
TRANSPORT CONFIGURATION

The transport configuration will be used to move the fifth wheel towing and recovery device when not being used for lift tow, or to transport the Tilt Deck Recovery Trailer (TDRT). This task assumes the FWTRD is in coupled configuration to a prime mover (WP 0006 00).

WARNING

Ensure hydraulic protection valve is open (valve lever in line with breather – figure 1) prior to operating hydraulics. This is for safety should the electric controls be utilized inadvertently instead of prime mover wet line system. Failure to leave breather open during operation could cause over-pressurizing of the system resulting in hydraulic line or fitting failure creating an oil spill and slip hazard. Failure to comply may result in damage to equipment or serious injury or death to personnel.

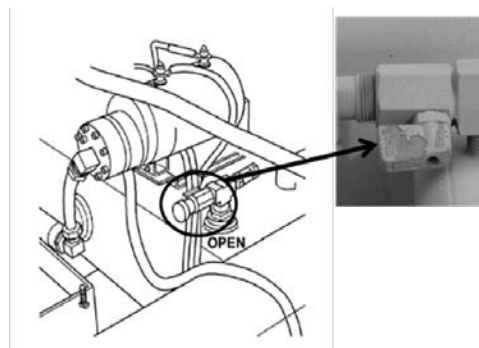


Figure 1 – Breather valve

Be sure to wear the proper eye protection (safety glasses) when working on or near hydraulic systems to avoid personal injury or death.

Never walk under booms during any operations. A crush hazard exists. Failure to comply may cause injury or death to personnel.

Ensure the boom has sufficient clearance overhead prior to folding boom into a vertical position. Interference with obstructions such as tree limbs or building structures could cause falling debris. Interference with electrical lines could create an electrocution hazard. Failure to comply may result in injury or death to personnel.

Folding booms creates a pinch point. Keep hands out of area between booms and mast during operations. Failure to comply may result in injury or death to personnel.

TRANSPORT CONFIGURATION – CONT.

CAUTION

Use caution when removing items from the tool box. Stored BII items can shift during normal use of the FWTRD and can fall out suddenly when the tool box door is opened. Failure to comply may result in injury to personnel.

Placing the FWTRD into the Transport Configuration involves handling chains, clevises, and pins. Work gloves should be worn to protect hands. Failure to comply could result in injury to personnel.

1. Start Prime Mover and engage PTO. (Refer to TM 9-2320-340-10 for the M983A4 LET)
2. Using valve control levers, BOOM RETRACT to raise boom to a closed vertical position (figure 2).

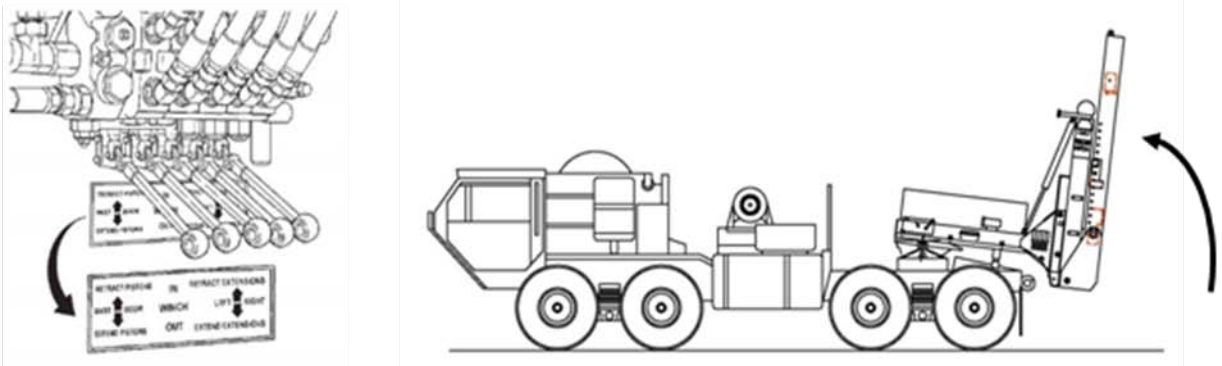


Figure 2 – Booms retracted to vertical

3. Remove left side and right side safety clevises from mast assembly (figure 3). Set aside for re-installation in step 8.

