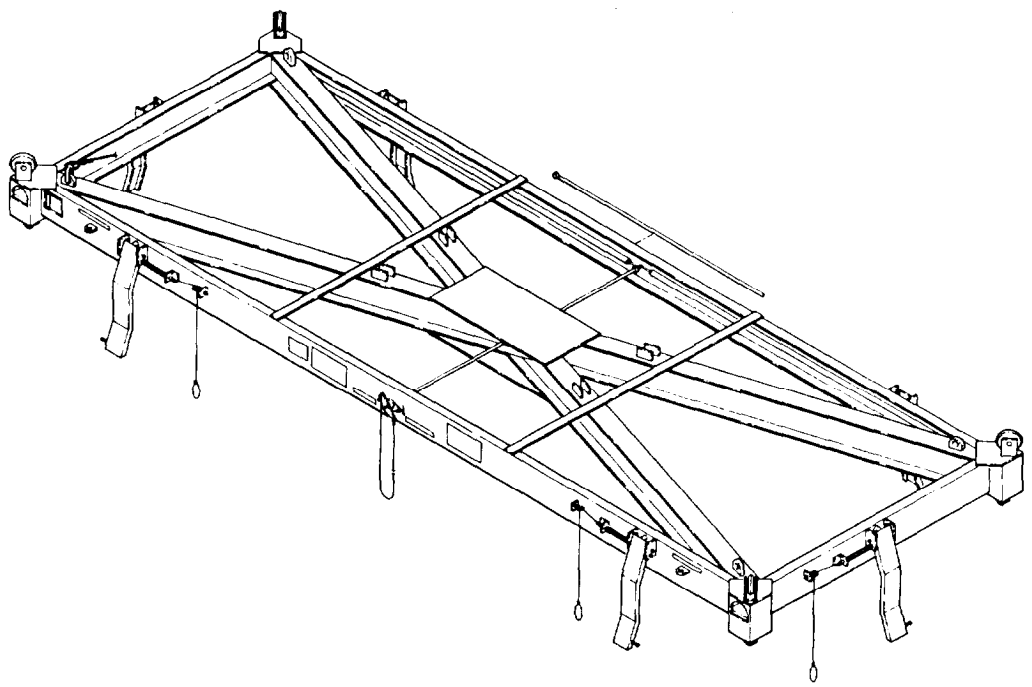
TM 10-3990-205-12&P

TECHNICAL MANUAL

OPERATOR'S, UNIT MAINTENANCE MANUAL
AND
REPAIR PARTS AND SPECIAL TOOLS LIST



SPREADER, LIFTING,
ISO AND INTERMODAL FREIGHT CONTAINERS;
TYPE II, TOP LIFT, SEMIAUTOMATIC TLS
MODEL 214LS20 NSN 3990-01-258-2010
MODEL 215LS40 NSN 3990-01-258-2011

HEADQUARTERS, DEPARTMENT OF THE ARMY

15 DECEMBER 1988

Technical Manual

No. TM 10-3990-205-12&P

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SPREADER, LIFTING, ISO AND INTERMODAL FREIGHT CONTAINERS; TYPE II, TOP LIFT, SEMIAUTOMATIC TLS MODEL 214LS20 NSN 3990-01-258-2010 MODEL 215LS40 NSN 3990-01-258-2011

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REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in back of this manual direct to: Commander, US Army Tank-Automotive Command, ATTN: AMSTA-MB, Warren MI 48397-5000. A reply will be furnished to you.

