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Applicable standards

ISO 8846, ISO 8849, ISO 55014, ABYC H-22,

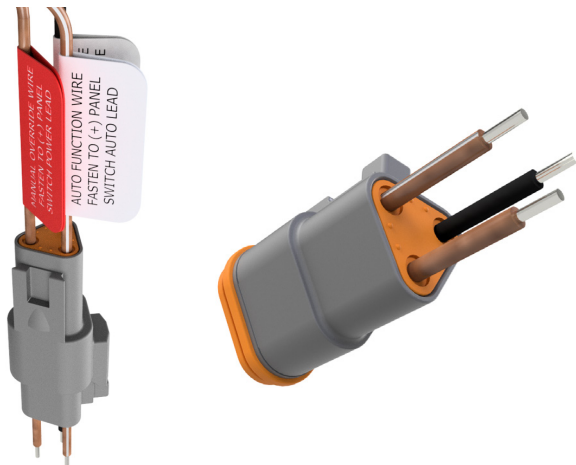
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# 1. PCBA Motor function description

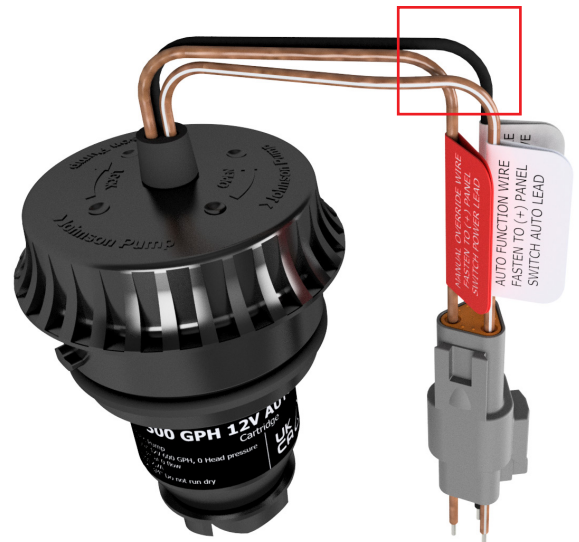
PCBA replacement motor is a device which provides advanced sensing technology to detect the presence of water within the bilge. It does not need any external switch to work in auto. mode. It checks for water presence every 2,5 minutes and in case of water detection it continue to run until all water is pumped out. If, on the other hand, no water presence is detected it switches off and checks for water after another 2,5 minutes. It can be mounted in all Aqua Void series pump bodies. PCBA motors can be distinguished easily from other available replacement cartridge motors due to following features:



PRODUCT LABEL INFORMING ABOUT AUTO. FUNCTION



CONNECTION PLUG IS PREPARED FOR THREE WIRES



PCBA MOTOR WITH THREE WIRES

# 2. PCBA Motor wiring

As it was mentioned PCBA Motor is a device equipped with 3 wires. Each of those has its own function and this is what is described in this paragraph and below:



