

# Vehicle Improvement Products

## SmartWheel Multiplexed Steering Wheel Operator's Guide

For use with:  
VIP Modular RV SmartWheel  
Master Control SM209

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## PRODUCT DESCRIPTION

The SmartWheel Steering Wheel Control System offers control of the horn, headlamp and marker lamp flash, cruise control, and wiper functions from switch panels mounted on the steering wheel. The system consists of electronic modules enclosed in the wheel and the Master Controller typically mounted under the dash. Communication between the steering wheel and the Master is accomplished via two wires which utilize a "clock-spring" connector in the steering column as a connecting path to allow for wheel rotation. The two wires carry a multiplexed communication signal and power for the steering wheel. As each switch is closed, the Switch Panel generates a unique signal which is transmitted to the Master. The Master decodes that signal to determine which switch is closed and operates the corresponding outputs for that function. An additional two wires provide power and ground for steering wheel back-lighting.

Implementation of some of the functions below may vary by vehicle and manufacturer.

An operational description of each function is as follows:

**HORN** - The horn bar on the steering wheel will send the appropriate signal to the Master to cause the HORN output to be activated while the switch is pressed.

**HEADLAMP FLASH** - If the headlamps are turned on, pressing the switch will cause them to go off while the switch is pressed. In like manner, if the headlamps are turned off, pressing the switch will cause them to go on while the switch is pressed.

**MARKER LAMP FLASH** - If the marker lamps are turned on, pressing the switch will cause them to go off while the switch is pressed. In like manner, if the marker lamps are turned off, pressing the switch will cause them to go on while the switch is pressed.

### **CRUISE FUNCTIONS:**

**CRUISE ON/OFF** - Operation of this switch cycles the Cruise system from On to Off and back again.

**CRUISE SET** - Operation of this switch actuates the Cruise Set function of the engine controller. Actual function may vary by engine/chassis.

**CRUISE RESUME** - Operation of this switch actuates the Cruise Resume function of the engine controller. Actual function may vary by engine/chassis.

**CRUISE CANCEL** - Operation of this switch signals the cruise system to disengage without losing the current speed setting. Actual function may vary by engine/chassis.

### **WIPER FUNCTIONS:**

The wiper control functions are implemented via special control circuitry which is intended to control two wiper motors and maintain synchronization between these motors on each wipe cycle. For that reason the faster wiper will pause at the end of each cycle and wait for the slower wiper to complete its cycle before resuming.

## Vehicle Improvement Products SmartWheel Operator 's Guide

**WIPER WASH** - Operation of this switch activates the wash pump relay while the switch is pressed, In addition, if none of the latching wiper functions (Wiper Lo/Hi or Variable) had been previously selected, the Low Speed Wiper will be activated for a period of approximately 3 wiper cycles after the switch is released. If any of the latching wiper functions (Wiper Lo/Hi or Variable) had been previously selected, the wipers will continue to run in the selected mode after the wash switch is released.

**WIPER LO/HI** - Operation of this switch initially causes the Low Speed Wiper function to activate. If the switch is pressed again the High Speed Wiper function will be activated. Subsequent presses of this switch will cause alternate operation of the wipers in the low or high speed mode.

**WIPER VARIABLE** - Operation of this switch initially causes the Low Speed Wiper function to activate for one wipe. If the switch is pressed again within approximately 30 seconds, the Low Speed Wiper function will be activated again and will repeat at an interval determined by the time between the last two operations of the switch. Additional switch operations will shorten the cycle. Activation of any other wiper mode cancels the variable mode. The effect for the driver is thus: In light rain or mist conditions the driver presses the switch once when the windshield first needs clearing. When the windshield again requires clearing the driver presses the button again - setting the time period between subsequent wipes to that required by current conditions.

**WIPER OFF** - Operation of this switch causes all operation of the wipers to be canceled. This mode is also entered any time that the ignition is turned off.

Activation of any wiper function generates a "Headlamp On" signal from the Master which will only be reset by turning off the ignition or by activating then deactivating the dashboard headlamp switch.