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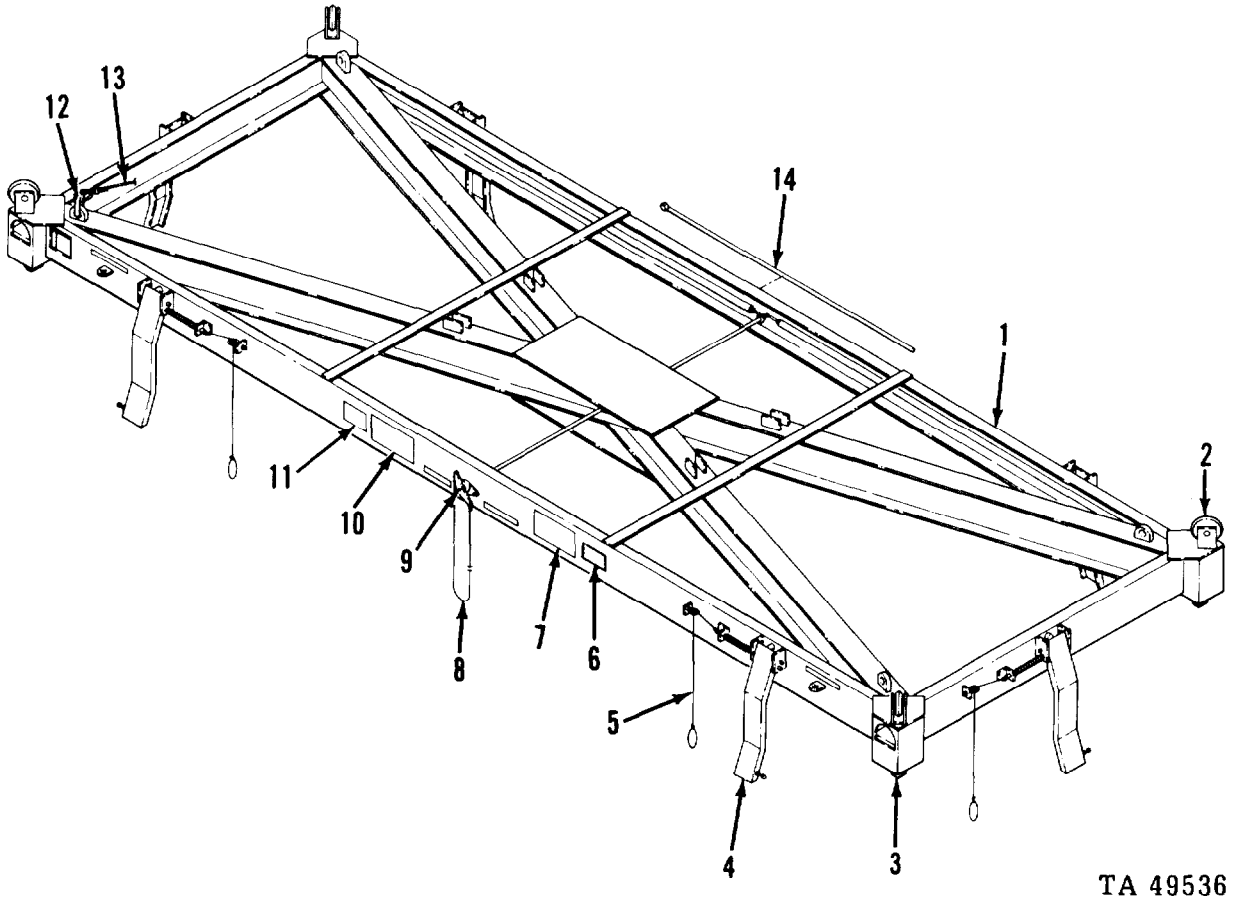
INTRODUCTION

Section I. GENERAL, INFORMATION



1. SPREADER BAR
2. GUIDE WHEEL
3. TWIST LOCK COUPLER
4. ALIGNMENT ARM
5. ALIGNMENT ARM RELEASE CABLE
6. CAUTION PLATE
7. INSTRUCTION/CAUTION PLATE
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Figure 1-1. Spreader, Lifting, IS0 and Intermodal Freight Containers; Type II, Top Lift, Semi Automatic TLS, Model 214LS20 or 215LS40

1-1 SCOPE

Type of Manual: Operator's, Unit Maintenance Manual and Repair Parts and Special Tools List.

