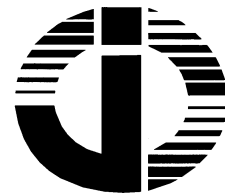


JAVAC SHARK™ VACUUM PUMP USER'S MANUAL



JAVAC

Thank you for buying the JAVAC SHARK Vacuum Pump!

SHARK is a high quality two-stage rotary vacuum pump designed for fast evacuation, deep vacuum, simplified maintenance / repair, and durability. With normal use and care as prescribed in this manual, your SHARK will provide you with many years of trouble-free operation.

Safety First!



This international symbol is intended to alert the user to the presence of important operating, safety and maintenance (servicing) instructions in this Manual. As used in the Manual, it is intended to draw your attention to critical items.

It is important to read this entire Manual and be familiar with its contents before using the machine!





Responsibility

The JAVAC SHARK must only be operated by a Qualified Technician who has been properly trained in the care and use of such equipment. Use of this equipment by unqualified personnel is potentially dangerous and should not be attempted.

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1.0 SAFETY PRECAUTIONS

- 1.1  **READ THIS MANUAL AND BECOME FAMILIAR WITH THE SPECIFICATIONS AND OPERATION OF THIS MACHINE PRIOR TO USE.**
- 1.2  **THIS EQUIPEMENT MUST ALWAYS BE OPERATED BY A QUALIFIED TECHNICIAN WHO IS FAMILIAR WITH REFRIGERANT SYSTEMS, REFRIGERANTS AND REFRIGERANT SAFETY.**
- 1.3  **TWIST OFF OIL FILL/EXHAUST CAP FROM VACUUM PUMP MASTER MOUNT AND DISCARD THE PLASTIC PLUG FITTED UNDERNEATH. DO NOT OPERATE THE PUMP WITHOUT REMOVING THE PLASTIC PLUG.**
- 1.4  **MOTOR IS FITTED WITH AN INTERNAL AUTO RESET THERMAL OVERLOAD SWITCH. IF SWITCH IS TRIPPED, THE MOTOR WHEN COOLED CAN RESTART WITHOUT ANY WARNING.**
- 1.5 **WEAR APPROPRIATE SAFETY PROTECTION APPAREL** such as gloves, eye protection and foot protection when working on refrigeration systems.
- 1.6 **DISCONNECT POWER** before moving or servicing the JAVAC SHARK. Improper use or connections may cause **ELECTRICAL SHOCK** hazards. Be sure that all associated devices are properly grounded before energizing circuits.
- 1.7 **CARE MUST BE EXERCISED IF TOUCHING THE PUMP, AS CERTAIN COMPONENTS MAY BE HOT.**
- 1.8 The Exhaust Gas from the vacuum pump is composed of oil and gases entering the pump. **THE EXHAUST GAS SHOULD BE WELL VENTILATED.**
- 1.9 **NEVER OPERATE THE PUMP WITH BLOCKED OR RESTRICTED OUTLET** (exhaust), the resulting backpressure may blow out the sight glass or otherwise damage the pump.
- 1.10 **THE SHARK HAS BEEN DESIGNED TO OPERATE MOST EFFICIENTLY ON JAVAC APPROVED HIGH VISCOSITY OIL (Part No. VS4014).** Other vacuum pump oils may work, but performance results may not be as stated.
- 1.11 **THE SHARK VACUUM PUMP IS NOT DESIGNED FOR PUMPING CORROSIVE, AGGRESSIVE OR EXPLOSIVE GASES, OR FOR USE IN FLAMMABLE OR EXPLOSIVE ENVIRONMENT.**

