PWC KIT - Bilge Pump

Product:	**Sea-Doo_watercraft**
Project no:	**487802051_rev1**
Instruction Sheet P/N:	**487802051**
Revision no:	**1**
Revision date:	**July 2019**
Item covered:	**Bilge Pump**

The following symbols may be used in this document:

WARNING
Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION: Indicates a hazard situation which, if not avoided, could result in minor or moderate injury.
NOTICE Indicates an instruction which, if not followed, could severely damage vehicle components or other property.

WARNING
- For safety reasons, this kit must be installed by an authorized BRP dealer.
- This kit is designed for specific applicable models only (authorized BRP dealers will confirm model(s)). It is not recommended for units other than the one (those) for which it was sold.
- If the installation of the kit requires a template, ensure that template is to scale.
- Should removal of a locking device (e.g. lock tabs, self-locking fasteners, etc.) be required when undergoing disassembly/assembly, always replace with a new one.
- Torque wrench tightening specifications must strictly be adhered to.
- Some components may be HOT. Always wait for engine to cool down before performing work.

WARNING
Some important safety information and/or operating instructions dedicated to the end user might be included in this instruction sheet. Make sure to give the kit part number as well as the instruction sheet included with this kit to the customer. Verify that the customer has access to all the information required for proper use of the accessory.

NOTE: USE TIGHTENING TORQUES IN THE FOLLOWING TABLE IF NOT OTHERWISE SPECIFIED.

	GRADE			
	5.8	8.8	10.9	12.9
M4	1.8 ± 0.2 N•m (16 ± 2 lbf•**in**)	2.8 ± 0.2 N•m (25 ± 2 lbf•**in**)	3.8 ± 0.2 N•m (34 ± 2 lbf•**in**)	4.5 ± 0.5 N•m (40 ± 4 lbf•**in**)
M5	3.3 ± 0.2 N•m (29 ± 2 lbf•**in**)	5 ± 0.5 N•m (44 ± 4 lbf•**in**)	7.8 ± 0.7 N•m (69 ± 6 lbf•**in**)	9 ± 1 N•m (80 ± 9 lbf•**in**)
M6	7.5 ± 1 N•m (66 ± 9 lbf•**in**)	10 ± 2 N•m (89 ± 18 lbf•**in**)	12.8 ± 2.2 N•m (113 ± 19 lbf•**in**)	16 ± 2 N•m (142 ± 18 lbf•**in**)
M8	15.3 ± 1.7 N•m (135 ± 15 lbf•**in**)	24.5 ± 3.5 N•m (18 ± 3 lbf•ft)	31.5 ± 3.5 N•m (23 ± 3 lbf•ft)	40 ± 5 N•m (30 ± 4 lbf•ft)
M10	29 ± 3 N•m (21 ± 2 lbf•ft)	48 ± 6 N•m (35 ± 4 lbf•ft)	61 ± 9 N•m (45 ± 7 lbf•ft)	73 ± 7 N•m (54 ± 5 lbf•ft)
M12	52 ± 6 N•m (38 ± 4 lbf•ft)	85 ± 10 N•m (63 ± 7 lbf•ft)	105 ± 15 N•m (77 ± 11 lbf•ft)	128 ± 17 N•m (94 ± 13 lbf•ft)

M14	85 ± 10 N•m (63 ± 7 lbf•ft)	135 ± 15 N•m (100 ± 11 lbf•ft)	170 ± 20 N•m (125 ± 15 lbf•ft)	200 ± 25 N•m (148 ± 18 lbf•ft)
M16	126 ± 14 N•m (93 ± 10 lbf•ft)	205 ± 25 N•m (151 ± 18 lbf•ft)	255 ± 30 N•m (188 ± 22 lbf•ft)	305 ± 35 N•m (225 ± 26 lbf•ft)
M18	170 ± 20 N•m (125 ± 15 lbf•ft)	273 ± 32 N•m (201 ± 24 lbf•ft)	330 ± 25 N•m (243 ± 18 lbf•ft)	413 ± 47 N•m (305 ± 35 lbf•ft)

NOTE: The illustrations in this document show typical construction of the different assemblies and may not reproduce the full detail or exact shape of the parts; however, they represent parts that have the same or similar function.

