



Instruction Manual

AquaTTM

Marine Toilet

Manual Operated





Johnson Pump Marine Toilet, Manual

Applications

Johnson Pump Comfort and Compact bowl manually operated marine toilets can be installed in both power and sailing craft, either above or below the waterline, for use on sea, river, lake or canal.

The waste can be discharged either overboard (please have in mind national or local restrictions), or into a treatment system or into an on-board holding tank.

Note: Johnson Pump manual toilets are designed specifically for marine use. Consult your Johnson Pump retailer for advice about possible non-marine applications.

Features

Design

- Flexible hole pattern on the base, for easy substitution with the most common toilets on the market
- Reversible pump mounting allows re-assembly for left hand operation by installer
- Self-priming, double acting piston pump
- Piston rod guide in brass for increased service life
- Strong swirl action for efficient flushing
- Smooth design for easy cleaning
- Ergonomic handle
- Spring assisted top valve closure for easier priming
- Constant 38mm (1 1/2") bore waste path minimizes blockages
- Double check-valves at full 38mm (1 1/2") bore prevent back flow
- Multi-angle outlet for various installations
- Accessible mounting points for faster installation
- Standard fastenings, logic located, no need for special tools
- Double sealed base plug for winter drain and easy cleaning access

Material

- Premium baked enamel painted wooden seat and cover
- Hygienic white ceramic bowl for ease of cleaning
- Pump and base moulded in ABS or polypropylene, stainless steel fastenings, brass weights and neoprene seals and gaskets

Performance

- Self priming, dry, height 1m (3ft)
- Discharge height 3m (9ft)

Dimensions

- Dimensional Drawing on the page x.

Installation instructions, General

Through hull fittings:

You need:

19 mm. (3/4") bore seacock for the flushing water inlet and, if you are discharging overboard, a 38 mm. (1 1/2") bore seacock for the waste outlet.

- Keep to the seacock manufacturer's instructions concerning materials and methods of installation
- Ensure that the inlet seacock is positioned where it will be below the waterline at all times when the craft is under way and also ensure that any outlet seacock is both aft of, and higher than the inlet seacock

Pipework -selection of the correct method:

You must select the correct installation method for the inlet pipework from 2 possibilities and for the outlet pipework

from 4 possibilities, according to whether the toilet is above or below the waterline and to whether it discharges the waste overboard or into an on-board holding tank.

General instructions for all possible installations

You need:

- Spiral reinforced smooth bore flexible hose for both the 19 mm. (3/4") internal diameter inlet and the 38 mm (1 1/2") internal diameter outlet hose
 - Stainless steel hose clip
 - secure the hose runs so that the hoses cannot move, nor exert any leverage action on the hose tail fittings to which they are connected, as this may cause adjacent joints to leak.
 - avoid sharp bends in the hoses since this might cause them to become kinked
 - keep all pipework lengths as short as possible while you are carrying out these operations
- Unnecessary inlet or outlet hose lengths just make the toilet harder to pump.

Tip: Should it be difficult to fit the hose onto the hose tails of the toilet or the sea cocks, soften the hose by dipping its end in hot water



CAUTION:

- DO NOT APPLY FLAME TO HOSES
- DO NOT APPLY FLAME OR HEAT TO THE PLASTIC HOSE TAILS OF THE TOILET
- DO NOT APPLY SEALING COMPOUNDS TO ANY HOSE CONNECTION
- Secure all hose ends to the hose tails with preferably two stainless steel clips, ensuring that all inlet connections are airtight and that all outlet connections are watertight.
- The discharge elbow may be rotated 360 deg. to suit your installation. Always slacken the 2 securing screws, adjust the discharge elbow to the required position and retighten the 2 securing screws before connecting the hose to it



CAUTION:

FAILURE TO FOLLOW THIS PROCEDURE MAY CAUSE LEAKS BETWEEN THE ELBOW AND THE PUMP CYLINDER

Pipework – Inlet, 2 alternatives

Alternative 1:

Toilet below the waterline

You must use a 19 mm (3/4") Vented Loop fitting.