2.0 SPECIFICATIONS

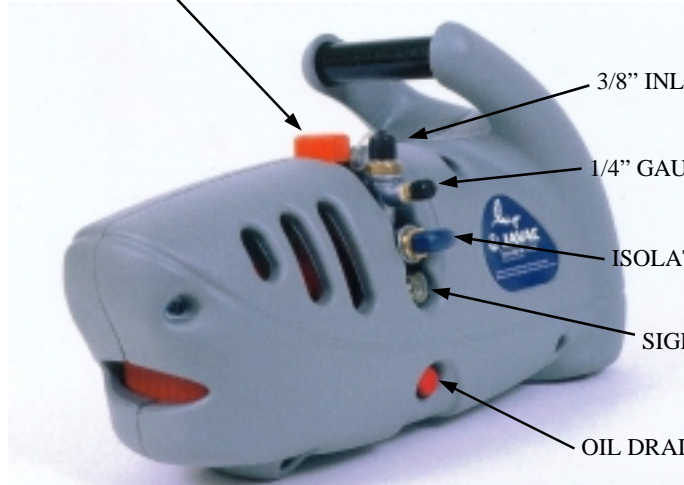
Ref		Model VNR152-2 (220/240v)	Model VNR172-1 (110/120v)
2.1	Free Air Displacement:	150 litres / minute (5.2 cfm)	170 Litres / Minute (6 cfm)
2.2	Motor:	250 w (1/3 HP) AC: 1370 RPM	250 w (1/3 HP) AC: 1685 RPM
2.3	Ultimate Vacuum (PP):	< 15 microns	< 15 microns
2.4	Oil Capacity:	0.95 Litres (0.90 Quarts)	0.95 Litres (0.90 Quarts)
2.5	Port flare sizes:	1/4"SAE and 3/8"SAE	1/4" SAE and 3/8"SAE
2.6	Oil Operating Temp.	50°C - 70°C (122°F - 158°F)	50°C - 70°C (122°F - 158°F)
2.7	Ambient* Operating Temp:	10°C - 40°C (50°F - 104°F)	10°C - 40°C (50°F - 104°F)
2.8	Dimensions (L x W x H):	49.8 x 18.1 x 31.3 cm (19.6" x 7.1"x 12.3")	49.8 x 18.1 x 31.3 cm (19.6" x 7.1" x 12.3")
2.9	Weight:	10.9Kgs. (24 lbs.)	10.9Kgs (24 lbs)

*Ambient Operating Temperature is dependent on the type of oil used. The ambient temperature listed above is the general operating temperature when using JAVAC approved High Viscosity Vacuum Pump Oil (Part No. VS 4014).

3.0 FEATURES

- 3.1 **INTERNAL OIL PUMP** – The SHARK incorporates a built-in oil pump; it's purpose is to provide lubrication to the bearings and seals enhancing the life of the vacuum pump.
- 3.2 **ANTI-SUCK BACK ON INLET** – As the pump is shut down, the air break on top of the pump is exposed to atmosphere and the pump will self-vent eliminating the possibility of oil suck back. For this reason the pump must not be over filled with oil.
- 3.3 **ISOLATION VALVE** – Allows the pump to shut off while still connected to the system. In the "open" position the pump is open to the system being evacuated. In the "closed" position the pump is isolated from the system. This valve is also user adjustable so should a leak occur it can be easily rectified.
- 3.4 **GAS BALLAST** –The function is to allow condensable vapors (i.e. water) to be discharged through the pump to atmosphere instead of accumulating in oil reservoir.
- 3.5 **LARGE OIL CAPACITY** ensures pump lasts longer and a high vacuum is maintained even at high ambient temperatures.
- 3.6 **FAN** offers positive air-cooling that channels air over motor and vacuum pump casing. This not only prevents overheating but maintains the temperature at a controlled level.
- 3.7 **REPLACEABLE VACPAK VACUUM CARTRIDGE** allows the technician to repair the vacuum pump without any hassles.
- 3.8 **EXHAUST** acts as combined exhaust, demister and oil filler.

COMBINATION EXHAUST / DEMISTER / OIL FILLER



3/8" INLET PORT

1/4" GAUGE PORT

ISOLATION VALVE

SIGHT GLASS

OIL DRAIN CAP

ON/OFF SWITCH

GAS BALLAST VALVE



POWER IN SOCKET

4.0 START-UP PROCEDURE



THE SHARK IS SHIPPED WITHOUT OIL IN ITS RESERVOIR...
DO NOT START PUMP WITHOUT ADDING OIL!



TWIST OFF OIL FILL/EXHAUST CAP FROM VACUUM PUMP MASTER MOUNT AND DISCARD THE PLASTIC PLUG FITTED UNDERNEATH.
DO NOT OPERATE THE PUMP WITHOUT REMOVING THE PLASTIC PLUG.

- 4.1 Place pump on flat surface **REMOVE** Oil Filler cap and the Filter Elements from Combination Exhaust Demister.
- 4.2 Pour oil SLOWLY to avoid OVERFLOW AND SPILL. Fill up to the centre of the sight glass with JAVAC approved HIGH VISCOSITY OIL (Part No. VS4014)
NOTE: Oil level will rise when the pump warms up & reaches the operating temperature. Check oil level when warm & adjust if required. **DO NOT OVERFILL.**
- 4.3 REFIT Filter Elements and Oil Fill cap, ensure the high density (thin) disc is on top. Any oil spill should be wiped with a clean dry cloth.
- 4.4 Remove cap from one of the inlet ports turn the Isolation Valve to "OPEN" position.
- 4.5 Turn power switch ON.
- 4.6 Let the SHARK run in order to warm-up and when it is running smoothly, turn the Isolation Valve to "CLOSED" position and REPLACE cap on the inlet port.
- 4.7 Turn power switch OFF and CONNECT to system.



