Section B

Body & Framework

Service Manual - JS200W TIER III

Publication No.
9803/9540-5

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Notes:

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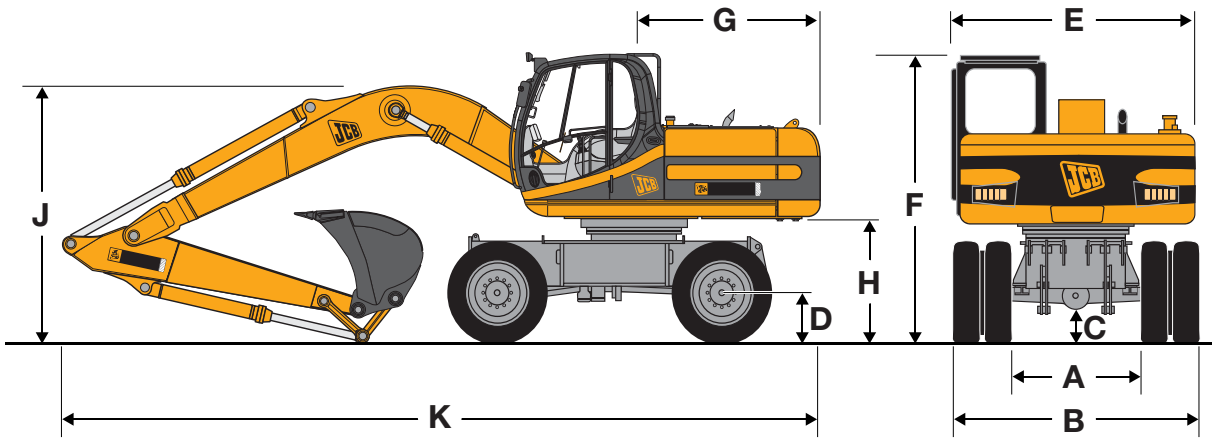
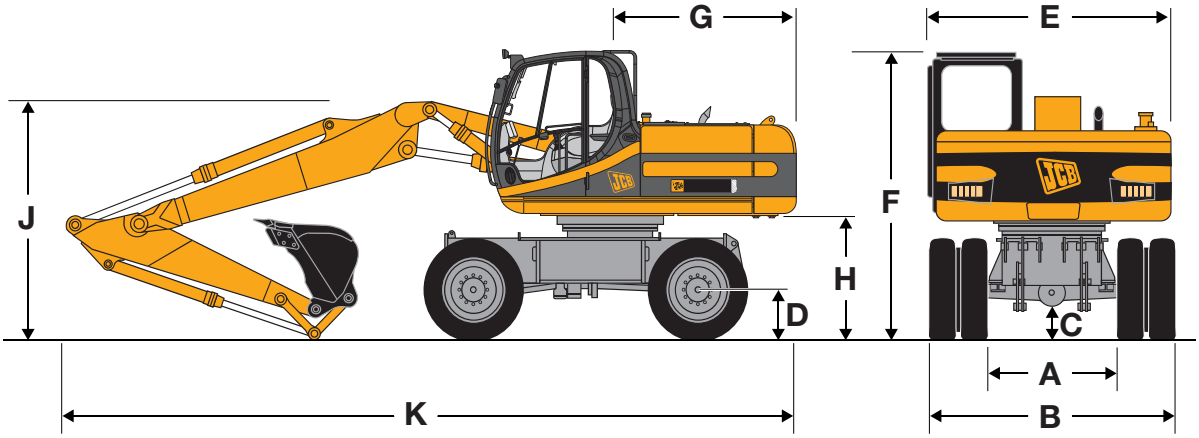
JS200W - Monoboom



Dimensions in millimetres (ft. in)	
A Internal width between dual wheels	1330 (4 ft 4 in)
B External width between dual wheels	2530 (8 ft 4 in)
C Ground clearance	260 (0 ft 10 in)
D Height to axle centre line for dual wheels	515 (1 ft 8 in)
D Height to axle centre line for single wheels	556 (1 ft 10 in)
E Overall width	2500 (8 ft 2 in)
F Height over cab	3250 (10 ft 8 in)
G Tail length	2530 (8 ft 3 in)
H Clearance under counterweight	1335 (4 ft 4 in)

Dipper lengths	1.91m	2.4m	3.0m
J Transport height	3120 (10 ft 2 in)	3200 (10 ft 6 in)	3050 (10 ft 0 in)
K Transport length	9450 (31 ft 0 in)	9450 (31 ft 0 in)	9330 (30 ft 7 in)

JS200W - Triple Articulated Boom



Dimensions in millimetres (ft. in)	
A Internal width between dual wheels	1330 (4 ft 4 in)
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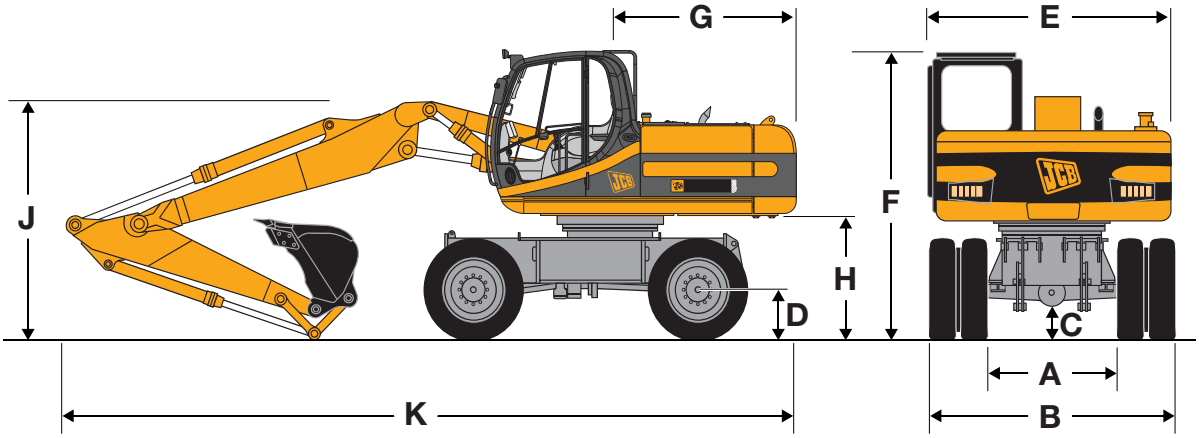
H Clearance under counterweight	1335 (4 ft 4 in)

Dipper lengths	1.91m	2.4m	3.0m
J Transport height	3320 (10 ft 10 in)	3400 (11 ft 1 in)	3700 (12 ft 1 in)
K Transport length	9175 (30 ft 1 in)	9190 (30 ft 1 in)	9200 (30 ft 2 in)

JS200W - Wide Axle



Dimensions in millimetres (ft. in)	
A Internal width between dual wheels	1530 (5 ft 0 in)
B External width between dual wheels	2730 (9 ft 0 in)
C Ground clearance	260 (0 ft 10 in)
D Height to axle centre line for dual wheels	515 (1 ft 8 in)
D Height to axle centre line for single wheels	556 (2 ft 0 in)
E Overall width	2730 (9 ft 0 in)
F Height over cab	3250 (10 ft 8 in)
G Tail length	2530 (8 ft 4 in)
H Clearance under counterweight	1335 (4 ft 5 in)

Dipper lengths	1.91m	2.4m	3.0m (T.U.V restricted countries)
J Transport height	3320 (10 ft 10 in)	3400 (11 ft 1 in)	3700 (12 ft 1 in)
K Transport length	9175 (30 ft 1 in)	9190 (30 ft 1 in)	9200 (30 ft 2 in)

Operating Weight

Approximate weight when equipped with 2.4m (7 ft 10 in) dipper, excavating bucket and dual wheels. For single wheels subtract 400Kg (880lb)

Table 1. JS200W

	Base machine i.e. without dozer blade or stabilisers	Base machine with dozer blade	Base machine with 2 stabilisers	Base machine with dozer blade and 2 stabilisers	Base machine with 4 stabilisers
Monoboom (5 tonne counter weight)	20475kg (45140lb)	21283kg (46921lb)	21838kg (48144lb)	22647kg (49928lb)	23202kg (51152lb)
Triple Articulated Boom (4 tonne counter weight)	20546kg (45296lb)	21354kg (47077lb)	21909kg (48301lb)	22718kg (50085lb)	23273kg (51308lb)
Triple Articulated Boom (3.5 tonne counter weight - T.U.V restricted countries)	20046kg (44194lb)	20854kg (45380lb)	21409kg (47199lb)	22218kg (48982lb)	22773kg (50206lb)

Table 2. JS200W Wide Axle

	Base machine i.e. without dozer blade or stabilisers	Base machine with dozer blade	Base machine with 2 stabilisers	Base machine with dozer blade and 2 stabilisers	Base machine with 4 stabilisers
Triple Articulated Boom (3.5 tonne counter weight - T.U.V restricted countries)	20094kg (44300lb)	20918kg (46116lb)	21457kg (47305lb)	22286kg (49132lb)	22821kg (50132lb)

Tyre Pressures

Table 3. JS200W

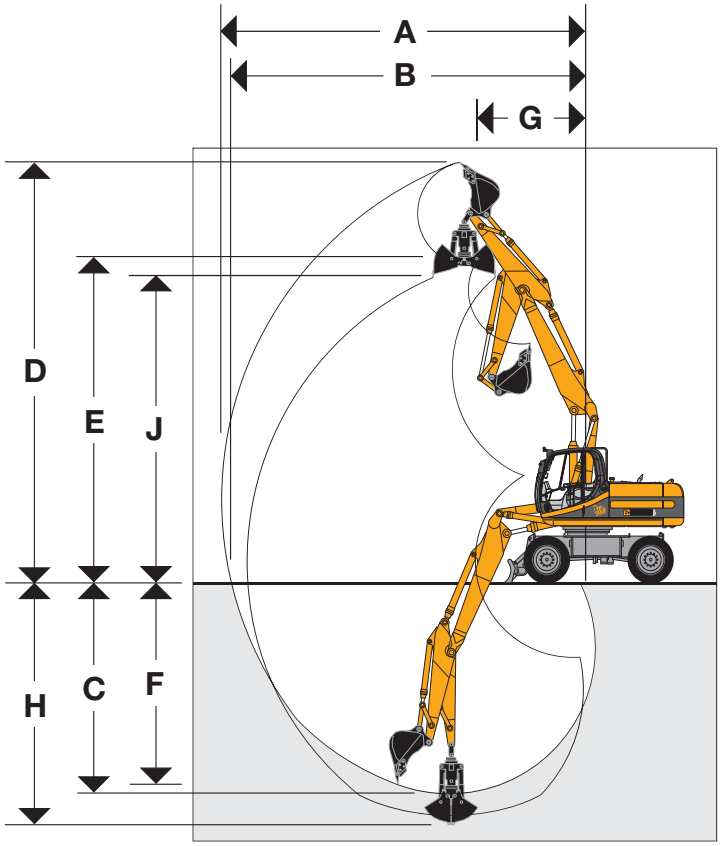
Tyre Size	Front	Rear
11.0 x 20 - 16PR	7.25 bar (105 lbf/in^2)	7.25 bar (105 lbf/in^2)
18.0 x 22.5 - 16PR	7.5 bar (109 lbf/in^2)	7.5 bar (109 lbf/in^2)
18 x 19.5	6.8 bar (98 lbf/in^2)	6.8 bar (98 lbf/in^2)
600/40 - 22.5	6.0 bar (87 lbf/in^2)	6.0 bar (87 lbf/in^2)

Turning Radius

Machine	Turning Circle - to Outside Tyres	Turning Circle - to Outer Edge of Front Mounted Dozer Blade
JS200W	6.61 m (21 ft 8 in)	7.23 m (23 ft 9 in)
JS200W Wide Axle	6.71 m (22 ft 0 in)	7.33 m (24 ft 1 in)

Dig Depth Chart

JS200W



Boom	Monoboom			Triple Articulated Boom		
Dipper	**1.91**	**2.4**	**3.0**	**1.91**	**2.40**	**3.0**
	m (ft in)	m (ft in)	m (ft in)	m (ft in)	m (ft in)	m (ft in)
A Max digging reach	9.11 (29 10)	9.49 (31 1)	10.02 (32 10)	8.86 (29 0)	9.28 (30 5)	9.83 (32 3)
B Max digging reach (on ground)	8.87 (29 1)	9.31 (30 6)	9.85 (32 3)	8.65 (28 4)	9.14 (30 0)	9.65 (31 8)
C Max digging depth	5.26 (17 3)	5.79 (18 0)	6.37 (20 10)	5.47 (18 0)	5.96 (19 6)	6.48 (21 3)
D Max digging height	9.19 (30 2)	9.43 (31 0)	9.63 (31 7)	9.53 (31 3)	9.93 (32 6)	10.16 (33 4)
E Max loadover height	6.47 (21 3)	6.76 (22 2)	6.98 (23 0)	6.67 (21 10)	7.60 (23 2)	7.30 (24 0)
F Max vertical wall cut depth	4.54 (14 10)	5.24 (17 2)	5.84 (19 2)	3.76 (12 4)	4.20 (13 9)	4.80 (15 9)
G Min. swing radius	3.90 (12 9)	3.86 (12 8)	3.75 (12 4)	3.25(10 7)	3.26 (10 8)	2.91(9 6)
H Max digging depth with grab	N/A	N/A	N/A	N/A	N/A	N/A
J Max dumping height	N/A	N/A	N/A	N/A	N/A	N/A

Air Conditioning (option)

TB-012

Automatic Temperature Control (ATC) System

Table 4.

