



2024 Texas State Bus Rodeo Contestant Handbook



Hosted By:



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In partnership with

Texas Department of Transportation (TXDOT)

2024 TEXAS STATE BUS ROADEO COMMITTEE

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2024 Texas State Bus Roadeo Rules of Conduct

The State Bus Roadeo Committee has adopted the following rules of conduct:

1. Contestants will not be allowed on the driving course for any reason (except for their actual competition and walk-through).
2. Contestants must remain outside of the pre-trip inspection and wheelchair securement areas until they are called to participate in those areas.
3. Contestants must wear their name badges or numbers at all times.
4. Operators are not to engage in unnecessary talking with the judges.
5. No alcoholic beverages will be permitted at the Roadeo Site.
6. Unsportsmanlike conduct of any kind will not be tolerated. This includes profanity, aggressive behavior towards another contestant, official, bystander, abuse of equipment, and unsafe driving maneuvers.
7. Operators who have completed competition are not allowed to discuss the competition with operators yet to compete.
8. Violations of the rules of conduct are to be reported to the Course Marshall as soon as possible.
9. The Course Marshall shall have the sole authority to determine if a violation has occurred and the corrective action to follow. Depending on the severity of the infraction, the corrective action may include either a deduction of points from a contestant's score or suspension from the competition.

Course Marshall: **Tony Austin, Director of Rural Operations, The HOP**

GENERAL INFORMATION

NOTE: Each Texas Transit Association (TTA) and Community Transportation Association of America (CTAA) member transit system is entitled to send more than one operator in either the 40+ foot, 35- foot **or** 25-foot category and/or maintenance team (maximum of 3 contestants per team) to the State Bus Rodeo Competition. TTA reserves the right to interpret this rule according to the transit system's membership status.

1. Contestant qualifications

In order to compete in the TTA State Bus Rodeo, contestants are required to meet certain qualifications. Local transit systems are expected to enforce the following eligibility requirements. Contestants must:

1. Be employees of an TTA member transit system or represent a CTAA member organization.
2. Have worked, full-time or part-time, in the field in which they are competing (operator or technician) for not less than one year prior to the date of the Rodeo and must have a job description that matches that position.
3. Meet their local transit system's guidelines on sickness and absenteeism.
4. Possess a Commercial Driver's License (CDL). CTAA members do not require a CDL.

2. Ineligibility

Any of the following conditions during the span of (one) 1 year prior to the Rodeo competition date make an employee ineligible to compete:

1. A preventable or chargeable accident.
2. A suspension as a result of punitive action.
3. Compensation for and/or functioning as an instructor/trainer for 60 days or more in the previous year.

NOTE: Contestants are not permitted to receive compensation for practice time during the time between their local Rodeo and the APTA International competition. For the purposes of the Rodeo, compensation is considered to be paid time.

3. Team registration

State Bus Rodeo badges, program, and banquet tickets will be available at the TTA Rodeo contestant members and judges' orientations (judges must purchase banquet tickets if attending).

4. Schedule

The general Rodeo schedule is listed below. A more detailed schedule with times and locations is illustrated further and provided at registration (APPENDIX F).

- **Friday:** Registration (12 PM- 3 PM). Vehicle Familiarization, Judges Orientation, Paratransit Wheelchair Securement Training, Maintenance and Operators Orientation, Paratransit Written Exam, Technical Written Exam, and maintenance training sessions.
- **Saturday:** Course Walkthrough 7:00AM, Operator and Maintenance Competition 8:00AM, State Bus Rodeo Awards Banquet 6-8:00PM
- **Monday through Wednesday:** Conference and Expo

5. Spectators

Spectators are welcome in the spectator areas but are not allowed on the operator obstacle course. The availability of spectator area for the maintenance events varies from year to year based on space. Due to the nature of the maintenance events, a common spectator area is not available. However, family and property members may observe their team compete in each of the events. Still photos are allowed during the competition. Absolutely no video cameras or videotaping are allowed in any of the competition areas. (APPENDIX D)

6. Operator/Maintenance Awards

1. Award winners will be announced at the State Bus Rodeo Awards Banquet on Saturday evening.

2. First, second and third place winners in each of the categories, 25', 35', 40' Operator and Maintenance Team, will each receive a plaque/trophy.

OPERATORS' ROADEO

1. Orientation Friday, March 15, 2024.

1. The final course layout will be distributed (APPENDIX B & APPENDIX C).
2. Official starting time schedules and course diagrams will be distributed.
3. On Field Roadeo Officials will be identified see score sheets (APPENDIX I).
4. Question and Answer Session regarding the published rules (APPENDIX H).

2. Written Test (Paratransit)

PURPOSE OF TEST: The purpose of this test is to showcase the knowledge of the contestant and promote education of more in-depth knowledge which pertains to transit driving. Questions for the test are taken from basic training materials used for transit driver training. Questions will not be CDL related.

Composed of a combination of:

- Multiple Choice
- True or False
- Traffic Sign Identification

Time

1. Each operator will be allotted twenty (20) minutes to complete the written assessment.
2. Time warnings will be given to the operator at the ten (10) minute and fifteen (15) minute time marks.
3. Testing materials such as pencils and answer sheets will be provided.
4. Participants will not be allowed to speak during the assessment.
5. Once the operator turns in the assessment his time will stop and is no longer allowed to review questions.

Scoring

1. Each question is awarded five (5) points for a total of twenty-five (25) questions. With a maximum of one hundred twenty-five (125) possible points.
2. Five points will be deducted for every question not answered after the twenty (20) minute allowed time.
3. The operator will not make marks on the test sheet, only on the answer sheet.

Group assignment and participant number will be provided on Friday, March 15th.

3. Competition

1. Transportation from the hotels to the Roadeo site is available on APPENDIX G.
2. Operators are required to report to the Registration area at the Roadeo site at least sixty (60) minutes prior to their scheduled competition start time. Operators who report late on competition day may be disqualified from competition.
3. On competition day, operators will be judged on driving skills.

4. Each course is uniquely engineered for every Roadeo. Therefore, the order of events (obstacles) may be laid out differently than shown in this handbook. However, the construction of each obstacle will be in accordance with the provisions stated in this handbook.
5. Roadeo Officials will attempt to utilize the measurements set forth in this handbook; however, Roadeo Officials reserve the right to make changes based on the space available at the Roadeo site and equipment variations. The course will be verified by the On-field Officials to ensure that all obstacles are negotiable with the equipment provided.

3. Equipment

1. Operators will compete using either a 40', 35' or 25' foot buses (APPENDIX E).
2. The buses will have no bike racks.
3. Operators must drive the vehicle size selected when initially registered.

4. Operators' Obstacle Course

1. The eleven (11) driving obstacles are worth fifty (50) points each (APPENDIX A). On the driving portion of the course, a judge's responsibility extends from the completion of the previous obstacle to the completion of the obstacle they are judging. Judges must render objective evaluations of each contestant. Judges should note the location of the x's enclosed in circles on the score sheets. These are the preferred locations for viewing the obstacle, without interfering with the contestant's ability to perform the obstacle. Under no circumstances should judges cross in front of vehicles as they are being driven. It is dangerous and breaks the contestant's concentration.
2. Once a cone or a curb is hit or touched by a vehicle, it is circled on the score sheet. Additional penalty points are **not** assessed for hitting the same cone or curb more than once. A cone is "hit" when any portion of the vehicle comes in contact with the cone or its base. This includes the tires, body, and bumpers. A cone does not have to be knocked over to be "hit". If a cone is being dragged, the judge must get the contestant's and the on-board judge's attention so that the vehicle can be stopped and the cone removed. The timekeeper should stop the clock under these circumstances, and restart it when the cone is cleared and the contestant continues on the course. If a dragged cone hits other cones before the vehicle is stopped, the judges must determine if the cone(s) that was (were) hit by the dragged cone would have been hit by the vehicle if the cone was not being dragged. Judges should use their best judgement, and be consistent.
3. Judges must reset the cones, or the curb, after they have been touched or hit. Do not reset the cones until after the vehicle clears the obstacle. Place the cones or curb in the same place. Do not make any adjustments to the course by altering the placement of the cones! The key to a fair course is that the obstacles are the same for all contestants.
4. Note that different cones have different point values at the various obstacles. Look over the score sheets ahead of time. Sometimes it may be better for a contestant to take a ten (10) point back-up penalty than to hit a twenty-five (25) point cone!
5. It is permissible for a contestant to stop on the course. Penalty points will not be assessed for a stop, only for transmission shifts into reverse that are not required by the obstacle. The clock will continue to run during a stop as long as the stop is not required by a judge.
6. Judges, be careful that you do not unintentionally give the contestants guidance through visual cues. You are not directing the contestants; you are scoring them.
7. Similarly, spectators are not permitted to follow vehicles as they progress through the course nor are they permitted in the Pre-Trip Inspection or Wheelchair Securement areas. Spectators should remain within the designated viewing areas (APPENDIX D).
8. The use of turn signals is required on the course. Turn signals must be used on all skill tests that require a turn or lane change. Points will be deducted for each improper use of turn signals. Turn signals will **not** be required for unscored left or right turns necessary to follow the course, and points will not be deducted if the

signals are used for these turns. Turn signal use will be scored by the judges on the course for that particular obstacle.

9. Seatbelts must be worn by **all** drivers and all **paratransit** on-board judges.
10. For a summary of the point system see APPENDIX B for Fixed Route and APPENDIX C for Paratransit.

5. Wheelchair Tie-Down (Paratransit)

1. Every driver is required to load and secure a wheelchair properly. This requirement has been included in the Rodeo as another means to test the driver's professionalism. A vehicle has been set apart for you to be tested on. In front of you, you have a vehicle with a complete set of straps and a working ramp/lift. You will have seven (7) minutes to load and secure a wheelchair properly, at the same time showing your professionalism to the judge. The seven (7) minutes does not include the time the judge will spend testing the securement. You will not be assisted in any way, you will not be told things that you performed correctly or things that you missed, and you will not be told your final score. This is done in order to maintain fairness and integrity of the Pre-Test. A conventional mobility device will be used for this exercise. Contestants must say the activities loud enough for the judge to hear.
2. At the start of the wheelchair securement exercise, the contestant will meet a wheelchair passenger and judge. The contestant should approach the passenger as though the passenger were a person to be transported. The contestant must verbalize to the passenger all of the activities that he/she will perform in the process of loading and securing the passenger in the vehicle. For example, the contestant must verbally ask the passenger if they have all of their belongings, not merely look around the area. The contestant must say that they are checking the handgrips on the wheelchair, and physically try to twist them. The contestant must say to the passenger that they are going to back them onto the lift. The contestant does not have to memorize a specific statement, but they must tell the passenger what they are going to do before they do it.
3. The passenger *may* be wearing a postural belt in the wheelchair. Before maneuvering the passenger on to the lift platform, the contestant must check the lap belt to verify that it is secure. The lifts should be equipped with rear safety plates. The contestant must physically check the rear safety plate to verify that it is engaged. Similarly, after the lift platform clears the ground, the contestant must physically check the front safety plate to verify that it is secure. Contestants will **not** be penalized for removing their hand from the wheelchair to check the front safety plate. For the purposes of this Rodeo, contestants will **not** be permitted to ride the lift platform. Don't leave the passenger on lift.
4. After loading the passenger in the vehicle, the contestant must secure the wheelchair and passenger. After the contestant has positioned the wheelchair in the securement area, secure the front and rear tie downs, set the wheel locks, and secure the lap belt/shoulder harness, time stops, and the contestant will exit the vehicle. At this point, you have completed the exercise. The judge will release the wheel locks and attempt to roll the wheelchair and passenger forward and backward. If the wheelchair does not roll or slide in either direction, the contestant receives twenty-four (24) points. If the wheelchair rolls or slides by any amount, the contestant will receive zero (0) points for this portion of the exercise. Judges must be consistent in evaluating this portion of the exercise!

Time

1. Each operator will be allotted seven (7) minutes to complete this examination.
2. The judge will use a stopwatch to record the elapsed time for this exercise, from the time that the contestant first greets the passenger / judge to the time that the contestant has completed securing the wheelchair. After seven minutes, the exercise will be stopped, and the contestant will be scored based on their performance to this point. **YOU WILL NOTE ON THE SCORE SHEET, THAT ALMOST EVERY ITEM, FOR THIS EXERCISE INDICATES A POINT VALUE FOR "VERBAL" AND A POINT VALUE FOR "PERFORMANCE"**. These are the points that the contestant receives for verbalizing what is being

performed, and for the actual performance. If the contestants do not verbalize what they are going to do before they do it, they do not receive the verbal point value. If they verbalize it, but they do not perform it, they do not receive the performance point value. Judges may want to circle point values on the score sheet as the contestants earn points, and total them at the end of the exercise.

Scoring

WHEELCHAIR TIE-DOWN with a maximum of two hundred (200) possible points.

The score sheet lists activities and their point values in a particular order. The items performed under “Sensitivity and Awareness” do not necessarily have to be performed in the exact order listed. However, the other activities **do** follow a logical order that must be followed. If contestants perform these activities out of order, they will not receive points for the activity that they skipped, or performed late. For example, if a contestant does not release the brakes until after he or she has connected the 2nd set of straps, they would not receive four (4) points for that item.

You will be scored on the following aspects: (SCORE SHEET)

1. SENSITIVITY AND AWARENESS (order is not critical) MAXIMUM POINTS (40)

- Greets and introduces self to passenger in a positive manner (4 point)
- Asks passenger if they need assistance boarding (4 Point)
- Asks passenger if they have all their belongings (4 Point)
- Checks that handgrips on the wheelchair are secured (4 Point Verbal, 8 Points Performed)
- Asks passenger to place hands in lap (4 Point Verbal, 8 Points Performed)

Points from section A cannot be accumulated once section B has started.

2. LOADING TO PLATFORM MAXIMUM POINTS (40)

- Checks rear safety plate (4 Point Verbal, 12 Points Performed)
- Backs passenger onto platform (4 Point Verbal, 4 Points Performed)
- Secures wheelchair locks (4 Point Verbal, 4 Points Performed)
- Secures lift safety strap (4 Point Verbal, 4 Points Performed)

3. RAISING LIFT MAXIMUM POINTS (36)

- Raises lift and checks front safety plate after it clears surface (4 Point Verbal, 12 Points Performed)
- Holds wheelchair with one hand while raising lift (4 Point Verbal, 4 Points Performed)
- Secures lift control onto door (4 Points Performed)
- Backs wheelchair into vehicle and secures at least one lock (4 Point Verbal, 4 Points Performed)

4. WHEELCHAIR AND PASSENGER SECUREMENT (order is critical) MAXIMUM POINTS (60)

- Positions wheelchair in securement area and secures locks (4 Point Verbal, 4 Points Performed)
- Places lift in “stow” position (8 Points Verbal)
- Attaches tie downs to floor and wheelchair frame and tightens tie downs (4 Point Verbal, 8 Points Performed)
- Releases locks, rolls wheelchair, and tightens straps (4 Point Verbal, 8 Points Performed)
- Attaches tie downs to floor and wheelchair frame and tightens tie downs (4 Point Verbal, 8 Points Performed)
- Secures lap belt and shoulder belt (4 Point Verbal, 4 Point Performed)
- JUDGE checks wheelchair to determine any movement (24 points)
- Penalty for standing on lift (-25 points)

The exercise is completed at this point. The releasing of the securement area and passenger / judge unloading will not be scored as part of the exercise.

Reckless use of equipment and flagrant disregard for the safety of others may result in immediate disqualification.

6. Pre-trip inspection

Pre-trip inspection (Fixed Route & Paratransit)

1. Operators will perform a Pre-Trip Inspection that will be scored.
2. There is no practice for this event. Operators will be assigned a time to report for the Pre-Trip Inspection Competition.
3. Operators should report fifteen (15) minutes prior to their assigned time to the Pre-Trip Inspection report area.
4. The Pre-Trip Inspection Competition is mandatory for all competing operators and is included in the final scoring. The Pre-Trip Inspection competition is mandatory and an important part of your overall score. This can sometimes be the difference between being the champion or not. In order to identify the planted defects, it is important to have a systematic approach to the pre-trip inspection to ensure complete coverage of the bus. It is highly recommended you prepare for this competition event, and you spend time in the display bus to familiarize yourself with the model and series of the bus.

Defects

1. Eight (8) equipment-related defects and one (1) security hazard are staged on or in a bus, and four (4) equipment-related defects are staged on or in a paratransit vehicle. These defects would make a bus or paratransit vehicle operationally unready or unsafe.
2. Defects are of a type that an operator would find when performing a pre-trip inspection.
3. Identification of defects does not require starting the bus or crawling under the bus.
4. We realize that every transit system may have different pre-trip inspection checklists. As a result, all participants will be sent a standard pre-trip form with their roadeo packet.
5. Operators will not be allowed to have a checklist of defects to refer to during the competition.
6. Eligible defects might include broken, loose, bad, missing, or incorrect:

- | | | |
|--------------|----------------------|---------------------|
| • seats | • any type of lights | • windows |
| • stanchions | • flooring | • fire extinguisher |
| • windshield | • wipers | • mirrors |
| • bus number | • doors | • license plate |
| • chime cord | | |

And a security hazard such as an abandoned package or briefcase.

7. Ineligible defects include:

- | | |
|-------------------------|-------------------------|
| • defects under the bus | • exterior body damage |
| • paint problems | • wheelchair operations |
| • kneeling functions | • radios |
| • fare boxes | • destination signs |
| • battery compartment | |

8. Equipment where multiple defects are possible will be counted only once i.e., seats, windows, lights.
9. Front and rear windows, headlights, taillights, brake lights, mirrors, and turn signals will each count as separate defects.

Time

1. Each operator will be allotted seven (7) minutes to inspect, locate, identify, and legibly record any defects found.
2. Time warnings will be given to the operator at the two (2) minute, one (1) minute, and 30 second time marks.
3. Recording defects, returning the bus to the original condition and securing doors will not be allowed after time has elapsed.

Scoring

1. Ten (10) points will be awarded for each of eight (8) planted defects found, and twenty (20) points will be awarded for one (1) planted security challenge for a maximum of one hundred (100) points.
2. Points will be awarded only for those recorded defects that were planted by the judges. No points will be awarded for identification of defects which were not planted.
3. Contestants must conduct their pre-trip inspections in a logical and systematic manner (i.e., moving from front of the vehicle to the back, left to right, or top to bottom). Contestants will earn twenty-five (25) points for doing so.
4. The operator will notify the judge when finished. Once notice is given, the operator may not list additional defects.
5. The judge will review the list of defects with each operator for clarification.
6. A penalty of one (1) point will be assessed for each instance where the bus is not returned to its original condition; for example, one (1) point assessed for lights left on, wipers left running, master switch on, windows open, and escape hatches open, etc.

Starting the bus constitutes a safety violation and will result in the operator being disqualified from this event. The inspection bus will be supplied with necessary electrical power and air pressure.

TECHNICIANS' ROADEO

MARSHALL:

1. General information

1. Maintenance teams normally consist of three (3) maintenance employees. Two-member maintenance teams may compete but must compete without concessions.
2. All members of the maintenance team may participate in all events.
3. Contestant teams must arrive at the on-site check in 60 minutes prior to competition time and must arrive at the maintenance holding area at least 30 minutes prior to their scheduled competition time. Teams arriving late may be disqualified from the competition.
4. Each team member will be supplied with a clipboard, paper, pencil, flashlight, necessary rags, and compartment door T-key. Each team will be supplied with team numbers and team stickers for each event.
5. Each team member will be issued safety glasses when they report to on-site check in on competition day. Safety glasses where required by event shall be worn. Maintenance team members may bring their own safety glasses which will be subject to examination at on-site check-in to ensure they meet safety requirements.
6. Hearing protection will be provided at both engine modules. Mechanic team members may bring their own hearing protection which will be subject to an examination at on-site check-in to ensure they meet safety requirements.
7. Abbreviations used in the shop or industry are allowed as long as they are understandable to the judges.
8. A general location must be given when identifying multiple equipment defects, i.e., window RR.
9. Teams will incur penalties whenever they use tools/test equipment improperly and/or violate safety rules.
10. When listing defects, write legibly.
11. For events that only allow a limited number of defect listings, team members may cross out unwanted listings during the allotted time or they will be counted in the order they are listed.
12. Personnel not directly involved in site preparations are not permitted to enter the Roadeo site before the competition. Violation of this policy may result in team disqualification from the tournament.
13. All competitors must return to the holding area following each event. Only assigned Roadeo volunteers will be allowed to remain in the competition area during or between competitive events.
14. At each maintenance competitive event, entry to the competition tents is restricted to teams and team coaches. Only still photos may be taken by the team coach; no video recording is permitted.
15. Maintenance teams must wear proper clothing including closed toe footwear and long pants (no shorts) for the competition.

2. Competition events

The maintenance Roadeo competition is comprised of a series of timed competitive events. Participants are required to inspect, locate, identify, repair (where applicable), and legibly record planted module defects. Events will be scored using a point-based system used to measure each team's knowledge and skill level.

The Technicians Competition Events include the following:

1. Written Test
2. USSC Vehicle Inspection
3. Allison Transmission/Cummins/EMP Power Train Event
4. Cummins/Voith Power Train Event
5. Custom Training Aid/Bendix Air Brake Board Event
6. Thermo King HVAC IntelligAIRE Event
7. MCI Multiplex Module
8. Vapor Door Event

3. Written Test

1. Description:

- Each maintenance team will jointly take a written test of 50 questions.
- The test will use the ASE format with questions split between general knowledge, engine, HVAC, brakes, electrical and transmission.

2. Time:

- Team members are allotted 30 minutes to answer all test questions.
- Time warnings will be given to the team at two (2) minutes, one (1) minute, and 30 second time marks.

3. Scoring:

- Each question is worth 2.5 points.
- There is a maximum of one hundred twenty-five (125) points.

4. Tie breakers on the written test will be as follows:

- First tie breaker: least amount of time to complete the test
- Second tie breaker: correct answers for four (4) identified questions

4. USSC Vehicle Inspection

Defects

1. Fourteen (14) equipment-related defects are planted on or in a bus. These defects would make a bus operationally unready. Defects are of a type that a technician should find during a minor mechanic inspection.
2. Each team member may list unlimited defects.
3. Identification of defects does not require starting the bus or crawling under the bus.
4. Teams will not be allowed to have a checklist of defects to refer to during the competition.
5. Eligible defects might include broken, loose, bad, missing, or incorrect:

seats	windshield
all type of lights	number
windows	mirrors
stanchions	license plate
flooring	doors
fire extinguisher	dipsticks
door engines	bell cord
wipers	a security hazard
6. Ineligible defects include:

defects under the bus	radios
exterior body damage	fareboxes
paint problems	destination signs
wheelchair operations	battery compartment
kneeling functions	
7. Equipment where multiple defects are possible will be counted only once, i.e., seats, windows, lights.
8. Front and rear windows, headlights, taillights, brake lights, mirrors, and turn signals will each count as separate defects.

Time

1. All members of a team are allotted seven (7) minutes to inspect, locate, identify, and legibly record any defects found.
2. Time warnings will be given to the team at the two (2) minute, one (1) minute, and 30 second time marks.
3. Recording defects and securing doors will not be allowed after time has elapsed.

Scoring

1. Twenty-five (25) points are awarded for each planted defect found, with a maximum of three hundred and fifty (350) points.
2. Points will be awarded only for those recorded defects that were planted by the judges. No points will be awarded for identification of defects which were not planted.

3. The team will notify the judges when they are finished. Once notice is given, the team may not list additional defects.
4. The judges will review the list of defects with each team for clarification.
5. A penalty of ten (10) points will be assessed for each instance where the bus is not returned to its original condition; for example, ten (10) points assessed for each compartment door not secured including the entrance door, lights left on, wipers left running, master switch on, windows open, and escape hatches open, etc.
6. A penalty of ten (10) points will be assessed for each incident of unsafe practice during the vehicle inspection.
7. Starting the bus constitutes a safety violation and will result in the team being disqualified from this event. The inspection bus will be supplied with necessary electrical power and air pressure.

5. Allison Transmission / Cummins / EMP Power Train Event

Description

The Allison Transmission / Cummins / EMP Power Train Module is composed of a Cummins EPA 2010 ISL9 engine combined with an Allison B400R transmission and EMP's Mini-Hybrid® system mounted on a portable frame. Laptops will be supplied to interface with the Allison DOC® for PC, Cummins INSITE™ and EMPOWER Connect™ diagnostic software programs. The Power Train Modules feature simulations of typical transit bus vehicle interfaces.