Installation time is approximately 1.5 hour.

Parts to be installed

ITEM	DESCRIPTION	Part number	QTY
P1	Bilge pump	278002020	1
P2	Bilge pump support	Not available separately	1
P3	M4.8 x 16 Screw	243041660	2
P4	M6 x 16 Screw	211000106	2
P5	Pump hose	Not available separately	1
P6	Hull outlet fitting	293710162	1
P7	Gasket	292001486	1
P8	Screw clamp	293650172	2
P9	Electrical harness	Not available separately	1
P10	Fuse (3 amp)	710001008	1
P11	Jumper wire	Not available separately	1
P12	Bus bar	278002182	1
P13	Locking tie 368 mm (14.5 in)	293750008	4
P14	Locking tie 180 mm (7-1/2 in)	414115200	5

Required tool

Tools	Description	Use
T1	27 mm (1-1/16 in) hole saw	Cut hole for hull outlet fitting

Installation INSTRUCTIONS

Bilge Pump Installation On Bilge Pump Support

Remove seat to access engine compartment.

Assemble bilge pump depending on the type of vehicle.

NOTE: Pay attention to position of pump support with reference to the pump outlet.

Pump assembly - gti/gts

1. Pump unit [P1]
2. Locking ties [P13]
3. Support [P2]
4. Pump connector
5. Pump outlet

TYPE 1

pump outlet Position for RXP and GTI (LFI) Hull
TYPE 2
pump outlet Position for GTX, RXT and WAKE PRO hull
TYPE 3
pump outlet Position for GTI/GTS/GTR and Wake155 hull
Installation of the Assembled Pump
For RXP and GTI (LFI) Models Position TYPE 1
Locate the pump support mounting holes in the bottom of the hull.
NOTE: These holes may be blocked with plastic darts. Remove them before installing the bilge pump support.
Parts have been removed for clarity
1. Pump support mounting holes
Install pump assembly with the outlet pointing towards the stern (aft).
location b - Parts have been removed for clarity
1. M4.8 X 16 screw [P3]
2. Bilge Pump [P1]
For GTX, RXT and WAKE PRO Models Position TYPE 2
Locate the pump support mounting holes in the bottom of the hull.
NOTE: These holes may be blocked with plastic darts. Remove them before installing the bilge pump support.
Parts have been removed for clarity
1. Pump support mounting holes
Install pump assembly with the outlet pointing towards the stern (aft).
location c - Parts have been removed for clarity
1. M4.8 X 16 screw [P3]
2. Bilge Pump [P1]
For GTI (except 900 HO and LFI models) / GTS 2016 and prior Model Position TYPE 3
Install pump assembly with the outlet pointing towards the stern (aft).
Location a - Parts have been removed for clarity
1. M6 X 16 screw [P4]
2. Bilge Pump [P1]

Tightening torque

Bilge pump mounting screws [P4]	5 ± 0.5 N•m (44 ± 4 lbf•**in**)
Bilge pump mounting screws [P3]	5 ± 0.5 N•m (44 ± 4 lbf•**in**)

Drilling Hull
GTI (except with 900 HO), GTS (2016 and prior), GTR and Wake 155 Models
Accurately cut template A.
Position hull outlet fitting template A on outer surface of the stern as per following illustration.
Typical - location of Hull outlet fitting template A
GTX, RXT and WAKE PRO Models
Accurately cut template B.
Position hull outlet fitting template B on outer surface of the stern as per following illustration.
Typical - location of Hull outlet fitting template B
RXP Models
Accurately cut template C.
Position hull outlet fitting template C on outer surface of the stern as per following illustration.
Typical - location of Hull outlet fitting template C
1. Stabilizer's base contour
All Models (Except GTI 2018-2019)
Using a sharp tool, make a location mark on the hull surface using template drill location.
Marking location on hull-typical
Using hole-saw [T1], cut the outlet fitting hole through the hull wall.
typical
1. Hole saw [T1]27 mm (1-1/16 in)