- Run the inlet hose by the most direct way from the inlet seacock to the flushing pump inlet tail.
- Remove the white hose supplied with the toilet which connects the flushing pump outlet tail to the bowl elbow
- Using a spanner, rotate the intake seal so that the elbow points upwards
- Replace the white hose with a longer length of 19 mm internal diameter hose and position it in a way that its point is at least 20 cm (8") above the highest possible waterline and fit the vented loop at



that highest point



CAUTION:

DO NOT POSITION THE VENTED LOOP BETWEEN THE INLET SEACOCK AND THE FLUSHING PUMP INLET, as it will make the flushing pump difficult or harder to prime, and could prevent it from working at all.

Alternative 2:

Toilet above the waterline

You may use a 19 mm. (3/4") non-return valve

- Run the inlet hose by the most direct route from the inlet seacock to the flushing pump inlet tail
- For your maximum convenience of use, install an in-line non-return valve next to the inlet seacock which will ensure that the pump stays primed in between usages.
- The toilet flushing pump will self-prime up to 1m (3') above the outside water level. If there is any possibility that the toilet flushing pump inlet may be more than 1m (3') above the actual waterline when the craft is underway, a non-return valve is to be installed next to the seacock to maintain the pump in a primed condition

Pipework – Outlet, 4 alternatives

Alternative 1:

Toilet below the waterline and discharging overboard

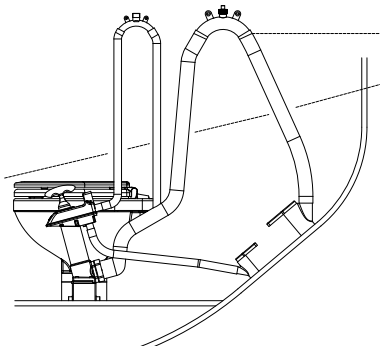


Fig. 1

Toilet below the waterline

You must use a 38mm (1 1/2") Vented Loop fitting.

- Arrange the outlet hose, so that its highest point is at least 20 cm (8") above the waterline, and fit the Vented Loop at the highest point.

Alternative 2:

Toilet above the waterline and discharging overboard

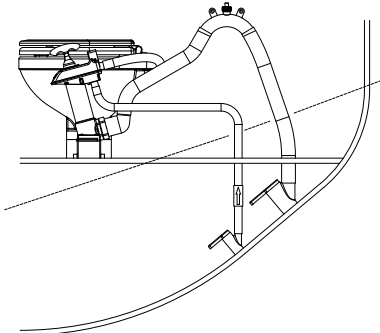


Fig. 2

Toilet above the waterline

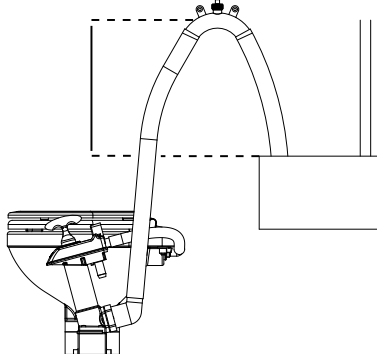
You may use a 38mm (1 1/2") Vented Loop fitting.

- Run the outlet hose up from the discharge elbow, at

least 30 cm (12") above the discharge elbow then fit a Vented Loop on top of the hose, ensuring in this way to keep some water in the base of the toilet without risk of it being siphoned away

Alternative 3:

Toilet waste discharging into holding tank, discharge elbow below top of holding tank at any time

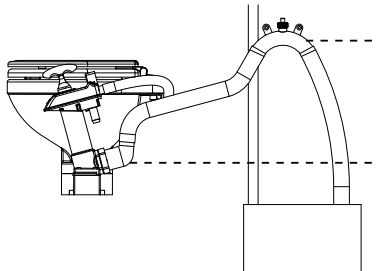


You must use a 38 mm (1 1/2") Vented Loop fitting

- If the discharge elbow is placed less than 20 cm (8") below the top of the holding tank when the craft is at rest, or if there is any possibility that the discharge elbow may be below the top of the tank at any time, a vented loop must be fitted in the outlet pipework
- Place the outlet hose point at least 20cm (8") above the highest level that the top of the tank may reach and install the Vented Loop fitting on this highest point

Alternative 4:

Toilet waste discharging into holding tank, discharge elbow always above top of the holding tank



You may use a 38mm (1 1/2") Vented Loop fitting

- Run the inlet hose upwards from the discharge elbow, to form a loop at least 30 cm (12") higher than the discharge elbow.
- By fitting a Vented Loop on top of the hose loop, you will ensure to keep some water in the base of the toilet without risk of it being siphoned away.

