





Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-1	1. SCOPE			
TAV S-2	This specification states the requirements of Transport Canada (TC) for the Track Assessment Vehicle (TAV) Hi-Rail, Track Geometry System installation and TAV Customization Specification, which covers:			
TAV S-3	a) The acquisition and installation of hi-rail systems on three (3) TAVs;			




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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-4	b) The installation of track geometry systems on three (3) TAVs; and			
TAV S-5	c) The customization of three (3) TAVs to create a finished vehicle to be used for Rail Safety Inspections.			



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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-6	Pictures illustrating many of the specification criteria are included in Appendix A7. The Specification ID (e.g. TAV S-6) in the caption of each picture indicates the particular items the picture is illustrating.			
TAV S-7	2. APPLICABLE DOCUMENTS			
TAV S-8	Canadian Occupational Health and Safety Regulations, SOR/86-304.			
TAV S-9	3. REQUIREMENTS			
TAV S-10	3.1 GENERAL			


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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-11	TC will be acquiring, separately, and will provide, for the purpose of this contract, three (3) 2018 Chevrolet Sierra 2500HD 4x4 as detailed in Appendix A3, which will be the base vehicle for the finished TAVs.			
TAV S-12	TC will acquire, separately, and will provide, for the purpose of this contract, three (3) Andian Track Geometry Kit Systems as detailed in Appendix A4.			
TAV S-13	3.2 BASE CHASSIS VEHICLE ADDITIONS			
TAV S-14	3.2.1 General			






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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-15	The TAV base chassis must have front and rear side window weather deflectors; WeatherTech 84740 dark coloured or accepted equivalent.			
TAV S-16	The TAV base chassis must have heavy-duty mud guards for the front and rear wheels; Luverne Universal 3/8" x 12" x 23" black with stainless trim, model 251223 or accepted equivalent.			



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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-17	Each TAV base chassis must have two (2) additional key fobs and three (3) additional keys, in addition to the two (2) fobs and four (4) keys delivered with each base vehicle.			
TAV S-18	All vehicle keys and key fobs must be programmed to operate the vehicle and operate all locks on the vehicle and the workspace cap.			
TAV S-19	3.2.2 <i>Vehicle Suspension</i>			



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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-20	The TAV base chassis must have an air suspension system, Loadlifter 5000 Ultimate or accepted equivalent, installed on the rear axle.			
TAV S-21	The manual air filler valves for the air suspension system must be installed in the driver side workspace cap compartment.			



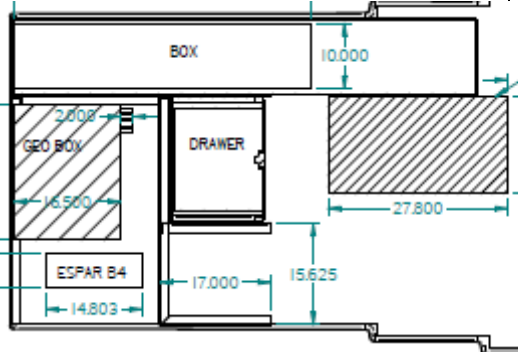
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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-22	The TAV must have a WirelessAIR Gen 3 Kit 72000 automatic leveling digital on-board compressor system with wireless controller, or accepted equivalent, connected to the air suspension system.			
TAV S-23	The air compressor for the WirelessAIR Gen 3 system must have direct BATT+ and BATT- connections and not use chassis grounding.			




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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-24	The air filter for the WirelessAIR Gen 3 Kit 72000 compressor must be installed in the driver side workspace cap compartment to enable accessibility for servicing the air filter assembly.			
TAV S-25	The base chassis must have Timbren SES dampers, GMFK25D or accepted equivalent, installed on the front suspension.			




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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-26	The TAV base chassis must have a 2-inch front end lift kit installed, or accepted alternative, to enable adequate height of the chassis for proper hi-rail and Andian Track Geometry System contact gauge installation.			
TAV S-27	3.3 TRACK GEOMETRY SYSTEM			
TAV S-28	The provided Andian Track Geometry SolidTrack system box must be installed in the workspace cap of the TAV in accordance with (IAW) installation guidance provided by TC and included in Appendix A3.			





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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-29	The TAV track geometry system must be powered by an auxiliary 12V battery.			
TAV S-30	The TAV front-mounted contact gauge system is recommended to be installed in conjunction with the installation of the front hi-rail system to ensure proper height measurements for adjustment of the hi-rail guide wheel pressures and operating height of the front-mounted contact gauge system.			




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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-31	The air filter system for the Andian compressor that operates the front-mounted gauge must be installed in the driver's side workspace cap side compartment to enable accessibility for servicing the air filter assembly.			
TAV S-32	3.4 HI-RAIL			
TAV S-33	The TAV must be equipped with a RAFNA R290, or accepted equivalent, hi-rail system with full up/down hydraulic inside controls.			