Clean the area using a vacuum cleaner.
Outlet Fitting Installation
Prepare pump outlet components.
1. Outlet fitting [P6]
2. Gasket [P7]
3. Outlet fitting nut
Insert the outlet fitting through the hole from outside the hull towards the inside. Ensure the gasket is on the outside of the hull.
Install nut on fitting.
1. Outlet fitting [P6]
2. Gasket [P7]
3. Outlet fitting nut
While holding the fitting nut steady, have an assistant use a large washer (or a flat tool) to tighten the fitting from the outside.
Tightening of fitting from outside hull
1. Washer in fitting notches
NOTE: After tightening nut, make sure gasket is sufficiently compressed all around fitting to provide a tight seal.
Outlet Hose Installation
1. Locate vent hole on bilge pump outlet hose [P5].
1. Vent hole positioned upwards
2. Insert a screw clamp [P8] on hose end closest to vent hole.
1. Pump hose [P5]
2. Screw clamp [P8]
3. Connect hose end (closest to vent hole) to pump outlet.
4. Route outlet hose over front and rear exhaust hoses on starboard side.
5. Position a second screw clamp [P8] on other outlet hose end and insert hose over outlet fitting.
6. Secure pump outlet hose to front and rear exhaust hoses using locking ties, as needed.
Routing of bilge pump outlet hose
1. Pump hose
2. Vent hole
3. Rubber hose
NOTICE Pay attention to the position of the vent hole in the pump outlet hose . It must be facing upwards at the highest possible point of the outlet hose routing for back-flow prevention . Keep hose away from moving parts or sharp edges.
7. Tighten screw clamps as specified.

Tightening torque

Outlet hose screw clamps [P8]	3.7 ± 0.3 N•m (33 ± 3 lbf•**in**)

NOTE: Orient the clamp upwards to facilitate access for tightening.
1. Outlet fitting [P6]
2. Pump hose [P5]
3. Screw clamp [P8]
Access to battery and fuses
For GTI, GTS, GTR, WAKE 155 and RXP platforms
1. Open front storage compartment.
2. Remove battery access panel
2.1 Remove both plastic fasteners and rubber tie.
2.2 Free panel from notches at the bottom by pulling it upwards.
1. Battery access panel
2.3 Disassemble and remove both panels halves from compartment.
For GTX, RXT and Wake pro platforms
Open the aft re-boarding platform.
1. Re-boarding platform
Remove the starboard storage bin.

1. Starboard storage bin

Disconnect BLACK (-) battery cable then the RED (+) cable.

WARNING

Always disconnect battery cables exactly in the specified order.

For 2016 and up

See battery access in shop manual.

2015 and prior

typical

1. BLACK (-) cable
2. RED (+) cable

Lift and push the top of electrical component support to unlock it from battery rack. Move support aside to make room.

typical

1. Electrical component support

typical - side view

1. Battery rack
2. Electrical component support
3. Fuse box

GTI 2018-2019

Disconnect BLACK (-) battery cable then the RED (+) cable.

WARNING

Always disconnect battery cables in the specified order.

Apply small amount of DIELECTRIC GREASE (P/N 293 550 004) to pump connector.

Connect the pump to the harness connector.

Remove fuse box cover.

Detach fuse box from support.

Pull out seal plugs from fuse box cavities (D5 and A2).

NOTE: Cavities are identified at the back of the fuse box.

Insert Brown electrical harness [P9] wire terminal into A2

Insert Black electrical harness [P9] wire terminal into D5.

Fuse box - relay removed for clarity

1. A2
2. D5

Reinstall fuse box on its support.

Install 3 amp fuse [P10].

Install bus bar [P12].

Connect battery, RED (+) cable first.

Use locking ties to secure excess electrical harness [P9].

Reinstall all removed parts.

NOTE: Use new hexagonal elastic nuts M6 [P13] when installing central body.

All models

Detach fuse box from electrical component support.

Remove fuse box cover.

Remove bus bar from D-Row and longer bus bar from H-row.

Fuse Box - top view

1. Bus bar on D-row
2. Bus bar on H-row

NOTICE Carefully remove bus bar by simultaneously pulling on both sides of bus bar during removal.

Inspect backside of fuse box.

If D10 contact coordinate is not used, follow DEFAULT WIRING PROCEDURE.

If D10 contact coordinate is already used, follow ALTERNATIVE WIRING PROCEDURE.

NOTE: Fuse box contact coordinates are identified on the back of the fuse box. Pay attention to the coordinates as the rows don't all have 12 contact positions.

