



ONGA®

FARMMASTER JJ & OJ Series

Farm Pumps for Stock Watering,
Irrigation & Water transfer



Should the installer or owner be unfamiliar with the correct installation or operation of this type of equipment, contact the distributor or manufacturer for correct advice before proceeding with installation or operation of the product

Relax - you've bought an Onga ...

Congratulations on your decision to purchase an Onga product. Onga is one of the best known brands in its field, with a proud local and International reputation.

Onga is a brand for reliability, value for money and technological innovation.

You will find Onga product wherever people need to move water in 3 broad markets covering:



Residential

Technologically advanced solutions for moving and treating water in the Home, Garden, Pool and Spa.



Agricultural

Innovative Stock and Crop water management solutions for Primary Industries.



Process

Water movement products for Building services, Emergency services and Original Equipment manufacturers.

Onga is a byword for reliability, value for money and technological innovation. So why does Onga lead its field? Here are a few simple reasons ...

1. Continual Product Improvement

We employ the best engineers both in Australia and around the world to develop new and better ways to take water further.

2. Operational Excellence

There is only one standard that we set ourselves for both product quality and the quality of our service. That standard is excellence... to have no-one better than us at what we do... nothing short of that is acceptable.

3. A Fair Price

Onga products are neither the cheapest nor the most expensive in their field. Our products do, on the other hand, always represent very good value for money - they always have and they always will.

4. Our Team of Dealers

The hand picked authorised Onga dealer network throughout Australia and worldwide are second to none. We invest considerable time and resources training and supporting them through the Onga Training Academy.

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IMPORTANT!

The operator must be provided with this owner's manual. This must be read before operation and followed during operation.

These instructions are a guide only. Users not familiar with pumping equipment should seek advice from people with experience in pump installation and operation.

Model Data - JJ400, JJ600, OJ700 & OJ800

Pump Model	Supply voltage	Phase	Nominal Horsepower	Motor input power (P1)	Starting current (Amps)	Full Load current (Amps)	Power Supply Lead (Amps)	Outlet (BSP)
JJ400	230	1	1	1	19	4.6	10A	3/4" F
JJ600	230	1	1.1/2	1.6	31.4	7.7	10A	3/4" F
JJ600	415	3	2.1/2	2.451	25	2.9	N/A	3/4" F
OJ700	230	1	2.1/2	2.61	47.5	8.9	10A	1" F
OJ700	415	3	2.1/2	2.451	25	3.6	N/A	1" F
OJ800	230 / 480	1	3.3/4	3.569	71.2	14 / 7	15A	1" F
OJ800	415	3	3.3/4	3.569	38.69	5.5	N/A	1" F

Technical Data

Voltage	230V / 415V
Motor Watts	750W (JJ400); 1800W (JJ600) 1800W (OJ700); 3000W (OJ800)
Suction / Discharge	Refer Product Guide.
IP Rating	IP44
Motor Frequency	50Hz
Water temperature range	2 - 40°C
Maximum ambient temperature	40°C (for effective motor cooling ensure the ambient temperature does not exceed 40°C).



Incorrectly installed or tested equipment may fail, causing severe injury or property damage.

Application

The Farmmaster JJ & OJ range of self-priming jet pumps are suitable for mid to large size domestic and rural applications. Typical applications include: tank filling; household water supply; stock watering; irrigation and water transfer from dams, creeks, wells and bores.

If the pump is to be used for pumping liquids other than water, ask your pump supplier for advice as to which model is best suited to your particular requirements. Special pump configurations are available for pumping aggressive fluids.

Installation



a) Preparation for operation

Read these instruction first

Inspect your pump for shipping damage. Report any damage to your Onga dealer. Make sure the suction piping is free of air leaks and is laid so that there can be no rises for potential airlocks.

b) Pump Protection

Warranty of this pump is void unless it is operated in accordance with this owner's manual. The pump should be housed in a weather proof, well ventilated enclosure, to protect from the weather, flooding, chemicals, dust, vermin, insects etc.

c) Pump Mounting

The pump must be mounted on a solid, level, vibration free surface. Dependent on the application, the pump may not have to be 'bolted down'. To obtain the best possible performance, the pump should be located as close to the water source as possible.