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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-34	The TAV hi-rail system must include an emergency hand pump.	 <p>A photograph of an emergency hand pump, which is a white cylindrical device with a handle and various hoses and electrical connections, mounted on a metal surface.</p>	 <p>A close-up photograph of the hi-rail system, showing a metal rail and a component with a blue light or indicator.</p>	
TAV S-35	The TAV hi-rail system must include front and rear rail sweeps.	 <p>A photograph showing the front and rear rail sweeps, which are metal components with two circular lights or sensors mounted on them.</p>		
TAV S-36	The TAV hi-rail system must include front and rear hydraulic auto locks.	 <p>A photograph of the hydraulic auto locks, showing a complex mechanical assembly with hydraulic lines and components.</p>		

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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-37	The TAV hi-rail pump and controls must be installed under the 2 nd row left (driver side) seat in a metal enclosure with a removable metal cover.			
TAV S-38	The front outside hi-rail controls must be mounted in the grille area pointing downward to eliminate accumulation of water, snow or ice.			
TAV S-39	The rear outside hi-rail controls must be mounted in the step pocket area of the rear bumper.			






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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-40	<p>All hi-rail guide wheel pressures must be set with 30 psi air pressure in each rear air bag. Initial hi-rail guide wheel pressures to be within range of 500-550 lb pressure for front guide wheels and 550-600 lb pressure for rear guide wheels as per Rafna installation guidance recommendations.</p>			
TAV S-41	<p>The TAV must have five (5) Goodyear G622-RSD/225/70R19.5 radial tires, or accepted equivalent, mounted and balanced on aluminum rims compatible with the hi-rail system.</p>			



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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-42	The TAV must be delivered with four (4) Michelin XDS2/225/70R19.5 radial tires, or accepted equivalent, mounted and balanced on aluminum rims compatible with the hi-rail system.			
TAV S-43	All nine (9) TAV aluminum wheels must be installed with tire pressure monitoring sensors (TPMS).			
TAV S-44	All nine (9) TAV tires must be filled with 85 psi nitrogen.			
TAV S-45	The TAV speedometer must be recalibrated for 19.5 tires.			

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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-46	Snow plow markers, yellow or fluorescent orange, 40 inches high, must be installed on the front gauge assembly and centered over the guide wheels to enable TAV operators to determine the location of the front of the gauge system when in the stored position.		<p>Markers centered over guide wheels.</p> 	
TAV S-47	3.5 WORKSPACE CAP			
TAV S-48	3.5.1 GENERAL			
TAV S-49	The TAV must be supplied with a SpaceKap Kompak workspace cap, or accepted equivalent, matched to the base chassis.			



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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-50	The TAV workspace cap colour must be the same colour as the base chassis (GM GBA-black).			
TAV S-51	The TAV workspace cap doors must be weather-proof to reduce dust and water infiltration.			
TAV S-52	The TAV workspace cap must include heavy duty, rust resistant hinges and latching systems with dampers or retainers on all doors designed to protect the side and rear doors from damage, such as in windy conditions.			

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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-53	The TAV workspace cap latching systems must be capable of being locked and unlocked with the base chassis key fob and enable secondary locking with padlocks.			
TAV S-54	<i>3.5.2 LIGHTING AND ELECTRICAL</i>			
TAV S-55	The TAV workspace cap must have Light Emitting Diode (LED) lighting in the luggage storage area, the tool storage area and each side door area of the workspace cap.			


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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-56	<p>The TAV workspace cap must be provided with two (2) 12V, 10-amp power outlets inside the workshop cap, one on each of the driver and passenger side at the rear of the hanging aluminum cabinets, or accepted alternative, to power a portable fridge/cooler and a charging station.</p>	 <p>The image shows the interior of the TAV workspace cap. It features a blue and white workstation with a laptop, a printer, and other equipment. A fire extinguisher is visible on the right side. The license plate at the bottom reads 'AP-70969'.</p>	 <p>The image is a close-up of a power outlet on the wall of the workspace cap. A charging station is plugged into the outlet, and its red indicator lights are illuminated.</p>	



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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-57	<p>The TAV workspace cap must be provided with a 120V 900 Watt heater, ZeroStart 260-0900 Little Buddy or equivalent alternative, with a shut-off switch accessible from the driver's side of the luggage storage area.</p>			
TAV S-58	<p>The TAV workspace cap must be provided with a gasoline-fired heater, Espar Airtronic B4 with Digimax Controller, or accepted equivalent, that may be used when the vehicle is being driven.</p>			


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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-59	The TAV workspace cap heating system controls must be accessible from the driver side of the cap.			
TAV S-60	The TAV must include a shore power connection, Super Auto Eject 091-55-15-120 or accepted equivalent, installed in the upper front driver side of the workspace cap.			