1. Cummins engine specifications are:

- Cummins EPA 2010 ISL9
 - 540 cubic inch displacement
 - 280 hp (209 kW)
 - 900 lb-ft (1220 N-m) @ 1300 RPM
 - 2200 RPM governed speed
- Cummins XPI Fuel System
 - control module
 - J1939 CAN interface
 - High pressure common rail system
- VGT™ Turbocharger
 - HE431VE variable geometry turbocharger
- Fuel Pro Fuel Filter
 - Primary & secondary assembly
 - Integrated water separator
- EcoFit™ Ultra-Low Emission System
 - SCR technology & DEF injection



2. Allison transmission specifications are:

- Allison B400R Bus Series
- 300 hp (224 kW) 925 lb-ft (1254 N-m) rating
 - TC418 Torque converter (1.98 stall torque ratio)
 - Integral output retarder
 - Low setting
 - 1100 lb-ft (1490 N-m) 400 hp (298 kW)
 - Air-actuated retarder accumulator
 - Integral sump cooling
 - Allison TransSynd TES295™ synthetic oil
- Allison Optimized Smart Controls
 - Allison 5th Generation controls
 - Load-Based Shift Scheduling (LBSS)
 - Allison Prognostics
 - Reduced Engine Load at Stop (RELS)
 - Vehicle Acceleration Control (VAC)
 - Increased lockup availability
 - Retarder enable
 - Multi-level retarder apply system
 - Secondary shift schedule
 - Auxiliary function range inhibit



3. EMP cooling & charging system specifications are:

- EMP Mini-Hybrid®
- Radiator and Charge Air Cooler
 - Brazed aluminum bar/plate construction
- Diagnostic capability
- 4 EMP FIL-15 24 VDC Pusher fans
- Integrated fan controllers + system controller
- J1939 CAN Interface for system to vehicle
- Fan reversal & diagnostic LED panel
- Amperage – 55 amp max @ 24 VDC each fan
- Power 450 brushless alternator
 - 450 Amp 28 VDC
 - Air cooled
 - Turn-on speed – 1250 RPM
 - Maximum speed – 6500 RPM
 - Maximum ripple voltage – 300 mV
 - Weight – 100 lbs. (45.4 kg)



Defects

1. Seven (7) defects or problems related to transmission, engine and cooling system malfunctions are planted. One defect will render the engine inoperable. For purposes of the Roadeo, inoperable means that the engine will not start or when started will not maintain an idle RPM that meets engine manufacturer's specification. This is the only defect that must be repaired.
2. A battery disconnect switch is located next to the batteries. It is to be returned to the OFF position at the end of the event.
3. A team may attempt to start the engine at any time to check for defects.
4. Types of defects could include:
 - Improper activation of components
 - Malfunctioning fuel system
 - Obstruction with the flow of air, water, exhaust, fuel or oil
 - Improper fluid levels
 - Defective sensors, wires and/or connectors
 - Missing assemblies or parts thereof
 - Loose or missing caps or covers
5. Defects do NOT include fluid leaks such as oil, water, fuel, etc.
6. The judges will review the list of defects with each team upon completion of time to clarify their list of defects. The team does not have to replant the one (1) repaired defect.
7. Defect determination which normally would require a running engine will not be scored if the engine is not started.

Time

1. Team members will be allotted ten (10) minutes to inspect, trouble shoot, diagnose, correct, and legibly record the planted defects.
2. The team is only required to correct that defect which prevents the power train from starting and/or maintaining an idle RPM that meets engine manufacturer's specification.
3. Time warnings will be given to the team at the two (2) minute, one (1) minute, and 30 second time marks.

Scoring

1. Fifty (50) points are awarded for each planted defect found, with a maximum of 350 points.
2. Points will be awarded for each defect correctly identified, recorded, and, in the case of that defect which renders the power train inoperable, corrected. Only those defects planted by the judges will be considered for scoring purposes.
3. Only seven defects are to be listed. If more than seven are listed, only the first seven listed will count for scoring purposes. If more than seven were initially listed, unwanted listings may be crossed out to leave the top choices, but must be completed prior to time expiration.

4. The team will notify the judges when they are finished. Once notice is given, the team may not list additional defects.
5. The judges will review the list of defects with each team for clarification.
6. A team will be penalized fifty (50) points for not having the power train in operational condition before an engine start is attempted, i.e., air cleaner removed, fuel lines disconnected etc.
7. The team will be penalized ten (10) points for misuse of any diagnostic/test equipment.
8. The team will be penalized ten (10) points for each safety violation incident.
9. In the event of a tie, the fastest time to correct the defect and start the engine which renders the engine inoperable will determine the winner.

6. Cummins/Voith Power Train Event



The Cummins/Voith engine transmission module is composed of a Cummins ISL 280 engine combined with a Voith 864.5 transmission and EMP's Mini-Hybrid® system mounted on a moveable frame. The engine, transmission and Mini-Hybrid® utilize the latest diagnostic software, ALADIN for Voith, INSITE™ for Cummins and EMPower Connect™ for EMP. The engine is outfitted with a non - functional air compressor.

The Cummins engine specifications are:

- The engine is a 2010 EPA Certified Cummins ISL 280 engine, six cylinders displacing 540 cubic inches. The engine is governed to 2200 rpm and produces 900 ft-lb of torque at 1300 RPM.
- It incorporates a CM 2250 Cummins ECM engine control using a J1939 signal for communication to the transmission.
- The fuel injection system is the XPI high pressure common rail system incorporated with a primary and secondary fuel filter assembly with an integrated water separator.
- The engine also utilizes a Variable Geometry HE431VE turbocharger which feeds into the Cummins After treatment System that utilizes the latest SCR technology and DEF injection.

The Voith transmission specifications are:

- The transmission is an 864.5
- There is a 6-button pushbutton selector and switches to simulate brake stage 1, 2 and 3 to activate the retarder.
- There are two gauges mounted on a panel which show main operating pressure and converter pressure.
- The retarder is internal to the transmission and uses Voith technology to accelerate and decelerate the unit.
- The transmission design features an integrated heat exchanger which eliminates lines to the cooler for easier installation.
- The transmission is filled with the highest quality ATF and meets the specifications listed in our most re-cent Service Bulletin SB118.



The EMP Mini-Hybrid® cooling system specifications are:

- There are 4 EMP FIL-15 24VDC pusher fans with integrated controllers which are commanded by the TMC system controller via EMP-link and are reversible.
- The cooling is achieved through the use of a Brazed aluminum bar/plate radiator and charge air cooler.
- Cooling system diagnostics utilizes the J1939 CAN interface for system to vehicle diagnostics. Diagnostic capabilities are available either through the service tool, EMPower Connect™, or the LED lamp located near the system itself.



The EMP alternator specifications are:

- A P450 is an air-cooled brushless alternator providing up to 450 amps at 28VDC.
- It has a turn on RPM of 1250 RPM with a Maximum speed of 6500 RPM.
- Alternator and fans are fully guarded to prevent injury.

Defects

1. Seven (7) defects or problems related to engine and transmission malfunctions are planted. One defect will render the engine inoperable. For purposes of the Roadeo, inoperable means that the engine will not start or when started will not maintain an idle of 700 rpm.
2. A team may attempt to start the engine at any time to check for defects.
3. Types of defects could include:
 - Improper activation of components
 - Malfunctioning fuel injector
 - Obstruction with the flow of air, water, exhaust, fuel or oil
 - Improper fluid levels
 - Defective sensors, wires and/or connectors
 - Missing assemblies or parts thereof
4. Defects do NOT include fluid leaks such as oil, water, fuel, etc.
5. The judges will review the list of defects with each team upon completion of time to clarify their list of defects. The team does not have to replant the one (1) repaired defect.
6. Defect determination which normally would require a running engine will not be scored if the engine is not started.

Time

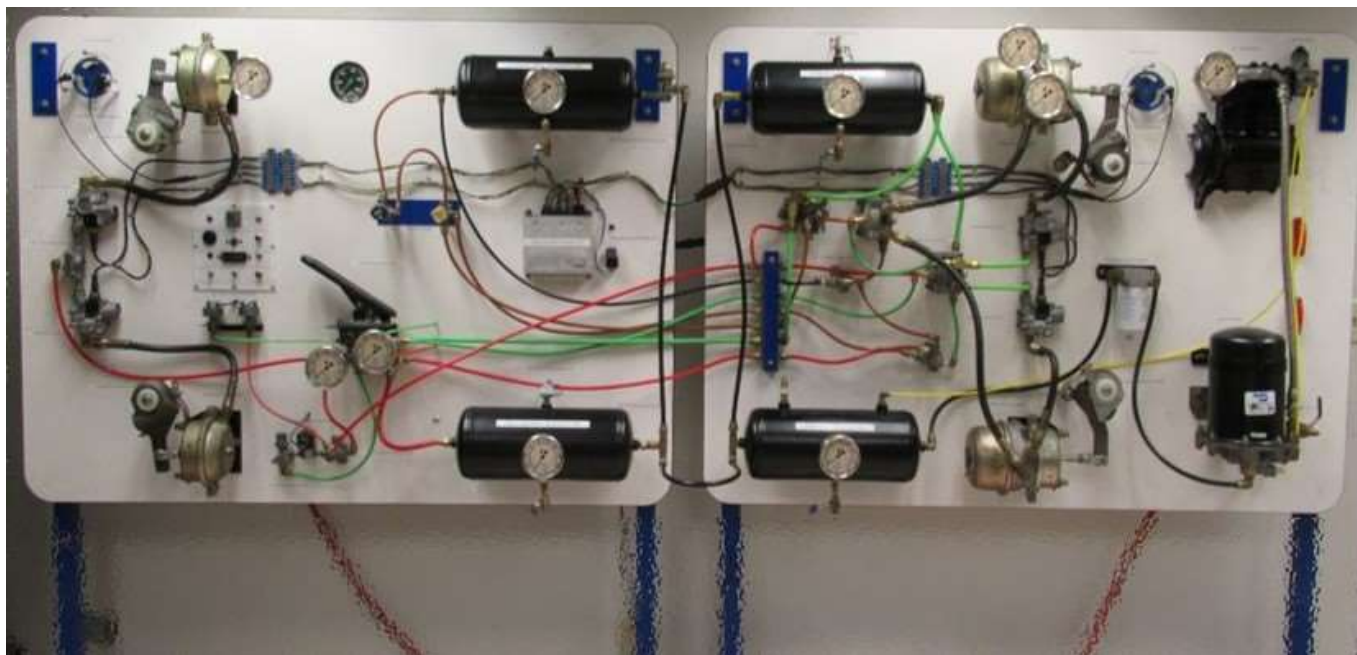
1. Team members will be allotted ten (10) minutes to inspect, trouble shoot, diagnose, correct, and legibly record the planted defects.

2. The team is only required to correct that defect which prevents the power train from starting and/or maintaining an idle speed of 700 rpm.
3. Time warnings will be given to the team at the two (2) minute, one (1) minute, and 30 second time marks.

Scoring

1. Fifty (50) points are awarded for each planted defect found, with a maximum of 350 points.
2. Points will be awarded for each defect correctly identified, recorded, and, in the case of that defect which renders the power train inoperable, corrected. Only those defects planted by the judges will be considered for scoring purposes.
3. Only seven defects are to be listed. If more than seven are listed, only the first seven listed will count for scoring purposes. If more than seven were initially listed, unwanted listings may be crossed out to leave the top choices, but must be completed prior to time expiration.
4. The team will notify the judges when they are finished. Once notice is given, the team may not list additional defects.
5. The judges will review the list of defects with each team for clarification.
6. A team will be penalized fifty (50) points for not having the power train in operational condition before an engine start is attempted, i.e., air cleaner removed, fuel lines disconnected etc.
7. The team will be penalized ten (10) points for misuse of any diagnostic/test equipment.
8. The team will be penalized ten (10) points for each safety violation incident.
9. In the event of a tie, the fastest time to correct the defect and start the engine which renders the engine inoperable will determine the winner.

7. Custom Training Aids/Bendix Air Brake System (ABS) Event



The competition will be conducted using a fully functional air brake system with Antilock Brake System (ABS) components. The components of the system will be functional with the exception of the air compressor.

Description

NOTE: The description, drawing and component list contains the most current information and is subject to change.

The air brake demonstration board represents a current model year 40'-2 axle transit bus equipped with an antilock brake system. The board is manufactured to the current Federal Motor Vehicle Safety Standard 121. Air reservoirs and brake chambers are reduced in size to limit air consumption while maintaining precise control and operation of system components. The foundation brake system represents an 'S' Cam spring braked vehicle. Anti-lock brake system is a Wabco 'D' version 4S/4M 12 volt system controlled by a cab mount electronic control module with transmission retarder control relay. Brake valves are manufactured by Bendix and are common to most current transit buses meeting FMVSS 121. All air system components are fully functional with the exception of the air compressor. The air compressor is a cut-away demonstration unit with fully functional unloader valves.

System components

- Tu-Flo 700 Air compressor
- D-2 Air Governor, cutout set to 125 PSI
- AD-9 Air Dryer
- Puraguard oil separator mounted after the air dryer
- E-6 Brake application valve
- R-12DC Service brake relay valve with a crack pressure of 5.5 PSI
- R-14 Spring brake relay valve with a crack pressure of 4.0 PSI
- QR-1 Front service brake valve
- SR-1 Spring brake modulation valve
- SL-5 Stop light switches which light the 2 LED stop lights at 5 PSI
- LP-3 Low-pressure switches rated at 70 PSI
- RV-1 Interlock pressure regulator adjusted to 45 PSI
- PR-3 Pressure protection valve mounted on accessory reservoir opens at 80 PSI
- PP-1 Control valve with an application pressure of 40 PSI
- RD-3 Spring brake emergency release valve
- Duplex instrument panel air pressure gauge with green and red needles representing Primary and Second-ary air brake systems.
- ST-3 Safety valve, 150 PSI
- SC-3 single check valves
- DC-4 double check valves
- Wabco open style modulator valves
- Haldex automatic slack adjusters
- Type-20 front service brake chambers
- Type-24 Service/Spring brake chambers

Air Lines are color coded to represent:

- **Supply air system:** Black
- **Primary brake system:** Green
- **Secondary brake system:** Red
- **Emergency system:** Brown
- **Governor control:** Yellow

Defects

8. Part I – Air Brake System Electrical/Pneumatics Diagnostics

1. The team will be required to use a Digital Volt Ohm Meter (DVOM) to diagnose an electrical component. The electrical component may include, but is not limited to: electrical relays, sensors, wiring harness, etc.
2. Part I will be timed and will be used as a tie breaker for the event.

9. Part II – Air Brake System Trouble Shooting

1. The team will be required to inspect, locate, identify, and legibly record, including location, the six (6) planted defects.
2. Defects will be mechanical in nature, but will not be airline or connection leaks.
3. Identification of defects will not require the system to be repaired, taken apart, or disconnected.

Time

1. Seven (7) minutes will be allotted for this event.
2. Time warnings will be given to the team at the remaining time of two (2) minutes, one (1) minute, and 30 seconds.

Scoring

1. Total Possible Points for this event is 350.
2. Fifty (50) points will be awarded for the successful diagnosis of Part I, Air Brake System Electrical/Pneumatics Diagnostics.
3. Part II, Air Brake System Trouble Shooting, will be worth 300 points. Fifty (50) points will be awarded for each of the six (6) planted defects found in the Air Brake System.
4. Points will be given only for those recorded defects that were planted by the judges. No consideration will be given for listed defects not planted.
5. Only six defects are to be listed. If more than six are listed, only the first six listed will count for scoring purposes. If more than six were initially listed, unwanted listings may be crossed out to leave the top choices but must be done prior to time expiration.
6. The team will be penalized ten (10) points for misuse of any diagnostic/test equipment.
7. The team will be penalized ten (10) points for each safety violation incident.
8. The team will be penalized ten (10) points if the ABS board is not returned to its original status, i.e. Air: on/off, Power: on/off.
9. The team will notify the judges when they are finished. Once notice is given, the team may not list additional defects.
10. The judges will review the list of defects with each team for clarification.

In the event of a tie, the fastest time to diagnose and record the defects in Part I Air Brake System Electrical/Pneumatics Diagnostics will determine the winner.

10. Thermo King HVAC IntelligAIRE Event



Description

The competition will be conducted on a fully operational bus air conditioning maintenance training simulator.

Components

- Thermo King Model T Series rear mount bus air conditioning unit
- IntelligAIRE II controls
- Thermo King brushless motors
- QS391 compressor and clutch assembly
- Belt driven 150 amp, 27 VDC Battery-less alternator.
- 460VAC/3 phase, 20 horsepower electric motor and batteries

Equipment

The following equipment will be provided for this event:

1. Laptop computer with interface cable
2. Thermo King IntelligAIRE II software to provide diagnostic capabilities.
3. Digital multi-meter with test leads

No other hand tools will be needed for the competition.

Defects

1. One defect will render the air conditioning system inoperable. For purposes of the Roadeo, inoperable will mean that the 20-horsepower electric motor which is the belt driving the compressor/alternator is running, however, the air conditioning unit does not operate.
2. The team will only have to correct the defect that prevents the air conditioning unit from starting.
3. Defects will be mechanical or electrical in nature, but leakage of refrigerant or oil will not be considered a defect.
4. Defects will be such that they do not require the A/C system to be repaired or taken apart.

Time

1. The team will be allotted ten (10) minutes to inspect, troubleshoot, diagnose, and legibly record the planted defects.
2. Time warnings will be given to the team at the two (2) minute, one (1) minute and 30 second time marks.

Scoring

1. Points for this event total 350.
2. Fifty (50) points are awarded for each of six (6) planted defects found and recorded including one (1) defect that must be recorded and corrected to enable the air conditioning unit to function.
3. Fifty (50) points will be awarded for recording all active logged codes.
4. Points will be given only for those six (6) defects and one logged code that are planted by the judges. No consideration will be given for listed defects or codes not planted.
5. Only six defects are to be listed. If more than six are listed, only the first six listed will count for scoring purposes. If more than six were initially listed, unwanted listings may be crossed out to leave the top choices but must be completed during the competition allowed time.
6. When finished all team members are to return behind the start/finish line and notify judges. The clock will then be stopped.
7. Once notice is given, the team may not list additional defects or make additional corrections to the air-conditioning system.
8. The team will be penalized ten (10) points for not returning the A/C unit simulator to original status when they are finished.
9. The team will be penalized ten (10) points for misuse of any diagnostic/test equipment or tools.
10. The team will be penalized ten (10) points for each safety violation incident.
11. In the event of a tie, the fastest time to get the compressor running will determine the winner.

11. MCI I/O Controls Module



Description

The competition will be conducted on a operational board using the Dinex I/O T2 Control electrical system. The board will have multiple electrically related defects.

Components

Two (2) Motor Coach Industries I/O boards similarly equipped with I/O T2 Controls Multiplex Electrical System will be used for this competition.

Equipment

The following equipment will be provided for this event:

1. Digital multi-meter with test leads
2. I/O Control ladder logic
3. Hand tools as required

Defects

1. Defects will be electrical in nature.
2. A total of seven (7) defects will be inserted into the I/O electrical board.

Time

1. The team will be allotted seven (7) minutes to inspect, troubleshoot, diagnose, and legibly record the planted defects.
2. Time warnings will be given to the team at the two (2) minute, one (1) minute and 30 second time marks.

Scoring

1. Possible points for this event total 350.
2. Fifty (50) points are awarded for each of the seven (7) planted defects found including recording and defining the cause and symptom of the defect.
3. Points will be given only for those seven (7) defects that were planted by the judges. No consideration will be given for listed defects not planted.
4. Only seven defects are to be listed. If more than seven are listed, only the first seven listed will count for scoring purposes. If more than seven are initially listed, unwanted listings may be crossed out, but must be completed prior to time expiration.
5. Points will be awarded for each defect correctly identified, and recorded
6. The team will notify the judges when they are finished. Once notice is given, the team may not list additional defects.
7. The team will be penalized ten (10) points for misuse of any diagnostic/test equipment or tools.
8. The team will be penalized ten (10) points for each safety violation incident.

9. In the event of a tie, the fastest time to complete the event will determine the winner.

12. Vapor Door Event



Description

The competition will be conducted on a fully operational, half-height bus door system mockup.

Components

Vapor rear-door, slide-glide door system. Pneumatic actuator baseplate assembly includes a Vapor Activair® door engine, connecting rods, door shaft levers, pressure wave switches, wiring and air hoses. Also included: two (2), half-height Vapor Ameriview® door panels equipped with Vapor mechanical touch bars and sensitive leading edges, roller brackets, brushes, and door seals; vertical shafts and arms; emergency release mechanism; and a driver's door controller handle. An air compressor will provide 90-120psi air supply to the door system.

Equipment

All necessary tools and equipment required to compete in this event will be provided.

Time

1. The team will be allotted seven (7) minutes to inspect, locate, identify and legibly record the planted defects.
2. Time warnings will be given to the team at the remaining time of two (2) minutes, one (1) minute, and thirty (30) seconds.

Defects

The competition will consist of seven (7) planted defects.

1. The defects will be mechanical or electrical in nature. The team will not be required to repair the defect. Leakage of air will not be considered a defect.
2. The team may attempt to open and close the doors to check for defects.

Safety

Each team will designate a team member as the “Door Opener”.

1. Door Opener to yell “CLEAR” prior to moving the door control handle. Must hear verbal acknowledgement “CLEAR” from each of the other team members before moving the door control handle.
2. A 10-point Safety Violation will be assessed for each instance this procedure is not followed.
3. A team member is allowed to stand on the inboard side (inside) of the mockup only. A 10-point safety violation will be assessed for each attempt to stand on the outboard side (outside) of the mockup.

Scoring

1. Fifty (50) points are awarded for each planted defect found, with a maximum of three hundred and fifty (350) points.
2. Only those defects planted by the judges will be considered for scoring purposes. No consideration will be given for listed defects not planted.
3. Only seven (7) defects are to be listed. If more than seven are listed, only the first seven will count for scoring purposes. If more than seven were initially listed, unwanted listings may be crossed out to leave the top choices but must be completed prior to the time expiration.
4. The team will notify the judges when they are finished. Once notice is given, the team may not delete or add additional defects.
5. The judges will review the list of defects with each team for clarification.
6. The team will be penalized ten (10) points for each safety violation incident.
7. In the event of a tie, the fastest time to identify and record the planted defects will determine the winner.

13. Maintenance scoring

Maintenance Score Sheets can be found in Appendix J.

Overall maintenance awards

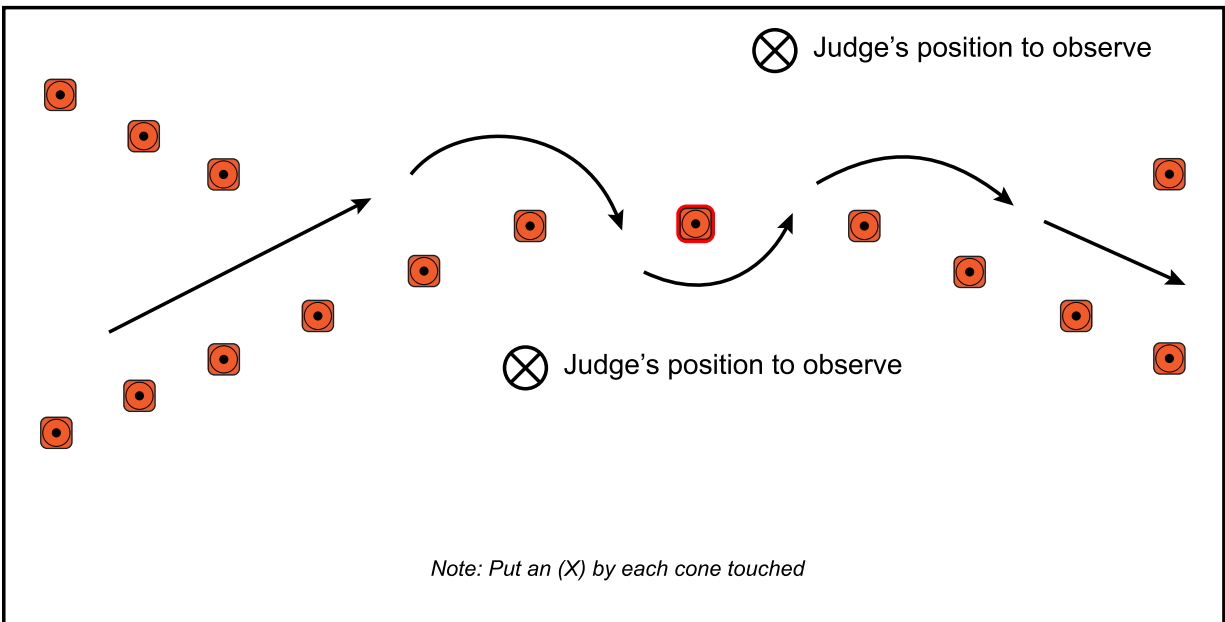
1. There will be a first, second and third place award for the overall maintenance competition. The awards will be determined by highest point values.
2. In case of a tie for any place, the tie will be settled in the order as follows:
 - The highest combined score from the Cummins/Allison and Cummins/Voith Power Train Event Problems.
 - The highest vehicle inspection score.
 - The lowest combined time required on the Cummins/Allison and Cummins/Voith Power Train Event Problems.
3. All decisions of the event judges are final.

