

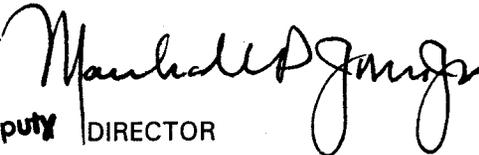


# U.S. FISH AND WILDLIFE SERVICE TRANSMITTAL SHEET

<b>PART</b>  243 FW 1-5	<b>SUBJECT</b>  Motor Vehicle and Motor Equipment Safety Safe Operation of Motor Vehicles and Motor Equipment Special Purpose Trucks Heavy-Duty Motor Equipment Powered Industrial Trucks Towing, Cargo Carrying, and Load Securement	<b>RELEASE NUMBER</b>  444
<b>FOR FURTHER INFORMATION CONTACT</b> Division of Safety and Health		<b>DATE</b>  April 1, 2004

## EXPLANATION OF MATERIAL TRANSMITTED:

The chapters in Part 243 establish Fish and Wildlife Service policies for the safe operation of motorized vehicles and motor equipment. 243 FW 1 provides authorities and definitions, assigns responsibilities, and outlines general requirements for the safe operation of motor vehicles and motor equipment. 243 FW 2 establishes safety requirements for fish distribution, fire, and dump trucks. 243 FW 3 outlines safety requirements for heavy-duty motor equipment. 243 FW 4 provides requirements for the safe operation of powered industrial trucks. 243 FW 5 provides safety requirements for towing, carrying cargo, and load securement.

  
Deputy DIRECTOR

## FILING INSTRUCTIONS:

### Remove:

241 FW 2, 09/22/95, FWM 215  
Exhibit 1, 241 FW 2, 09/22/95, FWM 215

### Insert:

243 FW 1, 04/01/04, FWM 444  
243 FW 2, 04/01/04, FWM 444  
243 FW 3, 04/01/04, FWM 444  
243 FW 4, 04/01/04, FWM 444  
243 FW 5, 04/01/04, FWM 444

**FISH AND WILDLIFE SERVICE  
OCCUPATIONAL SAFETY AND HEALTH**

**Occupational Safety and Health**

**Part 243 Motor Vehicle and Motor Equipment Safety**

**Chapter 5 Towing, Cargo Carrying, and Load Securement**

**243 FW 5**

**5.1 What is the purpose of this chapter?** This chapter establishes safety requirements for towing/trailing and cargo-carrying vehicles. It also provides safety standards, guidelines, and training criteria for transporting heavy- and light-duty equipment. See 243 FW 1 for the definition of some of the terms used in this chapter.

**5.2 What are the requirements associated with vehicle towing and trailers?**

**A.** All towing and trailing will conform to applicable Federal and State Department of Transportation (DOT) regulations (e.g., 49 CFR and FMCSA regulations, etc.).

**B.** All towing devices used on any combination of vehicles must be structurally adequate for the weight drawn and will be properly mounted.

**C.** A locking device or double safety system will be provided on every fifth-wheel mechanism and tow bar arrangement to prevent the accidental separation of towed vehicles.

**D.** Every full trailer will be coupled to the towing vehicle with safety chains or cables to prevent the separation of the vehicles in the event of a failure of the tow bar.

**E.** Load trailers so that the weight is distributed evenly on all wheels. When properly balanced, approximately 15 percent of the total weight rests on the trailer hitch. The heaviest items should be on the bottom to maintain a low center of gravity and aid in stability.

**F.** Electric hookups will activate the tail lights, brake lights, and turn signals. Trailers of 6.6 feet or more in width at any point, including the load, will have front and rear side marker lights.

**5.3 What emergency/safety equipment is necessary?**

**A.** Emergency equipment must be available on every truck-trailer combination operated on a public and non-public road. Required equipment includes a properly rated and sized fire extinguisher, warning devices for stopped vehicles (e.g., emergency reflective triangles), red flags, and other items required per 49 CFR 393.95 or State transportation regulations. The emergency equipment must also include adequate strength chain and/or cable to be used for extraction purposes.

