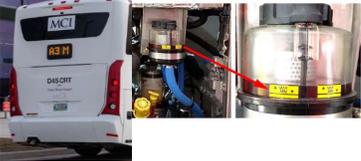
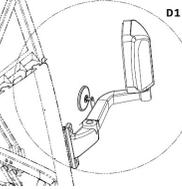


Motor Coach Industries, Inc. Technical Approved Equals Rev B - Changes and updates D40CRT Coach - 40 foot

Ac #	Page #	Section #	Step	Step Lighting	Spec Language	Approved Equal	Notes	Customer Response	Determination
1	51	TS 5.7	Operating Environment		The coach shall achieve normal operation in ambient temperature ranges of 10 F to 115 F, at relative humidity between 5 percent and 100 percent, and at altitudes up to 4000 ft above sea level. Degradation of performance due to atmospheric conditions shall be minimized at temperatures below 10 °F, above 115 °F or at altitudes above 4000 ft. Altitude requirements above 4000 ft will need separate discussions with the engine manufacturer to ensure that performance requirements are not compromised. Speed, gradability and acceleration performance requirements shall be met at, or corrected to, 77 °F, 29.31 in. Hg. dry air per SAE J1995.	MCI would like to request approval to provide the following spec applicable to the D40CRT coach: The coach shall achieve normal operation in temperature ranges of -10 to 110 degrees F (-23F to 43F C), at relative humidity between 5 percent and 100 percent and at altitudes up to 5,000 feet (1,524 m) above sea level. Degradation of performance due to atmospheric conditions shall be minimized at temperatures below -10 degrees F (-23F C) and above 110 degrees F (+43F C) or at altitudes above 5,000 feet (1,524 m). Special equipment or procedures may be employed to start the coach after a 12 hour or more exposure to temperatures below +30 degrees F (+1F C) without the engine in operation. Speed, gradability, and acceleration performance requirements shall be met at, or corrected to, 75 degrees F (23 C), 29.00 inches (737 mm) Hg. dry air. Performance degradation at conditions other than the test standard shall not exceed 1 % for each 3 degrees F/C and 4 % for 1,000 feet (305 m) of altitude above the standard.		What kind of special equipment or procedures? Coach will be exposed to less the +30 for more than 12 hours every day during winter	
2	54	TS 6.6	Ramp Clearances		Table 2: Approach Angle = 8.6 deg (min.) Departure Angle = 7.5 deg (min.)	MCI would like to clarify, the approach and departure angle for the D40CRT is as follows measured at Gross Weight: Approach Angle = 7.5 deg Departure Angle = 7.5 deg	Ref. drawing 957852	Okay	
3	58	TS 9.1	Engine Cooling		A means of determining satisfactory engine coolant level shall be provided. A spring loaded, push-button type valve or lever shall be provided to safely release pressure or vacuum in the cooling system with both it and the water filler no more than 40 in. above the ground. Both shall be accessible through the same access door.	MCI would like to provide the following spec applicable to the D40CRT coach: All coolant circuits include a surge tank equipped with a sight glass as well as a coolant level sensor. Coolant fill ports are located about 8" above ground. All fill ports are equipped with radiator caps through which pressure can be released safely. All fill ports are accessible through the rear motor door.	 Figure 160: Engine Bay with #12 Engine	Okay	
4	65	TS 23			The coach flooring, sides, roof, understructure and axle suspension components shall be designed to resist corrosion or deterioration from atmospheric conditions and de-icing materials for a period of 12 years or 500,000 miles, whichever comes first. As well, an underseal is to be sprayed onto the bottom of the chassis to protect the underbody from corrosion caused by exposure to and/or accumulation of caustic elements, particularly road salt and de-icing sprays. This underseal will be checked every 3 months or 12,000 miles (whichever comes first) by COIC, and reapplied if necessary, to ensure its integrity. All materials that are not inherently corrosion resistant shall be protected with corrosion-resistant coatings. All joints and connections of dissimilar metals shall be corrosion resistant and shall be protected from galvanic corrosion. Representative samples of all materials and connections shall withstand a two-week (168 hour) salt spray test in accordance with ASTM Procedure B-117 with no structural detrimental effects to normally visible surfaces and no weight loss of over 1 percent.	MCI would like to request approval to provide the following spec applicable to the D40CRT coach: The coach shall resist corrosion from atmospheric conditions and road salts. It shall maintain structural integrity and nearly maintained original appearance throughout its service life, provided it is maintained in accordance with the procedures specified in the service manual. All exposed body panels above and below the door shall be composite, aluminum, or stainless steel construction. Materials exposed to the elements and all joints and connections of dissimilar metals shall be corrosion-resistant and shall be protected from galvanic corrosion. With the exception of both axle bogie structures (which are painted, corrosion resistant HSLA), all structural frame members shall be stainless steel with a minimum thickness of 0.06 inches (1.5 mm). Frame members exposed to road splash will be coated in HydrArmor undercoating or approved equal. Floor supports in the passenger and driver's area, the sidewall structures and roof structures that are not exposed to road spray shall be stainless steel. Outer sidewall panels above the passenger floor and below the windows shall be composite. The roof panel shall be pre-primed and painted aluminum both sides and the front and rear roof caps composite. The rear engine door will be composite skin bonded to an aluminum frame. Baggage bay floors shall be composite material for maximum corrosion protection. In the wheel well areas, non-structural closed panels shall be stainless steel. Before assembling, all metal body parts must be given a thorough anti-corrosion treatment. Joints between dissimilar metals shall be properly insulated with an inert plastic tape to avoid corrosion due to electrolytic action. All nuts, bolts, clips, washers, clamps, and like parts shall be zinc plated, phosphate coated, black oxide coated, stainless steel, or nylon to prevent corrosion. All exterior joints and seams must be sealed.		Okay	