MANUAL OVERRIDE WIRE  
FASTEN TO (+) PANEL  
SWITCH POWER LEAD



AUTO FUNCTION WIRE  
FASTEN TO (+) PANEL  
SWITCH AUTO LEAD



NEGATIVE GROUND WIRE  
FASTEN TO (-) NEGATIVE  
GROUND LEAD

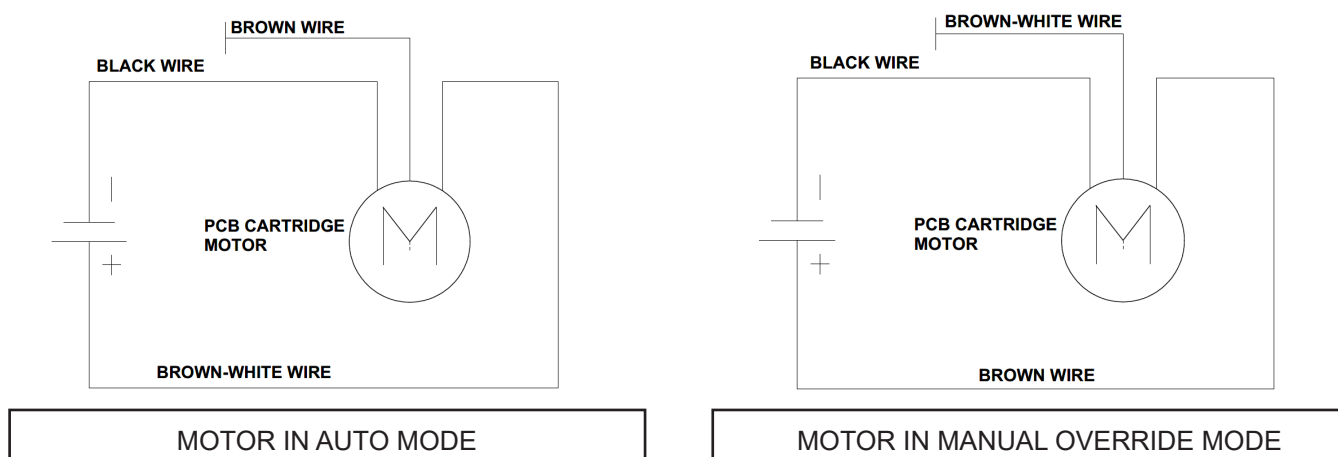
PCBA Motors can work in two modes. One is called manual override mode and it is exactly the same as in case of standard Aqua Void replacement motor. That means that in this mode motor will run as long as it will be connected to the power source.

Second PCBA Motors work mode is auto mode. In this case motor is checking water presence in a bilge every 2,5 minutes for one second by itself. In case in which water will be detected, motor will run until all water will be pumped out. If, on the other hand no water will be detected during check, then motor will stop and check for water presence after 2,5 minutes.

To force motor to work in in one of above described modes it has to be properly mounted in boat electrical system. Always 2 wires are connected to battery and are forming closed loop when at the same time third wire stays not connected. Below a table describing possible connections is presented.

| WORK MODE            | CABLES CONNECTED                        | LOOSE CABLE   |
|----------------------|---|---------------|
| MANUAL OVERRIDE MODE | (BLACK) TO (-) AND (BROWN) TO (+)       | (BROWN-WHITE) |
| AUTO MODE            | (BLACK) TO (-) AND (BROWN-WHITE) TO (+) | (BROWN)       |

Simple schematics showing how to connect wires to achieve required work mode is shown below:



