



TJM 013COMPVPROT Twin Compressor User Manual

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Installation and User Manual

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013COMPVPROT Twin Compressor

Product:	TJM Pro Series Twin Air Compressor
Vehicle:	Generic
Part No.	013COMPVPROT



170 / 6.0
LITRES
PER MINUTE CUBIC FEET
PER MINUTE



100
PERCENT
DUTY CYCLE



CAN OPERATE
PRO LOCKERS



QUALITY
ASSURED

3YR
3 YEAR
WARRANTY

- Before commencing fitment read all instructions and ensure all listed components are supplied.
- It is a condition of the warranty that the product has been correctly installed by suitably qualified personnel and is used in accordance with accompanying instructions where provided. For product warranty please refer to our website www.tjm.com.au
- Estimated Fitting Time: 2hrs (Horizontal Configuration or Vertical Configuration in open area), 5hrs (Vertical Configuration in confined area)
- Treat any holes drilled into the vehicle body with rust preventative paint.
- Holes drilled for cable routing should have a suitable sized rubber wiring grommet installed. This will prevent damage to the cables.
- Always place the product on a soft workspace to prevent damage prior to installation.
- Do not mount compressor below the water-wading line of the vehicle. Refer to the vehicle manufacturer for this specification.
- Compressor surfaces, especially the head section becomes very hot during operation. Mount away from flammable materials and avoid locations where it may be accidentally touched while operating.
- Rated for 12 V DC systems only.

Compressor Specifications

Electrical Specifications

Voltage	12 V DC
Current Draw (0 Bar / 0 PSI)	46 A
Current Draw (30 PSI)	55 A
Fuse Type and Rating	2x ANS 40 A
IP Rating	54
Motor thermal cut-off	105°C

Performance

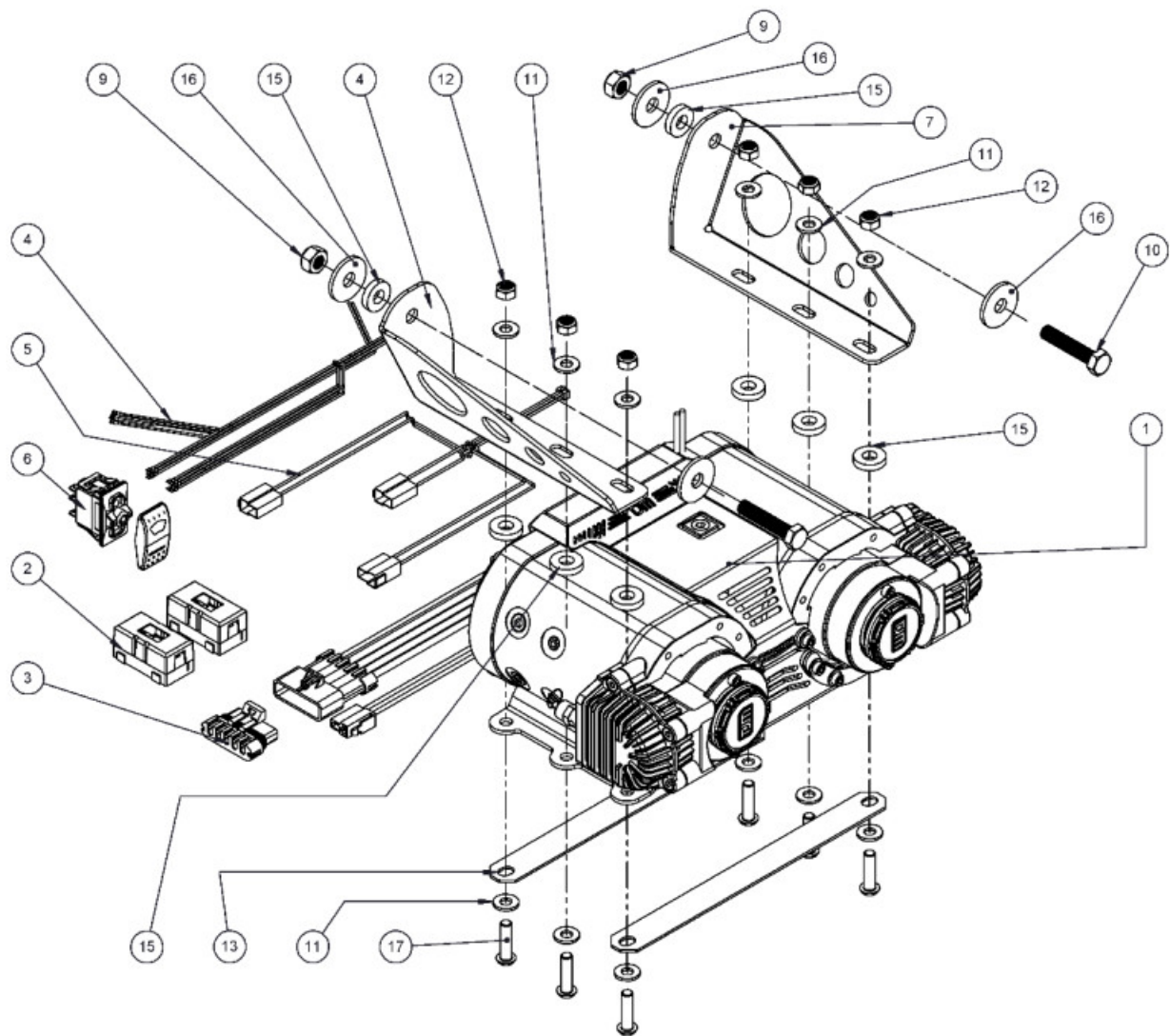
Air flow (0 Bar / 0 PSI)	170 LPM / 6.0 CFM
Air Flow (2 Bar / 29 PSI)	120 LPM / 4.2 CFM
Duty Cycle (80 PSI, 60 minutes @ 23°C)	100%
Pressure Switch Operation	Off @ 120 PSI / On @ 90 PSI
Safety Relief Valve Opening Pressure	1070 kPa / 155 PSI

Hardware and Fittings

Pro Locker Solenoid / Pressure Switch ports	4 x 'A" BSPT ports (2 each side of air tank)
Tyre Inflation / Accessory ports	5 x 'A" BSPT ports (2 each side of air tank & 1 on Top Cover)
Safety Relief Valve	Factory-set 155 PSI, 'A" NPT male thread
Compressor to Bracket Bolts (Included)	12 x M5 x 22 Socket Head Cap Screw (Base Bracket) 6 x M5 x 18 Socket Head Cap Screw (Top Cover)
Base Bracket to Mounting Surface Bolts (Included)	6 x M8 x 1.25 x 30 Socket Button Head Cap Screws bx MS x 1.25 Hex Nyloc Nuts 12x M8 x 18 x 20 Flat Washers