NOTE: Cavities are identified at the back of the fuse box. Pay careful attention to the cavity numbers as the rows don't all have 12 cavities.

Default wiring procedure

Locate free cavities for default wire routing on H8, D10 , E10, and F10 for new wire connection.

GTI 2018-2019

Disconnect BLACK (-) battery cable then the RED (+) cable.

WARNING

Always disconnect battery cables in the specified order.

Apply small amount of DIELECTRIC GREASE (P/N 293 550 004) to pump connector.

Connect the pump to the harness connector.

Remove fuse box cover.

Detach fuse box from support.

Pull out seal plugs from fuse box cavities (D5 and A2).

NOTE: Cavities are identified at the back of the fuse box.

Insert Brown electrical harness [P9] wire terminal into A2

Insert Black electrical harness [P9] wire terminal into D5.

Fuse box - relay removed for clarity

1. A2
2. D5

Reinstall fuse box on its support.

Install 3 amp fuse [P10].

Install bus bar [P12].

Connect battery, RED (+) cable first.

Use locking ties to secure excess electrical harness [P9].

Reinstall all removed parts.

NOTE: Use new hexagonal elastic nuts M6 when installing central body.

Regular routing - top view

1. D10
2. E10
3. F10
4. H8

Using a small tool, pull out seal plugs from the related cavities (H8, D10 , E10, and F10) at the back of fuse box.

1. Seal out of its cavity - TYPICAL

Insert wire terminals in their proper cavities and lock.

NOTE: Terminal cavities have different orientations depending on their position in the fuse box. When inserting the terminals in their respective cavities, make sure to follow the orientation of the cavity. When the terminals are inserted correctly into their cavities, they will "click-in". Verify that the terminals are properly locked in their cavities by pulling back on the wire to be sure the retaining clips are holding to terminal.

Action	Default wiring cavity no	wire identification
Install	H8	Black
Install	D10	Red/ Purple
Install	E10	Red/Purple
Install	F10	Brown

Alternative Wiring Procedure

If default wire routing is not possible, use cavities C10, C11, C12, D12, E10, F10 and H8.

Remove wire from D12 and install in C12.

Alternative Wiring - Top view

1. C10
2. C11
3. C12
4. D12

5. E10
6. F10
7. H8

Using a small tool, pull out seal plugs from the related cavities (C10, C11, C12, D12, E10, F10 and H8) at the back of fuse box.

TYPICAL

1. Seal out of its cavity

Insert wire terminals in their proper cavities and lock.

NOTE: Terminal cavities have different orientations depending on their position in the fuse box. When inserting the terminals in their respective cavities, make sure to follow the orientation of the cavity. When the terminals are inserted correctly into their cavities, they will "click-in". Verify that the terminals are properly locked in their cavities by pulling back on the wire to be sure the retaining clips are holding to terminal.

ACTION	Alternative wiring cavity no	wire identification
Remove	D12	- - -
Install	C12	Removed wire from D12
Install	H8	Black - Pump Harness
Install	D12	Jumper Red/Blue
Install	C11	Jumper Red/Blue
Install	C10	Red/Purple - Pump Harness
Install	E10	Red/Purple - Pump Harness
Install	F10	Brown - Pump Harness

Install 3 pin bus bar [P12] in C-row.

1. 3 pin bus bar in C-row

Both wiring procedures

Reinstall removed bus bar from H-row and D-row.

Insert the new 3A fuse [P10] in fuse box in cavity E10/F10.

1. 3 A fuse [P10] installation location

For 2016 and up

Refer to shop manual.

2015 and prior

Install the fuse box and its cover.

Reinstall electrical component support.

1. Lower receptacle
2. Upper retaining tab

All models

Insert lower tabs from component support into lower receptacle.

Push component support onto upper retaining tab.

Connect RED (+) battery cable then the BLACK (-) cable.

WARNING

Always connect battery cables exactly in the specified order.

typical

1. RED (+) cable
2. BLACK (-) cable

Check bilge pump operation.

Reinstall all removed components.

NOTE: When watercraft is turned "OFF"", the pump will continue to operate for a period of time (up to 3 minutes) to drain bilge.

Templates.pdf