

*For Driving Safety and Convenience*

## **MH35 RF Installation & Operation Manual**



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## Warnings:

### Warnings and Notes

Warning: When operating the HotShot unit, do not place hands, face or other body parts in or near the heated washer fluid spray.

### Before Installation

Before installing the HotShot unit, please read this manual thoroughly and retain it for future reference.

## Package Components:

- MH-35 RF HotShot unit w/attached harness
- FOB assembly with Batteries (3 Triple "A's")
- Installation bracket
- Red power cable with inline fuse (60 amp)
- Black ground cable
- 1.5m (39.4") rubber tube to connect the unit to the washer system (if needed)
- 8 cable ties
- 7 Self tapping screws
- Installation manual (this booklet)
- One way check valve
- 2 Clamps

## Installation Tools Needed *(Not Included)*

- Flathead Screwdriver
- 10 Millimeter Nut Driver
- Drill with 1/4" Driver Bit
- Flashlight
- Pliers
- Side Cutters

### ADDITIONAL PARTS MAY BE REQUIRED!

A Bypass Valve Kit (Not Included) is required for vehicles with 1 washer pump with front and rear washer systems. Part Number: MH34-SAK.



## Disclaimer

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*All product illustrations and specifications are based upon current information at the time of publication. Although descriptions are believed correct, complete accuracy cannot be guaranteed. Microheat reserves the right to make changes of any kind at any time, without notice or obligation, in the information contained on this Installation Manual. All data and information of any kind is subject to change without notice and Microheat assumes no obligation to update or correct information in this Manual.*

*As some states do not allow the exclusion or limitation of liability for consequential or incidental damages, the limitation contained herein may not apply to you. In such states, Microheat liability is limited to the greatest extent liability limitation is permitted by applicable law.*

*Customer must also be caution that any changes or modifications not expressly approved by Microheat could void the user's authority to operate the device. (Ref. FCC Section 15.21)*

*This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.*





## Introduction

*The HotShot MH-35 RF system is designed to enhance driver all-season safety and convenience by removing windshield frost, ice and grime at the press of a button.*

During winter time, HotShot will work with any existing washer and wiper system to:

- Remove frost and ice
- Unblock frozen washer nozzles and wiper blades\*
- Defog windshields



During warmer months, HotShot will significantly improve the efficiency of any washer and wiper system by:

- Removing grime caused by insects, road conditions, and oil
- Extending the life of the wiper blades by keeping them free of wax and oil



\* The efficiency of the HotShot washing system will depend on factors such as the condition of the wiper blades, the type and condition of the nozzles, the wiper motor condition, the quality of the washing fluid, and the severity of the existing weather conditions.

## Operation

### Automatic mode:

Depressing the control FOB button that look's like a "Windshield Wiper", until the light above the symbol starts blinking slowly, will activate the unit in Automatic mode. This light will blink slowly (once every 3 second).

HotShot heats the fluid for 30-45 seconds then automatically provides 6 applications of heated fluid. There is approximately 6-12 seconds between each application. The HotShot device will shut down automatically after 6 applications, or if the driver pushes the "O" button which symbolizes "Off" on the Control FOB Switch Assembly during the cycle.

Automatic mode is recommended for:

- Ice and frost removal while car is parked.
- Severe driving conditions while driving (Ice, slush, mud, streaking).
- Defogging the windshield at any time.

Once the unit starts to spray, operate the wipers manually with each spray. Some dripping at the beginning of the cycle is normal, since the first sequence produces steam to unblock partially frozen nozzles and to heat the washer fluid hoses.



### Standby mode:

Depress control FOB button that look's like a "Thermometer", until the light comes on above the symbol and starts blinking once every 3 seconds. This activates the Standby mode.

HotShot will then heat the fluid and maintain the temperature until the driver activates the OEM washer button. The fluid will then be heated again, which takes approximately 10-18 seconds (depending on ambient temperature and duration of spray). Recommended duration of spray is 3 seconds.