Pressure Switch Setting	Bar	lbf/in²
Low Pressure Cut In	1.4 (+/- 0.1)	20 (+/- 1.5)
Low Pressure Cut Out	0.3 (+/- 0.1)	4 (+/- 1.5)
High Pressure Cut In	17.2 (+/- 0.7)	250 (+/- 10)
High Pressure Cut Out	27.6 (+/- 0.7)	400 (+/- 10)

Table 5.

Refrigerant Gas Charge Weight	
R-134a	1400g +/- 10g

Table 6.

Oil Quantity	
Full System	150g +/- 5g PAG (PolyAlkylene Gycol) oil to ISO 100
Evacuation/Charge	If the system is being evacuated, add 57g (59ml) of lubrication oil to the system before or during the charge.

Basic Operation

Automatic Temperature Control (ATC) System

TB-011

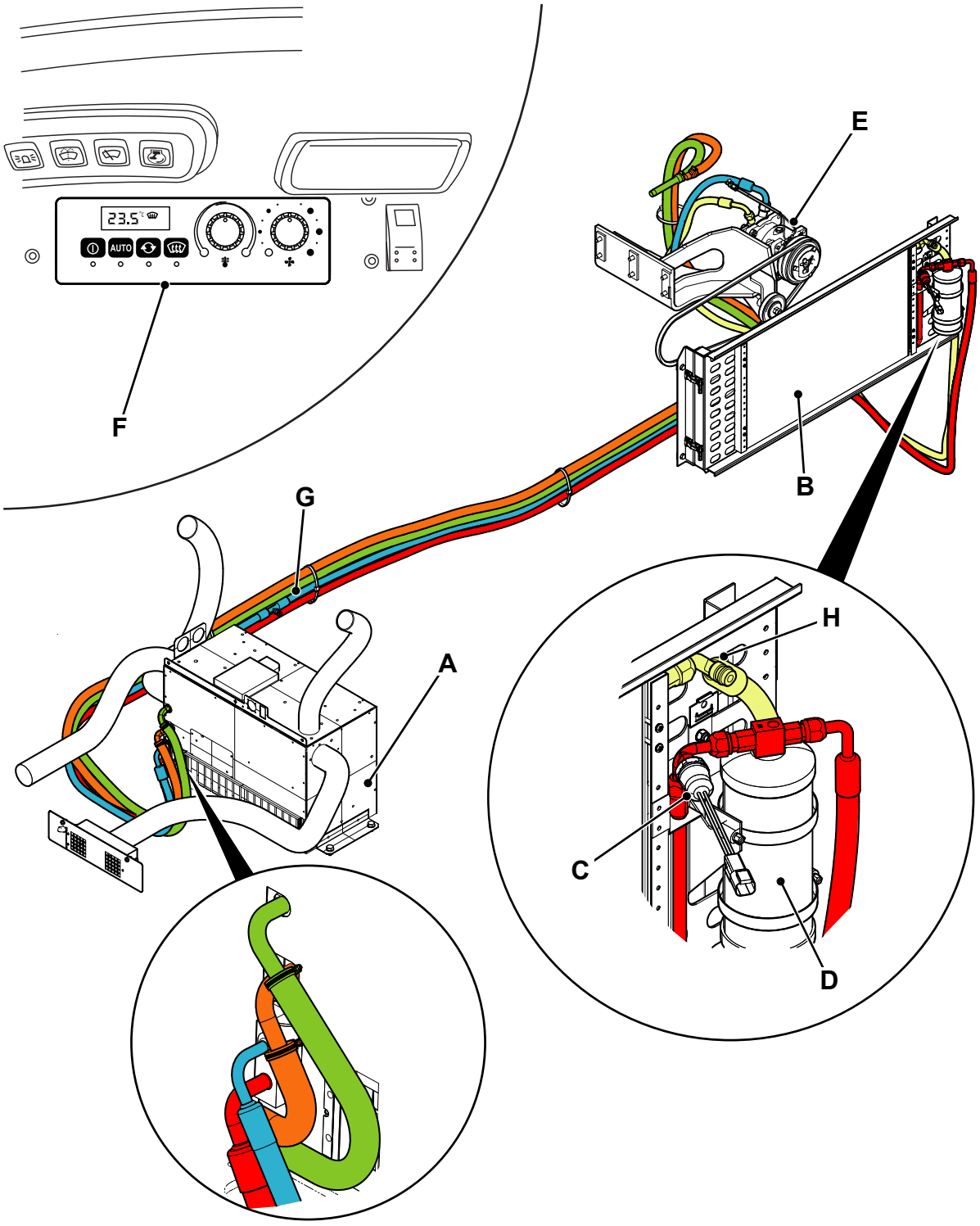


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Fig 1.

Item	Description
A	Evaporator Matrix ⇨ *Fig 2. (B-11)*
B	Condenser
C	Binary Switch
D	Receiver/Drier
E	Compressor
F	Control Panel
G	Low Pressure Recharge Point
H	High Pressure Recharge Point
J	ATC Electronic Control Module
K	Pulse Width Modulation (PWM) Module
L	Cab Air Sensor
M	Thermal Expansion Valve (TXV)
N	Pressure Sensor
P	Water Valve
Q	Air-off Sensor
R	Evaporator Sensor
S	Evaporator Core
T	Blower Motor
U	Actuator
V	Air Filter

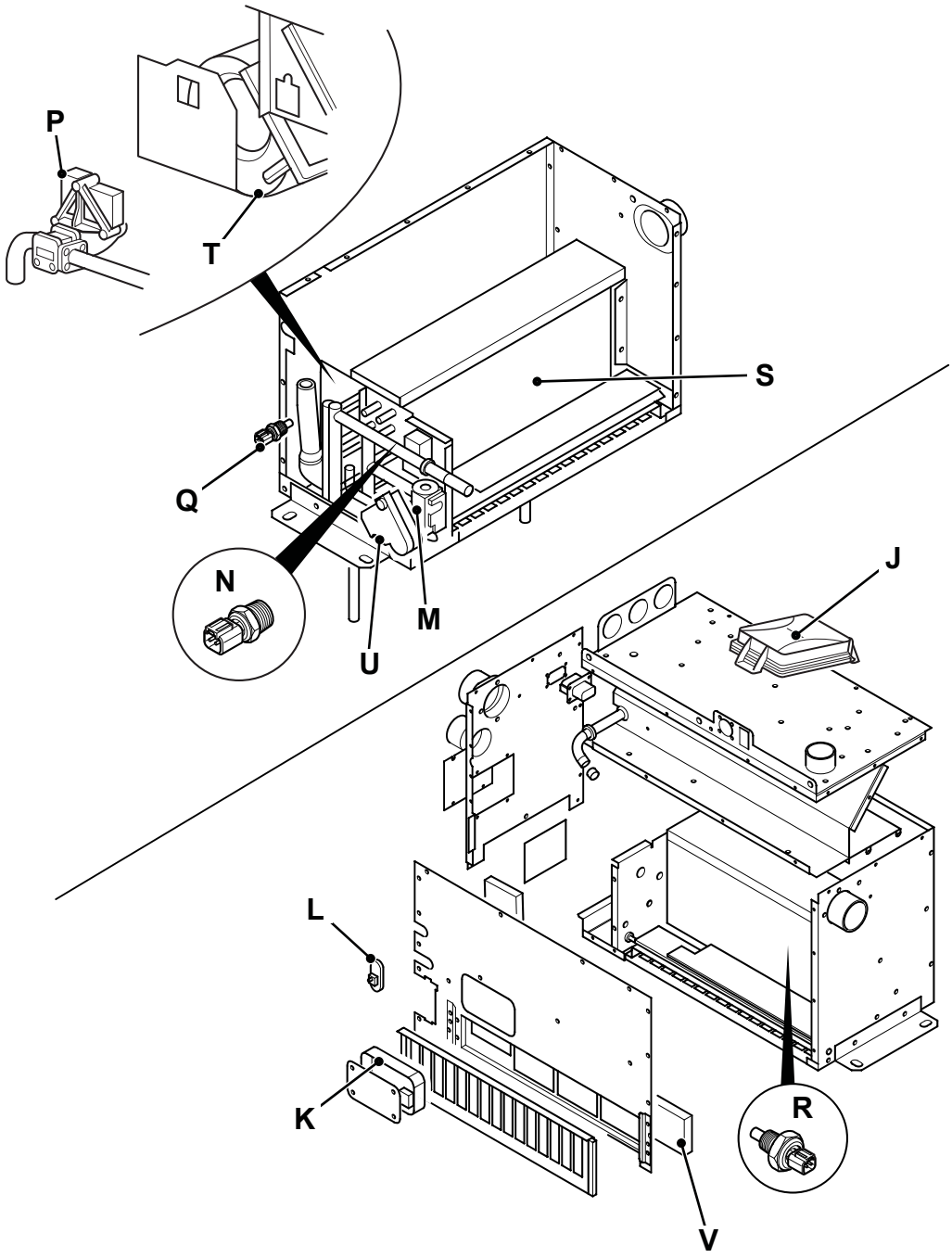

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Fig 2. Evaporator Matrix (A)

Heater/Air Conditioning Controls (ATC)

The heater/air conditioning can be set for automatic temperature control (ATC).

Located on the right console, the heater system is controlled by the following switches:

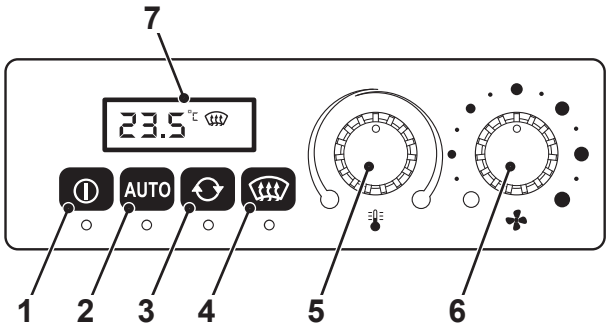

Fig 3.

1 On/Off switch.

2 Auto mode switch.

3 Re-circulation switch.

4 Defrost/Demist switch.

5 Temperature control switch.

6 Fan speed switch.

7 Display.

Heater Controls

Hot air can be directed to the front window (for demisting) and/or the cab floor by adjusting the air vents.

To activate controls press switch **1**, the switch LED and panel **7** will illuminate.

Auto Mode

The heater can be set to a selected temperature. The fan speed and temperature control will then be automatically controlled to maintain the set temperature.

1 Auto mode is activated by switch **2**, the LED will illuminate and an `**A**' will appear on the display **7**.

2 Rotate control **5** to set the desired temperature.

3 The set temperature will be displayed on panel **7**.

4 The fan speed will be automatically set to reach and then maintain the set temperature.

Note: *If control **6** is moved, Auto mode will have to be reset. Press switch **2** to reactivate.*

5 In hot weather or dusty environments, re-circulation mode should be used. Select switch **3**.

Defrost/Demist Mode

To activate press switch **4**, the LED will illuminate and switch symbol will be displayed on **7**.

1 In hot weather to produce comfortable working conditions.

- **a** Close the door and windows.
- **b** Select re-circulation switch **3**.
- **c** Rotate control **6** clockwise and direct air into the body of the cab.
- **d** Rotate control **5** fully counter-clockwise for maximum defrost. If the in cab temperature drops to low turn control clockwise.

2 In cold/damp weather, to minimise misting.

- **a** Close the door and windows.
- **b** Select re-circulation switch **3**.
- **c** Set control **6** fully clockwise and direct air onto the front window.
- **d** Set control **5** fully clockwise to heat the de-humidified conditioned air, de-mist the screen and generally de-humidify the cab air.