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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-61	<p>The TAV must have a dual battery charger-maintainer connected to the primary and auxiliary batteries, Xantrex Truecharge2 or accepted equivalent, installed in the driver's side workspace cap side compartment to enable accessibility.</p>			
TAV S-62	<p><i>3.5.3 LUGGAGE & SUPPLIES STORAGE</i></p>			


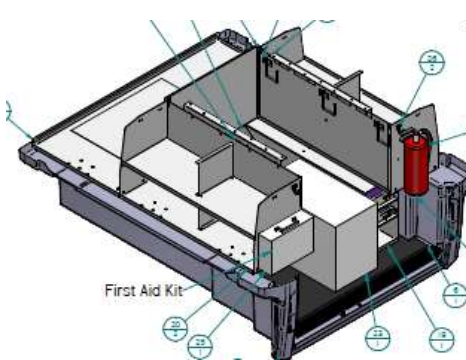

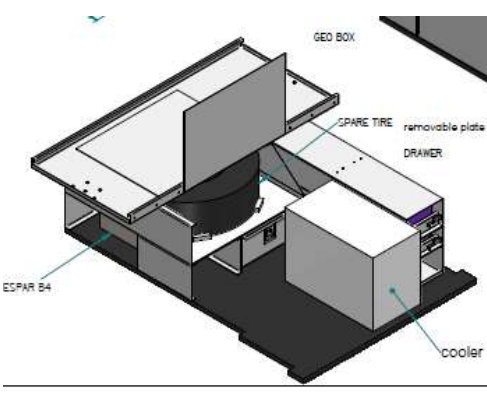
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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-63	<p>The TAV workspace cap rear doors must be equipped with storage bins with rain proof covers to accommodate safety equipment, such as the first-aid kit identified in Section 3.11 Safety Features.</p>	 <p>The image shows a close-up of a hand pulling a black, flexible rainproof cover over a storage bin. The bin is located inside a workspace cap and contains a first-aid kit with a white box labeled 'FIRST' and a green cross symbol. The bin is mounted on a diamond-plate metal surface.</p>		


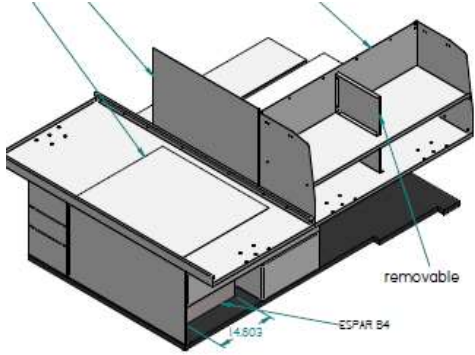

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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-64	<p>The TAV workspace cap must have cabinetry, constructed from aluminum type 5052-H32 0.100 or 0.125 thickness, or accepted equivalent, with rubber shelf liner.</p>			
TAV S-65	<p>The TAV workspace cap must have a full-width 30-inch wide luggage shelf, accessible from the cap side doors at the front of the cap. The storage shelf must have removable panels that separate the luggage area from the tool storage area.</p>			

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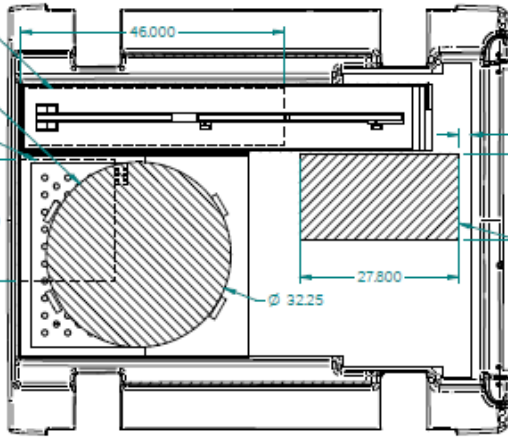

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-66	The TAV workspace cap must have hanging cabinets accessible from cap side doors and provide areas for storage of spare parts, various supplies, inspection tools and working tools.			
TAV S-67	The TAV workspace cap hanging side cabinets must provide at least two (2) hanging hooks in the luggage storage area on the ends of the side cabinets suitable for hanging extension cords.			

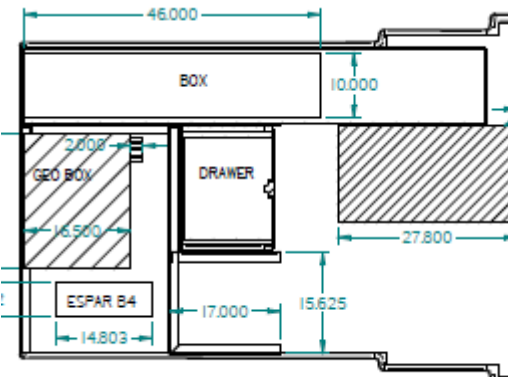

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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-68	<p>The TAV workspace cap hanging side cabinets must provide two (2) vertical shelf areas and two (2) horizontal shelf compartments on each shelf in the cap side door area. The divider on the top shelf must be removable to enable larger storage compartment if desired.</p>			
TAV S-69	<p>The TAV workspace cap hanging side cabinets must provide larger hanging hooks on the ends of the side cabinets in the tool storage area to enable hanging of coats or rainwear.</p>			


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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-70	<p>The TAV workspace cap hanging side cabinets must provide at least three (3) large hanging hooks on the back side of each side cabinet in the tool storage area to enable hanging of booster cables, rainwear or other large, bulky items.</p>			
TAV S-71	<p>3.5.4 TOOL STORAGE</p>			





ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-72	<p>The TAV workspace cap must have a spare tire storage shelf, or accepted alternative, under the luggage storage shelf. Removable panels must be provided as necessary to enable access to the Andian system kit box for maintenance. The spare tire must be secured when stored and the design must incorporate materials to reduce friction and aid in the placing or removal of the tire from the storage area.</p>			