In Standby mode, the wipers and washer pump should be operated manually by the driver. Standby mode is recommended for removal of snow, **grime and mud, as well as ice build-up on wiper blades during driving.**

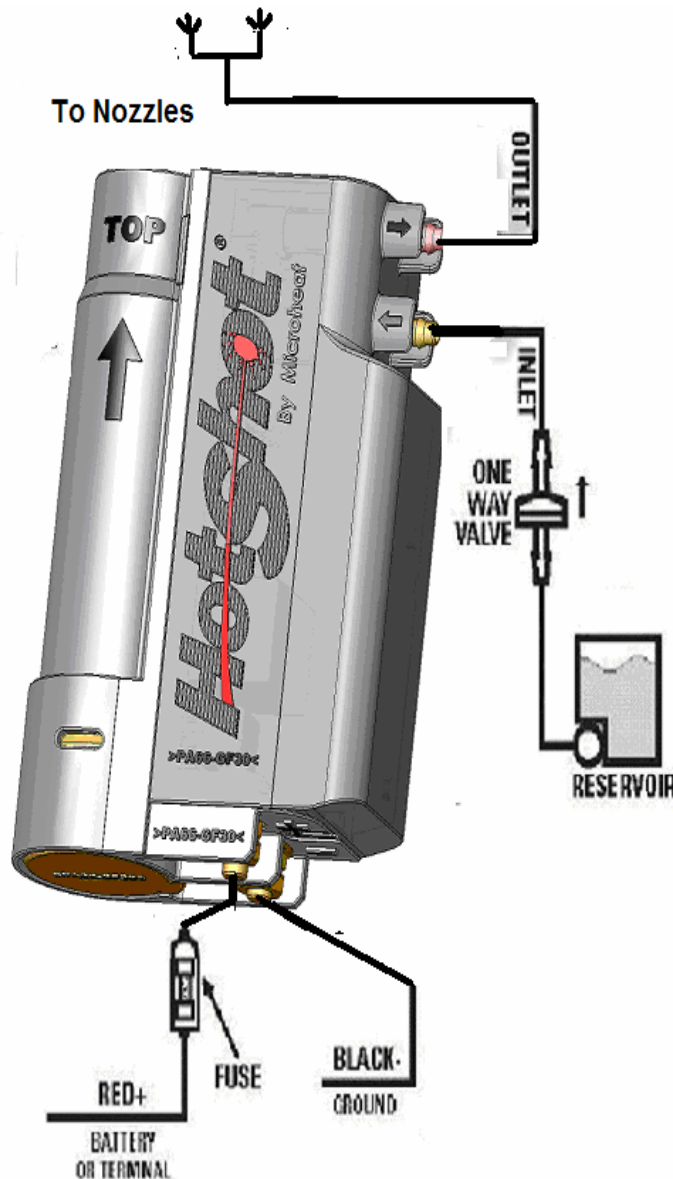
To shut the system down in the Standby mode the driver needs just to pushes the "O" button on the Control FOB Switch Assembly during the cycle.

If you are the Standby mode and want to activate Automatic mode just push the windshield wiper button and the unit will take 3 seconds to change to over the logic to that mode.

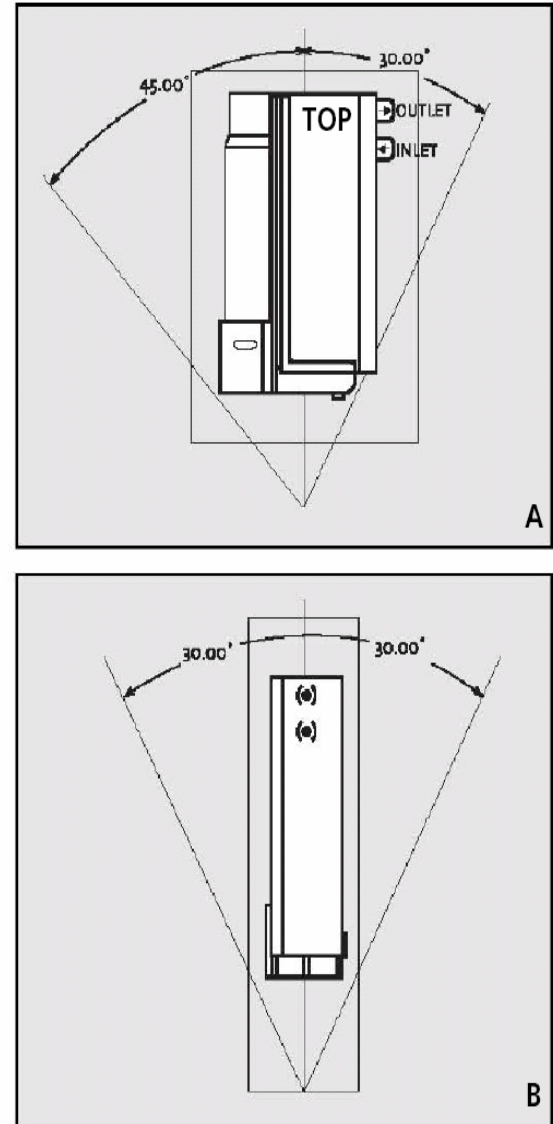
Also, if you are the Automatic mode and want to activate Standby mode just push the thermometer button and the unit will take 3 seconds to change to over the logic to that mode.