**B.** Trailers with an overall width of 80 inches or more and a gross vehicle weight rating of 10,001 pounds or more must be equipped with retroreflective sheeting or reflex

reflectors that meet the requirements of 49 CFR 393.13. Trailers purchased after December 1, 1993, conform to such requirements. At management's discretion, retroreflective sheeting or tape can be added to other vehicles to improve safety, such as increasing the visibility of a fire engine.

**5.4 Is a cargo barrier required?** Cargo-carrying vehicles must be equipped with a cargo barrier or similar device of sufficient strength to prevent load shifting and penetration or crushing of the driver's compartment. The structure must be located between the vehicle's cargo and the vehicle's operator and passenger compartment. The cargo barrier will be of sufficient width, height, and construction to meet or exceed standards in 49 CFR 393. The cargo barrier will be maintained in a manner to continue to meet this standard.

**5.5 What vehicles are exempt from the requirement to have a cargo barrier?**

**A.** Vehicles designed and used exclusively to transport other vehicles, if each vehicle transported is secured with suitable and adequate tie-down devices.

**B.** Pole trailers or semi-trailers being towed by a tractor that is equipped with a cargo barrier that conforms to the design rules cited above.

**C.** Full trailers towed by vehicles equipped with a cargo barrier that conforms to the requirements of the design rules cited above.

**D.** Full trailers towed by vehicles that are loaded in such a manner that the cargo on the towing vehicle conforms to the requirements cited above.

**E.** Pickup trucks, since the bed walls are manufactured to meet the minimum requirements of 49 CFR 393.114. However, if the load extends above the bed wall height and the bed wall will not contain or keep the load from striking the vehicle's cab during a sudden or emergency stop, a cargo barrier or front-end structure meeting the requirements of 49 CFR 393.114 must be installed.

**5.6 Do cargo loads need to be secured?** Cargo loads must be tied down and/or secured in a safe manner and in compliance with 49 CFR 392 and 393. Give particular attention to loads of round or rolled materials and to any hazardous items.

**5.7 What other guidance on load securement is available?** Use 49 CFR 390-399, the Service's Heavy

**FISH AND WILDLIFE SERVICE  
OCCUPATIONAL SAFETY AND HEALTH**

**Occupational Safety and Health**

**Part 243 Motor Vehicle and Motor Equipment Safety**

**Chapter 5 Towing, Cargo Carrying, and Load Securement**

**243 FW 5**

Equipment Safety Training Manual (available from your heavy equipment coordinator), and the manufacturer's equipment operation manual to supplement this guidance. You must be aware of all applicable State DOT regulations. State regulations and local guidelines that impose more restrictive requirements than this chapter will take precedence.

**5.8 What load securement practices must I follow?**

**A.** Determine the size of the chain to use by the weight of the equipment that you are transporting and the WLL of the chain and other tie-down components. The size/grade/strength of all tie-down components must, at a minimum, meet the requirements in paragraph 5.9.

**B.** The aggregate WLL of the tie-down assemblies used to secure an article against movement in any direction must be at least half the weight of the article (49 CFR 393.108). If any State DOT programs require tie-down assemblies to equal more than half the weight of the article you are transporting, the State requirements supersede this chapter.

**C.** Attach and secure each tie-down in a manner that prevents it from becoming loose, unfastened, open, or released while the vehicle is in transit. Place chain assemblies in accordance with 49 CFR 393.100-136. Use a minimum of four separate tie-downs for the equipment and additional tie-downs for attachments/implements as required in 49 CFR 393.110 and 393.130. Place tie-downs in a fashion that prevents the equipment from moving forward, backward, and side to side. DOT requires a tie-down assembly every 10 feet (3 m) of the equipment/cargo length. Do not use cold shuts (devices to join links of a chain) to extend the working length of a chain or as a component of any tie-down assembly. You may only add devices that are approved by the chain manufacturer and that maintain the integrity and rating of the tie-down assembly.

**D.** All tie-downs and other components of a cargo securement system used to secure loads on a trailer equipped with rub rails must be located inboard of the rub rails whenever practicable.

**E.** Where edges contact equipment edges and those edges have the ability to damage securement devices (cause abrasion or cutting), use edge protection.

**F.** Use securable blocking and bracing (e.g., wheel/track chocks) in conjunction with tie-down components. Securable chocks have chains or straps that attach to the loaded equipment or trailer and will not become easily displaced or become a falling object during transportation. Use chocks, wedges, cradles, or other equivalent means to restrain equipment that is likely to roll. Chocks must not

be capable of becoming unintentionally unfastened or loose while the vehicle is in transit.