5. TESTING:

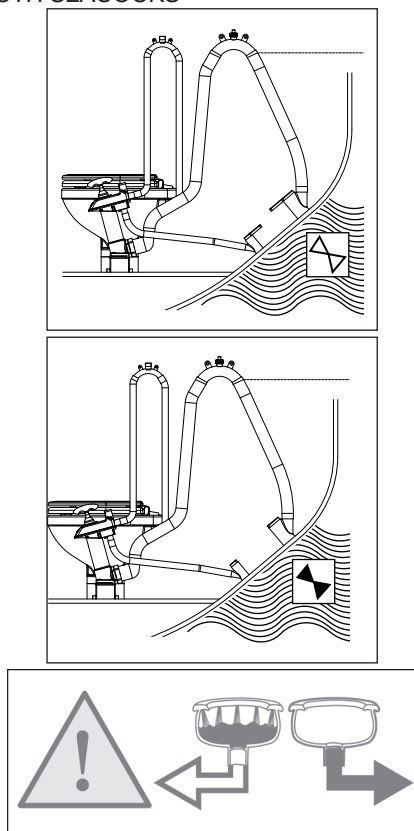
Refer to the operating instructions and follow the procedures for normal use.

In case the flushing pump is hard to prime, half-fill the bowl with fresh water

6. SAFETY:

Ensure that these instructions reach the owner, the skipper or the operator of the craft, as it contains important safety information ON COMPLETION OF Installation:

SHUT THE FLUSH CONTROL
CLOSE BOTH SEACOCKS



INSTALLATION INSTRUCTIONS

Introduction:

If the installation of the toilet results in being connected to any through-hull fitting that may possibly be below the waterline whether when the craft is at rest, underway, heeling, rolling or pitching, you must install the toilet in accordance with the present installation instructions.

Failure to follow such instructions may cause water to flood in, which may result in loss of life.



ACCIDENTAL DAMAGE

If the toilet is connected to any through-hull fitting and if the toilet or the pipework are damaged, water may flood in, causing the craft to sink with a consequent possible loss of life. For this reason, if you are making connections between the toilet and any through hull fitting that may be possibly situated below the waterline, fullbore seacocks must be fitted to such hull-fittings, to allow them to be shut off.

The seacocks must also be positioned where they are easily accessible to all users of the toilet.

If, for any reason, it is not possible to do it, then secondary full-bore marine quality valves must be fitted to the hoses where they are easily accessible



CAUTION:

USE SEACOCKS! USE LEVER OPERATED, FULL-BORE MARINE SEACOCKS AND VALVES. THE USE OF SCREW-DOWN GATE VALVES IS NOT RECOMMENDED.

PIPEWORK LOOSING

All pipeworks must be fastened both in the gate side and in the remaining ones with a stainless steel hose clamp. Please keep in mind that an eventual leak might cause the craft to sink, with consequent loss of life USE HOSE CLAMPS!

BOWL RIM BELOW THE WATERLINE:

If the toilet is connected to any through-hull fitting and if the rim of the bowl falls below the waterline, water may flood in, causing the craft to sink, which may result in loss of life. Therefore, if the rim of the toilet is less than 20 cm (8") above the waterline when the craft is at rest, or if there is any possibility that the rim of the bowl may be below the waterline at any time, a vented loop must be fitted in any pipework connected to a through-hull fitting, irrespective of whether inlet or outlet.

USE VENTED LOOPS!

Special notes: The smaller bore inlet pipework is more dangerous than the larger outlet one. Unless there is a ventilated anti-siphon loop in the inlet pipework, water will flow into the bowl whenever both the inlet seacock is opened and the rim of the bowl is below the actual waterline.

Although moving the flush control lever to the "Shut" position will restrict the flow, this lever cannot be relied upon as a safety device. To make a loop in the hose without mounting a vent may be as hazardous as no loop at all, because water will siphon over the loop.

IN FACT, IT IS THE VENT THAT ACTUALLY PREVENTS THE SIPHON

1. LOCATION

The toilets base and pump is supplied assembled for a right handed operation.

If you wish, both comfort and compact bowl models may be reassembled with the pump positioned on the left hand side. The bowl and the base/pump unit are not assembled.

If you want to change the pump mounting from right to left hand, do so before installing the toilet.