Air Conditioning System Operation

To maintain optimum operator comfort in warm climates or during seasons of high ambient temperature, the air conditioning system re-circulates, clean, dehumidified air into the cab. Cooling is provided by passing the re-circulated air, over an evaporator coil in the air conditioning unit.

The air conditioning system is a closed circuit through which the refrigerant is circulated, its state changing from gas to liquid and back to gas again, as it is forced through the system.

The major components of the system are the compressor **E**, condenser **B**, receiver drier **D**, expansion valve **L** and evaporator matrix **A**.⇨ *Fig 1. (B-9)*.

Air conditioning system power is generated from the engine, via an electromagnetic clutch to the compressor. Three switches, connected in series, are included in the clutch supply line, all must be closed for the clutch and therefore the air conditioning system to operate.

The compressor **E**, draws in low pressure refrigerant gas from the suction line (evaporator to compressor) and increases refrigerant pressure through compression. This process also increases the refrigerant temperature. ⇨ *Fig 1. (B-9)*.

High pressure refrigerant is forced from the compressor to the condenser **B**, which is mounted on the radiator on the side of the engine. Ambient air is drawn across the condenser by the engine-driven cooling fan. In the condenser, the refrigerant changes state to a high pressure, high temperature liquid but with a lower heat content. ⇨ *Fig 1. (B-9)*.

The refrigerant passes through the receiver drier **D,** which contains a desiccant to remove moisture from the system. ⇨ *Fig 1. (B-9)*.The receiver drier serves as a reservoir for refrigerant and also includes a filter to remove foreign particles from the system.

The high temperature, high pressure refrigerant is forced by compressor action into the expansion valve **L**, which meters the amount of refrigerant entering the evaporator. In the expansion valve the refrigerant instantaneously expands to become a low pressure, low temperature liquid. ⇨ *Fig 1. (B-9)*.

The refrigerant is drawn through the evaporator matrix **A**, by the suction of the compressor. The temperature of refrigerant is now considerably below that of the air being drawn across the evaporator matrix by the blowers. Heat is transferred from the ambient and re-circulated air to the refrigerant, causing the low pressure liquid to vaporise and become a low pressure gas. Moisture in the air condenses on the evaporator matrix and is drained away via condensate. ⇨ *Fig 1. (B-9)*.

Cool de-humidified air is emitted through air vents into the cab.

The low temperature, low pressure, high heat content refrigerant gas, is now drawn by suction back to the compressor, where the cycle is completed.

ATC Control Panel

T013670

Fig 4.

The ATC system includes an electronic control system that protects the system components if a problem occurs. The electronic control system also lets the operator control the cab temperature, fan speed and air flow direction at the ATC control panel. The ATC control panel (user Interface) on the right hand side console in the cab is connected to an electronic control module (ECM). The ECM is attached to the top of the ATC unit. The ECM monitors the inputs and controls the outputs in the system as selected by the operator and as the temperature conditions change. If a system problem occurs, the LCD display shows an error code.

Inputs

High Pressure Switch

The high pressure switch is on the receiver drier. The switch is an input used to monitor the fluid pressure in the high pressure side of the system. The switch tells the ATC control panel when the high pressure is abnormal.

Low Pressure Switch

The low pressure switch is in the ATC unit. The switch is used to monitor the low pressure gas on the low pressure side of the system. The switch tells the ATC control panel when the low pressure is abnormal.

Evaporator Temperature Sensor

The evaporator temperature sensor is in between the evaporator cores in the ATC unit in the cab. The sensor tells the ATC control panel the evaporator temperature. This temperature is for control of the compressor clutch and output to stop the evaporator cores freezing

Cab Temperature Sensor

The cab temperature sensor is on the inlet vent in the ATC unit in the cab. The sensor operates with the outlet temperature sensor to let the ATC control panel know when the cab temperature is correct.

Outlet Temperature Sensor (Air Off)

The outlet temperature sensor is on the outlet vent in the ATC unit in the cab. The outlet temperature sensor operates with the cab temperature sensor to let the ATC control panel know when the cab temperature is correct.

Outputs

PWM Module (Pulse Width Modulation)

The PMW module is in the ATC unit above the filter panel, access is through a removable plate. The PMW module controls the output signals from the ECU through actuators and a fan motor.

The components controlled by the PWM module are as follows:

- **Blower Motor**. The PWM module changes the signal to the blower motor as requested on the fan speed dial on the ATC control panel to increase or decrease the motor speed.
- **Re-circulation Motor (Actuator)**. The PWM module changes the signal to the re-circulation motor (Actuator) as requested on the ATC control panel to

change where the inlet air is drawn in from by moving a control flap.

– **Water valve (Actuator)**. The PWM module changes the signal to the Water valve as requested on the temperature dial on the ATC control panel. This adjusts the quantity of heater coolant into the heater core to obtain the correct cab temperature.

– **Compressor Drive Clutch**. The compressor drive clutch is in the compressor mounted on the engine. The compressor drive clutch receives an output signal from the ATC control panel to control when the clutch must be engaged or disengaged. This depends upon what temperature is selected on the ATC control panel. When the clutch is engaged, a snowflake symbol is shown in the top right hand corner of the LCD display. The drive clutch can automatically disengage if an error occurs in the system and an error code shows on the LCD display. This is to prevent the system from more damage.

Safety Procedures

The air conditioning system includes a pressurised closed circuit containing a non-CFC, environmentally friendly refrigerant, Type R-134a. Any service procedure which breaks into the closed circuit and therefore requires discharging of the system, must only be carried out by service personnel with specialist knowledge of air conditioning systems. The following guidelines should be adhered to by all personnel servicing the air conditioning system.

⚠ WARNING

The air conditioning system is a closed loop system and contains pressurised refrigerant. No part of the system should be disconnected until the system has been discharged by a refrigeration engineer or a suitably trained person. You can be severely frostbitten or injured by escaping refrigerant.

4-3-4-1_2

⚠ WARNING

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4-3-4-1_2

⚠ WARNING

The air conditioning system is a closed loop system and contains pressurised refrigerant. No part of the system should be disconnected until the system has been discharged by a refrigeration engineer or a suitably trained person. You can be severely frostbitten or injured by escaping refrigerant.

4-3-4-1_2

⚠ CAUTION

Do not operate the air conditioning system when there is no refrigerant in the system, otherwise the compressor will be damaged.

4-3-4-4

1 It is critical that the correct refrigerant (R-134a) is used and that charging is done only by qualified personnel. As a precaution, in case of accidental leakage, discharging and charging of the vehicle refrigerant system must be conducted in a well ventilated area.

2 Containers of refrigerant should be stored in a cool environment away from direct sunlight.

⚠ WARNING

Do not carry out welding operations close to the air conditioning refrigerant circuit. A poisonous gas is produced when refrigerant comes into contact with naked flames. Do not smoke or allow naked flames close to the refrigerant circuit.

BF-1-9

3 **Do Not** perform welding operations close to refrigerant hoses (maintain a distance of at least 0.5m from hoses).

4 **Do Not** steam clean refrigerant system components.

5 When charging or discharging the refrigerant system refrain from smoking. Naked flames must not be allowed in the immediate vicinity. The refrigerant does not give off a poisonous odour, however, when it comes into contact with a naked flame, a poisonous gas is produced.

6 When handling refrigerant, rubber gloves and goggles should be worn. Operators should ensure that no refrigerant comes into contact with the skin. Particular care should be taken when connecting or disconnecting charging hoses or pressure switches. When these components are connected to the system, a short release of refrigerant occurs. This results in a high velocity, very cold gas being emitted from the connection point.

Fault Finding

Air Conditioning

TB-010_2

Preliminary Checks

Before any checks are carried out on the refrigerant circuit the following checks should be made:

1 Check the compressor drive belt is serviceable and correctly tensioned.

2 Check the condenser and engine radiator are not blocked by debris, clean with compressed air or water if necessary.

3 Check that the condenser fins are not flattened or damaged, the fins must allow air to pass freely.

4 Check the cab fresh air inlet filter for blockage.

5 Check that, with the ignition switch on (engine not running), the blower operates over whole speed range.

6 Check that, with the ignition switch on (engine not running), the blower and air conditioning switched on, the compressor clutch engages.

Charge level:

Note: *It is not possible to check refrigerant charge level with R134a systems using the receiver drier sightglass. Any bubbles seen at the sight glass on the receiver drier may be bubbles of oil and are perfectly normal.*

- Gas -1400g R134A +/- 10g
- Oil - 150g +/- 5g PAG (PolyAlkylene Gycol) oil to ISO 100

Fault finding:

Important: *Refer to appropriate remove and replace procedures before working on any system component*

Error Codes / Error Diagnosis (Automatic Temperature Control (ATC) System)

Table 1. Error Code 1 - High Pressure Lock Out

Effect	Description	Causes	Remedy
The unit cannot cool the cab The compressor disengages.	The high pressure switch operates twice In 1 minute.	The system is overcharged.	Check the continuity of switch (usually open switch).
			Check the gas in system and recharge, refer to table.
		There is no power to the high pressure switch.	Check for 24V at the switch.
			Check the continuity between ATC control module pin 33 and switch.
		There is a bad earth on the high pressure switch.	Check the earth wire between ATC control module pin 34 and switch.
		There is a defective switch.	Replace the switch.

Note: *If, an Error code shows after one minute this can show a system Error.*

Note: *If, an Error code shows instantly this can show a wiring Error.*

Table 2. Error Code 2 - Low Pressure Lock Out

Effect	Description	Causes	Remedy
The unit cannot cool the cab The compressor disengages.	The low pressure switch opens for longer than 1 minute.	The system is undercharged.	Check the continuity of switch (usually closed switch).
			Check the gas in system and recharge, refer to table.
		There is no power to the low pressure switch.	Check for 24V at the switch.
			Check the continuity between ATC control module pin 35 and switch.
		There is a bad earth on the low pressure switch.	Check the earth wire between ATC control module pin 36 and switch.
		There is a defective switch.	Replace the switch.

Note: *If an Error code shows after one minute this can show a system error.*

Note: *If an Error code shows instantly this can show a wiring error.*

Note: *Battery reset may be required to remove the error after repair.*

Table 3. Error Code 3 - Blower Potentiometer Error (User Interface / Control Panel)

Effect	Causes	Remedy
The Blower motor speed is irregular in Auto mode.The Blower motor speed is fixed or cannot be changed in manual mode.	Wiring Error (open or short-circuit).	Check for 24V at blower motor.
		Check the continuity from blower motor earth to Pin 7 on PWM.
	There is no blower speed signal from the user interface to the ATC Control Module.	Check the continuity from pin C15 on user interface to pin 28 on ATC control module. (Expected reading on Pin 28 0.5V to 3.0 V).
	There is no signal from the ATC control module to the PWM.	Check the continuity from Pin 5 on ATC control module to Pin 6 on PWM unit.
	Bad earth on blower motor / PWM.	Check for good earth as shown on schematic.
	Defective potentiometer.	Replace user interface / control panel.

Table 4. Error Code 4 - Water Valve Potentiometer Error (User Interface / Control Panel)

Effect	Causes	Remedy
The temperature shown on the display cycles between 22 degrees and error code 4.There is no temperature change There is no fan speed in Manual Mode.There is no temperature change / the fan speed operates correctly in Auto mode.	There is no temperature signal from the user interface to the ATC control module.	Check the continuity from Pin D1 on the user interface to pin 29 on ATC control Module. (Expected reading on Pin 29 - 0.5V to 3.0 V).
	There is no temperature signal from the ATC control module to the PWM.	Check the continuity from Pin 3 on ATC control module to Pin D on water valve.
		Check the continuity from Pin A on water valve to Pin 5 on PWM.
	There is a bad earth on water valve / PWM.	Check for good earth as shown on schematic.
	Defective potentiometer.	Replace user interface / control panel.

Table 5. Error Code 7 - Cab Air Sensor Error (Air Inlet Temperature Sensor)

Effect	Causes	Remedy
The unit cannot cool the cab. The compressor disengages.The Demist mode does not work / The Recirculation Mode is O.K.There is no temperature change / the fan speed operates correctly in Auto mode. The temperature changes on LCD display. The cab temperature does not correspond.	There is no temperature signal from the sensor to the ATC control module.	Check the continuity between pin1 on the cab temperature sensor to pin 21 on ATC control module.
	There is a bad earth on the cab air sensor.	Check for good earth as shown on schematic.
	There is a defective sensor.	Replace the cab air sensor.