5	65	TS 24	Towing		Each towing device shall withstand, without permanent deformation, tension loads up to 1.2 times the curb weight of the coach within 20 degrees of the longitudinal axis of the coach. If applicable, the rear towing device(s) shall not provide a hold for unattended riders. The method of attaching the towing device shall not require the removal, or disconnection, of front suspension or steering components. Removal of the bike rack is permitted for attachment of towing devices. Shop air connectors shall be provided at the front and rear of the coach and shall be capable of applying all pneumatic systems of the coach with externally sourced compressed air. The location of these shop air connectors shall facilitate towing operations. No Provision of Glad Hand Type Connectors for Towing No glad hand type connector shall be provided. Two rear recovery devices/bleed-downs shall permit lifting and towing of the coach for a short distance, such as in cases of an emergency, to allow access to provisions for front towing of coach. The method of attaching the tow bar or adapter shall require the specific approval of COIC. Any tow bar or adapter exceeding 50 lbs should have means to maneuver or allow for ease of use and application. Each towing device shall accommodate a crane hook, which is in excess.	MCI would like to request approval to provide the following spec, applicable to the D40CRT coach: Towing devices shall be provided and be permanently mounted on the front and rear of the coach. The coach may be towed from the front only but can be recovered from the rear. Recovery shall mean to move the bus into the clear so it can be hooked up and towed from the front. Front towing device shall withstand, without permanent deformation, tension loads up to 1.2 times the curb weight of the coach within 20° of the longitudinal axis of the coach. Towing device shall accommodate a crane hook with a 1-inch throat. Two steel rear skid plates shall be welded to the underside of the engine rails. Skid design shall be durable construction to adequately protect mechanical or other body components from damage due to the coach bottoming out.		Okay	
6	65	TS 25	Jacking		Jacking points located on the front and rear axle shall permit easy and safe jacking with the flat tire or dual set on a 6 in. high run-up block not wider than a single tire.	MCI would like to request approval to provide the following spec applicable to the D40CRT coach: The bus shall be fitted with jacking pads for each tire/wheel locations and shall permit easy and safe jacking with the flat tire or dual set on a 3.5-inch (89 mm) high run-up block not wider than a single tire.		Okay	
7	TS 27.1	Design			The floor shall be essentially a continuous plane, except at the wheel housings and platforms.	MCI would like to request approval to provide the following, as applicable to the D40CRT coach: The floor shall be essentially a continuous flat plane, except at the stepwell, in the entrance area.		Okay	
8	68	TS 29.2	Design and Construction		Interference between the tires and any portion of the coach shall not be possible in maneuvers up to the limit of tire adhesion with weights from curb weight to GVWR. Wheel housings shall be adequately reinforced where seat pedestals are installed. Wheel housings shall have sufficient sound insulation to minimize tire and road noise and meet all noise requirements of this specification. Design and construction of front wheel housings shall allow for the installation of a radio or electronic equipment storage compartment on the interior top surface, or its use as a luggage rack. The finish of the front wheel housings shall be scratch resistant and complement interior finishes of the coach to minimize the visual impact of the wheel housing. If fiberglass wheel housings are provided, then they shall be color-impregnated to match interior finishes. The lower portion extending to approximately 10 to 12 in. above the floor shall be equipped with scuff-resistant coating or stainless steel trim. Wheel housings not equipped with seats or equipment enclosure shall have a horizontal assist mounted on the top portion of the housing no more than 4 in. higher than the wheel well housing.	MCI would like to request approval to provide the following spec applicable to the D40CRT coach: Wheel housings shall be constructed of stainless steel. Wheel housing, as installed and trimmed, shall withstand impacts of a 2-inch (51 mm) steel ball with at least 200 foot-pounds (273 Nm) of energy without penetration. MCI would also like to clarify that specs as requested are applicable to transit buses but not to over the road coaches.		original spec. is also for interior finish, your ask does not mention how the interior will be finished, your picture does not go with your request.	