To protect pipe fittings, fit the pressure tank last (for installations where a pressure tank is used).



This appliance is not intended for use by young children or infirm persons without supervision. Children should be supervised at all times when near this appliance.

Installation (continued)

d) Suction

To maintain optimum performance from your pump, the suction pipe should be:

- Kept to the shortest length possible - place the pump as close to the water source as possible.
- Re-enforced crush resistant (non-collapsible) hose or pipe.
- All fittings should be air tight.
- Pipes should be equal to or larger than the diameter of the suction/ inlet port.
- Ensure that the suction is completely submersed.
- Ensure a footvalve is fitted to the suction line if the pump is installed in a suction lift application.
- A checkvalve should be fitted on a flooded suction installation.

For further information on suction piping, refer page 8.

e) Discharge

The length and diameter of the discharge hoses or pipe will effect the pressure and flow rate at which your pump operates. Pressure ratings of all components **must** exceed the maximum pressure of the pump by an appropriate safety factor. For correct sizing of the delivery line refer to the relevant pipe friction tables for the type and grade of pipe used.

Galvanised steel, PVC or polythene pipe may be used for the delivery line. A short length of polythene pipe should be used on the suction and discharge sides of the pump to prevent noise from being transmitted.

A shut-off valve should be installed on the discharge line so that the system can be isolated if required.

f) Pressure Switch

All manufacturer supplied pressure switches are factory preset to the lowest pressure setting of the pump range. This suits most requirements. If high pressure injectors are used the pressure switch settings will need to be altered to the new cut-in and cut-out settings. If you are unsure as to what the settings should be for your particular installation, seek advice from your local pump dealer.

Installation (continued)

For shallow well applications it is recommended to set the pressure switch cut-out to 30kPa (5psi) below the maximum pump pressure when the system is operating with maximum suction lift.

g) Valves

Onga recommend the use of shut off valves in suction & discharge pipe to assist when maintenance is required. Closed loop systems or applications where the pump is installed vertically higher than the water source will require an additional check valve or footvalve. On suction lifts, a foot valve **MUST** be used.

h) Electrical:

230 volt single phase motors are supplied as standard with thermal overload protection and are designed to plug directly into a 10 amp domestic power supply to local electrical authority specifications.

The power supply lead has a type “Y” connector and if service is required to the power lead, it must be replaced with the appropriate specialised power lead assembly. Warranty is void if unauthorised modifications are made to any component.

For further information refer to page 5.

Pumps fitted with 415 volt three phase electric motors should be protected with the recommended contactor and thermal overloads in accordance with local electrical authority specifications. Direction of rotation must be checked by switching power on momentarily and observing motor rotation. If the direction is not correct as per motor label have a qualified electrician make the change.

For further information refer to page 10.



Fire and burn hazard. Modern motors run at high temperatures. To reduce risk of fire, do not allow leaves, debris, or foreign matter to collect around the pump motor. To avoid burns when handling the motor, let it cool for at least 20 minutes before trying to work on it. A thermal overload switch protects the motor from heat damage during operation.

Installation (continued)

Piping

All pipe threads should be tightened correctly to prevent leaks. An air leak in the suction pipe will prevent the pump from operating. Galvanised or polythene pipe can be used. For correctly sized pipe refer to pipe friction tables. Always use suction pipe that is the same size or larger than the pump suction port. For long suction or discharge lines, increase pipe size appropriately to minimise friction loss.

To avoid stress on the pump, support both suction and discharge pipes independently. Place these supports as close to the pump as possible.

To avoid a strain left by a gap at the last connection, start all piping at the pump and run pipe **away** from the pump.

Never use a suction pipe smaller than pump suction connection.

To avoid airlocking, slope suction pipe slightly upward toward the pump.

NOTICE: To prevent flooding when removing pump for service, all flooded suction systems **must** have shut-off valves in suction and discharge pipes.

NOTICE: Use Teflon tape for making all threaded connections to the pump. Do not use pipe dope (glue) as this will cause stress fractures in the pump.

Deep Well

The correct grade of polythene pipe should be used. Use teflon tape on all threaded joints as air leaks will prevent the pump from operating.

