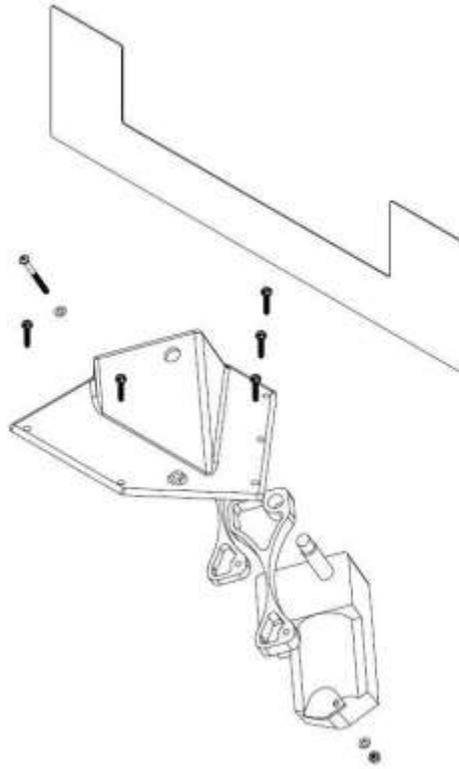


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Windshield Wiper Kit – FFR 818

P/N 80037

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Thank you for purchasing FormaCars' Windshield Wiper Kit. This kit provides a drop-in windshield wiper solution specifically designed for the Factory Five Racing 818.

Inventory Items

 The following items are in the box. If anything is missing, please contact us before you begin.

#	P/N	DESCRIPTION	QTY
NS	30584	22" WIPER BLADE FF 818	1
NS	30581	WIPER ARM FF 818	1
NS	30554	#17 HIGH SPEED STEEL DRILL BIT	1
9	30580	WIPER MOTOR, ONGARO 33621 FF 818	1
8	30586	0.203" ID x 0.438 OD FLAT WASHER	2
7	30585	#10-24 x 2.50" LG. PHILLIPS PAN HEAD SCREW	1
6	30002	#10-24 NYLOCK NUT	1
5	80046	SUPPORT, HOOD FF 818	1
4	80044	SPACER, 0.625", WIPER FF 818	1
3	80043	SPACER, 0.375", WIPER FF 818	1
2	80042	MOUNT, WIPER MOTOR FF 818	1
1	30553	10-32 X 1" SLOTTED HEX FLANGE HD. THREAD CUTTING SCREW	5

 You will also need the following:

- Ratchet, $\frac{5}{16}$ " socket
- $\frac{3}{8}$ ", $\frac{3}{4}$ " wrenches
- Philips head screwdriver
- 2.5mm, 5mm Hex keys
- Drill
- Masking tape
- Measuring tape
- Marker
- Wiring tools
- Rivets or screws to mount hood support

Frame prep

If you have already installed the Factory Five Racing hood support, remove it.



Place the wiper mount onto the chassis. It mounts at the base of the windshield on the driver's side with the front edge on the horizontal tube between the upper control arms. Depending on how your windshield surround is mounted, you may need to trim the edge of the surround and the wiper mount may need to slide under the windshield surround flange. Put some masking tape down then replace the mount.



Mark around the area that needs to be removed.

Remove the mount and trim the windshield surround.
Repositioned, using the mount as a guide, mark the locations of the mounting holes.
Remove the mount and drill the holes using the included drill bit.

Wiper arm/blade



If necessary assemble the correct adapter to the wiper arm.



Assemble the arm to the blade pressing in the tab to fully attach it.



On the backside of the wiper arm, pull the locking tab up and pull the end of the wiper arm to lengthen the arm as long as possible.