PRIOR TO CONNECTING THE SHARK TO AN AC/R SYSTEM, REMOVAL OF REFRIGERANT FROM THE SYSTEM IS NECESSARY; WE RECOMMEND THE XTRACT-R FOR THIS PURPOSE. DAMAGE TO THE PUMP MAY OCCUR IF EVACUATION IS STARTED WHILE THE SYSTEM IS UNDER HIGH PRESSURE.

- 4.8 If a vacuum gauge is being used REMOVE cap from one of the inlet ports, and ATTACH it to the intake.
- 4.9 Make sure fittings and connections are tight.
- 4.10 Turn the Isolation Valve to "OPEN" position.
- 4.11 Turn power switch ON.
- 4.12 "OPEN" Gas Ballast valve for a few minutes to help bring pump up to its normal operational temperature sooner.



IT IS VITALLY IMPORTANT THAT THE PUMP HAS REACHED ITS NORMAL OPERATIONAL TEMPERATURE (50°C-70°C / 122°F-158°F) BEFORE ANY CONDENSABLE VAPORS ARE PUMPED. FAILURE TO DO THIS MAY CONTAMINATE THE OIL AND DAMAGE THE PUMP.

- 4.13 The SHARK is **NOW READY TO EVACUATE** air conditioning and refrigeration systems.

NOTE: If a system leak test needs to be done, it is recommended to keep the pump running after the isolation valve is closed.

Under no circumstances should the fittings on the vacuum pump be used for refrigerant transfer, as damage will occur to the valve.

5.0 USING THE GAS BALLAST

- 5.1 The Gas Ballast valve allows a controlled amount of air to enter the compression cycle, diluting the condensable vapor (i.e. water), then exhausting it out of the compression chamber **before it condenses and accumulates in oil reservoir**.

***For Example:** In a wet system, the partial pressure of water increases as the pump removes the air. When the partial pressure of the water vapor of the system gas reaches its Saturation Vapor Pressure (SVP) during the compression cycle of the pump, it condenses back into a liquid, mixes with the oil, and the pump WILL NOT achieve vacuum better than the SVP of the water. This is because the water evaporates from the oil on the suction cycle and then re-condenses back into the oil during the compression cycle. However, if you reduce the partial pressure of the water vapor during the pump's compression cycle with a measured and controlled amount of non-condensable gas, the water vapor WILL NOT reach its SVP during compression and will therefore be discharged from the pump. The gas ballast allows a controlled amount of atmospheric gas into the compression cycle of the pump, thus "diluting" the water vapor that is being compressed and exhausting it out of the compression chamber before it condenses.*

- 5.2 The Gas Ballast valve can be opened or closed at any time during pump operation. It can also be "OPENED" as follows:

5.2.1 During start-up will aid the pump in reaching its normal operational temperature sooner as a cold pump will more easily condense vapor.

5.2.2 During the evacuation process will minimize the effect of vapor condensing within the pump, but it may slightly reduce ultimate vacuum. If ultimate vacuum is required, the Gas Ballast may be "closed" during the evacuation process.

5.2.3 During shut down will allow pump to purge condensable vapors.

- 5.3 The Gas Ballast valve is located on the opposite side of the Isolation Valve of the vacuum pump. Normal operating condition is about two turns counter-clockwise, at which a slight "popping" noise occurs. Open valve several turns before closing down to required control position. The valve when shut down must only be finger tight otherwise the precision valve seat may get damaged.

6.0 SHUT DOWN PROCEDURE

- 6.1 CLOSE the manifold valve between the pump and the system.
- 6.2 Turn the Isolation Valve to "CLOSED" position and remove hoses from inlet.
- 6.3 "OPEN" Gas Ballast valve for a few minutes before shut down. This allows the pump to purge condensable vapors.
- 6.4 Turn power switch OFF.
- 6.5 Turn Isolation Valve to "OPEN" position for a few seconds to relieve any vacuum inside pump.
- 6.6 If necessary, drain oil while the pump is warm.

7.0 MAINTENANCE



DISCONNECT SHARK FROM POWER SUPPLY BEFORE CARRYING OUT ANY MAINTENANCE.