### 3. Available product types

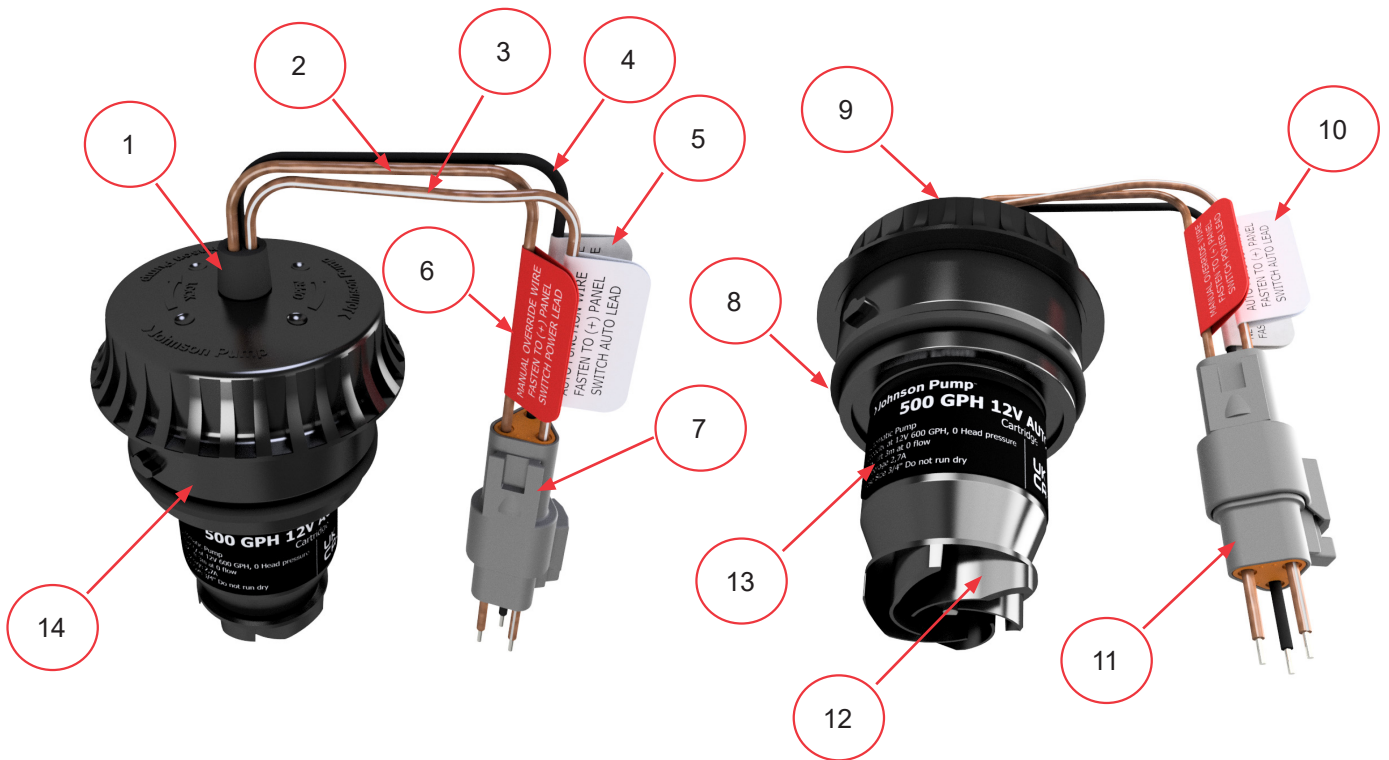
There are four available PCBA Motor versions. These versions are given in table below:

| MOTOR TYPE | VOLTAGE [VDC] | PACKING TYPE | CARTRIDGE MOTOR NUMBER |
|------------|---------------|--------------|------------------------|
| 500 GPH    | 12            | RETAIL       | 09-36336-04            |
| 500 GPH    | 12            | BULK         | 09-36336-05            |
| 800 GPH    | 12            | RETAIL       | 09-36336-10            |
| 800 GPH    | 12            | BULK         | 09-36336-11            |

And main difference between above versions is in achieved capacity and retail or bulk packaging.