## Unit Diagram Schematic Connections



### Positioning limitations



### Mounting Position Limitations:

As shown above, the HotShot unit mounting position is critical for proper operation. There are three mounting requirements. They are as follows:


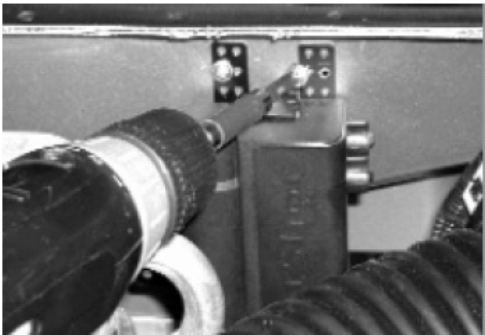

- The unit must be placed with the wiring towards the bottom.
- The unit cannot exceed more than a 30° angle towards the right and no more than a 45° angle towards the left. Refer to Figure A.
- The unit cannot exceed more than a 30° angle in either direction. Refer to Figure B.

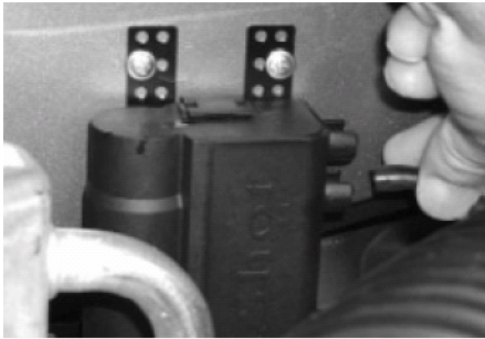
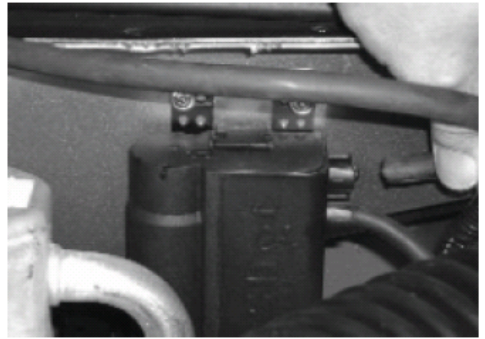
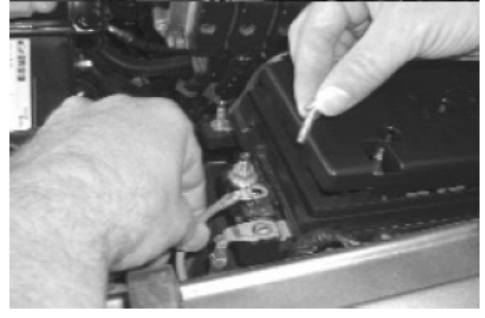



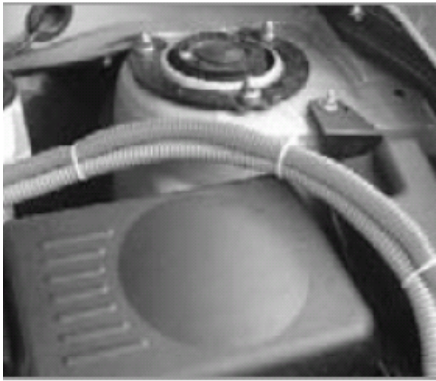

## Installation Steps

**Important:** The HotShot unit should be located in the engine compartment based on the following guidelines:

- As close as possible to the nozzles, preferably on the bulkhead.
- As far as possible from the hottest areas of the engine.
- The HotShot should be vertically positioned according to the specifications shown in the illustration titled "Positioning Limitations" on the previous page.

