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Technical Memo

To: Star Mazda Series Competitors

From: Star Race Cars and the Star Mazda Series presented by Goodyear

Date: 19.May.2011

Re: ICARS for Star Mazda – Introduction and Installation guide

The Star Mazda Series will implement the ICARS (In Car Alert Receiver System) for the 2011 season. The system will be tested during the Milwaukee Mile event on the 21st of May with the goal of outfitting each car with the system for the Lucas Oil Raceway event the following week. The system's intent is to warn drivers of the track conditions. The system will be controlled by Officials through a master transmitter located in race control. The transmitter will be capable of sending two signal conditions to the cars. The first condition (to be used in the event of a yellow flag) will turn on a flashing yellow LED light in the cockpit and the second condition (to be used in the event of a wet session and/or yellow flag) will turn on the car's rain light.

The system piggy backs on the current chassis harness, therefore nothing needs to be removed or modified on the existing harness. The ICARS system incorporates a Switch that changes control of the rain light from the ICARS master transmitter to the driver controlled rain light switch located in the cockpit. The purpose of the Switch is to allow manual control of the rain light in the event the ICARS master transmitter is not used (i.e. in club racing events). The Switch is located under the damper cover away from the driver therefore allowing access only to the crew members. If the Switch is positioned so that the driver has control of the rain light, the ICARS Dash LED will not operate. Therefore the Switch essentially turns one system off and the other system on.

The ICARS system comprises of:

- A receiver box located under the driver's legs or along the side of the tub between the dash bulkhead and the pedal bulkhead,
- An antenna and bracket that will be mounted on the pedal bulkhead of the tub and that will protrude through the damper cover,
- A cockpit LED light,
- Fused harnesses with a bracket for the Switch



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The available utilization options are:

- (1) Rent the ICARS Receiver and Installation Kit per race weekend – install the Receiver and Kit at the beginning of the weekend and return both at the end of the weekend (requires part numbers 090-523 and 090-524)
- (2) Purchase the ICARS Installation Kit and rent the ICARS Receiver per race weekend (requires part numbers 090-525 and 090-523) – install the Kit permanently in the car, pick up the Receiver at the beginning of the event and return the Receiver at the end of the event

The following pricing structure applies:

Rent the ICARS Receiver Box per event (090-523) = \$100.00

- *The box must be returned to Star Race Cars after the event*
- *Lost receiver box = \$1500.00*
- *Damaged receiver box = repair price with \$1500.00 max*

Rent the ICARS Installation Kit (does not include Receiver Box) per event (090-524) = \$150.00

- *The kit must be returned to Star Race Cars after the event*
- *Lost installation kit = \$1228.00*
- *Damaged installation kit = repair price with \$1228.00 max*

Purchase the ICARS Installation Kit (does not include Receiver Box) (090-925) = \$1228.00

Introduction price at Milwaukee Test and Lucas Oil Raceway Event = \$850.00



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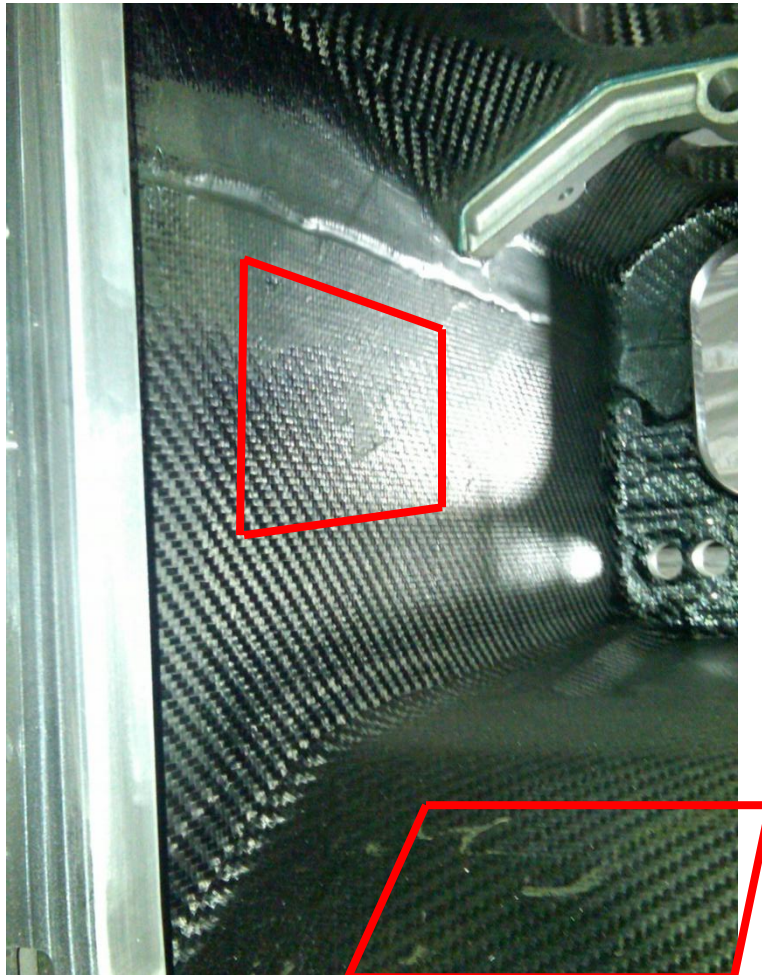
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Installation notes:

ICARS receiver box (MS1014)

The box can be mounted using 3M Dual Loc Tape in either of the locations below:



The box should be mounted so that the cable connections are easy to access and the status lights are visible. The box should be oriented so that the Star Race Cars logo is visible.