Change to left hand operation

1. Pull off the hose that runs from the pump to the bowl.
2. Remove the 4 screws that secure the pump assembly to the base.
3. Lift off the pump assembly and leave the base valve gasket on its 3 locating pegs.
4. Remove the 4 bolts that secure the bowl to the base.
5. Rotate the bowl 180° and re-secure it, using the nylon washers to protect the ceramic from the stainless steel washers and nuts.
6. Rotate the pump assembly 180° and re-secure it.
7. Rotate the push-fit intake elbow 180° and refit the hose between the pump and the bowl.

Assemble the bowl on the top of the base, using the attached bolts, washers and gaskets. The nylon washers are to protect the ceramic from the stainless steel washers and nuts.

- choose a location which will give enough clearance all around and above the toilet Ensure that there is room to operate the pump and that there is access to the drain plug at the end of the base.
- the mounting surface must be flat, rigid, and strong enough to support a man's weight and should be at least 50 mm (2") wider and 50 mm (2") deeper than the base of the toilet.
- you will need sufficient clearance below the mounting surface to be able to secure the mounting bolts
- the seat and the lid should be able to swing open at least 110 degrees, in order they will not fall forward when the craft heels or pitches. When they are swung

open, they must be supported so that the hinges are not strained.

2. MOUNTING:

You need

- Stainless steel bolts: 4 pcs, 8mm (5/16") diameter of length to suit the thickness of the mounting surface.
- Stainless steel nuts: 4 pcs preferably self-locking. If you do not use self-locking nuts you need to add locking compound on the screws / nuts.
- Stainless steel washers: 8 pcs, large diameter, but not more than 21 mm (13/16") diameter.
- Drill: Diameter 9mm.
- Silicone sealant, white.

If you do not use self-locking nuts, you will need some nut-locking compound

1. Put the toilet in the selected position. Using the holes in the base as a guide, mark the positions for the 4 bolt holes on the mounting surface. Remove the toilet and drill 4 vertical holes, with a diameter of 9mm, through the mounting surface.
2. Apply the white silicone sealant to the outer rim of the bottom base.
3. Put the toilets on its place and tighten the fastenings securely. If you are not using self-locking nuts, use nut-locking compound.

OPERATING INSTRUCTIONS

The toilet is one of the most used pieces of equipment on your boat. Correct operation of the toilet is essential for the safety and comfort of your crew and craft.

Hazard Risk:

Accidental Damage

If the toilet is connected to ANY through-hull fittings that are below the waterline at any time, and if the toilet or pipe-work is damaged, water may flood in, causing the craft to sink, which may result in loss of life.

Therefore, after every usage; both seacocks (or secondary valves) **MUST** be shut.

Whenever your craft is unattended, even if only for a very short period of time, both seacocks (even if secondary valves are fitted) **MUST** be shut

Ensure that ALL users understand how to operate the toilet system correctly and safely, including seacocks and secondary valves

Take special care to instruct children, the elderly and visitors

ABSOLUTELY SHUT SEACOCKS!

1. First use

After periods without use the toilet may benefit from lubrication

1. Open inlet and outlet seacocks (and secondary valves if fitted)
2. Half fill the bowl with warm fresh water
3. Keeping the Flush Control Lever in the "Shut position", pump out the warm water

2. Normal Use

Open inlet and outlet seacocks (and secondary valves if fitted).

- Before use, ensure that there is enough water in the bowl to prevent the toilet paper becoming compacted at the bottom of the bowl.
If the bowl is empty, move the Flush Control Lever to

the "Open position" and pump the handle up and down until the flushing pump is primed and water enters the bowl, then shut the "Flush Control".

- Operate the pump with long, smooth strokes for efficient and easy operation.
- During use, pump as necessary to keep the contents of the bowl low enough for comfort.
- Use good quality hard or soft household toilet paper, but do not use more than necessary.
- After use, keep the Flush Control Shut (➡) and pump until the bowl is empty.
- When the bowl is empty, Open the Flush Control (⬅) again, and continue to pump until all waste has either left the boat, or reached the holding tank (allow 7 complete up/down strokes per meter length of discharge pipe-work).

Afterwards, shut (➡) the Flush Control and pump until the bowl is empty, Always leave the bowl empty to minimise odour and spillage

AFTER USE:

- **SHUT THE FLUSH CONTROL.** (➡)
- **SHUT BOTH SEACOCKS**

NOTE: Do not put any of the following into the toilet: Sanitary Towels, Wet Strength Tissues, Cotton Wool, Cigarettes, Matches, Chewing Gum or any solid objects, Petrol, Diesel, Oil, Solvents of any kind or water more than hand warm.