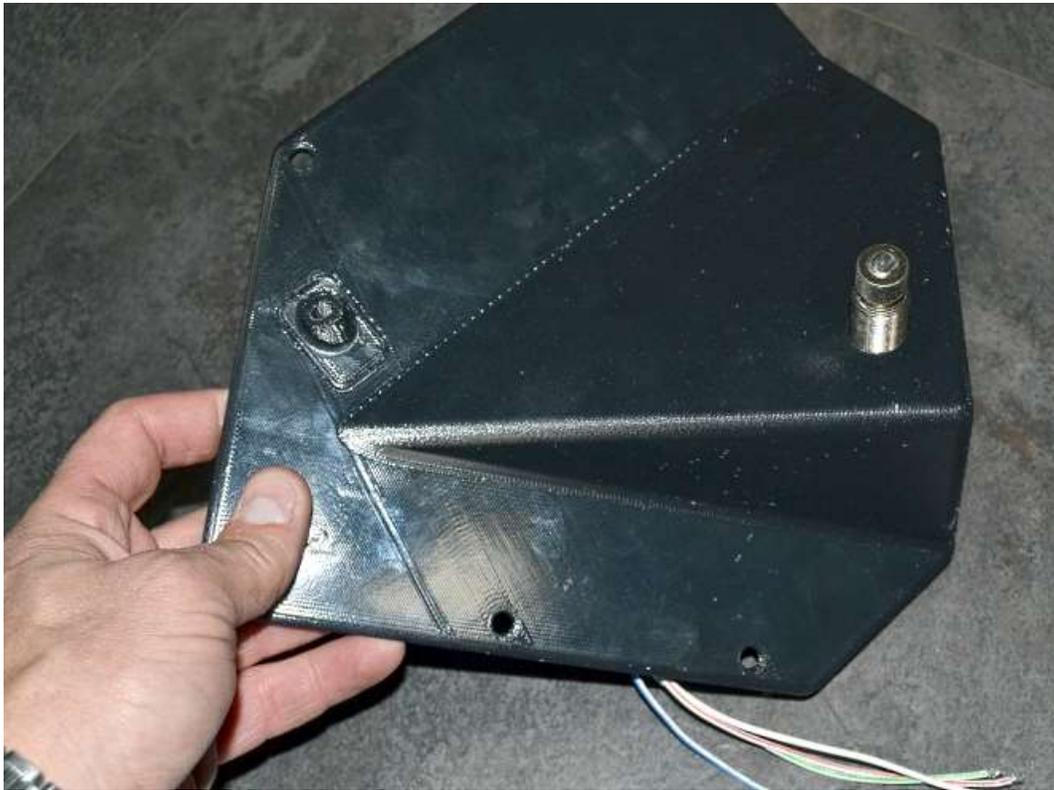
Assemble Kit



Remove the nut, trim pieces and wider rubber gasket from the motor shaft.



The kit comes with two spacers, one $\frac{3}{8}$ " and one $\frac{5}{8}$ ". You will need to use at least one of them to get the wiper arm down close to the glass. Start with the $\frac{5}{8}$ " spacer and place it over the shaft aligning the small hole on the motor at the other end.



Place the mount on the shaft.



