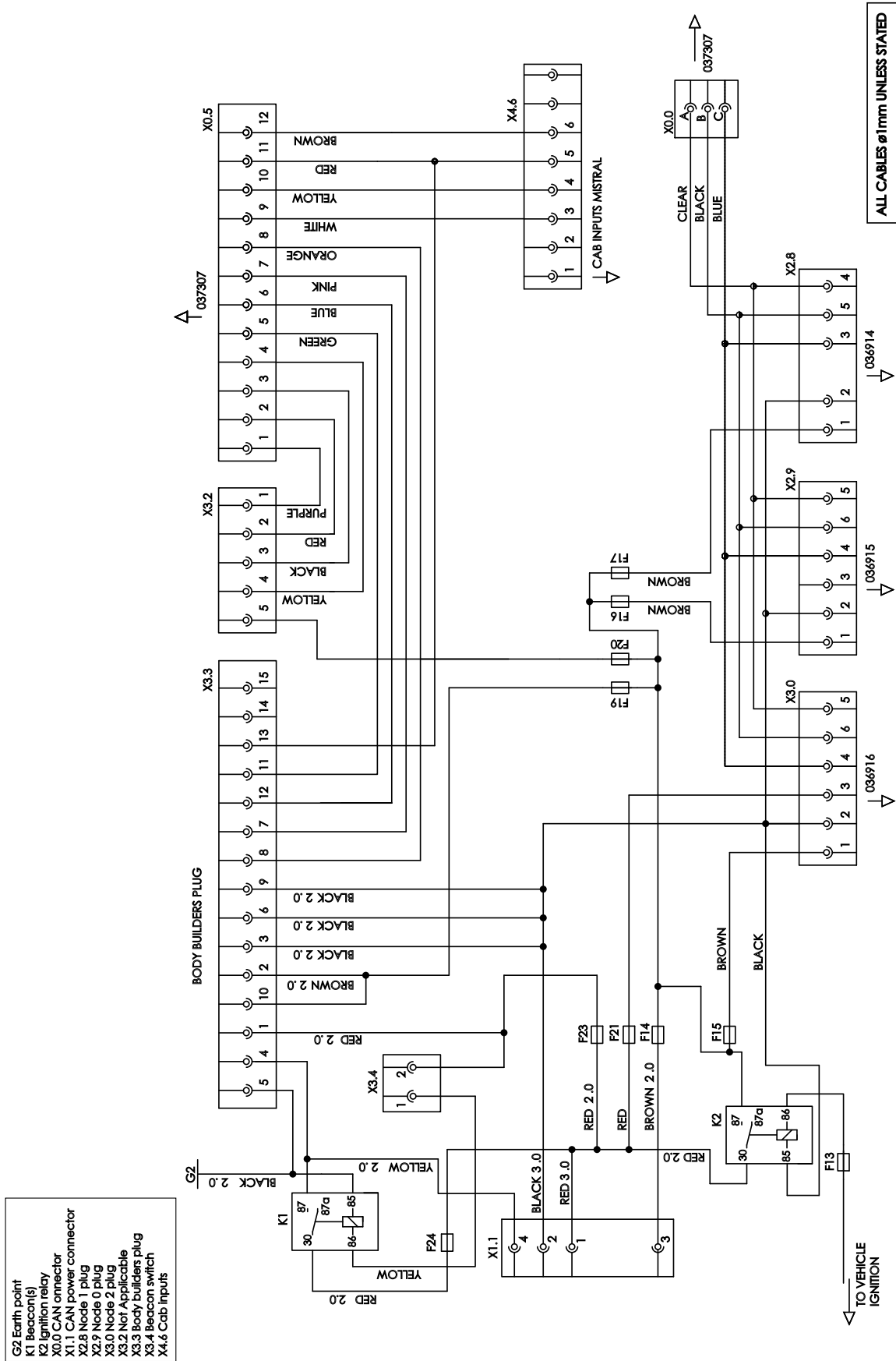


Figure 7 - Hydraulic circuit