Recommended Fastener Torque Settings

M5	5 Nm + / – 10%
M6	9 Nm + / – 10%
1/8" BSPT	5 – 6 Nm
1/4" BSPT	6 – 8 Nm

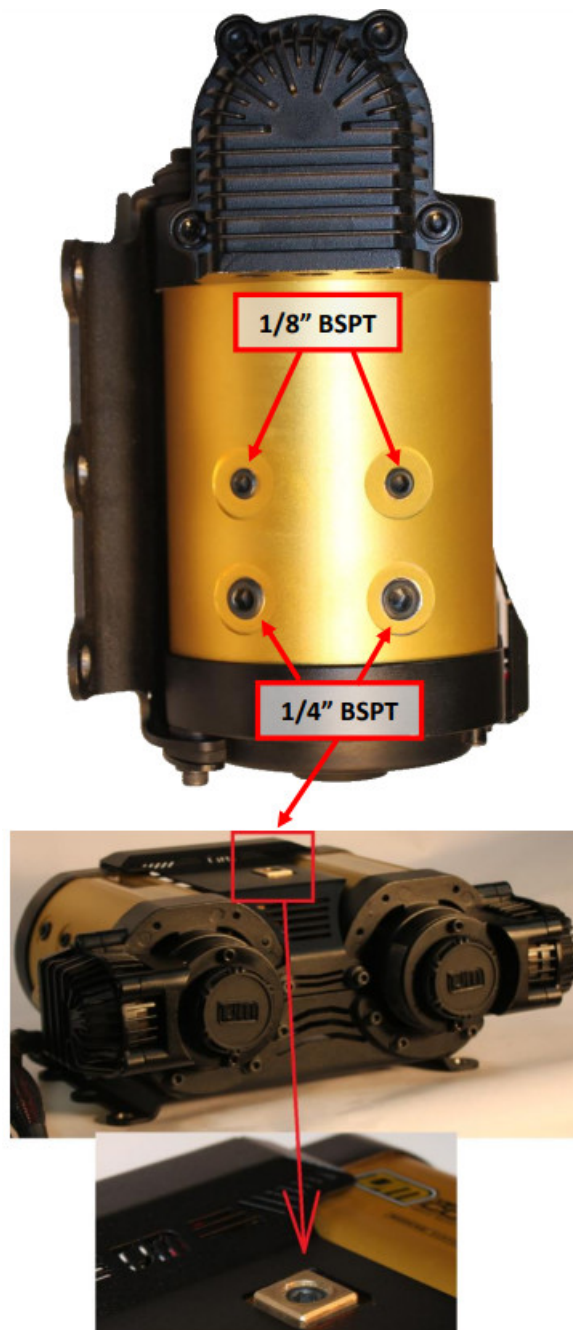


Bill of Materials

Item No.	QTY	Part Number	Description
1	1	F-30,747	TJM Pro Series Compressor Assembly
2	2	ANS FUSE ASSEMBLY	ANS Fuse Assembly
3	1	5-PIN CONNECTOR FEMALE	‘Delphi’ Style 5 Pin Connector Plug – Female
4	1	F-14,002	Wiring Harness — Cabin
5	1	F-30,638	Solenoid & Pressure Switch Harness
6	1	013COMPVACTSWITCH	Compressor Activation Switch Kit
7	1	F-30798R	Vertical Brace—Right Hand Side
8	1	F-30798L	Vertical Brace — Left Hand Side
9	2	K3099	M10 x 1.25 ZG — Nut Hex Nyloc
10	2	K0567	M10 x 1.25 x 50 Hex Bolt — ZP DIN
11	12	M8 FLAT WASHER	Washer Flat M8 x 18 x 2.0 ZP
12	6	K0606	M8 x 1.25 ZP — Nut Hex Nyloc
13	2	F-30,772	Bracket Backing Strip
14	1	F-31,070	013COMVPROT Owner’s Manual
15	8	F-30,893	5mm x 23 OD x 11 ID Spacer
16	4	WSST-W13	Washer Flat M10 x 34 x 3
17	6	K0533	M8 x 1.25 x 30 Socket Button Head Screw
18	1	F-31,390	Base Bracket Drill Template
19	1	F-31,397	Vertical Wall Brace Drill Template

Compressor Assembly Accessory Installation

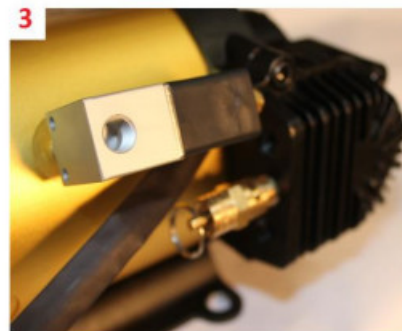
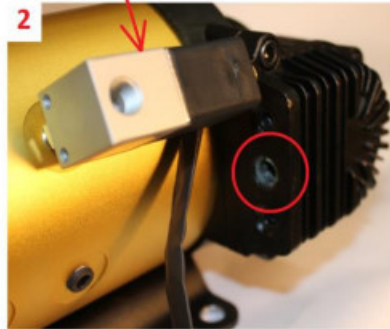
The 12 V solenoid shown is supplied with the TJM Pro Locker. The ¼” BSPT hose fitting shown is supplied with the TJM Airline Kit, TJM Bulkhead Fitting Kit, TJM Fascia Panel Mount Kit or Bulkhead Fittings kits which can be purchased separately.



- Determine the desired mounting configuration for the compressor accessories and select the desired outlet ports, there are 9 available outlet ports in total.
- If mounting in a confined space, mounting may be easier if outlet fittings and accessories are installed prior to mounting the air compressor.
- To fit the Pro-Locker solenoids, remove one of the 1/8" BSPT plugs in the air tank using a 5mm hex key.
- To fit the TJM Airline Kit, remove one of the 1/4" BSPT plugs in the air tank using a 6 mm hex key.



Pressure relief valve must be removed before installing Pro-Locker solenoid.



Ensure to re-install Pressure Relief Valve after installation of Pro-Locker solenoid.