Individual maintenance events:

1. The highest scores in each of the maintenance events will be recognized by a separate award.
2. Sponsors of the Maintenance events also provide prizes.

APPENDIX A: BUS ROADEO COURSE DESCRIPTIONS

Serpentine



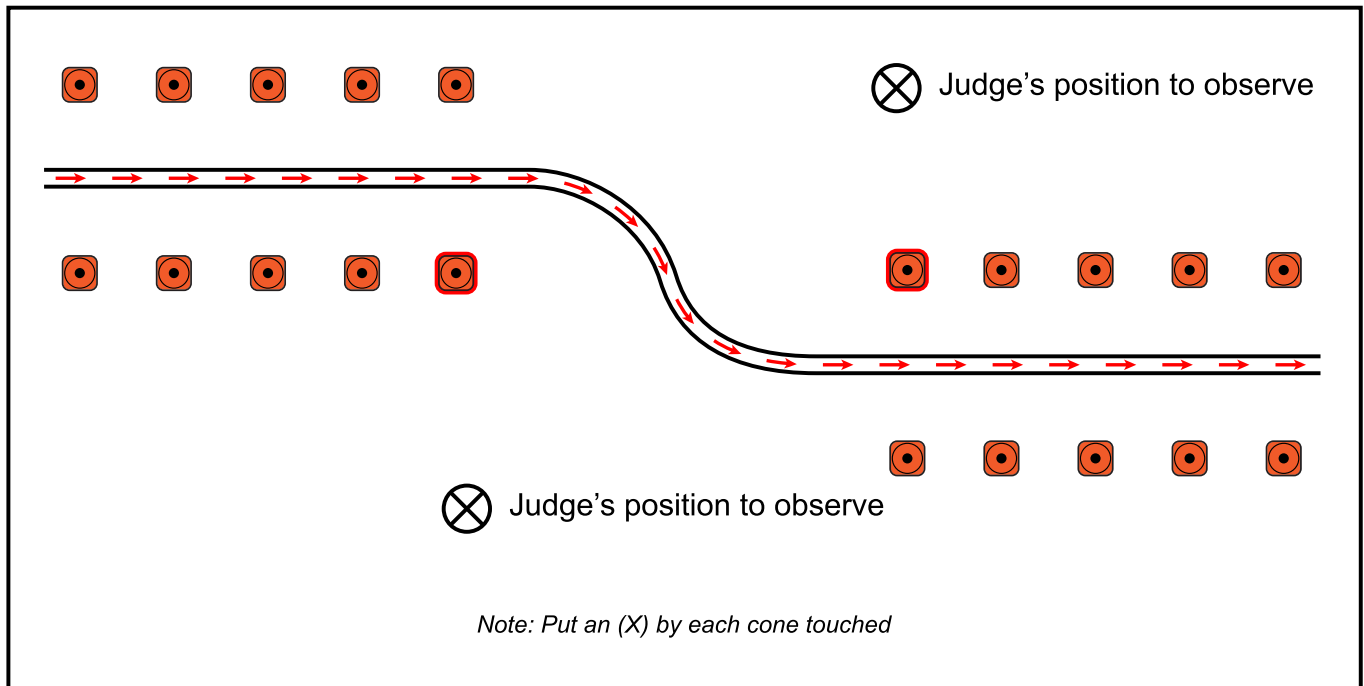
1. This obstacle tests the operator's ability to negotiate tight turns. The driver enters the course through a 'gate' and steers in and out through three (3) cones and exits the course through a 'gate.'
2. Points will be deducted for:
 - touching cones
 - shifting into reverse
 - not completing course as designed

Penalties

- 10 points off for each cone touched.
- 10 points off for each transmission shift into reverse.
- 25 points off for touching pivot cone.

The cones that are most likely to be hit are the two entrance cones, the point, and the pivot cones. Contestants are likely to stop and shift into reverse, so you must remember to check to see if cones are hit when the vehicle is traveling backwards. Remember, a cone can only be hit once, and additional points are not lost for hitting the same cone two or more times. **Judges:** A cone is considered a "hit" whenever the tires, bumper, or body of the vehicle touch the base of a cone or the body of the cone. **(Turn signals not required.)**

Offset Street



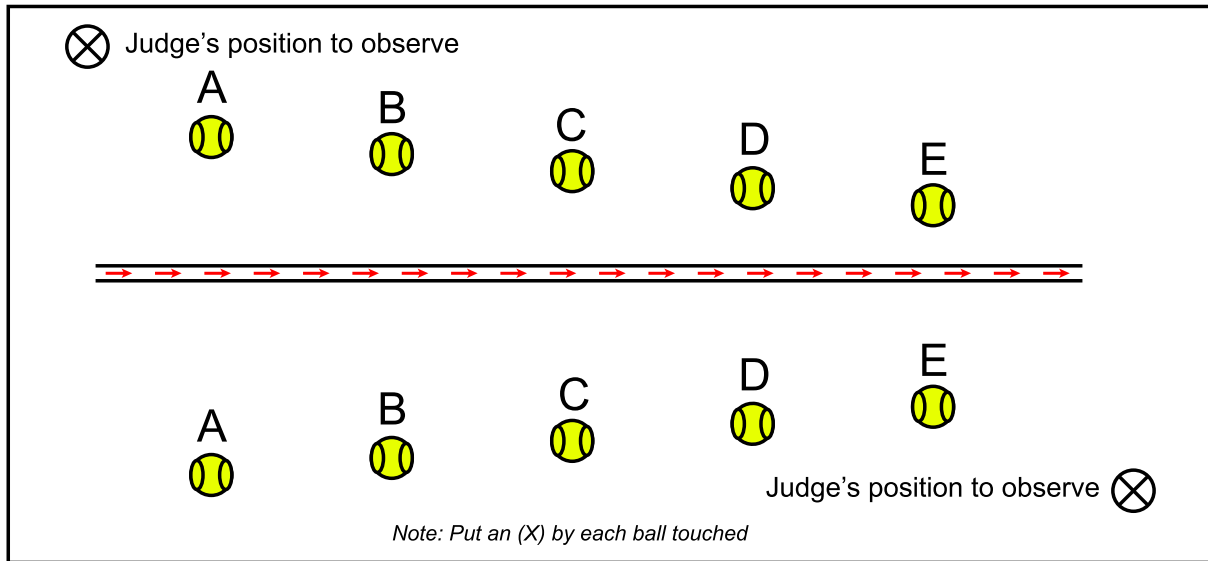
1. This obstacle requires the operator to drive through two separate narrow lanes that are offset to the right one full lane's width from each other.
2. Points will be deducted for:
 - touching cones
 - not using turn signal
 - shifting into reverse
 - not completing course as designed

Penalties

- 10 points off for each cone touched.
- 1 point off for failing to use proper turn signal
- 10 points off for each transmission shift into reverse.
- 50 points off for not completing the test as designed.

Judges should be careful to watch the last cone in the entrance set on the driver's side. This cone is likely to be hit as the rear of the vehicle swings through the turn. Watch the entrance cones on the second set for bumper contact, and watch the tires of the bus as they pass by the base of the cones. **(Turn signal required.)**

Rear Duals Clearance



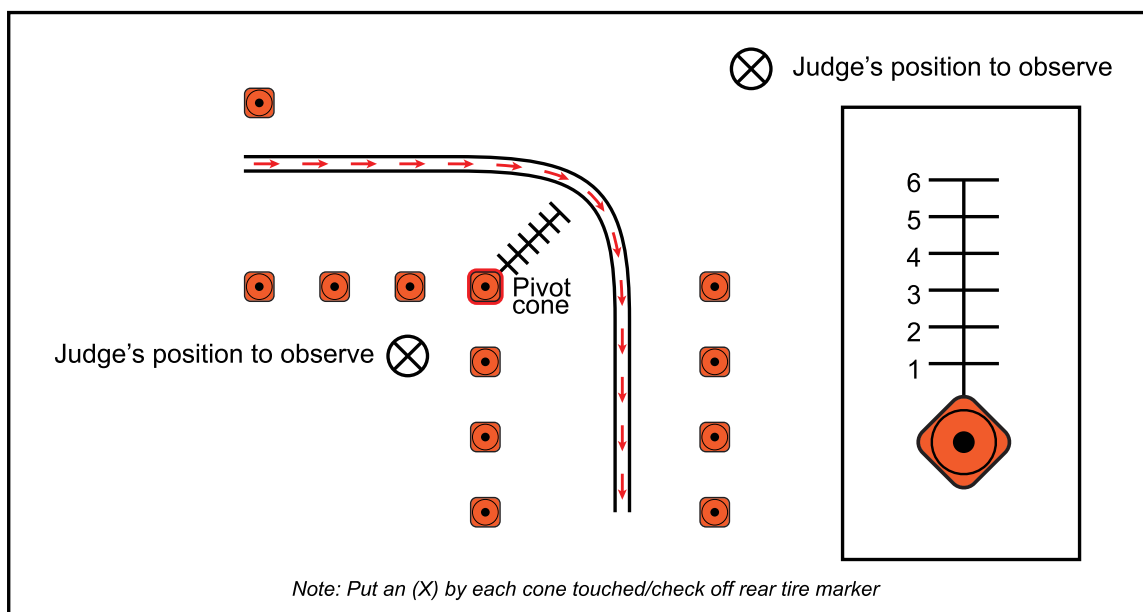
1. This is an obstacle where the operator must drive through a lane with the right dual tires. The lane is only slightly wider than the total outside width of a pair of rear duals and is marked with large flat washers and tennis balls. The lane diminishes in width from the entrance to the exit.
2. Points will be deducted for:
 - touching balls
 - shifting in reverse
 - not completing course as designed

Penalties

- 20 points off for each “A” ball touched.
- 16 points off for each “B” ball touched.
- 8 points off for each “C” ball touched.
- 4 points off for each “D” ball touched.
- 2 points off for each “E” ball touched.
- 10 points off for each transmission shift into reverse.
- 50 points off for not completing the test as designed.

Judges may need to crouch down to see if obstacle markers are being hit. It makes no difference if the obstacle markers are hit by the front or rear tires. Once a marker is hit, points are lost. Markers can be hit only once. Keep in mind that the markers have varying point values. If a hit marker hits another, the judges must use their judgement to determine if the marker would have been hit by the tire anyway. Again, be consistent!
(Turn signals not required)

Right Hand Turn



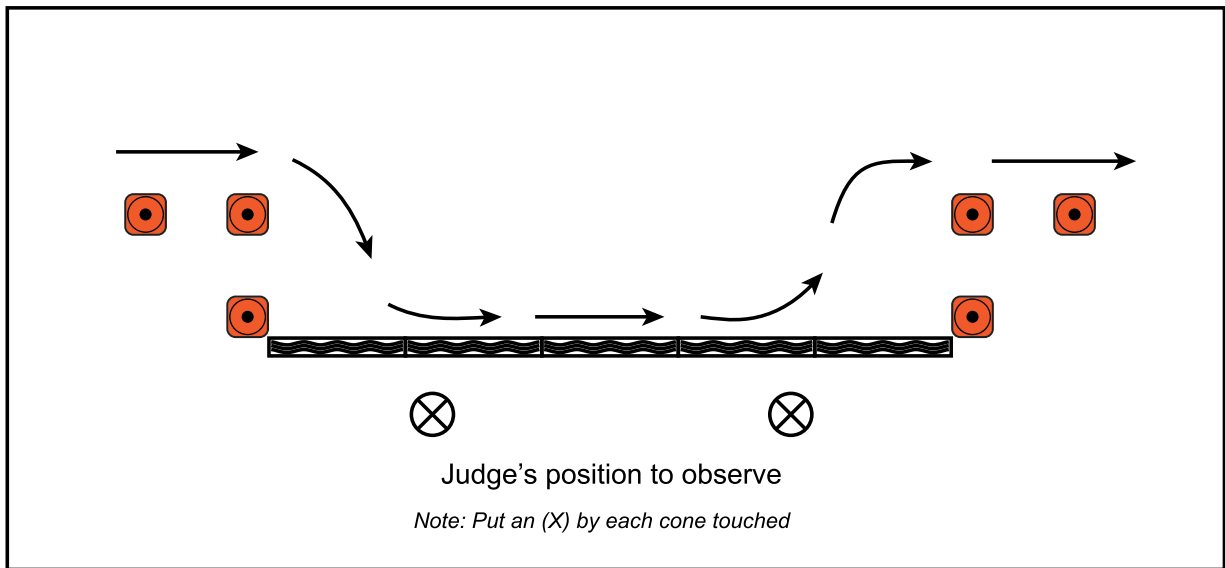
1. This obstacle tests the operator's ability to negotiate a tight 90° turn. The corner is marked with cones and the right rear tire of the bus is to pass within six (6) inches of the corner cone.
2. Points will be deducted for:
 - touching cones
 - not using turn signal
 - shifting into reverse
 - excessive right rear tire clearance
 - not completing course as designed

Penalties

- 10 points off for each cone touched.
- 1 point off for failing to use proper turn signal
- 5 points off for each 6" segment beyond the first 6" of the pivot cone.
- 10 points off for each transmission shift into reverse.
- 25 points off for touching pivot cone.
- 50 points off for not completing the test as designed.

Note the location of the right, outside rear tire as it crosses the 45-degree line from the pivot cone. This is the point at which you must decide which interval the tire has crossed. If any portion of the line marking the next 6" increment on the 45-degree line is visible as the tire crosses the 45-degree line, penalty points are earned. The cones most likely to be hit are the driver's side entrance cone (tail swing), the pivot cone and the exit cones. **(Turn signal required.)**

First Customer Stop



1. This event simulates a customer stop. The operator should stop the vehicle with the front tires within six (6) inches of the simulated curb. Rear tires must be within 15 inches of the simulated curb. After stopping the vehicle, the operator is required to open the door to complete the test. An ADA stop announcement must be made prior to exiting the passenger stop (Paratransit not required).
2. Points will be deducted for:
 - touching cones
 - not using turn signal
 - touching 'curb'
 - front tire measurement over six (6) inches
 - rear tire measurement over 15 inches
 - shifting into reverse
 - not completing the course as designed

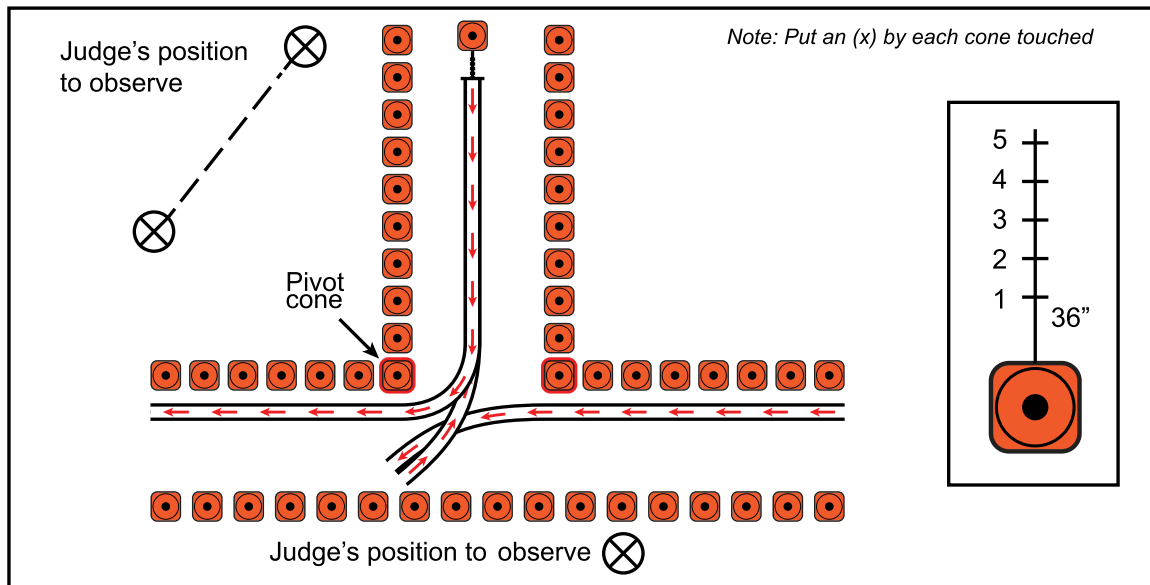
Penalties

- 25 points off for touching cones at either end of passenger stop.
- 1 point off for failing to use proper turn signal
- 25 points off for touching curb with tires.
- 1 point off per inch beyond 6" segment from curb (FRONT TIRE).
- 1 point off per inch beyond 15" segment from curb (REAR TIRE).
- 10 points off for each transmission shift into reverse.
- 50 points off for not completing test as designed.

Consistency in measurement is vital to this exercise. Measure the distance from the top edge of the curb, 4x4, or simulated curb to the center of the tire below the axle at the same height as the top of the curb (if we use a tape or other line, measure the distance at the pavement level). Be sure that the yard stick is perpendicular to the curb when you measure.

Measurements are rounded up. If you measure 8 1/4" or 8 3/4", it should be recorded as 9" on the score sheet. Hitting the curb or cones anytime, either entering or departing the stop, loses points so be careful to watch the cones and curb as the vehicle departs the exercise. The contestant must beep the horn to indicate to the judges that it is safe to measure the distance between the curb and the tires. The timekeeper must stop the clock when the horn is sounded. And restart the clock when the vehicle is put into motion. **(Turn signals required when entering and exiting the passenger stop. Set on Park. Sound the horn to notify judges it is safe to take measurements.)**

Right Hand Reverse



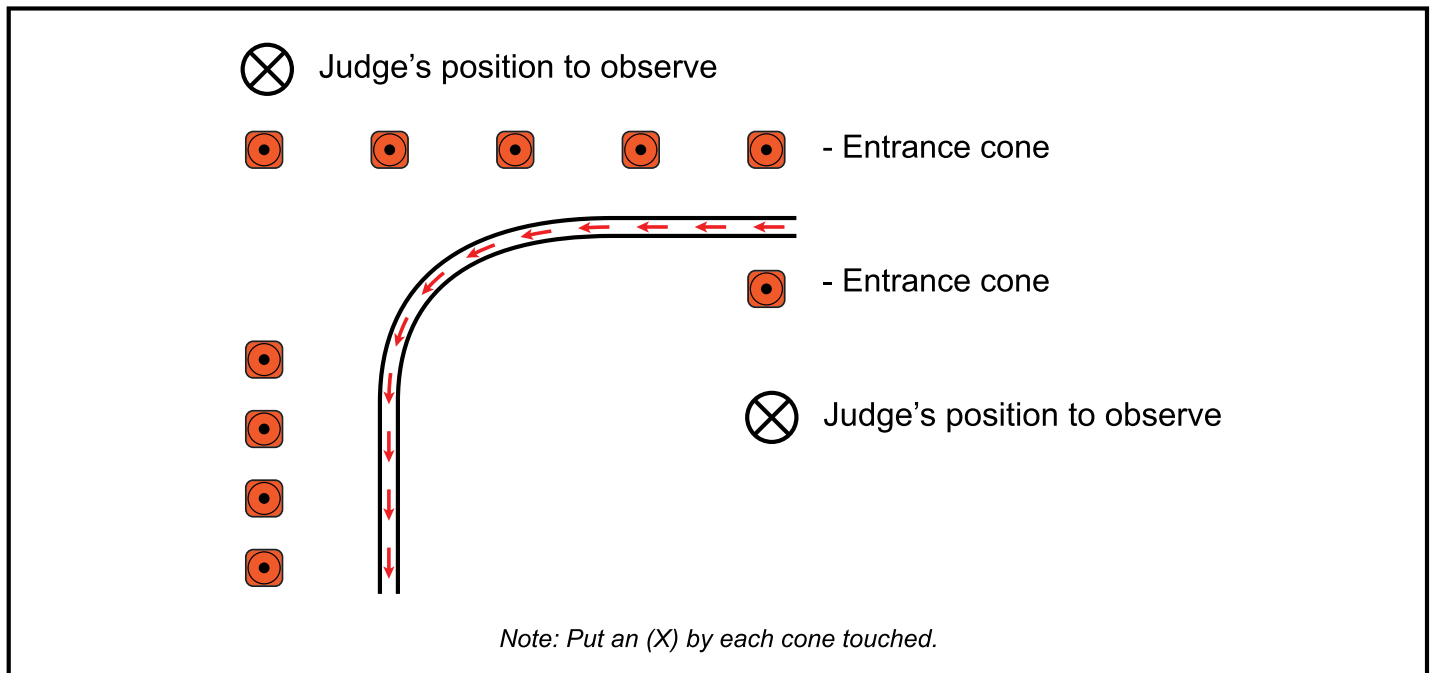
1. This obstacle tests the operator's ability to back up the vehicle between two obstacles which require the vehicle to back up to the right.
2. Points will be deducted for:
 1. touching cones
 2. sound the horn before backing up.
 - use the flashers before backing up.
 - shifting into reverse after the initial reverse
 - rear clearance beyond 36 inches
 - not completing the course as designed

Penalties

- 10 points off for pivot cone touched.
- 1 point off for failing to sound the horn before backing up.
- 1 point off for failing to use the flashers before backing up.
- 5 points off for each cone touched.
- 5 points off for each 12" segment beyond 36" limit from rear cone.
- 10 points off for each transmission shift into reverse after initial shift into reverse.
- 25 points off for touching rear cone.
- 50 points off for not completing test as designed.

The vehicle must come to a stop so that the judges can determine where the rear bumper of the vehicle is with respect to the rear marker cone. The contestant must sound the horn to signal the judges that the backing maneuver is complete, and it is safe to measure the distance from the rear of the vehicle to the rear marker cone. The timekeeper must stop the clock when the driver sounds the horn, and start the clock when the vehicle begins to move. Judges should determine the location quickly. All contestants and judges should note that the various marking cones have different point values. This obstacle is likely to experience a cone lodged between the tires and the body. Be ready to alert the contestant to stop the vehicle if necessary. Judges must remember to watch the vehicle as it departs the obstacle because points are deducted for cones that are hit while exiting the obstacle. Keeping in mind that a cone can only be hit once. **(Horn & flashers required before backing up. Set on Park. Sound the horn to notify the judges it is safe to take measurements.)**

Left Hand Turn



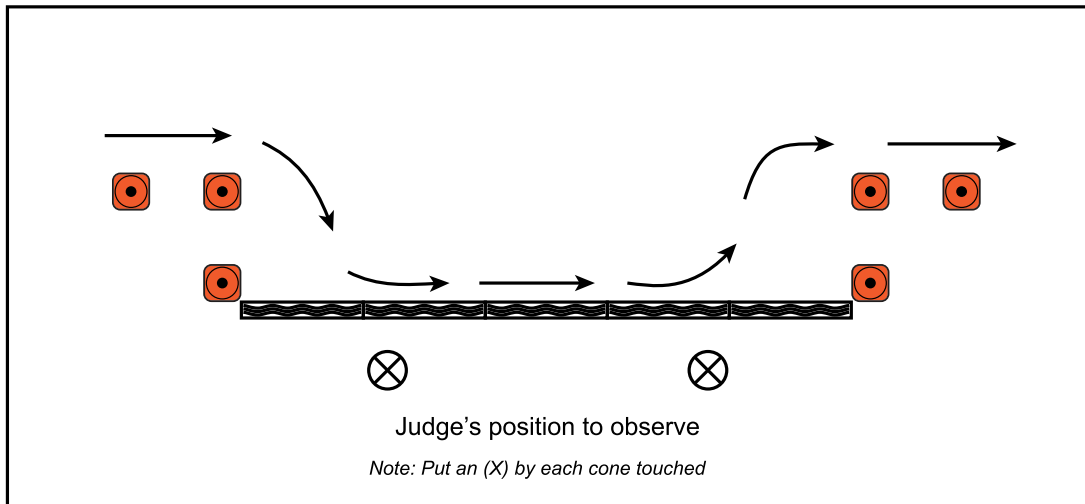
1. This obstacle tests the operator's ability to make a tight left turn in a close situation. The contestant is required to steer the vehicle into a 90° turn without touching any of the cones.
2. Points will be deducted for:
 - touching cones
 - not using turn signal
 - shifting into reverse
 - not completing course as designed

Penalties

- 10 points off for each cone touched.
- 1 point off for failing to use proper turn signal.
- 10 points off for each transmission shift into reverse.
- 25 points off for touching entrance cone.
- 50 points off for not completing test as designed.