**G.** When tie-down chains are used, ratchet load binders are the only approved style of load binders. We do not permit lever type load binders due to their inherent safety hazards.

**5.9 What is the standard for tie-down assemblies?**

You must ensure that you have properly graded and rated tie-down components for your hauled loads. There are many grades, sizes, and strengths of tie-down components available on the market. The following component specifications are the minimum standard for all tie-down assemblies. The load being transported may require higher grade/rate/strength components.

**A.** Chain grade - grade 7 transport with grade identification markings of "7," "70," or "700."

**B.** Chain size - 3/8 inch (.9375 cm).

**C.** Chain WLL - 6,600 pounds.

**D.** Hook grade/strength/design - must have the same as or greater WLL as the chain being used and of the "clevis-type grab hook" design.

**E.** Ratchet load binder - must have the same as or greater WLL as the chain being used.

**5.10 Can chains be used for other purposes?** Do not use chains designed for equipment transportation tie-downs for any other tasks (e.g., lifting pipes, pulling stumps, etc.). If you use rated or designated chains incorrectly for work purposes, hidden or hard-to-detect damage may result that could adversely affect the chain's WLL.

**5.11 What actions must I take prior to transport?**

**A.** Lower and secure to the vehicle all accessory equipment, such as hydraulic shovels.

**B.** Restrain articulated vehicles in a manner that prevents articulation while in transit.

**C.** Restrain equipment or machinery with crawler tracks or wheels against movement in the lateral, forward, rearward, and vertical directions with each tie-down affixed as practicable to the front, side, and rear of the equipment or its securement points.

**D.** Prior to each use, visually inspect (or have inspected) all components (chains, straps, hooks, securable chocks and blocks, and ratchet load binders) of the tie-down assemblies you currently use for heavy and light duty

**FISH AND WILDLIFE SERVICE  
OCCUPATIONAL SAFETY AND HEALTH**

**Occupational Safety and Health**

**Part 243 Motor Vehicle and Motor Equipment Safety**

**Chapter 5 Towing, Cargo Carrying, and Load Securement**

**243 FW 5**

equipment transportation. Check for broken or cracked links; nicks; gouges; abrasions; wear knots; and twisted, bent, or stretched links/sections. Chain securement points (D-rings, etc.) on the trailer or truck being used must also meet the WLL requirements. Also check critical areas of a chain—the portions typically used at the trailer's tie-down points, since this is where the chain is most stressed when the hook is fastened into it.

**E** Training operators on how to properly load and unload heavy equipment.

**F.** Knowledge of 243 FW 1-5 and 321 FW 1 that apply to transportation of equipment.

**5.12 Do drivers have to inspect the load during transport?** Drivers must inspect the loaded equipment and the load securement devices used to secure the cargo within the first 5 miles after beginning a trip. If there has been any movement, make needed adjustments to the equipment or load securement devices, including adding more securement devices to ensure the equipment cannot shift on or within or fall from the transport vehicle. If you have driven the transporting vehicle for 3 hours or 150 miles, whichever comes first, you must reexamine the equipment and its load securement devices and make any necessary adjustments.

**5.13 Is there an inspection program for tie-down assemblies?**

**A.** Project leaders/supervisors must establish a semiannual tie-down assembly inspection program. Inspect tie-down assemblies for size, WLL, and condition of each component. Maintain in an appropriate file the following information, at a minimum, to document each inspection: date of inspection, condition of specific components, and who did the inspection (including signature).

**B.** Remove from service any tie-down component that exhibits signs of excessive wear that could diminish the WLL. Maintain a disposition status log (index) for the files.

**5.14 Is there mandatory training on load securement?** Project leaders/supervisors must ensure that all employees involved with heavy- and light-duty equipment and similar cargo transportation receive certification training to include:

**A.** Determining the size of the chain to use.

**B.** Determining the aggregate WLL of the tie-down assemblies.

**C.** Placing chain assemblies in accordance with DOT or manufacturer's standards.

**D.** Determining the size/grade/strength of all tie-down components to meet requirements in paragraph 5.9.