When installing the injector, cut pipes so that the pressure line and the suction line lay straight, side by side. Adequate heating of the pipe makes it easy to push on the barbed injector fittings. Use two stainless steel hose clamps per fitting to ensure that under load the pipes do not come free.

Teflon Taping Instructions:

Use only new or clean PVC or galvanised pipe fittings.

Wrap male pipe threads with one to two layers (or a sufficient number of layers) of Teflon tape. Cover entire threaded portion.

Do not overtighten.

If leaks occur, remove pipe, clean off old tape, rewrap as previously with one to two additional layers of tape and remake the connection.

NOTICE: Support all piping connected with pump.

Installation (continued)

Fittings:

Fittings restrict flow; for best efficiency use fewest possible fittings. Avoid fittings which could cause an air trap.



Do not connect system to a high pressure or city water system.

Electrical



Ground motor before connecting to electrical power supply. Failure to ground motor can cause severe or fatal electrical shock hazard.

Do not ground to a gas supply line.

To avoid dangerous or fatal electrical shock, turn OFF power to motor before working on electrical connections.

Residual Current Device (RCD) tripping indicates an electrical problem. If RCD trips and will not reset, have a qualified electrician inspect and repair electrical system. Onga recommends that a RCD of 30mA trip current be installed and/or be in compliance with local regulations.

Exactly match supply voltage to motor nameplate voltage. Incorrect voltage can cause fire or seriously damage motor and voids warranty. If in doubt consult a licensed electrician.

The power supply lead has a type “Y” connector and if service is required to the power lead, it must be replaced with the appropriate specialised power lead assembly. Warranty is void if unauthorised modifications are made to any component.

Electrical (Continued)

Voltage

Voltage at motor must not be more than 1% above or 6% below motor nameplate rated voltage or motor may overheat, causing overload tripping and reduced component life. If voltage is less or more than the above when the motor is running at full load, consult power company.

Operation



NEVER run pump dry. Running pump dry may damage seals, causing leakage and flooding. Fill pump with water before starting motor.

Do not block pump suction. To do so with body may cause severe or fatal injury.



Fire and burn hazard. Modern motors run at high temperatures. To reduce the risk of fire, do not allow leaves, debris, or foreign matter to collect around the pump motor. To avoid burns when handling the motor, let it cool for at least 20 minutes before trying to work on it. An internal thermal overload switch protects the motor from heat damage during operation.

NOTICE: Maximum ambient temperature for motor operation must not exceed maximum ambient temperature rating.



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Priming Pump - General

In a flooded suction system (water source higher than pump), pump will prime itself when suction and discharge valves are opened.

If pump is not in a flooded suction system, disconnect power supply to pump and remove priming plug; fill pump with water and replace plug. Pump should prime now. Priming time will depend on vertical height of suction lift and horizontal length of suction piping.

Operation (Continued)

The self-priming time range is 1 to 5 minutes for a height difference of 2 to 3 metres, under normal installation conditions. Normal conditions are understood to be: with suction having an internal diameter of DN 50mm, water temperature at 20°C, and 50Hz mains power supply.

Should the pump not prime, ensure that all valves are open, a footvalve is fitted and suction pipe end is submersed in water, and that there are no leaks in suction pipe.

See Troubleshooting Guide if the pump will still not prime.

Shallow Well Priming Instructions

Remove the priming plug and fill the pump and suction line(s) with water. Fill as much of the suction line as possible. Replace the priming plug - screw the plug down loosely to allow for trapped air to bleed out of the line - while maintaining 70kPa - 140kPa (10-20psi) discharge pressure (utilise a pressure gauge on the discharge tee to check this pressure).

Operate the pump until fully primed, tighten the priming plug fully, then open the shut-off valve so that the remaining air can be purged from the system.

If there is a long or difficult suction, the pump may need to be refilled several times at intervals as priming ability decreases as the water heats. If only a small amount of water is pumped, then flow stops, switch off the pump and check the suction pipe for possible air leaks. Ensure the suction line is airtight and free of leaks before starting the priming procedure again.