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-73	<p>The TAV workspace cap must provide a lockable storage drawer under the spare tire storage shelf to store high value, seldom used working tools. The width of this drawer must provide a location to store long tools up to 60-inches long on the floor on the driver side of the rear workspace cap, adjacent to the lockable storage drawer.</p>	 <p>Technical drawing showing dimensions for a storage compartment. Key dimensions include: overall width 46,000; height 10,000; depth 27,800; distance from left wall to start of drawer 15,500; distance from left wall to end of drawer 17,000; distance from left wall to end of ESPAR B4 14,803; and distance from left wall to start of ESPAR B4 2,000. Components labeled include BOX, GEO BOX, DRAWER, and ESPAR B4.</p>	<p>Lockable drawer is shown under spare tire and behind ARB cooler. Open area to left is for storage of long tools on workshop cap floor.</p>  <p>Photograph showing the interior of the workspace cap. A lockable storage drawer is visible under the spare tire storage shelf. The open area to the left is intended for storage of long tools on the workshop cap floor.</p>	


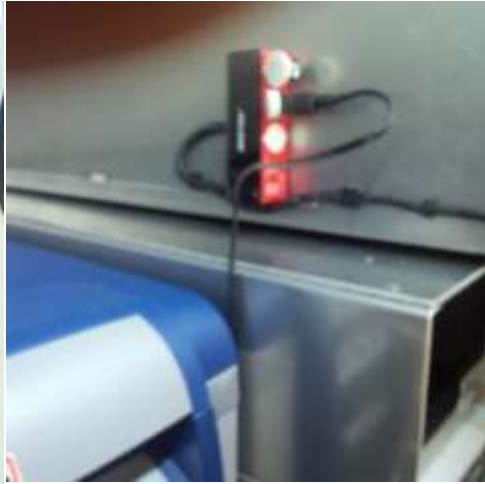
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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-74	<p>The 120V heater and the gas-fired heater in the TAV workspace cap must be protected with vented aluminum panels designed to protect the heaters from damage and to enhance air circulation within the tool storage area of the TAV workspace cap.</p>			


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<p>TAV S-75</p>	<p>The TAV workspace cap must provide three (3) stacked storage slots, 11.5 inches wide and 70 inches deep, on the passenger side floor of the workspace cap. The lower slot, a 7.5 inch high storage pocket, the middle slot a 5 inch high latched aluminum sliding drawer with end handle, and the upper slot a 7.5 inch high latched aluminum sliding drawer with end handle and provision to hang a Geismar inspection gauge. The sliding drawers must incorporate materials to ease the sliding of the drawers when opening or closing.</p>	<p>Note three stacked pockets. Top and center</p> <p>Pockets are sliding shelves with locking latch and handle (not shown) to assist in opening and closing sliding drawers.</p> 	<p>Upper sliding pocket for gauge</p>  <p>Center sliding drawer for long, heavy tools</p> 	<p>Bottom long pocket enables storage of aluminum rail measuring tool storage box and small working tool bag storage at open end.</p> 
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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-76	<p>The TAV workspace cap must provide a 4-inch wide shelf on top of the storage slots with one (1) inch high shelf lip on the open ends and side. The shelf must have a see-through surround guard that is six (6) inches high, or accepted alternative, to enable viewing articles stored and to prevent articles from falling off the shelf. This shelf must not interfere with the opening of the refrigerator listed in Section 3.12.</p>	<p>Shelf is area on top of stacked pockets where the charging station is now located. Charging station to be relocated.</p> 	<p>The charging station to be relocated perhaps higher on the back of the side shelving.</p> 	
TAV S-77	3.6 ELECTRICAL SYSTEM			
TAV S-78	3.6.1 ELECTRICAL - GENERAL			

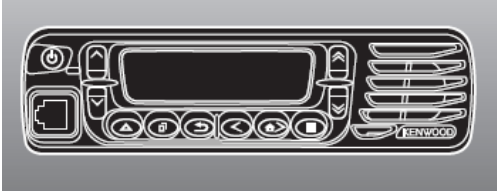
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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-79	Chassis electrical ground must not be used for the installation of any 12VDC equipment or accessories installed in the TAV.			
TAV S-80	The TAV must have an auxiliary 12V HD absorbent glass matt (AGM) starting battery, Odyssey 78-PC1500 or accepted equivalent, installed in the second battery tray in the engine compartment.			
TAV S-81	The primary and auxiliary batteries in the TAV must have the BATT- to each battery direct connected using minimum 1 gauge cable.			