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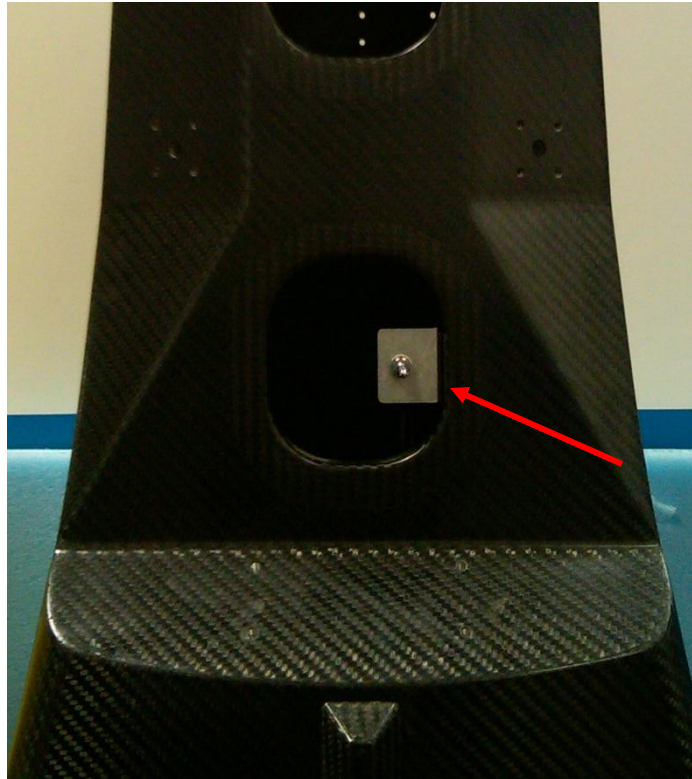


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ICARS Switch and Switch Harness (090-527)

The Switch and Switch Bracket (090-533) should be mounted in the opening between the dampers, along the side of the tub as displayed below:



The Switch Harness has three plugs. The shortest plug (male 2 pin DTM) connects to the box harness. The other two plugs should be fed through the access hole in the tub and run the entire length of the car back to the rain light. Disconnect the rain light from the chassis harness and plug the rain light into the female 2 pin DTM on the Switch Harness. The chassis harness rain light lead should be plugged into the male 2 pin DTM on the Switch Harness.

ICARS Box Harness (090-526)

The Box Harness has four connectors. The shortest lead (male 3 pin DTM) connects to the LED light (090-530). The next lead (female 2 pin DTM) connects to the Switch Harness. The remaining male 2 pin DTM and the ring terminal should be fed through the access hole in the tub. The ring terminal connects to the negative terminal on the battery. The male 2 pin DTM connects to the Fused Cable (090-528).



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ICARS Fuse Cable (090-528)

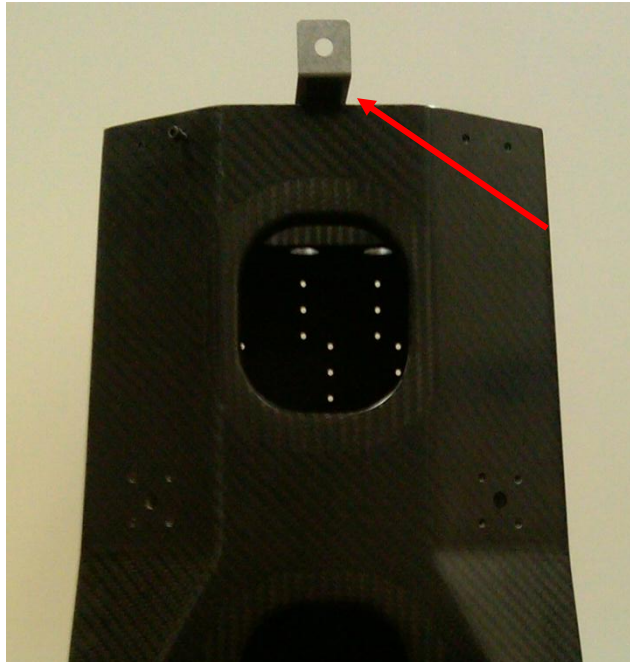
The Fused Cable attaches to the male 2 Pin DTM on the Box Harness and to the positive terminal on the master switch. The cable contains a 1 amp fuse.

ICARS Dash LED (090-530)

The Dash LED connects to the Box Harness. The Dash LED mounting is dependent on the dash system used and driver preference. The light must be visible to the driver at all times.

ICARS Antenna Bracket and Antenna Cable (090-529)

The Antenna Bracket (090-532) should be mounted at the front of the tub using 3M Dual Loc Tape as pictured below:



The Bracket must be positioned so that the Antenna is able to protrude completely through the damper cover. The damper cover will need to have a hole drilled to accommodate for the Antenna. The hole must be large enough so that the damper cover does not contact the Antenna (.750" should be sufficient).

Please note that the ICARS Antenna must have a distance of at least 12" between it and other antennas.