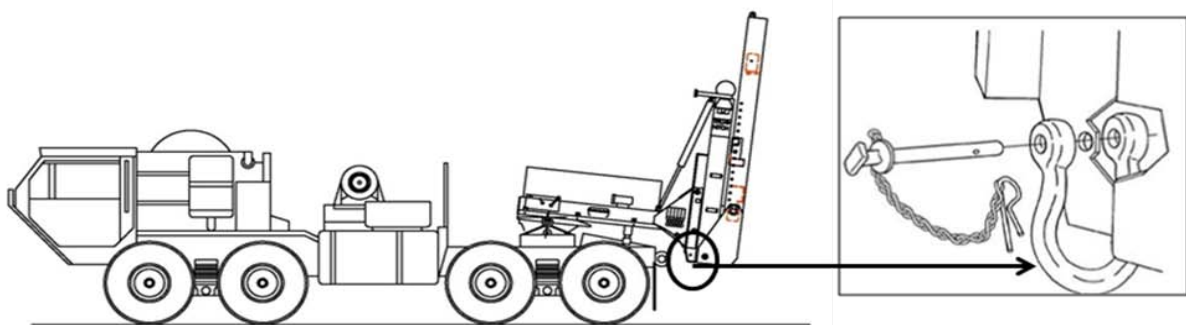


Figure 3 - Clevis with pins and Mast Pivot Alignment Figures

TRANSPORT CONFIGURATION – CONT.

- Using valve control levers, MAST EXTEND to line up pivot arrows (1 and 2). (figure 4)

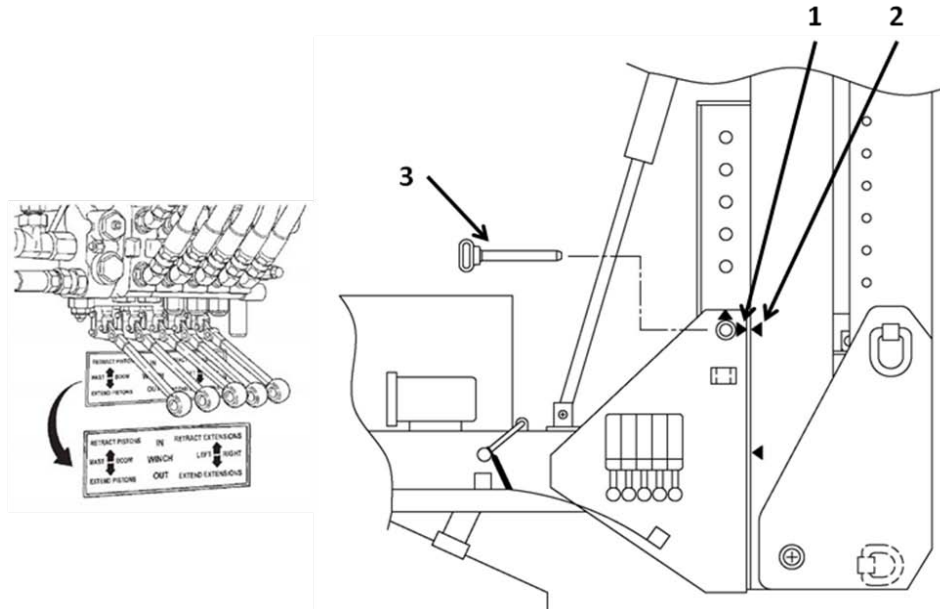


Figure 4 - Pivot Hole Alignment and Pivot Pin

NOTE

Main frame should be free of any obstructions that would prohibit mast supports from landing properly on the main frame as mast is retracted in following steps.

- Insert left and right pivot pins (3) into aligned holes (1 and 2) (figure 4).
- Using valve control levers, MAST RETRACT to fold mast until support legs rest on the main frame (4) and the pivot pins become loose (5) (figure 5)

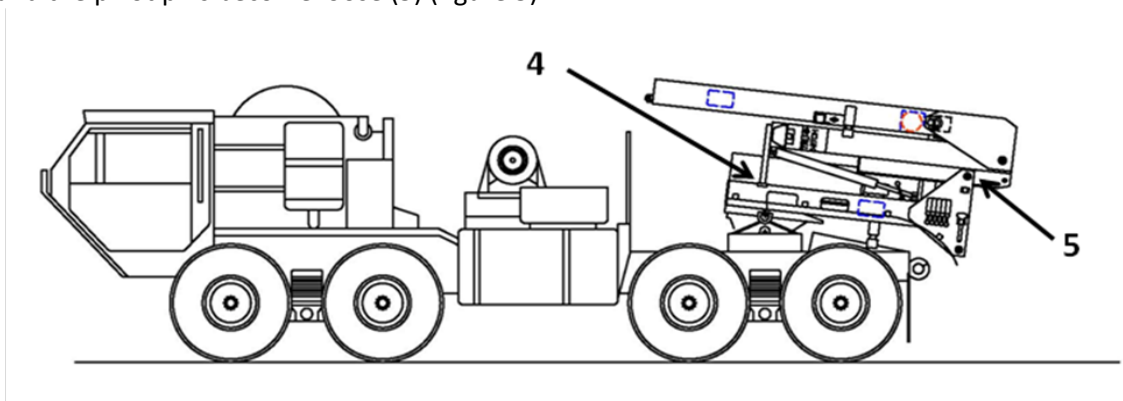


Figure 5 - FWTRD in retracted position on prime mover

TRANSPORT CONFIGURATION – CONT.