1	<p>Attach bracket to the HotShot unit and ensure they clip together. In some cases, it will be easier to mount the bracket without the unit attached (as explained in step 2) and attach the HotShot to the bracket later.</p>	
2	<p>Attach the supplied bracket to the desired location using the four screws (provided). If there is no access to the lower part of the bracket, use only two screws at the top. If the installation surface is not flat, bend the bracket to fit the curved area.</p>	
3	<p>If your vehicle is equipped with both front and rear washers using only one washer pump, skip steps 3-5 and refer to the Bypass valve installation section located on page 11.</p> <p>Cut or separate the hose between the washer pump and nozzles. Connect the supplied one-way valve. (Note, be sure to connect the one way valve in the proper direction Gray side towards the Hotshot unit). Once installed, connect the open end of the one-way valve to a piece of hose (provided).</p>	

4	<p>Remove yellow protective caps from the unit's input and output ports. Connect the hose coming from the one-way valve to the unit's input port.</p>	
5	<p>Connect the hose coming from the nozzles to the unit's output port. <b>PRIME</b> unit prior to connecting electrical connections.</p>	
6	<p>Secure the inline fuse by using one of the supplied self-tapping screws. Route the thick red wire fuse to the battery.</p> <p>NOTE: Ensure the inline fuse assembly is mounted in an accessible location.</p>	
7	<p>Connect the HotShot's thick <b>black negative (-)</b> cable to a negative (-) chassis ground.</p>	

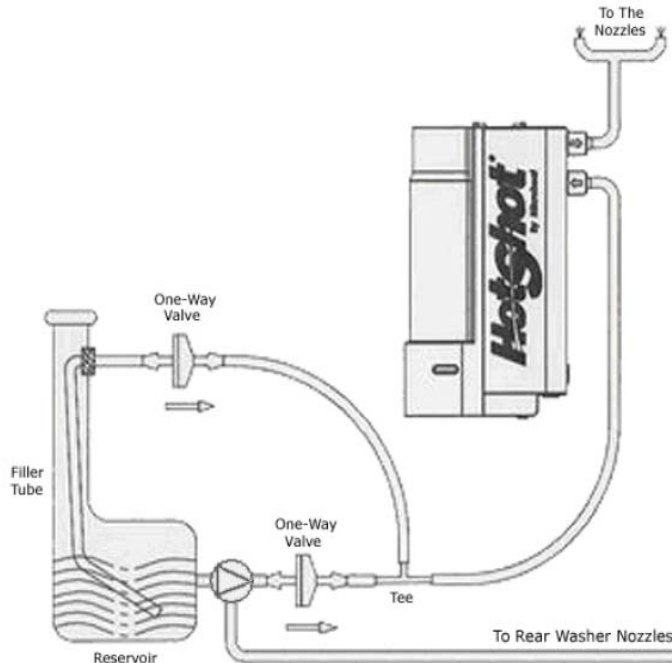
8	<p>Secure all cables and all wires away from hot engine parts and moving objects with provided zip ties.</p>	
9	<p>The underhood unit uses the car battery as its power source which enables the underhood MH 35 RF Unit to stay on in receive mode indefinitely. The FOB will use 3 Triple "A" batteries as its power source. To activate the initial communications between the two units is follow:</p> <ul style="list-style-type: none"> <li>• Once the MH 35 RF unit is completely Installed.</li> <li>• Start engine</li> <li>• Within 30 seconds after starting engine you need to be within perimeter of 3 meters of the MH 35 Unit.</li> <li>• Take FOB and depress both the Thermometer and Windshield Wiper buttons at the same time.</li> <li>• Upon depressing the two FOB buttons the lights above each button will come on.</li> <li>• After 5 seconds the light's will start flashing once per second (at this point you can stop depressing the two buttons) it will now take a few more seconds until both light's shut off. At this point the FOB and the MH 35 RF unit are married to each other.</li> </ul>	

**Warning:** The unit must be primed prior to operation. To do this, turn ignition on and activate the washers via the OEM washer button. The system is primed when washer fluid begins to spraying out the nozzles.

*Note: If the prior steps are not followed, the HotShot unit could overheat and cause internal damage.*

## Bypass Valve Installation Steps *(Required for Dual Washer Systems)*

For vehicles with 1 washer pump for both front and rear washer operation  
Bypass Valve Installation Kit P/N: MH34-SAK



### ADDITIONAL PARTS INCLUDED IN KIT

- 1 Check valve
- 2 feet (24") of rubber hose
- 2.5 feet (30") hard plastic hose
- 1-3/16 Straight coupling
- 1-3/16 Tee (Plastic Barbed)
- 1-3/16 90° Elbow (Plastic Barbed)
- 5 Wire ties
- 1-5/16" Rubber Grommet

