



# INSTALLATION INSTRUCTIONS



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# INSTALLATION INSTRUCTIONS

## Items Included in System:



### Polar White Part #'s

- 301-032-00002
- 301-032-00006
- 301-032-00011

### Black Part #'s

- 301-032-00003
- 301-032-00005

**Atmospheric Vacuum  
Breaker/Check Valve**  
Part #571 VAC CHK



**Spin Weld  
Spray Head**  
Part #631



**ABS Tank Spray Head**  
Part #571 Sprayer

OR



**CAUTION**  
Do not use the tank flush valves unless the fullway termination valve is in the open position.  
May result in an unsanitary condition leading to illness or personal injury.  
AD-125

**Label**

Part #103-002-00014





# INSTALLATION INSTRUCTIONS



**Improper installation, operation or servicing this product will result in equipment damage & personal injury. This product should be installed & serviced by qualified technical personnel who have an in-depth knowledge of the construction process and potential hazards of this type of system.**

- All B&B installed fittings are torqued to factory settings. Loosening or tightening these connections will result in potential leakage or damage voiding warranty consideration.
- All plumbing connections made to this product during installation should be hand tight plus ¼ turn. DO NOT over-tighten!!
- DO NOT "operate" equipment at power levels other than what is specified on equipment serial tag & data plate.
- Make sure tank fittings for black water tank flushing (ABS Tank & Rotomolded) are installed per instructions to avoid potential damage.
- DO NOT install panel with plumbing in a binding condition. Plumbing must have necessary room to move freely when panel is secured to mounting substrate.
- Double check ALL factory installed swivel fittings to hand tight plus ¼ turn due to potential loosening.
- OEM Manufacturer to provide user instructions clearly advising proper winterizing techniques. Damage to system due to incorrect winterizing techniques voids all warranty consideration.
- B&B Molders is not responsible for damage caused to other products connected to this system. It is the O.E.M. Manufacturer's responsibility to ensure plumbing is run to correct locations.
- Proper venting of freshwater holding tank is responsibility of RV manufacturer. (See B&B Power Vent for safe venting options.) Under sized vents may result in serious damage.
- Special rules apply for any warranty claim or submission. Please contact B&B Molders for further information.
- Do not use countersink headed screws due to potential cracking. Use only #8 pan headed screws.
- Nautilus System is designed for compartment use only and should not be used for exterior applications where exposure to exterior elements exists.
- System must be installed in a clean environment at O.E.M. free of dust and debris. Foreign contaminants have been proven to create leakage conditions.
- Optional: If this product comes equipped with a hot/cold faucet, make sure hot and cold are connected correctly. All plumbing connections made to this product during installation should be hand tight plus ¼ turn.

## Tank Flush

- DO NOT over-tighten swivel fitting to threaded water inlet connection. Over-tightening may result in stress cracking to plastic threads.
- DO NOT plumb Atmospheric Vacuum Breaker/Check Valve (Vac/Check) in a binding condition that puts stress on part. Plumbing should be securely fastened to permanent structure.
- B&B strongly recommends installing Vac/Check within 6' – 8' of water inlet due to low pressure conditions.
- Vac/Check must be installed in an easily accessible location to end user.
- Vac/Check assembly must be plumbed in proper direction of flow & orientation.
- Working pressure per ASSE #1001 is 125 psi but NOT LESS THAN 8 psi.
- Spin weld fitting/sprayer must be installed according to Standard Plastic Welding Guidelines.

**IMPORTANT: FAILURE TO FOLLOW THESE INSTRUCTIONS FOR INSTALLATION OF OUR PRODUCT WILL FORFEIT ANY WARRANTY CONSIDERATION.**





# INSTALLATION INSTRUCTIONS

**IMPORTANT!!**

**NEVER** push check valve on "**CITY WATER**" connection with pressure in line. This **WILL** cause irreparable damage to the check valve function.





