



Adjusting a NEMA 1 Square-D, 9038 Series Mechanical Alternator

PURPOSE OF ALTERNATOR

Normally used to automatically control the liquid level, by float movement, within a closed tank. In addition, the switch automatically alternates pump operation on successive cycles of float travel. It also offers overflow protection if the liquid level within the tank continues to rise with only one pump in operation—a second contact is activated as the float continues to rise, turning on the second pump.

ORDERING CORRECT SWITCH ORIENTATION

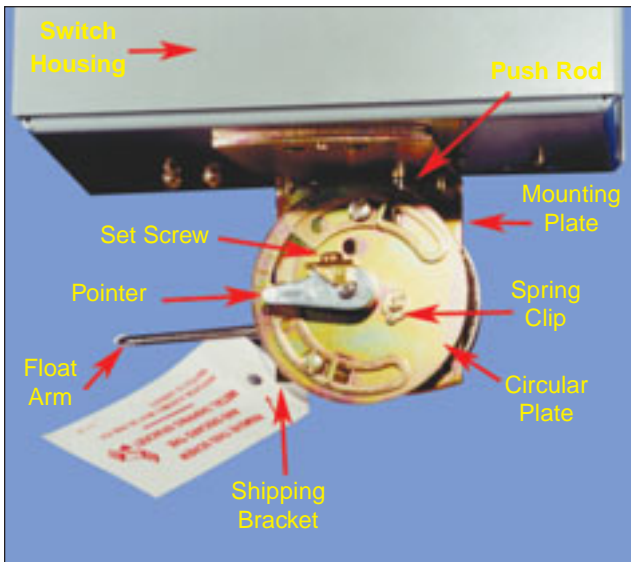


Figure 1

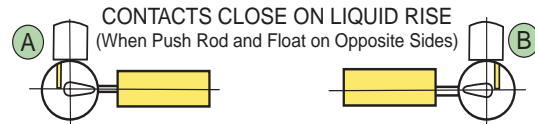


Figure 2

WHEN ORDERING

Float and push rod are on opposite sides for contacts to close when liquid level rises. SHIPCO® orders the mechanical alternator with the required float orientation preset—float on either the right side (Figure 2-A) or left side (Figure 2-B) as required for specific job. SHIPCO® applications typically use a “float on left” orientation.

WHEN INSTALLING

The alternator is shipped with a shipping bracket (see Figure 1) attached to the mounting plate to prevent the float from moving in the tank during shipment. When installing the alternator, this bracket, clearly marked with a tag, **must be removed** for float mechanism to operate correctly.

WARNING!

The pressure limit within the closed tank **must not exceed** 50 pounds per square inch (psi).

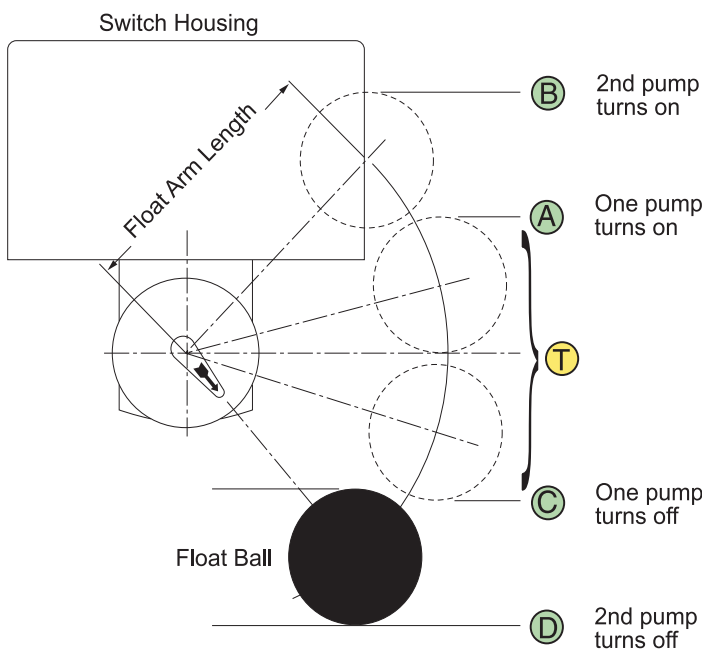


Figure 3

FLOAT TRAVEL EXPLANATION

- Under typical operating conditions, the contacts (located inside the switch housing) will close a circuit as the float rises, turning on a pump. Then as the float falls, the contacts open a circuit, turning off a pump.
- As the water level rises, the first contact will close when the float level reaches high point **A**.
- As long as one pump can handle the flow of incoming water, the pumps will operate within “normal” float travel range **T** and alternate on each successive rise / fall cycle of float.
- If the water level continues to rise, the second contact will close, when the float reaches high point **B**, turning on the second pump.
- Both pumps will continue to run until the float falls to the low point **C** where one pump turns off.
- The other pump will continue to run until the float falls to low point **D** where the second pump turns off. With both pumps off, the float will begin to rise again and the cycle will repeat.