- If necessary, remove the safety relief valve to provide space for accessory installation.
- Apply sealant paste (e.g. Loctite 567) or sealant tape to one end of the threaded fitting of the accessory.
- Recommended installation positions for the Pro-Locker solenoids are as shown.
- Other fittings can be installed on any other spare port.
- If the safety relief valve was removed, apply sealant paste or sealant tape and re-install the valve to the same port.
- If using a thread sealant allow curing time according to the manufacturer specification.

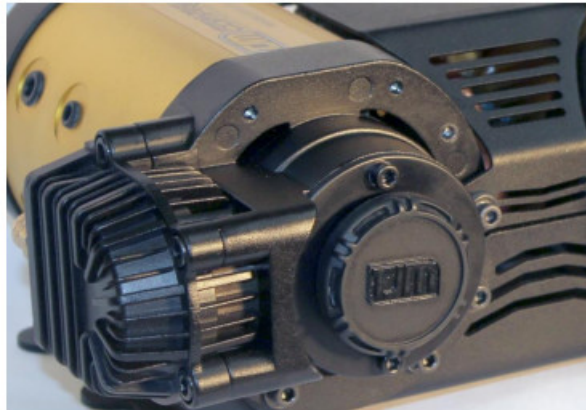
NOTE: DO NOT over-tighten, may cause damage to thread.

Air Filter Installation

Ensure filter is assembled in a dry working environment.



- Each compressor has a two-stage air filter supplied loose which must be installed prior to operation.
- Remove the protective plug from the compressor inlet port.



- Screw the filter housing into the port.
NOTE: Hand tighten only.



- To replace the filter elements, pull the outer cover from the air filter assembly.
- Remove the foam and felt elements and replace.
- Press the outer cover back into place, ensure that the clips on the housing are aligned to make a secure fit.

NOTE: Check the Air Filter elements at frequent intervals. If Air Filters become damaged, wet, or dirty. DO NOT use the compressor until air filters are replaced. Contact a TJM Distributor for service.

Vehicle Mounting

Mounting Location

When deciding an appropriate place to mount the compressor within the vehicle, consider the following:

- Carefully consider the mounting location of the compressor. There must be a minimum of 10mm clearance from the Air Filter surface & a minimum of 15mm clearance from the fan housings of the compressor.
- Avoid proximity to heat sources.
- Avoid exposure to direct sunlight.
- Avoid mounting in areas which are submerged during a water crossing.
- Ensure that the air filter inlet has access to cool, dry air.
- Ensure there is adequate clearance for air flow to the air filters and from the compressor exhaust fans.
- Compressor will become hot when used, ensure it is out of reach of children or pets, and away from flammable materials.
- The compressor should be mounted only on rigid panels with a thickness of no less than 1.5mm.
- The Bracket Backing Strips (F-30772) may be used for additional rigidity and shall be used if mounting to a panel less than 2.0mm thick.
- Before installation, consider the location of the 5-Pin and 2-Pin connectors. Route them under the base bracket in the direction desired.

Compressor Mounting

Consideration must be applied when selecting the mounting configuration to ensure there are enough clearances for the compressor components and any accessories fitted. The supplied drill templates F-31390 and F-31397 can be used to choose a suitable location.

Depending on mounting location, the supplied spacers can be used to adjust installation heights of the compressor base bracket and vertical wall braces. Do not exceed a 3 spacer pack (15mm) if elevating the compressor. If a larger height is required, it is recommended to use larger outside diameter and thick M10 washers (eg. AS 1237.1 XL – 10 sized washers).

There are 2 main mounting configurations for the TJM Pro Series Twin Compressor:

1. Horizontally (as supplied).
2. Vertically (Supplied Vertical Wall Braces F-30798L & F-30798R to be used).

Mounting Compressor in Drawer System Wing

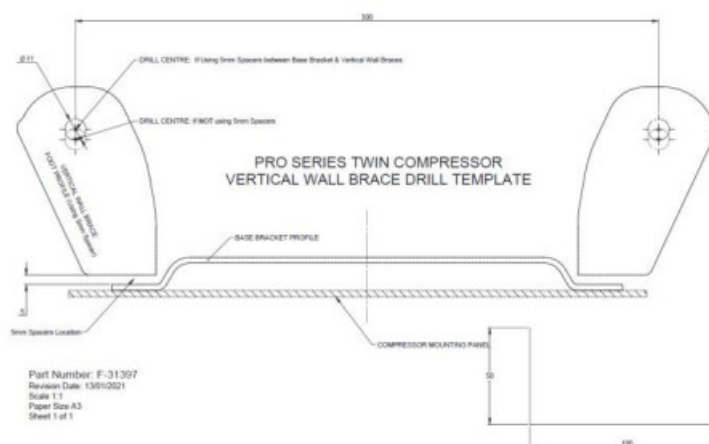
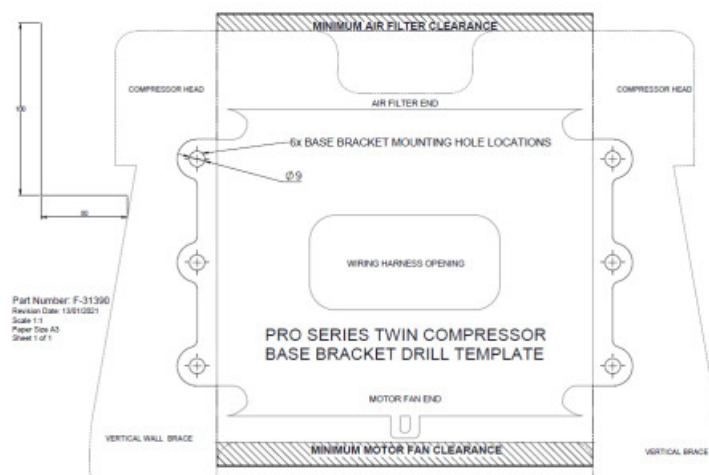
NOTE: The installation described in this manual was carried out with a “ModX” drawer system. Care must be taken when positioning the compressor to ensure there is no interference with and damage to critical components of the drawer system ie: slide bearings & drawer stops.



- If mounting to the side panel of a drawer system, it is recommended to remove the drawer, the wing panel and drawer system top cover before compressor installation.

This will create additional required room to effectively mount the compressor.

- Alternatively, if the drawer system has not yet been installed, it may be easier to mount the compressor before installing the drawer system.



- Place the provided base bracket template F-31390 on the surface that the compressor will be mounted. The template can be taped on the surface. Prior to using the template, ensure the scale lengths are correct on the

printed templates

- Mark the position of the 6 holes for the base bracket mounting fasteners. Ensure the minimum clearances are considered. It is recommended to mark the holes with a spring loaded centre punch (if working in a confined space) or a standard centre punch and hammer.
- Due to manufacturing variability, the drilled holes can be slightly enlarged in order for the brackets to fit.
- If mounting vertically, the vertical configuration template can be used to mark out the additional 2 holes required for mounting the Vertical Wall Braces to the floor.