# INSTALLATION INSTRUCTIONS

## Nautilus P1 Handle Position and Valve Routing Information

**WHITE HANDLE:** Receives water from water inlet on front of panel

Sideways – water goes into blue handle diverter



Down – water goes to pump inlet



**BLUE HANDLE:** Receives water from white handle valve/water inlet on front of panel

Sideways – water goes to or comes from fresh water tank



Down – water goes to fixtures (cold)



**BLACK HANDLE:** Is an on/off flow through valve that feeds pump from fresh water tank

Sideways - water will not flow through valve



Down – water goes to or comes from fresh water tank



**RED HANDLE:** Receives water from cold water supply line

Sideways - water goes to hot water fixtures without going through hot water heater



Up – water goes to hot water heater



**GREEN HANDLE:** Receives water from pump

Sideways - water goes to fresh water tank



Up – water goes to fixtures







# INSTALLATION INSTRUCTIONS

## PLUMBING HARNESSSES

There are five different plumbing harnesses that are necessary on the Nautilus P1 Panel.

### ① FRESH WATER TANK "IN" HARNESS:

The (Fresh Water Tank In) line has two panel connections marked with a ① on back side of Nautilus panel: "TANK FILL (PUMP)" & "TANK FILL (CITY)."



#### Items Needed for Harness:

- (2) 90° swivel fittings, (1) inline tee
- ½" Pex tubing lines (1) 1½", (1) 4 ¾"
- (4) ½" Oetiker clamps



### ② HOT FIXTURES HARNESS

The (Hot Fixtures) line has two connections marked with a ② on back side of Nautilus panel: "HOT" & "HOT WATER LINE/OUT."



#### Items Needed for Harness:

- (2) 90° swivel fittings, (1) inline tee
- ½" Pex tubing lines: (1) 1½", (1) 7¾"
- (4) ½" Oetiker clamps





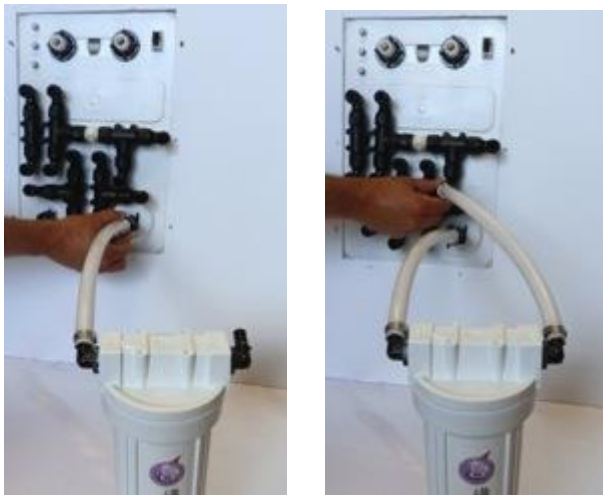
# INSTALLATION INSTRUCTIONS

## PLUMBING HARNESSSES

### WATER INLET HARNESS

#### ③ WITH WATER FILTER

If unit has a water filter, connect "WATER INLET" at bottom of panel to (Filter In) and connect (Filter Out) to "WATER INLET" marked with a ③ in middle of panel.



#### ③ WITHOUT WATER FILTER

If unit does not have a water filter, run plumbing line from "WATER INLET" at bottom of panel to "WATER INLET" marked with a ③ in middle of panel.



#### Items Needed for Harness:

- (2) 90° swivel fittings
- ½" Pex tubing line (1) 1¾"
- (2) ½" Oetiker clamps





# INSTALLATION INSTRUCTIONS

## PLUMBING HARNESSSES

### ④ COLD WATER SUPPLY HARNESS

The **(Cold Water Supply)** line has four connections marked with a ④ on back side of Nautilus panel: "**COLD**" on shower faucet, "**COLD LINE SUPPLY**," "**FIXTURES (PUMP)**," "**CITY TO FIXTURES.**"



#### Items Needed for Harness:

- (4) Straight swivel fittings
- (4) 90° inline elbows, (3) inline tees
- ½" Pex tubing lines: (4) 2½", (2) 1¾", (2) 2¾", (4) 3¾"
- (20) ½" Oetiker clamps



### ⑤ PUMP INLET HARNESS

Line to **(Pump Inlet)** has two connections marked with a ⑤ on back side of Nautilus panel: "**TO PUMP INLET**" (there are 2 of these).