The two entry cones are the ones most likely to be hit. Remember, they each have a 25-point value. Watch for the right entry cone being hit by the tail swing of the vehicle. **(Turn signal required.)**

Second Customer Stop



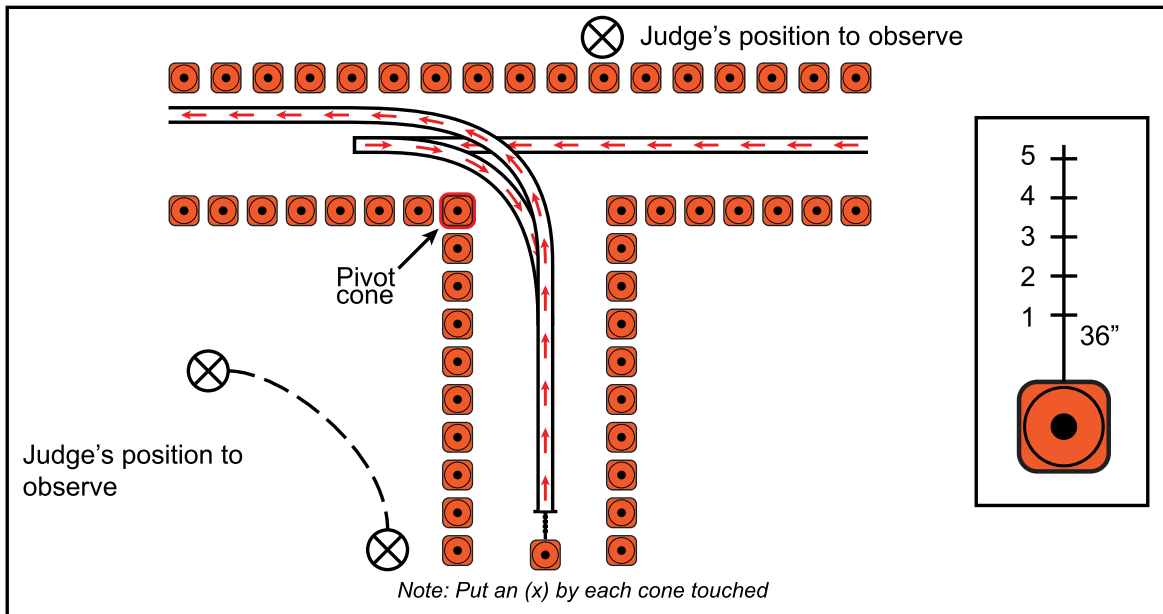
1. This event simulates another customer stop. The operator should stop the vehicle with the front tires within (six) 6 inches of the simulated curb. Rear tires must be within 15 inches of the simulated curb. After stopping the vehicle, the operator is required to open the door to complete the test. An ADA stop announcement must be made prior to exiting the passenger stop (Paratransit not required).
2. Points will be deducted for:
 - touching cones
 - not using turn signal
 - touching 'curb'
 - front tire measurement over six (6) inches
 - rear tire measurement over 15 inches
 - shifting into reverse
 - not completing the course as designed

Penalties

- 25 points off for touching cones at either end of passenger stop.
- 1 point off for failing to use proper turn signal.
- 25 points off for touching curb with tires.
- 1 point off per inch beyond 6" segment from curb (FRONT TIRE).
- 1 point off per inch beyond 15" segment from curb (REAR TIRE).
- 10 points off for each transmission shift into reverse.
- 50 points off for not completing test as designed.

Consistency in measurement is vital to this exercise. Measure the distance from the top edge of the curb, 4x4 or simulated cur to the center of the tire below the axle at the same height as the top of the curb. (if we use a tape or other line, measure the distance at the pavement level) Be sure that the yard stick is perpendicular to the curb when you measure. Measurements are rounded up. If you measure 8 ¼" or 8 ¾", it should be recorded as 9" on the score sheet. Hitting the curb or cones anytime, either entering or departing the stop, loses points. So be careful to watch the cones and curb as the vehicles departs the exercise. The contestant must beep the horn to indicate to the judges that it is safe to measure the distance between the curb and the tires. The timekeeper must stop the clock when the horn is sounded and restart the clock when the vehicle is put into motion. **(Turn signals required when entering and exiting the passenger stop, set the transmission to Park. Sound the horn to notify judges it is safe to take measurements.)**

Left Hand Reverse



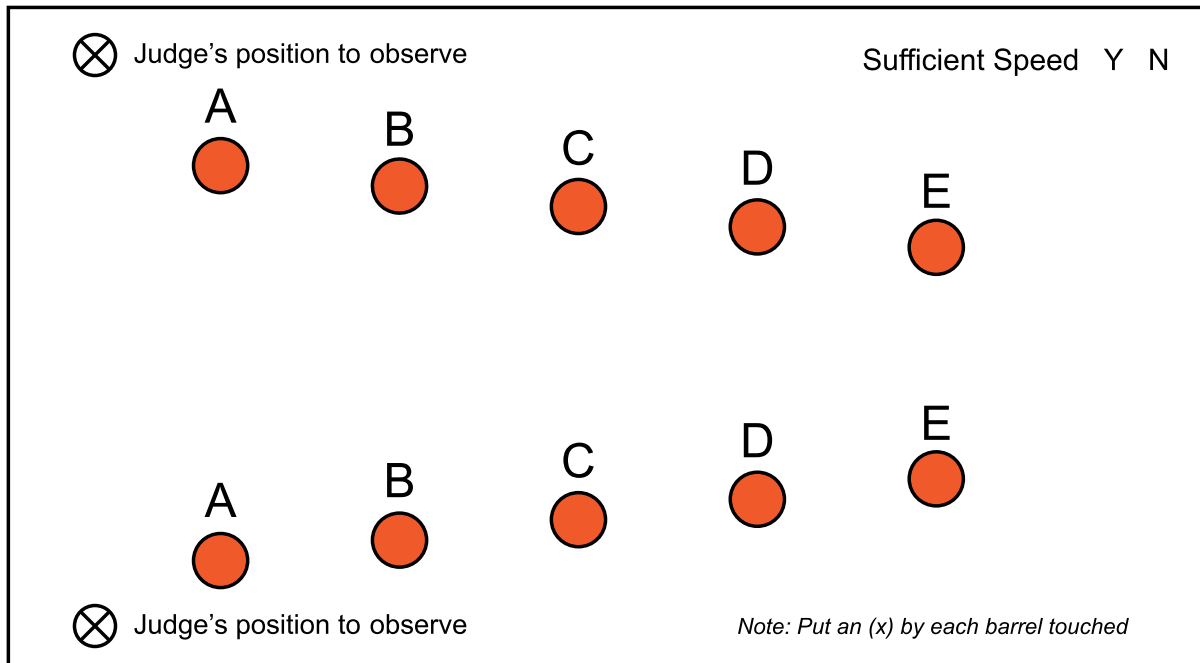
1. This obstacle tests the operator's ability to back the vehicle between two obstacles which requires the vehicle to back up to the left.
2. Points will be deducted for:
 - touching cones
 - 1 point off for failing to sound the horn before backing up.
 - 1 point off for failing to use the flashers before backing up.
 - shifting into reverse after the initial reverse
 - rear clearance beyond 36 inches
 - not completing the course as designed

Penalties

- 10 points off for pivot cone touched.
- 1 point off for failing to sound the horn before backing up.
- 1 point off for failing to use the flashers before backing up
- 5 points off for each cone touched.
- 5 points off for each 12" segment beyond 36" limit from rear cone.
- 10 points off for each transmission shift into reverse after initial shift into reverse.
- 25 points off for touching rear cone.
- 50 points off for not completing the test as designed.

The vehicle must come to a stop so that the judges can determine where the rear bumper of the vehicle is with respect to the rear marker cone. The contestant must sound the horn to signal the judges that the backing maneuver is complete, and it is safe to measure the distance from the rear of the vehicle to the rear marker cone. The timekeeper must stop the clock when the driver sounds the horn, and start the clock when the vehicle begins to move. Judges should determine the location quickly. All contestants and judges should note that the various marking cones have different point values. This obstacle is likely to experience a cone lodged between the tires and the body. Be ready to alert the contestant to stop the vehicle if necessary. Judges must remember to watch the vehicle as it departs the obstacle because points are deducted for cones that are hit while exiting the obstacle. Keeping in mind that a cone can only be hit once. **(Horn & flashers required before backing up. Set transmission to Park, then sound the horn to notify judges is it safe to take measurements.)**

Diminishing Clearance



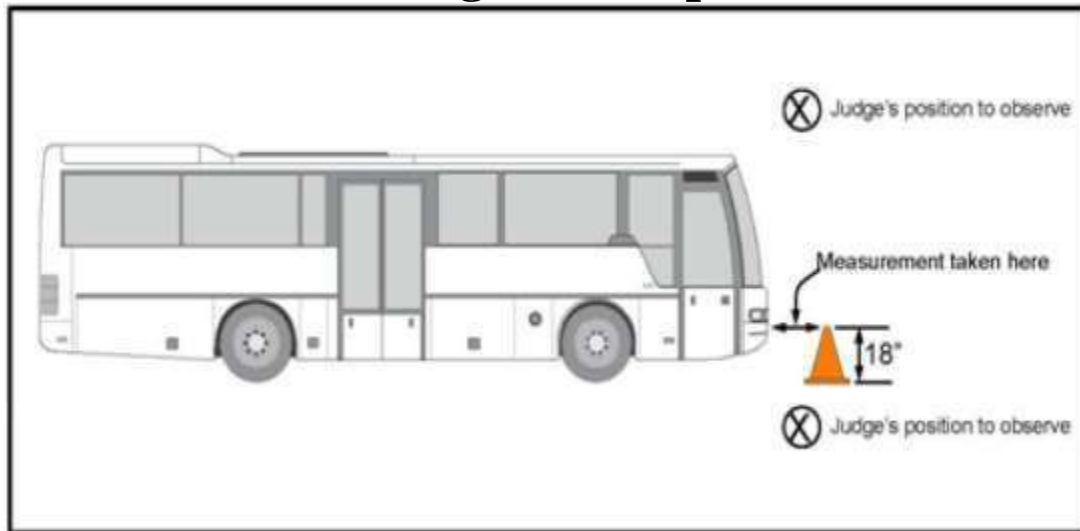
1. This obstacle tests the operator's ability to judge the position and speed of his/her vehicle. The contestant is required to drive through a narrowing, V-shaped channel outlined with barrels. The bus must obtain a minimum speed of 20 miles per hour within the obstacle.
2. Points will be deducted for:
 - touching barrels
 - speed below 20 miles per hour
 - not completing the course as designed

Penalties

- 20 points off for each "A" barrel touched.
- 16 points off for each "B" barrel touched.
- 8 points off for each "C" barrel touched.
- 4 points off for each "D" barrel touched.
- 2 points off for each "E" barrel touched.
- 25 points off for insufficient speed (20 mph).
- 50 points off for not completing the test as designed.

In this obstacle, the vehicle must be traveling at least 20 mph upon entering the barrels. The radar gun, not the vehicle speedometer, is the official speed measurement device, so judges must watch the signal of the radar gun operator. Judges should be careful to stand away from the barrels. They travel fast when hit at 20 mph. **(Turn signals not required.)**

Judgment Stop



1. This event tests the operator's ability to judge stopping distances between the bus and a small object directly ahead. A small cone is placed on the final stop. The operator must stop with the front bumper or bike rack within six (6) inches of the cone.
2. Points will be deducted for:
 - touching cone
 - excessive total stops
 - excessive clearance beyond six (6) inch limit
 - not completing the course as designed

Penalties

- 50 points off for the 18" marker being touched.
- 1 point off for each 1" beyond the initial 6".
- 25 points off for making more than one full stop.
- 50 points off for not completing the test as designed.

In measuring the distance between the cone and the front bumper of the vehicle, it is very important to be consistent in your measurements. Measure the distance from the cone to the bumper by placing the yardstick on top of the cone, with the 1" increments on the yardstick starting at the end toward the vehicle. The yardstick should be kept parallel to the ground (level) and perpendicular to the front of the vehicle. Read the distance where the yardstick crosses the outside of the cone. Measurements are rounded up. If you measure 8 $\frac{1}{4}$ " or 8 $\frac{3}{4}$ ", it should be recorded as 9" on the score sheet. **(Turn signals not required.)**

7.1 Other scored events

7.1.1 Smoothness of Operation

1. The operator's ability to deliver a smooth ride will be evaluated during the driving events.
2. The on-board judge will determine if contestants make sudden starts, stops or abrupt turn, and will indicate whether contestants wear their seat belt/shoulder harness while driving the course. The judge should be consistent in scoring all contestants.
3. This event category is worth twenty-five (25) points.
4. Points will be deducted for:
 - 1p. sudden stops
 - 1p. sudden starts
 - 1p. abrupt turns
 - 5p. failing to use seat belt (**Paratransit judges as well**)
 - 3p. moving vehicle with door open

7.1.2 Time Keeper. Total course time

1. Operators are timed for each driving course event. The timekeeper (who is also the on-board judge) starts the clock when the vehicle is put into motion at the start line and ends with the completion of the judgment stop.
2. The clock is stopped when the vehicle comes to a stop at the right and left hand reverse obstacles and the passenger stops, and started again when vehicle is put into motion.
3. Time is stopped for mechanical trouble, any type of course blockage that would impede the operator progress and where measurements are required for event scoring.
4. Time warnings will be given to the operator at the two (2) minute, one (1) minute, and 30 second time marks.
5. One point is deducted for each second over the seven (7) minutes allotted to complete the course. Maximum deduction is 180 points.
6. A maximum of 10 minutes will be allowed to complete the course. Operators will be required to vacate the course after 10 minutes.
7. All contestants will be ranked by score with the highest score being the winner, second highest score being second place and so on. The total driving time is used as a tiebreaker in the event of a tie score between two or more contestants. In the event of a tie, the contestant with the lower elapsed time will be scored higher.
8. The operator's safety habits will be reviewed while operating the vehicle.
9. This event category is worth twenty-five (25) points.
10. Points will be deducted for each instance:
 - a. 10p. failure to make ADA announcements (**Paratransit not required**)
 - b. 2p. poor posture
 - c. 2p. poor use of mirrors
 - d. 2p. poor use of hands
 - e. 2p. poor use of feet

If you have any questions about these instructions, please ask them at the Contestants Meeting on Friday March 15th, or the Saturday, March 16th “walk through” of the Rodeo course.

APPENDIX B: BUS ROADEO COURSE POINTS & MAP FOR FIXED ROUTE COURSE

Maximum points earned = 725

1. Serpentine.....	50 points
2. Offset Street	50 points
3. Rear Dual Clearance	50 points
4. Right Hand Turn	50 points
5. First Customer Stop	50 points
6. Left Hand Reverse.....	50 points
7. Left Hand Turn.....	50 points
8. Second Customer Stop	50 points
9. Right Hand Reverse.....	50 points
10. Diminishing Clearance	50 points
11. Judgment Stop.	50 points
12. Smoothness of Operation	25 points
13. *Time Keeper.....	25 points*
14. Pre-Trip Inspection.	125 points

No personal appearance inspection, operators are asked to wear their company issued attire.

APTA:

*The obstacle course competition must be completed in 7 minutes. A one-point penalty will be deducted for each second over the 7-minute time limit. The maximum deduction is 180 points. A maximum of 10 minutes will be allowed to complete the course. Operators will be required to vacate the course after 10 minutes. **In the event of a tie, the lowest elapsed time of those who tied determines the winner.**

Alamodome Lot B

This map will be updated when the course is established.

**Operations
Course Area**

APPENDIX C: BUS ROADEO COURSE POINTS & MAP FOR PARATRANSIT COURSE

Maximum points earned = 1050

1. Serpentine.....	50 points
2. Offset Street	50 points
3. Rear Duals Clearance.....	50 points
4. Left Hand Turn.....	50 points
5. First Customer Stop	50 points
6. Left Hand Reverse.....	50 points
7. Right Hand Turn.	50 points
8. Second Customer Stop.	50 points
9. Right Hand Reverse.....	50 points
10. Diminishing Clearance	50 points
11. Judgment Stop.	50 points
12. Smoothness of Operation	25 points
13. *Time Keeper.....	25 points*
14. Pre-Trip Inspection.	125 points
15. Wheelchair Securement.	200 points
16. Written Test.	125 points

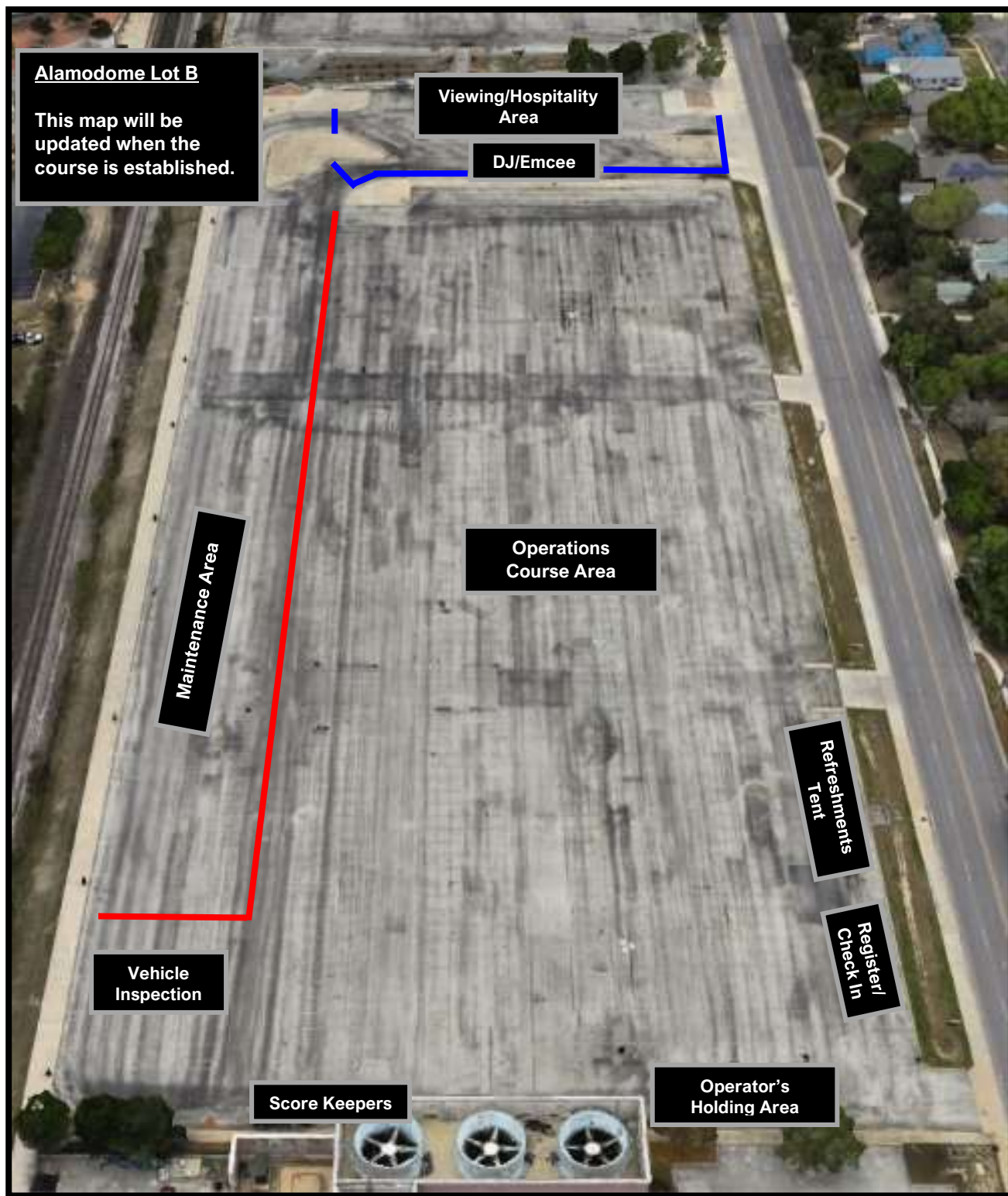
No Personal Appearance (Operators are asked to wear their company issued attire)

APTA:

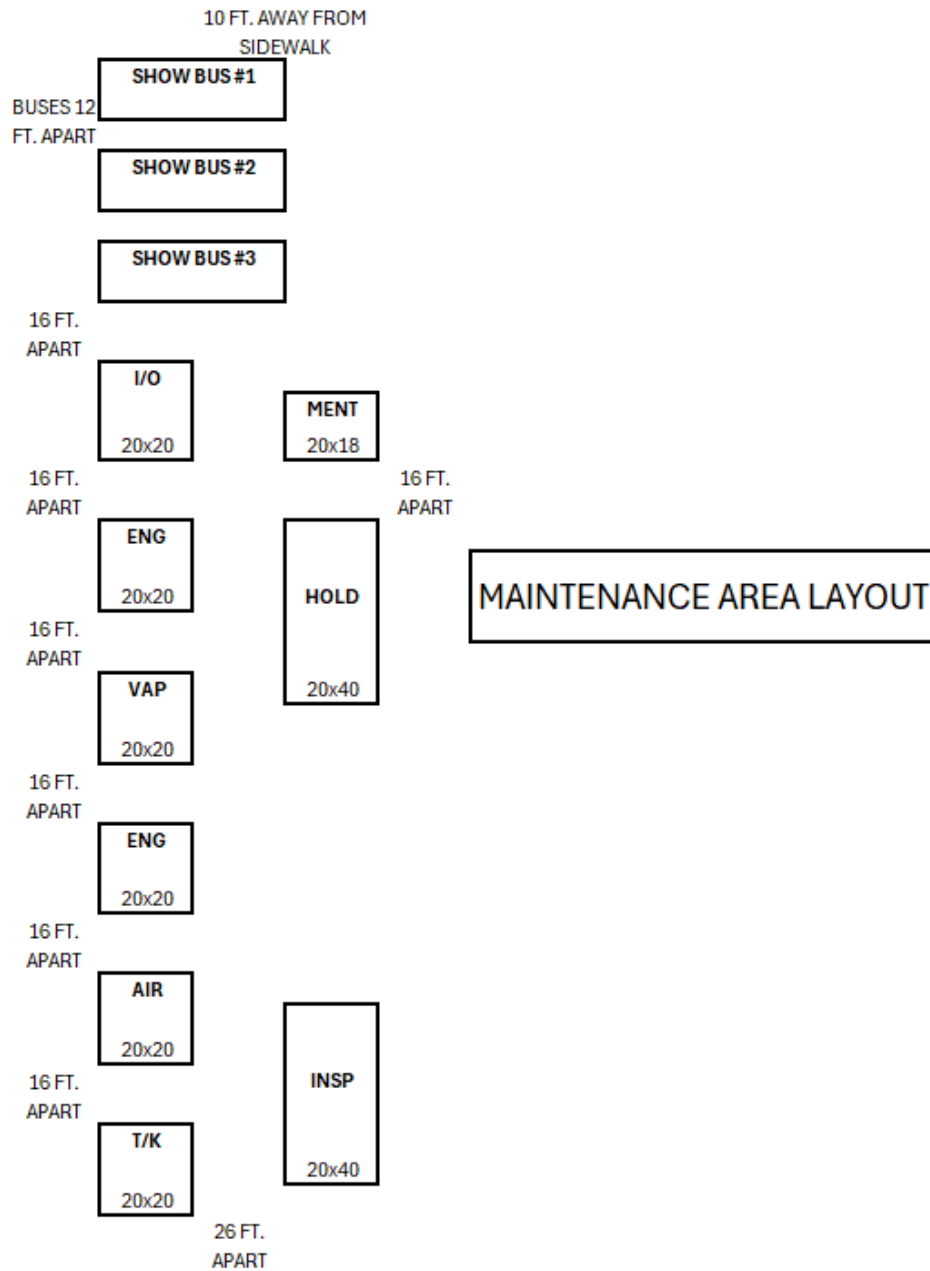
*The obstacle course competition must be completed in 7 minutes. A one-point penalty will be deducted for each second over the 7-minute time limit. The maximum deduction is 180 points. A maximum of 10 minutes will be allowed to complete the course. Operators will be required to vacate the course after 10 minutes. **In the event of a tie, the lowest elapsed time of those who tied determines the winner.**

Note: Each course is uniquely engineered for every Rodeo. Therefore, the order of events (obstacles) may be laid out differently than shown above. However, the construction of each obstacle will be in accordance with the provisions stated in the 2018 APTA International Bus Rodeo Handbook and the 2013 National Community Transportation Rodeo Guide.

Rodeo Officials will attempt to utilize the measurements set forth in the 2018 APTA International Bus Rodeo Handbook; however, Rodeo Officials reserve the right to make changes based on the space available at the Rodeo site and equipment variations. The course consists of eleven obstacles both Fixed Route 40+', 35+' and Paratransit 25+' will perform both customer stops. The course will be verified by the On-field Officials to ensure that all obstacles are negotiable with the equipment provided.



