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International Bus ROADEO Handbook

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PORTLAND, OR

2024 INTERNATIONAL BUS ROADEO HANDBOOK

Published by the

International Bus Roadeo Committee

Hosted by

Tri-County Metropolitan Transportation District of Oregon (TriMet)

American Public Transportation Association

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FOREWORD

APTA's Purpose Statement:
The American Public Transportation Association (APTA) is a nonprofit international association of more than 1,500 public and private sector member organizations. Benefits to our members include advocacy for federal funding and policies, research, technical expertise and consulting services, workforce development programs, educational conferences and seminars, and 135 subject-matter working committees.

APTA is the only association in North America that represents all modes of public transportation, including bus, paratransit, light rail, commuter rail, subways, waterborne services, and intercity and high-speed passenger rail. More than 90 percent of the people using public transportation in the United States and Canada ride APTA member systems.

Our membership is engaged in every aspect of the industry – from planning, designing, financing, constructing and operating transit systems to the research, development, manufacturing and maintenance of vehicles, equipment and transit-related products and services. Additionally, academic institutions, transportation network companies, transit associations and state departments of transportation are APTA members.

APTA's Diversity Policy:
APTA promotes an inclusive culture that supports and celebrates the unique attributes and perspectives of its individual members, allowing each and every person to make their fullest contribution to the industry. APTA defines diversity as the inclusion of differences and similarities from all categories of members and covers such areas as disability, gender, gender identity and sexual orientation, age, ethnicity, race and geographic origin, size of transit property or business member organization, all of which contribute to the fulfillment of APTA's mission.

The International Bus Roadeo Statement:
The International Bus Roadeo includes competition events for both bus operators and maintenance technicians. Awards are given in each practice area, and there is an overall grand prize for the transit system with the highest combined score for the bus operator and bus maintenance team. The event concludes with an awards ceremony and celebration for the agencies, contestants, and their families.

The International Bus Roadeo Committee's goals are to provide the most equitable competition possible, encourage the highest degree of professionalism in bus operators and maintenance technicians, and build camaraderie among all those who compete. Through sportsmanship and pride of work, the APTA International Bus Roadeo stands as a symbol of the important role bus operators and maintenance technicians play in providing transit customers with safe, reliable service. We look forward to your support and participation in this year's International Bus Roadeo competition. This handbook contains rules and guidelines for Roadeo participants.

Please note: Roadeo courses, problems, and distances are depicted here as guidelines, with distances and measurements of approximate value. They should be used as a general resource in helping the participant prepare for the competition but may not reflect the specific measurements on the day of the Roadeo.

Thank you for your interest and participation. Good luck!

HOST LETTER

SADDLE UP & ROADEO ON! 2024 PDX ENJOY A WILD TIM WHEELS, SKILLS, AND ROADEO THRILLS Yeehaw APTA 2024

Welcome to beautiful Portland, Oregon!

TriMet is proud to host the 2024 APTA International Bus Roadeo right here in what was called Oregon Country back in the days of the Wild West. But today, moonshine has been replaced by microbrews and chow wagons by food trucks.

Portland is known as a foodie town, so I hope you have brought your appetite because it has something for everyone — meat lovers, seafood fans, vegetarians, vegans and sweet tooths. The city is also known as the birthplace of unusual ice cream flavors that incorporate everything from cookie dough to bacon, even blue cheese. Then there are the donuts you may have heard about, sure to cast a spell on you. We will also tempt you with locally made beer and wine, and coffee shops galore.

I hope you have set some time aside to explore the Pacific Northwest. Portland's central location is only an hour and a half drive to many iconic destinations, with the majestic Oregon Coast to the west and the snow-capped Mt. Hood to the east. The breathtaking Columbia River Gorge and Oregon wine country are short trips away, as well.

While in town, hop on TriMet to take in all the city offers courtesy of a free seven-day Hop Fastpass®. Ride on TriMet buses, MAX Light Rail, WES Commuter Rail trains and our partner transit services, the Portland Streetcar and C-TRAN. You can easily plan and track your transit trips on our website, trimet.org.

Between the Roadeo action, take a ride to Tilikum Crossing, or *Bridge of the People*, a first-of-its-kind car-free bridge built by TriMet in 2015 as part of our MAX Orange Line project. It is the longest in the United States to carry transit, pedestrians and bicyclists but no private autos. You can also head to our Washington Park MAX station, the deepest transit station in North America. At 260 feet below ground, it is about 90 feet deeper than any station in New York City's famed subway system.

As the outdoors beckon, enjoy our Washington Park Rose Garden or the Oregon Zoo. Visit the world's smallest park, Mill Ends Park, stroll along the esplanade or head north across the Columbia to take in Vancouver's rejuvenated waterfront.

While there is much to enjoy on your visit, the Roadeo is the star attraction. As a former operator, I know the incredible skill it takes to maneuver those 40-foot buses. And I could not be more in awe of the maintenance workers who keep those buses tuned up and on the road. So grab your cowboy hats and polish off your buckles and good luck to all the competitors. It's time to let the fun begin!

Sam Desue Jr.
TriMet General Manager

TRIMET
How life moves®

TABLE OF CONTENTS

APTA INTERNATIONAL BUS ROADEO SCHEDULE

Roadeo Hotel:	**Roadeo Site:**
Hyatt Regency Portland at the Convention Center 375 NE Holladay Street, Portland, OR 97232	3556 NW Front Ave Portland, OR 97210

Shuttle service will be provided from the host hotel to the Roadeo site.
Shuttle schedule, maps, and directions will be available at registration.

COMMITTEE & CONTESTANT SCHEDULE

Wednesday, April 24

All Day	Committee Members begin arriving

Thursday, April 25

8:00 am – 6:00 pm	Bus Roadeo Committee Course Set Up
3:00 – 5:00 pm	Bus Roadeo Committee Meeting *(meeting time may change)*
4:30 – 6:30 pm	Roadeo Registration

Friday, April 26

All Day	Contestants begin arriving
8:00 am – 6:00 pm	Bus Roadeo Committee Driving Course & Maintenance Technician Set Up
2:00 – 7:00 pm	Roadeo Registration
3:00 – 4:30 pm	Bus Roadeo Committee Meeting
7:00 – 8:30 pm	Bus Operator Orientation
7:30 – 8:30 pm	Maintenance Technician Orientation

Saturday, April 27

6:00 – 7:00 am	Maintenance Technician Breakfast
7:00 – 9:00 am	Roadeo Registration
7:30 – 8:15 am	Maintenance Technician Written Test

8:00 am – 6:00 pm	Bus Operator Driving Course Practice and Pre-Trip Competition *(out at Roadeo Site)*
8:45 am – 12:30 pm	Maintenance Technician Training – Part 1 8:45 – 9:30 *Custom Training Aids Brake Board* 9:30 – 10:45 *MCI* 10:45 – 11:00 *Break* 11:00 – 11:45 *Thermo King HVAC* 11:45 – 12:30 *Vapor Door*

MAINTENANCE TECHNICIAN LUNCH 12:30 – 1:30 pm

(Lunch provided by APTA)

1:30 – 4:45 pm	Maintenance Technician Training – Part 2 1:30 – 2:15 *EMP* 2:15 – 3:00 *Voith* 3:00 – 3:15 *Break* 3:15 – 4:00 *Cummins* 4:00 – 4:45 *Allison*

Sunday, April 28

7:00 am – 6:00 pm	IBR Committee & Judges Onsite at Course
8:00 am – 6:00 pm	International Bus Roadeo Competition
5:45 – 6:15 pm	Swap Meet Table Set Up
6:30 – 8:00 pm	Swap Meet & Reception

Join your colleagues and rival contestants alike for our annual IBR Swap Meet. Enjoy light hors d'oeuvres and drinks in a reception style setting surrounded by rows and rows of tables with swappable goods. You will have the opportunity to arrange your wares on a 6 foot table alongside other competing agencies and swap your agency goods for other agency goods. There are no price tags as nothing is for sale, but everything is for swap. If you chose not to set up a table, simply browse what is available and swap as you go.

Monday, April 29

APTA International Bus Roadeo Workshops are Designed for Bus Roadeo Contestants.

Roadeo committee, competitors, and supervisors are welcome at all conference activities. These highlighted sessions are formatted for Roadeo participants. More information can be found in the conference program/app.

8:30 – 10:00 am	Opening Ceremony & Keynote

10:00 am – 12:00 pm	Bus Operator Workshop
10:00 am- 12:00 pm	Maintenance Technician Workshop
10:00 am – 12:00 pm	Electric H-VAC Workshop
12:00 – 1:00 pm	Lunch
2:00 – 4:00 pm	Bus Operator Workshop
2:00 – 4:00 pm	Maintenance Technician Workshop
2:00 – 4:00 pm	Electric Vehicle High Voltage Bus Workshop

Tuesday, April 30

8:00 – 10:00 am	Transmission Training
8:30 – 10:30 am	Bus Operator Workshop
8:30 – 10:30 am	Maintenance Technician Workshops
9:30 am – 3:30 pm	Product & Services Showcase and Bus Display
11:30 am – 1:30 pm	Products & Services Showcase Lunch
12:30 – 1:00 pm	Pre-Awards Briefing
5:00 – 6:00 pm	International Bus Roadeo and Safety & Security Awards Ceremony
6:30 – 8:30 pm	International Bus Roadeo Awards After Party *Ticketed Event*

Wednesday, May 1

7:00 – 8:00 am	Bus Roadeo Committee Meeting Debrief

GENERAL INFORMATION

Note: Each APTA member transit system is entitled to send 1 bus operator in the 40+ foot category and/or 1 maintenance team (maximum of 3 technicians) to the International Bus Roadeo Competition. APTA reserves the right to interpret this rule according to the transit system's membership status.

1. Contestant Qualifications

To compete in the APTA International Bus Roadeo, contestants are required to meet certain qualifications. Local transit systems are expected to enforce the following eligibility requirements.

Contestants must:

- Be employees of an APTA member transit system in good standing or represent a Community Transportation Association of America (CTAA) member organization in good standing with APTA
- Have worked, full-time or part-time, in the field in which they are competing (bus operator or maintenance technician) for not less than 1 year prior to the date of the Roadeo and must have a job description that matches the position for which they are applying
- Meet their local transit system's guidelines on sickness and absenteeism
- Process a Commercial Driver's License (CDL)

2. Ineligibility

Any of the following conditions during the span of 1 year prior to the Roadeo competition date make an employee ineligible to compete:

- A preventable or chargeable accident
- A suspension as a result of punitive action
- 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 Roadeo and the APTA International competition. For purposes of the Roadeo, compensation is considered to be paid time.

3. Team Registration

Teams may register at www.apta.com/mobility. Teams must be registered by April 12.

4. Schedule

A more detailed schedule with times and locations is located online at www.apta.com/mobility.

Friday: Orientation

Saturday: Bus Operator Pre-Trip Inspection Competition, Bus Operator Practice, and Maintenance Technician training sessions

Sunday: Roadeo Competition, Swap Meet

Monday: Training Workshops

Tuesday: Training Workshops, International Bus Roadeo Awards Ceremony and Celebration

5. Spectators

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

AWARDS/SCORING

1. General

- Each International Bus Roadeo contestant will receive a Participant's Award.
- Award winners will be announced at the International Bus Roadeo Awards Ceremony on Tuesday evening.
- Final scores and order of finish for all contestants will be available immediately following the Awards Ceremony.

2. Grand Champion and Combined Competition Scoring

Only those transit agencies with participants in both the Bus Operator and Maintenance Technician events are eligible to compete for Grand Champion. The Grand Champion will be determined by the average percentage of scored points for both events. The percentage is determined by dividing the points scored by the points possible. For example:

Total possible points:	Bus Operator: 700	Maintenance Technician: 2,575
Team A	Bus Operator: 675	Maintenance Technician: 2,225
Team B	Bus Operator: 625	Maintenance Technician: 2,375

Team A's score **would be calculated as follows:**

Bus Operator Score: 96.43 % (675/700)
Maintenance Technician Score: 86.41% (2225/2575)
Add the percentages together: 96.43 % + 86.41% = 182.84 %
Divide by 2: 182.84 ÷ 2 = 91.42

Team B's score **would be calculated as follows:**

Bus Operator Score: 89.29 % (625/700)
Maintenance Technician Score: 92.23 % (2375/2575)
Add the percentages together: 89.29 % + 92.23 % = 181.52 %
Divide by 2: 181.52 % ÷ 2 = 90.76

Team A would win the Grand Champion Award

3. Grand Champion and Combined Competition Awards

- The Grand Champion team members will each receive $1,500 U.S. and the agency will receive a plaque/trophy..
- Tie breakers for Grand Champion will be determined as follows: the lowest total combination of the elapsed time for the designated bus operator plus the total elapsed times for the Allison Powertrain, Cummins/Voith Powertrain, and Custom Training Aid Brake Board events.
- Teams placing second and third in the combined competition will receive plaques/trophies.

4. Bus Operator/Maintenance Technician Awards

- **The first-place winners** in each of the competitions, Bus Operator and Maintenance Technician, will each receive $1,000 U.S., a plaque/trophy and a Champion's ring. The transit systems will also receive a plaque/trophy.
- **The second-place winners** in each of the competitions, Bus Operator and Maintenance Technician, will each receive $500 U.S. and a plaque/trophy. The transit systems will also receive a plaque/trophy.
- **The third-place winners** in each of the competitions, Bus Operator and Maintenance Technician, will each receive $250 U.S. and a plaque/trophy. The transit systems will also receive a plaque/trophy.
- A separate award will recognize the highest scores for the Bus Operator competition.
- A separate award will recognize the highest scores in each of the Maintenance Technician events.

BUS OPERATOR ROADEO

1. Scheduled Activities

Please refer to the Roadeo Schedule or www.apta.com/mobility for a more detailed schedule of events, times, and locations.

1.1 Friday

Orientation

- The final course layout will be distributed.
- Official starting time schedules and course diagrams will be distributed.
- On-Course Roadeo Officials will be identified.
- Question and Answer Session regarding the published rules.
- Display buses will be available for the contestants to preview immediately following orientation.

1.2 Saturday

Driving practice

- Visual inspection of the Roadeo obstacles is only allowed while outside of the designated course perimeter on practice day and competition day.
- Bus Operator contestants will be allowed to inspect the course visually (from the course periphery only) on practice day only.
- On practice day, contestants are required to check-in at the on-site registration area at least 60 minutes before their scheduled start time. Bus Operator contestants who report late on practice day will not be allowed to make their practice run.
- Each bus operator contestant will be allowed 1 practice run and are not allowed to ride with other contestants.
- While the practice run is not mandatory, bus operator contestants are strongly encouraged to participate.
- Uniforms are optional for practice, but proper footwear must be worn.