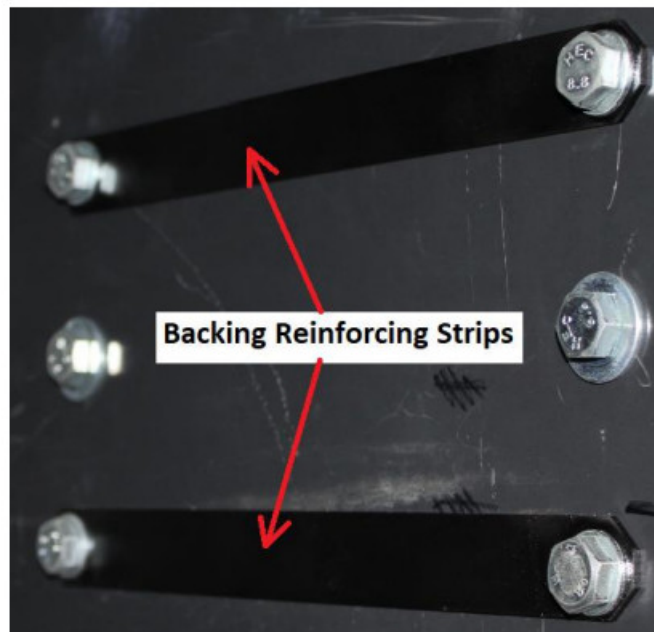
Pilot drilling of marked hole locations



Drill pilot drilled holes to specified diameters



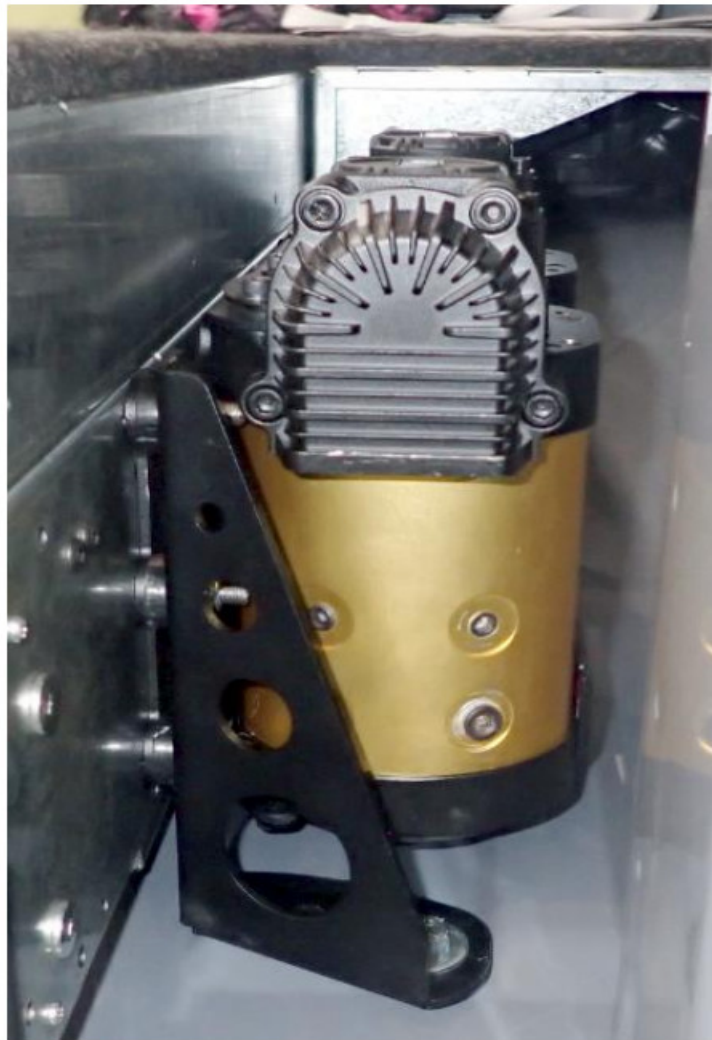
- Drill the 6x base bracket mounting holes with 8.5mm (for M8 bolts) and 2x for the Vertical Wall Braces with 10.5mm (for M10 bolts). Do not drill greater than 9mm and 11mm holes respectively.
- It is recommended to first drill the marked holes with a smaller pilot drill to ensure hole position precision
- All drilled holes and surrounding areas shall be thoroughly cleaned of any metal swarf from the drilling process.
- All drilled holes shall be treated with a rust proof treatment.



- If mounting horizontally, place the compressor in position over the drilled holes. Use the supplied M8 Socket Button Head Cap screws, M8 washers M8 Nyloc nuts to secure the compressor on the mounting panel. It is recommended to use the supplied backing strips on the underside of the panel for additional rigidity.



- If mounting the compressor in a vertical configuration, first loosely secure the vertical wall braces. Ensure that the 3 slots on each of the Vertical Wall braces line up with the 6x drilled holes for the compressor bracket.
- Once the slots and holes line up, further tighten the Vertical Wall Braces to limit movement. Do not fully tighten at this stage.



- Once the Vertical Wall Braces are in the desired position, the main compressor assembly can be slid down in between the vertical wall brace and mounting panel.
- Use the supplied M8 Socket Button Head Cap Screws, M8 washers & M8 Nyloc nuts (& 5mm Spacer Washers if required) to fasten the compressor onto the mounting panel and Vertical Braces.
- It is recommended that only one fastener at a time be fitted for ease of installation however, do not fully tighten the bolts yet.

Button Head Bolt Heads



- It is recommended to install the head of the button head bolts on the inside of the drawer system.
- The button heads will maintain a low profile and reduce the chance of interference with the drawer system components.
- Once compressor is mounted and all bolts in their place. Tighten all bolts to their specified torques.