7.1 CHANGING OIL



THE OIL MUST BE CHANGED WHEN CONTAMINATED

Evacuation of most used systems results in some contamination of the oil, causing deposits of sludge containing water and acids. These substances will corrode your pump. Changing the oil will remove damaging substances and will enhance the life of the vacuum pump.

- 7.1.1 Poor vacuum reading or a gray or milky appearance usually indicates oil contamination. If the vacuum pump is pumping condensable vapors, it may be necessary to change the oil after each process so that the pump does not stand idle with contaminated oil.
- 7.1.2 To change oil REMOVE the Oil Drain cap and DRAIN OIL into a suitable receptacle, this process is easier if the vacuum pump is tilted slightly.
- 7.1.3 Turn power switch ON momentarily with the inlet port open, thus removing any residual oil.
- 7.1.4 REPLACE the Oil Drain cap when the flow of oil has stopped.
- 7.1.5 REMOVE Oil Fill cap and FILL the oil reservoir with **NEW JAVAC** approved high viscosity Oil or equivalent up to the center of the sight glass. The oil level will rise when the pump warms up and is operating under vacuum conditions. The oil level should be checked later and adjusted as required.

7.1.6 REPLACE Oil Fill cap, then turn power switch ON and check for any oil leakage.

NOTE: Remove Filter Elements before pouring oil to avoid spilling on them. Replace dirty or oil soaked elements (Part No. VS4017). When replacing elements, ensure inside of the Combination Exhaust Demister is dry and the high density (thin) disc is on top.

7.1.7 DISPOSE of waste oil in accordance with local regulations.

NB: OIL UNDERNEATH THE HOUSING COULD BE CAUSED BY CARELESS FILLING AND SPILL OVER. THIS WILL NOT BE COVERED BY WARRANTY (SEE 8.0 TROUBLE SHOOTING UNDER OIL LEAKING)

7.2 REPLACING VACPAK VACUUM CARTRIDGE

7.2.1 Turn power switch OFF and DISCONNECT power lead cord.

7.2.2 DRAIN the oil.

7.2.3 REMOVE the casing (4 screws).

7.2.4 REMOVE the 6 screws retaining the oil box and LIFT the oil box away from the pump.

7.2.5 Using a 6 mm Allen Key, UNDO the 3 long bolts that hold the cartridge in place and LIFT the cartridge away from the pump.

7.2.6 REPLACE the o-rings that seal the cartridge ports to the pump body and fit new rubber cross to coupling .

7.2.7 Hold the new cartridge in place and fit the three long bolts, tighten them sequentially.

7.2.8 Replace oil box O-ring and refit the oil box in position.

7.2.9 REFIT the casing.

7.2.10 REFILL pump with fresh oil and test as in "start up procedure" section 4.0.

7.3 SERVICING ISOLATION VALVE

The isolation valve is adjustable or user replaceable. Should any internal leak develop, slacken off the locking nut and remove the cone valve. Inspect for any damage on cone valve surface and master mount mating face. If there is no score marks apply vacuum grease. Refit the cone valve into position by turning a few times on either direction to ensure safe entry of o-ring. Apply a drop of Loctite 222 to the lock nut thread, tighten by hand and secure with spanner half a turn.

If the valve cone is scored further tightening of lock nut may be needed to overcome an internal leak of the valve. However, if mating faces are badly worn or scored, valve cone and/or master mount may need replacement.

7.4 SERVICING EXHAUST DEMISTER.

Filter Elements (Part No. VS4017) must be replaced periodically or immediately if dirt or oil soaked. When replacing filter elements ensure high density (thin) disc is on top.

7.5 MEASURING VACUUM

The performance of the SHARK vacuum pump can be checked, by measuring its ability to achieve a good "ultimate vacuum". To do this you need to connect a vacuum gauge to one of the pump's inlet ports.

- 7.5.1 Connect the Electronic or Mercury Gauge to one of the pump's inlets. Make sure that all connections are secured and vacuum tight.
- 7.5.2 Switch on the SHARK and allow it to warm up before taking a reading from the gauge. Remember, contaminated or dirty oil will have an effect on the ultimate vacuum as will the type of gauge used.