APPENDIX D: ROADEO COMPETITION EVENT FOOTPRINT



APPENDIX E: MAINTENANCE INSPECTION AND PRE-TRIP BUS

40 FT COMPETITION BUS

2022 New GILLIG TRANSIT BUS

Unloaded Weight	30,500 lbs.
GVWR	41,600 lbs.
Front GAWR	14,600 lbs.
Rear GAWR	27,000 lbs.
Fuel Type	CNG
Brakes Type	Air
Overall Length	41 ft.
Turning Radius	44 ft.
Overall Height	11.25 ft.
Overall width	8.5 ft.
Front Step Height	13.75 in.
Engine	Cummins ISLG 8.9L
Transmission	Voith
Horsepower	280-HP
Peak Torque	900 ft-lb
Wheel Base	23.6 ft.
# of Axles	2
# of Tires	6
Brakes	Rotor style



PRE-TRIP BUS 35 FT COMPETITION BUS

2017 Gillig TRANSIT BUS

GVWR	41,600lbs
Vehicle Length	36.4 ft.
Vehicle Height	11.25 ft.
Vehicle Width	8.5 ft.
Turning Radius	33.6 ft.
Wheel Base	19.16 ft.
Fuel Type	CNG
Brakes Type	Air
# of Axles	2
# of Tires	6
Drum Brakes	“S” Cam Brake Type



PARATRANSIT SECUREMENT AND PRE-TRIP BUS 25 FT COMPETITION BUS

2021 Ford Universal Glaval

GVWR	14,500 lbs.
Overall length	26.25 ft.
Overall Height	10.25 ft.
Overall width	8 ft.
Wheel Base	5.83 ft.
# of Tires	6



APPENDIX F: 2024 Texas State Bus Rodeo Schedule of Events

Date: Friday, March 15, 2024		
Location:		
Times:	Event Description:	Location
6:00 a.m. – 2:00 p.m.	Set up Rodeo course	Alamodome Lot B
2:00 p.m. - 4:30 p.m.	Rodeo registration opens	Marriot Rivercenter Hotel
3:00 p.m. – 4:00 p.m.	Orientation for Judges	Marriot Rivercenter Hotel
3:00 p.m. – 4:00 p.m.	Paratransit wheelchair securement training	Marriot Rivercenter Hotel
4:00 p.m. – 5:00 p.m.	Operator Orientation	Marriot Rivercenter Hotel
4:00 p.m. – 5:00 p.m.	Maintenance Technician Orientation	Marriot Rivercenter Hotel
5:00 p.m. – 5:30 p.m.	Paratransit Operator written exam	Marriot Rivercenter Hotel
5:00p.m. – 6:00 p.m.	Maintenance Technician written exam	Marriot Rivercenter Hotel
	Rodeo Swap Meet Following	Marriot Rivercenter Hotel
6:00 p.m. – 7:00 p.m.	Display buses/van for vehicle familiarization	Robert Thompson Transit Station

Date: Saturday, March 16, 2024		
Location: Alamodome, 100 Montana St., Parking Lot B, San Antonio, Texas 78203		
Times:	Description:	Location
5:30 a.m. – Ongoing	Shuttle participants from Marriot Hotel	Alamodome Parking Lot B
6:00 a.m. – 8:00 a.m.	Breakfast	Alamodome Parking Lot B
6:30 a.m. – 7:00 a.m.	Operators, Technicians, and Judges check in	Alamodome Parking Lot B
7:00 a.m. – 7:30 a.m.	Judges walk the course	Alamodome Parking Lot B
7:30 a.m. – 8:00 a.m.	Operators walk the course	Alamodome Parking Lot B
8:15 a.m. – 8:30 a.m.	Opening ceremony	Alamodome Parking Lot B
8:30 a.m.-12:00 p.m.	Competition	Alamodome Parking Lot B
	Bus Operator/Technician pre-trip inspection	Alamodome Parking Lot B
	Paratransit Operator securement testing	Alamodome Parking Lot B
Noon to 1:30 p.m.	Lunch	Alamodome Parking Lot B
Noon to 5:00 p.m.	Tear down course	Alamodome Parking Lot B
6:00 p.m. – 8:00 p.m.	Awards Banquet	Marriot Rivercenter Hotel

APPENDIX G: Directions from the Hotel to Roadeo Site

Marriot Rivercenter Hotel to Alamodome Parking Lots B & C

From Bowie at Commerce, travel south on Bowie across Commerce,
L-Market St., R- Tower of the Americas Way,
L-Montana St., R-Cherry to Alamodome Parking Lots B & C on the right.

*Address to the Alamodome is 100 Montana St., San Antonio, Texas 78203.
Parking Lots B & C are located on Cherry St. between Montana St. and Iowa.

* Parking will be available in Alamodome Lot C for all attending or competing in the event.

Vehicle Familiarization Transportation Shuttle- Friday March 15, 2024

The Vehicle Familiarization will be held at the Robert Thompson Transit Station located at 183 Montana St., San Antonio, Texas 78206.

*Shuttle service from the Marriott Rivercenter Hotel to the vehicle familiarization site will be provided.

The shuttle bus will depart from the Marriott Rivercenter Hotel promptly at 6:00 pm to the Robert Thompson Transit Station. The shuttle bus will depart the Robert Thompson Transit Station promptly at 7:00 pm returning to the hotel.

Roadeo Transportation Shuttle- Saturday March 16, 2024

Shuttle buses will begin departing at 5:30 am from the Marriot Rivercenter Hotel to the Alamodome Parking Lots B and C.

Shuttle buses will run every 15 minutes until the end of the event. The event will end at approximately 1:30 pm.

Passengers will board the bus at the Marriott Rivercenter Hotel and be dropped off at the event site, Alamodome Parking Lot B.

A shuttle bus schedule will be distributed at the Operator and Maintenance Technician Orientation on Friday March 15, 2024.

APPENDIX H: FREQUENTLY ASKED QUESTIONS AND ANSWERS

NOTE: Questions and answers are provided to assist Roadeo contestants with familiarization of the Roadeo competition. On-field officials are responsible for interpretations and decisions during competition.

OPERATOR:

1. **Can someone ride with me?**
A: On competition day, no.
2. **Are you going to guide me through the course?**
A: No. You will be provided with a diagram of the course, and it is your responsibility to negotiate the obstacles in proper order.
3. **Do I have to use the horn and turn signals?**
A: Yes. If you fail to use your horn and/or signals, you will lose points from the course judge.
4. **Am I allowed to go outside the line of perimeter cones?**
A: No. You must stay within the course lines. Each course marker or perimeter cone touched will count as a penalty.
5. **May I take off my jacket when I compete?**
A: Yes. Make yourself comfortable before the driving skills test.
6. **Can I use the mirrors that I am used to?**
A: No. You must use the mirrors provided on the host property buses.
7. **Will I be driving the same type of bus that I drive in my system?**
A: You will be driving the vehicle provided by the host property for either 40', 35' or 25' competition.
8. **Do I have to take a safety quiz?**
A: Only paratransit contestants are required to answer safety questions as part of their examination.
9. **Do I go through the defect bus?**
A: Yes. The Operator competition includes a scored pre-trip inspection. The Pre-Trip Inspection takes place on Saturday March 16, 2024. You will be provided instructions at the check in tent.
10. **Do I get a personal appearance inspection?**
A: No. There will not be a personal appearance inspection.
11. **May I adjust my mirrors?**
A: Yes. You are responsible for adjusting your mirrors.

12. Do I lose points if I back up?

A: Yes. In all course events except for the first backup in the left and right reverses, you will lose points each time you reverse.

13. If I hit the same cone twice, do I lose double points?

A: No. Once you are charged with hitting a cone you are not charged for it the second time.

14. If I just touch the base of a cone, does it count against me?

A: Yes. Hitting or even touching any portion of the cone counts as a hit.

15. Is my manager allowed to walk behind my bus when I am competing?

A: No. Only Rodeo Officials and judges are allowed on the course while competition is in progress. Spectators may watch from the spectator areas. (APPENDIX D)

16. Does time on the course count?

A: Yes. The course time limit is seven (7) minutes. Points will be deducted for every second over seven (7) minutes up to 10 minutes (-180 points)

17. Does smoothness of operation count?

A: Yes. You will be observed by the On-Board Judge.

18. Does speed count?

A: Your speed within the diminishing clearance obstacle must be at least 20 mph (32 kph).

19. Do you award dual prizes for a tie score?

A: No. In the event of a tied score the contestant with the lowest time through the course wins.

20. How many prizes are awarded?

A: First, Second and Third prizes in the 40' and 35' category, First, Second and Third prizes in the 25' category.

21. Do I have to wear my badge or name plate?

A: Only if it's part of your uniform.

22. Can I wear sneakers?

A: Wear the same kind of shoes you wear when you are operating in passenger service at your transit system.

23. Will there be refreshments/lunch?

A: Refreshments and lunch will be available on competition day.

24. Can I bring my family?

A: Yes. Come and enjoy the festivities and competition. Spectator areas are available for the Operator course. (APPENDIX D)

25. Do I have to come to orientation?

A: No, however you are strongly encouraged to come to attend.

26. Do I have to use a seat belt?

A: Yes. 5 Points will be deducted for failure to use your seat belt.

27. Is the course set up as shown in the APTA & CTAA handbooks?

A: Obstacle configurations are the same, but dimensions and sequence may be different.

- 28. Is the rear cone in the backups fixed or does it vary?**
A: The rear cone is fixed.
- 29. Do I only have to call ADA announcements at the passenger stops? (Paratransit not required)**
A: Yes. You must call the stop before you start forward movement out of the bus stop.
- 30. Do I need to use the P.A. (Public Announcement) System to announce ADA Stops?**
A: No.
- 31. On the Right and Left reverses, do I start at a 45-degree angle?**
A: You can start at whatever angle you prefer.
- 32. Do the buses have bike racks?**
A: No, the bike racks will be removed from the buses.
- 33. Can I palm the steering wheels on Turns?**
A: No. For safety purposes, the push pull method is recommended.
- 34. When do I have to turn on the flashers?**
A: Before you back your bus at the left and right reverses and any time you back your bus.
- 35. Do hazard lights have to be activated in the passenger stop?** **A:** No. Only turn signals have to be used.
- 36. Do I apply the passenger/parking/emergency brake on passenger stops or reverses?** **A:** Yes, as a safety measure.
- 37. Can I shift the bus from drive to reverse without going into neutral?**
A: It depends on the bus type used.
- 38. Do I open the doors at passenger stops?**
A: Yes.
- 39. On the Right and Left Reverses, does the clock stop when I open the doors?**
A: You do not open the doors. You set on park and will sound your horn when you have completed your backing. The clock will stop until you start forward movement.
- 40. Whenever the bus is disabled, does my time stop?**
A: Yes.
- 41. If the doors are open when you drive off, will points be deducted?**
A: Yes. It is a safety issue. Most buses will not let the bus move when the doors are open.

42. **On the right and left reverses, do I need to turn on my flashers and honk my horn before backing?** A: Yes. You must use the flashers and horn anytime you back on the course.
43. **Do I need to use my turn signals on free turns?**
A: Yes. Any time you move right or left on the course; you must use your turn signals.
44. **When I back into the reverses and stop and then continue backing into the reverses, will I be penalized?**
A: No, you will only be penalized if you pull forward and back in a second time.
45. **How will the judges know when I have completed my backing into the reverses?** A: You will set on park and sound your horn.

Pre-trip inspection

46. **How early should we check in before our scheduled pre-trip time?**
A: You will be provided information about when to report for the pre-trip inspection when you check in.
47. **At the Pre-Trip Inspection, will we get a count down on our time left?**
A: Yes. 2 minute, 1 minute and 30 second warnings will be given.
48. **At the Pre-Trip Inspection, can we walk around the bus and then record the defects?** A: Yes, anyway you want to do it is acceptable.
49. **Will there be a judge writing down the defects for us as we find them?**
A: No, you must write them down yourself in as legible a manner as possible.
50. **Will there be a similar bus to check out ahead of time?**
A: Yes, there will be a display coach for you to become familiar with.
51. **Will the Pre-Trip Inspection be performed on a 40', 35' or 25' bus?**
A: Fixed route will use a 40' unit. Paratransit will use a 25' unit.
52. **Does checking the bus windows mean opening the windows?**
A: Do what you would do to check them for defects.

Technician

1. Can my team's competition be videotaped?

A: There will be absolutely no video cameras or videotaping in the competition area.

2. Can photos be taken of the events?

A: Still photos may be taken but anyone taking photos must not interfere or distract the contestants.

3. What type of ABS system is used in the Roadeo?

A: Wabco 'D' 45/4M

4. How many members can a Maintenance team have?

A: The standard maintenance team is made up of three technicians. Two person teams may compete, but no special compensation will be made for them.

5. Can all team members participate in each of the Maintenance problems?

A: All members can work on all problems. Each team must decide the best use of team members and not create a safety issue due to space constraints.

6. Are the maintenance training sessions mandatory?

A: No. They are not mandatory but strongly encouraged. Teams that attend are brought up to date on the latest information regarding the maintenance tasks and are provided important information about the competition modules.

7. Do I have to come to orientation?

A: No. You are encouraged to come to orientation, but it is not mandatory.

8. Why was driving removed from the Maintenance Roadeo?

A: The Roadeo Committee determined that the amount of time to complete the Roadeo was creating a safety and fairness issue. They also wanted to keep the focus of the Maintenance competition on the primary maintenance skills.

9. Will the defects be revealed after the event is completed?

A: No.

10. Will there be transportation from the host hotel to the Roadeo site?

A: Yes. See APPENDIX G for additional information.

11. Do I get a personal appearance inspection?

A: No. You must wear safe clothing, including proper shoes, ear, and eye protection.

12. Can I bring my family?

A: Yes. Come and enjoy the festivities and competition.

13. Are my family, manager, friends allowed with the team while we compete?

A: Maybe. Some years there isn't room for spectators in the Maintenance events. Your team manager(s) will be allowed in the area. Note: We cannot hold up the competition waiting for anyone to arrive.

14. Will there be refreshments/lunch?

A: Refreshments will be available on competition day.

15. Will there be a bus available for familiarization purposes?

A: Yes, a 40' bus will be available.

16. What time should I arrive to compete?

A: Contestant teams must arrive at the on-site check in 60 minutes prior to competition time and must arrive at the maintenance holding area at least 30 minutes prior to their scheduled competition time. Teams arriving late may be disqualified from the competition.

17. What if I am late to the competition?

A: Teams who report late to the Maintenance check-in may be disqualified from the competition. Allow enough time to arrive at the Roadeo site early.

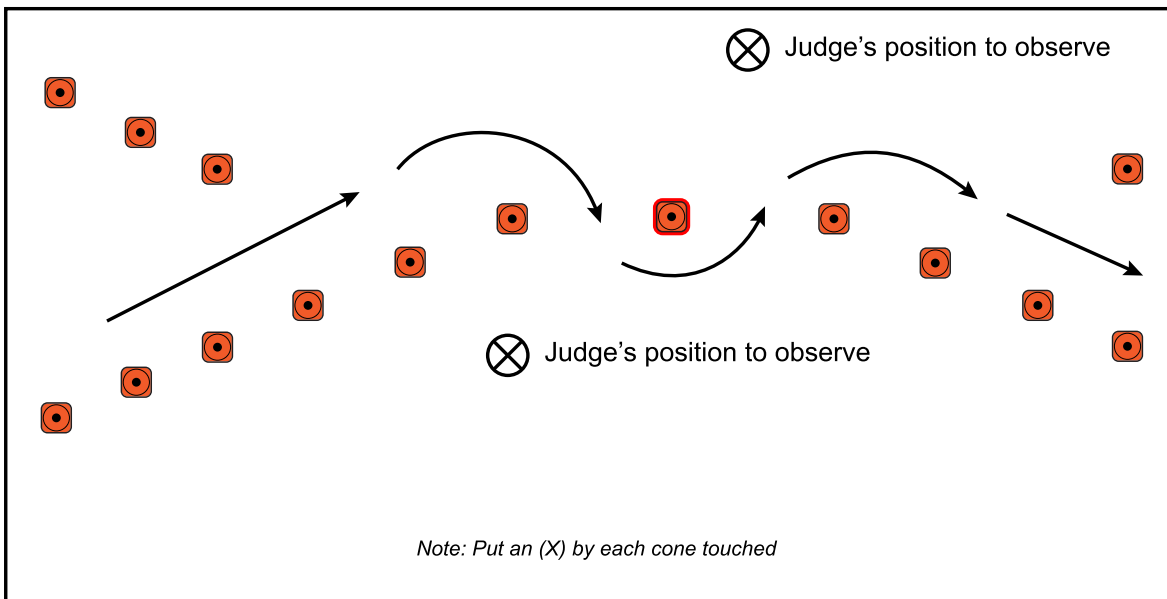
18. Can I go to the Roadeo site prior to the Saturday competition?

A: No. Maintenance team members are not allowed at the Roadeo site prior to the day of competition. Any violation of this policy may cause your team to be disqualified from competition.

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APPENDIX I: OPERATORS' SCORE SHEETS & OBSTACLE DESCRIPTIONS

	SERPENTINE	
COURSE NUMBER	Contestant's Number _____ Bus Number _____ Category 40' 35' 25'	BUS CATEGORY



Penalties

1. 10 Points off for each cone touched.
2. 5 Points off for each transmission shift into reverse.
3. 25 Points off for touching pivot cone.
4. 50 Points off for not completing course as designed.

Score

- | | |
|--------------------------------------|--------------------|
| 1. Cones Touched | _____ X 10 = _____ |
| 2. Shifted into reverse | _____ X 5 = _____ |
| 3. Pivot cone touched | _____ X 25 = _____ |
| 4. Not completing course as designed | 50 = _____ |

Note maximum points possible 50
 TOTAL POINTS OFF (Add 1 thru 4) -

POINTS EARNED

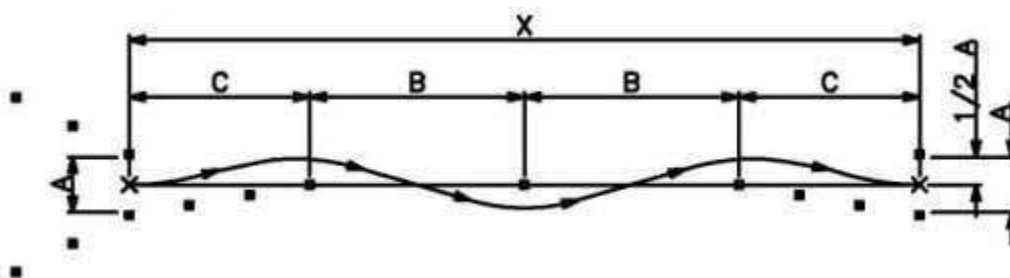
JUDGE'S SIGNATURE _____

JUDGE'S SIGNATURE _____

SERPENTINE

This obstacle tests an operator's ability to negotiate tight turns. The operator is required to enter a gate, steer in and out through three cones, and exit the obstacle through another gate. The bus is not permitted to touch any portion of any cone. The cones that are most likely to be hit are the two entrance cones, the point, and the pivot cones. Contestants are likely to stop and shift into reverse, so you must remember to check to see if cones are hit when the vehicle is traveling backwards. Remember, a cone can only be hit once, and additional points are not lost for hitting the same cone two or more times. **Judges:** A cone is considered a "hit" whether the tires touch the base of a cone or the body of the cone. **(Turn signals not required.)**

OBSTACLE DIMENSIONS



LEGEND

- 28" Cone
 - Path of Bus
 - x—x Survey Baseline
- NOT TO SCALE

40' x 102" BUS

- A = 9'-6"
- B = 36'-0"
- C = 32'-0"
- X = 136'-0"

35' X 96" BUS

- A = 9'-0"
- B = 32'-0"
- C = 25'-7"
- X = 115'-0"

25' BUS

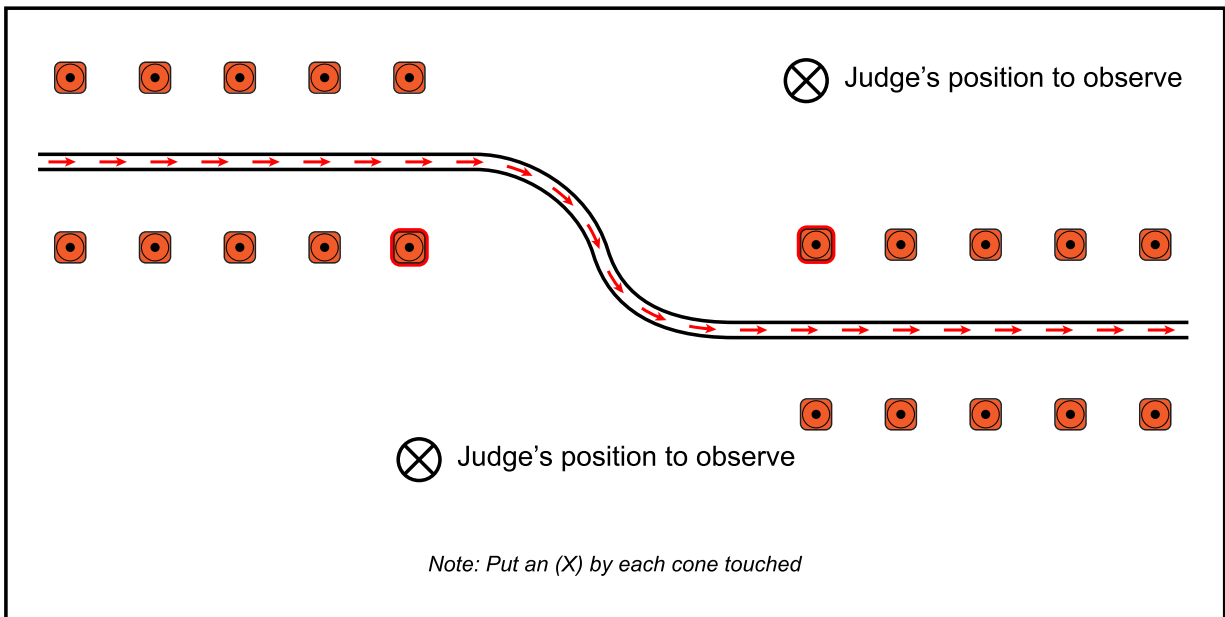
- A Width of vehicle plus 6 inches
- B Length of vehicle
- C Length and half of vehicle
- D Length and half of vehicle (may be adjusted based on turning radius of the vehicle)

OFFSET STREET

COURSE
NUMBER

Contestant's Number _____ Bus Number _____
Category 40' 35' 25'

BUS
CATEGORY



Penalties

1. 5 Points off for each cone touched.
2. 10 Points off for each transmission shift into reverse.
3. 10 Points off touching pivot cone.
4. 1 Points off for not using turn signal.
5. 50 Points off for not completing test as designed.

Score

- | | |
|--------------------------------------|--------------------|
| 1. Cones Touched | _____ x 10 = _____ |
| 2. Shifted into reverse | _____ x 10 = _____ |
| 3. Pivot cone touched | _____ x 10 = _____ |
| 4. Non-use of turn signals | _____ x 1 = _____ |
| 5. Not completing course as designed | 50 = _____ |

Note maximum points possible 50

TOTAL POINTS OFF (Add 1 thru 5) -

POINTS EARNED

JUDGE'S SIGNATURE _____

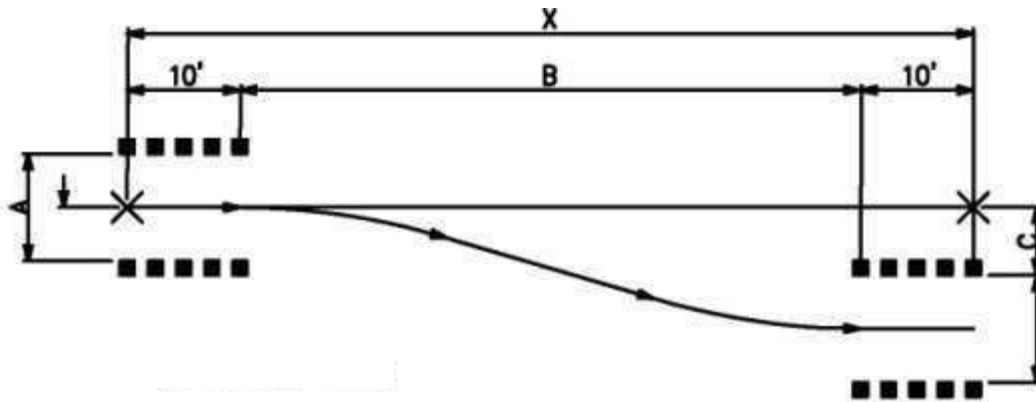
JUDGE'S SIGNATURE _____

OFFSET STREET

This obstacle requires the operator to drive through two separate narrow lanes that are offset to the right one full lane's width from each other.