Model Number and equipment Name:

214LS20 - Spreader, Lifting, IS0 and Intermodal Freight Containers: Type II, Top Lift TLS (20 foot spreader).

215LS40 - Spreader, Lifting, IS0 and Intermodal Freight Containers: Type II, Top Lift TLS (40 foot spreader).

Purpose of Equipment: The spreaders are designed to couple to intermodal freight containers, lift and transport the containers between highway semitrailers, railroad cars, oceangoing ships and storage areas.

1-2 MAINTENANCE FORMS AND RECORDS.

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750. The Army Maintenance Management System (TAMMS).

1-3 REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your spreader bar needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about the design. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to: Commander, U.S. Army Tank-Automotive Command, ATTN: AMSTA-MP, Warren, MI 48397-5000.

1-4 DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

Demolition of materie1 to prevent enemy use will be in accordance with the requirements of TM 750-244-6, Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use.

1-5 PREPARATION FOR STORAGE OR SHIPMENT

Preparation for storage or shipment is covered in Section IV, paragraphs 3-10 and 3-11.

Section II. EQUIPMENT DESCRIPTION AND DATA

1-6 EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

a. Description. The spreader bars are of rugged construction, and are designed for operation over a long period of time. The spreaders (both 20 foot and 40 foot) are equipped with an alignment arm on each end, and two on each side, for ease of positioning the spreader on a container. A cam locking device is installed to prevent the twist lock couplers from moving out of the locked position while a container is being lifted and transported.

b. Capabilities and Features. The spreaders have a wire rope hoist bridle assembly, a rigid frame, and four twist lock freight container couplings. The spreaders are compatible for use with dockside hoists and cranes, crawler cranes, truck cranes, or container handling vehicles.

1-7 EQUIPMENT DATA

a. 20 Foot Spreader

Dimensions (approximate)	Length 20 feet (6.09m) Width 8 feet (2.44m) Height 17 inches (43.18cm)
Payload, minimum (container and contents)	44,800 pounds (20.3MT)
Model Number	214LS20
Operating Temperatures	-25°F to +120°F (-31°C to +480°C)

b. 40 Foot Spreader

Dimensions (approximate)	Length 40 feet (12.19m) Width 8 feet (2.44m) Height 17 inches (43.18cm)
Payload, minimum (container and contents)	67,200 pounds (31.5MT)
Mode1 Number	215LS40
Operating Temperatures	-25°F to +120°F (-31°C to +48°C)

1-8 DIFFERENCE BETWEEN MODELS

The only difference between the Model 214LS20 Spreader and the Model 215LS40 Spreader is in the physical structure of the spreaders. One is designed to handle intermodal freight containers 8 feet wide and 20 feet long. The other spreader is designed to handle containers 8 feet wide and 40 feet long. The mechanical mechanisms for operation of the spreaders are identical.

1-9 SAFETY, CARE, AND HANDLING

WARNING

Personnel in the immediate vicinity and personnel participating in operation of the spreader must be continuously alert to the inherent dangers associated with handling freight containers. The containers are heavy and cumbersome. Personnel on the ground cannot depend on the hoisting equipment operator to be responsible for their safety. The containers are usually stacked in close proximity, therefore, the possibility of being crushed by a swaying container is always present. Failure to exercise adequate safety precautions can result in serious injury or death.