7. Remove pivot pins (3) (figure 4).

CAUTION

DO NOT over extend mast. This could cause damage to mast supports

8. Using valve control levers or remote control, MAST EXTEND to line up arrows (6 and 7). (figure 6)

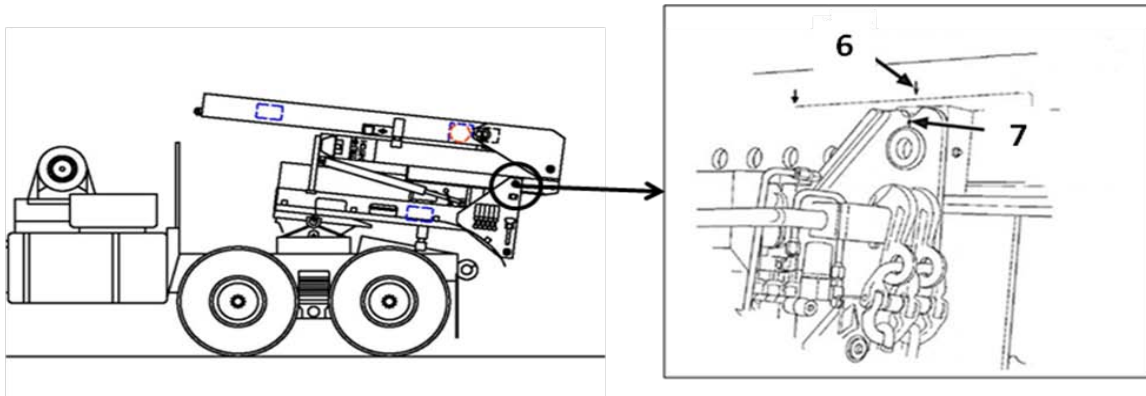


Figure 6 Alignment for pin insertion and Mast Supports

9. Re- install left and right safety clevises (8) that were removed in step 2. (figure 7)
10. Install two ½ inch safety chains (9) at rear of prime mover from the safety clevises (8) to the clevises at the rear of the prime mover frame (10). Make both chains equal length removing as much slack as possible by hand. (figure 7)

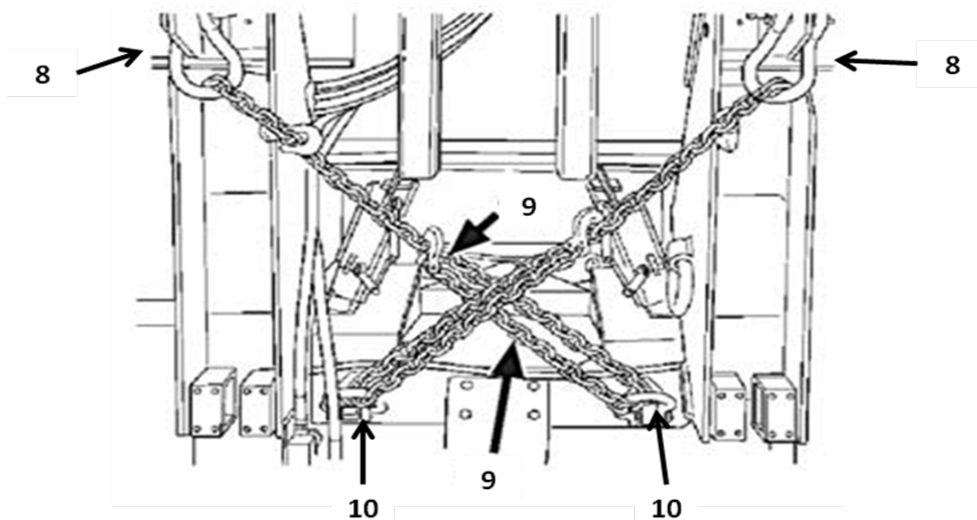


Figure 7- Rear chaining configuration for transport

TRANSPORT CONFIGURATION – CONT.