8.0 TROUBLESHOOTING

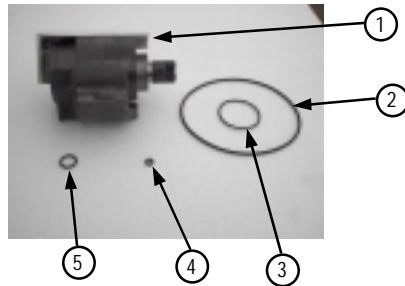
PROBLEM	CAUSE	ACTION
Failure to Start	Power Disconnected or switch off Isolation valve Closed Line Voltage Electrical Failure Burnt Motor Motor Internal Thermal overload activated or inoperative Pump Seizure	Connect to power source / switch on Open isolation valve Check local voltage Check motor / switch Replace Motor Switch on after cooling if still inoperative replace motor. Repair pump or replace cartridge
Poor Vacuum	Isolation Valve Closed Poor Hose connection or System Leaks Flapper Valve Broken Low Oil Level Oil Contaminated Pump worn out or damaged Oil type used unknown Gas Ballast Valve Open	Open Isolation Valve Check all vacuum connections Replace both flapper valves Add or Change Oil Change Oil Replace cartridge Replace with Javac High Viscosity Oil or equivalent grade oil Close Gas Ballast Valve
Oil Milky Colour	Excess Water Vapor mixture in oil Oil Contaminated	Open Gas Ballast Change Oil
Oil Dark Colour	Oil Burnt or Contaminated	Flush out with Oil / Change Oil
Oil Leaking	Seals Hardened or worn Oil mist accumulated from exhaust running within casing Careless oil filling	Service Pump / New Seals Occurs in normal use, cleaning may be warranted, monitor sight glass or open case to check Wipe housing & pump with a dry cloth
Pump Noisy	Loosen pump housing screws Flapper Valve Broken Oil level too low Pump worn out Worn coupling	Tighten with socket spanner Replace both Flapper Valves Add / Replace Oil Replace cartridge Replace coupling unit
Not Holding Deep Vacuum (when pump is turned off)	Isolation Valve Open or leaking (user adjustment is possible) System Leaking Gas Ballast Valve Open	Air enters system via pump when turned off. Close Isolation valve before stopping pump. Leak check system and vacuum lines (allow for some pressure rise due to system residual gas) Close Gas Ballast Valve.

9.0 PARTS AND ACCESSORIES

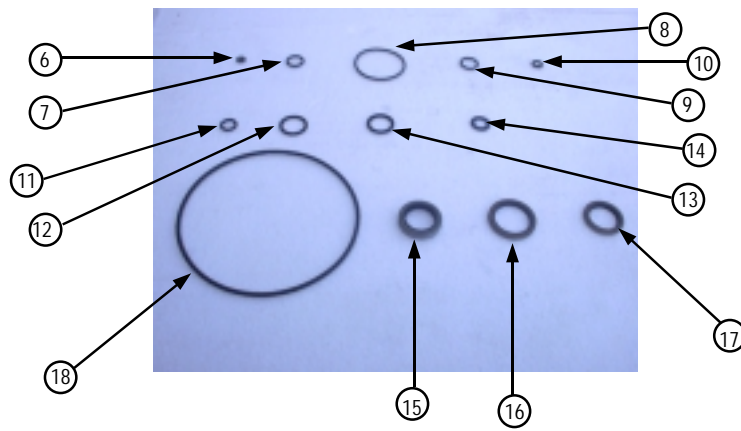
NOTE: When ordering parts indicate the Catalogue Number as spare parts are available in the form of kits only. Individual parts are shown for the purpose of identification of parts in a kit.

Maintenance Kits:

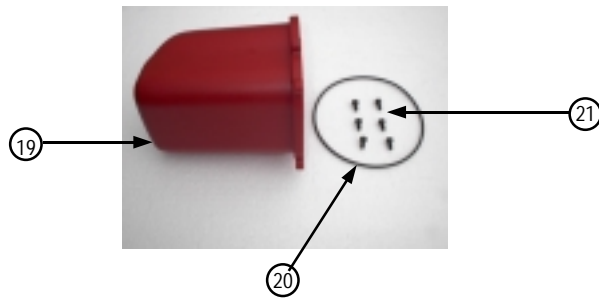
REF	CAT. NO.	PART NO.	ITEM	QTY
	VS4002		VACPAK CARTRIDGE ASSEMBLY KIT	
1			VACPAK CARTRIDGE ASSEMBLY	1
2		VC2027	O RING (oil box)	1
3		VC2032	O RING (master mount & cartridge)	1
4		VC2033	O RING (master mount gas ballast)	1
5		VC2031	O RING (master mount inlet port)	1