Wiring the Compressor System

Electrical Diagram

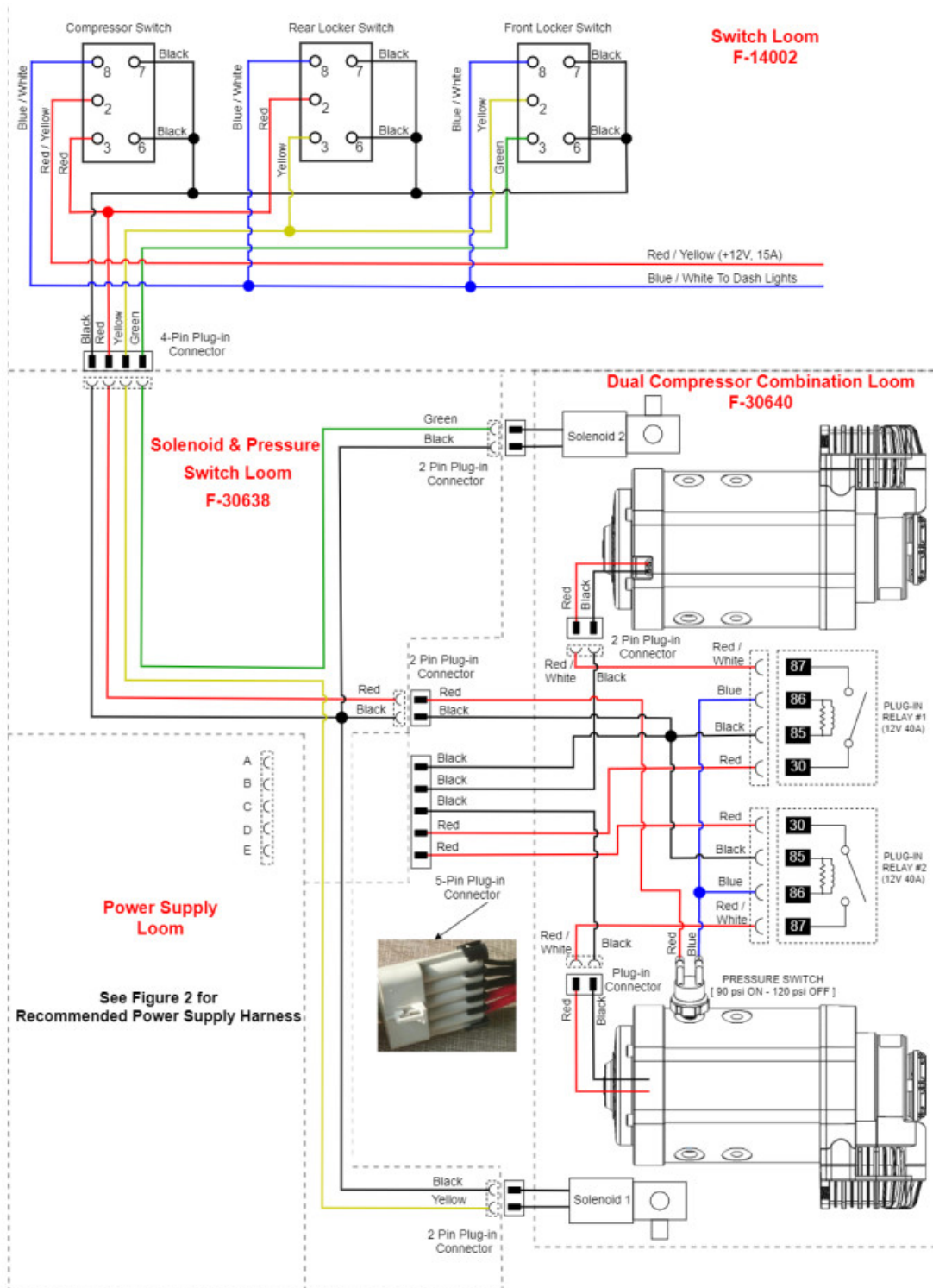


Figure 1 : TJM Pro Series Twin Vehicle Mount Compressor Supplied Wiring Diagram

Recommended Power Supply Harness Diagram

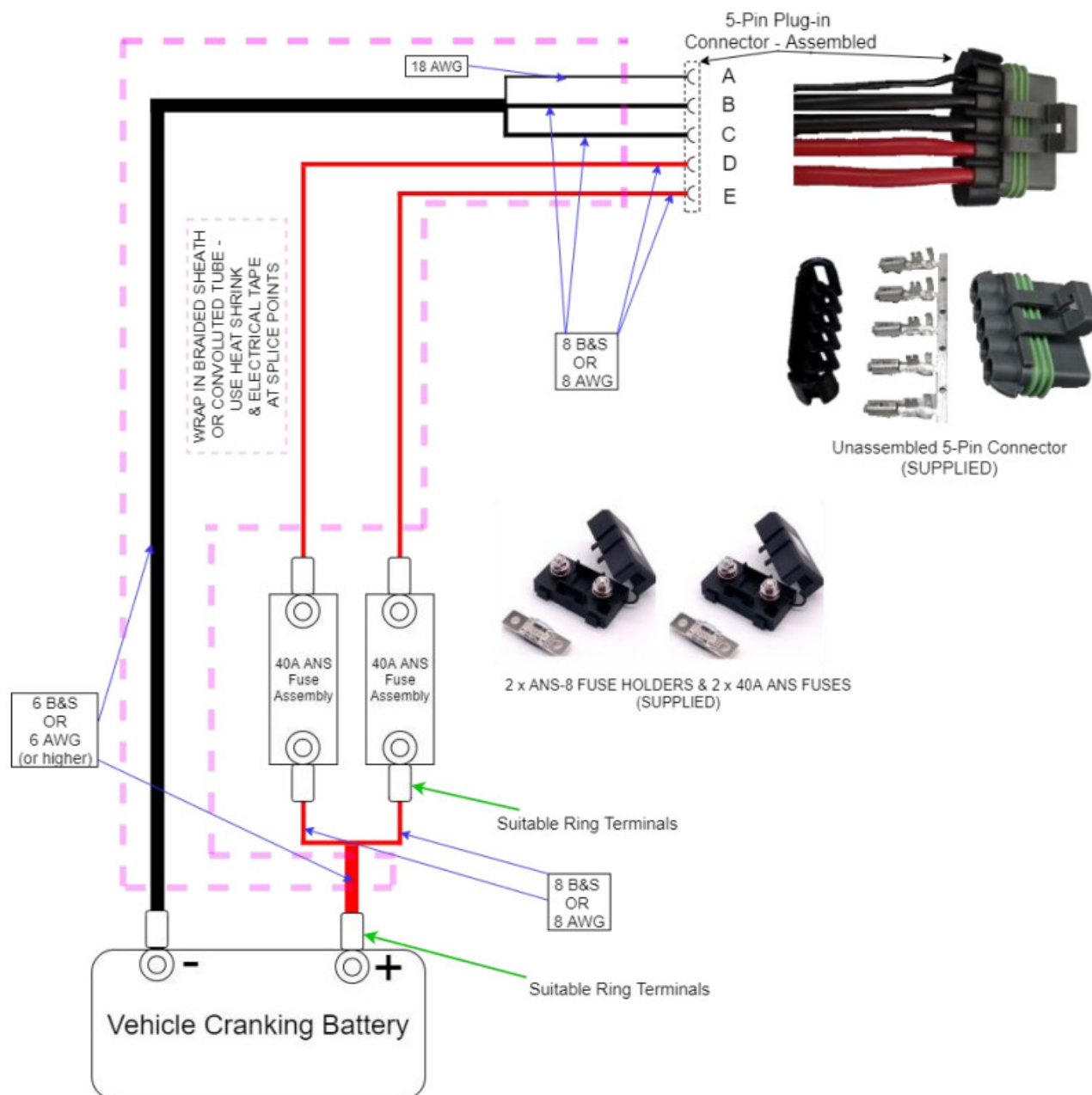


Figure 2 : Suggested Power Harness Configuration

Connecting Wiring System

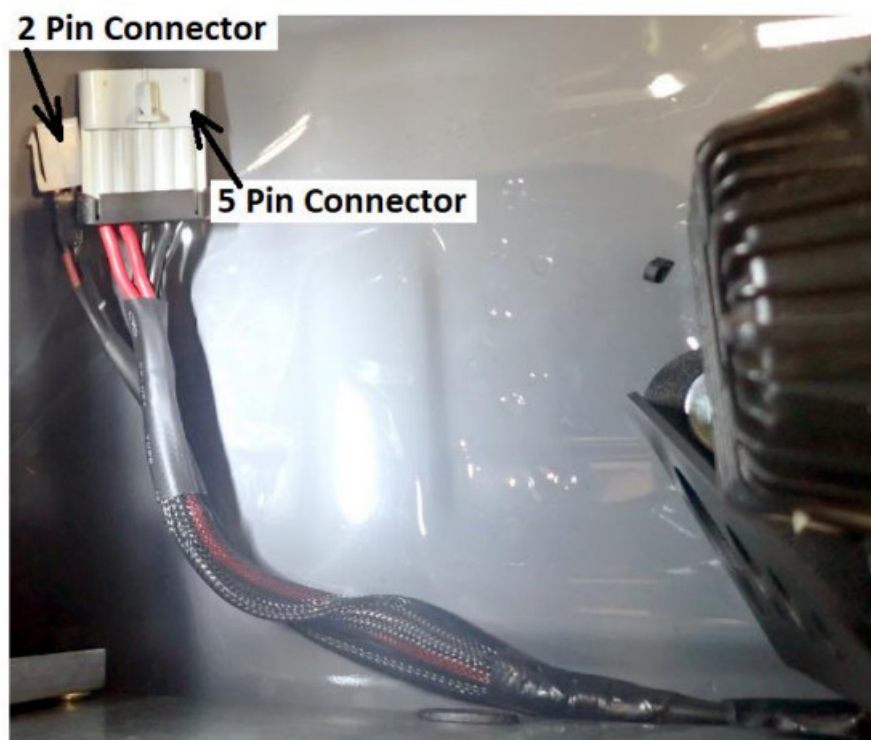
- The Twin Compressor comes ready to plug into the supplied Solenoid/Pressure Switch (F-30368) harness which in turn can be plugged into the supplied Switching Harness (F-14002).
- The wiring diagram for the compressor, Solenoid/Pressure Switch Harness and Switching Harness can be seen in Figure 1.
- The recommended power supply harness configuration can be seen in Figure 2. The diagram also illustrates the MINIMUM wire gauges and any terminals required for the power harness. The routes and lengths of the wiring harness should be carefully measure before fabricating the harness.
- The Power Supply harness, which is not included, will need to be fabricated by suitably qualified personnel.
- Using the wiring diagram depicted in Figures 1 & 2, plug the correct coloured female terminals to the appropriate switch terminals.
- It may be convenient to bundle the Red/Yellow and Blue/White 12V & Dash Light cables respectively along with Power Supply harness loom.

- Locate an accessory outlet or power outlet that supplies 12V DC and is powered when the vehicle ignition key in the “ACC” or “ON” position.
- TJM recommends wiring the Red/Yellow +12 V wire to the Ignition circuit to reduce likelihood of compressor draining the battery.
- Using an automotive quality connectors or soldering iron, splice the Red/Yellow wire to the positive (+) wire on the chosen source, insulate the connection to prevent possible short circuit.
- Locate an active dash light 12 V supply wire.
- Using an automotive quality connectors or soldering iron, splice the Blue/White wire to the active dash light supply wire, insulate the connection prevent possible short circuit.