Pre-trip inspection

- Bus Operator contestants will perform a Pre-Trip Inspection that will be scored.
- There is no practice for this event. Bus Operator contestants will be assigned a time to report for the Pre-Trip Inspection Competition.
- Bus Operator contestants should report 15 minutes prior to their assigned time to the Pre-Trip Inspection report area.
- The Pre-Trip Inspection Competition is mandatory for all competing bus operator contestants and is included in the final scoring.

1.3 Sunday

Competition

- Bus operators are required to report to the Registration area at the Roadeo site at least 60 minutes before their scheduled competition start time. Bus Operators who report late on competition day may be disqualified from competition.
- On competition day, bus operators will not be tested with a safety quiz or defective bus test.

- Bus operators must be in the full regulation uniform of their transit system for competition inspection. Upon completion of the inspection, bus operators will be allowed to remove coats and ties, if desired.
- 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.
- Roadeo Officials will attempt to utilize the measurements outlined 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-Course Officials to ensure that all obstacles are negotiable with the equipment provided.

2. Equipment

- Bus Operator contestants will compete using a 40+ foot bus.
- The buses will be equipped with bike racks if used by the host property.
- Competition vehicle specification sheets can be found in the Host Information section of this handbook.

3. TrackIT

This device will *objectively* measure braking and cornering forces and produce an automatic-'smoothness of operation score' to determine the driver's ability to navigate the obstacles smoothly.

4. Competition events

4.1 Pre-Trip Inspection Competition – Saturday

The Pre-Trip Inspection Competition is mandatory and an important part of your overall score. 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 on the display bus to familiarize yourself with the model and series of the bus.

4.1.1 Defects

- 8 equipment-related defects and 1 security hazard are planted on or in a bus. These defects would make a bus operationally unready or unsafe.
- Defects are of a type that a bus operator would find when performing a pre-trip inspection.
- Identification of defects does not require starting the bus or crawling under the bus.
- Bus Operator contestants will not be allowed to have a checklist of defects to refer to during the competition.
- Eligible defects might include broken, loose, bad, missing, or incorrect:
    - Seats
    - Any type of lights
    - Windows
    - Stanchions
    - Flooring
    - Fire extinguisher
    - Windshield
    - Wipers
    - Mirrors
    - Number
    - Doors

    - License plate
    - Bell cord
    - Hazard such as an abandoned package or briefcase

- Ineligible defects include:
    - Defects under the bus
    - Exterior body damage
    - Paint Problems
    - Wheelchair Operations
    - Kneeling functions
    - Radios
    - Fare boxes
    - Destination Signs
    - Battery compartment

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

4.1.2 Time

- Each bus operator contestant will be allotted 8 minutes to inspect, locate, identify, and legibly record any defects found.
- Time warnings will be given to the bus operator contestant at the 2-minute, 1-minute, and 30-second time marks.
- Recording defects, returning bus to original condition, and securing doors will not be allowed after time has elapsed.

4.1.3 Scoring

- 5 points will be awarded for each of the 8 planted defects found, and 10 points will be awarded for 1 planted security challenge for a maximum of 50 points.
- Points will be awarded only for those recorded defects that were planted by the judges. No points will be awarded for the identification of defects that were not planted.
- The bus operator will notify the judge when finished. Once notice is given, the bus operator may not list additional defects.
- The judge will review the list of defects with each bus operator contestant for clarification.
- A penalty of 1 point will be assessed for each instance where the bus is not returned to its original condition; for example, 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 bus operator contestant being disqualified from this event. The inspection bus will be supplied with necessary electrical power and air pressure.

4.2 Bus Operator Obstacle Course

The 11 driving obstacles are worth 50 points each. See **Appendix 4** for Bus Operator obstacle descriptions. Reckless use of the equipment and flagrant disregard for the safety of others may result in immediate disqualification.

4.2.1 Serpentine

- This obstacle tests the contestant's ability to negotiate tight turns. The contestant enters the course through a 'gate' and steers in and out through 3 cones and exits through a 'gate.'
- Points will be deducted for:
    - Touching cones
    - Shifting into reverse
    - Not completing the course as designed

4.2.2 Offset Street

- This obstacle requires the bus operator contestant to drive through 2 separate narrow lanes that are offset to the right 1 full lane's width from each other.
- Points will be deducted for:
    - Touching cones
    - Shifting into reverse
    - Not completing the course as designed

4.2.3 Rear Duals Clearance

- This is an obstacle where the bus operator contestant 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.
- Points will be deducted for:
    - Touching balls
    - Shifting into reverse
    - Not completing the course as designed

4.2.4 Right Turn

- This obstacle tests the bus operator contestant's ability to negotiate a tight 90-degree turn. The corner is marked with cones, and the right rear tire of the bus is to pass within 6 inches of the corner cone.
- Points will be deducted for:
    - Touching cones
    - Shifting into reverse
    - Excessive right rear tire clearance
    - Not completing the course as designed

4.2.5 First Customer Stop

- This event simulates a customer stop. The bus operator contestant should stop the vehicle with the front right tires within 6 inches of the simulated curb. Rear tires must be within 15 inches of the simulated curb. After stopping the vehicle, the bus operator contestant is required to open the door to complete the test. An ADA stop announcement must be made before exiting the passenger stop.
- Points will be deducted for:
    - Touching cones
    - Touching 'curb'
    - Front tire measurement over 6 inches
    - Rear tire measurement over 15 inches
    - Shifting into reverse
    - Not completing the course as designed

4.2.6 Left Hand Reverse

- This obstacle tests the bus operator contestant's ability to back the vehicle between 2 obstacles which requires the vehicle to back up to the left.
- Points will be deducted for:
    - Touching cones
    - Shifting into reverse after the initial reverse
    - Rear clearance beyond 36 inches

4.2.7 Left Turn

- This obstacle tests the bus operator contestant's ability to make a tight left turn in a close situation. The bus operator contestant is required to steer the vehicle into a 90-degree turn without touching any of the cones.
- Points will be deducted for:
    - Touching cones
    - Shifting into reverse
    - Not completing the course as designed

4.2.8 Second Customer Stop

- This event simulates another customer stop. The bus operator contestant should stop the vehicle with the front right tires within 6 inches of the simulated curb. Rear tires must be within 15 inches of the simulated curb. After stopping the vehicle, the bus operator contestant is required to open the door to complete the test. An ADA stop announcement must be made before exiting the passenger stop.
- Points will be deducted for:
    - Touching cones
    - Touching 'curb'
    - Front tire measurement over 6 inches
    - Rear tire measurement over 15 inches
    - Shifting into reverse
    - Not completing the course as designed

4.2.9 Right Hand Reverse

- This obstacle tests the bus operator contestant's ability to back up the vehicle between 2 obstacles which requires the vehicle to back up to the right.
- Points will be deducted for:
    - Touching cones
    - Shifting into reverse after the initial reverse
    - Rear clearance beyond 36 inches
    - Not completing the course as designed

4.2.10 Diminishing Clearance

- This obstacle tests the bus operator contestant's ability to judge the position and speed of the vehicle. The bus operator 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.
- Points will be deducted for:
    - Touching barrels
    - Speed below 20 miles per hour
    - Not completing the course as designed

4.2.11 Judgment Stop

- This event tests the bus operator contestant'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 bus operator contestant must stop with the front bumper or bike rack within 6 inches of the cone.
- Points will be deducted for:
    - Touching cone
    - Excessive total stops
    - Excessive clearance beyond 6 inch limit
    - Not completing the course as designed

4.3 Other Scored Events

4.3.1 Safety Habits

- The bus operator contestant's safety habits will be reviewed while operating the vehicle.
- This event category is worth 25 points.
- Points will be deducted for:
    - Failure to use proper turn signals
    - Failure to sound the horn before backing up
    - Failure to use flashers while backing up
    - Moving vehicle with door open
    - Poor posture
    - Poor use of mirrors
    - Poor use of hands
    - Poor use of feet

4.3.2 Smoothness of Operation

- The bus operator contestants' ability to deliver a smooth ride will be evaluated during the driving events.
- This event category is worth 25 points.
- Points will be deducted for:
    - Failure to make ADA announcements
    - Sudden stops
    - Sudden starts
    - Abrupt turns

4.3.3 Total Course Time

- Bus operator contestants are timed for each driving course event. Timing begins when the bus operator contestant begins the course and ends with the completion of the judgment stop.
- Time is stopped for mechanical trouble, any type of course blockage that would impede the bus operator contestant progress and where measurements are required for event scoring.
- 1 point is deducted for each second over the 7 minutes allotted to complete the course. The maximum deduction is 180 points.
- A maximum of 10 minutes will be allowed to complete the course. Bus operator contestants will be required to vacate the course after 10 minutes.

5. Bus Operator Contestant Scoring

Bus Operator Contestant Score Sheets can be found in **Appendix 5**.

5.1 Driving Competition

- There will be a first, second, and third place award.
- There are 700 maximum points for the driving portion of the competition.
- 50 points will be deducted for obstacles attempted in the wrong order.
- 10 points will be deducted for any course marker touched not associated with an event (obstacle).
- The full value of the event (obstacle) will be deducted for any event not attempted or completed as designed.
- In case of a tie, the tie breakers will be as follows:
    - Lowest time on the course
    - Closest measurement to the Judgement Stop Cone
- The judgment of events (obstacles) will be the responsibility of the Event Judges. All decisions made by Event Judges are final.
- Procedural questions must be directed to appropriate On-Course Roadeo Officials (Chairman or Vice Chairman).
- Bus Operator Contestants are only allowed on the course when competing.
- Bus Operator Contestants are not permitted to talk to Event Judges at any time during the competition.
- Roadeo Officials will enforce all Roadeo 'Rules and Regulations', supervise event judges, and provide on-the-spot procedural decisions. The Chair of the International Bus Roadeo Committee is the Chief Roadeo Official.

5.2 Pre-Trip Inspection

- There is a maximum of 50 points for the Pre-Trip Inspection.
- The highest score for the Pre-Trip Inspection will be recognized by a separate award. The sponsor USSC will provide an award to the winner of this event.

MAINTENANCE TECHNICIAN ROADEO

1. General Information

- Maintenance teams normally consist of 3 maintenance technicians. Maintenance teams with 2 members may compete but must compete without concessions.
- All members of the maintenance team may participate in all events.
- Contestant teams must arrive at the on-site check in 60 minutes prior to competition time and must arrive at the maintenance technician holding area at least 30 minutes prior to their scheduled competition time. Teams arriving late may be disqualified from the competition.
- 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.
- Each team member will be issued safety glasses when they report to on-site check in on competition day. Safety glasses must be worn when required by an event. 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.
- 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.
- Abbreviations used in the shop or industry are allowed as long as they are understandable to the judges.
- A general location must be given when identifying multiple equipment defects, i.e., window RR.
- Teams will incur penalties whenever they use tools/test equipment improperly and/or violate safety rules.
- When listing defects, write legibly.
- 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.
- Any Maintenance team member seen at the Roadeo site on Saturday (practice day) may cause their team to be immediately disqualified.
- On competition day, contestants may not watch or be in any of the competition areas either before or after competing.
- Still photos are allowed during the competition. There will be absolutely no video cameras and/or videotaping in the maintenance technician competition area.
- Maintenance teams must wear proper clothing including closed toe footwear and long pants (no shorts) for the competition.

2. Competition Events

Maintenance technicians are required to diagnose and repair complaints of low power, excessive smoke, harsh shifting, and/or other performance-related problems. Proper diagnostic and troubleshooting techniques then become essential in insuring that buses meet the required levels of performance for daily revenue service. This, then, becomes another means of testing and measuring a team of maintenance technicians' knowledge, skills and abilities.

The Maintenance Technician Competition Events include the following:

- Written Test
- USSC Vehicle Inspection
- Allison Transmission/Cummins/EMP Powertrain Event

- Cummins/Voith Powertrain Event
- Custom Training Aid/Bendix Air Brake Board Event
- Thermo King HVAC IntelligAIRE Event
- MCI/New Flyer Multiplex Module
- Vapor Door Event

2.1 Written Test

2.1.1 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.

2.1.2 Time

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

2.1.3 Scoring

- Each question is worth 2.5 points.
- There is a maximum of 125 points.

2.1.4 Tie Breakers

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

2.2 USSC Vehicle Inspection

2.2.1 Defects

- 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 maintenance technician should find during a minor mechanical inspection.
- Each team member may list unlimited defects.
- Identification of defects does not require starting the bus or crawling under the bus.
- Teams will not be allowed to have a checklist of defects to refer to during the competition.
- Eligible defects might include broken, loose, bad, missing, or incorrect:
    - Seats
    - All types of lights
    - Windows
    - Stanchions
    - Flooring
    - Fire extinguisher
    - Door engines
    - Wipers
    - Windshield
    - Number
    - Mirrors
    - License plate
    - Doors
    - Dipsticks
    - Bell cord

    - A security hazard
- Ineligible defects include:
    - Defects under the bus
    - Exterior body damage
    - Paint problems
    - Wheelchair operations
    - Kneeling functions
    - Radios
    - Fareboxes
    - Destination signs
    - Battery compartment
- Equipment where multiple defects are possible will be counted only once, i.e., seats, windows, lights.
- Front and rear windows, headlights, taillights, brake lights, mirrors, and turn signals will each count as separate defects.

2.2.2 Time

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

2.2.3 Scoring

- 25 points are awarded for each planted defect found, with a maximum of 350 points.
- 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.
- The team will notify the judges when they are finished. Once notice is given, the team may not list additional defects.
- The judges will review the list of defects with each team for clarification.
- A penalty of 10 points will be assessed for each instance where the bus is not returned to its original condition; for example, 10 points assessed for <u>each</u> compartment door not secured including the entrance door, lights left on, wipers left running, master switch on, windows open, and escape hatches open, etc.
- A penalty of 10 points will be assessed for each incident of unsafe practice during the vehicle inspection.
- 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.

2.3 Allison Transmission / Cummins / EMP Powertrain Event

2.3.1 Description

The Allison Transmission / Cummins / EMP Powertrain 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 Powertrain Modules feature simulations of typical transit bus vehicle interfaces.

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
  - CM2250 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

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 radio)
  - 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

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)

2.3.2 Defects

- 7 defects or problems related to transmission, engine, and cooling system malfunctions are planted. 1 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.
- 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.
- A team may attempt to start the engine at any time to check for defects.
- Defects do NOT include fluid leaks such as oil, water, fuel, etc.
- 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 1 repaired defect.