Deep Well Priming Instructions

Close the gate valve, unscrew the priming plug and fill the pump and suction lines with water. Replace the priming plug tightly, and turn the pump on. Pressure should rise above 275kPa (40psi). Open the gate valve slowly to purge remaining air from the pump and suction lines. Maintain discharge pressure above the minimum operating pressure of the pump 174kPa (25 psi).

Deep well pumps are sensitive to air ingress and it may be necessary to repeat the priming procedure to completely fill the pump and suction lines and ensure there is no air in the system.

Operation (continued)

If an 'offset' injector installation is used, it may not be practical to ensure an even suction rise from the water source to the pump. If this is the case, install a tee in both the suction and pressure pipes at the highest point(s) for ease of priming. Install a plug in the unused branch of each tee.



Do not remove any caps while the pump is operating.

To obtain maximum capacity from your deep well pump, it should run at the minimum recommended operating pressure. If pressure is allowed to fall below this level, the injector may not operate correctly and the pump will lose prime.

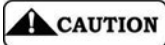
The minimum operating pressure can be maintained by partially closing the gate valve. To set the valve turn on all taps and any other outlets that are likely to operate together, pump the bore/well down to it's lowest level and adjust the valve so that the minimum operating pressure is maintained.

Pressure Tank Air Charge

Follow these steps to correctly set the pressure tank air charge.

1. Switch the power to the pump OFF and ensure the pump is electrically isolated.
2. Turn on all taps and let them run. This will empty the pressure tank.
3. Check the air charge in the tank with a tyre gauge or similar.
4. Inflate the tank to 10% below the cut-in pressure of the pressure switch setting e.g. 125kPa if pressure switch setting is 140 -280kPa; 190kPa if pressure switch setting is 210 - 350kPa.

Pump Maintenance & Service



Pump should only be serviced by qualified personnel. For best results, use only genuine Onga factory parts. Be sure to prime pump before starting.

Before removing pump for maintenance or service:

1. **SWITCH OFF POWER** to pump before proceeding. Disconnect the pump from the mains/power supply. If the connection plug or power outlet are wet, isolate that circuit at the meter board.
2. **CLOSE SHUT-OFF VALVES** in suction and discharge pipes.
3. **RELEASE ALL PRESSURE** from pump and piping system before disconnecting fittings.
4. **NEVER** tighten or loosen pump fittings while pump is operating!

To avoid dangerous or fatal electrical shock hazard, turn OFF power to motor and remove plug from power outlet before working on pump or motor.

No lubrication or regular maintenance is needed beyond reasonable care. When pump is not in use and there is a risk of frost, empty it completely through the drain plug.

If shaft seal is worn or damaged, have a qualified pump service agent replace it.

Troubleshooting Guide

Symptom	Cause	Remedy
Pump failure or reduced capacity or reduced discharge pressure.	Suction leaks / lost prime	Pump must be primed; make sure that the pump casing is full of water. Refer priming instructions.
		Make sure there are no leaks in suction piping.
		Make sure suction pipe inlet is well below the water level to prevent pump from sucking air.
	Clogged pipe / impeller, worn impeller.	Make sure that the impeller is not clogged. This should be checked by qualified personnel only.
		Impeller and diffuser may be worn. If so, check with your local Onga dealer or suitably qualified personnel.
		Pump may be trying to push too high a column of water. If so, a “higher head” pump is required.
	No power at outlet.	Use another electrical appliance that is known to work to check the power outlet.
	Blown fuse.	Check fuse and replace if necessary.
	Cavitation.	Close gate valve on discharge to increase pressure to above minimum operating pressure of selected injector.
	Incorrectly sized pipe.	Check pipe work pressure losses and replace with larger diameter pipe if required.
Motor burnt out due to voltage spike or flooded by water.	The motor may need replacing.	
Valves turned to the closed position.	Check the plumbing to ensure the valves are in the correct position for pumping on the suction and discharge.	
Air ingress to system.	Prime the pump. Check that there are no air leaks in the suction piping or fittings. Check that there are no leaks coming from beneath the pump.	