Judges should be careful to watch the last cone in the entrance set on the operator's side. This cone is likely to be hit as the rear of the vehicle swings through the turn. Watch the entrance cones on the second set for bumper contact, and watch the tires of the bus as they pass by the base of the cones. **(Turn signal required.)**

OBSTACLE DIMENSIONS



LEGEND

- 28" Cone
 - Path of Bus
 - x—x Survey Baseline
- NOT TO SCALE

40' x 102" BUS

A = 9'-6"
B = 55'-0"
C = 6'-0"
X = 75'-0"

35' X 96" BUS

A = 9'-0"
B = 48'-0"
C = 4'-9"
X = 68'-0"

25' BUS

A Length of vehicle
B Length and half of vehicle
C Width of vehicle plus 6 inches

REAR DUALS CLEARANCE

COURSE
NUMBER

Contestant's Number _____ Bus Number _____
Category 40' 35' 25'

BUS
CATEGORY

⊗ Judge's position to observe



Judge's position to observe ⊗

Note: Put an (X) by each ball touched

Penalties

1. 20 Points off for each "A" ball touched.
2. 16 Points off for each "B" ball touched.
3. 8 Points off for each "C" ball touched.
4. 4 Points off for each "D" ball touched.
5. 2 Points off for each "E" ball touched.
6. 50 Points off for not completing test as designed.

Score

- | | |
|--------------------------------------|--------------------|
| 1. "A" ball touched. | _____ X 20 = _____ |
| 2. "B" ball touched. | _____ X 16 = _____ |
| 3. "C" ball touched. | _____ X 8 = _____ |
| 4. "D" ball touched. | _____ X 4 = _____ |
| 5. "E" ball touched. | _____ X 2 = _____ |
| 6. Not completing course as designed | 50 = _____ |

Note maximum points possible 50

TOTAL POINTS OFF (Add 1 thru 6) -

POINTS EARNED

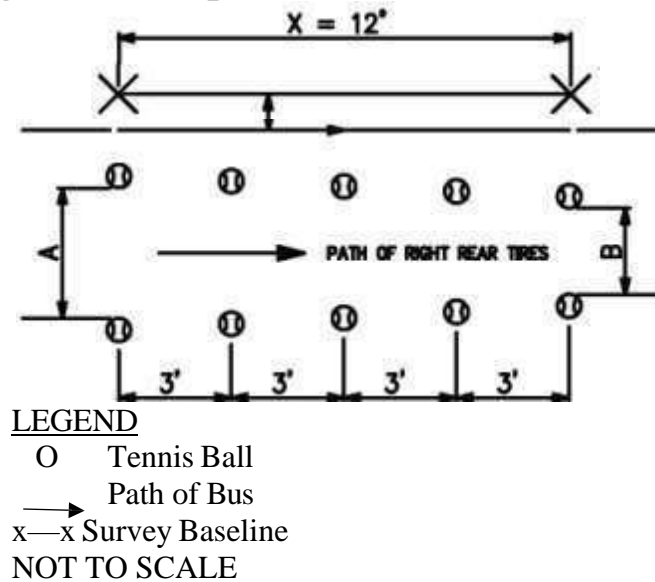
JUDGE'S SIGNATURE _____

JUDGE'S SIGNATURE _____

REAR DUALS CLEARANCE

This is an obstacle where the operator must drive through a lane with the right dual tires. The lane is only slightly wider than the total outside width of a pair of rear duals and is marked with large flat washers and tennis balls. The lane diminishes in width from the entrance to the exit.

Judges may need to crouch down to see if obstacle tennis balls are being hit. It makes no difference if the obstacle tennis balls are hit by the front or rear tires. Once a tennis ball is hit, points are lost. Tennis balls can be hit only once. Keep in mind that the tennis balls have varying point values. If a hit tennis ball hits another, the judges must use their judgement to determine if the tennis ball would have been hit by the tire anyway. Again, be consistent! (**Turn signals not required**)



ALL BUSES:

40' x 102" BUS

E = 10'-9"

A = Width of right rear dual tires + 6"

B = Width of right rear dual tires + 3"

35' X 96" BUS

E = 10'-2"

25' BUS

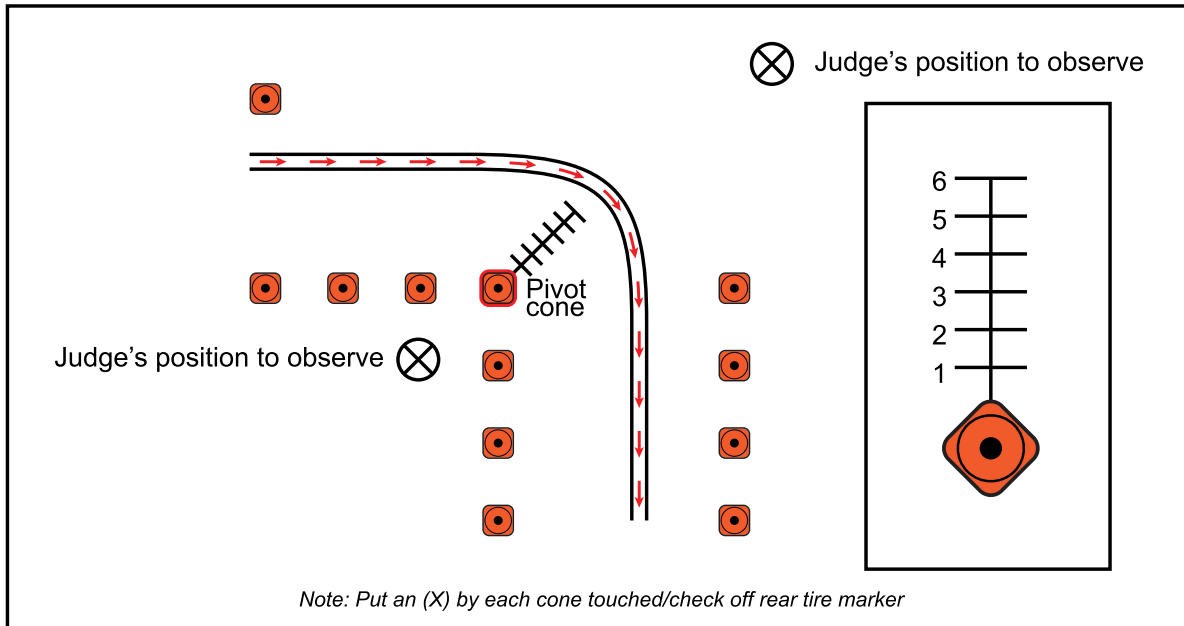
- A Width of tires plus 10 inches
- B Width of tires plus 9 inches
- C Width of tires plus 8 inches
- D Width of tires plus 7 inches
- E Width of tires plus 6 inches
- F Length of vehicle

RIGHT HAND TURN

COURSE
NUMBER

Contestant's Number _____ Bus Number _____
Category 40' 35' 25'

BUS
CATEGORY



Penalties

- 10 Points off for each cone touched.
- 5 Points off for each 6" segment beyond the first 6" of the pivot cone.
- 5 Points off for each transmission shift into reverse.
- 3 Points off for not using turn signals.
- 25 Points off for touching pivot cone.
- 50 Points off for not completing test as designed.

Score

- | | |
|--------------------------------------|--------------------|
| 1. Cones Touched | _____ X 10 = _____ |
| 2. Excessive rear tire clearance | _____ X 5 = _____ |
| 3. Shifted into reverse | _____ X 5 = _____ |
| 4. Non-use of turn signals | _____ X 3 = _____ |
| 5. Pivot cone touched | _____ X 25 = _____ |
| 6. Not completing course as designed | 50 = _____ |

Note maximum points possible 50
TOTAL POINTS OFF (Add 1 thru 5) -

POINTS EARNED

JUDGE'S SIGNATURE _____

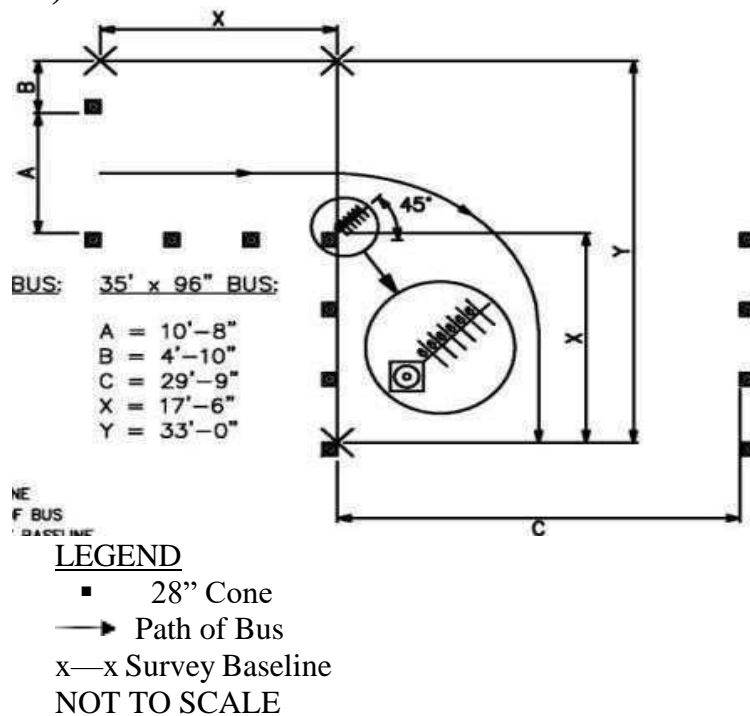
JUDGE'S SIGNATURE _____

RIGHT HAND TURN

This obstacle tests the operator's ability to negotiate a tight 90° turn. The corner is marked with cones and the right rear tire of the bus is to pass within six (6) inches of the corner cone.

Note the location of the right, outside rear tire as it crosses the 45-degree line from the pivot cone. This is the point at which you must decide which interval the tire has crossed. If any portion of the line marking the next 6" increment on the 45-degree line is visible as the tire crosses the 45-degree line, penalty points are earned. The cones most likely to be hit are the driver's side entrance cone (tail swing), the pivot cone and the exit cones.

(Turn signal required.)



40' X 102" BUS

A = 11'-6"
 B = 5'-0"
 C = 34'-0"
 X = 20'-0"
 Y = 36'-6"

35' X 96" BUS

A = 10'-8"
 B = 4'-10"
 C = 29'-9"
 X = 17'-6"
 Y = 33'-0"

25' BUS

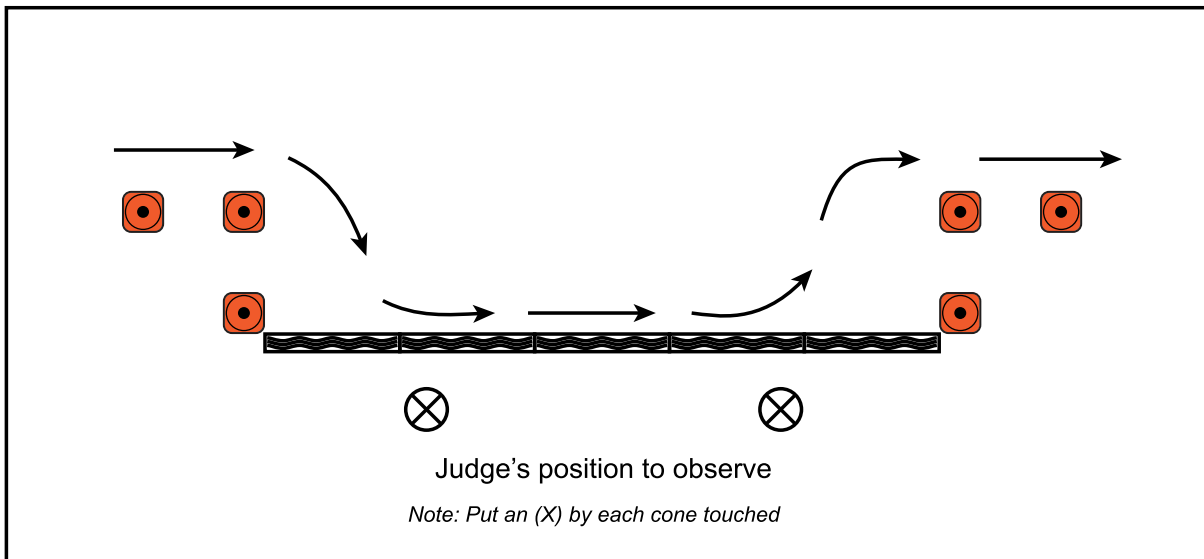
A Width of vehicle plus 6 inches
 B Length of vehicle
 C Start with width and half of vehicle, widen as needed
 D 16 feet overall
 E 36 inches divided into 6 inch increments

FIRST CUSTOMER STOP

COURSE
NUMBER

Contestant's Number _____ Bus Number _____
Category 40' 35' 25'

BUS
CATEGORY



Penalties

1. 25 Points off for touching cones at either end of passenger stop.
2. 25 Points off for touching curb with tires.
3. 1 Point off per inch beyond 6" segment from curb (FRONT TIRE).
4. 1 Point off per inch beyond 15" segment from curb (REAR TIRE).
5. 5 Points off for each transmission shift into reverse.
6. 1 Point off for not using turn signals (entering and exiting).
7. 50 Points off for not completing test as designed.

Score

- | | |
|--|--------------------|
| 1. Entrance cones touched | _____ X 25 = _____ |
| 2. Touched curb | _____ X 25 = _____ |
| 3. Front tire actual measurement | _____ - 6 = _____ |
| 4. Rear tire actual measurement | _____ - 15 = _____ |
| 5. Shifted into reverse | _____ X 5 = _____ |
| 6. Non-use of turn signals (entering and exiting). | _____ X 1 = _____ |
| 7. Not completing course as designed | 50 = _____ |

Note maximum points possible 50

TOTAL POINTS OFF (Add 1 thru 6) -

POINTS EARNED

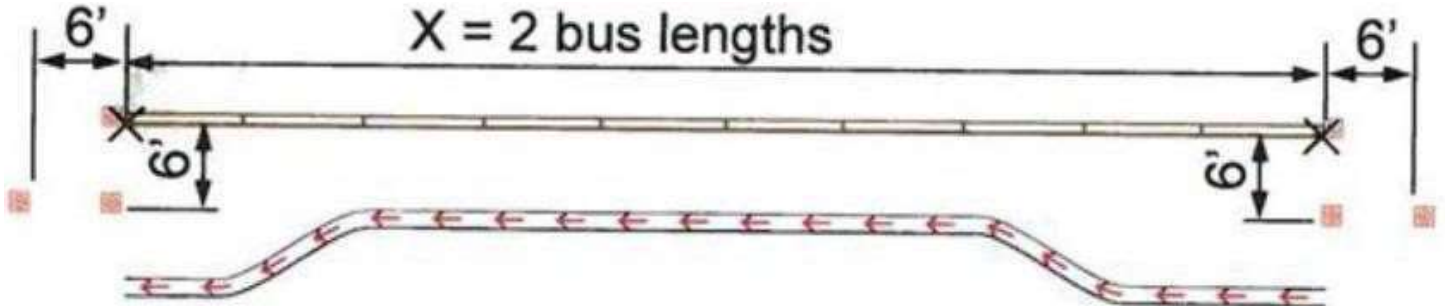
JUDGE'S SIGNATURE _____

JUDGE'S SIGNATURE _____

FIRST CUSTOMER STOP

This event simulates a customer stop. The operator should stop the vehicle with the front tires within six (6) inches of the simulated curb. Rear tires must be within 15 inches of the simulated curb. After stopping the vehicle, the operator is required to open the door to complete the test. An ADA stop announcement must be made prior to exiting the passenger stop (Paratransit not required).

Consistency in measurement is vital to this exercise. Measure the distance from the top edge of the curb, 4x4 or simulated curb to the center of the tire below the axle at the same height as the top of the curb. (if we use a tape or other line, measure the distance at the pavement level. Be sure that the yard stick is perpendicular to the curb when you measure. Measurements are rounded up. If you measure 8 ¼" or 8 ¾", it should be recorded as 9" on the score sheet. Hitting the curb or cones anytime, either entering or departing the stop, loses points. So be careful to watch the cones and curb as the vehicles departs the obstacle. The operator must sound the horn to indicate to the judges that it is safe to measure the distance between the curb and the tires. The timekeeper must stop the clock when the horn is sounded. And restart the clock when the vehicle is put into motion. **(Turn signals required when entering and exiting the passenger stop. Set on Park. Sound the horn to notify judges it is safe to take measurements.)**



ALL BUSES:

A = Two lengths of vehicle

B = Width of bus stop 6'

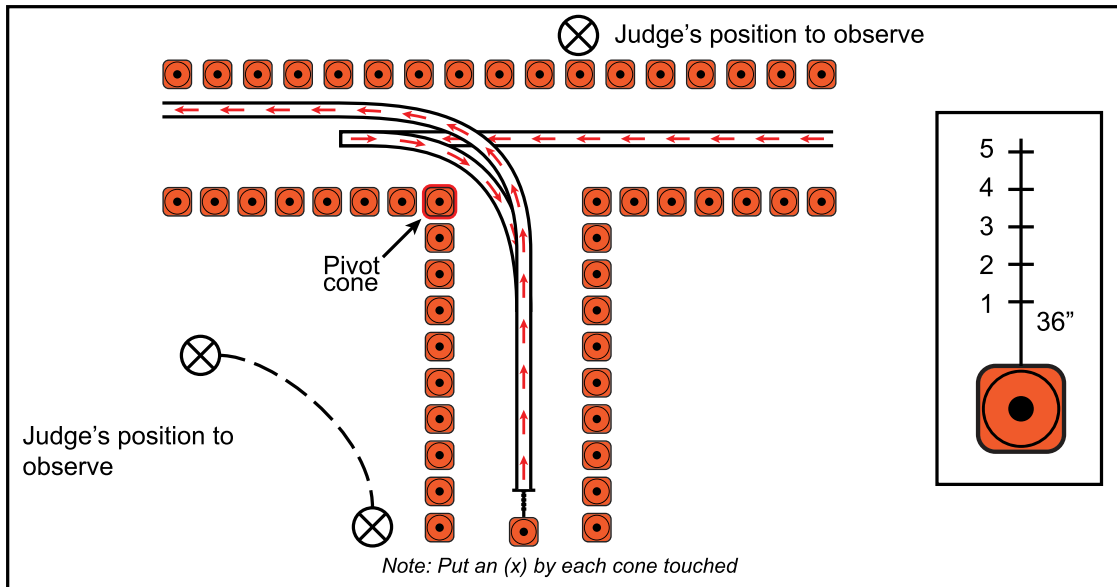
LEFT HAND REVERSE

COURSE
NUMBER

Contestant's Number _____ Bus Number _____

Category 40' 35' 25'

BUS
CATEGORY



Penalties

3. 10 points off for pivot cone touched.
4. 1 point off for failing to sound the horn before backing up.
5. 1 point off for failing to use the flashers before backing up.
6. 5 points off for each cone touched.
7. 5 points off for each 12" segment beyond 36" limit from rear cone.
8. 10 points off for each transmission shift into reverse after initial shift into reverse.
9. 25 points off for touching rear cone.
10. 50 points off for not completing test as designed.

Score

- | | |
|--|--------------------|
| 1. Pivot cone touched | _____ X 10 = _____ |
| 2. Failing to sound the horn before backing up | _____ X 1 = _____ |
| 3. Failing to use flashers before backing up | _____ X 1 = _____ |
| 4. Cones touched | _____ X 5 = _____ |
| 5. Rear clearance beyond 36" | _____ X 5 = _____ |
| 6. Shifted into reverse | _____ X 5 = _____ |
| 7. Rear cone touched | _____ X 25 = _____ |
| 8. Not completing course as designed | 50 = _____ |

Note maximum points possible 50

TOTAL POINTS OFF (Add 1 thru 6) - _____

POINTS EARNED

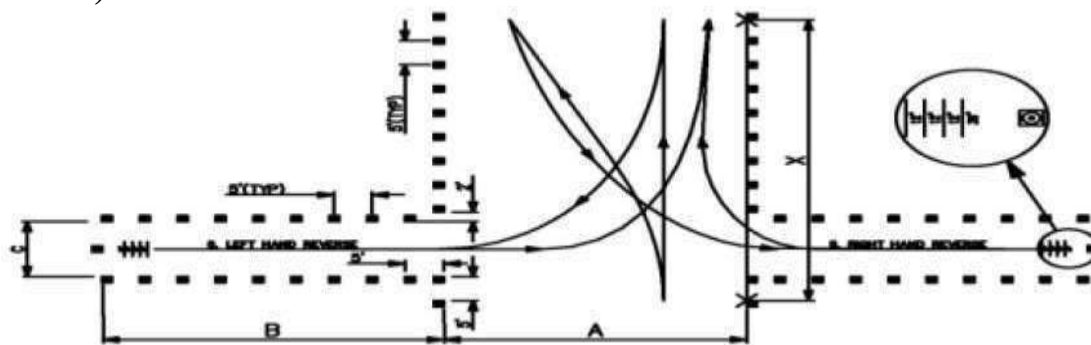
JUDGE'S SIGNATURE _____

JUDGE'S SIGNATURE _____

LEFT HAND REVERSE

This obstacle tests the operator's ability to back up the vehicle between two obstacles which require the vehicle to back up to the right.

The vehicle must come to a stop so that the judges can determine where the rear bumper of the vehicle is with respect to the rear marker cone. The contestant must sound the horn to signal the judges that the backing maneuver is complete, and it is safe to measure the distance from the rear of the vehicle to the rear marker cone. The timekeeper must stop the clock when the driver sounds the horn, and start the clock when the vehicle begins to move. Judges should determine the location quickly. All contestants and judges should note that the various marking cones have different point values. This obstacle is likely to experience a cone lodged between the tires and the body. Be ready to alert the contestant to stop the vehicle if necessary. Judges must remember to watch the vehicle as it departs the obstacle because points are deducted for cones that are hit while exiting the obstacle. Keeping in mind that a cone can only be hit once. **(Horn & Flashers required before backing up. Set on Park. Sound the horn to notify judges is it safe to take measurements.)**



40' x 102" BUS

A = 40'-0"

B = 45'-0"

C = 11'-5"

X = 58'-5"

35' X 96" BUS

A = 35'-0"

B = 40'-0"

C = 10'-11"

X = 57'-11"

LEGEND

□ 28" Cone

→ Path of Bus

x—x Survey Baseline

NOT TO SCALE

25' BUS

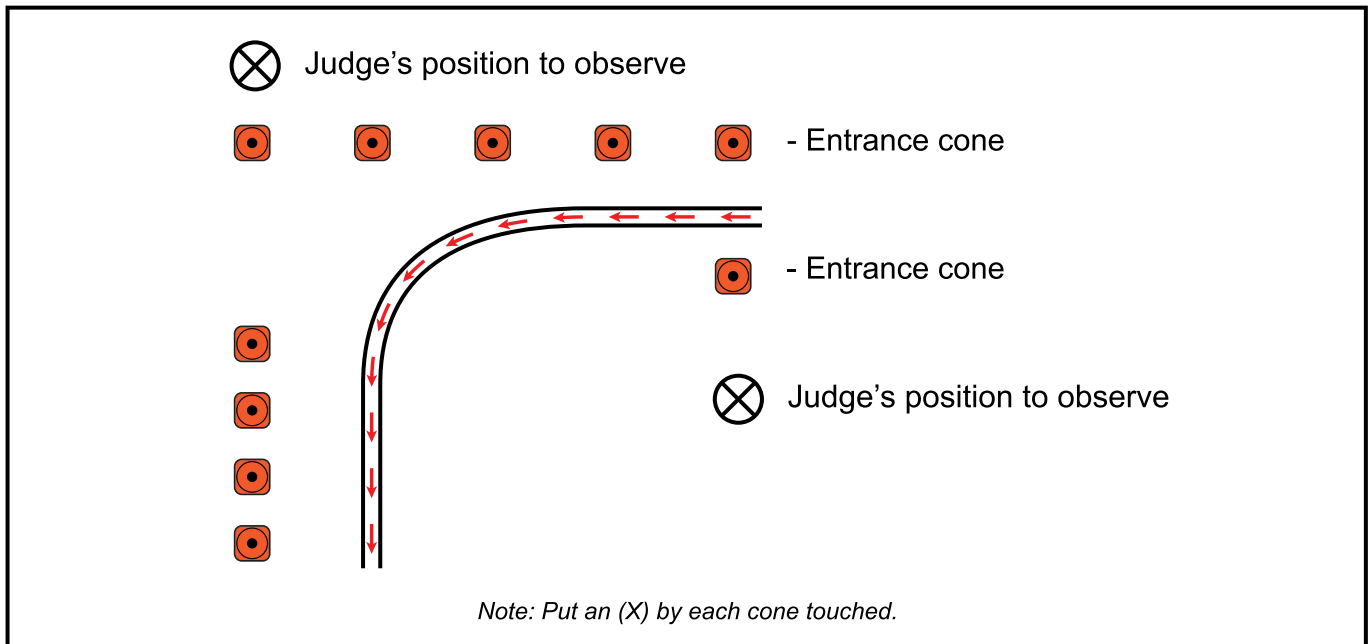
- A Width of vehicle plus 12 inches
- B Length of vehicle 4' (3' centers)
- C Length and half of vehicle (widen as required)
- D Width of vehicle plus 18"
- E 44' (4' centers)
- F 3' marked at 12" increments

LEFT HAND TURN

COURSE
NUMBER

Contestant's Number _____ Bus Number _____
Category 40' 35' 25'

BUS
CATEGORY



Penalties

1. 10 points off for each cone touched.
2. 5 points off for each transmission shift into reverse.
3. 3 Points off for not using turn signals.
4. 25 points off for touching entrance cone.
5. 50 points off for not completing test as designed.