3. Cleaning

A regular flushing with clean (sea)-water represents one of the most effective methods to keep the toilet clean and good smelling.

- To clean the bowl, use any liquid or cream ceramic cleaner
- To clean the rest of the toilet, including the seat and lid, use a non-abrasive liquid cleaner Polish with a dry cloth only.
- To disinfect the toilet, use a liquid disinfectant diluted in accordance with the manufacturer's instructions. It is possible to apply it to all parts of the toilet using a sponge or soft brush as necessary.
- After applying any cleaning or disinfecting agent, always flush well. **DO NOT ALLOW THESE AGENTS TO STAND IN THE SYSTEM.**



CAUTION:

- Do not use abrasive pads on any part of the toilet and do not use cream cleaners except for the bowl.
- Do not use thick liquid toilet cleansers or neat bleach because they may damage the valves, gaskets and seals.

MAINTENANCE INSTRUCTIONS

INTRODUCTION:

Johnson Pump marine toilets normally do not require maintenance during the season, provided that they are winterized in the autumn and overhauled in the spring.

However, any toilet will benefit from:

Thorough flushing (refer to the operating instructions for normal use).

Regular use if not regularly used, lubrication is beneficial (refer to the operating instructions for the first use)



HAZARD RISK LEAKS: If the toilet is connected to any



through-hull fittings, and if the toilet or the pipework develops a minor leak, this leak can suddenly become a bigger leak which will allow water to flood in, causing the craft to sink, with subsequent loss of property and life. THEREFORE, IN CASE ANY LEAK DEVELOPS, REPAIR IT IMMEDIATELY! MOREOVER, REGULARLY INSPECT ALL FASTENINGS TO CHECK TIGHTNESS AND LEAKS.

Service

1 Preparation for winterization

Johnson Pump manual toilets are design to be simple to service; therefore no special skills are needed, as well as no special tools are required.

- Flush the toilet according to the operating instructions for normal use and particularly ensure that all waste has left the discharge pipework, that the bowl is empty and that both seacocks are closed (even though secondary valves are fitted)
- Mop-up any water which might come out of the system

2 Seal replacement

If water begins to leak round the piston rod on top of the pump, it means that the seal assembly is worn out and should be replaced.

To this purpose, you will have to act as follows:

You will need a "Gasket kit"

- Raise the handle to the top of its travel and wrap one turn of tape around the piston rod immediately below the handle. Using pliers, grip the piston rod only through the tape, unscrew the handle and remove the bumper washer. KEEP HOLD OF THE PISTON ROD AS LONG AS THE OPERATION HAS BEEN COMPLETED, since if you let it go, it might fall inside the pump.
- Unscrew the seal assembly and slide it off the piston.
- Wrap one turn of tape around the thread at the top of the piston rod to protect the new seal, slide the new seal down the piston rod and tighten it.
- Remove the tape from the thread.
- Replace the bumper washer and the handle, absolutely by gripping the piston rod through the tape.
- Remove the tape from the piston rod.

3 Winterization

Drain the complete system both as a protection against frost damage and to avoid the growth in the pipework of bacteria that could cause unpleasant smells.



HAZARD RISK: SEACOCKS OPENED BY MISTAKE. In case you leave the toilet disassembled and if the sea cocks are opened when the boat is afloat, water will flood in by causing the sinking of the boat and the possible loss of life. Therefore, it is indispensable to attach a warning notice to the seacocks and, if possible, wire the seacocks shut. REMEMBER TO ATTACH WARNING NOTICES!



Warning: THE USE OF ANTI-FREEZE IS NOT RECOMMENDED, as it is not possible to ensure that the product penetrates the whole toilet system. If, for any reason, an anti-freeze compound is employed it will have to be a glycol-based one.

- Open any secondary valve.
- Remove the base drain plug.
- Loosen hose clips and disconnect all the hose ends from the seacock hose tails, the hose toilet tails, and any secondary valves.
- Pump the handle to drain the toilet pump and ensure that all water is properly drained from the toilet system.