- Defect determination which normally would require a running engine will not be scored if the engine is not started.
- 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

2.3.3 Time

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

2.3.4 Safety

- Wear PPE always
    - Safety Glasses
    - Hearing Protection
- Stay Clear of rotating components
    - Belts
    - Output Shaft
- Do not touch hot components
- Confirm "ALL CLEAR" before starting engine

2.3.5 Scoring

- 50 points are awarded for each planted defect found, with a maximum of 350 points.
- Points will be awarded for each defect correctly identified, recorded, and, in the case of that defect which renders the powertrain inoperable, corrected. Only those defects planted by the judges will be considered for scoring purposes.
- Only 7 defects are to be listed. If more than 7 are listed, only the first 7 listed will count for scoring purposes. If more than 7 were initially listed, unwanted listings may be crossed out to leave the top choices but must be completed prior to time expiration.
- The team will notify the judges when they are finished. Once notice is given, the team may not list additional defects.
- The judges will review the list of defects with each team for clarification.

- A team will be penalized 50 points for not having the powertrain in operational condition before an engine start is attempted, i.e., air cleaner removed, fuel lines disconnected etc.
- The team will be penalized 10 points for misuse of any diagnostic/test equipment.
- The team will be penalized 10 points for each safety violation incident.
- 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.

2.4 Cummins/Voith Powertrain Event

2.4.1 Description

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 movable 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, 6 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.
- Transmission shifting functions are controlled by the latest version of the E300 controller which has had the latest version of Voith's performance and fuel savings software (SensoTop) installed.
- There are 2 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 recent 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 utilize 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.

2.4.2 Defects

- 7 defects or problems related to engine and transmission malfunctions are planted. 1 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.
- A team may attempt to start the engine at any time to check for defects.
- 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
- Defects do NOT include fluid leaks such as oil, water, fuel, etc.

- 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 1 repaired defect.
- Defect determination which normally would require a running engine will not be scored if the engine is not started.

2.4.3 Time

- Team members will be allotted 10 minutes to inspect, trouble shoot, diagnose, correct, and legibly record the planted defects.
- The team is only required to correct that defect which prevents the powertrain from starting and/or maintaining an idle speed of 700 rpm.
- Time warnings will be given to the team at the 2 minute, 1 minute, and 30 second time marks.

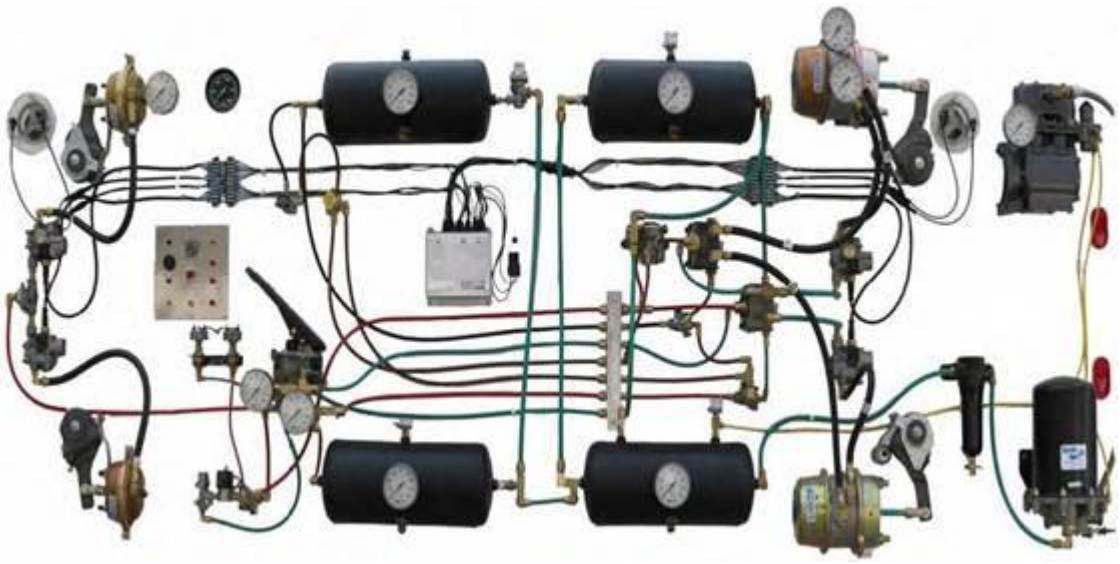
2.4.4 Safety

- Wear PPE always
    - Safety glasses
    - Hearing protection
- Stay clear of rotating components
    - Belts
    - Output shaft
- Do not touch hot components
- Confirm "ALL CLEAR" before starting engine

2.4.5 Scoring

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

2.5 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.

2.5.1 Description

NOTE: *The description, drawing, and component list contain 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 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 exception of the air compressor. The air compressor is a cut-away demonstration unit with fully functional unloader valves.

2.5.2 System Components

- Tu-Flo 700 Air compressor
- D-2 Air Governor, cutout set to 120 PSI
- AD-9 Air Dryer with 175 psi ST-3 safety valve
- 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 with a crack pressure of 0 PSI
- 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 92-98 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 Secondary air brake systems
- RD-3 Spring brake
- Duplex instrument
- ST-3 Safety valve, 150 PSI
- SC-3 single check valves
- DC-4 double check valves
- Wabco open style modulator valves
- SAB 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

2.5.3 Defects

Part I – Air Brake System Electrical/Pneumatics Diagnostics

- 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.
- Part I will be timed and will be used as a tie breaker for the event.

Part II – Air Brake System Trouble Shooting

- The team will be required to inspect, locate, identify, and legibly record, including location, the 6 planted defects.

- Defects will be mechanical in nature but will not be air line or connection leaks.
- Identification of defects will not require the system to be repaired, taken apart, or disconnected.

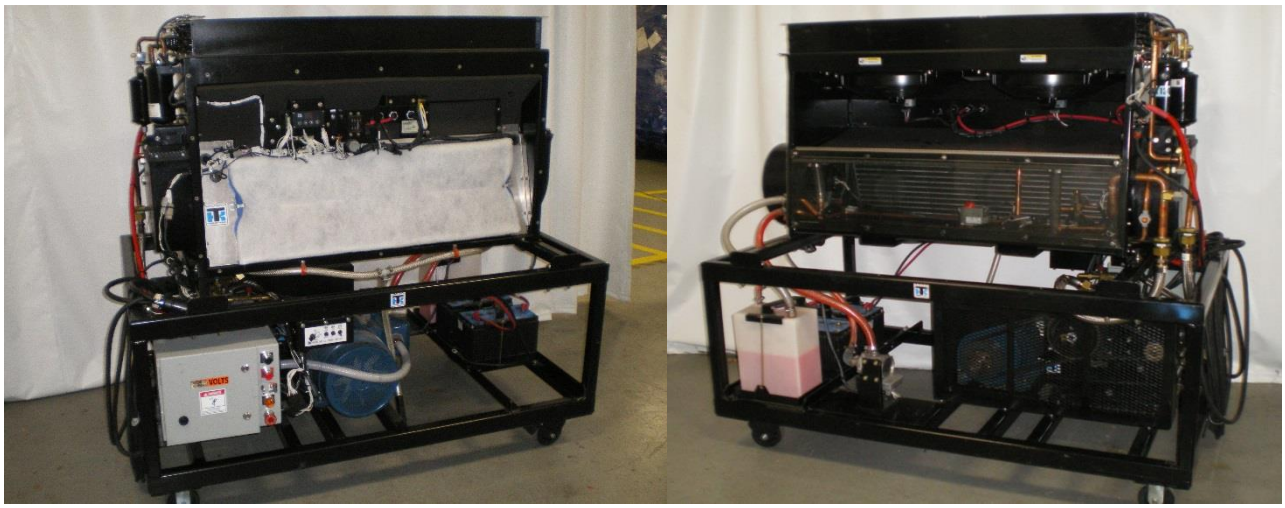
2.5.4 Time

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

2.5.5 Scoring

- Total Possible Points for this event is 350.
- 50 points will be awarded for the successful diagnosis of Part I, Air Brake System Electrical/Pneumatics Diagnostics.
- Part II, Air Brake System Trouble Shooting, will be worth 300 points. 50 points will be awarded for each of the 6 planted defects found in the Air Brake System.
- 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.
- Only 6 defects are to be listed. If more than 6 are listed, only the first 6 listed will count for scoring purposes. If more than 6 were initially listed, unwanted listings may be crossed out to leave the top choices but must be done prior to time expiration.
- The team will be penalized 10 points for misuse of any diagnostic/test equipment.
- The team will be penalized 10 points for safety violation incident.
- The team will be penalized 10 points if the ABS board is not returned to its original status, i.e. Air: on/off, Power: on/off and tools not returned to their original location.
- The team will notify the judges when they are finished. Once notice is given, the team may not list additional defects.
- The judges will review the list of defects with each team for clarification.
- In the event of a tie, the fastest time to correctly diagnose and record the defects in Part I Air Brake System Electrical/Pneumatics Diagnostics will determine the winner.

2.6 Thermo King HVAC IntelligAIRE Event



2.6.1 Description

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

2.6.2 Components

- Thermo King Model T Series rear mount bus air conditioning unit
- IntelligAIRE III controls
- Thermo King brushless motors
- QS391 compressor and clutch assembly
- Belt driven 150 amp, 27 VDC Battery-less alternator
- 469VAC/3 phase, 20 horsepower electric motor and batteries

2.6.3 Equipment

- The following equipment will be provided for this event:
    - Laptop computer with interface cable
    - Thermo King IntelligAIRE III CANDiag software to provide diagnostic capabilities
    - Digital Multi-meter with test leads
    - No other hand tools will be needed for the competition

2.6.4 Defects

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

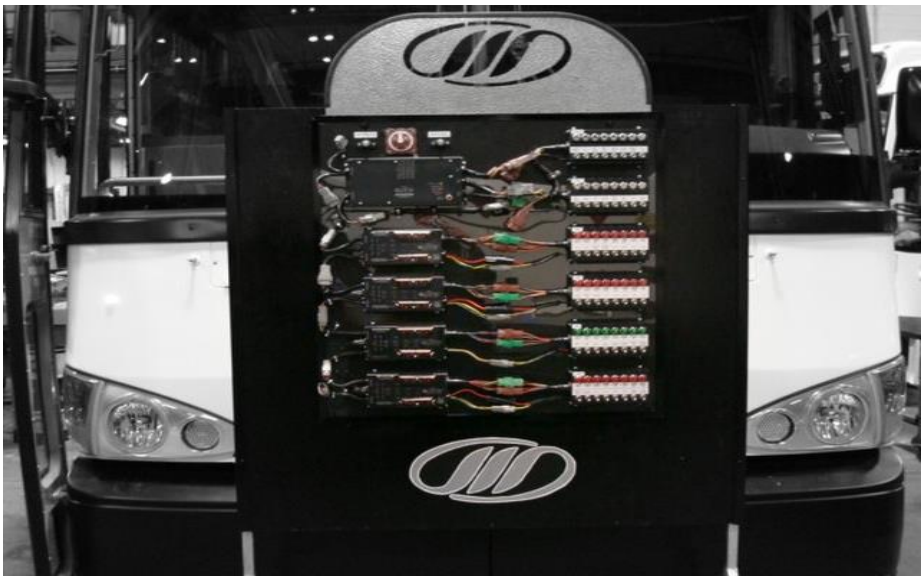
2.6.5 Time

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

2.6.6 Scoring

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

2.7 MCI/New Flyer Multiplex



2.7.1 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.

2.7.2 Components

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

2.7.3 Equipment

The following equipment will be provided for this event:

- Digital Multi-meter with test leads
- I/O Control ladder logic
- Hand tolos as required

2.7.4 Defects

- Defects will be electrical in nature.
- A total of 7 defects will be inserted into the I/O electrical board.

2.7.5 Time

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

2.7.6 Safety

- Teams will be expected to work in a safe manner during competition.
- Teams may choose to wear PPE at their own decision.

2.7.7 Scoring

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

2.8 Vapor Door Event

2.8.1 Description

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

2.8.2 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: 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.

2.8.3 Equipment

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

2.8.4 Time

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

2.8.5 Defects

- The competition will consist of 7 planted defects.
- 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.
- The team may attempt to open and close the doors to check for defects.

2.8.6 Safety

- Each team will designate a team member as the "Door Opener".
- 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.
- A 10 point Safety Violation will be accessed for each instance this procedure is not followed.
- A team member is allowed to stand on the inboard side (inside) of the mockup.

2.8.7 Scoring

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

3. Maintenance Technician Scoring

Maintenance Technician Score Sheets can be found in **Appendix 6**.

Overall Maintenance Technician Awards

- There will be a first, second, and third place award for the overall Maintenance Technician competition. The awards will be determined by highest point values.
- 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 Powertrain Event Problems
    - The highest vehicle inspection score

    - The lowest combined time required on the Cummins / Allison and Cummins / Voith Powertrain Event Problems
- All decisions of the event judges are final.

Individual Maintenance Technician Events:

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

40FT COMPETITION BUS

OPERATIONS COURSE PRE-TRIP
MAINTENANCE INSPECTION

40’ GILLIG Low Floor	
ENGINE TYPE	CUMMINS L9
ENGINE SERIAL NUMBER	74138885
TRANSMISSION TYPE	VOITH
BRAKE TYPE	DISC
TIRE SIZE	305/85R22.5
VEHICLE MAKE	GILLIG
VEHICLE MODEL	G27D102N4 LF
YEAR MANUFACTURED	2024
VEHICLE CLASS	BUS
VEHICLE FUEL CAPACITY	120
VEHICLE FUEL TYPE	DIESEL
VEHICLE LENGTH	40’
VEHICLE HEIGHT	129’
VEHICLE WIDTH	102
VEHICLE WHEELBASE	279
TURNING RADIUS TIRE	38.9”
DIFFERENTIAL RATIO	5.38
GAWR REAR	27,000 lbs.
GAWR FRONT	14,600 lbs.
MAXIMUM GVWR	41,600 lbs.
MIRRORS	8” x 15” 2-piece flat faced & convex

ROADEO SITE


Maintenance
Competition
Covered Area
Approximate
Location
Bus Roadeo
Approx. 500ft x 500ft

APPENDICES

APPENDIX 1: SWAP MEET

All Roadeo participants, managers, supervisors, vendors, family, and friends are welcome to attend the APTA Bus Roadeo Swap Meet. The Swap Meet is a place where Roadeo memorabilia, transit related pins, hats, shirts, patches, and other items are traded, exchanged, or distributed.