Score

- | | |
|--------------------------------------|--------------------|
| 1. Cones Touched | _____ X 10 = _____ |
| 2. Shifted into reverse | _____ X 5 = _____ |
| 3. None use of turn signals | _____ X 3 = _____ |
| 4. Entrance cone touched | _____ X 25 = _____ |
| 5. Not completing course as designed | 50 = _____ |

Note maximum points possible 50

TOTAL POINTS OFF (Add 1 thru 5) -

POINTS EARNED

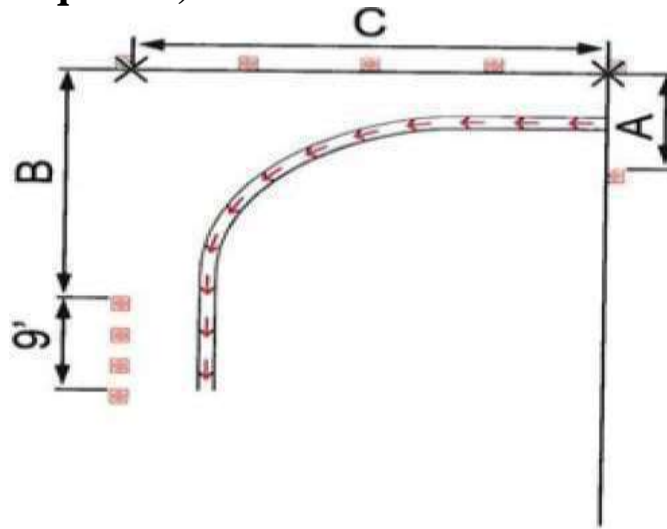
JUDGE'S SIGNATURE _____

JUDGE'S SIGNATURE _____

LEFT HAND TURN

This obstacle tests the operator's ability to make a tight left turn in a close situation. The contestant is required to steer the vehicle into a 90° turn without touching any of the cones.

The two entry cones are the ones most likely to be hit. Remember, they each have a 25-point value. Watch for the right entry cone being hit by the tail swing of the vehicle. **(Turn signal required.)**



LEGEND

- 28" Cone
 - Path of Bus
 - x—x Survey Baseline
- NOT TO SCALE

40' X 102" BUS

A = 9'-9"

B = 23'-0"

C = 36'-7"

35' X 96" BUS

A = 9'-3"

B = 20'-3"

C = 32'-2"

25' BUS

A Width and half of vehicle

B Length of vehicle plus 3 feet

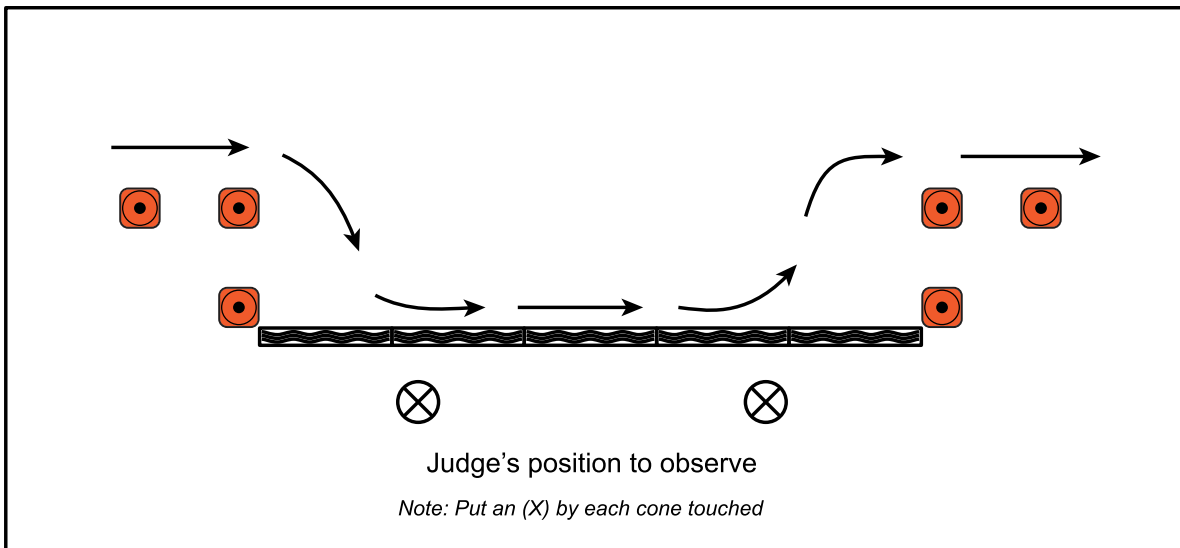
C Width of vehicle plus 6 inches

SECOND CUSTOMER STOP

COURSE
NUMBER

Contestant's Number _____ Bus Number _____
Category 40' 35' 25'

BUS
CATEGORY



Penalties

1. 25 Points off for touching cones at either end of passenger stop.
2. 25 Points off for touching curb with tires.
3. 1 Point off per inch beyond 6" segment from curb (FRONT TIRE).
4. 1 Point off per inch beyond 15" segment from curb (REARTIRE).
5. 5 Points off for each transmission shift into reverse.
6. 1 Points off for not using turn signals (entering and exiting).
7. 50 Points off for not completing test as designed.

Score

- | | |
|---|--------------------|
| 1. Entrance cones touched | _____ X 25 = _____ |
| 2. Touched curb | _____ X 25 = _____ |
| 3. Front tire actual measurement | _____ - 6 = _____ |
| 4. Rear tire actual measurement | _____ - 15 = _____ |
| 5. Shifted into reverse | _____ X 5 = _____ |
| 6. No use of turn signals (entering and exiting). | _____ X 1 = _____ |
| 7. Not completing course as designed | 50 = _____ |

Note maximum points possible 50
TOTAL POINTS OFF (Add 1 thru 7) - _____

POINTS EARNED

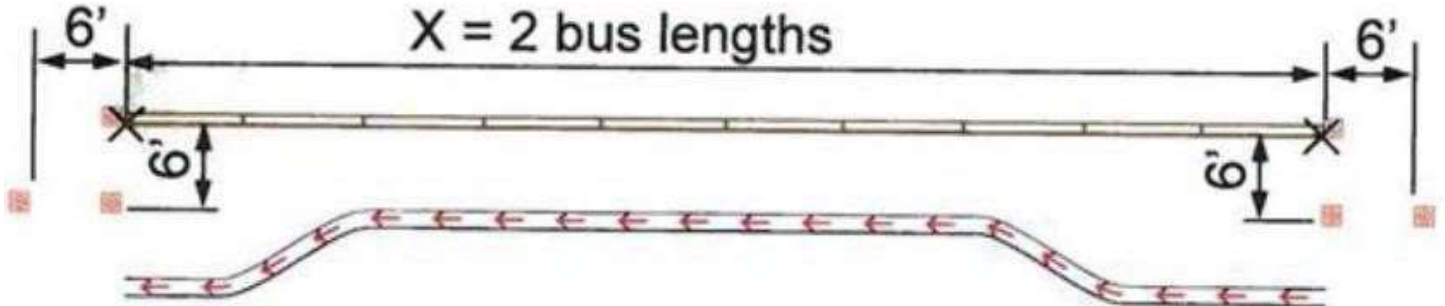
JUDGE'S SIGNATURE _____

JUDGE'S SIGNATURE _____





SECOND CUSTOMER STOP

This event simulates a customer stop. The operator should stop the vehicle with the front tires within six (6) inches of the simulated curb. Rear tires must be within 15 inches of the simulated curb. After stopping the vehicle, the operator is required to open the door to complete the test. An ADA stop announcement must be made prior to exiting the passenger stop (Paratransit not required).

Consistency in measurement is vital to this exercise. Measure the distance from the top edge of the curb, 4x4 or simulated cur to the center of the tire below the axle at the same height as the top of the curb. (if we use a tape or other line, measure the distance at the pavement level. Be sure that the yard stick is perpendicular to the curb when you measure. Measurements are rounded up. If you measure 8 ¼" or 8 ¾", it should be recorded as 9" on the score sheet. Hitting the curb or cones anytime, either entering or departing the stop, loses points. So be careful to watch the cones and curb as the vehicles departs the obstacle. The operator must beep the horn to indicate to the judges that it is safe to measure the distance between the curb and the tires. The timekeeper must stop the clock when the horn is sounded. And restart the clock when the vehicle is put into motion. **(Turn signals required when entering and exiting the passenger stop. Set on Park. Sound the horn to notify judges it is safe to take measurements.)**



LEGEND

-  Railroad tie
 28" Cone
 Path of Bus
 x—x Survey Baseline

NOT TO SCALE

ALL BUSES:

A = Two lengths of vehicle

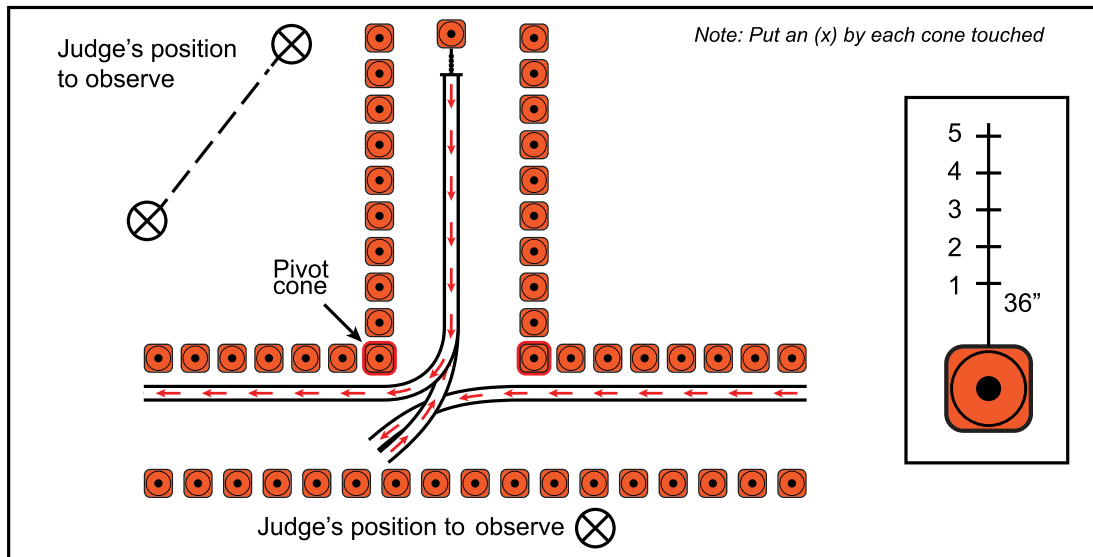
B = Width of bus stop 6'

RIGHT HAND REVERSE

COURSE
NUMBER

Contestant's Number _____ Bus Number _____
Category 40' 35' 25'

BUS
CATEGORY



Penalties

- 10 points off for pivot cone touched.
- 1 point off for failing to sound the horn before backing up.
- 1 point off for failing to use the flashers before backing up.
- 5 points off for each cone touched.
- 5 points off for each 12" segment beyond 36" limit from rear cone.
- 10 points off for each transmission shift into reverse after initial shift into reverse.
- 25 points off for touching rear cone.
- 50 points off for not completing test as designed.

Score

- | | |
|--|--------------------|
| 1. Pivot cone touched | _____ X 10 = _____ |
| 2. None use of horn before backing up | _____ X 1 = _____ |
| 3. None use flashers before backing up | _____ X 1 = _____ |
| 4. Cones touched | _____ X 5 = _____ |
| 5. Rear clearance beyond 36" | _____ X 5 = _____ |
| 6. Shifted into reverse | _____ X 5 = _____ |
| 7. Rear cone touched | _____ X 25 = _____ |
| 8. Not completing course as designed | 50 = _____ |

Note maximum points possible
TOTAL POINTS OFF (Add 1 thru 6) -

50

POINTS EARNED

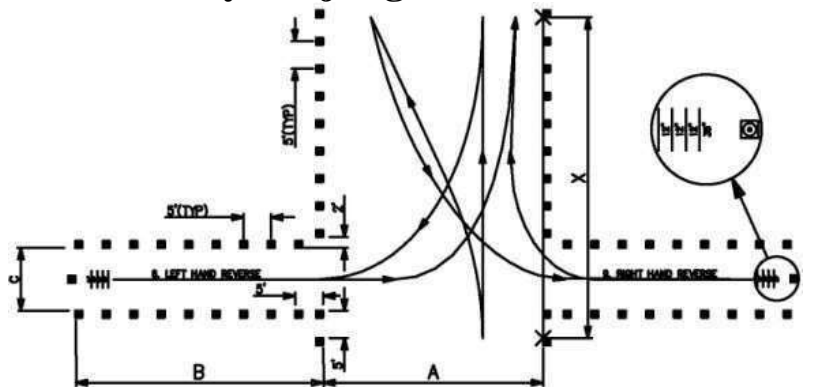
JUDGE'S SIGNATURE _____
JUDGE'S SIGNATURE _____

RIGHT HAND REVERSE

This obstacle tests the operator's ability to back up the vehicle between two obstacles which require the vehicle to back up to the right.

The vehicle must come to a stop so that the judges can determine where the rear bumper of the vehicle is with respect to the rear marker cone. The contestant must sound the horn to signal the judges that the backing maneuver is complete and it is safe to measure the distance from the rear of the vehicle to the rear marker cone.

The timekeeper must stop the clock when the driver sounds the horn, and start the clock when the vehicle is put into motion. Judges should determine the location quickly. All contestants and judges should note that the various marking cones have different point values. This obstacle is likely to experience a cone lodged between the tires and the body. Be ready to alert the operator to stop the vehicle if necessary. Judges must remember to watch the vehicle as it departs the obstacle because points are deducted for cones that are hit while exiting the obstacle. Keeping in mind that a cone can only be hit once. **(Horn & Flashers required before backing up. Set on Park. Sound the horn to notify the judges it is safe to take measurements.)**



40' x 102" BUS

A = 40'-0"

B = 45'-0"

C = 11'-5"

X = 58'-5"

25' BUS

A Width of vehicle plus 12 inches

B Length of vehicle 4' (3' centers)

C Length and half of vehicle (widen as required)

D Width of vehicle plus 18"

E 44' (4' centers)

F 3' marked at 12" increments

35' X 96" BUS

A = 35'-0"

B = 40'-0"

C = 10'-11"

X = 57'-11"

LEGEND



28" Cone



Path of Bus

x—x Survey Baseline

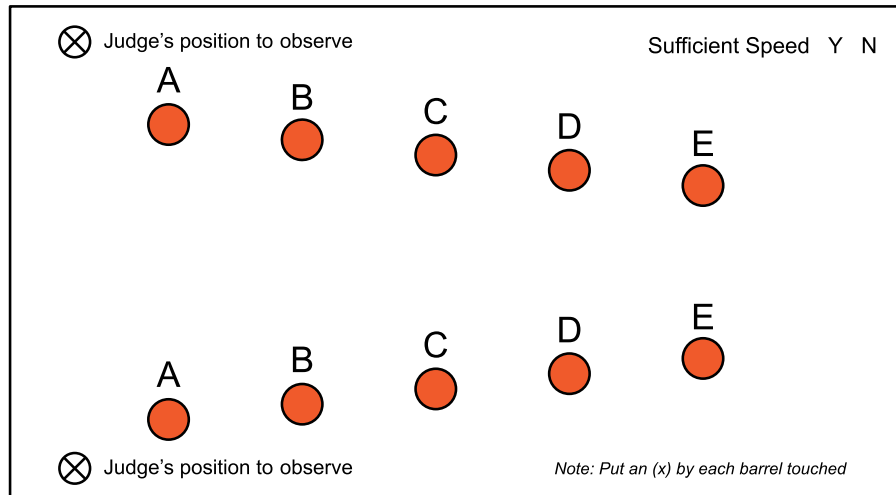
NOT TO SCALE

DIMINISHING CLEARANCE

COURSE
NUMBER

Contestant's Number _____ Bus Number _____
Category 40' 35' 25'

BUS
CATEGORY



Penalties

1. 20 points off for each "A" barrel touched.
2. 16 points off for each "B" barrel touched.
3. 8 points off for each "C" barrel touched.
4. 4 points off for each "D" barrel touched.
5. 2 points off for each "E" barrel touched.
6. 25 points off for insufficient speed (20 mph).
7. 50 points off for not completing test as designed.

Score

- | | |
|--------------------------------------|--------------------|
| 1. "A" barrel touched. | _____ X 20 = _____ |
| 2. "B" barrel touched. | _____ X 16 = _____ |
| 3. "C" barrel touched. | _____ X 8 = _____ |
| 4. "D" barrel touched. | _____ X 4 = _____ |
| 5. "E" barrel touched. | _____ X 2 = _____ |
| 6. Insufficient speed (20 mph). | _____ X 25 = _____ |
| 7. Not completing course as designed | 50 = _____ |

Note maximum points possible 50
TOTAL POINTS OFF (Add 1 thru 7) -

POINTS EARNED

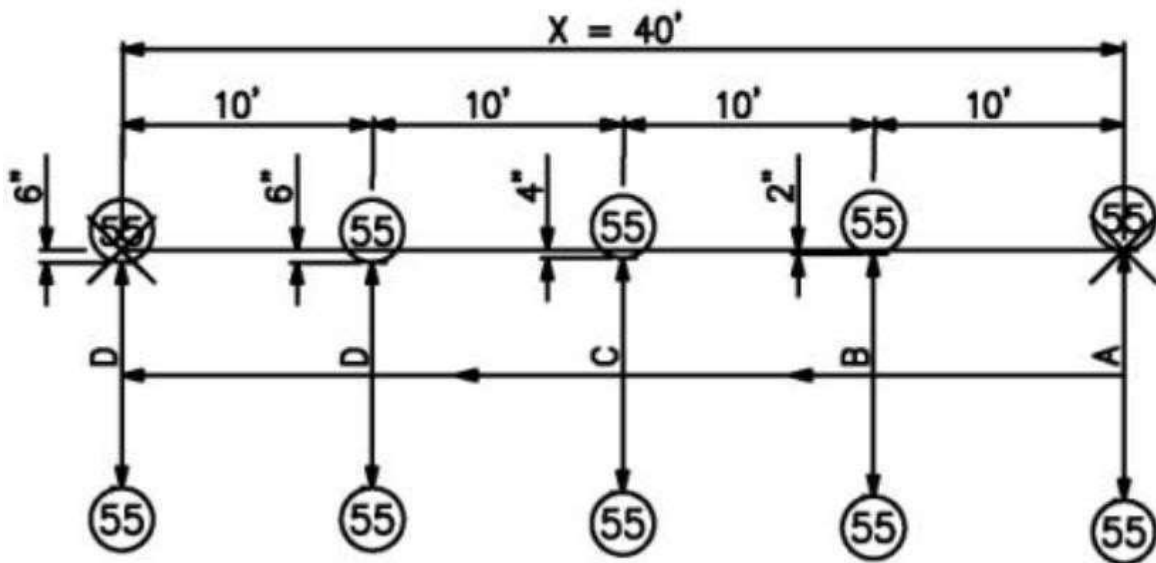
JUDGE'S SIGNATURE _____

JUDGE'S SIGNATURE _____

DIMINISHING CLEARANCE

This obstacle tests the operator's ability to judge the position and speed of his/her vehicle. The contestant is required to drive through a narrowing, V-shaped channel outlined with barrels. The bus must obtain a minimum speed of 20 miles per hour within the obstacle.

In this obstacle, the vehicle must be traveling at least 20 mph upon entering the barrels. The radar gun, not the vehicle speedometer is the official speed measurement device, so judges must watch the signal of the radar gun operator. Judges should be careful to stand away from the barrels. They travel fast when hit at 20 mph. **(Turn signals not required.)**



40' x 102" BUS

A = 10'-0"

B = 9'-8"

C = 9'-4"

D = 9'-0"

X = 40'-0"

25' BUS

A Length of vehicle

B Length of vehicle divided by 5

C Width of vehicle plus 24"

D Width of vehicle plus 20"

E Width of vehicle plus 16"

F Width of vehicle plus 12"

G Width of vehicle plus 8"

35' X 96" BUS

A = 9'-6"

B = 9'-2"

C = 8'-10"

D = 8'-6"

X = 40'-00"

LEGEND

(55) 55 Gallon Drum

→ Path of Bus

x—x Survey Baseline

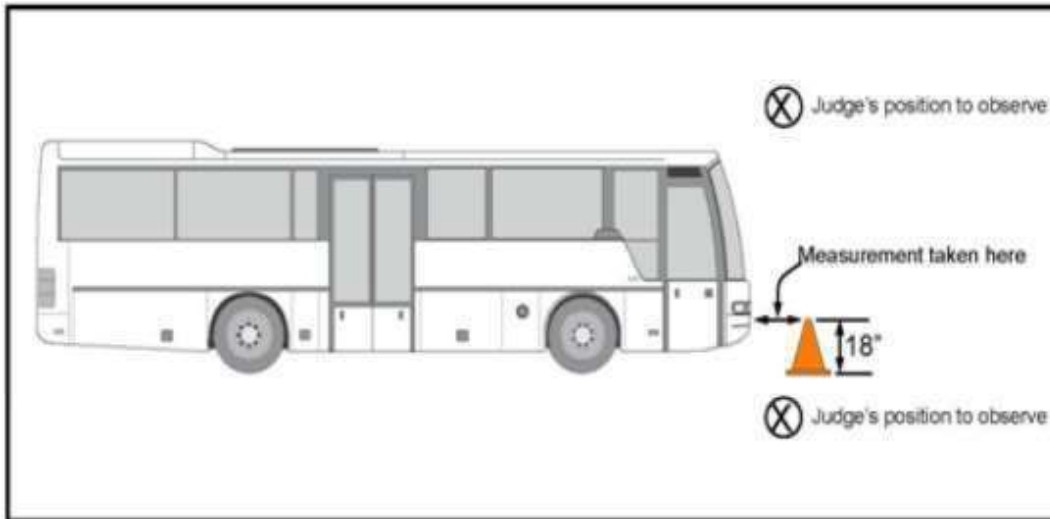
NOT TO SCALE

JUDGMENT STOP

COURSE
NUMBER

Contestant's Number _____ Bus Number _____
Category 40' 35' 25'

BUS
CATEGORY



Penalties

1. 50 points off for the 18" marker being touched.
2. 1 point off for each 1" beyond the initial 6".
3. 25 points off for making more than one full stop.
4. 50 points off for not completing test as designed.