Table 6. Error Code 8 - Evaporator Temperature Sensor Error

Effect	Causes	Remedy
The unit cannot cool the cab The compressor disengages.	There is no temperature signal from the sensor to ATC control module.	Check the continuity between pin1 on the evaporator temperature sensor to pin 23 on ATC control module.
	There is a bad earth on the evaporator temperature sensor.	Check for good earth as shown on schematic.
	There is a defective sensor.	Make sure the sensor connections are correct. Replace the evaporator temperature sensor.

Table 7. Error Code 9 - Outlet Temperature Sensor Error

Effect	Causes	Remedy
The fan speed stays at maximum in AUTO mode. The manual mode blower operates as normal.	There is no temperature signal from the sensor to ATC control module.	Check the continuity between pin1 on the outlet temperature sensor to pin 22 on ATC control module.
	There is a bad earth on The outlet temperature sensor.	Check for good earth as shown on schematic.
	There is a defective sensor	Make sure the sensor connections are correct. Replace the outlet temperature sensor.

Table 8. Error Code E19 - No Communications Between User Interface / Control Panel and ATC Control Module.

Effect	Causes	Remedy
The unit cannot cool the cab / The compressor disengages.The ATC / Heater control does not operate.The fan speed stays at maximum in Auto mode / The fan speed operates as normal in Manual mode.	Wiring Error	Check power at pins on User Interface and ATC control module.
		Check Earth at pins on User Interface and ATC control module.
		Check the Continuity between the wires that connect the User Interface and the ATC control module.
	Connector Error	Check the connector plugs between User Interface and ATC control module are in good condition.
	Defective user interface / Control panel or ATC control unit	Replace the defective unit

Table 9. PWM Failure (No Fault Code Displayed)

Effect	Causes	Remedy
The unit cannot cool the cab / The compressor disengages.Fan speed unable to adjust in both auto and manual modes (fan speed defaults to max or min.) Temperature will be on maximum hot or maximum cold and unable to change.	Wiring Error	Check power and earths on PWM as shown on schematic.
		Expected readings for inputs to WM during normal operation.Pin 5 and Pin 6 Minimum 0.016 volts to maximum 11.18 volts

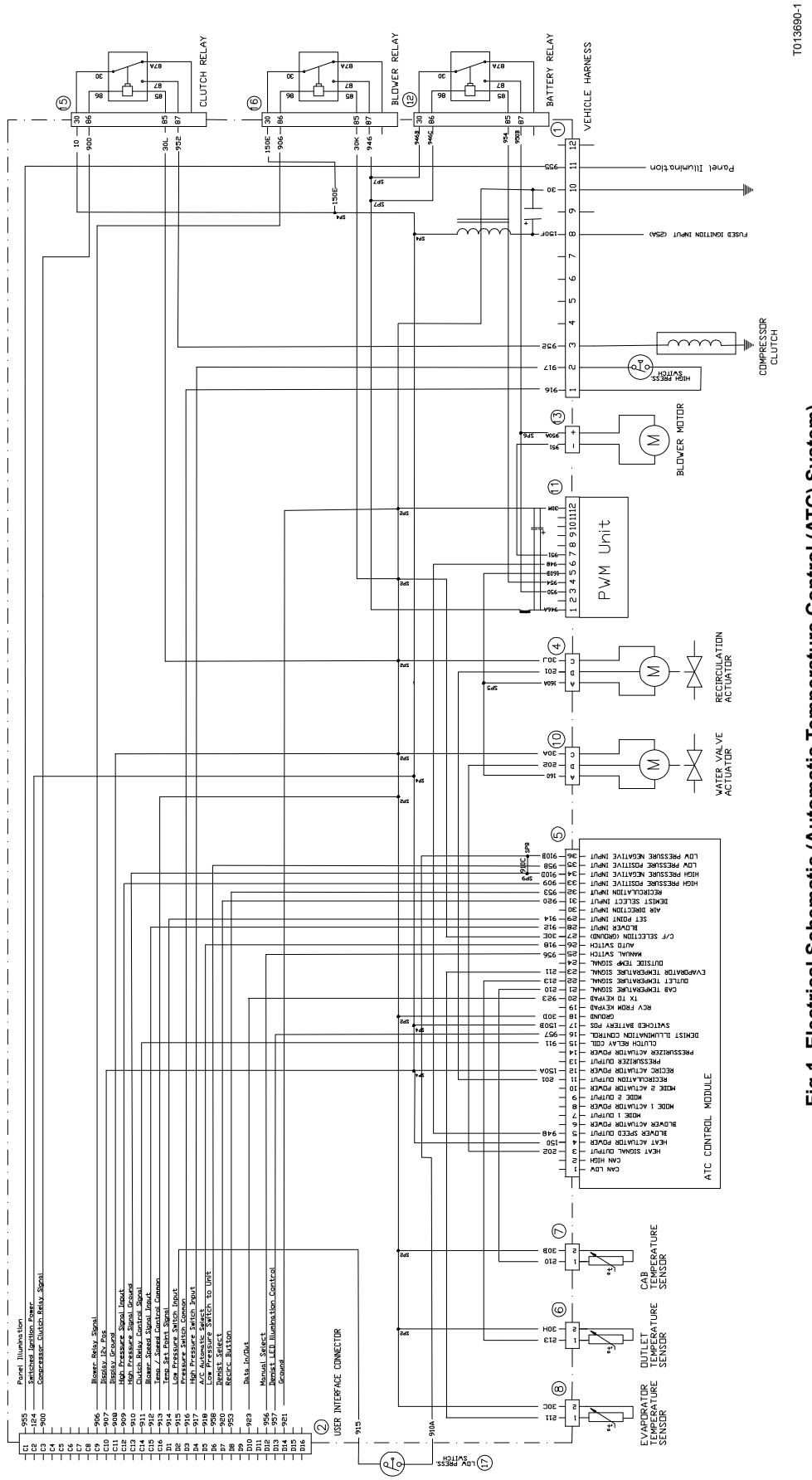
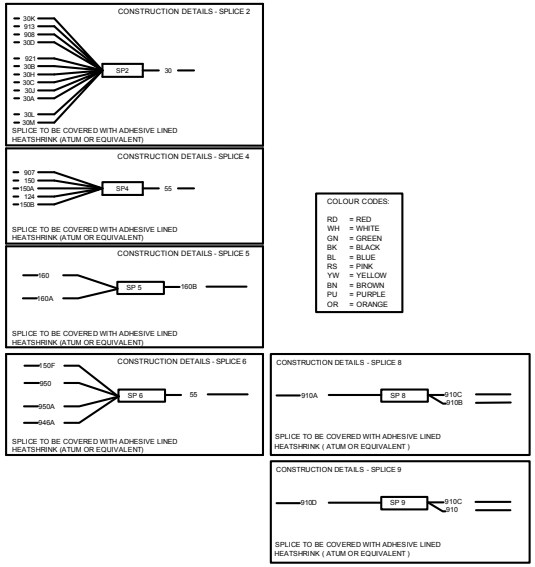


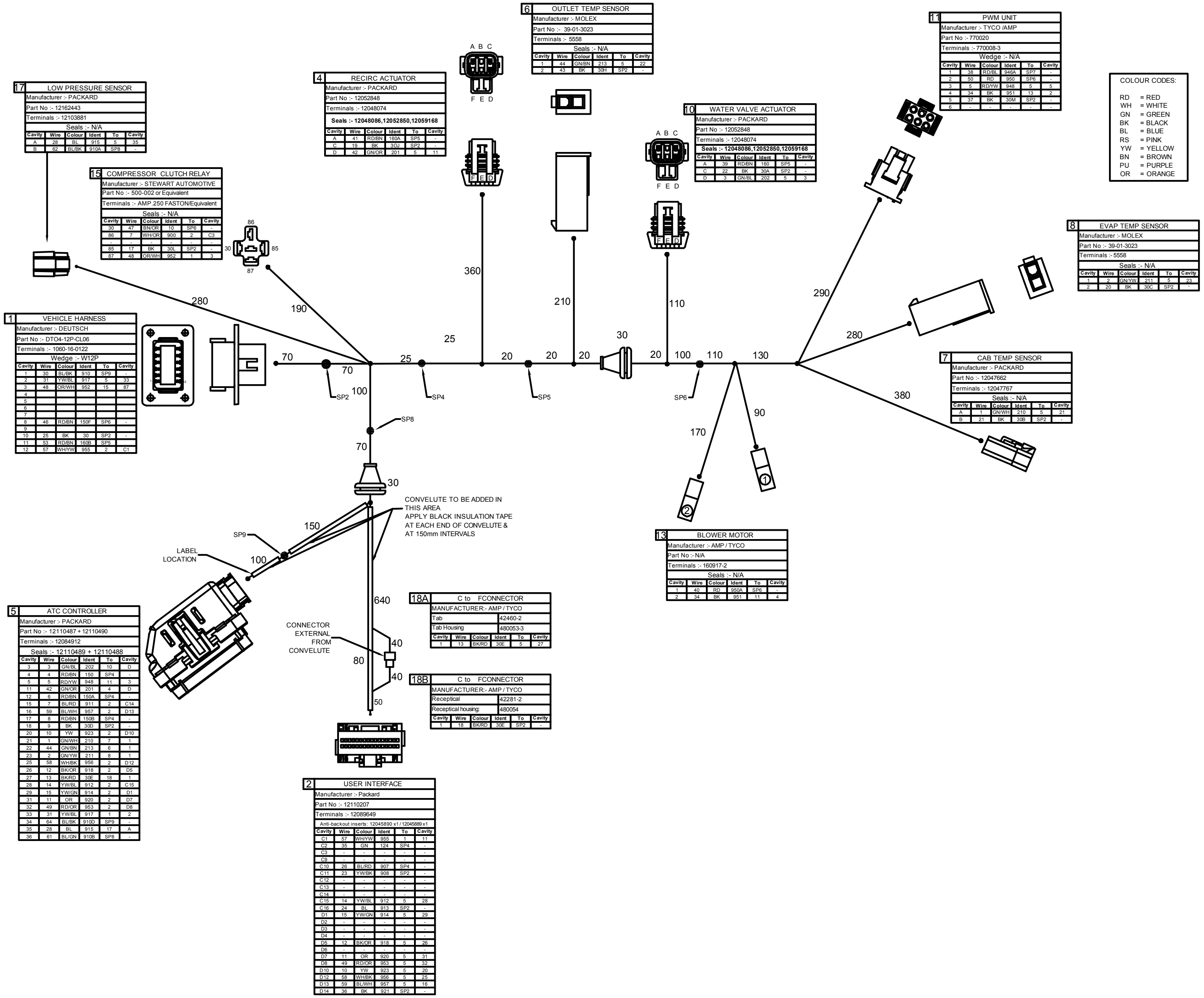
Fig 1. Electrical Schematic (Automatic Temperature Control (ATC) System)