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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-82	<p>All 12VDC equipment and accessories must be direct wired (power positive BATT+ and power negative BATT-) to the auxiliary battery or to remote BATT+ and BATT- buses located in the rear seating area of the TAV and in the rear workspace cap area of the TAV, Blue Sea Systems 2722 or accepted equivalent location unless otherwise specified for certain equipment.</p>			

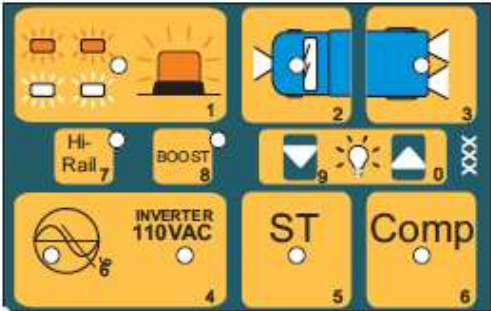
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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-83	<p>Power positive (BATT+) and power negative (BATT-) buses must be installed using minimum 4 gauge cable for under nine (9) feet runs, minimum 2 gauge cable for runs between 9 and 15 feet, and minimum 1 gauge cable for runs exceeding 15 feet, or accepted equivalent.</p>			
TAV S-84	<p>The Very High Frequency (VHF) radio in the TAV must have direct wiring, minimum 12 gauge, to the auxiliary battery for BATT+ and BATT-. A relay must be used to enable the relay control system controller to power the VHF radio.</p>			


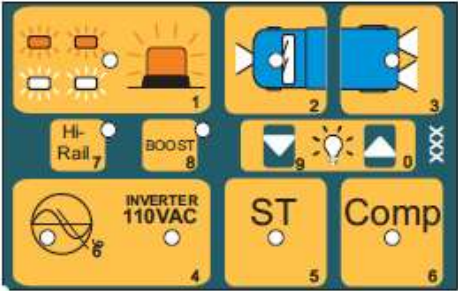
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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-85	The TAV primary laptop must be direct wired using a 12VDC adaptor connected directly to the auxiliary battery BATT+ and BATT- or the auxiliary BATT+ and BATT-buses.			
TAV S-86	The TAV must have a bi-directional battery separator with auxiliary start, Eaton 1315-200 or accepted equivalent.			


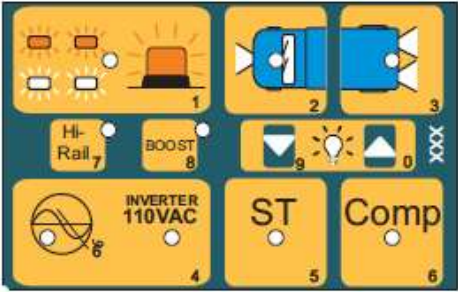
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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-87	The battery separator/boost system must be connected using minimum one (1) gauge wire.			
TAV S-88	The boost function of the battery separator must be programmed into the relay control system controller.			


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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-89	<p>The TAV must have a ZONE M8R eight (8) relay control system, or accepted equivalent, to enable activation of lighting systems, back-up alarm, hi-rail system, VHF radio, among other items, to be operated by a programmable controller located in the front passenger area of the vehicle cab.</p>			

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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-90	<p>The TAV must be equipped with two (2) relay control system programmable controllers to operate components and accessories connected to the relay control system. One controller is to be connected to the relay control system, the second controller is a spare unit.</p>			


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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-91	<p>The TAV relay control system must include a delay timer, or accepted alternative, that will enable devices specified within this document to be powered for one (1) hour whenever the ignition is OFF prior to shutting 12V power to all systems attached to the relay control system.</p>			

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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-92	<p>The TAV must have a minimum 600W full sine wave 110V inverter, Xantrex Prowatt SW600, or accepted equivalent, with front controlled power switch to provide power to the LCD monitor and other incidental 110V devices.</p>			

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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-93	<p>The 600 full sine wave watt inverter installed in the TAV must have the chassis ground wire, minimum 8 gauge wire, connected directly to the auxiliary battery power negative (BATT-). The inverter BATT+ and BATT- connections must be directly to the auxiliary battery or to the installed BATT+ and BATT-buses.</p>			
TAV S-94	<p>The on/off switch for the 600 W full sine wave inverter must be programmed to activate by the relay control system controller.</p>			

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ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-95	If the inverter switch is set to ON and the ignition is switched OFF, the inverter must remain powered, using the 1-hr delay timer on the relay control system.			
TAV S-96	The TAV must have a three (3) outlet extension cord to provide 120V power to the front passenger seat area to provide 120V power for LED monitor and USB powered port.			

Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

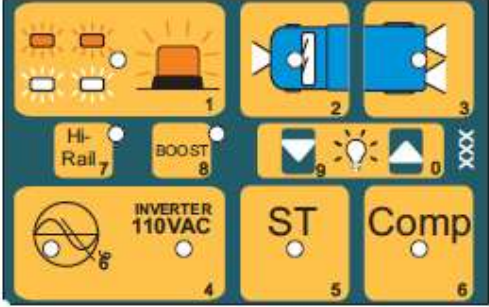

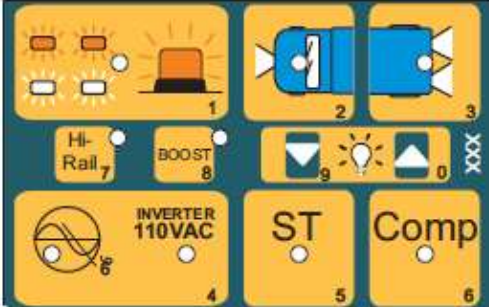
ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-97	<p>The TAV must include a waterproof backup camera, ROSTRA 250-8147 or accepted equivalent, installed at the back or on top of the workspace cap and connected to OEM base chassis' built-in camera system.</p>	 <p>The image contains two sub-images. The left one shows a black camera housing with a lens and a mounting bracket, labeled "Tailgate Handle Installation". The right one shows a similar camera housing mounted on a metal surface with a threaded hole, labeled "Trunk Lid/SUV Liftgate Installation".</p>	 <p>A photograph showing a close-up of a silver metal handle mounted on a dark, textured surface, which is the tailgate or liftgate of a vehicle. The handle is rectangular with rounded corners and has a small circular detail in the center.</p>	