- Route the remainder of the loom to the battery.
- Plug the dual solenoid connectors into the loom; the yellow and black connector to the Rear Locker Solenoid, and the green and black connector to the Front Locker Solenoid.
- Connect the red wire to the battery positive terminal, and the black wire to the battery negative terminal, use suitable terminals which are capable of carrying at least 80A
- Secure the loom to the vehicle at regular intervals to prevent wear.

Note: If additional wire is required to reach the battery, use 6 AWG wire or larger.

Power Supply Harness

The TJM Pro Series Twin Compressor is NOT supplied with a power supply harness, refer to figure 2 for the recommended 12V power supply installation. A female Delphi style connector and 2x 40A ANS Fuse assemblies are supplied, the Power Supply Harness must be fabricated by suitably qualified personell.



- The 2Pin and 5 Pin connectors from the compressor are supplied already assembled.
- Before installation of compressor, consider the all wiring harness routes carefully. Ensure to route the harness and connectors in the desired location & direction prior to mounting the compressor.



- The male 5-Pin connector is supplied unassembled.
- It is recommended that suitably qualified personell assemble the 5 Pin Connector and power supply wiring harness.



- 2x ANS Fuses & Fuse Holders are supplied.
- It is recommended that suitably qualified personell assemble the fuses and the power supply harness.

Other items to fabricate the power supply harness must be purchased separately, these items include:

- 18 AWG, 8 B&S & 6 B&S or larger Automotive Electrical Cables
- Suitable ring terminals to connect to the 40A ANS Fuses and Vehicle Battery.
- It is recommended to connect the power supply harness to the cranking battery of the vehicle.
- Cable sheathing such as braided sheath or convoluted tube.
- Heat shrink.
- Soldering/splicing items.
- Grommets/Cable Glands if drilling holes on vehicle panels to route cable.