1-10 LOCATION AND DESCRIPTION OF SPREADER **COMPONENTS**

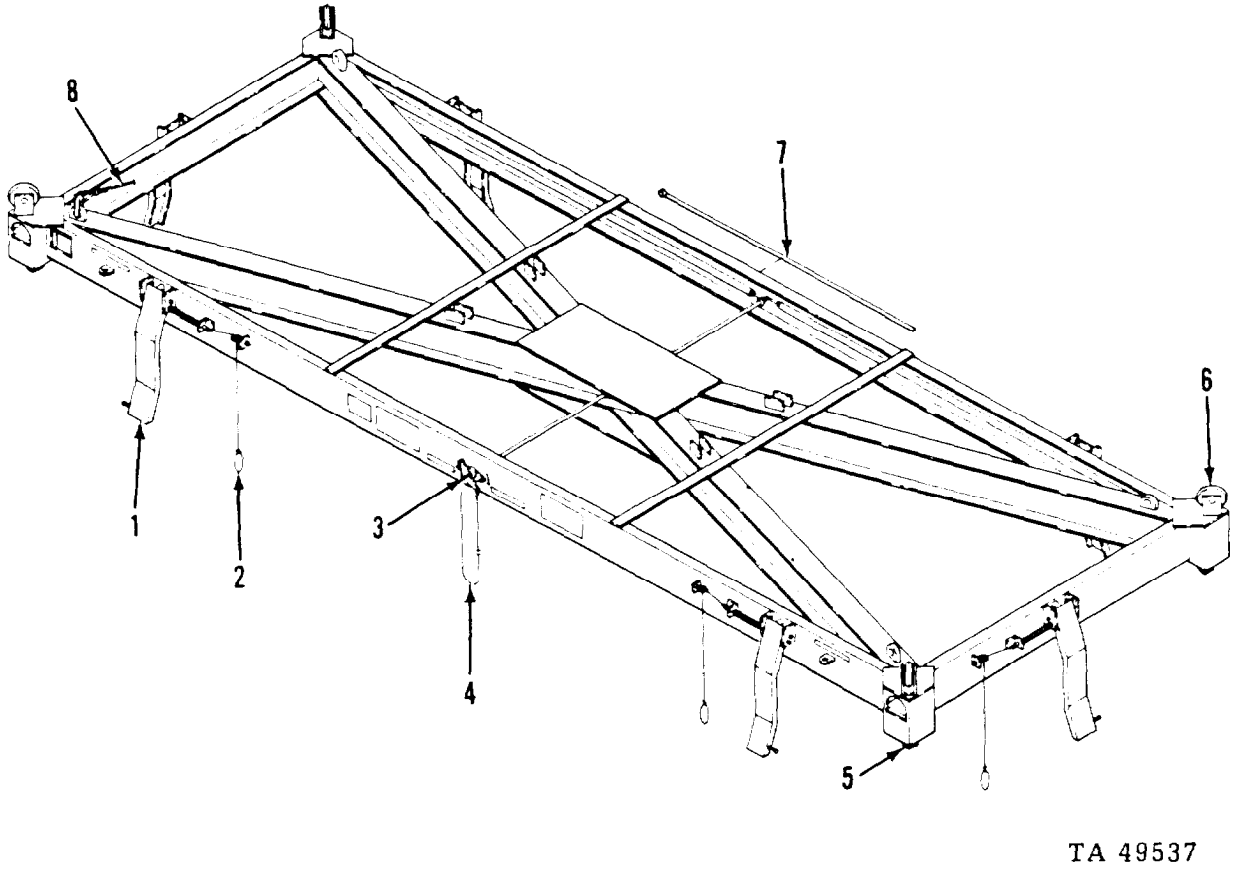

Figure 1-2. Location of Major Components

ALIGNMENT ARM (1). When in the down position, assists the hoisting equipment operator in positioning the spreader on the freight container.

ALIGNMENT ARM RELEASE CABLE (2). Pulling the cable pulls the spring pin out of the alignment arm allowing the alignment arm to be moved to either the up or down position.

TWIST LOCK ACTUATING CAM (3). Rotates in either direction, exerting a force on the control rods to move the four twist locks to the locked or unlocked position.

TWIST LOCK CAM ACTUATING CABLE (4). Pulling the cable in one direction rotates the four twist locks to the locked position. Pulling the cable in the opposite direction rotates the four twist locks to the unlocked position.

TWIST LOCK COUPLER (5). The spreader is equipped with a twist lock at each of the four corners. When the twist locks are parallel to the side members of the spreader frame they are in the unlocked position. When the spreader is in position on a freight container.