#### Items Needed for Harness:

- (2) Straight swivel fittings
- (1) 90° inline elbow, (1) inline tee
- ½" Pex tubing lines: (2) 1½", (1) 7 ⅞"
- (6) ½" Oetiker clamps







# INSTALLATION INSTRUCTIONS

## PLUMBING HARNESSES - OTHER

Line from **(Pump Out)** has one connection on back of Nautilus panel: **"PRESSURE FROM PUMP."**



Line from **(Fresh Water Tank Out)** has one connection on back of Nautilus panel: **"IN FROM TANK."**



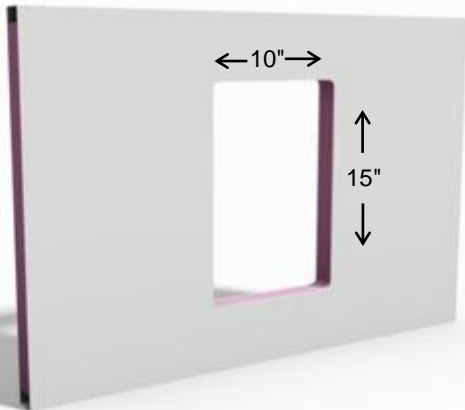
Line to **(Hot Water Heater In)** has one connection on back of Nautilus panel: **"TO H2O HEATER."**



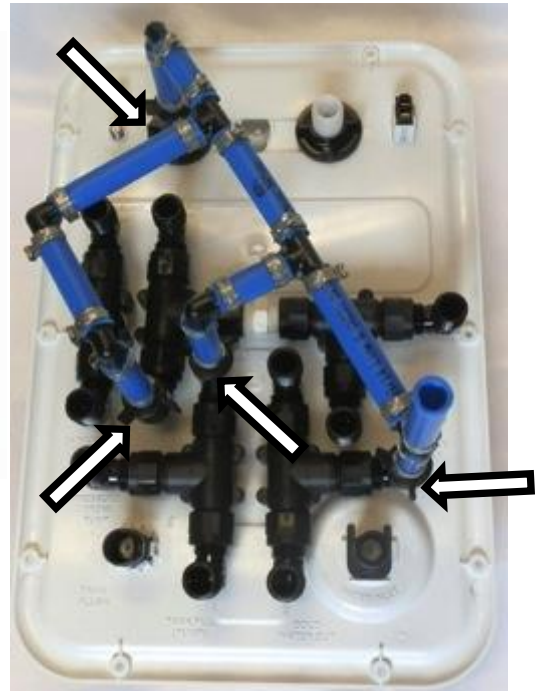


## INSTALLATION INSTRUCTIONS

1. Cut a 10" x 15" opening in substrate material & feed appropriate connections through opening.



2. Connect plumbing harness ④ (Cold Water Supply) to back of Nautilus panel at four locations marked with a ④. Screw plumbing swivel fittings onto diverter valve ends in the following order: "FIXTURES (PUMP)," "CITY TO FIXTURES," "COLD LINE SUPPLY" & "COLD" on shower faucet.



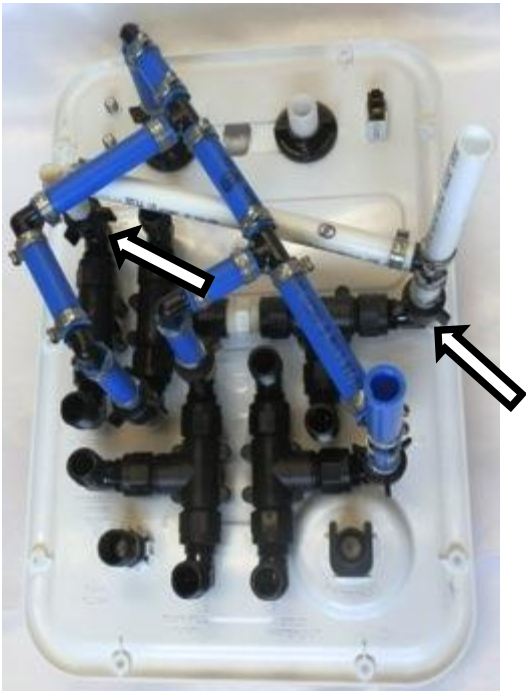
Connections shall be hand tight + ¼ turn.  
\*Do not over tighten as stress cracking may result.\*