Switch Mounting

Compressor and Actuator switches should be mounted in a position best suited to the driver, consider the following:

- Switches must be hard mounted and never hanging from the wiring alone.
- Switches should be easily seen and accessible to the driver.
- Ensure that the switches are out of the way of accidental activation by passengers or driver.
- Switches should be mounted away from potential exposure to water.
- Enough room should be left behind the mounting face to fit the switch and wiring.

Note: The Pro Locker actuator switches are supplied with the Pro Locker.



- Create 21 mm x 41 mm rectangular cut-out for each switch.
- Securely snap switches into position.
- When wired according to the wiring diagram shown in Figure 1, the switch will illuminate Green when the dash lights are ON, and Red when the compressor is ON.



- Alternatively, if Pro-Lockers are not used or the compressor isolator switch is desired to be installed elsewhere, a TJM Fascia Panel (013COMPDFMK) may be used to mount the compressor isolator switch.

- Additionally, a standard 52mm Pressure Gauge, 2x airbag Schrader valves and an outlet port can also be installed on the panel.
- It is suggested to mount the panel onto the side fascia of the drawer system.

Post- Installation Examination

Leak Testing

Complete the following test with the vehicle in park and the engine off.

1. Turn on the compressor on.
2. The compressor air tank will fill to reach operating pressure.
3. Wait for the Pressure Switch to turn off the compressor at 120 PSI.
4. Monitor the time. The compressor should not reactivate within a period of 10 minutes.

NOTE: If the compressor refills in this time frame, there is a leak in the system. Complete the following to determine and control the source of the leak.

5. While the compressor is pressurised, spray soapy water on all the air fittings.
6. Bubbles will appear at the source of the leak.
7. De-pressurise the system.
8. Re-tighten the leaking fitting/s and repeat leak test.
9. If leaking continues, remove fittings, reapply sealant, and then re-assemble.

Post installation checklist

- Compressor operational check completed.
- Leak Test completed.
- Compressor safely mounted using appropriate hardware.
- Wiring Loom installed according to the TJM Diagram.
- Air lines securely installed.
- Switches hard-mounted to dash and out of reach of accidental activation.
- Switches function and illuminate correctly.

Operating Instructions

- Switch on the compressor from the actuator switch.
- The compressor will pressurise to approximately 120 PSI and then automatically switch off.
- Use the Pro Locker actuation switches to engage and disengage the Lockers as needed.
- When system pressure drops below 90 PSI the compressor will automatically switch on.
- After use switch off both the Locker switches and the compressor switch.

Tyre inflation

- Connect the hose for tyre inflation to the compressor using the ¼" BSPT port with a quick-connect fitting (supplied in TJM Airline Kit).
- Switch on the compressor from the actuator switch.
- The compressor will pressurize to 120 PSI and then automatically switch off.

- Connect the tyre chuck to the tyre valve to inflate. The compressor will automatically restart to supply air once the tyre is connected.
- Check desired pressure is reached using a tyre pressure gauge. Note: measure the pressure with no air-flow to the tyre for accurate reading.
- After use switch off the compressor.

Safety information

- The compressor will become very hot during use. Do not touch the working end of the compressor during or immediately after use. Wear gloves when changing the hose connection.
- Always ensure air pressure in the compressor is discharged before installing hoses and fittings or undertaking maintenance.
- Do not operate the unit without the safety relief valve installed.
- Never blow compressed air directly at people or pets. Compressed air can blow dirt particles into the atmosphere which can irritate the skin, eyes and/or respiratory system.
- Do not use the compressor without mounting to a solid surface.

Operation Guide

- The compressor is designed for individual use, not for commercial or industrial applications.
- The compressor is fitted with a thermal cut-off switch. This switch protects the motor from overheating. If the compressor cuts-out, turn off the power switch and allow the compressor to cool for at least 45 minutes before attempting to restart.
- The compressor duty cycle is rated at 23°C. Higher ambient temperature will reduce the duty cycle.
- The duty cycle is rated over a 60-minute operating period. The compressor is not rated to run continuously beyond the specified duty cycle.
- TJM recommends using the compressor while the vehicle engine is running, operating the compressor with the vehicle engine off can rapidly drain the battery.
- Discharged air will contain moisture due to air humidity. When using the compressor in conjunction with an on-board air tank, TJM recommends installing a moisture trap before the air tank inlet and/or fitting the air tank with a drain valve.
- The compressor is fitted with a safety relief valve, set at factory to 155 PSI. The valve can also be manually opened to discharge air pressure by pulling on the ring at the top of the valve. It is recommended to discharge the air system after using the compressor.

Safety Relief Valve



- The safety relief valve can be manually actuated by pulling on the ring at the top of the valve.
- Valve may be hot – use gloves while operating valve.
- DO NOT operate the compressor without the relieve valve installed.

Maintenance

Always ensure that the pressure in the compressor has been discharged before commencing.

Routine Maintenance

- Periodically inspect and replace the air filter. Blocked air filters significantly reduce compressor performance. Never run the compressor without a filter – this will reduce the life of the compressor.
- Periodically check fittings and airlines for leaks.
- Periodically inspect mount bolts to ensure that they remain tight.
- Periodically check the safety relief valve – ensure air is released when the manual override is pulled.

Note: The compressor does not use oil lubrication – there is no requirement to check / fill oil.