Attendees are encouraged to bring items for exchange and join the group for a memorable, gala social evening. However, trading or exchanging memorabilia and other items is not a requirement to participate in the Swap Meet.

Mailing instructions will be included in the informational packet and posted on the APTA International Bus Roadeo webpage.

The Swap Meet will be held on Sunday night after the Roadeo. See the Roadeo Schedule for more information.

Notes:

- There may be a charge from the hotel to receive/store boxes shipped for the swap meet.
- The selling of Roadeo material or swap items is prohibited.

APPENDIX 2: FREQUENTLY ASKED QUESTIONS AND ANSWERS

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

GENERAL QUESTIONS:

Q: Where is registration and its hours?
A: Registration will be at the Hyatt Regency Portland. Registration hours can be found on the Roadeo Schedule at www.apta.com/mobility.

Q: Can I attend Mobility Conference sessions?
A: Yes, all registered Roadeo attendees will have access to the Mobility Conference sessions.

Q: When can I expect my name plate and monetary winnings?
A: You can expect your monetary winnings within 6 weeks from the awards banquet.

Q: Will I need to pay taxes on the money I win?
A: Yes, you will need to include your winnings in your yearly income.

Q: Can I bring my family with me on stage if I win?
A: No. We kindly ask that only winners come on stage to accept their award.

Q: Can I register for the Roadeo onsite?
A: No. Teams, including all participants, must be registered by Friday, April 12, 2024.

Q: Can I buy tickets for guest to attend the International Bus Roadeo Grand Awards Celebration once onsite?
A: Yes, you can buy tickets for the awards celebration onsite. Awards Celebration tickets are included with the purchase of a personal guest registration, but additional tickets can be purchased in advanced during the online registration process and on-site for $150.

Q: Will I be provided with a certificate of completion after participating in the bus operator and maintenance technician workshops?
A: Yes, you will be awarded a certificate of completion for attending any IBR bus operator or maintenance technician workshop.

BUS OPERATOR QUESTIONS:

Q: Can I register more than one operator for the competition?
A: Yes, you can register another operator as a backup in case something happens to your main operator. However, they cannot both compete. Only one of them may compete. As the second registered operator, they can attend all Roadeo events. But they will not be able to compete unless the other operator backs out.

Q: Can I ride with another contestant?
A: No. Each contestant is only allowed to ride/drive the course once.

Q: Can someone ride with me?
A: On course orientation day, yes as long as they are not disruptive. On competition day, no.

Q: 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.

Q: 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 on-board safety judge.

Q: 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.

Q: May I take off my jacket when I compete?
A: Yes.

Q: Can I use the mirrors that I am used to?
A: No. You must use the mirrors provided on the host property buses.

Q: 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 a 2024 40+' GILLIG low floor bus. Vehicle information is provided in the Host property information appendix.

Q: On practice day do I have to wear my uniform?
A: No, but proper footwear is required.

Q: Can I go through the course more than once on practice day?
A: No. Time permits only 1 trip on practice day (10-minute max. time limit).

Q: Do I have to be on time for practice and competition?
A: Yes. Everyone is scheduled for a certain time and the schedule must be maintained. You must report to on-site registration at least 60 minutes before competition time and to the starter no later than 30 minutes before the competition time listed in the official schedule.

Q: Will there be transportation from the hotel to the Roadeo site?
A: Yes. Refer to the Roadeo Schedule, or APTA website for the shuttle schedule.

Q: Do I have to take a safety quiz?
A: No.

Q: Do I go through the defect bus?
A: Yes. The Bus Operator competition includes a scored pre-trip inspection. The Pre-Trip Inspection takes place on Saturday.

Q: Do I get a personal appearance inspection?
A: No.

Q: May I adjust my mirrors?
A: Yes. You are responsible for adjusting your mirrors.

Q: 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.

Q: 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.

Q: If I 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.

Q: Is my manager allowed to walk behind my bus when I am competing?
A: No. Only Roadeo Officials and judges are allowed on the course while competition (or practice) is in progress. Spectators may watch from the spectator areas.

Q: Will I be allowed to walk through the course?
A: No. Familiarize yourself with the course through the materials provided and your practice trip. You may observe the course from the perimeter on practice day.

Q: Does time on the course count?
A: Yes. The course time limit is 7 minutes. Points will be deducted for every second over 7 minutes.

Q: Does smoothness of operation count?
A: Yes. You will be observed by the On-Board Judge and recorded by the Trackit System.

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

Q: Do you award dual prizes for a tie score?
A: No. The contestant with the lowest time through the course wins.

Q: How many prizes are awarded?
A: First, Second, and Third prizes in the bus operator and maintenance technician competition.

Q: Do I have to wear my badge or nameplate?
A: Only if it's part of your uniform.

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

Q: Will there be refreshments?
A: Refreshments will be available on competition day.

Q: Can I bring my family?
A: Yes. Come and enjoy the festivities and competition. Spectator areas are available for the Bus Operator course.

Q: Do I have to come to orientation?
A: No, but it is strongly encouraged.

Q: Do I have to use a seat belt?
A: Yes. 5 points will be deducted for failure to use your seat belt.

Q: Is the course set up as shown in the APTA handbook?
A: Obstacle configurations are the same, but dimensions and sequence may be different. The course will be set up on practice day in competition sequence.

Q: Is the rear cone in the backups fixed or does it vary?
A: The rear cone is fixed.

Q: Will there be a bus available for familiarization purposes?
A: Yes. On practice day a bus will be available.

Q: Do I only have to call ADA announcements at the passenger stops?
A: Yes. You must call the stop before you start forward movement out of the bus stop.

Q: Can I get out of the bus during practice?
A: No.

Q: Do I need to use the P.A. (Public Announcement) System to announce ADA Stops?
A: No.

Q: On the Right and Left reverses do I start at a 45-degree angle?
A: You can start at whatever angle you prefer.

Q: Do the buses have bike racks?
A: Yes, if provided by the host property, the bike racks will remain on the buses.

Q: Can I palm the steering wheels on Turns?
A: No.

Q: 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 while on the course.

Q: Do hazard light have to be on in the passenger stop?
A: No. Only the proper turn signals have to be used.

Q: Do I practice in the same bus I compete in?
A: Yes. Unless a bus becomes disabled, then all the remaining buses will be mixed up.

Q: Do I apply the passenger/parking/emergency brake on passenger stops or reverses?
A: No.

Q: Can I shift the bus from drive to reverse without going into neutral?
A: It depends on the bus type used.

Q: Do I open the doors at passenger stops?
A: Yes.

Q: On the Right and Left Reverses, does the clock stop when I open the doors?
A: You do not open the doors. You will honk your horn when you have completed your backing. The clock will stop until you start a forward movement.

Q: Will the time for practice be the same time on competition day?
A: Yes.

Q: Whenever the bus is disabled, does my time stop?
A: Yes.

Q: 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.

Q: 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.

Q: 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.

Q: On my practice day, may my rider open the emergency window to see how close I am?
A: No. The emergency windows are never to be opened while practicing on the course.

Q: Will there be judges on board the bus on practice day?
A: No.

Q: Will someone ride with me on the practice day to show me the course?
A: No. A course map will be given to you at orientation the night before.

Q: Can my support person get out of the bus on practice day?
A: No. They must remain on the bus.

Q: 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.

Q: How will the judges know when I have completed my backing into the reverses?
A: You will honk your horn.

Q: On practice day will I be told how far I am from the curb?
A: Yes.

Q: How long may I be on the course on practice day?
A: 10 minutes. After 10 minutes, you will be asked to exit the course.

Q: Do I have to compete in my uniform?
A: Yes. If applicable, you may remove your tie and coat to become more comfortable.

Q: Do I have to wear my uniform on practice day?
A: No.

PRE-TRIP INSPECTION QUESTIONS

Q: How early should we check-in before our scheduled pre-trip time?
A: Check-in at the pre-trip inspection no less than 15 minutes before your assigned time.

Q: At the Pre-Trip Inspection, will we get a count down on our time left?
A: Yes. 2 minutes, 1 minute, and 30-second warnings will be given.

Q: At the Pre-Trip Inspection, can we walk around the bus and then record the defects?
A: Yes. Any way you want to do it is acceptable.

Q: Will a judge be 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.

Q: Wheels are under the bus aren't they? Then we don't have to check them?
A: Just don't crawl under the bus.

Q: Will there be a similar bus to check out ahead of time?
A: Yes. There will be a display bus for you to become familiar with.

Q: Will the Pre-Trip Inspection be performed on a 35-' or 40+' bus?
A: A 40-foot bus will be used for the pre-trip inspection.

Q: Does checking the bus windows mean opening the windows?
A: No. Keep the windows closed.

Q: Why don't we have the Pre-Trip on Roadeo competition day before the contestant drive?
A: Scheduling the Pre-Trip prior to driving on competition day might impact the timing of the driving competition. As we have more experience with the Pre-Trip the Roadeo committee may decide to change it, but at this time it remains on the practice day.

MAINTENANCE TECHNICIAN QUESTIONS

Q: Can my team's competition be videotaped?
A: No. There will be absolutely no video cameras or video recording in the competition area.

Q: Can photos be taken of the events?
A: Yes, but anyone taking photos must not interfere or distract the contestants.

Q: What type of ABS system is used in the Roadeo?
A: Wabco 'D' 45/4M

Q: How many members can a Maintenance team have?
A: The standard maintenance team is made up of 3 maintenance technicians; 2-person teams may compete, but no special compensation will be made for them.

Q: Can all team members participate in each of the Maintenance Technician 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.

Q: Are the Saturday maintenance technician 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 technician tasks and are provided important information about the competition modules.

Q: Do I have to come to orientation?
A: Attendance is not mandatory, but is strongly recommended.

Q: Why was driving removed from the Maintenance Technician 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 Technician competition on primary maintenance skills.

Q: Will the defects be revealed after the event is completed?
A: No.

Q: Will there be transportation from the Hotel to the Roadeo site?
A: Yes. The shuttle schedule will be posted online as soon as available.

Q: Do I get a personal appearance inspection?
A: No. You must wear safe clothing, including proper shoes, ear, and eye protection.

Q: Can I bring my family?
A: Yes. Come and enjoy the festivities and competition.

Q: Are my family, manager, friends allowed with the team while we compete?
A: Only if space allows. Your team manager(s) will be allowed in the area. Note: We cannot hold up the competition waiting for anyone to arrive.

Q: Will there be refreshments/lunch?
A: Refreshments will be available on competition day.

Q: Will there be a bus available for familiarization purposes?
A: Yes. A competition bus will be available.

Q: What time should I arrive to compete?

A: Contestant teams must arrive at the on-site check-in 60 minutes before competition time and must arrive at the maintenance technician check-in may be disqualified from the competition. You must allow yourself enough time to arrive at the Roadeo site early.

Q: Can I go to the Roadeo site before the Sunday competition?

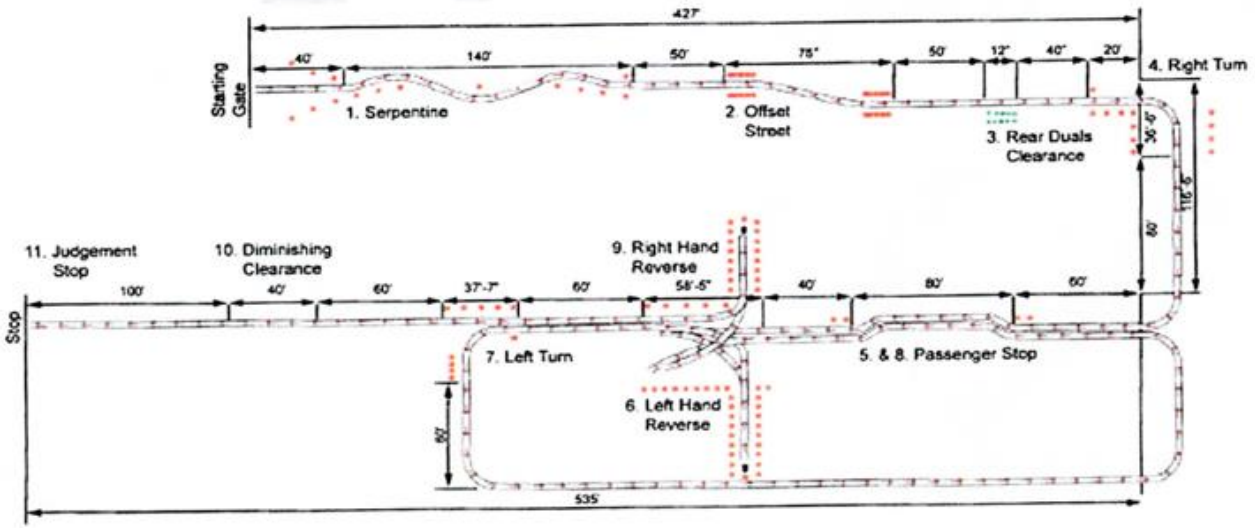
A: No. Maintenance team members are not allowed at the Roadeo site before the day of the competition. Any violation of this policy may cause your team to be disqualified from competition.

APPENDIX 3: BUS OPERATOR COURSE DESCRIPTIONS

**** The 2024 International Bus Roadeo will only use the 40+ foot bus ****

Both course layouts are typical. The order of the obstacles may vary in the International Bus Roadeo competition.

Bus Operators' Roadeo Course: 40 ft. Bus



LEGEND

40' **Distance between arrowheads**

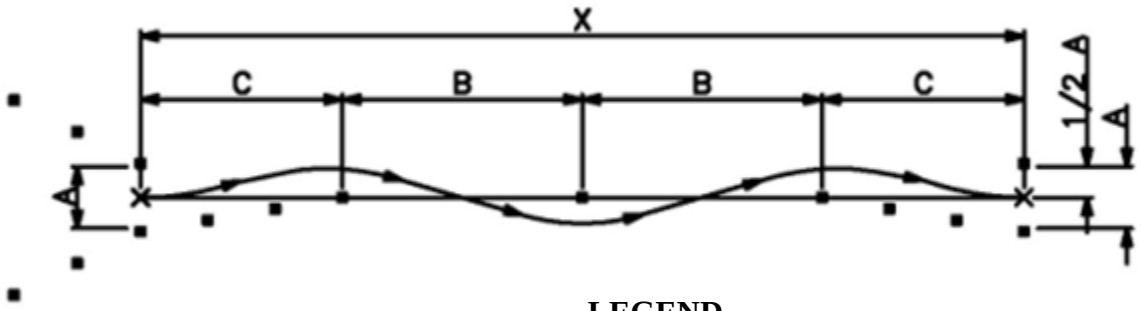
→ **PATH OF BUS**

NOT TO SCALE

APPENDIX 4: BUS OPERATOR OBSTACLE DESCRIPTIONS

SERPENTINE

This obstacle tests a driver's ability to negotiate tight turns. The driver is required to enter a gate, steer in and out through 3 cones, and exit the obstacle through another gate. The bus is not permitted to touch any portion of any cone.