9	72	TS 37.3	Air Lines and Fittings		Air lines, except necessary flexible lines, shall conform to the installation and material requirements of SAE Standard J1149 for copper tubing with standard, brass, flared or ball sleeve fittings, or SAE Standard J844 for nylon tubing if not subject to temperatures over 200 °F.	MCI requests approval to provide the following spec applicable to the D40CRT coach: Air lines, except necessary flexible lines, shall conform to the installation and material requirements of SAE Standard J844-Type 1 or ASTM B-75 for copper tubing with standard, brass, flared or ball sleeve fittings, or SAE Standard J844-Type 3B for nylon tubing or ASTM.		Okay	
10	77	TS 40.3	Low Voltage/Low Current Wiring and Terminals		All wiring harnesses over 5 ft long and containing at least five wires shall include 10 percent (minimum one wire) excess wires for spares.	MCI would like to request approval to provide the following spec applicable to the D40CRT coach: All wiring harnesses over 5-feet (1.50 meters) long and containing at least five (5) wires which can be accessed during normal servicing shall include at least 2 or 10 percent excess wires whichever is greater for spares, excluding the battery cables.		Okay	
11	86	TS 44.1	Coat Hanger		Coat Hook A hook and loop shall be provided to secure the driver's coat.	MCI request the approval to use the standard coat hook provided on the D40CRT coach, which is a single prong hook without a retention strap.		okay	
12	87	TS 46.1	Dimensions		The driver's seat shall be comfortable and adjustable so that people ranging in size from a 50th percentile male to a 95th percentile female may operate the coach.	MCI would like to request approval to provide the following spec applicable to the D40CRT coach: Operator seating range in size from the 90th percentile male to the 5th percentile female may operate the coach.		okay	

13	93-92	TS 50.15 50.4	Side Windows	<p>TS 50. Side Windows</p> <p>TS 50.1 Configuration</p> <p>Side windows shall not be bonded in place but shall be easily replaceable without disturbing adjacent windows and shall be mounted so that flexing or vibration from engine operation or normal road excitation is not apparent. All aluminum and steel material will be treated to prevent corrosion.</p> <p>TS 50.2 Emergency Exit (Egress) Configuration</p> <p>Minimum Egress all side windows shall be fitted in position, except as necessary to meet the emergency escape requirements.</p> <p>Standard Passenger Side Window Configurations: upper transom/lower fixed (TBA)</p> <p>TS 50.3 (this section is reserved)</p> <p>TS 50.4 Materials</p> <p>Safety Glass Clazing Panels</p> <p>Side windows glazing material shall have a minimum of 3/16 in. nominal thickness tempered safety glass. The material shall conform to the requirements of ANSI Z26.1-1996 Test Grouping 2 and the recommended practices defined in SAE J673.</p>	<p>MCI would like to request approval to use the following specs applicable to the DA0CRT coach: five curbside/roadside "long" rectangular passenger side windows, one curbside/roadside "short" rectangular passenger side windows and a single roadside rear transom window shall be provided. The long window dimensions will be 42.0 x 85.3 x 188 inches (1067 x 2192 x 478 mm). The short window dimensions will be 42.0 x 49.8 x 188 (1067 x 1209 x 476 mm). The long windows will have a nominal 39.5 x 65.5 inch (1003 x 1664 mm) clear opening within the inner support frame structure. The short windows will have a nominal 39.5 x 44.8 inch (1003 x 1138 mm). The side passenger windows will be single-glazed construction (double pane construction is optional), hermetically sealed, A3-3 laminated float, 76% heat-absorbing laminated safety glass with light and solar transmittance of 24%. All windows shall be top hinged with push out at the bottom. All emergency egress windows shall include a single motion release bar running the entire width of the window at the lower edge to permit emergency egress. Emergency operating instructions printed on metal plates and rivetted to the release bars shall be provided at each seat position for operating the emergency egress window.</p>		Okay		
14	94	TS 53.4	Driver's Compartment Requirements	<p>The heater and defroster system shall provide heating for the driver and heated air to completely defrost and defog the windshield, driver's side window, and the front door glasses in all operating conditions. Fans) shall be able to draw air from the coach body interior and/or exterior through a control device and pass it through the heater core to the defroster system and over the driver's feet. A minimum capacity of 100 cfm shall be provided. The driver shall have complete control of the heat and fresh airflow for the driver's area.</p>	<p>MCI would like to request approval to provide the following spec applicable to the DA0CRT coach: The heater and defroster system shall provide heating for the driver and heated air to completely defrost and defog the windshield, driver's side window, and the front door glasses in all operating conditions to the maximum extent practical.</p>		Will your system blow air over the driver's feet?		