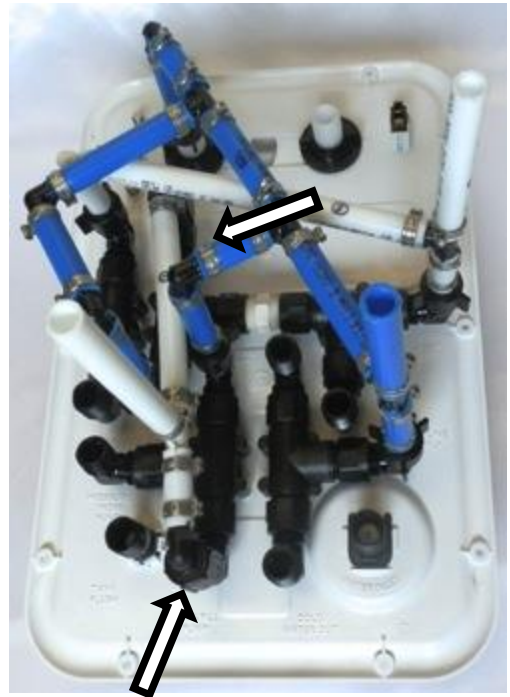
## INSTALLATION INSTRUCTIONS

3. Connect plumbing harness **⑤ (Pump Inlet)** to back of Nautilus panel at two locations marked with a **⑤**. Screw plumbing swivel fittings onto each diverter valve end labeled "TO PUMP INLET."



Connections shall be hand tight + ¼ turn.  
\*Do not over tighten as stress cracking may result.\*

4. Connect plumbing harness **① (Fresh Water Tank)** to back of Nautilus panel at two locations marked with a **①**. Screw plumbing swivel fittings onto diverter valve ends in the following order: "TANK FILL (CITY)," "TANK FILL (PUMP)."



Connections shall be hand tight + ¼ turn.  
\*Do not over tighten as stress cracking may result.\*





# INSTALLATION INSTRUCTIONS

## 5A. UNITS WITH WATER FILTER

Connect plumbing line running from **(Filter In)** to **"WATER INLET"** located at bottom of Nautilus panel.



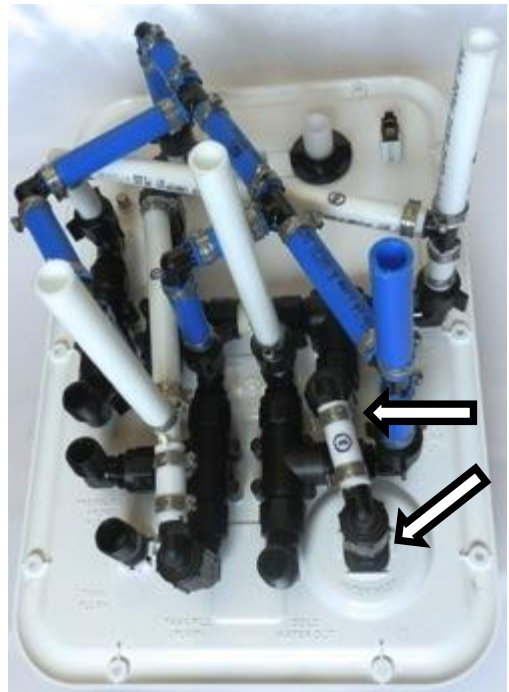
Connect plumbing running from **(Filter Out)** to diverter valve end labeled **"WATER INLET"** located at middle right of Nautilus panel marked with a **③**.



Connections shall be hand tight + ¼ turn.  
\*Do not over tighten as stress cracking may result.\*

## 5B. UNITS WITHOUT WATER FILTER

Connect plumbing harness **③ (Water Inlet)** to back of Nautilus panel at two locations marked with a **③**. Screw plumbing swivel fittings onto diverter valve ends labeled **"WATER INLET."**



Connections shall be hand tight + ¼ turn.  
\*Do not over tighten as stress cracking may result.\*