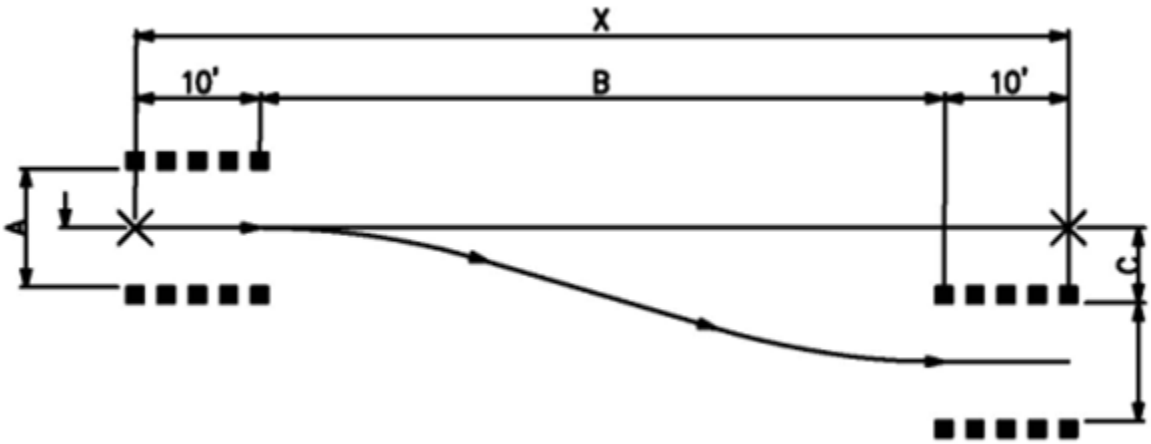
40' x 102' BUS;
A = 9'-6"
B = 36'-0"
C = 32'-0"
X = 136'-0"

LEGEND
" 28" CONE
→ PATH OF BUS
X — X SURVEY BASELINE

NOT TO SCALE

OFFSET STREET

In this obstacle, the driver is required to drive through 2 separate narrow lanes that are offset to the right 1 full lane's width from each other.



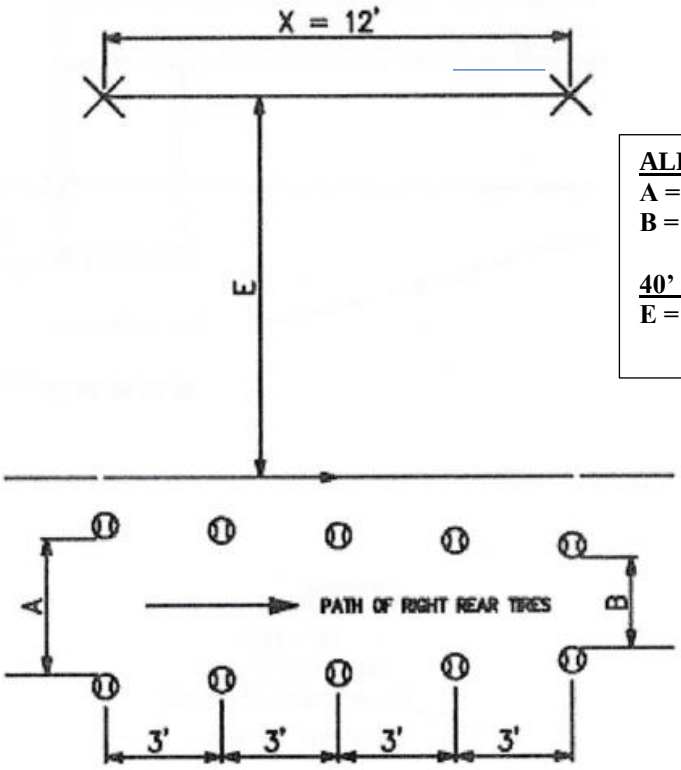
40' x 102' BUS;
A = 9'-6"
B = 55'-0"
C = 6'-0"
X = 75'-0"

LEGEND
" 28" CONE
→ PATH OF BUS
X — X SURVEY BASELINE

NOT TO SCALE

REAR DUALS CLEARANCE

This is a judgment obstacle in which the driver must drive through a line with their right dual tires. The lane is only slightly wider than the total outside width of a pair of rear duals and is marked out with large flat washers and tennis balls. It is wider at the entrance and narrower at the exit.



ALL BUSES:
A = WIDTH OF RIGHT REAR DUAL TIRES + 6"
B = WIDTH OF RIGHT REAR DUAL TIRES + 3"

40' x 102' BUS:
E = 10'-9"

LEGEND

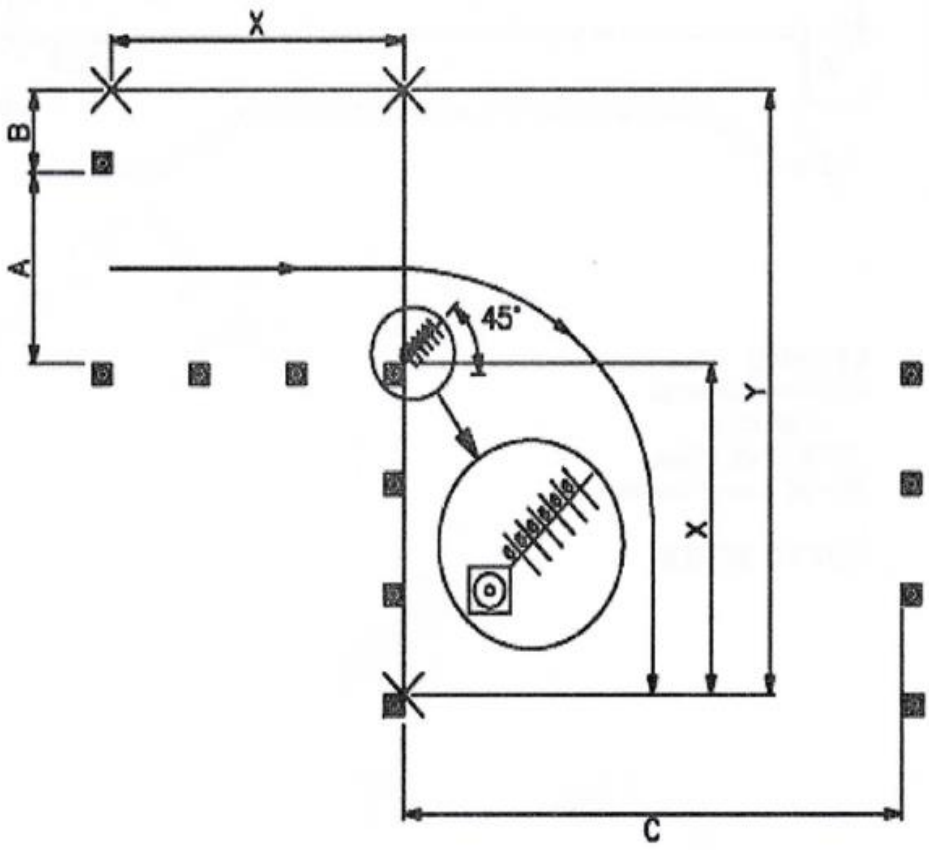
TENNIS BALL
PATH OF BUS
X ___ X SURVEY BASELINE

NOT TO SCALE

RIGHT TURN

This obstacle tests a driver's ability to negotiate a right 90-degree turn. The corner is marked with cones and the rear tire of the bus is to pass within 6 inches of the corner pivot cone.

To measure this, a line should be marked out of 45-degrees from the corner and divided into 6 inch segments. The judge has only to see which segment the outside of the tire passes over to judge the driver.



40' x 102' BUS;
A = 11'-6"
B = 5'-0"
C = 34'-0"
X = 20'-0"
Y = 36'-6"

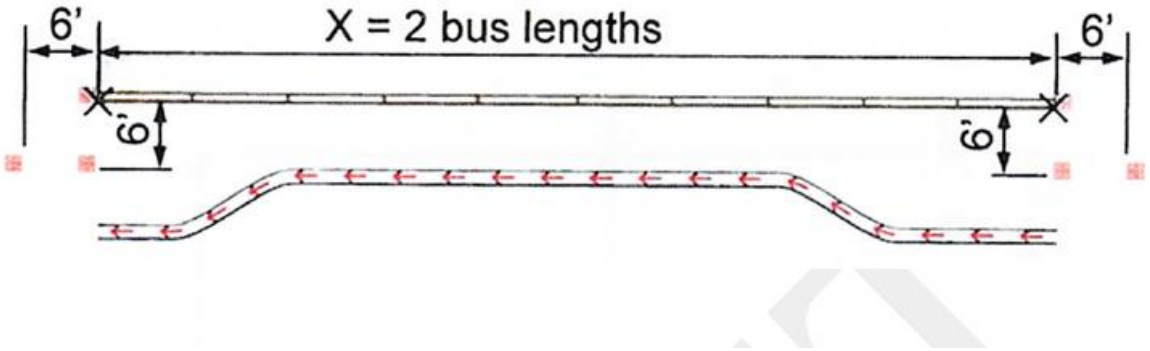
LEGEND

28" CONE
PATH OF BUS
X X SURVEY BASELINE

NOT TO SCALE

FIRST & SECOND CUSTOMER STOP

In this obstacle, the bus operator is required to stop the bus with the front wheels within 6 inches of the curb and the rear wheels within 15 inches of the curb.



LEGEND

Railroad tie

28" Cone

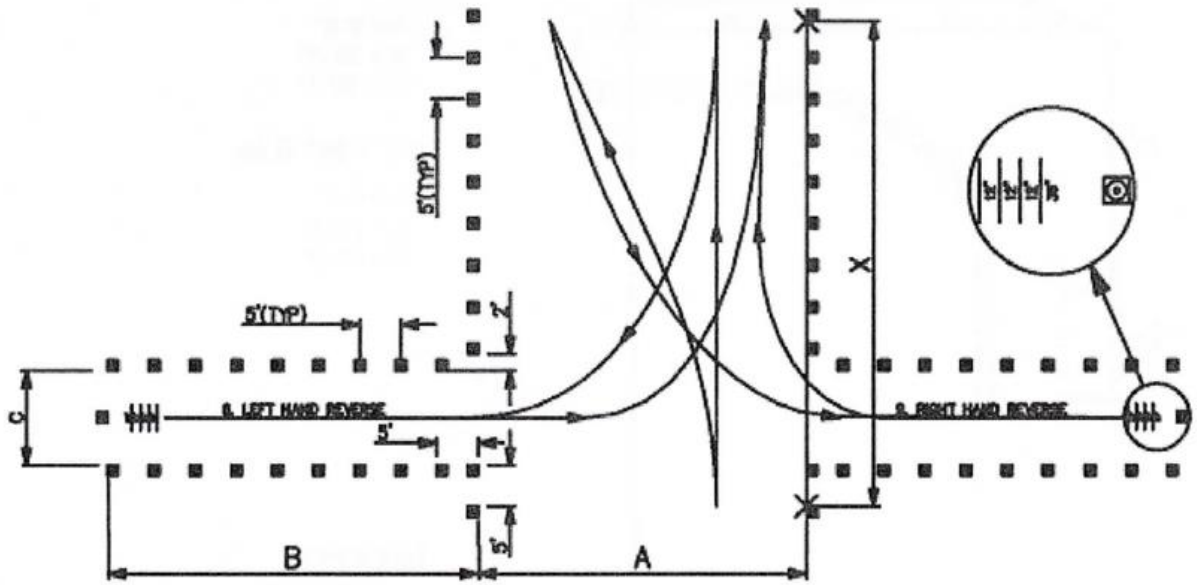
Path of bus

X — X SURVEY BASELINE

NOT TO SCALE

LEFT AND RIGHT HAND REVERSE

This obstacle requires the bus operator to reverse the bus to the right or left between a set of cones stopping with the rear bumper within 36 inches of the cone in the rear without touching any of the cones.



40' x 102' BUS;
A = 40'-0"
B = 45'-0"
C = 11'-5"
X = 58'-5"

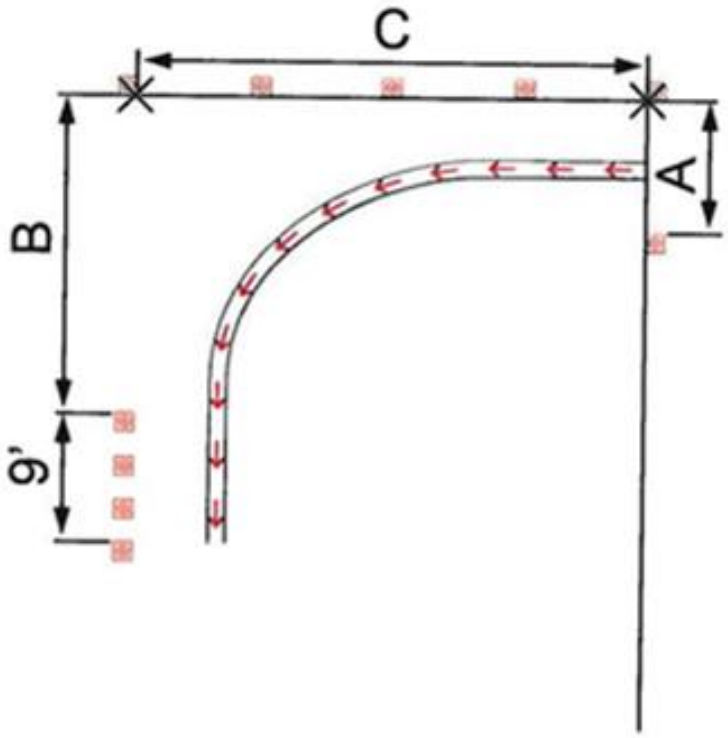
LEGEND

28" CONE
PATH OF BUS
X X SURVEY BASELINE

NOT TO SCALE

LEFT TURN

This obstacle tests a driver's ability to make a tight left turn in a close situation. The driver is required to steer the bus into a 90-degree turn and not hit any of the cones outlining the obstacle.