with manual levers



**Figure 8 - Cab wiring circuit**

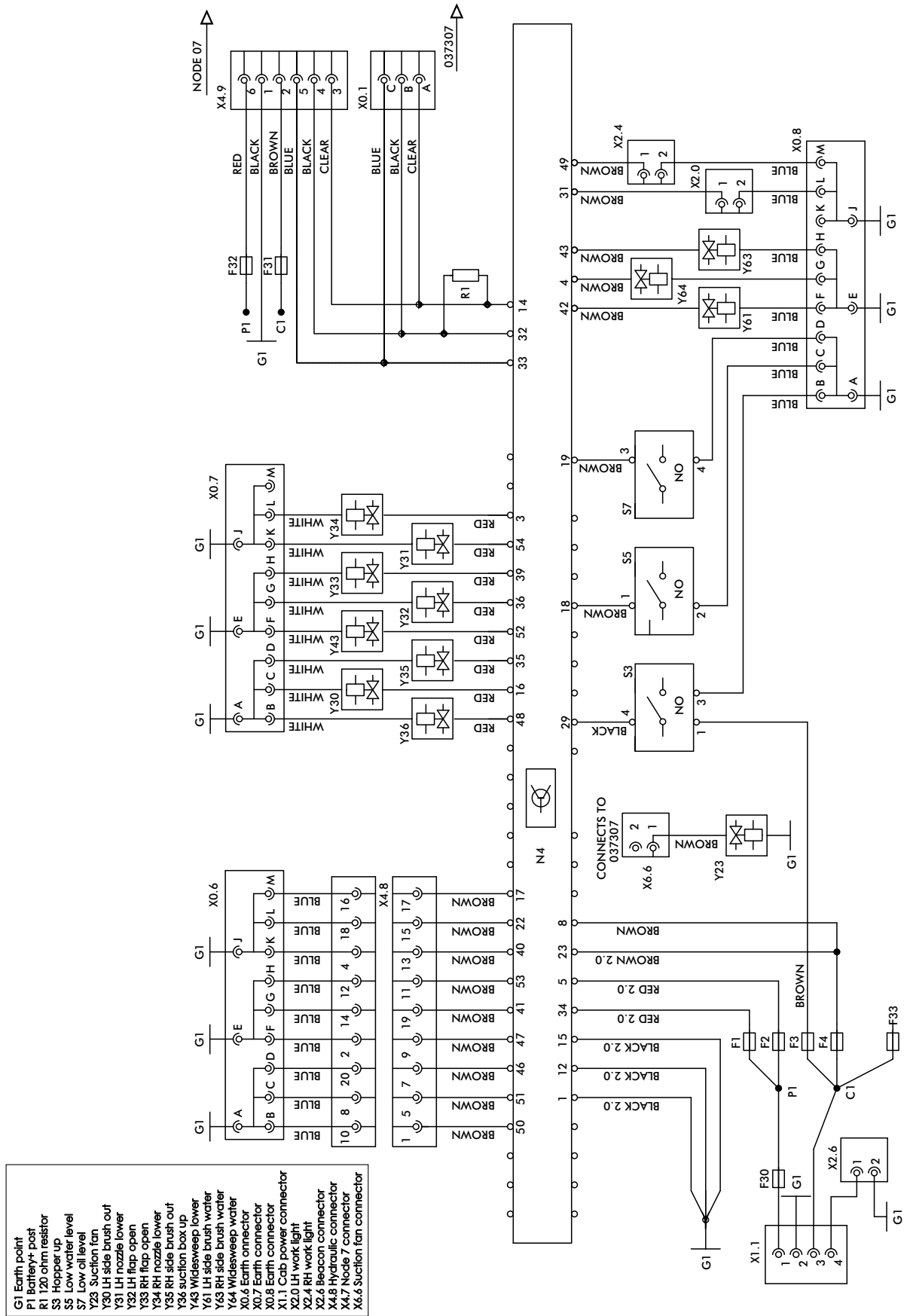
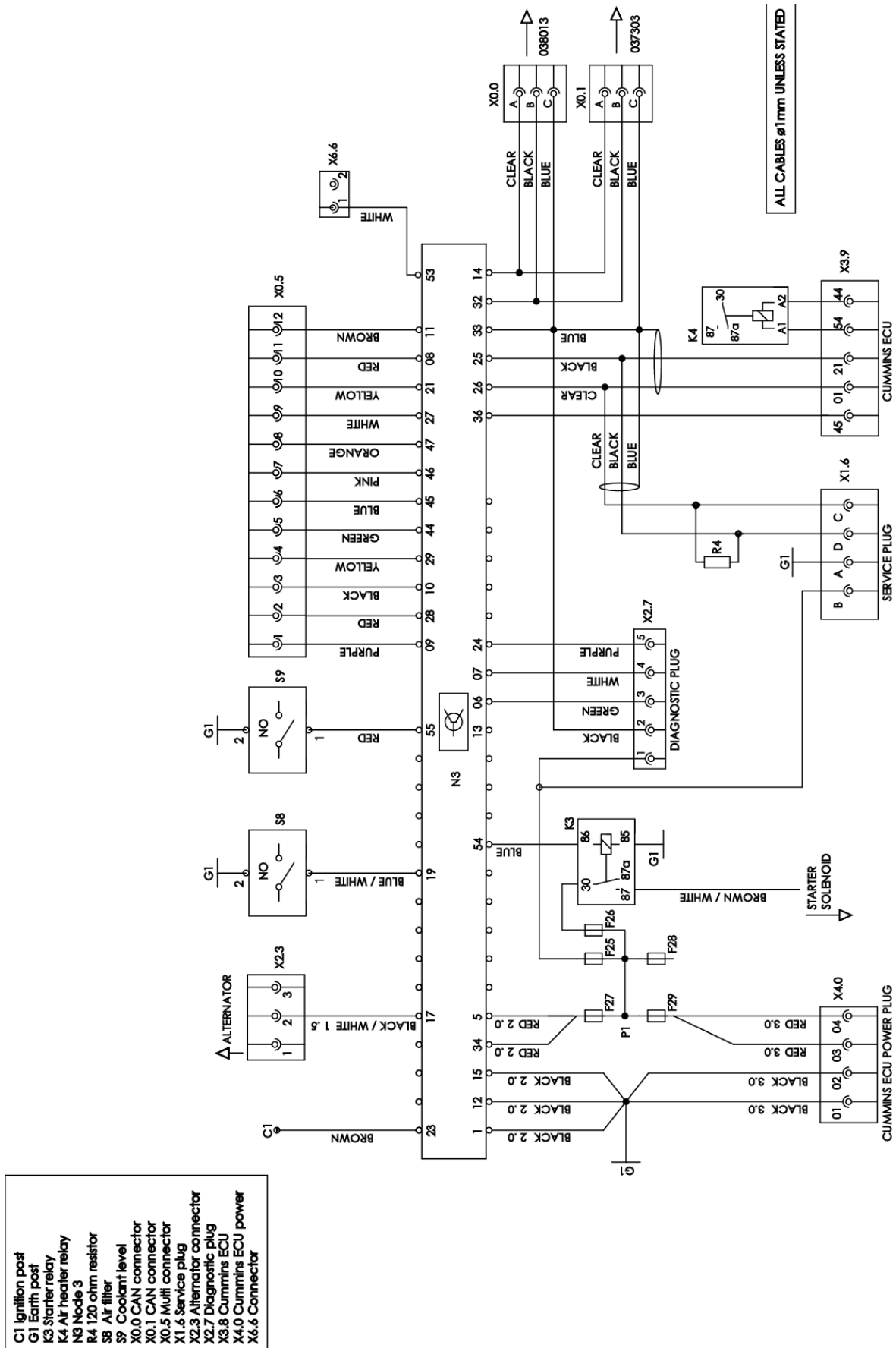