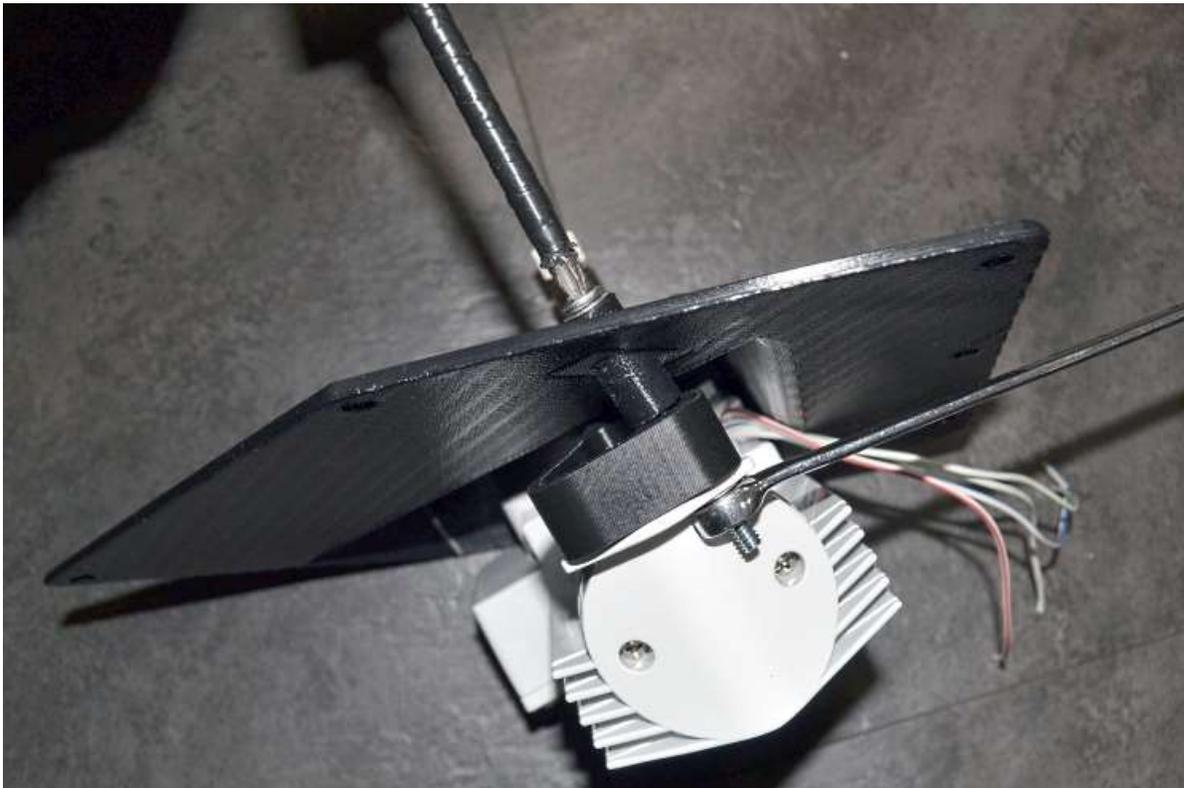
Put the rubber gasket, metal trim and nut on the motor shaft and tighten by hand only for now.



Place a washer on the #10-32 x 2 1/2" screw.



Insert the screw through the mount, spacer and wiper motor.



Place another washer on the end of the screw followed by the locknut then tighten using a Philips head screwdriver and $\frac{3}{8}$ " wrench.



Reposition the motor on the frame then using the included self-drilling screws and $\frac{5}{16}$ " socket, bolt the mount to the chassis.



On the right side of the windshield place a piece of masking tape on the windshield then mark it 8" from the bottom of the glass.



The blade parks at the base of the windshield on the right side. Adjust the angle of the blade at the end of the arm and attach the arm to the motor so that the blade will sit where the mark is on the tape.



Tighten the screw at the end of the arm holding the angle using a 2.5mm hex key.



Because of the curve of the glass, you will need to bend the arm slightly so that the blade rests properly on the glass.



Check the clearance to the glass at the bottom of the glass. It needs to be less than $\frac{5}{8}$ " from the glass to the bottom of the arm.



If the gap is too high, remove the wiper mount and wiper motor and add the other spacer.



Reassemble the motor to the mount and rebolt to the frame.



Recheck the wiper arm measurement.



Tighten the arm on the motor using a 5mm hex key.

Wiring

Disconnect your vehicle's battery before proceeding.

Use the electrical connector of your choice to attach the wiper motor wires to your vehicle's wiring. All terminations should be sealed with heat-shrink tubing or electrical tape, and secured from vibration.

Below are the typical wire colors on the wiper motor.