						From				To			
Wire No	Size mm²	Colour	Type	Ident	Length mm	Connector	Cavity	Terminal	Seal	Connector	Cavity	Terminal	Seal
1	0.75	GN/WH	W	210	1330	5 ATC CONTROLLER	21	PACKARD 12084912	N	7 CAB AIR TEMP SENSOR	1	PACKARD 12047757	N
2	0.75	GN/YW	W	211	1230	5 ATC CONTROLLER	23	PACKARD 12084912	N	8 EVAP TEMP SENSOR	1	MOLEX 5558	N
3	0.75	GN/BL	W	202	720	5 ATC CONTROLLER	3	PACKARD 12084912	N	10 WATER VALVE ACTUATOR	D	PACKARD 12048074	PACKARD 12048046
4	0.75	RD/BN	W	150	475	5 ATC CONTROLLER	4	PACKARD 12084912	N	SP4	-	-	-
5	0.75	RD/YW	W	548	1190	5 ATC CONTROLLER	5	PACKARD 12084912	N	11 PWM UNIT	3	AMP 770008-3	N
6	0.75	RD/BN	W	150A	475	5 ATC CONTROLLER	12	PACKARD 12084912	N	SP4	-	-	-
7	0.75	BL/RD	W	911	970	5 ATC CONTROLLER	15	PACKARD 12084912	N	15 Comp Clutch Relay	86	AMP 5-160558-2	-
8	0.75	RD/BN	W	150B	475	5 ATC CONTROLLER	17	PACKARD 12084912	N	SP4	-	-	-
9	0.75	BK	W	30D	520	5 ATC CONTROLLER	18	PACKARD 12084912	N	SP2	-	-	-
10	0.75	YW	W	923	970	5 ATC CONTROLLER	20	PACKARD 12084912	N	2 USER INTERFACE	D10	PACKARD 12089649	N
11	0.75	OR	W	920	970	5 ATC CONTROLLER	31	PACKARD 12084912	N	2 USER INTERFACE	D7	PACKARD 12089649	N
12	0.75	BK/OR	W	918	970	5 ATC CONTROLLER	26	PACKARD 12084912	N	2 USER INTERFACE	D5	PACKARD 12089649	N
13	0.75	BK/RD	W	30E	90	5 ATC CONTROLLER	27	PACKARD 12084912	N	18A C/F CONNECTOR	1	AMP 42460-2	-
14	0.75	YW/BL	W	912	970	5 ATC CONTROLLER	28	PACKARD 12084912	N	2 USER INTERFACE	C15	PACKARD 12089649	N
15	0.75	YW/GN	W	914	970	5 ATC CONTROLLER	29	PACKARD 12084912	N	2 USER INTERFACE	D1	PACKARD 12089649	N
16	-	-	-	-	-	-	-	-	-	-	-	-	-
17	0.75	BK	W	30L	260	15 COMP CLUTCH RELAY	85	AMP 5-160558-2	N	SP2	-	-	-
18	0.75	BK/RD	W	30K	850	18B C/F CONNECTOR	1	42281-2	N	SP2	-	-	-
19	0.75	BK	W	30J	480	4 RECIRC ACTUATOR	C	PACKARD 12048074	PACKARD 12048046	SP2	-	-	-
20	0.75	BK	W	30C	850	8 EVAP TEMP SENSOR	2	MOLEX 5558	N	SP2	-	-	-
21	0.75	BK	W	30B	950	7 CAB AIR TEMP SENSOR	2	PACKARD 12047757	N	SP2	-	-	-
22	0.75	BK	W	30A	340	10 WATER VALVE ACTUATOR	C	PACKARD 12048074	PACKARD 12048046	SP2	-	-	-
23	0.75	YW/BK	W	908	990	2 USER INTERFACE	C11	PACKARD 12089649	N	SP2	-	-	-
24	0.75	BL	W	913	990	2 USER INTERFACE	C16	PACKARD 12089649	N	SP2	-	-	-
25	0.75	BK	W	30	70	1 VEHICLE HARNESS	10	DEUTSCH 1060-16-0122	N	SP2	-	-	-
26	0.75	BL/RD	W	907	945	2 USER INTERFACE	C10	PACKARD 12089649	N	SP4	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-
28	0.75	BL	W	915	730	5 ATC CONTROLLER	35	PACKARD 12084912	N	17 LOW PRESSURE SENSOR	A	PACKARD 12103881	N
30	0.75	BL/BK	W	916	490	1 VEHICLE HARNESS	1	DEUTSCH 1060-16-0122	N	SP9	-	-	-
31	0.75	BL/OR	W	909	590	1 VEHICLE HARNESS	2	DEUTSCH 1060-16-0122	N	5 ATC CONTROLLER	33	PACKARD 12084912	N
32	-	-	-	-	-	-	-	-	-	-	-	-	-
33	-	-	-	-	-	-	-	-	-	-	-	-	-
34	1.50	BK	W	951	930	13 BLOWER MOTOR	2	AMP 5-160558-2	N	11 PWM UNIT	4	AMP 770008-3	
35	0.75	GN	W	124	945	2 USER INTERFACE	C2	PACKARD 12089649	N	SP4	-	-	-
36	0.75	BK	W	921	990	2 USER INTERFACE	D14	PACKARD 12089649	N	SP2	-	-	-
37	1.50	BK	W	30M	810	11 PWM UNIT	5	AMP 770008-3	N	SP2	-	-	-
38	1.50	RD/BL	W	946A	725	11 PWM UNIT	1	AMP 770008-3	N	SP6	-	-	-
39	0.75	RD/BN	W	160	200	10 WATER VALVE ACTUATOR	A	PACKARD 12048074	PACKARD 12048046	SP5	-	-	-
40	1.50	RD	W	950A	450	13 BLOWER MOTOR	1	AMP 5-160558-2	N	SP6	-	-	-
41	0.75	RD/BN	W	160A	380	4 RECIRC ACTUATOR	A	PACKARD 12048074	PACKARD 12048046	SP5	-	-	-
42	0.75	GN/OR	W	201	860	4 RECIRC ACTUATOR	D	PACKARD 12048074	PACKARD 12048046	5 ATC CONTROLLER	11	PACKARD 12084912	N
43	0.75	BK	W	30H	370	6 OUTLET TEMP SENSOR	2	MOLEX 5558	N	SP2	-	-	-
44	0.75	GN/BN	W	213	750	6 OUTLET TEMP SENSOR	1	MOLEX 5558	N	5 ATC CONTROLLER	22	PACKARD 12084912	N
45				-	-	-	-	-	-	-	-	-	-
46	2.00	RD/BN	W	150F	165	1 VEHICLE HARNESS	8	DEUTSCH 1060-16-0122	N	SP6	-	-	-
47	0.75	BN/OR	W	10	215	SP6	-	-	-	15 COMP CLUTCH RELAY	30	AMP 5-160558-2	N
48	0.75	OR/WH	W	952	330	1 VEHICLE HARNESS	3	DEUTSCH 1060-16-0122	N	15 COMP CLUTCH RELAY	87	AMP 5-160558-2	N
49	0.75	RD/OR	W	953	970	2 USER INTERFACE	D8	PACKARD 12084912	N	5 ATC CONTROLLER	32	PACKARD 12084912	N
50	1.5	RD	W	950	480	11 PWM UNIT	2	AMP 770008-3	N	SP6	-	-	-
51	-	-	-	-	-	-	-	-	-	-	-	-	-
52	-	-	-	-	-	-	-	-	-	-	-	-	-
53	0.75	RD/BN	W	160B	2010	I VEHICLE HARNESS	11	PACKARD 12084912	N	SP5	-	-	-
54	-	-	-	-	-	-	-	-	-	-	-	-	-
55	1.50	RD/BN	W	55	235	SP6	-	-	N	SP4	-	-	-
56	-	-	-	-	-	-	-	-	-	-	-	-	-
57	0.75	WH/YW	W	955	1060	2 USER INTERFACE	C1	PACKARD 12089649	N	1 VEHICLE HARNESS	12	DEUTSCH 0462-201-16141	N
58	0.75	WH/BK	W	956	970	2 USER INTERFACE	D12	PACKARD 12089649	N	5 ATC CONTROLLER	25	PACKARD 12084912	N
59	0.75	BL/WH	W	957	970	2 USER INTERFACE	D13	PACKARD 12089649	N	5 ATC CONTROLLER	16	PACKARD 12084912	N
60	-	-	-	-	-	-	-	-	-	-	-	-	-
61	0.75	BL/GN	W	910B	350	5 ATC CONTROLLER	36	PACKARD 12084912	N	SP8	-	-	-
62	0.75	BL/BK	W	910A	380	17 LOW PRESSURE SENSOR	B	PACKARD 12103881	N	SP8	-	-	-
63	0.75	BL/BK	W	910C	250	SP8	-	-	-	SP9	-	-	-
64	0.75	BL/BK	W	910D	100	5 ATC CONTROLLER	34	PACKARD 12084912	N	SP9	-	-	-



T013690-2

Fig 2.



17 LOW PRESSURE SENSOR
Manufacturer :- PACKARD
Part No :- 12162443
Terminals :- 12103881
Seals :- N/A

Cavity	Wire	Colour	Ident	To	Cavity
A	28	BL	915	5	35
B	62	BL/BK	910A	SP8	-

4 RECIRC ACTUATOR
Manufacturer :- PACKARD
Part No :- 12052848
Terminals :- 12048074
Seals :- 12048086,12052850,12059168

Cavity	Wire	Colour	Ident	To	Cavity
A	41	RD/BN	160A	SP5	-
C	19	BK	30J	SP2	-
D	42	GN/OR	201	5	11

15 COMPRESSOR CLUTCH RELAY
Manufacturer :- STEWART AUTOMOTIVE
Part No :- 500-002 or Equivalent
Terminals :- AMP.250 FASTON/Equivalent
Seals :- N/A

Cavity	Wire	Colour	Ident	To	Cavity
30	47	BN/OR	10	SP6	-
86	7	WH/OR	900	2	C3
-	-	-	-	-	-
85	17	BK	30L	SP2	-
87	48	OR/WH	952	1	3

1 VEHICLE HARNESS
Manufacturer :- DEUTSCH
Part No :- DTO4-12P-CL06
Terminals :- 1060-16-0122
Wedge :- W12P

Cavity	Wire	Colour	Ident	To	Cavity
1	30	BL/BK	910	SP9	-
2	31	YW/BL	917	5	33
3	48	OR/WH	952	15	87
4					
5					
6					
7					
8	46	RD/BN	150F	SP6	-
9					
10	25	BK	30	SP2	-
11	53	RD/BN	160B	SP5	
12	57	WH/YW	955	2	C1

6 OUTLET TEMP SENSOR
Manufacturer :- MOLEX
Part No :- 39-01-3023
Terminals :- 5558
Seals :- N/A

Cavity	Wire	Colour	Ident	To	Cavity
1	44	GN/BN	213	5	22
2	43	BK	30H	SP2	-

10 WATER VALVE ACTUATOR
Manufacturer :- PACKARD
Part No :- 12052848
Terminals :- 12048074
Seals :- 12048086,12052850,12059168

Cavity	Wire	Colour	Ident	To	Cavity
A	39	RD/BN	160	SP5	-
C	22	BK	30A	SP2	-
D	3	GN/BL	202	5	3

11 PWM UNIT
Manufacturer :- TYCO /AMP
Part No :- 770020
Terminals :- 770008-3
Wedge :- N/A

Cavity	Wire	Colour	Ident	To	Cavity
1	38	RD/BL	946A	SP7	-
2	50	RD	950	SP6	-
3	5	RD/YW	948	5	5
4	34	BK	951	13	2
5	37	BK	30M	SP2	-
6	-	-	-	-	-

COLOUR CODES:

RD = RED
WH = WHITE
GN = GREEN
BK = BLACK
BL = BLUE
RS = PINK
YW = YELLOW
BN = BROWN
PU = PURPLE
OR = ORANGE

8 EVAP TEMP SENSOR
Manufacturer :- MOLEX
Part No :- 39-01-3023
Terminals :- 5558
Seals :- N/A

Cavity	Wire	Colour	Ident	To	Cavity
1	2	GN/YW	211	5	23
2	20	BK	30C	SP2	-

7 CAB TEMP SENSOR
Manufacturer :- PACKARD
Part No :- 12047662
Terminals :- 12047767
Seals :- N/A

Cavity	Wire	Colour	Ident	To	Cavity
A	1	GN/WH	210	5	21
B	21	BK	30B	SP2	-

13 BLOWER MOTOR
Manufacturer :- AMP / TYCO
Part No :- N/A
Terminals :- 160917-2
Seals :- N/A

Cavity	Wire	Colour	Ident	To	Cavity
1	40	RD	950A	SP6	-
2	34	BK	951	11	4

5 ATC CONTROLLER
Manufacturer :- PACKARD
Part No :- 12110487 + 12110490
Terminals :- 12084912
Seals :- 12110489 + 12110488

Cavity	Wire	Colour	Ident	To	Cavity
3	3	GN/BL	202	10	D
4	4	RD/BN	150	SP4	-
5	5	RD/YW	948	11	3
11	42	GN/OR	201	4	D
12	6	RD/BN	150A	SP4	-
15	7	BL/RD	911	2	C14
16	59	BL/WH	957	2	D13
17	8	RD/BN	150B	SP4	-
18	9	BK	30D	SP2	-
20	10	YW	923	2	D10
21	1	GN/WH	210	7	1
22	44	GN/BN	213	6	1
23	2	GN/YW	211	8	1
25	58	WH/BK	956	2	D12
26	12	BK/OR	918	2	D5
27	13	BK/RD	30E	18	1
28	14	YW/BL	912	2	C15
29	15	YW/GN	914	2	D1
31	11	OR	920	2	D7
32	49	RD/OR	953	2	D8
33	31	YW/BL	917	1	2
34	64	BL/BK	910D	SP9	-
35	28	BL	915	17	A
36	61	BL/GN	910B	SP8	-

18A C to FCONNECTOR
MANUFACTURER:- AMP / TYCO

Tab	42460-2
Tab Housing	480053-3

Cavity	Wire	Colour	Ident	To	Cavity
1	13	BK/RD	30E	5	27

18B C to FCONNECTOR
MANUFACTURER:- AMP / TYCO

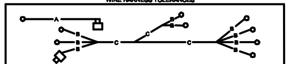
Receptical	42281-2
Receptical housing:	480054

Cavity	Wire	Colour	Ident	To	Cavity
1	18	BK/RD	30E	SP2	-

2 USER INTERFACE
Manufacturer :- Packard
Part No :- 12110207
Terminals :- 12089649
Anti-backout inserts: 12045890 x1 / 12045889 x1