## 4. PCBA Cartridge motor main parts

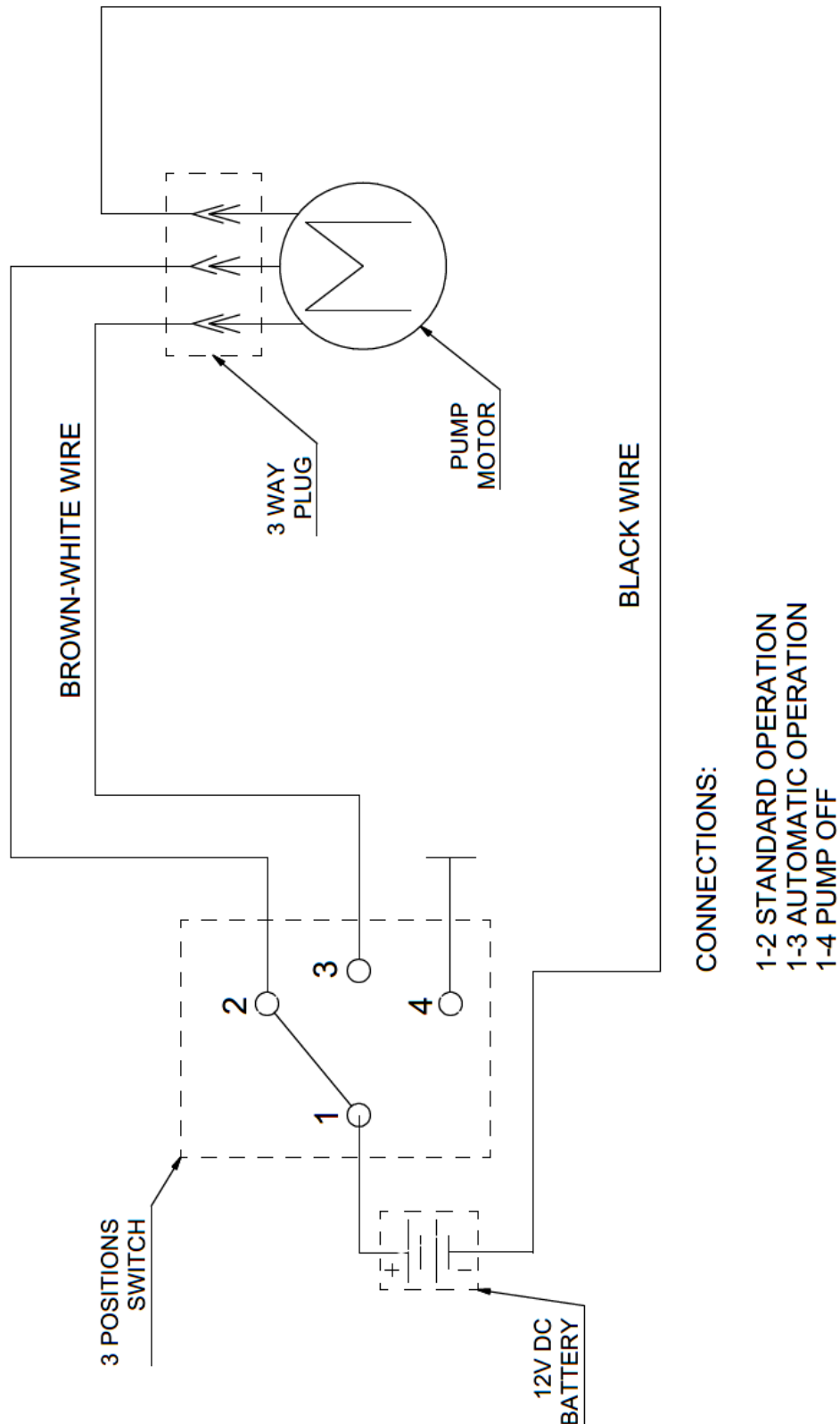
PCBA Cartridge motor contains foollowing parts.



| ITEM NUMBER | PART NAME                     | QUANTITY |
|-------------|-------------------------------|----------|
| 1           | GROMMET                       | 1        |
| 2           | MANUAL OVERRIDE FUNCTION WIRE | 1        |
| 3           | AUTO FUNCTION WIRE            | 1        |
| 4           | NEGATIVE WIRE                 | 1        |
| 5           | NEGATIVE WIRE LABEL           | 1        |
| 6           | MANUAL OVERRIDE LABEL         | 1        |
| 7           | CONNECTION PLUG MALE PART     | 1        |
| 8           | MOTOR ORING                   | 1        |
| 9           | TOP COVER                     | 1        |
| 10          | AUTO WIRE LABEL               | 1        |
| 11          | CONNECTION PLUG FEMALE PART   | 1        |
| 12          | IMPELLER                      | 1        |
| 13          | MOTOR LABEL                   | 1        |
| 14          | MOTOR HOUSING                 | 1        |