Figure 9 - Node 4 wiring circuit



**Figure 10 - Engine wiring circuit**

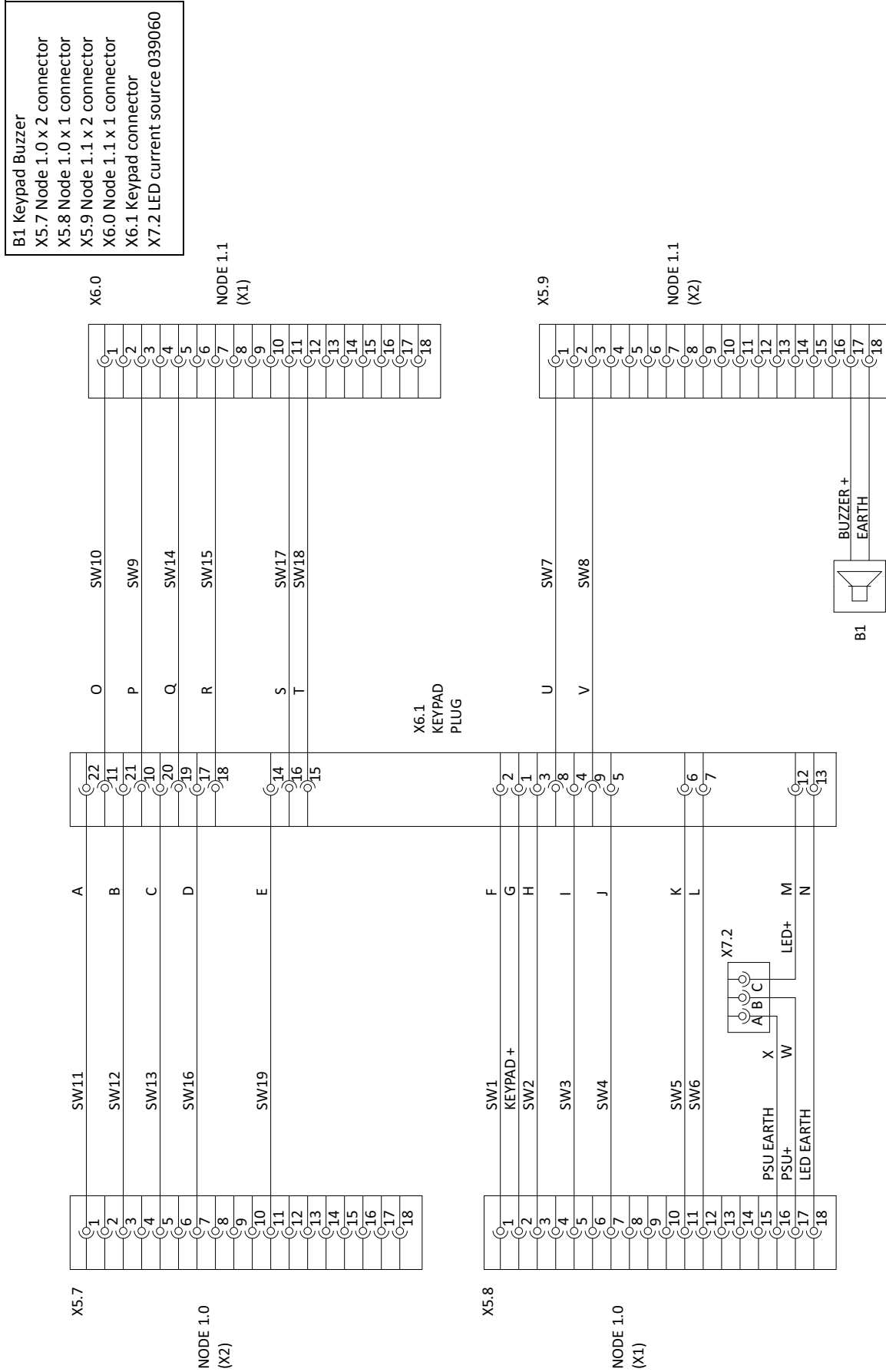
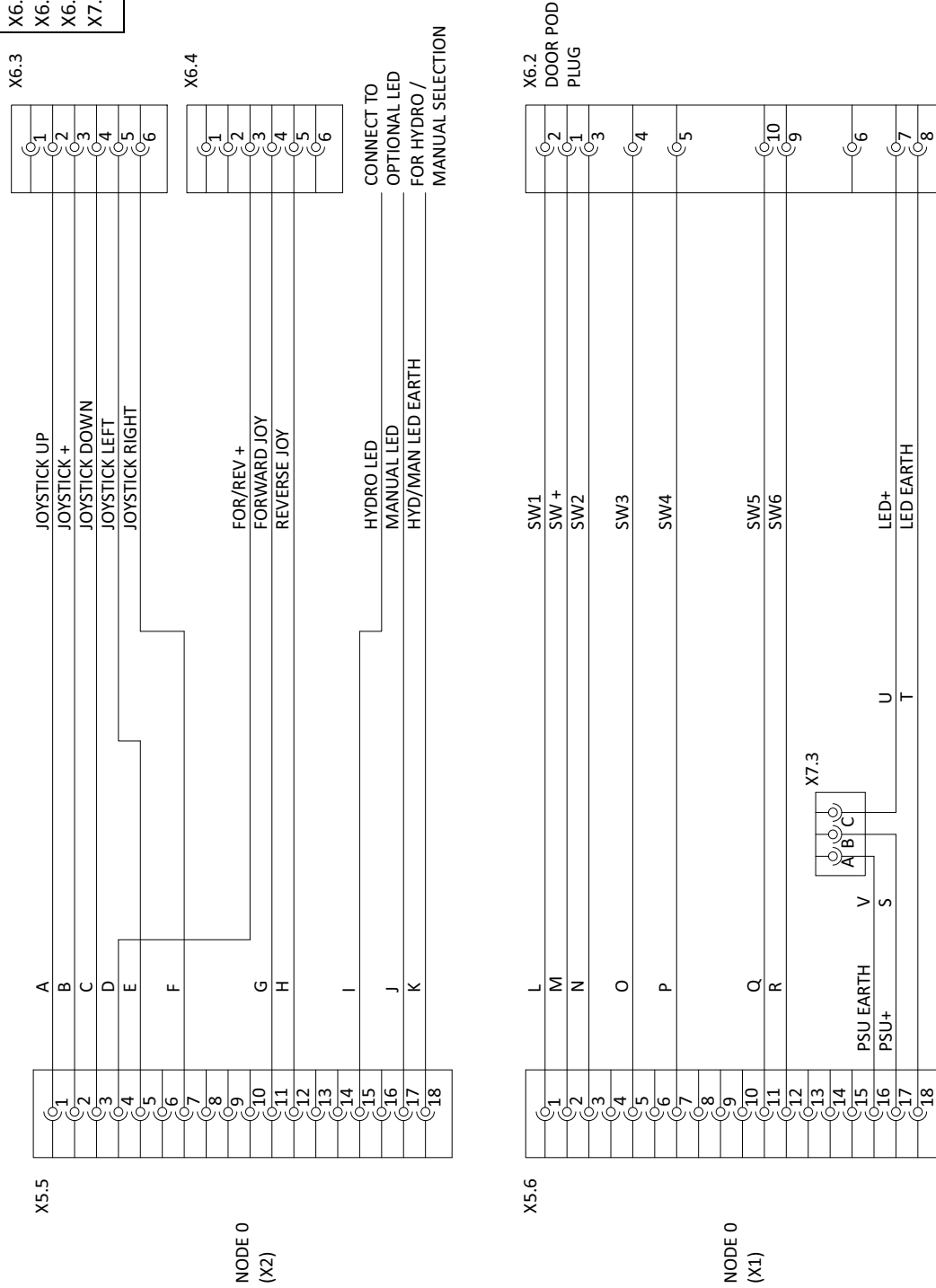