Troubleshooting Guide (Continued)

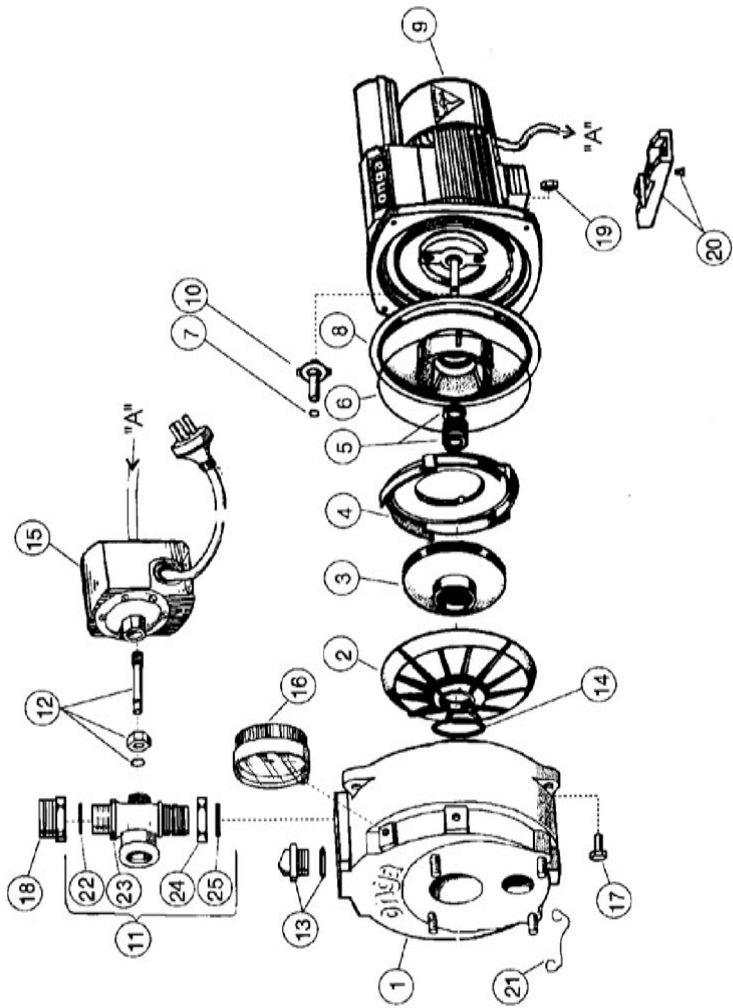
Symptom	Cause	Remedy
Pump running too slowly.	Low voltage.	Check voltage at motor terminals and at meter while pump is running – this check should be performed by a qualified electrician only. If voltage is low check for loose connections or consult your power company.
	Pump may be too hot.	Check line voltage; if less than 6% or more than 1% of rated voltage consult a licensed electrician. Increase ventilation. Reduce ambient temperature. Tighten any loose connections.
Pump leaking from between the casing and motor.	Casing bolts are not tightened sufficiently; Casing O’ring is worn; Mechanical seal requires replacing.	Switch off the power to the pump. Loosen the casing bolts. Check the alignment and condition of the casing o’ring before retightening the bolts. Replace the o’ring if leaking persists. Replace the mechanical seal.
No water.	Pump not running.	Check power supply.
	Gate valve closed.	Open gate valve.
Pump will not prime.	Foot valve leaking.	Check foot valve for seal, fix or replace if necessary.
	Air lock.	Check suction line for ‘humps’. Have your local pump professional prime the pump with an engine drive pump to score air from lines.
	Incorrect injector for application.	Have your local pump professional re-evaluate site for pressure and flow requirements. Select an injector that will provide enough pressure at the required flow rate.
	Water source has been drawn down so that suction is above the water line.	Check suction is submerged.
	Pressure switch cut-in pressure is set too low.	Have your local pump professional reset the pressure switch settings.

Troubleshooting Guide (Continued)

Symptom	Cause	Remedy
Rapid Cycling.	Pressure tank too small.	Fit a larger capacity or secondary pressure tank.
	Pressure tank has incorrect air charge.	Check pressure with tyre gauge or similar. Adjust pressure to 10% below the cut-in pressure of the pump.
	Pressure switch setting incorrect.	Have your local pump professional adjust the pressure switch and tank pressure accordingly.
	Pump injector combination too large for application.	Consult your local pump professional to ascertain the correct injector for your application.