40' x 102' BUS;
A = 9'-9"
B = 23'-0"
C = 36'-7"

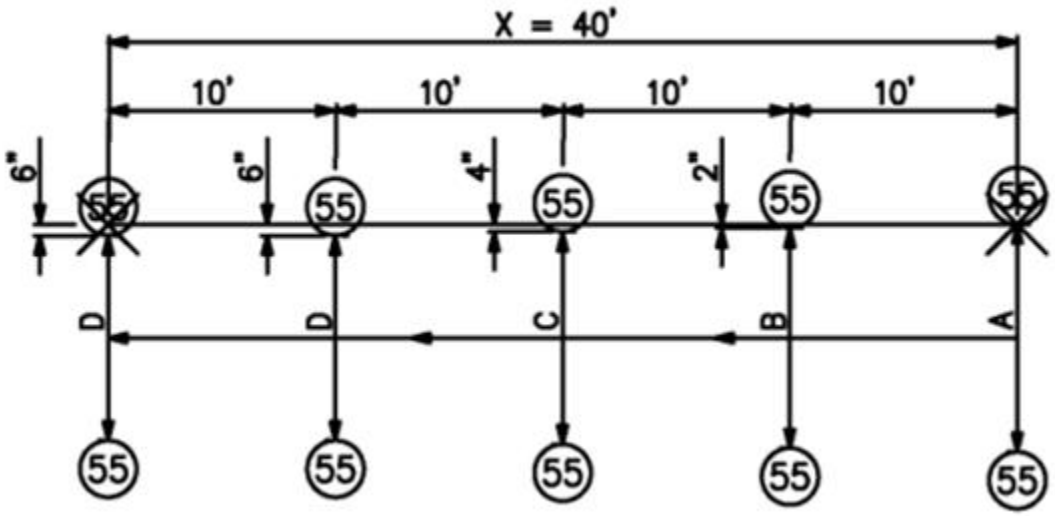
LEGEND

28" CONE
PATH OF BUS
X X SURVEY BASELINE

NOT TO SCALE

DIMINISHING CLEARANCE

This obstacle tests the driver's ability to judge the position and speed of their vehicles. The driver is required to drive through a narrowing v-shaped channel outlined with barrels while maintaining a minimum speed of 20 miles per hour.



40' x 102' BUS;
A = 10'-0"
B = 9'-8"
C = 9'-4"
D = 9'-0"
X = 40'-0"

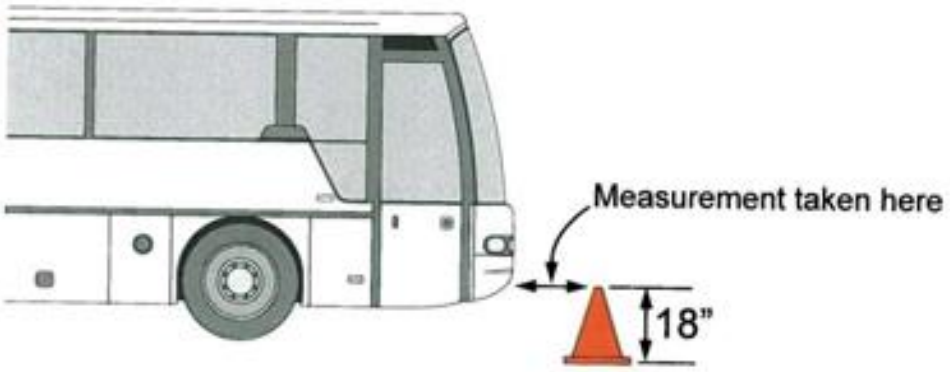
LEGEND

55 GALLON DRUM
PATH OF BUS
X — X SURVEY BASELINE

NOT TO SCALE

JUDGEMENT STOP

This obstacle tests a driver's ability to judge stopping distances between the bus and a small object directly ahead. A small 18 inch cone is placed on the finish line, the driver's final stop. The bus must stop with the front bumper within 6 inches of the cone.



APPENDIX 5: BUS OPERATOR SCORE SHEETS

Contestant Number

Contestant Name

FIXED ROUTE SCORE SHEET SUMMARY

Event	Possible Points	Points Earned
- Pre-Trip	50	
- Serpentine	50	
- Offset Street	50	
- Right Turn	50	
- First Customer Stop	50	
- Right Hand Reverse	50	
- Left Turn	50	
- Rear Dual Clearance	50	
- Second Customer Stop	50	
- Left Hand Reverse	50	
- Diminishing Clearance	50	
- Judgement Stop	50	
- Safety Habits	25	
- Smoothness of Operation	25	
TOTAL POINTS POSSIBLE	**650**	

- Timekeeper's Record

  A. Elapsed Time : _____

  B. Overall Penalty : _____

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

Total Score

Date: _____

Pre-Trip Inspection Report Form

Defects:

_____

_____

_____

_____

_____

_____

_____

_____

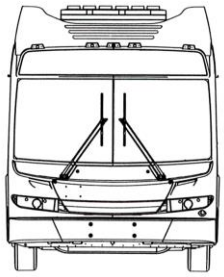
_____

_____

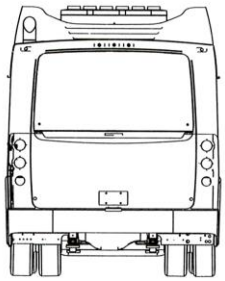
Security item:

_____

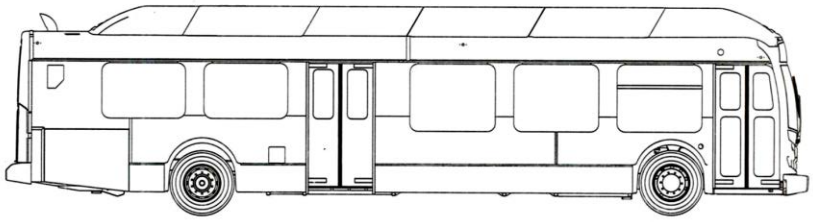
Front



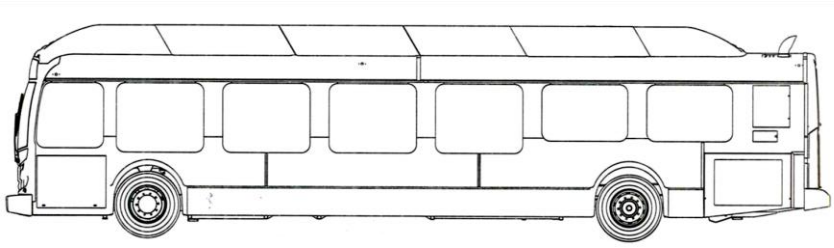
Rear

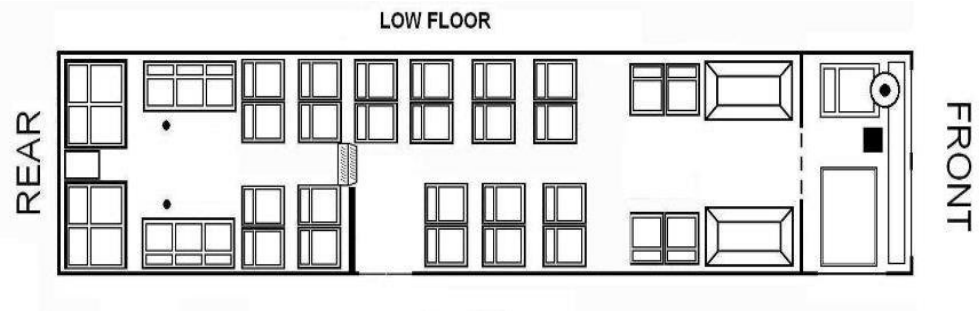


Curb Side



Driver Side





Contestant Number

Bus Number

PRE-TRIP INSPECTION

VEHICLE CLASS: FIXED ROUTE

- Identify and record eight (8) planted defects.
- Identify and record one (1) security problem

- Number of planted defects found : _____
- Security problem found : _____
- Item(s) not returned to original condition : _____
  (Compartment doors, lights, windows, etc.)

Calculations

X 5 = _____

If yes, add 10 = _____

X 1 = _____

50 - [ ] = [ ]

Possible Points | Points Deducted | **Final Score** (No less than 0)

Judge's Name: _____ **Judge's Initials:** _____

Course Expert's Name: _____ **Course Expert's Initials:** _____

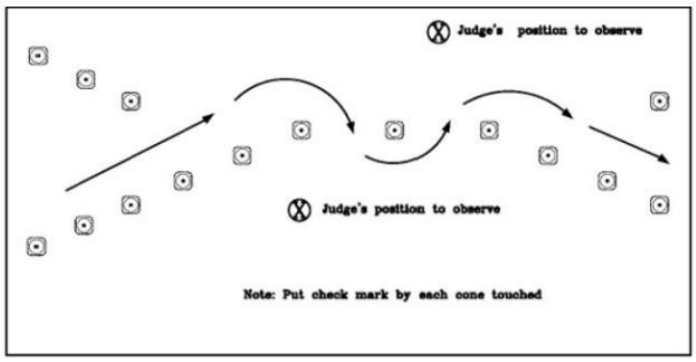
Contestant Number

Bus Number

SERPENTINE

VEHICLE CLASS: FIXED ROUTE

- Circle each cone that is touched.
- Touching the base of a cone is the same as touching the side.
- Each cone only counts against the contestant once (the first time it is touched).



- Pivot cone touched : _____
- Number of other cones touched : _____
- Number of times shifted into reverse : _____
- Completed obstacle as designed : _____

Calculations

If yes, deduct 25 = _____

X 10 = _____

X 10 = _____

If no, deduct 50 = _____

50 - _____ = _____

Possible Points | Points Deducted | **Final Score** (No less than 0)

Judge's Name: _____ **Judge's Initials:** _____

Course Expert's Name: _____ **Course Expert's Initials:** _____

Date: _____

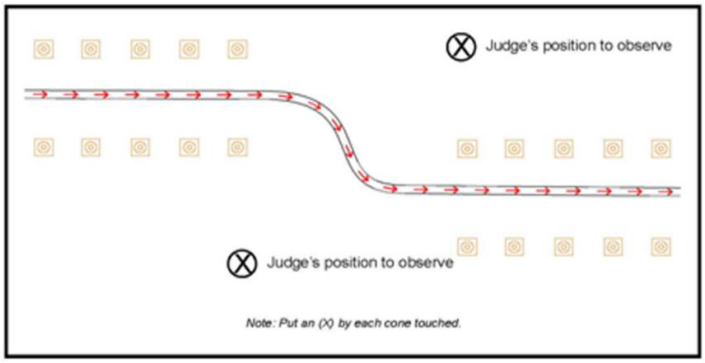
Contestant Number

Bus Number

OFFSET STREET

VEHICLE CLASS: FIXED ROUTE

- Circle each cone that is touched.
- Touching the base of a cone is the same as touching the side.
- Each cone only counts against the contestant once (the first time it is touched).



- Number of cones touched : _____
- Number of times shifted into reverse : _____
- Completed obstacle as designed : _____

Calculations

X 10 = _____

X 10 = _____

If no, deduct 50 = _____

50 - [ ] = [ ]

Possible Points | Points Deducted | **Final Score** (No less than 0)

Judge's Name: _____ **Judge's Initials:** _____

Course Expert's Name: _____ **Course Expert's Initials:** _____

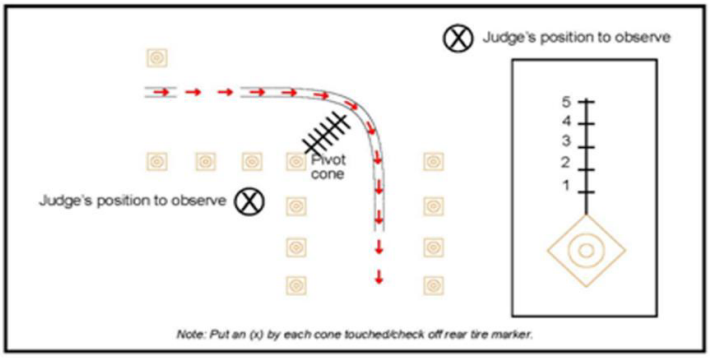
Contestant Number

Bus Number

RIGHT TURN

VEHICLE CLASS: FIXED ROUTE

- Circle each cone and rear tire marker that is touched.
- Touching the base of a cone is the same as touching the side.
- Each cone only counts against the contestant once (the first time it is touched).
- Note the number of 6" segments **beyond** the first 6" segment the right rear tire passes by the pivot cone.



- Pivot cone touched : _____
- Number of other cones touched : _____
- Number of times shifted into reverse : _____
- Number of 6" segments **beyond** the first 6" segment : _____
- Completed obstacle as designed : _____

Calculations

If yes, deduct 25 = _____

X 10 = _____

X 10 = _____

X 5 = _____

If no, deduct 50 = _____

50 - _____ = _____

Possible Points | Points Deducted | **Final Score** (No less than 0)

Judge's Name: _____ **Judge's Initials:** _____

Course Expert's Name: _____ **Course Expert's Initials:** _____

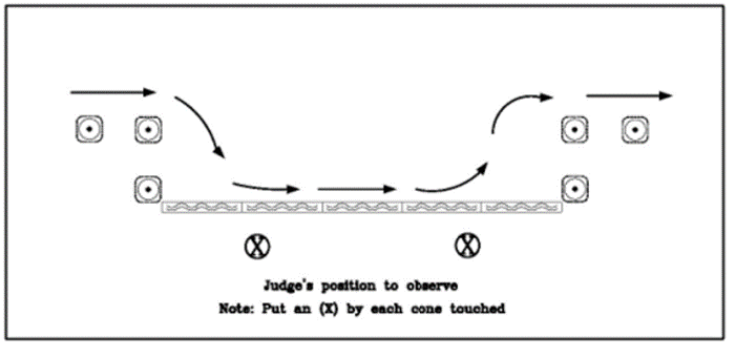
Contestant Number

Bus Number

FIRST CUSTOMER STOP

VEHICLE CLASS: FIXED ROUTE

- Circle each cone that is touched.
- Touching the base of a cone is the same as touching the side.
- Each cone only counts against the contestant once (the first time it is touched).
- If the vehicle tire strikes the curb, mark first contact with a circle.
- Measure distance in inches from the top of the curb to the tire sidewall, directly under the center of the wheel hub.