Figure 11 - Main control panel wiring circuit



X5.5 Node 0 x 2 Connector  
 X5.6 Node 0 x 1 connector  
 X6.2 Auxiliary control panel connector  
 X6.3 Forward/reverse lever connector  
 X6.4 Ergo joystick connector  
 X7.3 LED current source 039060



**Figure 12 - Auxiliary control panel wiring circuit**

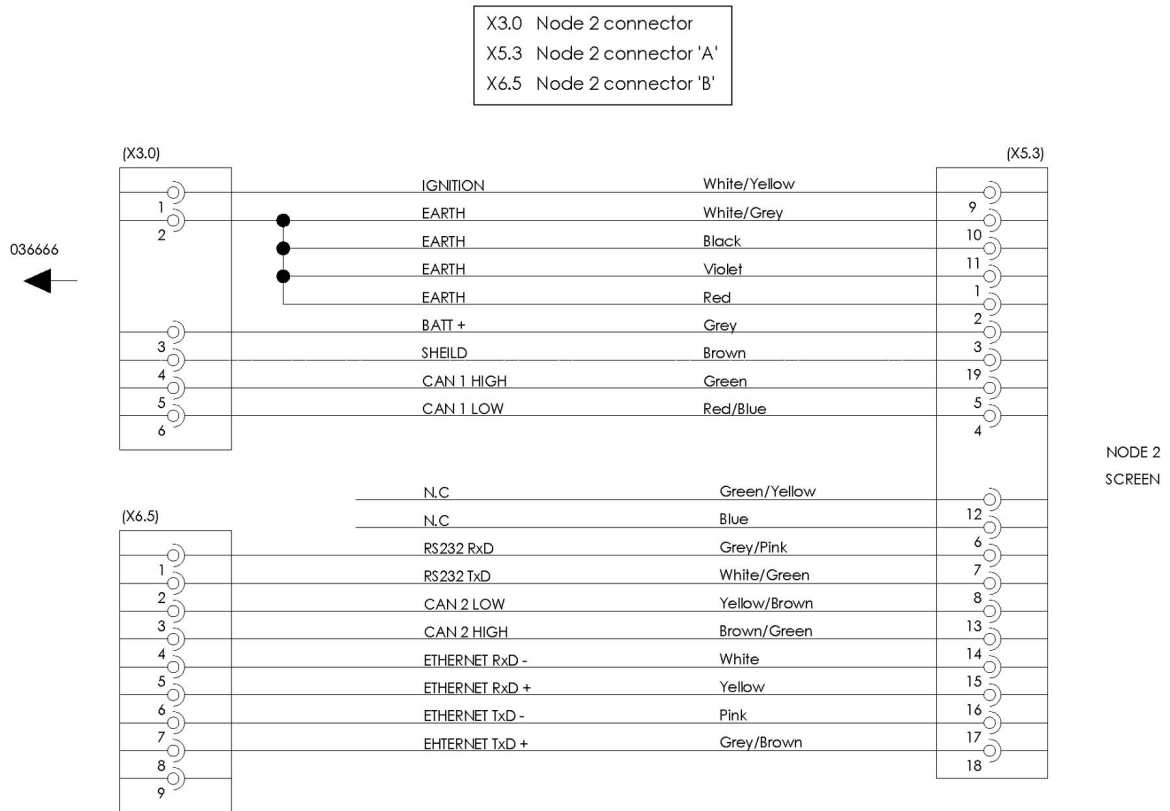


Figure 13 - LCD Screen Wiring Circuit

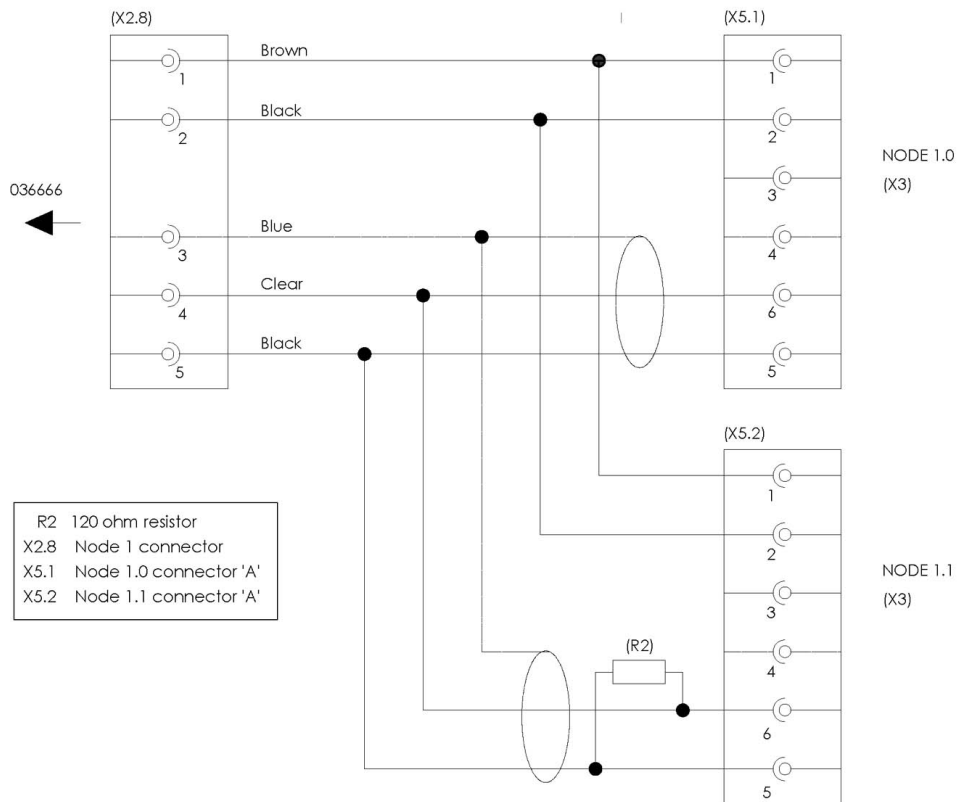
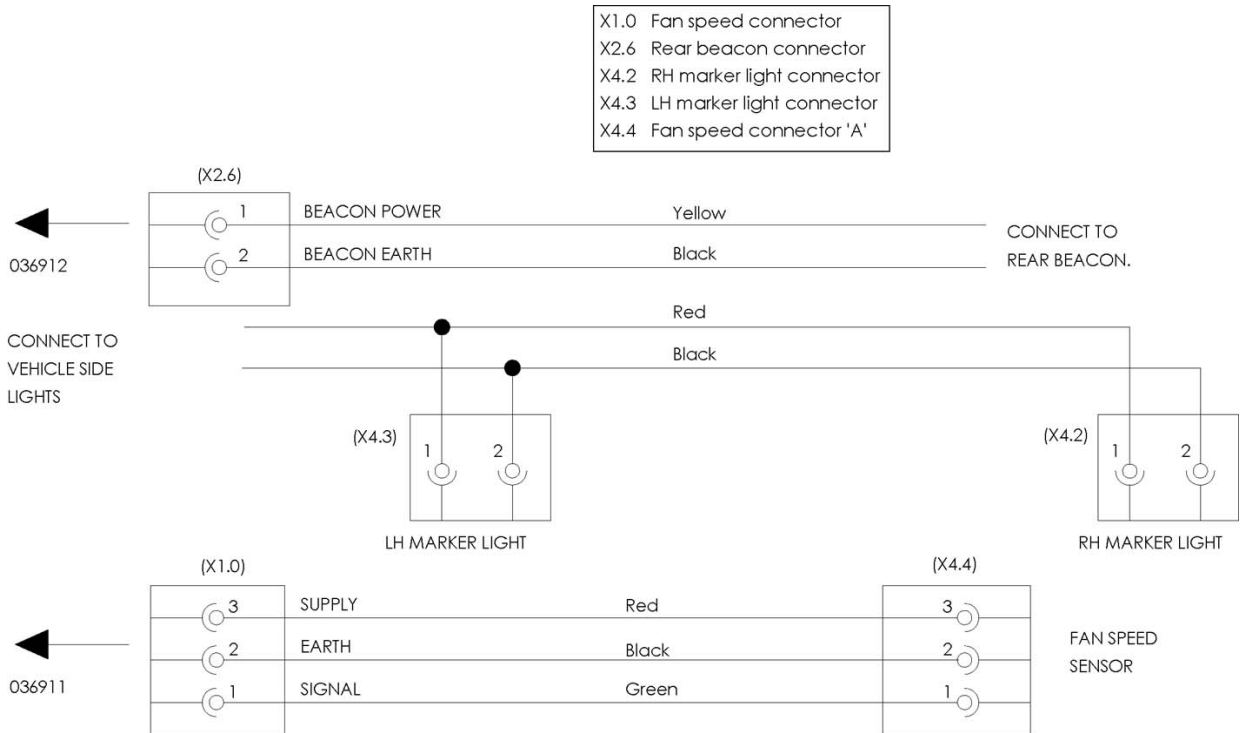
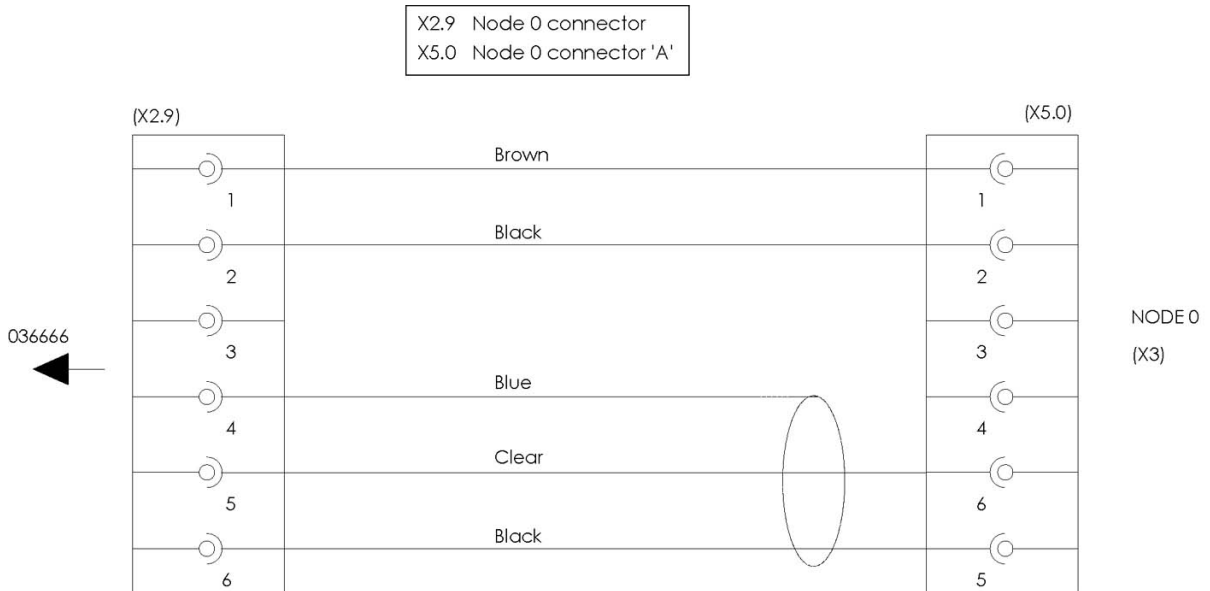