1. Disconnect or cut the washer hose between washer pump and nozzles as close as possible (no closer than 2") to washer pump.
2. Insert one check valve in-line (washer pump side) making sure the gray side is pointing away from the washer pump.
3. Attach a 2" section of the supplied rubber hose to the outlet of the one-way valve. Attach the supplied tee to the other end of the hose.
4. Route a section of the supplied rubber hose from the other end of the tee to the Hotshot inlet.
5. On the washer reservoir, drill a 5/16" hole in the filler tube about 1/2" from the top and install the supplied rubber grommet in the hole just drilled.
6. Open the washer reservoir cap and insert one end of the hard plastic hose down the filler tube of washer reservoir. Cut the end of hose that will descend to the bottom of the tank at a 45° angle ensuring it is at least 1" shorter than the depth of the reservoir. This will prevent the unit from sucking in debris at the bottom.
7. On the inside of the washer reservoir filler tube, connect one end of the 90° elbow to the top of the hard plastic tube and push the other end of the 90° elbow through the 5/16" rubber grommet installed in step 5.
8. Connect a 2" piece of the supplied rubber hose to the end of the 90° elbow that was pushed through the rubber grommet.
9. Connect the other end of the 2" piece of rubber hose to the remaining one-way valve with the gray side pointing away from the washer reservoir.



10. Connect the remaining supplied rubber hose to the open end of the one-way valve and attach to the middle nipple of the tee.  
Connect the supplied rubber hose from the nozzles to the outlet of the Hotshot.
11. If you have any questions or concerns, please call Technical Support toll free at (248) 489-2400.



## Troubleshooting

Indication	Meaning	Action
In automatic mode, the unit works for 30-45 seconds without spraying and turns off.	The washer lines are empty.	Prime unit by operating the washer system manually until the first spray.
Unit does not turn on.	No power to unit.	Check fuse and power connections.
In manual priming there is no spray.	The check valve direction is incorrect.	Reverse direction and retry.
Auto LED Light Blinks (Once every 3 seconds)	HotShot is operating in automatic mode.	No action required.
Standby LED Light Blinks (Once every 3 seconds)	HotShot is operating in standby mode.	No action required.
Both LED Lights Blink alternately for 6 seconds	The blinking light indicates an absence of washer fluid coming into MH-35 RF unit, or system error.	First check the fluid level in the washer fluid reservoir. Top off if needed. Reset the system by turning the unit off and on. If this fails to correct the condition, discontinue use of the unit and refer to Technical Support for assistance.
The Spray is not hot.	Blown fuse	Discontinue use of the unit and refer to Technical Support for assistance.
The washer spray was ok before the HotShot installation but now is weak.	The hoses that connect to the inlet and outlet hose barbs may not be connected properly.	Check the connection hoses.
The HotShot unit starts working without pushing the button.	There is a system error.	Discontinue use of the unit and refer to Technical Support for assistance.
Nothing happens when the FOB switch is pressed.	The MH-35 RF unit has detected that the power supply is less than 12.4 volts, indicating the ignition switch is in the "off" position, or the vehicles electrical system is overloaded.	Make sure vehicles ignition switch is on. If it is, Discontinue use of the unit and refer to Technical Support for assistance.
	No connection to the vehicle's battery and/or the FOB batteries are dead.	Check positive and negative cables connections and the FOB .
	Positive battery cable in-line fuse is open.	Check fuse and connections. If fuse is open, replace. If it pops the fuse again, contact technical support.
	MH35-RF not married to FOB properly.	Check connections, connect properly if necessary. And re-commission the FOB to the underhood unit
The MH-35 RF begins working but stops operating abruptly.	System must be at least 12.5 volts to operate.	Check charging system.



## Limited Warranty

This product comes with a 36 month limited warranty from the date of purchase. To obtain warranty service, contact a Customer Service Representative at: (248) 489-2400 or e-mail at: [info@microheat.com](mailto:info@microheat.com).

## Technical Assistance

If you require help, check our technical assistance website at <http://www.microheat.com> or call the technical support hotline at (248) 489-2400.

For quick service, please have the following information available:

- Full Name
- Phone number including the area code
- Year, make, and model of the vehicle
- The HotShot units barcode (This is found on the box or the back of the unit)
- The type of assistance you are requesting

*Note: The unit's barcode must be retained for additional support.*





Notes:



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02	7/06/06	Dan D	Add FCC disclaimers	

## Sign-Off Sheet

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