Should problems persist, contact your nearest Onga service agent.

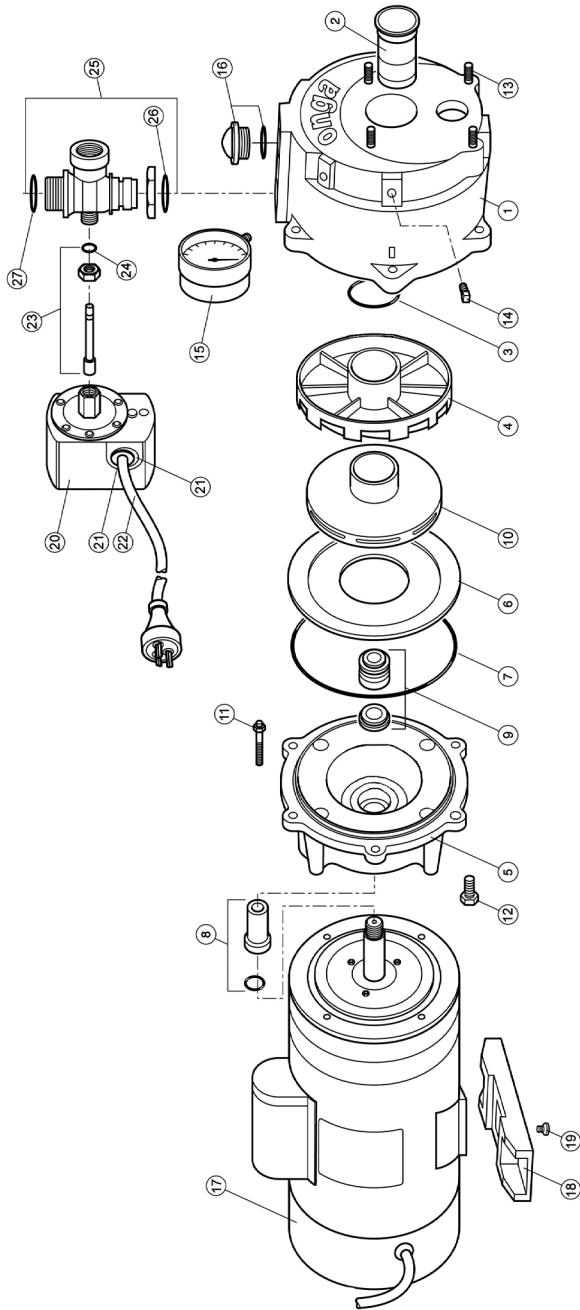
Repair Parts - JJ400



Repair Parts Table - JJ400

Item	Description	Qty.
1	Casing & Studs Assy.	1
2	Separator Plate	1
3	Impeller	1
4	Diffuser	1
5	Mechanical Seal	1
6	O'ring – Casing	1
7	O'ring – Shaft Sleeve	1
8	Baffle	1
9	Motor	1
10	Shaft Sleeve	1
11	Tee – Assembled	1
12	Mounting Assy. Pressure Switch	1
13	Priming Plug & O'ring	1
14	O'ring	1
15	Pressure Switch Assy.	1
16	Pressure Gauge	1
17	Screw - Casing	4
18	Bush	1
19	Nut - Casing	4
20	Base & Screws Kit	1
21	Foot – Casing	1
22	O'ring – Tee (Top)	1
23	Tee	1
24	Locknut – Tee	1
25	O'ring – Tee (Bottom)	1