15	96	TS 62	Rain Gutters	<p>Rain gutters shall be provided to prevent water flowing from the roof onto the passenger doors and driver's side window. When the coach is decelerated, the gutters shall not drain onto the windshield, driver's side window or door boarding area. Cross sections of the gutters shall be adequate for proper operation.</p>	<p>MCI would like to request approval to provide the following spec applicable to the DA0CRT coach: Gutters shall be provided to minimize water flowing from the roof onto the Operator's side window and passenger doors. When the coach is decelerated, drainage onto the main windshield area or Operator's side window, or into the door boarding area shall be minimized. Cross sections of the gutters shall be adequate for proper operation.</p>		will there also be a gutter over the rear transom window		
16	98	TS 66.2	Front Bumper	<p>No part of the coach, including the bumper, shall be damaged as a result of a 5 mph impact of the coach at curb weight with a fixed, flat barrier perpendicular to the coach's longitudinal centerline. The bumper shall return to its pre-impact shape within 10 minutes of the impact. The bumper shall protect the coach from damage as a result of 6.5 mph impacts at any point by the common carriage with contoured impact surface defined in Figure 2 of FMVSS 302 loaded to 4000 lbs parallel to the longitudinal centerline of the coach. It shall protect the coach from damage as a result of 5.5 mph impacts into the corners at a 30 degree angle to the longitudinal centerline of the coach. The energy absorption system of the bumper shall be independent of every power system of the coach and shall not require service or maintenance in normal operation during the service life of the coach. The bumper may increase the overall coach length specified by no more than 7 in.</p>	<p>MCI would like to request approval to provide the following applicable to the DA0CRT coach:</p> <ol style="list-style-type: none"> 1. Front bumper meets 1.5 mph for front barrier impact and 3.2 mph for corner impact. 2. MCI does not recommend to push coach using another vehicle due to risk of damaging components attached to the coach (i.e. bike rack, bumpers). Please note that bumpers are paintable. Some paint damage may occur. 		okay, but not considered an equal		
17	103	TS 71.12	Vestibule/Doors	<p>Rear exit area and curb lights shall illuminate when the rear door is unlocked.</p>	<p>MCI would like to request approval to remove this requirement from the spec, since it is inapplicable to the DA0CRT coach, which does not have a rear exit area/door.</p>		Okay		
18	105	TS 77.1	Arrangements and Seat Style	<p>The passenger seating arrangement in the coach shall be such that seating capacity is maximized and in compliance to the following requirements.</p> <p>NOTE: CDC recognizes that foot room, hip-to-knee room, doorway type, width, seat construction, floor level type, seat spacing requirements, ramp or lift, number of wheelchair positions, etc., ultimately affect seating capacity and layout. Forward Facing Seat Configuration</p> <p>Passenger seats shall be arranged in a transverse, forward-facing configuration, except as they are otherwise specified in the spec where aisle-facing seats may be arranged as appropriate with due regard for passenger access and comfort. Other areas where aisle-facing seats may be provided are at wheelchair securement areas and platforms (such as for fuel tank storage space).</p>	<p>MCI can offer a 51 passenger seating arrangement on the DA0CRT coach, without inventory. MCI would like to propose Amaya A-220 seats or Kiel 2050 passenger seats. Please confirm your preference for the number of passenger seats and the seat model.</p>	Applicable seat layout drawings: passenger Amaya A-220; TBA, 51 - passenger Kiel 2050; TBA	51-	??	