- Number of entrance cones touched : _____
- Curb touched : _____
- Front tire distance from curb (in inches) : _____

(1 point penalty for each inch **beyond 6 inches.** All distances are rounded up or down to the nearest inch. A measurement less than ½ inch is rounded down and a measurement ½ inch or more is rounded up.)

- Rear tire distance from curb (in inches) : _____

(1 point penalty for each inch **beyond 15 inches**. All distances are rounded up or down to the nearest inch. A measurement less than ½ inch is rounded down and a measurement ½ inch or more is rounded up.)

- Number of exit cones touched : _____
- Number of times shifted into reverse : _____
- Completed obstacle as designed : _____

Calculations

X 25 = _____

If yes, deduct 25 = _____

X 1 = _____

X 1 = _____

X 25 = _____

X 10 = _____

If no, deduct 50 = _____

50 - [ ] = [ ]

Possible Points | Points Deducted | **Final Score** (No less than 0)

Judge's Name: _____ **Judge's Initials:** _____

Course Expert's Name: _____ **Course Expert's Initials:** _____

2024 International Bus Roadeo

Date: _____

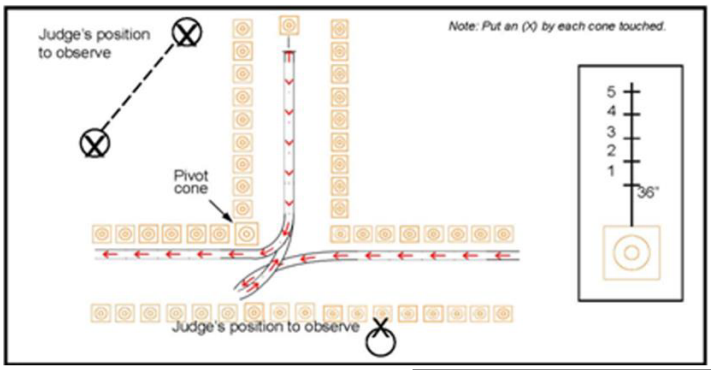
Contestant Number

Bus Number

RIGHT HAND REVERSE

VEHICLE CLASS: FIXED ROUTE

- Circle each cone that is touched.
- Touching the base of a cone is the same as touching the side.
- Each cone only counts against the contestant once (the first time it is touched).
- When the vehicle stops backing, measure the distance (in inches) from the base of the rear cone to the rear bumper.



- Rear cone touched : _____
- Pivot cone touched : _____
- Number of other cones touched : _____
- Number of times shifted into reverse : (after initial shift into reverse) _____
- Number of 12" segments **beyond** the 36" limit from rear cone : _____
- Completed obstacle as designed : _____

Calculations

If yes, deduct 25 = _____

If yes, deduct 10 = _____

X 5 = _____

X 10 = _____

X 5 = _____

If no, deduct 50 = _____

50 - _____ = _____

Possible Points | Points Deducted | **Final Score** (No less than 0)

Judge's Name: _____ **Judge's Initials:** _____

Course Expert's Name: _____ **Course Expert's Initials:** _____

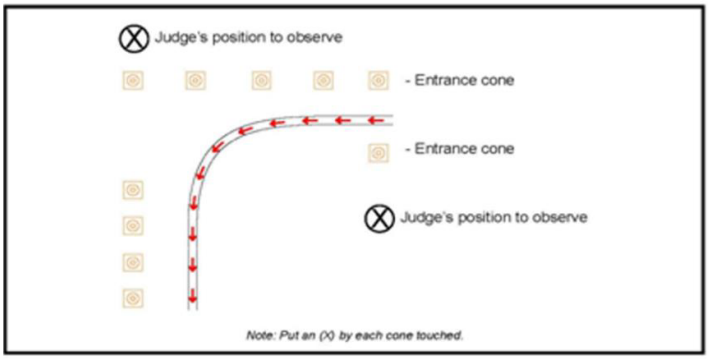
Contestant Number

Bus Number

LEFT TURN

VEHICLE CLASS: FIXED ROUTE

- Circle each cone that is touched.
- Touching the base of a cone is the same as touching the side.
- Each cone only counts against the contestant once (the first time it is touched).



- Number of entrance cones touched : _____
- Number of other cones touched : _____
- Number of times shifted into reverse : _____
- Completed obstacle as designed : _____

Calculations

X 25 = _____

X 10 = _____

X 10 = _____

If no, deduct 50 = _____

50 - [ ] = [ ]

Possible Points | Points Deducted | **Final Score** (No less than 0)

Judge's Name: _____ **Judge's Initials:** _____

Course Expert's Name: _____ **Course Expert's Initials:** _____

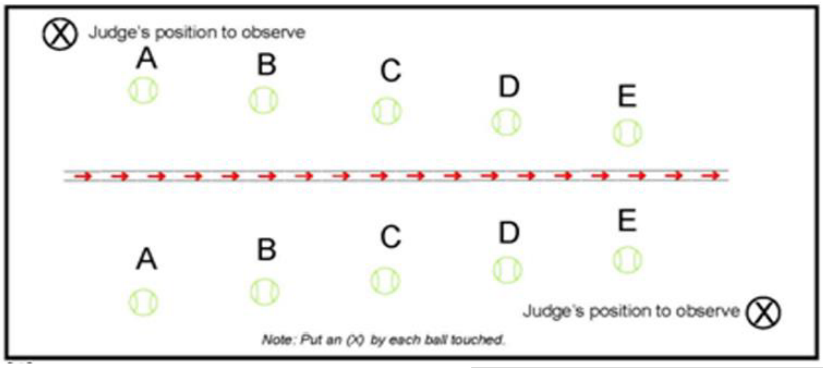
Contestant Number

Bus Number

REAR DUAL CLEARANCE

VEHICLE CLASS: FIXED ROUTE

- Circle each ball that is touched.
- Each ball only counts against the contestant once (the first time it is touched).
- Ball does not need to move off of washer for it to count as a touch.



- Number of A balls touched : _____
- Number of B balls touched : _____
- Number of C balls touched : _____
- Number of D balls touched : _____
- Number of E balls touched : _____
- Shifted into reverse : _____
- Completed obstacle as designed : _____

Calculations

X 20 = _____

X 16 = _____

X 8 = _____

X 4 = _____

X 2 = _____

If yes, deduct 10 = _____

If no, deduct 50 = _____

50 - _____ = _____

Possible Points | Points Deducted | **Final Score** (No less than 0)

Judge's Name: _____ **Judge's Initials:** _____

Course Expert's Name: _____ **Course Expert's Initials:** _____

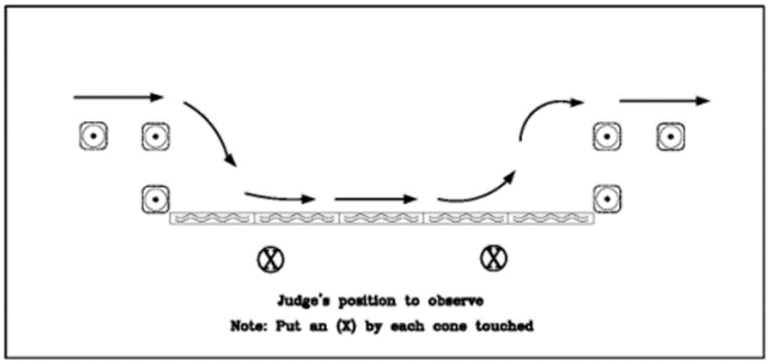
Contestant Number

Bus Number

SECOND CUSTOMER STOP

VEHICLE CLASS: FIXED ROUTE

- Circle each cone that is touched.
- Touching the base of a cone is the same as touching the side.
- Each cone only counts against the contestant once (the first time it is touched).
- If the vehicle tire strikes the curb, mark first contact with a circle.
- Measure distance in inches from the top of the curb to the tire sidewall, directly under the center of the wheel hub.



		Calculations
- Number of entrance cones touched :	_____	X 25 = _____
- Curb touched :	_____	If yes, deduct 25 = _____
- Front tire distance from curb (in inches) : (1 point penalty for each inch beyond 6 inches. All distances are rounded up or down to the nearest inch. A measurement less than ½ inch is rounded down and a measurement ½ inch or more is rounded up.)	_____	X 1 = _____
- Rear tire distance from curb (in inches) : (1 point penalty for each inch beyond 15 inches. All distances are rounded up or down to the nearest inch. A measurement less than ½ inch is rounded down and a measurement ½ inch or more is rounded up.)	_____	X 1 = _____
- Number of exit cones touched :	_____	X 25 = _____
- Number of times shifted into reverse :	_____	X 10 = _____
- Completed obstacle as designed :	_____	If no, deduct 50 = _____

50 - [ ] = [ ]

Possible Points | Points Deducted | **Final Score** (No less than 0)

Judge's Name: _____ **Judge's Initials:** _____

Course Expert's Name: _____ **Course Expert's Initials:** _____

2024 International Bus Roadeo

Date: _____

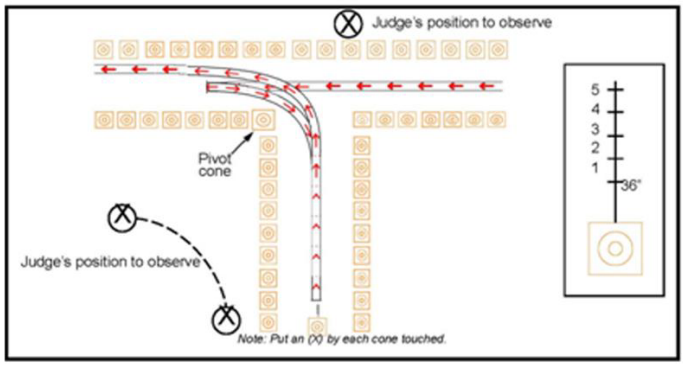
Contestant Number

Bus Number

LEFT HAND REVERSE

VEHICLE CLASS: FIXED ROUTE

- Circle each cone that is touched.
- Touching the base of a cone is the same as touching the side.
- Each cone only counts against the contestant once (the first time it is touched).
- When the vehicle stops backing up, measure distance (in inches) from the base of the rear cone to the rear bumper.



- Rear cone touched : _____
- Pivot cone touched : _____
- Number of other cones touched : _____
- Number of times shifted into reverse : (after initial shift into reverse) _____
- Number 12" segments **beyond** the 36" limit from rear cone: _____
- Completed obstacle as designed : _____

Calculations

If yes, deduct 25 = _____

If yes, deduct 10 = _____

X 5 = _____

X 10 = _____

X 5 = _____

If no, deduct 50 = _____

50 - [ ] = [ ]

Possible Points | Points Deducted | **Final Score** (No less than 0)

Judge's Name: _____ **Judge's Initials:** _____

Course Expert's Name: _____ **Course Expert's Initials:** _____

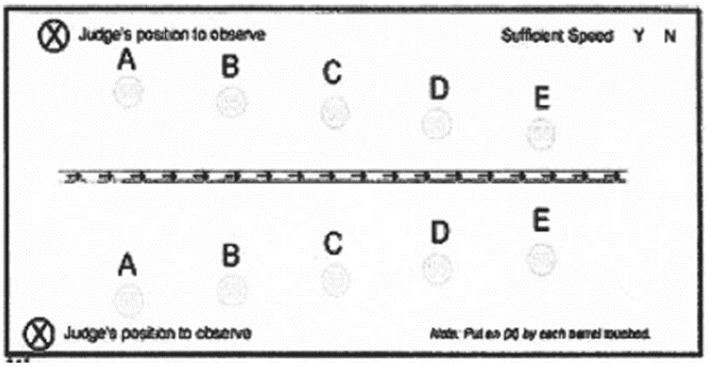
Contestant Number

Bus Number

DIMINISHING CLEARANCE

VEHICLE CLASS: FIXED ROUTE

- Circle each barrel that is touched.
- Each barrel only counts against the contestant once (the first time it is touched).
- Speed detection will determine if the vehicle maintains a minimum speed of 20 MPH through all ten barrels.



- Number of A barrels touched : _____
- Number of B barrels touched : _____
- Number of C barrels touched : _____
- Number of D barrels touched : _____
- Number of E barrels touched : _____
- Maintained minimum speed of 20 MPH : _____
  Actual Speed : ____MPH
- Completed obstacle as designed : _____

Calculations

X 20 =		
X 16 =		
X 8 =		
X 4 =		
X 2 =		
If no, deduct 25 =		
If no, deduct 50 =		

50 - [ ] = [ ]

Possible Points | Points Deducted | **Final Score** (No less than 0)

Judge's Name: _____ **Judge's Initials:** _____

Course Expert's Name: _____ **Course Expert's Initials:** _____

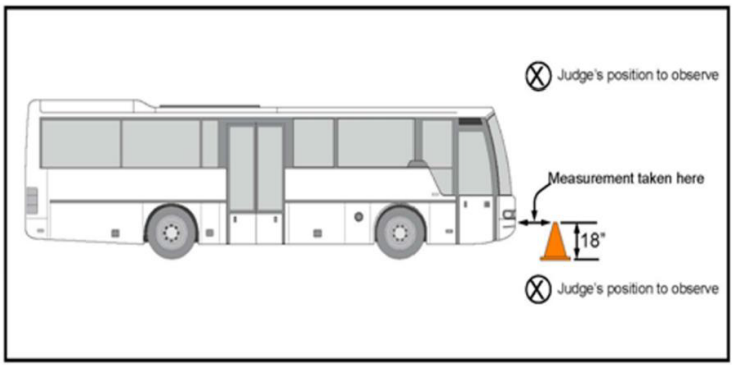
Contestant Number

Bus Number

JUDGEMENT STOP

VEHICLE CLASS: FIXED ROUTE

- Circle cone if contact is made.
- Touching the base of the cone is the same as touching the side.
- Measure distance (in inches) from top of cone to vehicle bumper after vehicle has stopped.



- Cone touched : _____

- Distance from cone (in inches) : _____

(1 point penalty for each inch **beyond 6 inches.** All distances are rounded up or down to the nearest inch. A measurement less than ½ inch is rounded down and a measurement ½ inch or more is rounded up.)

