

AORSI-300-TRAN Workbook

Overview

This course prepares participants to safely load, secure, and transport off-road vehicles using trailers or shipping methods while complying with regulations. Participants gain practical knowledge of trailer systems, securement techniques, and legal requirements to ensure safety and compliance during transport operations.

Learning Objectives

- Safely load and unload vehicles on trailers.
- Apply proper tie-down and securement techniques.
- Understand towing capacities, hitches, and braking systems.
- Recognize regulatory requirements for cross-state transport.

Module 1: Trailer Types & Hitch Systems

Choosing the right trailer and hitch system is the foundation of safe transport. Trailers vary in size, weight capacity, and design, ranging from flatbeds and enclosed trailers to specialized off-road haulers. Hitch systems also vary, including ball hitches, pintle hitches, and gooseneck setups. Instructors should guide participants through the strengths and limitations of each, highlighting compatibility with tow vehicles.

Course Design Suggestion: Provide hands-on demonstrations of different hitch types. Allow students to practice connecting and inspecting trailer couplings.

Exercise: Compare three hitch systems in terms of load capacity, ease of use, and safety applications.

Reflection Question: How does selecting the wrong trailer or hitch system compromise safety?

Module 2: Loading, Balance, and Center of Gravity

Improper loading is a leading cause of trailer accidents. Operators must understand how to balance loads to avoid sway, jackknifing, or trailer tip-over. The center of gravity must be kept low and weight should be distributed evenly, with approximately 60% of the load in front of the trailer axle(s). Course developers should emphasize both theory and practical drills on proper loading.

Course Design Suggestion: Conduct a field exercise where participants load an off-road vehicle, then measure tongue weight with a scale to assess balance.

Exercise: Draw a diagram showing the correct weight distribution for a two-axle trailer carrying an ATV.

Reflection Question: What risks occur if too much weight is placed at the rear of the trailer?

Module 3: Cargo Securement Standards (DOT, ANSI)

Securement of cargo is governed by standards such as U.S. DOT regulations and ANSI guidelines. Operators must use appropriate tie-down straps, chains, and binders, ensuring they meet working load limits. At least four tie-down points are recommended for most vehicles, with additional securement required for larger or irregular loads. Instructors should also cover common mistakes such as over-relying on bungee cords or failing to inspect securement devices for wear.

Course Design Suggestion: Set up a lab where students practice applying tie-downs to vehicles, testing for movement before declaring a load secure.

Exercise: List five common securement errors and provide the correct method to avoid each.

Reflection Question: Why is compliance with DOT securement standards critical beyond just avoiding fines?

Module 4: Cross-State & International Shipping Considerations

Transporting vehicles across state or national borders introduces regulatory and logistical challenges. States may have different weight limits, escort requirements, or permit rules for oversized loads. International shipping adds customs paperwork, import/export restrictions, and port handling. Instructors should provide case studies to show how these rules apply in practice and prepare students for real-world scenarios.

Course Design Suggestion: Use a scenario-based activity where participants plan the shipment of vehicles from one state to another, accounting for permits and restrictions.

Exercise: Identify three regulatory differences you may encounter when transporting a trailer across state lines.

Reflection Question: How does international shipping complexity affect planning and cost for off-road operations?

Final Assessment

Task: Conduct a trailer loading and securement exercise. Students will demonstrate safe loading, proper balance, and tie-down techniques under instructor supervision. Additionally, complete a short written exam covering the following sample questions:

1. What is the purpose of maintaining a low center of gravity when loading trailers?
2. How can tongue weight be measured, and why is it important?
3. List the minimum number of tie-downs required for most vehicles according to DOT standards.
4. What are two common mistakes operators make when securing loads?
5. What permits or documents may be required when transporting vehicles across state borders?

Duration: 5 hours (shop + field practice)