<p>TAV S-98</p>	<p>The TAV must include a secondary backup camera system, ROSTRA 250-8821-CCD or accepted equivalent, to be installed at rear of vehicle above bumper license plate. On-Star, temperature and compass features must be maintained and be functional in the OEM replacement mirror. This camera system must be programmed to display to the rear of the vehicle in the OEM replacement rear view mirror whenever the hi-rail power feed is activated in relay control system controller. A remote control to select features such as adjustable</p>			
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Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
	parking grid lines must be included with this system.			
TAV S-99	The TAV must include a front-facing parking camera, ROSTRA 250-8160-BSC or accepted equivalent, to be installed in the front grille area of the TAV and connected to the video 2 input of the ROSTRA 8821 OEM replacement OnStar mirror.			
TAV S-100	3.6.2 ELECTRICAL – LIGHTING			
TAV S-101	The TAV must have four (4) recessed front grill mounted beacon flashers (white/amber sequenced), ProSignal MS6BH or accepted equivalent.			

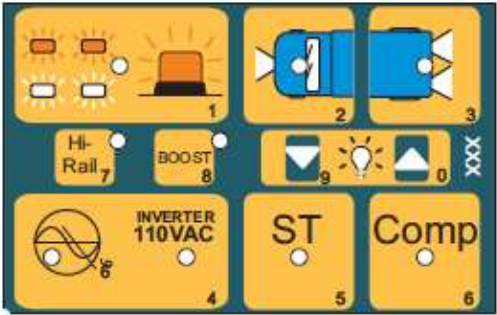

Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-102	The TAV grill-mounted beacon flashers must be programmed through the relay control system controller so the circuit will only operate when the hi-rail circuit is activated.			
TAV S-103	The TAV must have low profile amber beacons, ProSignal 74613Z or accepted equivalent, located on the front and rear of workspace cap.			
TAV S-104	The TAV low profile amber beacons must be programmed through the relay control system controller so the circuit will only operate when the hi-rail circuit is activated.			

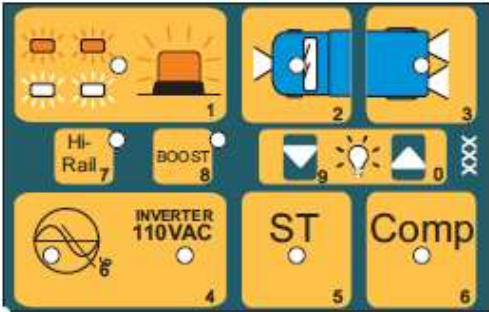

Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-105	The TAV must have one (1) LED light bar, ZONE 67001Z 21.5 inch 8800 LM or accepted equivalent, mounted at the front of the vehicle above the track geometry gauge system or in the lower grill area to aid in low lighting track inspections.			
TAV S-106	The TAV front and rear-mounted LED light bars must be secured in a manner to limit and deter unintended removal of the light bars.			


Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-107	The TAV front-mounted light bar must be programmed through the relay control system controller so the circuit will only operate when the hi-rail circuit is activated.			
TAV S-108	The TAV must have two (2) LED light bars, ZONE 67011Z 13.5 inch 5280 LM or accepted equivalent, mounted rear facing on the rear roof of the workspace cap to aid in visibility when reversing on track in low light conditions.			

Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-109	The TAV rear-mounted light bars must be programmed through the relay control system controller so the circuit will only operate when the hi-rail circuit is activated.			
TAV S-110	The TAV must have four (4) LED auxiliary overhead headliner lights, Rosta Citelite 260-1030 cool/white light or accepted equivalent, installed above each of the front and rear seats.			

Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293


ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-111	The TAV must have a reversing alarm that is powered through the relay control system controller to be active for any reversing movement when the hi-rail circuit is powered.			
TAV S-112	3.6.3 ELECTRICAL – ACCESSORIES			
TAV S-113	The TAV must have a 19-inch 4x3 format 120V computer monitor, ASUS VB198T-P or accepted equivalent. The monitor is for use when inspecting in hi-rail mode and is to be stored in custom rear console when not on rail.	 <p data-bbox="491 1187 1003 1268"> 19" SCREEN 4:3 1280x1024 50M:1 CONTRAST DVI-D </p>		

Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-114	The TAV must have three (3) wireless portable keyboards with integrated laser trackball and mouse buttons, IOGEAR GKM561R or accepted equivalent.			
TAV S-115	The TAV must have a portable USB 3.0 hard drive, minimum 2GB.			