Troubleshooting Guide

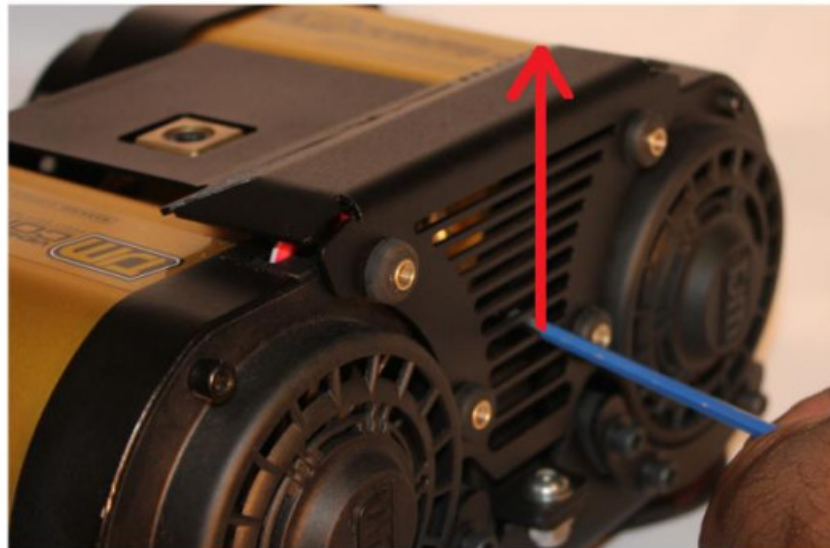
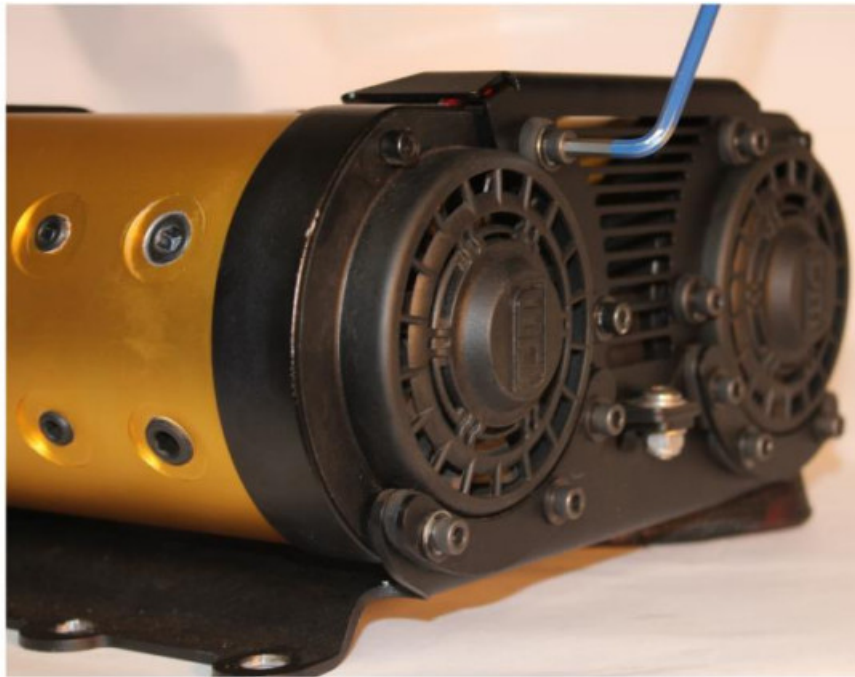
This is a basic guide for field troubleshooting only. If the compressor does not operate after taking these steps, refer to a TJM distributor.

Problem	Possible Cause	Resolution
Compressor does not run	Thermal cut-off switch active	Switch off power, wait 45 minutes for compressor to cool, restart.
	Wiring Fault	Check that wiring has been connected according to diagram. Check power switch illuminates green with dash lights and red when switched on.
	Fuse blown	Replace 40 A Maxi blade fuse.
	Relay blown	Test with another relay and replace if required
	Faulty pressure switch	Check for voltage at relay terminal 86. Replace switch if required.
Compressor switches on and off frequently	Air leakage	Check all air lines and fittings for leaks.
Compressor does not switch off at 120 PSI (observe relief valve opens while running)	Faulty pressure switch	Replace pressure switch.
Compressor air flow lower than normal	Blocked air filter	Inspect air filter and replace if dirty.
Unusual noise or vibration	Worn isolators	Replace isolators.
	Loose mounts	Tighten all mount bolts.

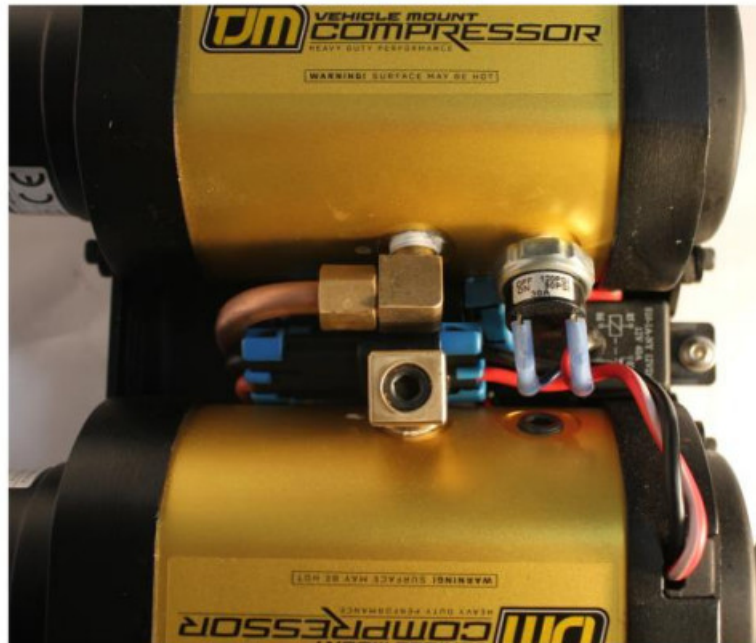
Serviceable Components

There are several serviceable components fitted to the compressor. These components include the pressure switch, the copper connecting tube, compression fittings and relays. All these items are located under the top cover.

NOTE: It is recommended that all serviceable components be serviced by suitably qualified personnel




- Ensure 5 Pin & 2 Pin Compressor plugs are disconnected before removal of Top Cover.
- Using a 4 mm hex key, remove the 6 x M5 x 18 mm mounting screws and washers between the compressor and Top Cover (2 x front and 4 x rear).
- Remove the top cover from the pair of compressors using the hex key to assist in lifting off the cover.
- The components can now be accessed.
- The assembly procedure is the reversal of the assembly procedure. Ensure all brass crush tubes and washers are used when reinstalling.
- The major components of the compressor are designed to be maintenance-free for the life of the unit. The following parts are available for servicing requirements:



- 013COMPVFILTER01 – Filter housing and element combined kit
- 013COMPVFILTER02 – Filter housing kit to replace housing only
- 013COMPVFILTER03 – Filter element kit
- 013COMPVACTSWITCH – Replacement activation switch kit
- 013COMPVMOUNTKIT – Replacement rubber isolator and bolt kit
- 013COMPVSRV155-18N – Safety relieve valve 155 PSI, male 1/8" NPT
- 013COMPVPS120-90 – Pressure switch OFF 120 PSI / ON 90 PSI

For product warranty please refer to our website www.tjm.com.au

Documents / Resources

	<p>TJM 013COMPVPROT Twin Compressor [pdf] User Manual 013COMPVPROT Twin Compressor, 013COMPVPROT, Twin Compressor, Compressor</p>
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References

- [TJM Bull Bars, 4wd Accessories, Suspension Fitment Store | TJM 4X4 Equipped](#)