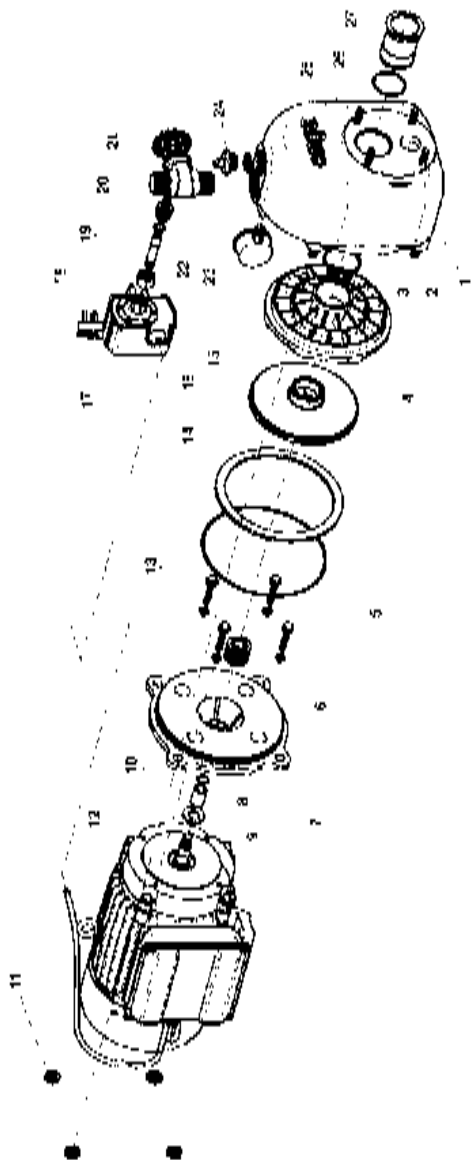
Repair Parts - JJ600



Repair Parts Table - JJ600

Item	Description	Qty.
1	Casing & Studs Assy.	1
2	Bush Spigot	1
3	O'ring – Spigot	1
4	Diffuser	1
5	Yoke	1
6	Baffle	1
7	O'ring – Casing	1
8	Shaft Sleeve Kit	1
9	Mechanical Seal	1
10	Impeller	1
10a	Impeller Nut – 3 Phase only	1
11	Bolt – Yoke	4
12	Screw – Casing	6
13	Studs – Casing	4
14	Plug	1
15	Pressure Gauge	1
16	Priming Plug & O'ring	1
17	Motor	1
18	Base & Screws	1
19	Screws - Base	2
20	Pressure Switch Assy.	1
21	Cable Clamp Assy. – P/Switch	2
22	Lead	1
23	Mounting Assy. Pressure Switch	1
24	O'ring – Mounting Assy.	1
25	Tee Assembled	1
26	O'ring – Tee (Bottom)	1
27	O'ring – Tee (Top)	1

Repair Parts - OJ Range



Repair Parts Table - OJ Range

Item	Description	Qty.
1	Casing & Studs Assy.	1
2	Stud	4
3	O'ring – Diffuser	1
4	Diffuser	1
5	O'ring – Casing	1
6	Mechanical Seal	1
7	Yoke	1
8	O'ring – Shaft Sleeve	1
9	Shaft Sleeve	1
10	Shaft Sleeve & O'ring Assy.	1
11	Nut - Casing	4
12	Motor	1
13	Bolts – Yoke	4
14	Baffle Ring	1
15	Impeller	1
16	Cable Clamp Assy. P/Switch	2
17	Pressure Switch	1
18	Lead	1
19	Mounting Assy. Pressure Switch	1
20	Nipple – Mounting	1
21	Gate Valve	1
22	O'ring – Mounting Assembly	1
23	Pressure Gauge	1
24	Priming Plug & O'ring	1
25	Stud – Casing to Injector	4
26	O'ring – Spigot	1
27	Spigot	1

IMPORTANT

Please attach your sales invoice/docket here as proof of purchase should warranty service be required.

Please do not return Warranty - Retain for your records.

Purchased From

Purchase Date..... Serial No..... Model No.....



1-21 Monash Drive,
Dandenong South, Vic 3175

Australia

National Customer Service: Phone: 1300 137 344
Fax: 1800 006 688
National Dealer Locator: Phone: 1800 664 266
Email: au.sales@pentair.com
Web: www.pentair.com.au

New Zealand

National Customer Service: Phone: 0800 654 112
Fax: 0800 806 642
National Dealer Locator: Phone: 0800 664 269
Email: nz.sales@pentair.com
Web: www.pentair.co.nz

International Australia/New Zealand

Phone: +61 3 9709 5800
Fax: +61 3 9709 5888

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