ADJUSTING TRAVEL RANGE OF FLOAT ARM

See Figure 4

Allow float to go higher

- Loosen adjusting strip **screw (B)**
- Slide the float travel **adjusting plate (7b)** to the left. This will allow the float arm to rise higher.
- Tighten adjusting strip **screw (B)**

Allow float to go lower

- Loosen adjusting strip **screw (A)**
- Slide the float travel **adjusting plate (7a)** to the left. This will allow the float arm to drop lower.
- Tighten adjusting strip **screw (A)**

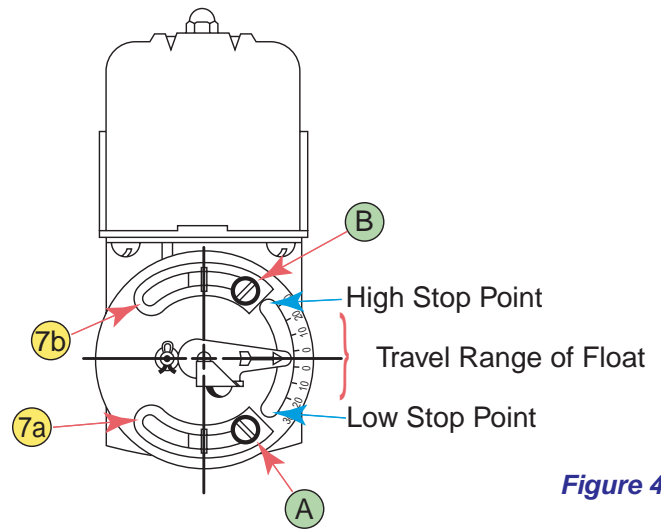


Figure 4

REPLACING Z-20 SEAL

See Figure 1

- Step 1** – Remove **shipping bracket**
- Step 2** – Loosen **set screw** on pointer
- Step 3** – Remove **pointer**
- Step 4** – Remove **spring clip** to release **circular plate**
- Step 5** – Remove **circular plate**
- See Figures 5-6
- Step 6** – Remove **hex nut (C)**
- Step 7** – Remove **housing bracket with switch housing**
- Step 8** – Remove **spring clip (9)**
- Step 9** – Remove **brass bushing (F)** that fits inside the threaded brass fitting that hex nut (C) screws onto
- Step 10** – Remove old **Z-20 seal**
- Step 11** – Insert new **Z-20 seal**
- Step 12** – Reinsert **brass bushing**
- Step 13** – Reattach **spring clip (9)** into groove on float shaft
- Step 14** – Reattach **housing bracket** onto float shaft and tighten hex nut (C)

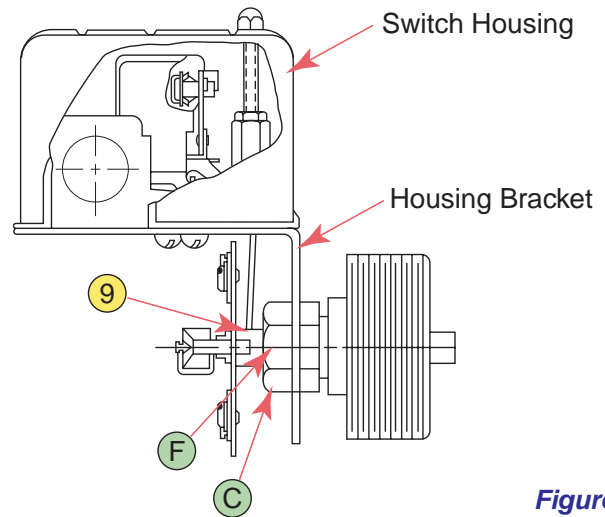


Figure 5

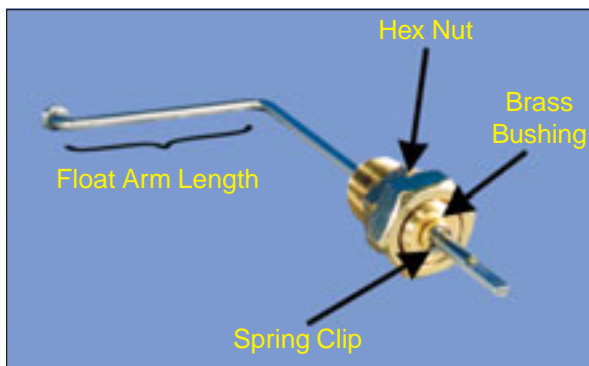


Figure 6a

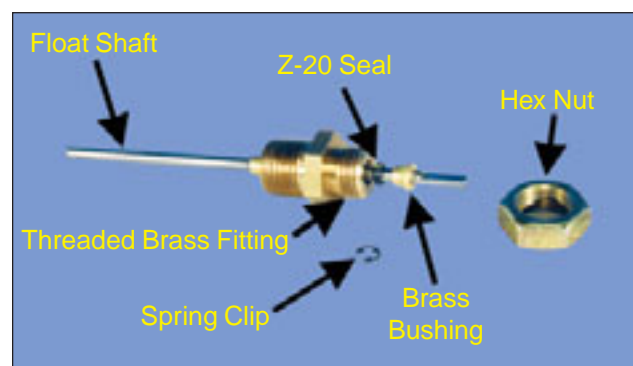


Figure 6b

Note: The Z-20 Seal is located behind the brass bushing. Both the brass bushing and Z-20 Seal fit inside the threaded brass fitting under the hex nut.