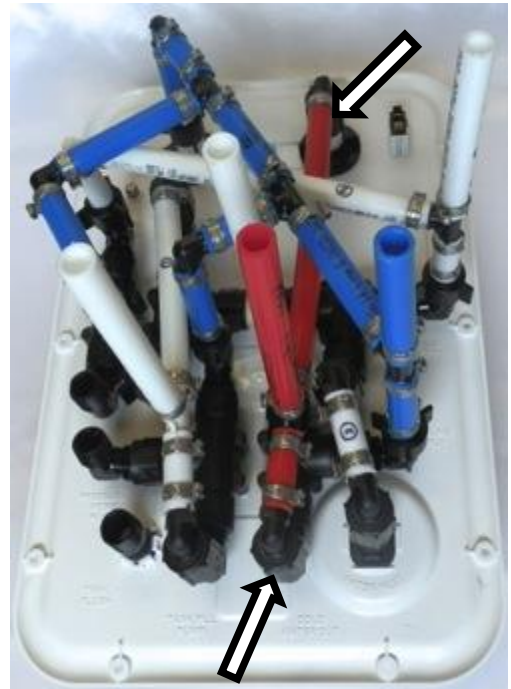
## INSTALLATION INSTRUCTIONS

6. Connect plumbing line running from (**Hot Water Heater In**) to diverter valve end labeled "**TO H2O HEATER**" on back of Nautilus panel.



Connections shall be hand tight + ¼ turn.  
\*Do not over tighten as stress cracking may result.\*

7. Connect plumbing harness ② (**Hot Fixtures**) to back of Nautilus panel at two locations marked with a ②. Screw plumbing swivel fittings onto diverter valve ends in the following order: "**HOT WATER LINE/OUT**," "**HOT**" on shower faucet.



Connections shall be hand tight + ¼ turn.  
\*Do not over tighten as stress cracking may result.\*







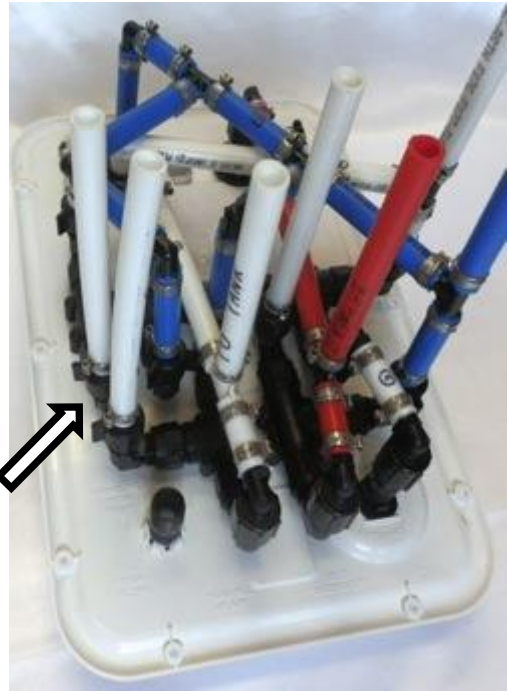
## INSTALLATION INSTRUCTIONS

8. Connect plumbing line running from **(Pump Out)** to diverter valve end labeled **"PRESSURE FROM PUMP"** on back of Nautilus panel.



Connections shall be hand tight + ¼ turn.  
\*Do not over tighten as stress cracking may result.\*

9. Connect plumbing line from **(Fresh Water Tank Out)** to diverter valve end labeled **"IN FROM TANK"** on back of Nautilus panel.

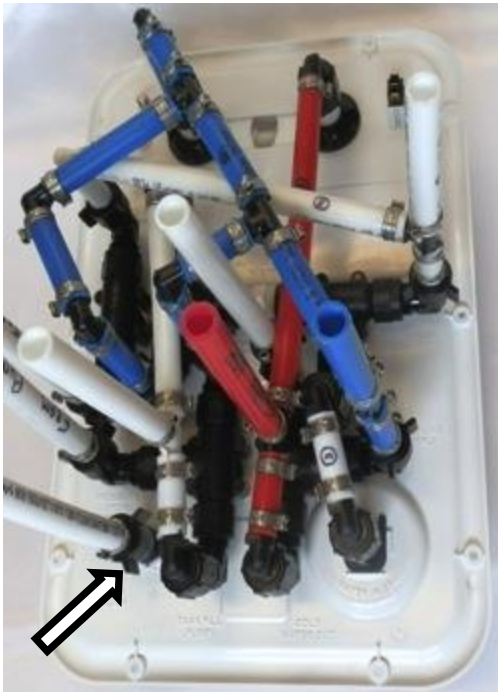


Connections shall be hand tight + ¼ turn.  
\*Do not over tighten as stress cracking may result.\*



# INSTALLATION INSTRUCTIONS

10. Connect plumbing line running from bottom of listed Vac/Check to inlet labeled "TANK FLUSH."



Connections shall be hand tight + ¼ turn.  
 \*Do not over tighten as stress cracking may result.\*

**SEE TANK FLUSHER  
 INSTALLATION INSTRUCTIONS #1, PAGE14.**

11. Connect necessary coaxial cables to appropriate connection identified on top left of panel and hand tighten.



12. Connect power service to terminals on back of pump switch located on top right of panel as illustrated below.



\*\*Make sure wiring connection is routed correctly for two switch operation.