Cavity	Wire	Colour	Ident	To	Cavity
C1	57	WH/YW	955	1	11
C2	35	GN	124	SP4	-
C3	-	-	-	-	-
C9	-	-	-	-	-
C10	26	BL/RD	907	SP4	-
C11	23	YW/BK	908	SP2	-
C12	-	-	-	-	-
C13	-	-	-	-	-
C14	-	-	-	-	-
C15	14	YW/BL	912	5	28
C16	24	BL	913	SP2	-
D1	15	YW/GN	914	5	29
D2	-	-	-	-	-
D3	-	-	-	-	-
D4	-	-	-	-	-
D5	12	BK/OR	918	5	26
D6	-	-	-	-	-
D7	11	OR	920	5	31
D8	49	RD/OR	953	5	32
D10	10	YW	923	5	20
D12	58	WH/BK	956	5	25
D13	59	BL/WH	957	5	16
D14	36	BK	921	SP2	-

WIRE HARNESS TOLERANCES



LENGTH		A	MULTIPLE WIRE ASSEMBLIES		
mm (10 mm INCREMENTS)		SINGLE WIRE ASSEMBLIES*	B LEAD EXTENDING FROM ASSEMBLY COVERING	C TAPE, BRAID COVERED SECTION	MAXIMUM TOLERANCE FOR ANY WIRE FROM TERMINAL TO TERMINAL**
OVER	TO	+/- mm	+/- mm	mm mm	
---	150	-5 +10	-5 +10	-10 +15	-25 +30
150	300	10	10	-15 +20	-40 +45
300	900	10	10	-15 +20	-50 +55
900	1500	15	15	-25 +30	-65 +70
1500	2500	25	25	-25 +30	-65 +70
2500	5000	40	40	-40 +45	-75 +80
5000	---	50	50	-50 +45	-75 +80

* INCLUDES SINGLE LEADS (1 WIRE), BATTERY AND STARTING CABLE ASSEMBLIES.
** APPLICABLE ONLY IF THE TOTAL "B" AND "C" TOLERANCES AREIBREATER THAN MAXIMUM ALLOWED.

NOTES:-
1. ALL CABLES TO BE THIN WALL AUTOMOTIVE - FLRYW.
2. CABLE TIE AT BREAKOUTS AND AT 100mm INTERVALS.
3. ALL SPLICES TO BE SOLDERED AND INSULATED WITH HEAT SHRINK.
4. WIRE HARNESSES TO BE FULLY TESTED FOR CORRECT PINOUTS.
5. TOLERANCES TO CONFORM TO SPECIFICATIONS IN WIRE HARNESS TOLERANCE DIAGRAM.
6. GROMMET: STRAIN RELIEF COLLAR TYPE. TO FIT 20 HOLE IN 1mm THK MATERIAL.
7. ALL FASTON .250 TYPE TERMINALS TO INCORPORATE LOCKING PIP.

T013690-3

Fig 3.

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Service Procedures

HVAC/Air Conditioning Unit

TB-009

Removal

Note: *Before removing the HVAC/Air Conditioning Unit, the system must be discharged.*

⚠ WARNING

The air conditioning system is a closed loop system and contains pressurised refrigerant. No part of the system should be disconnected until the system has been discharged by a refrigeration engineer or a suitably trained person. You can be severely frostbitten or injured by escaping refrigerant.

4-3-4-1_2

⚠ CAUTION

Do not operate the air conditioning system when there is no refrigerant in the system, otherwise the compressor will be damaged.

4-3-4-4

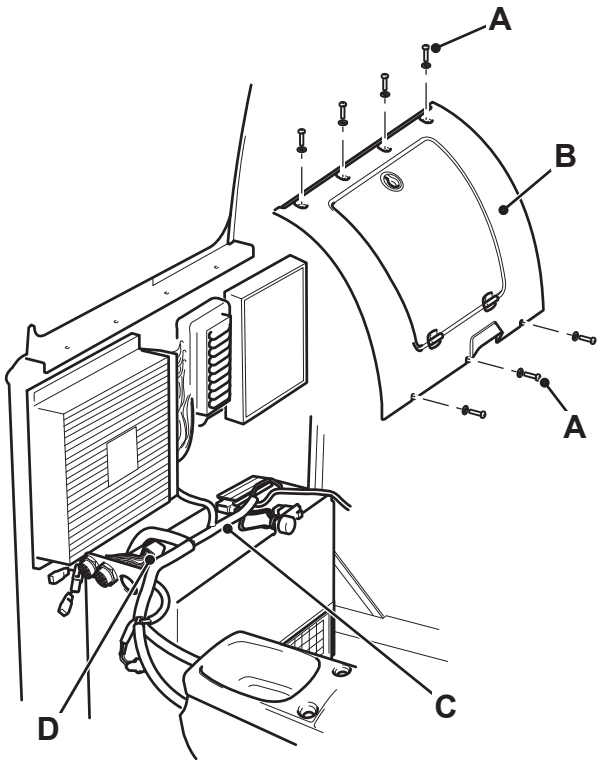
⚠ WARNING

Do not carry out welding operations close to the air conditioning refrigerant circuit. A poisonous gas is produced when refrigerant comes into contact with naked flames. Do not smoke or allow naked flames close to the refrigerant circuit.

BF-1-9

The heater and air conditioning units are built into the same module, enabling the units to be interchanged as complete assemblies.

1 Working in the cab, remove the drivers seat from its runners to provide access to the heater unit.



C030670-C2

Fig 1.

2 Remove the fixing screws **A** and lift off the rear panel **B**.

3 Disconnect the harness **C** from the heater unit by releasing the cable ties. Disconnect the heater assembly plug **D**.

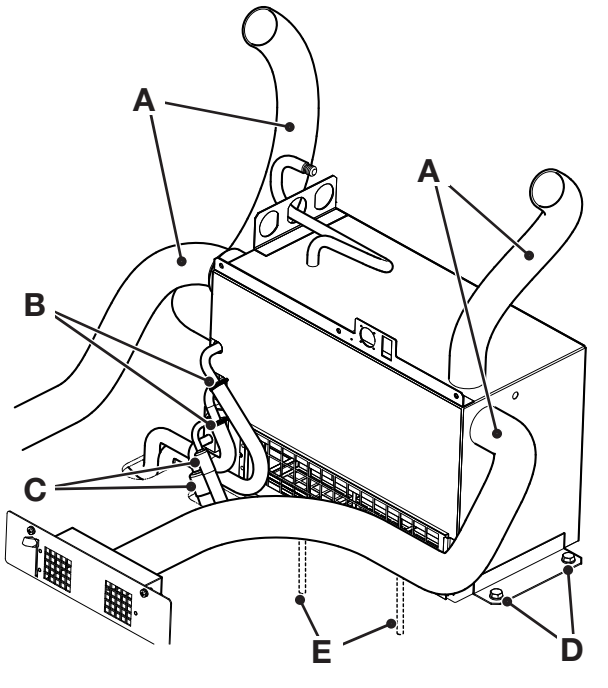


Fig 2.

4 Remove the ventilation hoses **A**.

5 Label the water hoses **B** and the air conditioning hoses **C** and remove.

6 Remove the mounting screws **D** from both sides of the unit and lift the heater from the machine.

Replacement

Replacement is the reverse of the removal procedure.

Note: *Ensure the drain hoses **E** are threaded through the holes in the cab floor and are not trapped under the unit.*

Air Conditioning Compressor

Removal and Replacement

Removal

Note: *Before removing any of the hoses from the compressor, the system must be discharged. See* ***Refrigerant Charging and Discharging***

⚠ WARNING

The air conditioning system is a closed loop system and contains pressurised refrigerant. No part of the system should be disconnected until the system has been discharged by a refrigeration engineer or a suitably trained person. You can be severely frostbitten or injured by escaping refrigerant.

4-3-4-1_2

⚠ CAUTION

Do not operate the air conditioning system when there is no refrigerant in the system, otherwise the compressor will be damaged.

4-3-4-4

⚠ WARNING

Do not carry out welding operations close to the air conditioning refrigerant circuit. A poisonous gas is produced when refrigerant comes into contact with naked flames. Do not smoke or allow naked flames close to the refrigerant circuit.

BF-1-9

1 Label and remove hoses **3-A** from the compressor **3-B**.

2 Loosen the compressor drive belt tensioner **3-C** and remove drive belt **3-D**.

3 Disconnect the wiring harness from the compressor at **3-E**.

4 Remove the four capscrews **3-G** and remove the compressor from the mounting bracket **3-F**.

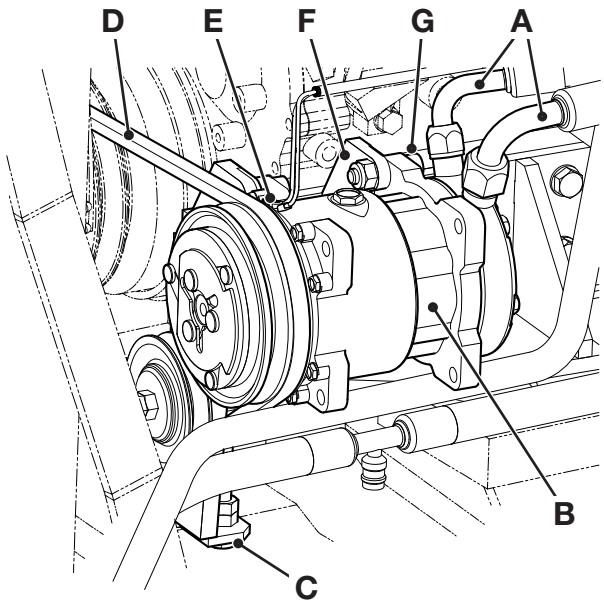


Fig 3.

Replacement

Replacement is the reverse of the removal procedure.

Note: *If the machine was not previously fitted with Air conditioning a new engine mounting bracket 2 must be fitted.*

The Air Conditioning system should be recharged, see **Refrigerant Charging and Discharging**.

Table 1. Torque Settings

Item	Nm	Kgf m	lbf ft
G	56	5.7	42

Cab Structure

Direct Glazing

TB-002_5

The following procedures explain how to correctly remove and install panes of glass that are directly bonded to the cab frame apertures. When carrying out the procedures, relevant safety precautions must be taken.

1 Always wear safety glasses during both removal and replacement.

2 Use protective gloves - heavy duty leather gauntlet type gloves when cutting out the broken glass; 'non-slip' type gloves when handling/moving panes of glass; surgical type gloves when using the polyurethane adhesives.

3 Wear protective overalls.

4 Do not smoke - the activators and primers used in the procedures are highly flammable.

5 Do not attempt to handle or move panes of glass unless you are using glass lifters.

Several special tools are required to successfully complete the removal and replacement procedures. Reference is made to the tools in the text. The majority of these tools can be obtained locally and the remainder from JCB Service (see ***Service Tools***).

The work must only be carried out in a dry, frost free environment. A protective canopy may be required or the machine/frame must be moved to a sheltered area. In damp or wet conditions, hinged doors and window frames can be removed from the machine and taken to a more suitable (dry) environment.

Glass should not be replaced at temperatures below 5°C (41°F).

⚠ WARNING

Laminated glass must be handled with extra care to prevent breakage. Wherever possible, store and handle it in a vertical attitude. When placing or lifting the glass in a horizontal attitude it must be supported over its whole area, not just at the edges.

BF-1-8_1

Removing the Broken Glass and Old Sealant

⚠ WARNING

Always wear safety glasses when removing or installing screen glass. Never use a power operated knife when removing the sealant around a toughened glass screen. The action of the knife could cause particles of glass to be thrown with sufficient force to cause serious injury, even when safety glasses are being worn. Use only hand operated tools when working with toughened glass.

BF-2-3_1

1 Position the machine on level ground and apply the park brake. Stop the engine. Put protective covers over the cab seat and control pedestals.

2 If a laminated pane breaks it will stay in one piece even though the glass is cracked. A toughened pane will shatter and fall apart. The method of removal of the glass depends upon which type it is.

a Laminated glass - leave installed until the old sealant has been cut away, after which it will be possible to lift the broken screen away from its frame housing in one piece.

b Toughened glass - remove as much of the shattered glass as possible prior to cutting out the old sealant.

3 Cut out the old sealant, leaving approximately 1 to 2 mm on the cab frame. There are several tools and techniques for doing this:

a Pneumatic Knife. ⇒ *Fig 4. (B-29)*. This provides one of the easiest methods of removing the sealant around laminated glass. The tool, powered by compressed air, should be sourced locally.