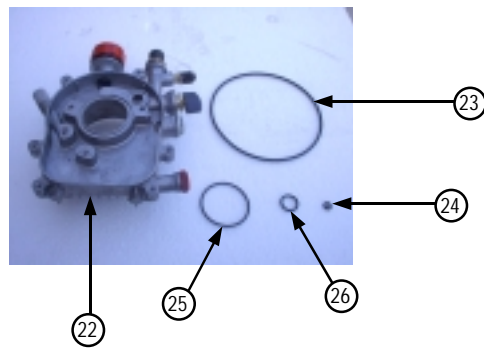
REF	CAT.NO.	PART NO.	ITEM	QTY
	VS4003		MASTER MOUNT SEAL KIT	
6		VC2033	O RING (master mount gas ballast)	1
7		VC2031	O RING (master mount inlet port)	1
8		VC2032	O RING (master mount & cartridge)	1
9		VC2028	O RING (suction fittings)	1
10		VC2030	O RING (gas ballast valve)	1
11		VC2029	O RING (spool valve assembly)	1
12		VD5036	GASKET, OIL BREATHER	1
13		VD5036	GASKET, OIL INDICATOR	1
14		VD5037	GASKET, OIL DRAIN PLUG	1
15		VC2001	OIL SEAL 1 STAGE CYLINDER - OUTER	1
16		VC2002	OIL SEAL 1 STAGE CYLINDER - INNER	1
17		VC2003	OIL SEAL 2 STAGE CYLINDER - INNER	1
18		VC2027	O RING (oil box)	1



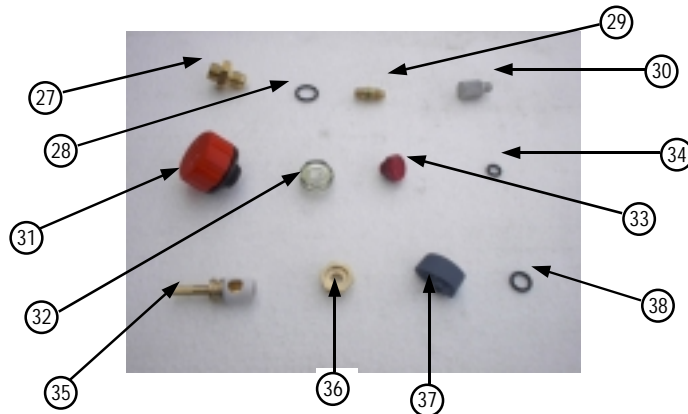
REF	CAT.NO.	PART NO.	ITEM	QTY
	VS4004		OIL BOX KIT	
19		VD5010	OIL BOX	1
20		VC2027	O RING (oil box)	1
21		VC2014	SCREW - M5* 10 SOCKET HEAD CAP	6



REF	CAT.NO.	PART NO.	ITEM	QTY
	VS4005		MASTER MOUNT ASSEMBLY KIT	
22			MASTER MOUNT ASSEMBLY	
23		VC2027	O RING (oil box)	1
24		VC2033	O RING (master mount gas ballast)	1
25		VC2032	O RING (master mount & cartridge)	1
26		VC2031	O RING (master mount inlet port)	1



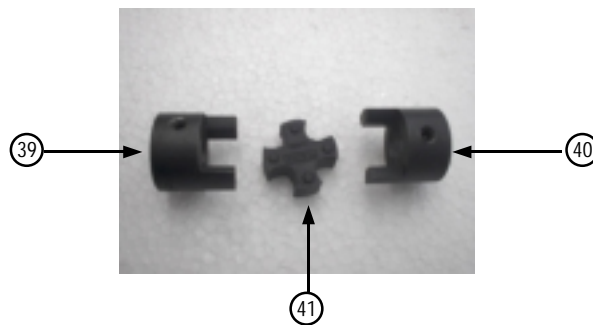
REF	CAT.NO.	PART NO.	ITEM	QTY
	VS4006		MASTER MOUNT FITTINGS KIT	
27		VD5007	FITTINGS - INLET (3/8" TO 3/8" BSPT)	1
28		VC2028	O RING (suction fittings)	1
29		VD5008	FITTING - INLET (1/4" FLARE TO 1/8" BSPT)	1
30		VD5013	VALVE - BALLAST	1
31		VS4016	COMBINATION EXHAUST/DEMISTER/OIL FILLER	1
32		VC2004	OIL INDICATOR	1
33		VC2005	OIL DRAIN PLUG	1
34		VC2030	O RING (gas ballast valve)	1
35		VD5021	VALVE - SPINDLE & SLEEVE	1
36		VD5022	VALVE NUT	1
37		VD5027	KNOB : BLUE	1
38		VC2029	O RING (spool valve assembly)	1