## INSTALLATION INSTRUCTIONS

13. Secure panel to substrate material using (10) #8 self-tapping pan headed screws.





# INSTALLATION INSTRUCTIONS

## TANK FLUSHER SYSTEM INSTALLATION

1. Vac/Check connected to tank flush inlet should be located a minimum of 6" above flood rim of highest fixture connected to waste holding tank.  
*In addition, B&B recommends this length of piping not to exceed 6'-8' lineal feet.*



2. Connect plumbing line running from discharge side of Vac/Check down to sprayer installed on black water tank. Make connection to sprayer device.



- a. Plumbing line running from water inlet must be a dedicated line for the Tank Flush System.
- b. Vac/Check assembly must be plumbed in proper direction of flow & orientation. Incorrect direction of flow will void warranty consideration.

## SPRAYER INSTALLATION – ABS Tank - Glued Application

1. Drill a 1" hole on end or side of waste holding tank, **NOT TO EXCEED 2" BELOW TOP CENTER OF TANK.**



2. Insert desired 1/2" x 1/2" MPT fitting into threaded female connection of sprayer device, then tighten. Avoid excessive torque as this will cause stress & may result in cracking sprayer threads. If necessary, Teflon Tape may be used.  
**Common thread sealants should never be used!**

3. Apply a generous bead of 100% silicone sealant (do not substitute) to inside flange of black sprayer device.



4. Orientate black sprayer device with "top" facing up & fasten to tank using (3) #8 x 1/2" stainless steel screws. **DO NOT USE COUNTERSINK HEADED SCREWS DUE TO POTENTIAL CRACKING.**



Let silicone sealant properly cure before testing.





# INSTALLATION INSTRUCTIONS

## SPRAYER INSTALLATION

### Rotational Molding Tank – Spin Weld Application

1. Drill a 1" hole on end or side of waste holding tank, **NOT TO EXCEED 2" BELOW TOP CENTER OF TANK.**



2. With a router that spins at over 20,000 rpm, insert white/clear sprayer device into special tool/chuck making sure it is well seated. Insert sprayer into 1" hole in tank.



3. Spin with chuck drive & stop when plastic begins to melt and hold for 5 seconds with light pressure to ensure bond.

**DO NOT USE SEALANT ON SPIN WELD SPRAYER!**

4. Insert desired ½" x ½" MPT fitting into threaded female connection, then tighten. Avoid excessive torque as this will cause stress & may result in cracking sprayer threads. If necessary, Teflon Tape may be used. **Common thread sealants should never be used!**

## TESTING WATER SYSTEM

Follow RVIA Standards and Guidelines when pressure testing water distribution systems. Damage to the Nautilus System as a result of not following RVIA Standard 7.7.2 (Water Distribution System Testing) voids all warranty consideration!

## TESTING THE FLUSHER SYSTEM

1. Connect a garden hose to water inlet of Flusher System.
2. Open dump valve on tank that Flusher Sprayer is installed.
3. Turn water **ON** to test system – minimum water pressure of 40 psi must be used.

\*Atmospheric Vacuum Breaker shall not be subject to continuous pressure for more than 12 continuous hours.

\*It is normal for trapped water between Atmospheric Vacuum Breaker (Vac/Check) and water inlet to exit as garden hose is disconnected.

### **\*\*Important\*\***

Make sure faucet is open completely during entire tank flush cycle. Vac/Check is designed to work at water pressure range of 8 – 125 psi. Water leakage from Vac/Check is likely when water pressure in supply line is under 8 psi. It is normal for a small amount of water to escape Vac/Check as plumbing line for tank flush pressurizes.

**NOTE:** Any parts added to system shall be equivalent of and installed in accordance with IAPMO TSC 27.