19	106-107	TS 77.10	Structure and Design	<p>Entire section.</p>	<p>MCI would like to clarify that the spec as described is applicable to transit buses but not non-road coaches and therefore requests approval to provide the following spec applicable to the DA0CRT coach: All seats shall meet Federal Standards including FMVSS 210. Seat frames shall be constructed of high strength, fatigue resistant, welded steel with a durable powder coated, corrosion resistant colored finish which complements the coach interior. Fixed passenger seat frames shall be mounted with heavy duty steel pedestal and/or brackets as required to meet FMVSS 210: the seat back shall recline six (6) inches (152 mm) maximum with a pre-set or an infinite number of stops, except for the sliding seats. Seat width shall be nominal 42.50 inches (1080 mm). padding shall not be less than 24 inches (610 mm) wide. Seats shall be manufactured using high quality wool / poly transportation fabric or vinyl. Seat foam padding shall be polyurethane. Seat upholstery shall utilize zippers or Velcro which allow them to be removed from the seat cushions for cleaning/replacement purposes.</p>		Please list your seat aisle width		
20	108	TS 78.1	Assists	<p>Excluding those mounted on the seats and doors, the assists shall have a cross-sectional diameter between 1/4 and 3/4 in. or shall provide an equivalent gripping surface with no corner radii less than 1/4 in. All passenger assists shall permit a full hand grip with no less than 1 1/2 in. of inside clearance around the assist. Passenger assists shall be designed to minimize catching or snagging of clothes or personal items and shall be capable of passing the NHTSA Drawing Test.</p>	<p>MCI would like to clarify that passenger assists shall be designed to minimize catching or snagging of clothes or personal items. The NHTSA Drawing Test applies to school buses but not to motor coaches. MCI would also like to advise that full grip passenger assists are not available with overhead parcel racks provided on the DA0CRT coach. MCI provides a handhold feature integrated into the parcel rack edge. Full grip assists are provided in the entrance area.</p>		While the NHTSA is mandatory for School buses we are asking this coach to also pass this test. Can a DA0CRT be ordered with out the overhead parcel rack?		
21	109	TS 78.5	Overhead	<p>Except forward of the standee line and at the rear door, a continuous, full-grip, overhead assist shall be provided. This assist shall be located over the center of the aisle seating position of the transverse seats. The assist shall be no less than 70 in. above the floor. No requirements for overhead grab straps/extensions.</p> <p>Overhead assists shall simultaneously support 150 lbs on any 12 in. length. No more than 5 percent of the full grip feature shall be lost due to assist supports.</p>	<p>MCI would like to request approval to advise that full grip passenger assists are not available with overhead parcel racks provided on the DA0CRT coach. MCI would like to request approval to provide our assist located approximately 62 inches from floor surface.</p>	The PR capacity per passenger is 15 lbs, so if the coach has 51 passenger seats, then overhead parcel racks weight capacity will be 765 lbs.	see above		
22	112	TS 79.7.1	Rear Door Closing Force	<p>Power-close rear doors shall be equipped with an obstruction-sensing system such that if an obstruction is within the path of the closing doors, the doors will stop and/or reverse direction prior to imparting a 10-lb force on 1 sq. in. of that obstruction. If a contactless obstruction sensing system is employed, it shall be capable of discriminating between the normal doorway environment and passengers or other obstructions within the doorway, and of altering the zones of detection based upon the operating state of the door system.</p>	<p>MCI would like to request approval to remove this requirement from the spec since it is inapplicable to the DA0CRT coach, which does not come with a rear exit door.</p>		Okay		
23	116	TS 81.	Destination Signs	<p>A Hanover (or submitted deviation) destination sign system shall be furnished on the front, on the curb side near the front door and on the driver side near the front with HPC 001 Power Supervisor (or submitted deviation).</p>	<p>MCI would like to request approval to provide: HANOVER DISPLAYS LED SIGN SYSTEM (ASBERR) TO INCLUDE: -FRONT DESTINATION SIGN 17 X 160 -CURBSIDE DESTINATION SIGN 15 X 112 TO INCLUDE CONTROLLER AND INTERCONNECTING CABLES.</p>		Okay but not equal		