<p>TAV S-116</p>	<p>The TAV must have a cell/SAT phone booster, Wilson Weboost 4G-X 470510F, or accepted equivalent, with low profile aftermarket antenna and cabling, PCTEL Maxrad Multi-Band BMLPVDB800/1900S or accepted equivalent. The interior antenna for the cell/SAT booster must be installed in a location in close proximity to the front and rear consoles of the TAV. The cell/SAT phone booster must be hard-wired and always 'ON' when the vehicle is running. The cell booster is to remain powered, using the 1-hr delay timer on the relay control system</p>	 <p>weBoost Connect 4G-X</p> 		
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Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
	when the ignition is switched off.			
TAV S-117	The TAV must have a 120V heavy-duty extension cord, minimum 3 wire 12 gauge and minimum 20 feet in length.			
TAV S-118	3.7 VEHICLE CAB			

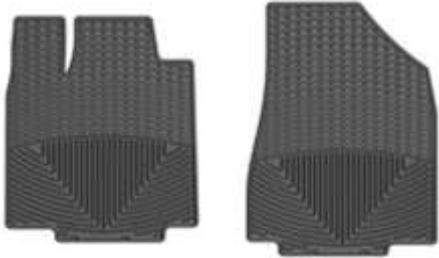

Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-119	<p>The TAV rear 60/40 seat provided with the base chassis must be modified to provide bucket rear seats and allow installation of a custom console for computer equipment storage. It is preferred that the base chassis armrest remain intact and functional for the modified 40/20/40 rear seating configuration.</p>			



Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-120	The TAV base chassis must have a full coverage floor liner in the front seating area; WeatherTech 445431 black in colour, or accepted equivalent.			
TAV S-121	The TAV base chassis must have a full coverage floor liner that extends under the rear seats of the rear passenger area; WeatherTech 445422 black in colour, or accepted equivalent.			




Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-122	The TAV base chassis must have heavy duty removable rubber floor mats for the front passenger area, WeatherTech W309, or accepted equivalent.			
TAV S-123	The TAV cab must include heavy duty matt protectors for the front and rear cab occupants, Weathertech 446071-445422 or accepted equivalent, with the rear seat area requiring full width 2 nd row under seat coverage.			

Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-124	<p>The TAV base chassis must have a heavy duty removable rubber floor mat for the rear seating area, GM 22858823 or accepted equivalent. The rear rubber floor mat may be cut to enable fitment against the custom rear console.</p>			
TAV S-125	<p>The TAV cab must include a powered USB hub with a minimum of four (4) USB ports in the front passenger seating area to allow for connection to the track geometry system laptop.</p>			



Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-126	<p>The TAV cab must include an aluminum, lockable, hinged, custom storage console, or accepted equivalent, between the rear seats to stow a back-up laptop, system laptop, system monitor that is up to 21-inch and two (2) wireless keyboards. A double-hinge lid is desirable to enable access to the console when the system laptop is installed. The console must provide integrated outside 1.5 inch deep pockets to store pads of 8-1/2 x 11 inch forms.</p>	<p>Note: Laptop mounted on top of custom console when TAV used for inspection purposes. Two-piece lockable lid. Front portion pivots forward; rear portion pivots to rear. Note location of rear radio controls.</p> 	<p>Front (raised) portion of custom rear console with storage for two laptops, full-sized monitor, portable keyboard, portable hard drive.</p> 	<p>Rear (lowered portion) of custom rear console with additional storage under factory arm rest.</p> 

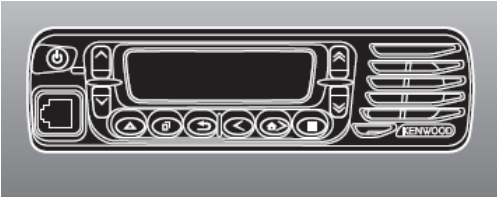

Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-127	<p>The TAV cab must include a custom laptop mount on the top of the custom rear console to secure the system laptop and enable viewing of that laptop by the rear passengers. All cables and connections to the laptop must be protected and secured on this mount.</p>			



Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

<p>TAV S-128</p>	<p>The TAV rear seating area must have additional air circulation for the rear seat occupants by means of an adjustable speed fan(s) and adjustable vents/venting or an accepted alternative. Options may include installation of low profile fan(s) in the area(s) between the front and rear consoles and/or behind/under the rear seats with venting/vents run under and along the front of the custom rear console and/or the opening between rear seats directly behind the custom rear console.</p>			<p>This photo shows the space between the OEM front console and the custom rear console. Customization of this area is acceptable to provide additional, control air circulation to rear passenger compartment.</p> 
<p>TAV S-129</p>	<p>3.8 VHF RADIO</p>			

Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-130	<p>The TAV must include a Kenwood NX-700K VHF 30W (159-162 MHz), or accepted equivalent, programmable radio suitable for railway communications.</p>			
TAV S-131	<p>The TAV VHF railway radio must include PA/Horn alert option KAP-2, or accepted equivalent. This option is used to provide a relay circuit to power the two external VHF radio speakers mounted on the exterior of the TAV.</p>			


Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-132	The TAV VHF railway radio must be programmed using the programming code plugs provided by the Technical Authority.			
TAV S-133	The TAV VHF railway radio must include dual control head kit, Kenwood KUT-KRK-13 or accepted equivalent, to enable radio control use from either the front or rear seating area.	<p>Front (primary) radio head and controls</p> 	<p>Rear radio head controls.</p> 	

Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-134	The TAV VHF railway radio must include a low profile external roof mounted antenna, TRABT1560 or accepted equivalent.			
TAV S-135	The TAV VHF railway radio must include three (3) microphones with keypad, Kenwood KMC-36 or accepted equivalent.			

Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-136	The TAV must include mounted, weatherproof external speakers, SPC-10 or accepted equivalent; one mounted behind the front grille pointing downward and one mounted on the workspace cap at the rear of the vehicle facing rearward.			
TAV S-137	3.9 TOOLS			




Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-138	<p>The TAV will be supplied with track inspection tools, vehicle and system maintenance tools, various equipment and supplies. This material may be obtained as part of the Customization Contract by means of Option Bid Price or directly by procurement by Transport Canada. A list of all tools, equipment and supplies is included as Appendix A6.</p>			
TAV S-139	<p><i>3.10 SAFETY EQUIPMENT & FEATURES</i></p>			

Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-140	The TAV must be provided with a Type A first aid kit augmented with additional first aid supplies and equipment for remote workplaces IAW Canadian Occupational Health and Safety Regulations, SOR/86-304.			




Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-141	<p>The TAV first aid kit must be secured in the inner storage pocket on the large right rear door of the TAV workspace cap in a manner that enables easy access and removal or the kit. A protective cover must be installed to prevent rain from wetting the first aid kit when the rear cap doors are opened.</p>		<p>First aid sticker on outside door.</p> 	<p>First aid sticker on inside door.</p> 

Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-142	<p>The TAV must include a railway flagging kit including a red flag on a staff and at least 8 red fusee flares secured at the open end of the tool storage area in the TAV workspace cap in a manner that enables easy access and removal of the kit.</p>			

Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-143	The TAV must include an emergency roadside safety kit, including reflectorized triangles and flares, secured at the open end of the tool storage area in the TAV workspace cap in a manner that enables easy access and removal of the kit.			
TAV S-144	The TAV must include a minimum 5 lbs ABC Fire Extinguisher, or accepted equivalent, mounted on the end of the hanging cabinets in the tool storage area of the TAV workspace cap.		<p>Fire extinguisher sticker on rear door.</p> 	


Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-145	<p>The TAV must include a minimum of eight (8) 3-point grip assist handholds; four (4) to be installed for front and rear doors of the vehicle cab and four (4) to be located on the rear cap to enable safe access to the cap storage areas.</p>			<p>Note grip assist above doors.</p> 
TAV S-146	<p>The TAV must include a custom, removable rear step for the rear receiver hitch to provide safe access to the rear tool storage area of the TAV workspace cap. The height of the lower step must provide 14-inches clearance when off-rail.</p>			






Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-147	<p>The TAV custom rear step should include an additional fold-down or spring-loaded assist step to the rear that can be deployed when the vehicle is used in hi-rail mode and secured for storage when the vehicle is used for road travel. When used in hi-rail mode, the entire vehicle is raised approximately eight (8) inches. The assist step should reduce distance to the first rigid step by 3 to 6 inches.</p>			



Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-148	<p>The TAV base chassis must include custom manufactured aluminum, or accepted alternative material, open grate style running boards that extend for the entire area between the front and rear wheels to enable access to the rear cap storage area and the truck cab while on rail. The mounts for the running boards must provide 12-inches clearance to the ground. The distance from level ground to the top running surface of running boards must not exceed 14-inches.</p>			



Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-149	All TAV wiring, pneumatic and hydraulic lines must be organized and labelled with tags and protected as necessary in looming.			
TAV S-150	3.11 DECALS			
TAV S-151	The TAV must be supplied with decals IAW Appendix A5. TAV-811 must have decals with French wording first; TAV-812 and TAV-813 must have decals with English wording first.			
TAV S-152	The TAV decals must be installed as follows:			


Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-153	a) One (1) on the driver's door;			
TAV S-154	b) One (1) on the front passenger's door;			


Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-155	c) One (1) on the right rear workspace cap door with a vehicle identification including fleet number (e.g TAV-8xx);			
TAV S-156	d) One (1) on the passenger side door of the workspace cap;			

Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-157	e) One (1) on the driver side door of the workspace cap; and			
TAV S-158	The TAV must include stickers on the exterior of the workspace cap to indicate the location of the first aid kit and fire extinguisher.			
TAV S-159	3.12 OTHER REQUIREMENTS			

Appendix A7 – TAV Customization – Pictures to Accompany Specifications RDIMS-#13225293

ID	TAV Hi-Rail and Customization Requirements Specification	Picture 1	Picture 2	Picture 3
TAV S-160	The TAV must be supplied with one (1) thermoelectric AC/DC cooler with tie down system, ARB 37 quart frig #10800352 with ARB tie down #1090010 or accepted equivalent.			
TAV S-161	The TAV thermoelectric cooler must be secured in the workspace cap.			