Wire Color	Function
Solid White – Ground	Ground
White/Blue	High Speed +
White/Green	Low Speed +
White/Red	Park +



If your wiper motor has heat-shrink labels on the wires, refer to those instead of the above table. Every motor is tested for full functionality before packaging, on rare occasions we find a motor that has inconsistent wire colors. These motors still function the same, we just add the correct wire function labels.

OEM Subaru Wiring

Locate your OEM wiper motor connector and identify the following wires. The colors change slightly through model years 2002-2007, but they function the same. Match the functions accordingly, and ensure a secure electrical connection at each termination. For the unused wire (Pin 5), seal the end of it with electrical tape or heat shrink to prevent a short.

Pin number	Wire Color	Function
1	Black/Blue	Low Speed +
2	Black	Ground
3	Yellow/Black	Park +
4	Red or Red/Blue	High Speed +
5	Green/Yellow or Green/White	Unused

Once wired, turn on the ignition and check the wiper operation using the slow speed setting. The tip of the shouldn't leave the glass. Adjust the arm on the spline as needed and the angle of the blade to achieve that. You should not have to adjust the sweep of the motor, but instructions are included if you want a different sweep angle.

Install the Hood Support

Position the new hood support so that the support has a ½" gap when the arm is parked and masking tape in place.

Run the wiper and make sure the arm also clears on the left side. The swing of the arm shouldn't get any closer to the hood support than about ½"

Mark it and drill it and the windshield surround for the type of fasteners you plan on using (we recommend using 6 fasteners).

Attach bulb seal from your kit to the two top edges of the support.

Check fit and operation

Attach the hood and check clearance of the wiper arm to the hood flange. Although we've designed the kit to avoid cutting the hood, because each build is slightly different it is possible that you will have to trim the hood return flange slightly to clear the wiper arm.

Once completely adjusted, re-check all fasteners.



Adjusting the wiper motor



The swing of the motor is adjustable, but it is preset for the 818.

Start by removing the wiper motor from the ABS mount.

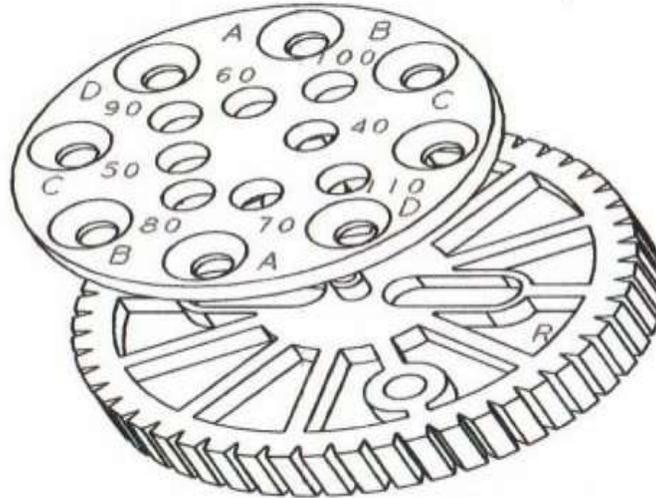
Using a 3mm hex/Allen wrench, remove the four bolts holding the back cover on the motor's gearbox. Remove the cover carefully as to not damage the rubber seal 3. Using needle-nose pliers, remove the E-clip that runs between the arm and gear.

Refer to the table below to determine which position the gear needs to be in.

If the angle-selector wheel needs to be moved, use a Phillips screwdriver to remove the two screws, rotate the wheel, and reinstall the screws.

Reinstall the arm and E-clip. Test the motor to ensure it's functioning as planned before reinstalling the back cover

Different Angle & Parking Configurations.
 To be adjusted when motor is stopped in parking pos.



Angle/Park	Hole	Pos.
40/R	D	1
40/L	D	2
50/R	D	2
50/L	D	2
60/R	B	2
60/L	B	1
70/R	B	1
70/L	B	2
80/R	C	2
80/L	C	1
90/R	A	2
90/L	A	1
100/R	C	1
100/L	C	2
110/R	A	1
110/L	A	2