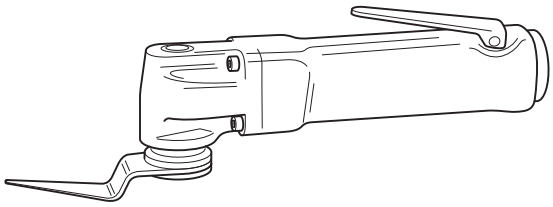


Fig 4. Pneumatic Knife

i Press the handle to start the knife blade oscillating.

Important: *This tool must not be used on toughened glass.*

ii Insert the knife blade into the sealant.

iii Slowly move the knife along the sealant with the blade positioned as close to the glass as possible. Do not allow the knife blade to overheat or the sealant will melt.

b Braided Cutting Wire and Handles. ⇒ ***Fig 5. (B-29)***. This method uses a 3-core wire, a wire starter tube and two handles.

i Insert the steel tube **A** into the old sealant on the inside of the glass.

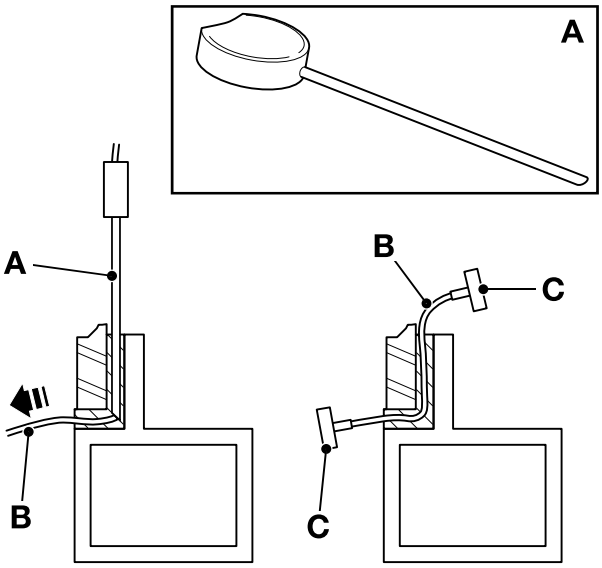


Fig 5. Braided Cutting Wire and Handles

ii Insert the braided cutting wire **B** down the centre of the steel tube. If necessary, from the outside, cut out local sealant at the point of the tube to gain access to the wire.

iii Using suitable pliers, pull the cutting wire through the sealant to the outer side of the glass.

iv Secure each end of the braided cutting wire in the special handles **C**.

v Move the cutting wire backwards and forwards in a sawing motion and at the same time gently push or pull the wire to cut through the old sealant.

c Cut-out Knife. ⇒ ***Fig 6. (B-29)***. The cut-out knife can be used as a left handed or right handed tool.

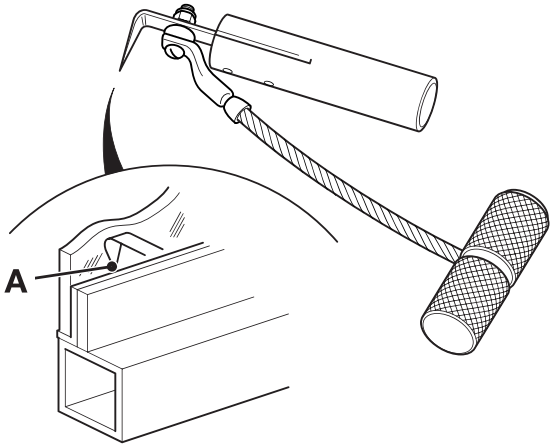


Fig 6. Cut-out Knife

i Insert the knife blade into the sealant.

ii Make sure that the blade of the knife is against the glass **A**. ⇒ ***Fig 6. (B-29)***.

iii Use the 'pull-handle' to pull the knife along and cut out the old sealant.

d Craft Knife. ⇒ ***Fig 7. (B-30)***. The blades **A** are replaceable.

i Insert the knife blade into the sealant.

ii Pull the knife along and cut out the old sealant.

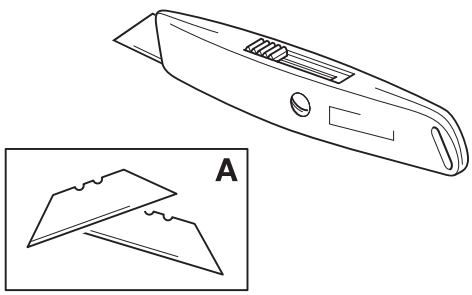


Fig 7. Craft Knife

4 Laminated glass - lift out the broken pane using glass lifters.

Toughened glass - remove the cut off sealant and all remaining particles of shattered glass.

5 If necessary, trim off the remaining old sealant to leave approximately 1 to 2 mm on the upright face of the cab frame aperture. ⇨ *Fig 8. (B-30)*.

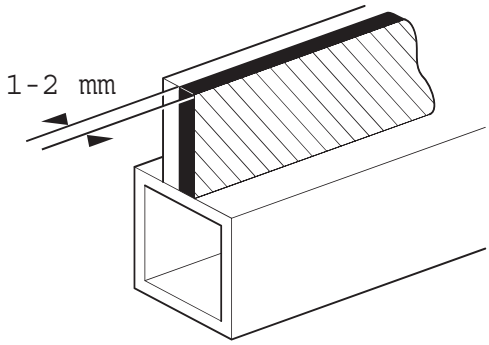


Fig 8.

6 Apply a coat of 'Black Primer 206J' to the paintwork if:

a Paintwork was damaged or scratched during the glass/sealant removal procedures.

b The old sealant was inadvertently cut back to the cab frame during the glass/sealant removal procedures.

Preparing the Cab Frame Aperture

1 If damp or wet, dry the aperture area using a hot air gun (sourced locally).

2 Use 'Active Wipe 205' to thoroughly clean and 'prime' the trimmed sealant. Use a lint free cloth to apply the 'Active Wipe 205', allow 5 minutes flash off (drying) time.

Note: *Do not use any other type of cleaning fluids, otherwise they may be absorbed into the old sealant and ultimately prevent the new glass from bonding.*

Preparing the New Glass

⚠ WARNING

Laminated glass must be handled with extra care to prevent breakage. Wherever possible, store and handle it in a vertical attitude. When placing or lifting the glass in a horizontal attitude it must be supported over its whole area, not just at the edges.

BF-1-8_1

1 Make sure that the new glass correctly fits the frame aperture **A**. ⇨ *Fig 9. (B-31)*.

a Put two spacer blocks **B** onto the bottom part of the frame aperture.

b Install the new glass on the spacer blocks - Always use glass lifters **C**. Check that there is an equal sized gap all round the edge of the glass.

Note: *The spacer blocks are rectangular in section to give two common gap widths. If necessary they can be trimmed to a smaller size to give an equal sized gap around the glass.*

Important: *The glass edges must not touch the frame, otherwise movement of the frame will chip and eventually break the newly installed glass.*

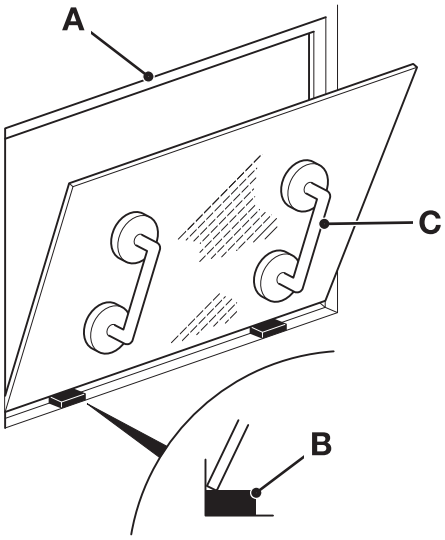


Fig 9.

2 After checking for size, remove the new glass and place it on a purpose made glass stand. ⇨ *Fig 10. (B-31)*.

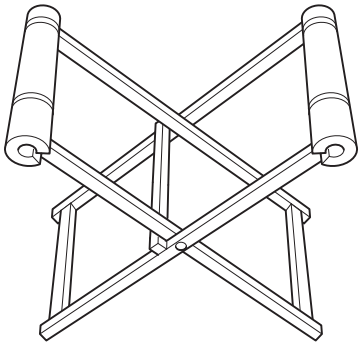


Fig 10. Glass Stand

Small panes of glass will need locating on a 600 x 700 mm x 15 to 19 mm thick plywood board, sourced locally to fit the glass stand. ⇨ *Fig 11. (B-31)*. It is recommended that an access hole is cut in the board to accommodate the glass lifter, making it easier and safer to handle small panes of glass. The board should be covered with felt or carpet to give an anti-scratch surface. Resting the glass on four spacer blocks will ensure clearance of the cartridge nozzle tip during application of the polyurethane sealant.

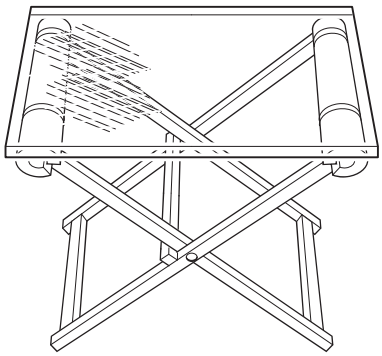


Fig 11.

3 Make sure the glass is positioned on the stand the correct way up (i.e. with the black ceramic ink band upwards) ready for application of primer etc.

4 Clean the glass

a Use 'Active Wipe 205' to thoroughly clean and 'prime' the black ceramic ink band printed on the glass (see ***Note***). Use a lint free cloth to apply the 'Active Wipe 205', allow 5 minutes flash off (drying) time.

Note: *Do not touch the glass after cleaning with the 'Active Wipe 205'.*

b If the glass does not have a black ceramic ink band, paint a band on the glass using 'Black Primer 206J'. The band should be approximately 25mm (1in) wide, and the edge should be a neat straight line. ⇨ *Fig 12. (B-31)*.

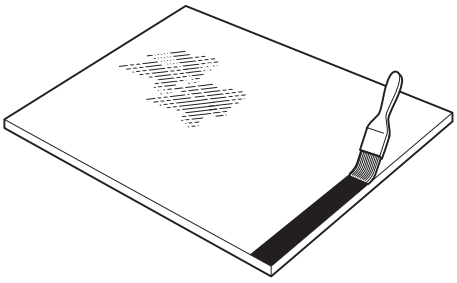


Fig 12.

5 Install the Ultra Fast Adhesive cartridge (see ***Sealing and Retaining Compounds***, Section 1 and ***Note***) into a suitable applicator gun:

a Remove the aluminium disc cover from the base of the cartridge and discard the 'dessicant capsule'.

b Make sure that the rolled edge of the cartridge is not damaged - if necessary, the edges should be pressed flat, otherwise it will be difficult to remove the cartridge from the applicator gun.

c Pierce the front 'nozzle' end of the cartridge to its maximum diameter.

d Fit the pre-cut nozzle. ⇨ *Fig 13. (B-32)*.

e Install the cartridge in the applicator gun.

Note: *Cold material will be very difficult to extrude. The cartridges must be pre-heated in a special oven for 1 hour to a temperature of 80°C (176°F). Pre-heating the cartridges makes the adhesive more workable and also brings the 'curing' time down to 30 minutes.*

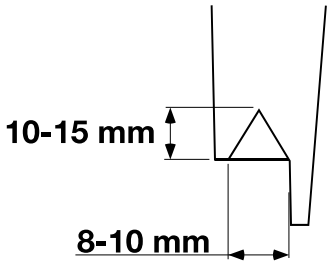


Fig 13.

6 Apply the pre-heated adhesive to the glass (do not start in a corner). Keep the nozzle guide **A** against the edge of the glass and make sure that the adhesive forms a continuous 'pyramid' shape. ⇨ *Fig 14. (B-32)*

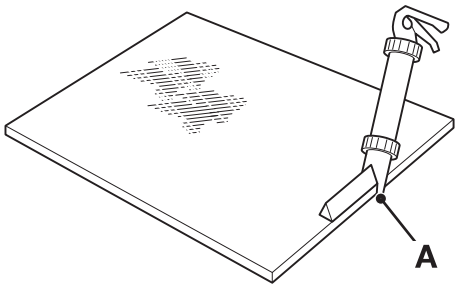


Fig 14.

Note: *Once the pre-heated adhesive has been applied to the glass, install the glass in the aperture as soon as possible. After approximately 10 minutes the sealant will form a 'skin', this will prevent the glass from bonding.*

7 After applying the adhesive, leave a small amount of sealant protruding from the nozzle. This will prevent any adhesive left in the cartridge from 'curing'.

Installing the New Glass

1 If the internal trim strip is damaged, renew it (cut to length as required) before fitting the new glass. Make sure the two spacer blocks are in position. ⇨ *Preparing the New Glass (B-30)* - step 1.