Score

- | | |
|--|--------------------|
| 1. touching cone | _____ X 50 = _____ |
| 2. clearance beyond six (6) inch limit | _____ X 1 = _____ |
| 3. excessive total stops | _____ X 25 = _____ |
| 4. not completing the course as designed | 50 = _____ |

Note maximum points possible 50
TOTAL POINTS OFF (Add 1 thru 7) -

POINTS EARNED

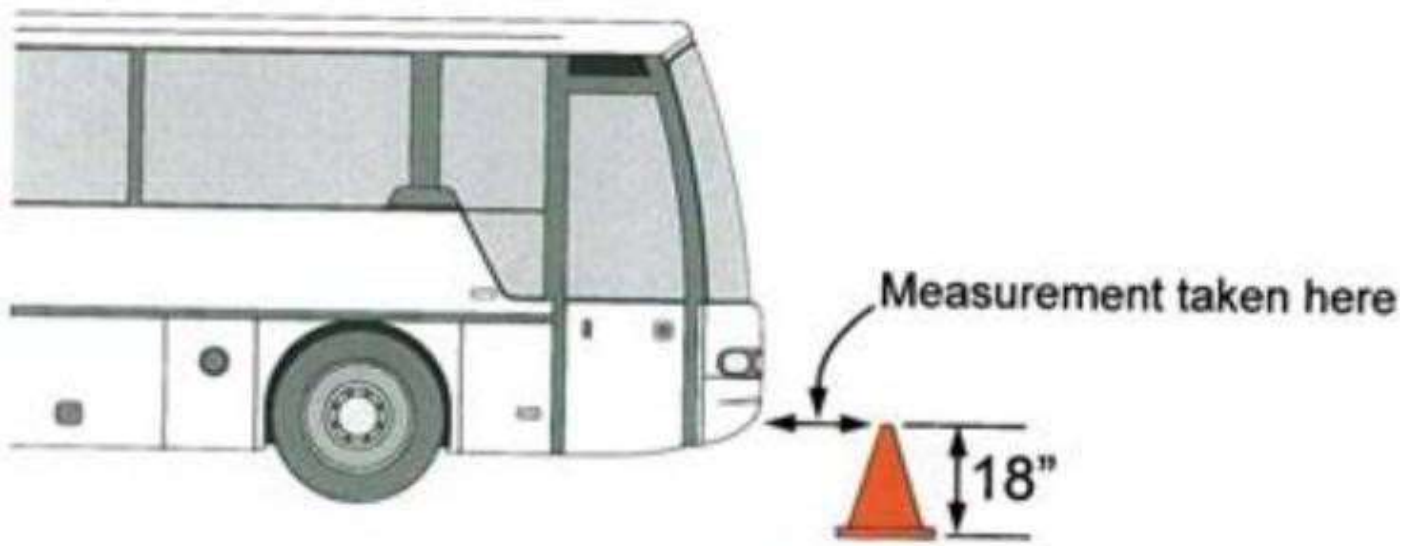
JUDGE'S SIGNATURE _____

JUDGE'S SIGNATURE _____

JUDGMENT STOP

This event tests the operator's ability to judge stopping distances between the bus and a small object directly ahead. A small cone is placed on the final stop. The operator must stop with the front bumper or bike rack within six (6) inches of the cone.

In measuring the distance between the cone and the front bumper of the vehicle, it is very important to be consistent in your measurements. Measure the distance from the cone to the bumper by placing the yardstick on top of the cone, with the 1" increments on the yardstick starting at the end toward the vehicle. The yardstick should be kept parallel to the ground (level) and perpendicular to the front of the vehicle. Read the distance where the yardstick crosses the outside of the cone. Measurements are rounded up. If you measure 8 $\frac{1}{4}$ " or 8 $\frac{3}{4}$ ", it should be recorded as 9" on the score sheet. **(Turn signals not required.)**



PRE-TRIP INSPECTION

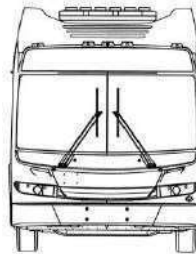
Pre-Trip Inspection Report Form

Place an X to indicate defects found.

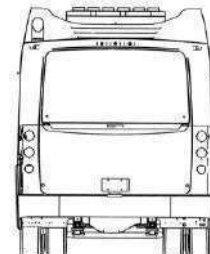
Defects:

Security item:

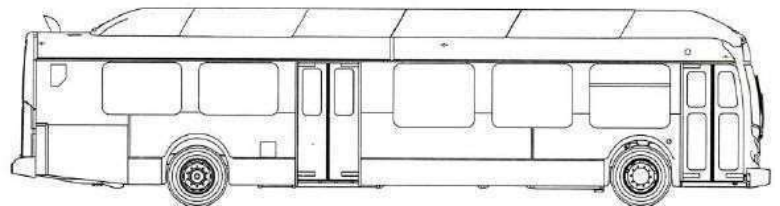
Front



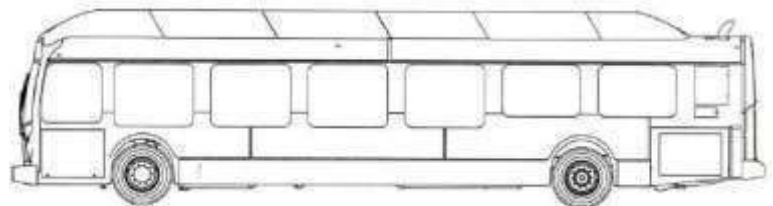
Rear



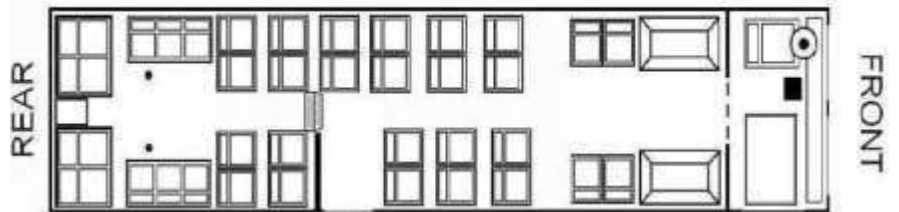
Curb Side



Driver Side



LOW FLOOR



COURSE NUMBER

PRE-TRIP INSPECTION

BUS CATEGORY

Contestant's Number _____ Bus Number _____
Category 40' 35' 25'

Time warnings will be given to the operator at the two (2) minute, one (1) minute, and 30 second time marks.

A. Points Earned

Identify and record eight (8) planted defects (10 points each).

Identify and record one (1) security problem (20 points).

Performed order in a logical and systematic manner (25 points).

1. Number of planted defects found _____ x 10 = _____

2. Security problem found (enter 0 or 20) _____

3. Logical and systematic manner (enter 0 or 25) _____

Total Points Earned A. _____

B. Penalty

Deduct 1 point for each item not returned to original condition.

(examples: compartment doors, lights, windows, etc.)

1. Number of items not returned to original condition _____ x 1

Total Points Deducted B. _____

TOTAL POINTS EARNED (A-B)

(Maximum Possible 125 points)

--

Judge's Signature: _____

Judge's Signature: _____

SMOOTHNESS OF OPERATION

COURSE
NUMBER

Contestant's Number _____ Bus Number _____
Category 40' 35' 25'

BUS
CATEGORY

Evaluate each contestant on his/her ability to deliver a smooth ride. The following criterion is to be employed in making each evaluation:

A. Total Points Possible A: 25

B. Penalties:

Deduct one point for each occurrence of sudden stops, sudden starts and abrupt turns.

- | | |
|---|-------------------|
| 1. Sudden Stops | _____ x 1 = _____ |
| 2. Sudden Starts | _____ x 1 = _____ |
| 3. Abrupt turns | _____ x 1 = _____ |
| 4. Deduct 5 points for failing to use seat belt | _____ x 5 = _____ |
| 5. Moving bus with door opened | _____ x 3 = _____ |

TOTAL POINTS DEDUCTED (Add 1 - 5) B: _____
(maximum penalty points – 25)

TOTAL POINTS AWARDED (A-B)
(maximum 25 points)

Judge's Signature _____

Judge's Signature _____

COURSE
NUMBER

TIMEKEEPER'S RECORD

BUS
CATEGORY

Contestant's Number _____ Bus Number _____
Category 40' 35' 25'

TIMEKEEPER'S RECORD

Time stops for mechanical troubles, emergencies and where measurements are taken. The total travel time will be recorded for each contestant.

Time warnings will be given to the operator at the two (2) minute, one (1) minute, and 30 second time marks.

Elapsed Time: _____ minutes _____ second

Penalty of one point per second over seven minutes.

(Maximum penalty of 180 points)

POINTS TIME PENALIZED

A. Total Points Possible A: 25

B. Penalties:

10 points for each A.D.A. announcement not made. (**Paratransit not required**)

1. A.D.A. Announcements (Fixed Route ONLY) _____ x 10 = _____

2. Deduct 2 points if the Operator exhibits poor:

a. Posture Enter 0 or 2 _____

b. Use of mirrors Enter 0 or 2 _____

c. Use of hands Enter 0 or 2 _____

d. Use of feet Enter 0 or 2 _____

TOTAL POINTS DEDUCTED (Add 1 - 2) B: _____
(maximum penalty points – 25)

TOTAL POINTS AWARDED (A-B)

(maximum 25 points)

Judge's Signature _____

Judge's Signature _____

PARATRANSIT WRITTEN TEST

Name: _____ Contestant Number: _____

INSTRUCTIONS: The test includes 25 questions; each question is worth 1 point. Questions for the test are taken from basic training materials used for transit driver training. Questions will not be CDL related.

1. Each question is awarded five (5) points for a total of twenty-five (25) questions. With a maximum of one hundred twenty-five (125) possible points.
2. Five points will be deducted for every question not answered after the twenty (20) minute allowed time.
3. The operator will not make marks on the test sheet only on the answer sheet.

ANSWER SHEET.

1) A B C D

2) A B C D

3) A B C D

4) A B C D

5) A B C D

6) A B C D

7) A B C D

8) A B C D

9) A B C D

10) A B C D

11) A B C D

12) A B C D

13) A B C D

14) A B C D

15) A B C D

16) A B C D

17) A B C D

18) A B C D

19) A B C D

20) A B C D

21) A B C D

22) A B C D

23) A B C D

24) A B C D

25) A B C D

Number Correct _____ **x 5 =**

TOTAL POINTS EARNED

(maximum 125 points)

Tie Breaker: Time To Complete _____ : _____
(min:sec)

Judge's Signature _____

Judge's Signature _____

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PASSENGER ASSISTANCE WHEELCHAIR SECUREMENT

COURSE
NUMBER

Contestant's Number _____ Bus Number _____

BUS
CATEGORY

A. Sensitivity & Awareness (Order not critical)

- * Greet and introduces self to passenger in a positive manner (4 pt). _____
- * Asks passenger if they need assistance in boarding (4 pt). _____
- * Asks passenger if they have all their belongings (4 pt). _____
- * Checks securement of postural belt (4 pt verbal, 4 pt perf.) _____
- * Checks hand grips on wheelchair (4 pt verbal, 8 pts perf.) _____
- * Asks passenger to place hands in lap (4 pt verbal, 4 pt perf.) _____

Points from section A cannot be accumulated once section B has started.

Possible Points = 40

A..... Actual points. _____

B. Loading Onto Platform

- * Checks rear safety plate (4 pt verbal, 12 pts perf.) _____
- * Backs passenger onto platform (4 pt verbal, 4 pt perf.) _____
- * Secures wheelchair locks (4 pt verbal, 4 pt perf.) _____
- * Looks for lift belt and secures, if present (4 pt verbal, 4 pt perf.) _____

Possible Points = 40

B..... Actual Points. _____

C. Raising Lift

- * Raises lift and checks front safety plate/barrier after it clears surface (4 pt verbal, 12 pts perf.) _____
- * Holds wheelchair with one hand while raising lift (4 pt verbal, 4 pt perf.) _____
- * Secures lift control onto door or lift (4 pt). _____
- * Backs wheelchair into vehicle and secures at least one lock (4 pt verbal, 4 pt perf.) _____

JUDGES NOTE – Do not allow passenger to remain on lift unattended.

Possible Points = 36

C..... Actual Points. _____

D. Wheelchair & Passenger Securement (Order not critical)

- * Positions wheelchair into securement location facing forward and sets wheel locks (4 pt verbal, 4 pt perf.) _____
- * Attach front securement to the floor and wheelchair frame and tighten tiedowns (6 pt verbal, 6 pt perf.) _____
- * Attach back securement to the floor and wheelchair frame and tighten tiedowns (6 pt verbal, 6 pt perf.) _____
- * Releases wheel locks in an attempt to gently roll wheelchair to insure no movement (4 pt verbal, 4 pts perf.) _____
- * Reapply wheelchair brakes (2 pt verbal, 2 pts perf.) _____
- * Secures lap belt at passenger's hips and shoulder belt at the center of the chest (4 pt verbal, 4 pt perf.) _____
- * Places lift in "stow" position (8 pt verbal ONLY). _____

Possible Points = 60

D..... Actual Points. _____

E. Judge checks wheelchair to determine any movement (24 pts)

E... Actual Points _____

TOTAL TIME _____

Add (A+B+C+D+E) _____

(Time will be used as second tie breaker)

Penalty for standing on lift (-25) -

(Maximum Points – 200)

Total Points Earned

PASSENGER ASSISTANCE

Judge's Script

The Passenger Assistance and Wheelchair Securement section is worth a maximum of 200 points. You have 7 minutes to perform this segment of the course. The judge will announce 7 minutes and all actions must cease. You must verbalize to the passenger all of the activities that you will perform in the process of loading and securing them in the vehicle. You must say these activities loud enough for the judges to hear.

DO NOT leave passenger on lift.

You will **not** be penalized for removing your hand from the wheelchair to check the front and rear safety plate. For the purposes of this Roadeo, you will **not** be permitted to ride the lift platform. The penalty for riding the lift is -25 points off your score.

Do not stow the lift after moving the passenger into the vehicle. However, you must verbalize that you would stow the lift in an actual situation. Failure to verbalize this step will result in the loss of 8 points.

Almost every item for this exercise indicates a point value for “verbal”, and a point value for “performance”. These are the points that you receive for verbalizing what is being performed, and for the actual performance. If you do not verbalize what you are going to do before you do it, you do not receive the verbal point value. If you verbalize it, but do not perform it, you will not receive the performance point value.

When you have completed the securement of the wheelchair and occupant you must inform the judges that you are finished. Time will stop and you will not be permitted to touch the wheelchair or occupant and must exit the vehicle. After you have exited the vehicle, a judge will determine movement of the wheelchair. If the wheelchair does not roll or slide in any direction, you will receive 24 points. If the wheelchair does roll or slide by any amount you will receive zero (0) points for this test.

Judge's Signature _____

Judge's Signature _____

FIXED ROUTE SCORE SHEET SUMMARY

Contestant's Number _____ Bus Number _____

EVENT	POINTS POSSIBLE	POINTS EARNED
-------	-----------------	---------------

1. Serpentine	50	- _____ = _____
2. Offset Street	50	- _____ = _____
3. Rear Duals Clearance	50	- _____ = _____
4. Right Hand Turn	50	- _____ = _____
5. First Customer Stop	50	- _____ = _____
6. Left Hand Reverse	50	- _____ = _____
7. Left Hand Turn	50	- _____ = _____
8. Second Customer Stop	50	- _____ = _____
9. Right Hand Reverse	50	- _____ = _____
10. Diminishing Clearance	50	- _____ = _____
11. Judgment Stop	50	- _____ = _____
12. Smoothness of Operations	25	- _____ = _____
13. Time Keeper's Record / A.D.A.	25	- _____ = _____
14. Pre-Trip Inspection	125	- _____ = _____

TOTAL 725

OPERATOR SUB-TOTAL _____

15. Timekeeper's Record

A: Elapsed Time: _____ Minutes _____ Seconds

B: Overtime Penalty

(Deduct 1 point for each second over 7 minutes
not to exceed maximum penalty of 180 points)

OPERATOR GRAND TOTAL

Recorder's Signature: 1st Tally _____ Recheck _____

Date _____ / _____ / _____

Recorder's Signature: 1st Tally _____ Recheck _____

Date _____ / _____ / _____

Recorder's Signature: 1st Tally _____ Recheck _____

Date _____ / _____ / _____

PARATRANSIT SCORE SHEET SUMMARY

Contestant's Number _____ Bus Number _____

EVENT	POINTS POSSIBLE	POINTS EARNED
-------	-----------------	---------------

1. Serpentine	50	- _____ = _____
2. Offset Street	50	- _____ = _____
3. Rear Duals Clearance	50	- _____ = _____
4. Left Hand Turn	50	- _____ = _____
5. First Customer Stop	50	- _____ = _____
6. Left Hand Reverse	50	- _____ = _____
7. Right Hand Turn	50	- _____ = _____
8. Second Customer Stop	50	- _____ = _____
9. Right Hand Reverse	50	- _____ = _____
10. Diminishing Clearance	50	- _____ = _____
11. Judgment Stop	50	- _____ = _____
12. Smoothness of Operations	25	- _____ = _____
13. Time Keeper's Record / A.D.A.	25	- _____ = _____
14. Pre-Trip Inspection	125	- _____ = _____
15. Wheelchair Securement	200	- _____ = _____
16. Written Test	125	- _____ = _____

TOTAL 1050

OPERATOR SUB-TOTAL _____

17. Timekeeper's Record

A: Elapsed Time: _____ Minutes _____ Seconds

B: Overtime Penalty

(Deduct 1 point for each second over 7 minutes
not to exceed maximum penalty of 180 points)

OPERATOR GRAND TOTAL

Recorder's Signature: 1st Tally _____ Recheck _____

Date _____ / _____ / _____

Recorder's Signature: 1st Tally _____ Recheck _____

Date _____ / _____ / _____

Recorder's Signature: 1st Tally _____ Recheck _____

Date _____ / _____ / _____

APPENDIX J: TECHNICIAN'S SCORE SHEETS

1. WRITTEN TEST

Team ID

Place Team Sticker Here

- | | | |
|-------------|-------------|-------------|
| 1) A B C D | 18) A B C D | 35) A B C D |
| 2) A B C D | 19) A B C D | 36) A B C D |
| 3) A B C D | 20) A B C D | 37) A B C D |
| 4) A B C D | 21) A B C D | 38) A B C D |
| 5) A B C D | 22) A B C D | 39) A B C D |
| 6) A B C D | 23) A B C D | 40) A B C D |
| 7) A B C D | 24) A B C D | 41) A B C D |
| 8) A B C D | 25) A B C D | 42) A B C D |
| 9) A B C D | 26) A B C D | 43) A B C D |
| 10) A B C D | 27) A B C D | 44) A B C D |
| 11) A B C D | 28) A B C D | 45) A B C D |
| 12) A B C D | 29) A B C D | 46) A B C D |
| 13) A B C D | 30) A B C D | 47) A B C D |
| 14) A B C D | 31) A B C D | 48) A B C D |
| 15) A B C D | 32) A B C D | 49) A B C D |
| 16) A B C D | 33) A B C D | 50) A B C D |
| 17) A B C D | 34) A B C D | |

Number Correct _____ x 2.5 =

TOTAL POINTS EARNED

(maximum 125 points)

Tie Breaker: Time To Complete _____ : _____
(min:sec)

Judge's Signature _____

Judge's Signature _____

2. USSC VEHICLE INSPECTION

Team ID _____

Place Team Sticker Here

A. Points Earned

Identify and record 14 Planted defects worth 25 points each.

1. Number of planted defects found _____ x 25 = _____

Total Points Earned A. _____

B. Penalties

Deduct 10 points for each item not returned to original condition.
(examples: compartment door, lights, windows, etc.)

Deduct 10 points for unsafe inspection practices.
(examples: crawling under the bus)

1. Number of items not returned to original condition _____ X 10 = _____

2. Unsafe practices during inspection _____ X 10 = _____

Total Penalty Points B. _____

TOTAL POINTS EARNED (A - B)

(maximum 350 points)

ATTEMPT TO START THE VEHICLE- DISQUALIFIED

(check if applicable)

☐

Judge's Signature _____

Judge's Signature _____

3. ALLISON/CUMMINS POWER TRAIN EVENT

Place Team Sticker Here

Team ID _____

A. Points Earned

Identify and record 6 planted defects (50 points each).

Identify, record, and correct defect which renders the power train inoperable (50 points).

1. Number of planted defects found _____ x 50 each = _____

2. Disabling defect found and corrected (enter 0 or 50) _____

Total Points Earned A. _____

B. Penalties

1. Engine not returned to original status (enter 0 or 50) = _____
(excluding disabling defect)

2. Improper use of tools/test equipment (enter 0 or 10) = _____

3. Safety violation(s) (ten points each) _____ x 10 = _____

Total Penalty Points B. _____

TOTAL POINTS EARNED (A - B)
(maximum 350 points)

C. Tie Breaker

1. Time to Correct Disabling Defect _____:_____
(min:sec)

Judge's Signature _____

Judge's Signature _____

4. CUMMINS/VOITH POWER TRAIN EVENT

Team ID

Place Team Sticker Here

A. Points Earned

Identify and record 6 planted defects (50 points each).

Identify, record, and correct defect which renders the power train inoperable (50 points).

1. Number of planted defects found _____ x 50 each = _____

2. Disabling defect found and corrected (enter 0 or 50) _____

Total Points Earned A. _____

B. Penalties

1. Engine not left in proper working order (enter 0 or 50) = _____
(excluding planted defects) (or returned to original status)

2. Improper use of tools/test equipment (enter 0 or 10) = _____

3. Safety violation(s) (ten points each) _____ x 10 = _____

Total Penalty Points B. _____

TOTAL POINTS EARNED (A - B)

(maximum 350 points)

C. Tie Breaker

1. Time to Correct Disabling Defect : _____ : _____ : _____
(min:sec:tenths)

Judge's Signature _____

Judge's Signature _____

5. CUSTOM TRAINING AIDS AIR BRAKE BOARD EVENT

Team ID

Place Team Sticker Here

A. Points Earned

Diagnosis planted electrical defect (50 points)

Identify and record 6 planted Air Brake System defects (50 points each)

1. Correct diagnosis of electrical planted defect (enter 0 or 50 points) _____

2. Number of Air Brake System defects found _____ X 50 each = _____

Total Points Earned A. _____

B. Penalty

1. Air Brake System not returned to original status
(excluding planted defects) (enter 0 or 10) = _____

2. Improper use of tools/test equipment (enter 0 or 10) = _____

3. Safety Violation(s)(ten points each) _____ x 10 = _____

Total Penalty Points B. _____

TOTAL POINTS EARNED (A-B)
(Maximum 350 Points)

C. Tie Breaker

1. Elapsed Time for Electrical Defect Portion _____ : _____
(min:sec)

Judge's Signature _____

Judge's Signature _____

6. THERMO KING HVAC INTELLIGAIRE EVENT

Team ID

Place Team Sticker Here

A. Points Earned

Identify, record and correct one disabling defect (50 points)

Identify and record five (5) other defects (50 points each)

Record and identify all logged alarm code(s) (50 points)

1. Disabling defect found and corrected (enter 0 or 50) _____

2. Number of planted defects found _____ x 50 each = _____

3. Record and identify all logged alarm code(s) (enter 0 or 50) _____

Total Points Earned A. _____

B. Penalty

1. A/C unit & simulator not returned to original status
(excluding planted defects)(enter 0 or 10) _____

2. Improper use of tools/test equipment (enter 0 or 10) _____

3. Safety violation(s) (ten points each) _____ x 10) = _____

Total Penalty Points B. _____

TOTAL POINTS EARNED (A - B)
(Maximum 350 points)

C. Tie Breaker

1. Elapsed Time for HVAC event: _____ : _____
(min:sec)

Judge's Signature _____

Judge's Signature _____

7. MCI MULTIPLEX EVENT

Place Team Sticker Here

Team ID

A. Points Earned

Identify and record seven planted multiplex defects (50 points each).

1. Number of planted defects found _____ x 50 each _____

Total Defect Points A. _____

B. Penalty

1. Improper use of tools/test equipment (enter 0 or 10) = _____

2. Safety violation(s) (ten points each) _____ x 10 = _____

Total Penalty Points B. _____

TOTAL POINTS EARNED (A – B)

C. Tie Breaker

1. Elapsed Time for Complete Event: _____ : _____

Judge's Signature _____

Judge's Signature _____

8. VAPOR DOOR EVENT

Team ID

Place Team Sticker Here

A. Points Earned

Identify and record seven planted Door defects (50 points each).

1. Number of planted defects found _____ x 50 each = _____

Total Defect Points A. _____

B. Penalty

1. Improper use of tools/test equipment (enter 0 or 10) = _____

2. Safety violation(s) (ten points each) _____ x 10 = _____

Total Penalty Points B. _____

TOTAL POINTS EARNED (A – B)

C. Tie Breaker:

1. Elapsed Time for Door Event: _____ : _____
(min:sec)

Judge's Signature _____

Judge's Signature _____

TECHNICIANS SCORE SHEET SUMMARY

Team ID

Place Team Sticker Here

Maintenance Tests

Base Score

Points Earned

1. Written Test	125	_____
2. USSC Vehicle Inspection	350	_____
3. Cummins/Allison Power Train Event	350	_____
4. Cummins/Voith Power Train Event	350	_____
5. Custom Training Aid Air Brake Board Event	350	_____
6. Thermo King HVAC Event	350	_____
7. MCI Multiplex Event	350	_____
8. Vapor Door Event	350	_____

TOTAL POINTS POSSIBLE 2,575

Technician Grand Total

Recorder's Signature: 1st Tally _____ Recheck _____ Date _____ / _____ / _____

Recorder's Signature: 1st Tally _____ Recheck _____ Date _____ / _____ / _____

Recorder's Signature: 1st Tally _____ Recheck _____ Date _____ / _____ / _____