Figure 14 - Main Control Panel Power/CAN Wiring Circuit



**Figure 15 - Hopper Wiring Circuit**

H



**Figure 16 - Auxiliary Control Panel Power/CAN Wiring Circuit**

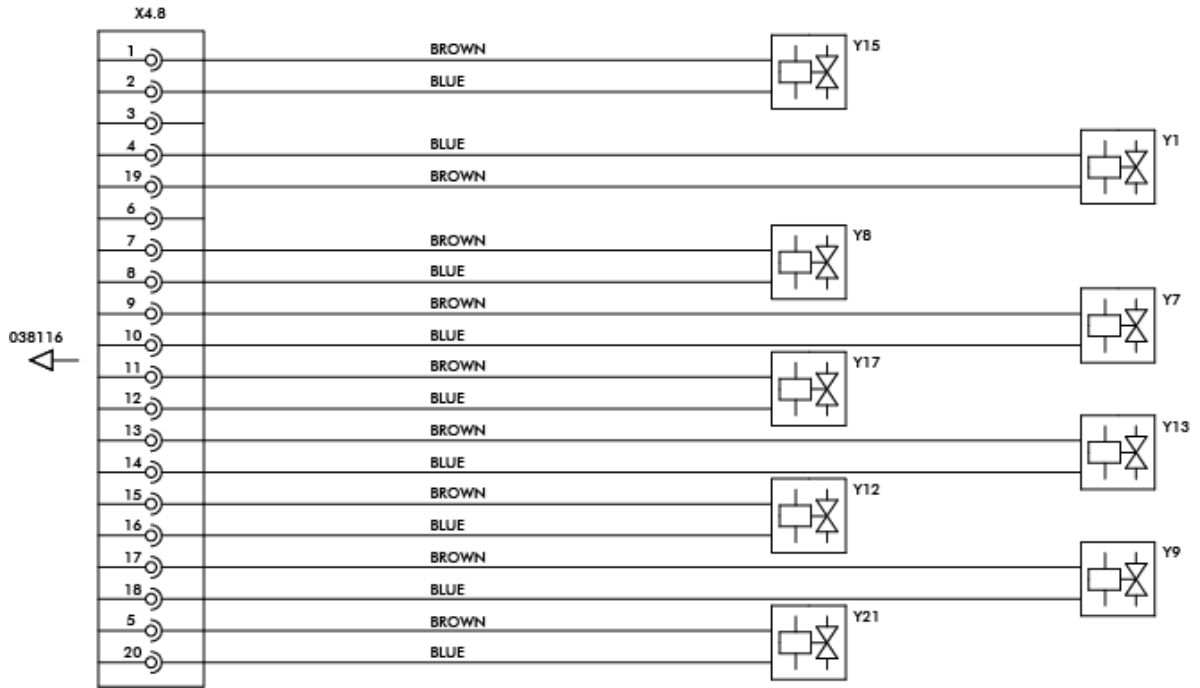


Figure 17 - Hydraulic Wiring Circuit

Node

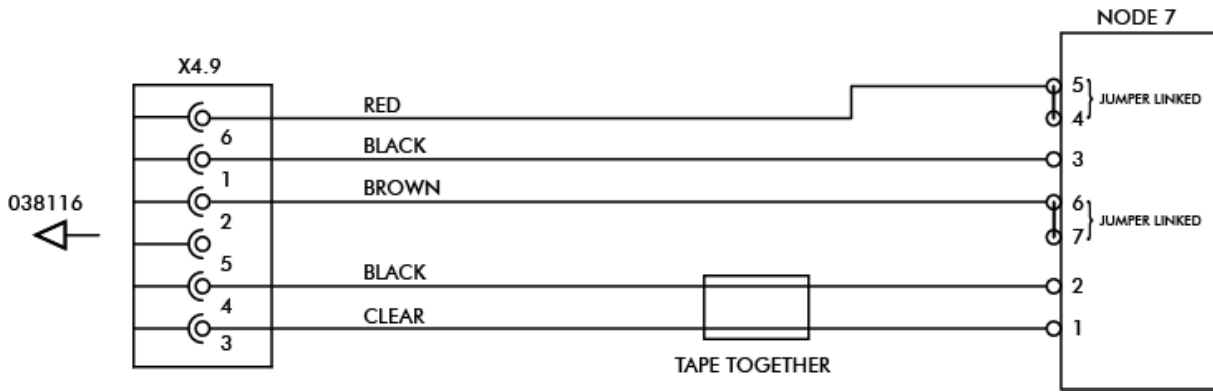


Figure 18 - Node 7 Wiring Circuit (Optional)