If you not are going to disassemble the toilet:

- Reconnect all hose ends and secure them with their hose clips.
- Firmly replace the base drain plug.
- Fasten down seat, lid and pump handle to prevent any use, and attach a warning notice.

4 Overhaul

You need a service kit containing all wearing parts refer to the list of parts for further details.



CAUTION

FOR THE SAFETY OF YOUR CRAFT AND YOUR CREW, USE ONLY GENUINE SPARE PARTS.

Remove the pump assembly as follows:

- Loosen hose clips; disconnect the inlet hose and the link hose from the top of the pump.
- Remove the 2 screws which secure the discharge flange and elbow to the pump cylinder.
- DO NOT remove the hose clips and hose from the discharge elbow.
- Remove the 4 screws which secure the pump cylinder to the base.
- Lift off the pump assembly and pick up the bottom valve gasket and the joker valve.

Dismantle the Pump assembly as follows:

- Remove the 6 screws that secure the valve cover.
- Open the flush control before lifting off the valve cover assembly and picking up the top valve gasket and the valve seat.

Reassemble the pump as follows:

- Push on the new piston O-ring.
- Follow the servicing instructions for seal replacement and fit the new seal assembly, the piston assembly and the handle.
- Lubricate pump cylinder bore with Vaseline.
- Locate the valve seat on cylinder top, locate the top valve gasket on its pegs on the cylinder top and open the flush control before refitting the valve cover.

Refit Pump assembly on the toilet as follows:

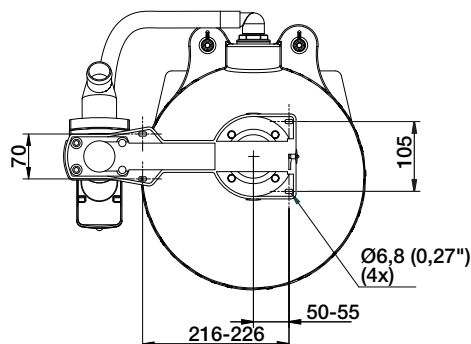
- Locate the bottom valve gasket on its pegs on the base and locate the joker valve in the discharge elbow.
- Secure the discharge flange to the pump cylinder before securing the cylinder to the base.
- Examine all hoses throughout their length for chafe, kinks and splits under hose clips, check all hose clips for corrosion and replace worn out or damaged parts.
- Reconnect all hose ends and secure them with their hose clips.
- Ensure that the base drain plug is securely tightened.

Do not lubricate the top or bottom valve gaskets, and do not apply sealing compounds to any gasket or hose connections.

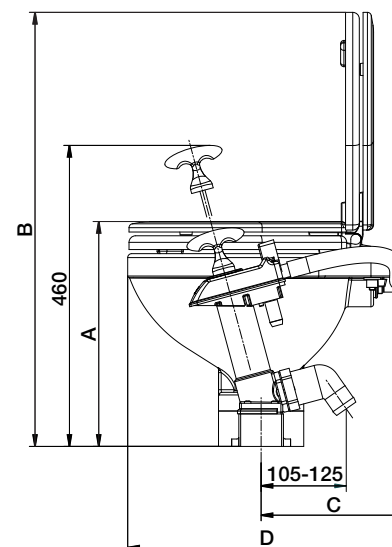
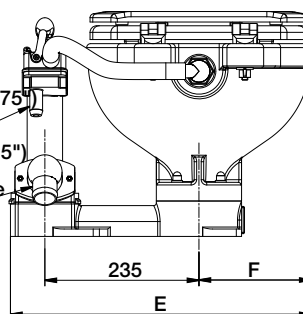