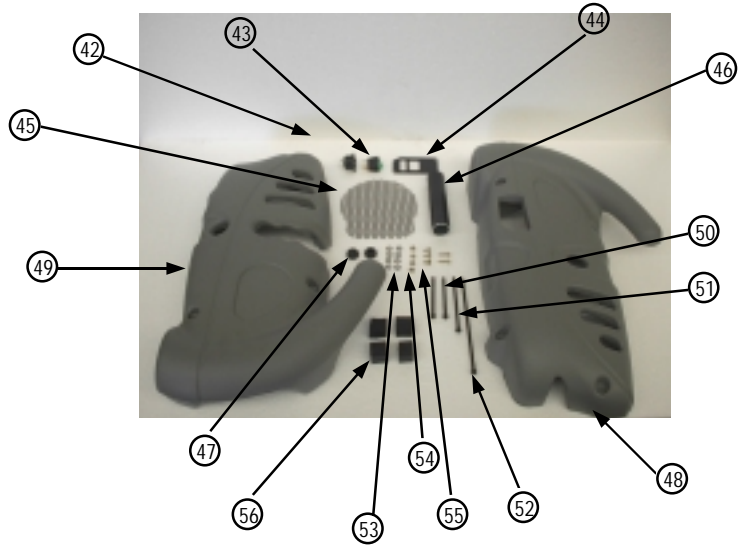
REF	CAT.NO.	PART NO.	ITEM	QTY
	VC2053		FAN BLADE KIT	



REF	CAT.NO.	PART NO.	ITEM	QTY
	VS4007		COUPLING KIT	
39		VC2009	COUPLING - PUMP END	1
40		VC2008	COUPLING - MOTOR END	1
41		VC2010	RUBBER - CROSS	1



REF	CAT.NO.	PART NO.	ITEM	QTY
	VS4008		PUMP HOUSING KIT	
42		VC2036	SOCKET - IEC PANEL MOUNT	1
43		VC2037	SWITCH - ON/OFF SPST 125/250V	1
44		VD5017	PANEL - ELECTRICS	1
45		VD5016	GRILLE - MOTOR	1
46		VD5018	HANDLE	1
47		VC2040	FOOT - RUBBER	2
48		VD5014	HOUSING, ELECTRICS	1
49		VD5015	HOUSING, VALVE SIDE	1
50		VC2017	SCREW - M5* 75 SOCKET HEAD CAP	2
51		VC2018	SCREW M5* 100 SOCKET HEAD CAP	1
52		VC2019	SCREW - M5* 170 SOCKET HEAD CAP	1
53		VC2020	WASHER FLAT ROUND M5 BLACK	8
54		VC2021	NUT NYLOCK ZINC PLATED	4
55		VC2022	SCREW - 8 - 15* 12 mm XR ST NEEDLE PT	3
56		VC2050	RUBBER PACKING	4



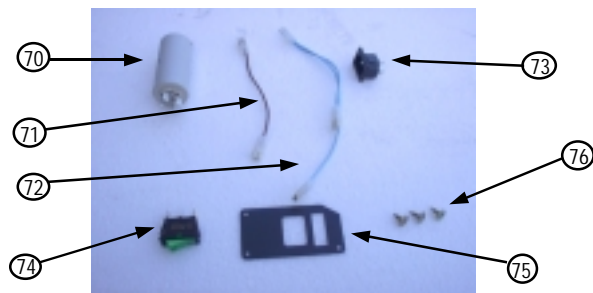
REF	CAT.NO.	PART NO.	ITEM	QTY
	VS4016		COMBINATION EXHAUST/DEMISTER/OIL FILLER	
	VS4017		FILTER ELEMENT KITS FOR EXHAUST/DEMISTER	



REF	CAT.NO.	PART NO.	ITEM	QTY
	VS4014		OIL, VACUUM PUMP - SHARK 1 LITRE	
	VS4015		OIL, VACUUM PUMP - SHARK 5 LITRE	



REF	CAT.NO.	PART NO.	ITEM	QTY
	VS4013		ELECTRICAL KIT - 220/240v	
70		VC2012	CAPACITOR: 12UF, 470V, 50Hz	1
71		VD5023	WIRE - ACTIVE SOCKET TO SW (BROWN)	1
72		VD5025	WIRE - NEUTRAL - SOCKET TO CAP/SW (BLUE)	1
73		VC2036	SOCKET—IEC PANEL MOUNT	1
74		VC2037	SWITCH - ON/OFF SPST 125/250V	1
75		VD5017	PANEL - ELECTRICS	1
76		VC2022	SCREW - 8 - 15* 12 mm XR ST NEEDLE PT	3