## 5. PCBA Electrical connection proposal

As it was described earlier PCBA cartridge motor products are able to work in two different work modes. Manual override mode is there to force product to act as standard Aqua Void motor and auto mode forces PCBA motor to automatically search for water inside boat bilge. To connect PCBA motor in a way which allow to easily switch between work modes it is recommendet to build electrical circuit as it is presented below:



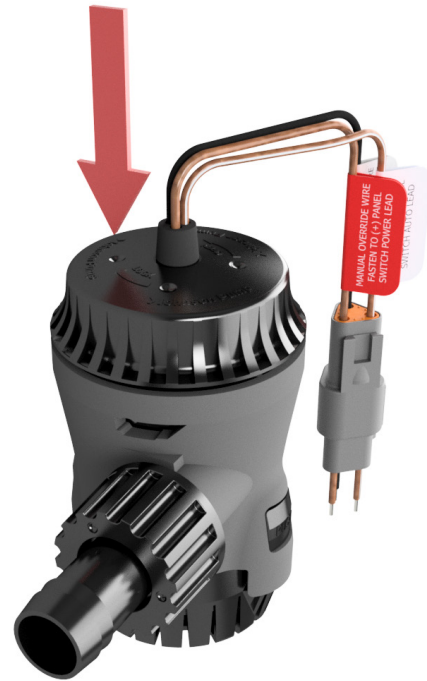
## 6. Basic product technical data



| PARAMETER                           | 500 GPH               | 800GPH                |
|-------------------------------------|-----------------------|-----------------------|
| HOSE SIZE                           | 19MM / 3/4"           | 19MM / 3/4"           |
| CAPACITY, STRAIGHT (12V, ISO 8849)  | ISO: 38L/MIN, 600GPH  | ISO: 50L/MIN, 795GPH  |
| CAPACITY, STRAIGHT (12V, ABYC H-22) | ABYC: 38L/MIN, 600GPH | ABYC: 50L/MIN, 795GPH |
| CAPACITY, 1M (12V, ISO 8849)        | ISO: 26L/MIN, 410GPH  | ISO: 35L/MIN, 560GPH  |
| CAPACITY, 1M (12V, ABYC H-22)       | ABYC: 23L/MIN, 365GPH | ABYC: 32L/MIN, 510GPH |
| CAPACITY, 2M (12V, ISO 8849)        | ISO: 16L/MIN, 250GPH  | ISO: 26L/MIN, 405GPH  |
| CAPACITY, 2M (12V, ABYC H-22)       | ABYC: 14L/MIN, 225GPH | ABYC: 24L/MIN, 375GPH |
| CAPACITY, MAX HEAD (12V, ISO 8849)  | 3,0M, 9.9FT           | 4,4M, 14.5FT          |
| VOLTAGE                             | 12V                   | 12V                   |
| AMPERAGE                            | 2,7A                  | 3,7A                  |
| FUSE SIZE                           | 3,5A                  | 5A                    |
| MAX DIAMETER                        | (A) 69.8MM / 2.75"    | (A) 69.8 / 2.75"      |
| WEIGHT                              | 0.22KG / 7.76OZ       | 0.26KG / 9.14OZ       |
| WIRE TYPE                           | 16GA / 1.3MM2         | 16GA / 1.3MM2         |

## 6. PCBA cartridge motor installation / removal

1. Align two cams on two sides of the motor with two slots in outer housing. Then push cartridge motor down firmly so it slides down up to mechanical slots.



2. While still pushing downwards rotate cartridge motor clockwise until you feel it has jumped into its position. Now cartridge motor is installed properly. If you want to remove cartridge motor rotate it in counter clockwise direction and pull up.



When replacing a motor always make sure that cartridge main oring is in its proper location and it is covered with food grade synthetic grease (NSF H1). In case if oring is dry use previously described grease and then install.



INSTRUCTION MANUALS

DOWNLOADS



## PCBA Cartridge motors

**Models: 09-36336-04, 09-36336-04, 09-36336-10  
09-36336-11**

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