2 Install the glass in the frame aperture:

a Always use the special lifting tools when moving the glass. Use a lifting strap to hold large panes of glass in position. ⇨ *Fig 15. (B-32)*.

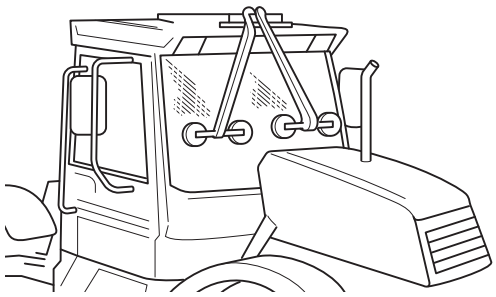


Fig 15. Typical M/c. Installation

b Sit the bottom edge of the glass on the spacer blocks. ⇨ *Fig 16. (B-33)*

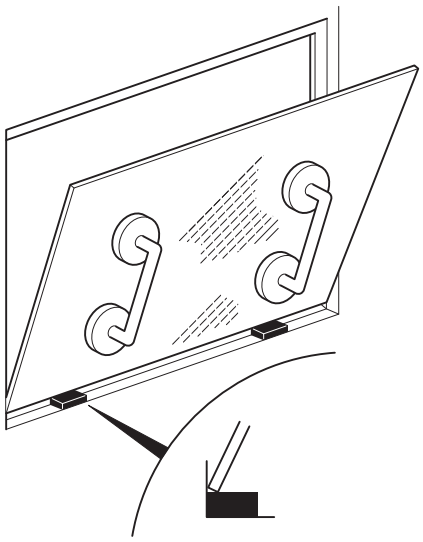


Fig 16.

c Make sure that the glass is correctly positioned, then gently press around the edges of the glass and ensure full adhesive contact is achieved. Do not press too hard or too much adhesive will squeeze out.

3 Make the inside seal smooth:

a Wearing surgical gloves, dip your finger in a soapy water solution.

b Use your finger to make the inside seal smooth.

4 All exposed edges must be sealed using Black Polyurethane Sealant (see ***Sealing and Retaining Compounds***, Section 1).

Important: *Use extreme caution when wiping the inside of the new glass - pushing too hard on the inside of the glass will affect the integrity of the bonded seal.*

5 Clean the glass after installation:

a Small amounts of sealant can be cleaned from the glass using the 'Active Wipe 205'.

b Large amounts of excess sealant should be left to 'cure' and then cut off with a sharp knife.

Note: *On completion of the glass replacement procedures, the sealant 'curing' time is 30 minutes. This means that the machine can be driven and used after 30 minutes, but it must not be used during the curing period of 30 minutes.*

c Clean the glass using a purpose made glass cleaner

6 On completion of the glass installation procedures tidy the work area:

a Remove all broken glass from the cab area.

b Remove the protective covers from the cab seat and control pedestals.

c Renew all safety and instructional labels so that the new installation conforms with the original cab installation.

Checks

Failure to take these precautions could result in death or injury to the operator.

Check the structure for damage. Check that the six mounting bolts **A** are installed and undamaged. Check the bolt torques. Tighten them to the correct torque if necessary.

Table 2. Torque Settings

Item	Nm	Kgf m	lbf ft
A	132	14	97

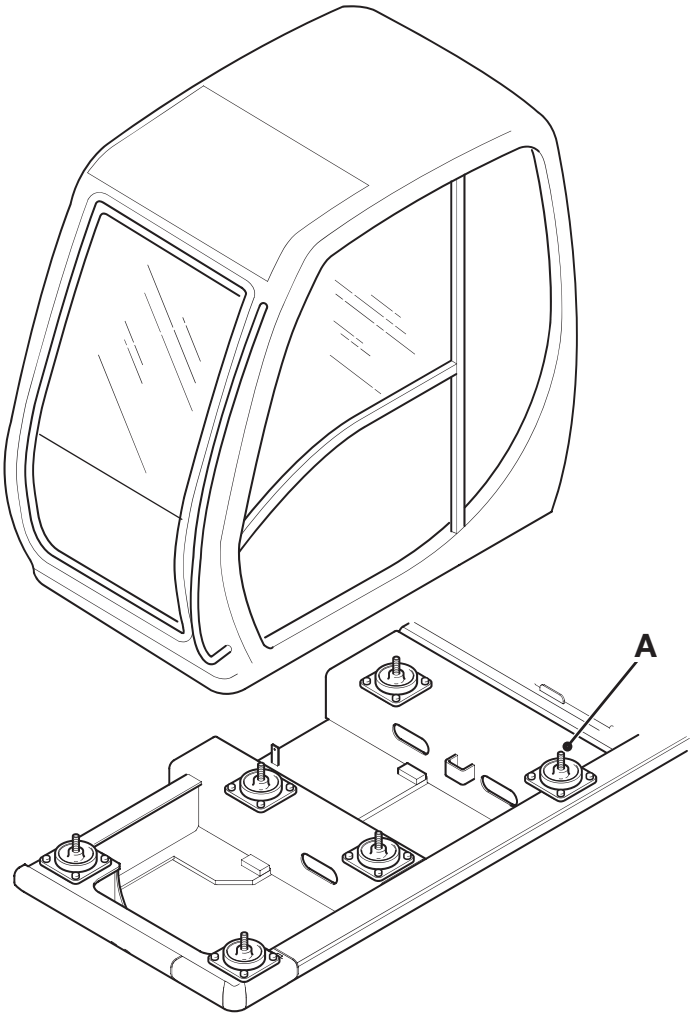


Fig 17.

Cab Panels

Cab Panel Removal

TB-008

Remove the screws as shown in the following illustrations.

Note: *Care must be taken not to force the panels away from cab frame, as this could result in breakage of the cab panel*

Right Hand Cab Panels

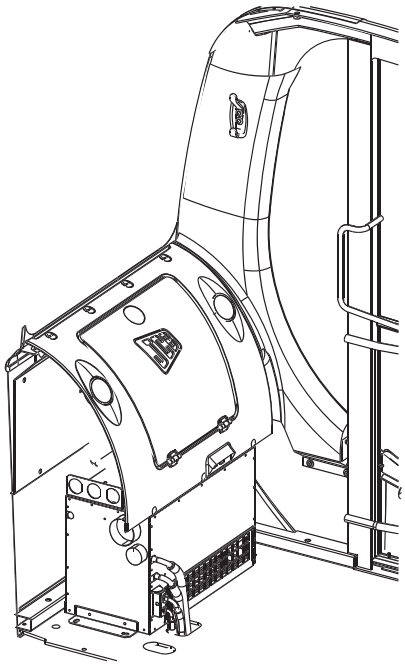


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Fig 1.

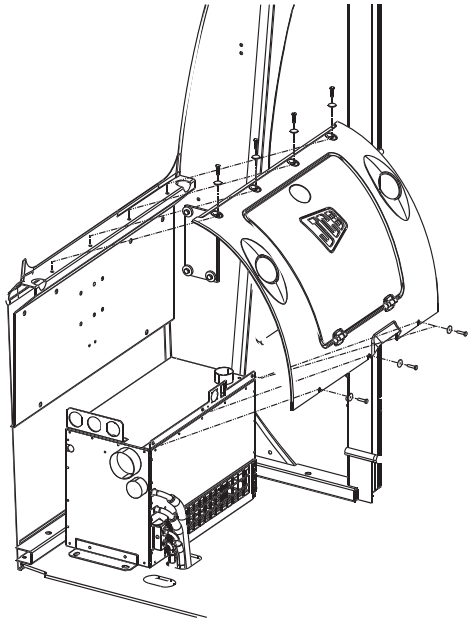

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Fig 2.

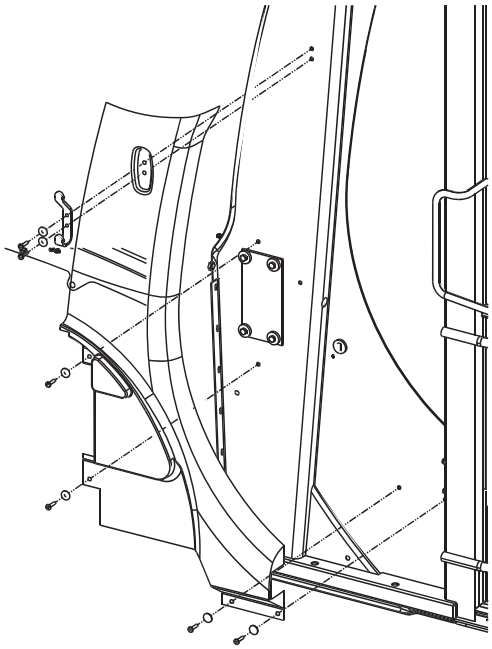

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Fig 3.

Left Hand Cab Panels

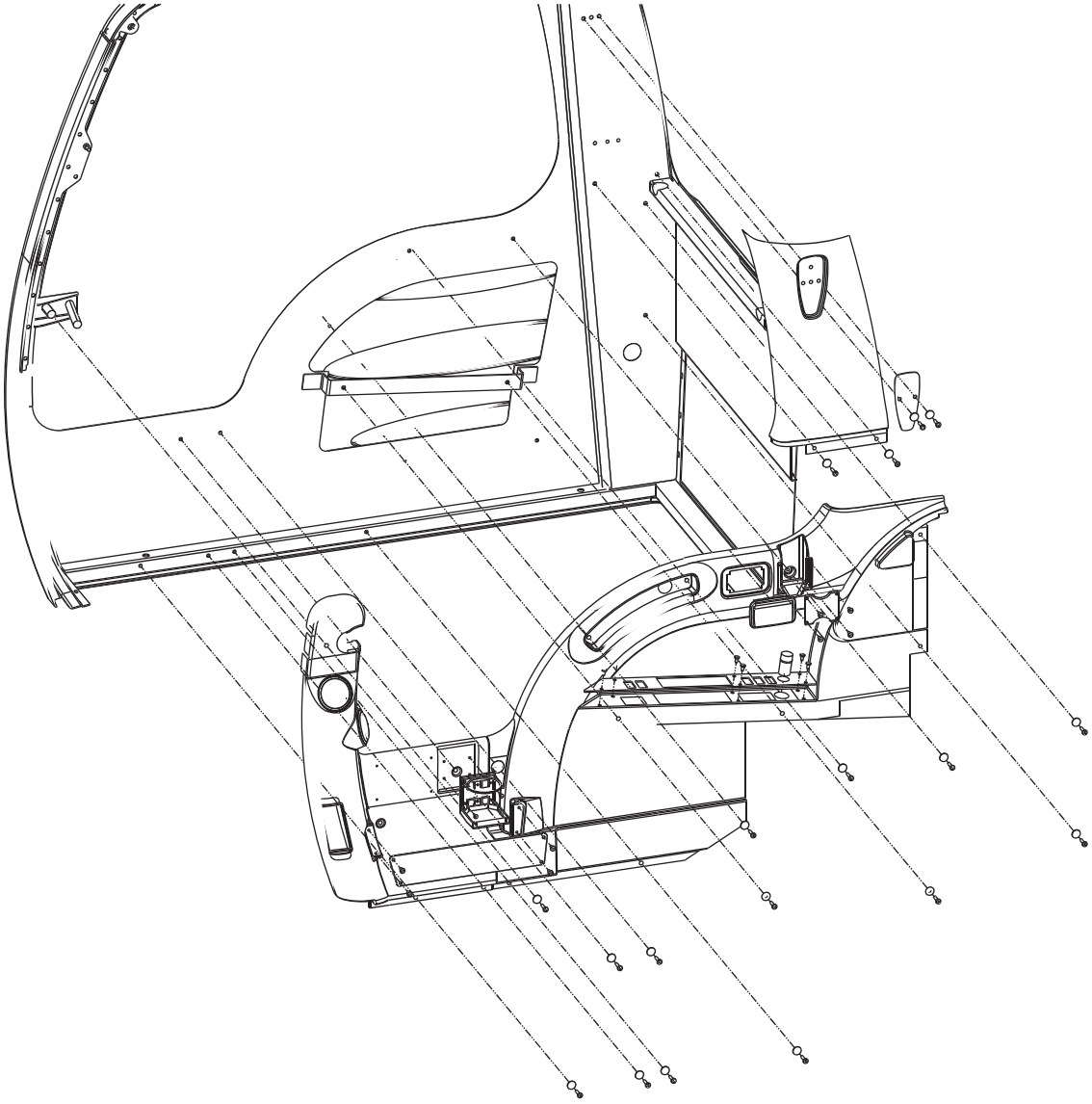

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Fig 4.