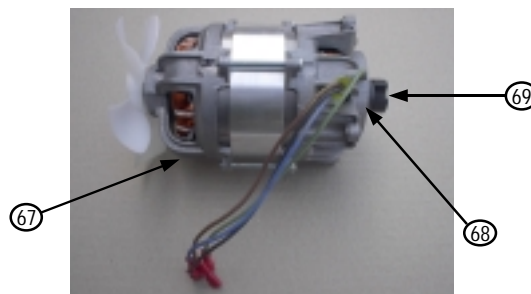
VD5035	EURO ONLY	CORD SET : IEC TO EURO PLUG 230v	
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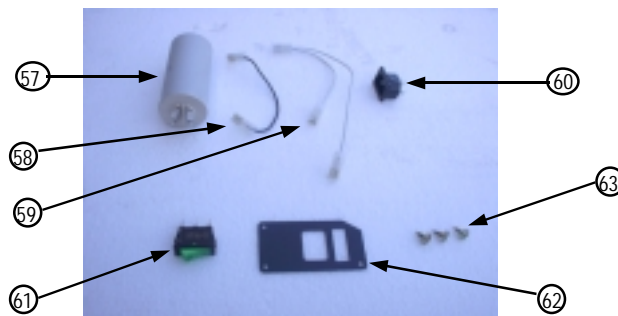
REF	CAT.NO.	PART NO.	ITEM	QTY
	VD5031	AUST ONLY	CORD SET: IEC TO AUST PLUG 240v	
	VD5032	UK ONLY	CORD SET: IEC TO UK PLUG 240v	



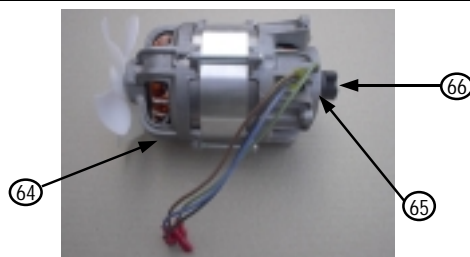
MODEL: VNR152 - 2 (220/240v)				
	VS4012		MOTOR & COUPLING KIT - 220v / 240v	
67		VC2051	MOTOR: 220v/240v, 50Hz, 1PH & FAN BLADE	1
68		VC2008	COUPLING - MOTOR END	1
69		VC2010	RUBBER - CROSS	1



REF	CAT.NO.	PART NO.	ITEM	QTY
	VS4010		ELECTRICAL KIT - 110v	
57		VC2011	CAPACITOR: 50uF, 425V, 50Hz	1
58		VD5024	WIRE - ACTIVE SOCKET TO SW (BLACK)	1
59		VD5026	WIRE - NEUTRAL - SOCKET TO CAP/SW (WHITE)	1
60		VC2036	SOCKET—IEC PANEL MOUNT	1
61		VC2037	SWITCH - ON/OFF SPST 125/250V	1
62		VD5017	PANEL - ELECTRICS	1
63		VC2022	SCREW - 8 - 15* 12 mm XR ST NEEDLE PT	3



MODEL: VNR172 - 1 (110v)				
REF	CAT.NO.	PART NO.	ITEM	QTY
	VS4009		MOTOR & COUPLING KIT - 110v	
64		VC2013	MOTOR: 115v,60Hz,250W,1PH & FAN BLADE	1
65		VC2008	COUPLING - MOTOR END	1
66		VC2010	RUBBER - CROSS	1



10.0 WARRANTY

- 11.1 JAVAC warrants your SHARK Vacuum Pump to be free from defects of materials or workmanship for one year from the date of purchase. JAVAC does not warrant any machine that has been subjected to misuse, negligence, accident, repaired or altered by anyone other than JAVAC.
- 11.2 Javac's liability is limited to machines returned to JAVAC, transportation prepaid, not later than thirty (30) days after the warranty period expires, and which JAVAC judges to have malfunctioned because of defective material or workmanship. JAVAC'S liability is limited to, at its option, repairing or replacing the defective machine or part.
- 11.3 This WARRANTY is in lieu of all other warranties, express or implied, whether of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE or otherwise. All such other warranties are expressly disclaimed.
- 11.4 JAVAC shall have no liability in excess of the price paid to JAVAC for the machine plus return transportation charges prepaid. JAVAC shall have no liability for any incidental or consequential damages. All such liabilities are EXCLUDED.
- 11.5 JAVAC and or it's Agents have the right to charge for costs incurred for incorrectly diagnosed customer warranty claims.

NOTES

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