- Additional full stops : _____

(after initial full stop)

- Completed obstacle as designed : _____

Calculations

If yes, deduct 50 = _____

X 1 = _____

X 25 = _____

If no, deduct 50 = _____

50	-		=	
Possible Points		Points Deducted		**Final Score** (No less than 0)

Judge's Name: _____ **Judge's Initials:** _____

Course Expert's Name: _____ **Course Expert's Initials:** _____

Contestant Number

Bus Number

SAFETY HABITS

VEHICLE CLASS: FIXED ROUTE

SECTION A

- Failure to use proper turn signal : _____
- Failure to sound the horn when backing : _____
- Failure to use flashers when backing : _____
- Moving with door open : _____
- Failure to use seat belt : _____

SECTION B – (Deduct Points if Operator Exhibits:)

- Poor posture : _____
- Poor use of mirrors : _____
- Poor use of hands : _____
- Poor use of feet : _____

Calculations

X 1 = _____

X 3 = _____

X 3 = _____

X 3 = _____

If yes, deduct 5 = _____

X 2 = _____

X 2 = _____

X 2 = _____

X 2 = _____

25 - [ ] = [ ]

Possible Points | Points Deducted | **Final Score** (No less than 0)

Judge's Name: _____ **Judge's Initials:** _____

Course Expert's Name: _____ **Course Expert's Initials:** _____

Contestant Number _____

Bus Number _____

SMOOTHNESS OF OPERATION AND TIMEKEEPER'S RECORD

VEHICLE CLASS: FIXED ROUTE

- Evaluate each contestant on their ability to deliver a smooth ride on the bus.
- The following criteria is to be employed in making each evaluation.

SMOOTHNESS OF OPERATION

- Number of sudden stops : _____
- Number of sudden starts : _____
- Number of abrupt turns : _____
- Number of ADA announcements <u>not</u> made : _____

Time stops for mechanical trouble and at each course problem where measurements are taken. Time stops at the completion of the judgment stop.

- Contestant's Time : _____

- Penalty of 1 point per second over 7 minutes.
(Maximum penalty of 180 points)

Calculations

X 1 = _____

X 1 = _____

X 1 = _____

X 10 = _____

25 - [ ] = [ ]

Possible Points | Points Deducted | **Final Score** (No less than 0)

_____

Time (in Seconds) Greater Than 7 Minutes

Judge's Name: _____ **Judge's Initials:** _____

Course Expert's Name: _____ **Course Expert's Initials:** _____

APPENDIX 6: MAINTENANCE TECHNICIAN SCORE SHEETS

Team Name

Team Members

MAINTENANCE SCORE SHEET SUMMARY

Maintenance Technician Tests	Base Score	Points Earned
- Written Test	125	
- USSC Vehicle Inspection	350	
- Cummins / Allison Power Train Event	350	
- Cummins / Voith Power Train Event	350	
- Custom Training Aid Air Brake Board Event	350	
- Thermo King HVAC Event	350	
- MCI Multiplex Event	350	
- Vapor Door Event	350	
TOTAL POINTS POSSIBLE	**2,575**	**Total Score**

WRITTEN TEST

Team Name _____ **Bus Number** _____

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 Braker: Time to Complete _____:_____
(min:sec)

Judge's Name: _____ **Judge's Initials** _____

Course Expert's Name: _____ **Course Expert's Initials** _____

Team Name

Bus Number

USSC VEHICLE INSPECTION

MAINTENANCE

- Identify and record 14 planted defects.

POINTS EARNED

- Number of planted defects found : _____

PENALTIES

- Item(s) not returned to original condition : _____
(compartment door, lights, windows, etc.)
- Unsafe inspection practices : _____
(crawling under the bus)

DISQUALIFICATION

- Attempt to start the vehicle : _____

Calculations

X 25 = _____

X 10 = _____

X 10 = _____

Points Earned	-	Points Deducted	=	Final Score (No less than 0)

Judge's Name: _____ **Judge's Initials:** _____

Course Expert's Name: _____ **Course Expert's Initials:** _____

Team Name

Bus Number

CUMMINS / ALLISON POWER TRAIN EVENT

MAINTENANCE

- Identify and record six (6) planted defects.
- Identify, record, and correct defect which renders the power train inoperable.

POINTS EARNED

- Number of planted defects found : _____
- Disabling defect found and corrected : _____

PENALTIES

- Engine not returned to original status : _____
(excluding disabling defect)
- Improper use of tools/test equipment : _____
- Safety violation(s) : _____

TIE BRAKER

- Elapsed time to correct disabling defect _____ : _____
minutes *seconds*

Calculations

X 50 = _____

If yes, add 50 = _____

If yes, deduct 50 = _____

If yes, deduct 10 = _____

X 10 = _____

Points Earned	-	Points Deducted	=	Final Score (No less than 0)

Judge's Name: _____ **Judge's Initials:** _____

Course Expert's Name: _____ **Course Expert's Initials:** _____

Team Name

Bus Number

CUMMINS / VOITH POWER TRAIN EVENT

MAINTENANCE

- Identify and record six (6) planted defects.
- Identify, record, and correct defect which renders the power train inoperable.

POINTS EARNED

- Number of planted defects found : _____
- Disabling defect found and corrected : _____

PENALTIES

- Engine not left in proper working order : _____
(or returned to original status) (excluding planted defects)
- Improper use of tools/test equipment : _____
- Safety violation(s) : _____

TIE BRAKER

- Elapsed time to correct disabling defect _____ : _____
minutes *seconds*

Calculations

X 50 = _____

If yes, add 50 = _____

If yes, deduct 50 = _____

If yes, deduct 10 = _____

X 10 = _____

Points Earned	-	Points Deducted	=	Final Score (No less than 0)

Judge's Name: _____ **Judge's Initials:** _____

Course Expert's Name: _____ **Course Expert's Initials:** _____

Team Name

Bus Number

CUSTOM TRAINING AIDS AIR BRAKE BOARD EVENT

MAINTENANCE

- Diagnosis planted electrical defect.
- Identify and record 6 planted Air Brake System defects.

POINTS EARNED

- Correct diagnosis of electrical planted defect : _____

- Number of Air Brake System defects found : _____

PENALTIES

- Air Brake System not returned to original status : _____
(excluding planted defects)

- Improper use of tools/test equipment : _____

- Safety violation(s) : _____

TIE BRAKER

- Elapsed time for electrical defect portion event _____ : _____
minutes *seconds*

Calculations

If yes, add 50 = _____

X 50 = _____

If yes, deduct 10 = _____

If yes, deduct 10 = _____

X 10 = _____

Points Earned	-	Points Deducted	=	Final Score (No less than 0)

Judge's Name: _____ **Judge's Initials:** _____

Course Expert's Name: _____ **Course Expert's Initials:** _____

Team Name

Bus Number

THERMO KING HVAC INTELLIGAIRE EVENT

MAINTENANCE

- Identify, record, and correct one (1) disabling defect.
- Identify and record five (5) other defects.
- Record and identify all logged alarm code(s).

POINTS EARNED

- Disabling defect found and corrected : _____
- Number of planted defects found : _____
- Record & identify all logged alarm code(s) : _____

PENALTIES

- A/C unit & simulator not returned to original status : _____
(excluding planted defects)
- Improper use of tools/test equipment : _____
- Safety violation(s) : _____

TIE BRAKER

- Elapsed time for HVAC event _____ : _____
minutes *seconds*

Calculations

If yes, add 50 = _____

X 50 = _____

If yes, add 50 = _____

If yes, deduct 10 = _____

If yes, deduct 10 = _____

X 10 = _____

Points Earned	-	Points Deducted	=	Final Score (No less than 0)

Judge's Name: _____ **Judge's Initials:** _____

Course Expert's Name: _____ **Course Expert's Initials:** _____

Team Name

Bus Number

MCI/NEW FLYER MULTIPLEX EVENT

MAINTENANCE

- Identify and record 7 planted multiplex defects.

POINTS EARNED

- Number of planted defects found : _____

PENALTIES

- Improper use of tools/test equipment : _____
- Safety violation(s) : _____

TIE BRAKER

- Elapsed time to complete event _____ : _____
  minutes *seconds*

Calculations

X 50 = _____

If yes, deduct 10 = _____

X 10 = _____

Points Earned	-	Points Deducted	=	Final Score (No less than 0)

Judge's Name: _____ **Judge's Initials:** _____

Course Expert's Name: _____ **Course Expert's Initials:** _____

Team Name

Bus Number

VAPOR DOOR EVENT

MAINTENANCE

- Identify and record 7 planted door defects.

POINTS EARNED

- Number of planted defects found : _____

PENALTIES

- Improper use of tools/test equipment : _____
- Safety violation(s) : _____

TIE BRAKER

- Elapsed time for door event _____ : _____
  minutes *seconds*

Calculations

X 50 = _____

If yes, deduct 10 = _____

X 10 = _____

Points Earned	-	Points Deducted	=	Final Score (No less than 0)

Judge's Name: _____ **Judge's Initials:** _____

Course Expert's Name: _____ **Course Expert's Initials:** _____

2024 INTERNATIONAL BUS ROADEO COMMITTEE

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Manager of Maintenance
Trinity Metro

Loza, Gil Vice-Chair Operations
Operations Supervisor
Trinity Metro

Markey, Brian D. Vice-Chair Maintenance
President
Custom Training Aids, Inc.

McLaird, Steve, Immediate Past Chair
Deputy Director Garage Operations
Metro Transit

Victoria Chesney, Immediate Past Chair
Maintenance Supervisor
OMNITRANS

Garcia, Ted E.
Project Manager, Vehicle Maintenance
Capital Metropolitan Transportation Authority

Williams, DeeNaye, Staff Advisor Assistant
Program Manager, Technical Services
American Public Transportation Association

Reed, Eugene F.
Staff Advisor Assistant Director, Transit Technology American Public Transportation Association

Aguilera, Hector
General Manager
VIA Metropolitan Transit

Allen, Harold
Director of Maintenance
Charlotte Area Transit System

Allison, Matthew B.
Chief of Transit Operations
Central Ohio Transit Authority

Alvior, Ammee
Deputy Senior Operations Manager Rail and Bus
San Francisco Municipal Transportation Agency

Arrington, Reginald
Director of Transportation
Charlotte Area Transit System Bus Operations Division

Babin, Steven
Regional Service Project Manager - Southeast
Engineered Machined Products, Inc.

Bacot, Lisa M.
Executive Director
Florida Public Transportation Association

Barnes, Craig
Transit Broker/Route Planner
Victor Valley Transit Authority

Barnes, Rashidi
CEO
Eastern Contra Costa Transit Authority

Barreda, Jose Antonio
Manager, Bus Maintenance
Maryland Transit Administration

Bartoszek, Michelle
Director of Transportation
Transit Authority of River City (TARC)

Becker, Ken
Proterra Inc.

Bell, Brett C.
Service Manager, Commercial Vehicles
Voith Turbo Inc.

Bellinger, Patricia
Safety Training Coordinator
Charlotte Area Transit System

Benitez, Hector
Director Transportation Safety & Training
MTA New York City Transit

Bevilacqua, Andrew
National Training
Voith USA Inc, VTI

Bielsker, Dave
Transit Scheduler
Monterey Salinas Transit

Biggins, Omozele
Training Manager IV Transportation & Training Instruction
San Francisco Municipal Transportation Agency

Brackin, Gregory
Deputy of Transportation
Pinellas Suncoast Transit Authority

Bucheger, Susan
Technical Services Manager
Engineered Machined Products, Inc. (EMP)

Campbell, Aaron
Customer Relations Officer
Maryland Transit Administration

Canty, Dexter D.
General Superintendent Bus Maintenance
Metropolitan Atlanta Rapid Transit Authority

Carr, David
Director, Zero Emision Vehicle Program
Capital Metropolitan Transportation Authority

Carrillo, Genevieve Marie
Community Relations and Marketing Manager
Whatcom Transportation Authority

Caruthers, Michael G
Assistant Manager
Tri-County Metropolitan Transportation

Chan, Ben
Superintendent
MTA New York City Transit

Cheney, Jr., Joseph
Deputy Director of Fleet Operations
Pinellas Suncoast Transit Authority

Clark, Rex
Vice President of Sales
Ecolane USA, Inc.

Clark, Samuel
Senior Manager Bus Maintenance Training
Dallas Area Rapid Transit

Cooksey, Jr., Walter L
General Manager
RATP Dev

Cooper, Battina Canaan
Inventory Management | Enterprise Asset Management
Los Angeles County Metropolitan Transportation Authority

Corey, Jay
Director of Service Delivery
Regional Transit Service, Inc.

Corressel, Michael
Director, East Region
Allison Transmission, Inc.

Courchaine, Patrick A
Maintenance Instructor
Orange County Transportation Authority

Cruz, SARA
Technical Trainer
Santa Clara Valley Transportation Authority

Culberson, Jason Van
Director of Safety & Training
Greater Peoria Mass Transit District

Daley, Jr., Richard
General Manager
Paul Revere Transportation

Dalik, Joseph
Regional Manager, Commercial Vehicles
Voith Turbo, Inc.

Darnall, Lisa C.
Vice President, Transit Operations
Jacksonville Transportation Authority

Daugherty, Nannette
Director Operational Training
Metropolitan Transit Authority of Harris County

Dawn, Todd
Manager, Global Product Training
Allison Transmission, Inc.

Dean, Shirley
Assistant Director of Maintenance
Transit Authority of River City (TARC)

Degui-Segui, Rene-Philippe
Segment Manager
Allison Transmission, Inc.

Deleon, Marvin
Training and Education Assistant Manager
AC Transit (Alameda-Contra Costa Transit District)

Dial, Shannon
Dispatch Operations Administrator
Corpus Christi Regional Transportation Authority

Dooley, Richard
Director of Maintenance
Central Ohio Transit Authority

Dudek, David Alan
Transit Supervisor
Intercity Transit

Dyal, Jason
Director of Operations & Mobility Services
Lextran

Ebuna, Marc
Massachusetts Bay Transportation Authority

Emmert, Craig
Sr. Technical Training Instructor
Regional Transportation District

Evers, Eric
Fleet Maintenance Manager
Lane Transit District

Field, Jon
Central Regional Service Manager, Bus Trane Tehnologies
Thermo King Corporation

Fiore, Carmine
Regional Sales Manager
New Flyer and MCI (NFI Group)

France, Kevin
Maintenance Manager
Indianapolis Public Transportation Corporation (IndyGo)

Fridie, Gerald
Fleet Maintenance
Maryland Transit Administration

Gallagher, James
Vice-President
Bus Stuf Inc.

Gamez, Joseph
Assistant Chief Maintenance Officer
MTA New York City Transit

Garcia, Ted
Secretary
Capital Metropolitan Transportation Authority

Gasparini, Paul Mario
Superintendent
MTA New York City Transit

Genna, Vincent
Manager, Bus Maintenance Training & Development
Chicago Transit Authority

Givens, Annie
Executive Assistant
Memphis Area Transit Authority

Glaeser, Mike
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