Dimensions & Weight

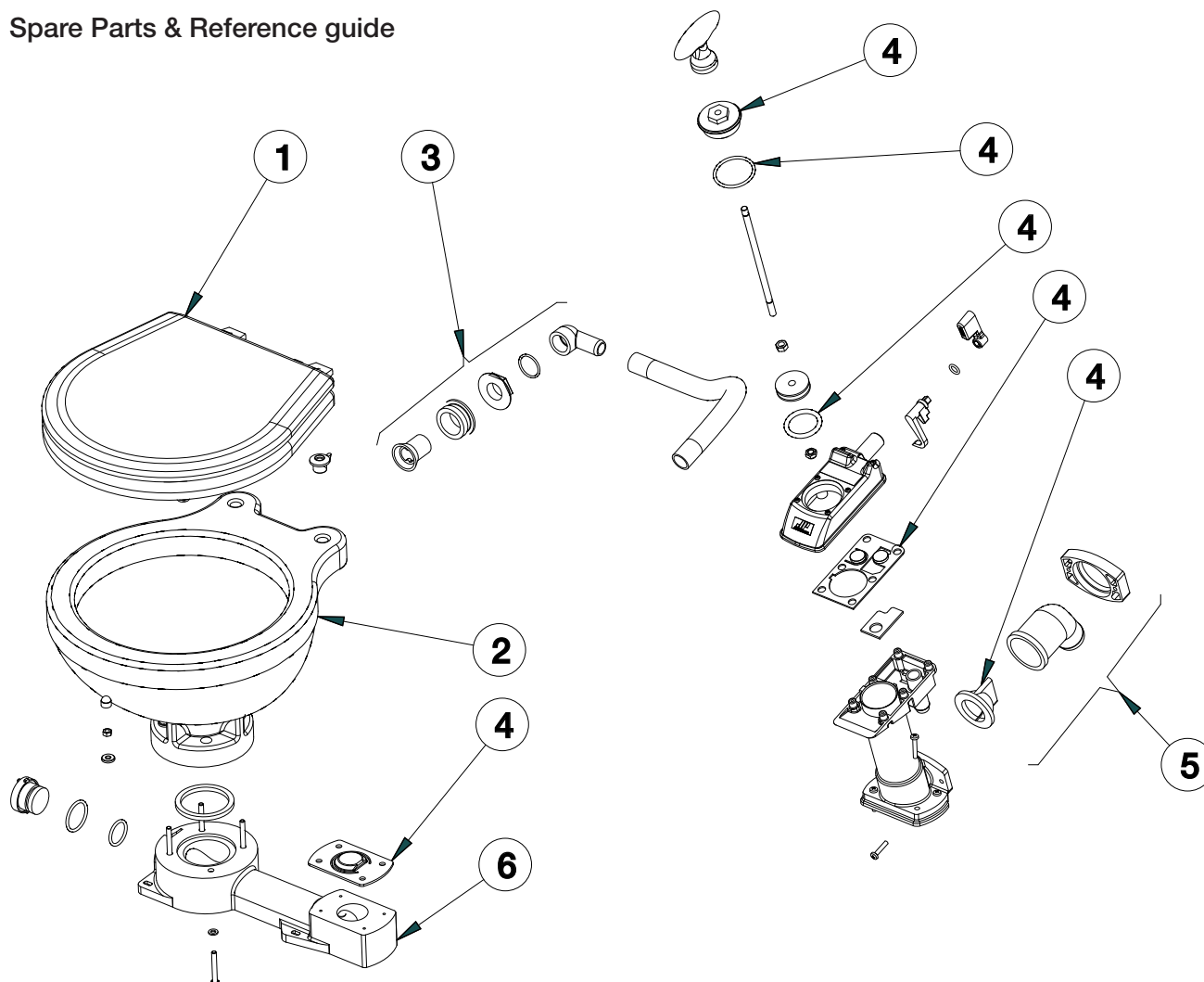
Model No	Description	Net Weight	A	B	C	D	E	F	
80-47229-01	Compact bowl	9,6 kg	345	650	215	425	450	170	mm
		21 lbs	13,58	25,59	8,46	16,73	17,72	6,69	(inch)
80-47230-01	Comfort bowl	11 kg	340	705	275	490	470	185	mm
		24lbs	13,39	27,76	10,83	19,29	18,50	7,28	(inch)



Ø19mm (0,75")
Inlet
Ø38mm (1,5")
Outlet
Multi Angle



Spare Parts & Reference guide



Pos.	Description	Model No
1	Wooden Seat, Compact	81-47141-01
	Wooden Seat, Comfort	81-47141-02
2	Bowl, Compact	81-47245-01
	Bowl, Comfort	81-47245-02
3	Intake elbow	81-47246-01
4	Gasket Kit (all)	81-47242-01
5	Outlet elbow	81-47246-02
6	Plastic Base	81-47243-01



JOHNSON PUMP

Johnson Pump AB



P.O. Box 1436, SE-701 14 Örebro, Sweden. Tel +46 (19) 21 83 00. Fax +46 (19) 27 23 72.
info.se@johnson-pump.com / www.johnson-pump.com