11. Using valve control levers, MAST RETRACT until safety chains (9) (figure 7) are tight (figure 8).

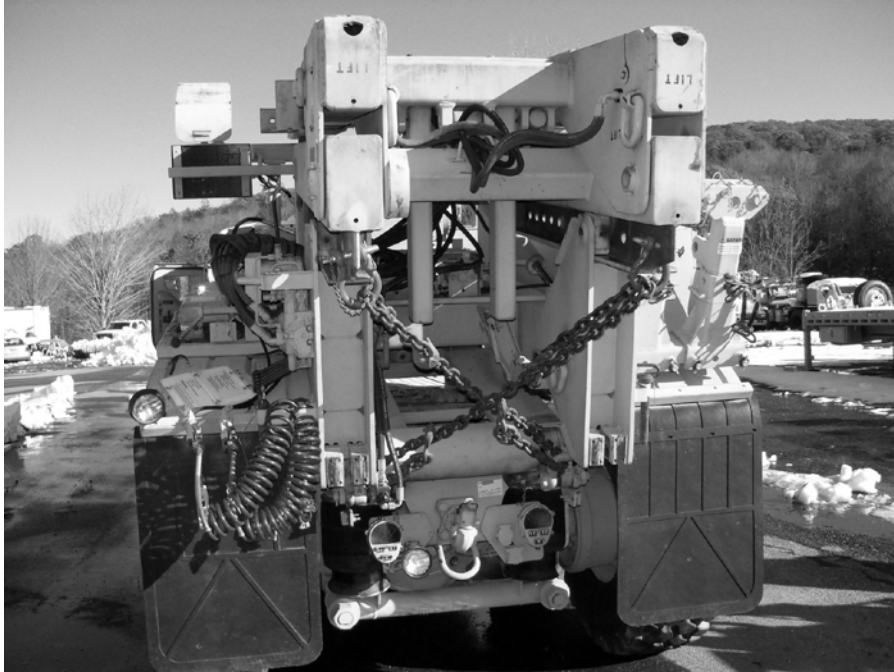


Figure 8 - Cross Chain complete

12. Install Electric Control Box Cover (11). (figure 9)

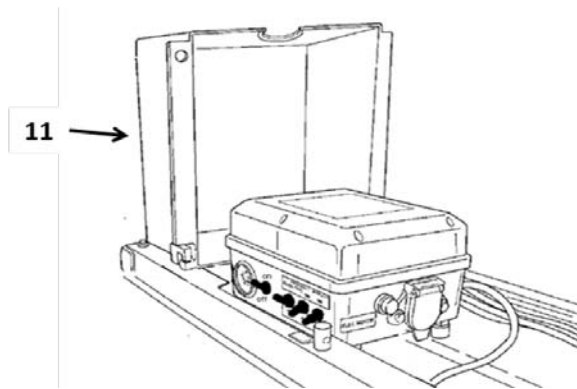


Figure 9 – Electric Control Box Cover

END OF WORK PACKAGE

PREPARE TOWING DEVICE

The following operation prepares the FWTRD for lift towing tasks or for use with the Tilt Deck Recovery Trailer (TDRT). The FWTRD is in the "Transport" configuration (WP 0007 00)



WARNING

Ensure hydraulic protection valve is open (breather switch in line with breather (Figure 1) prior to operating hydraulics. This is for safety should the electric controls be utilized inadvertently instead of prime mover wet line system. Failure to leave breather open during operation could cause over-pressurizing of the system resulting in hydraulic line or fitting failure creating an oil spill and slip hazard. Failure to comply may result in damage to equipment or serious injury or death to personnel.

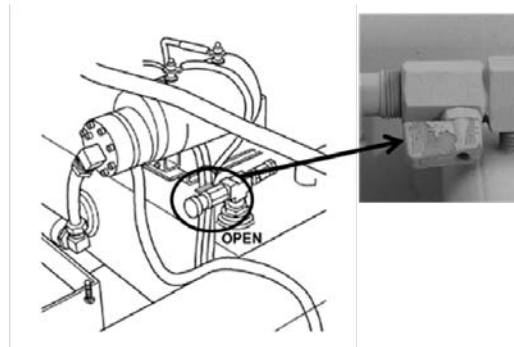


Figure 1- Top Breather Valve

Be sure to wear the proper eye protection (safety glasses) when working on or near hydraulic systems to avoid personal injury or death.

Never walk under booms during any operations. A crush hazard exists. Failure to comply may cause injury or death to personnel.

Ensure the boom has sufficient clearance overhead prior to bringing boom into a vertical position. Interference with obstructions such as tree limbs or building structures could cause falling debris. Interference with electrical lines could create an electrocution hazard. Failure to comply may result in injury or death to personnel.

Unfolding booms creates a pinch point. Keep hands out of area between booms and mast during operations. Failure to comply may result in injury or death to personnel.

PREPARE THE TOWING DEVICE - Continued**CAUTION**

Placing the FWTRD into the Transport Configuration involves handling chains, clevises, and pins. Work gloves should be worn to protect hands. Failure to comply could result in injury to personnel.

1. Start Prime Mover and engage PTO. (Refer to TM 9-2320-340-10 for the M983A4 LET)
2. Open Control Box Cover (1) and make sure that Control Box (2) has first switch "ON" and second switch set to "Wetline". (figure 1)

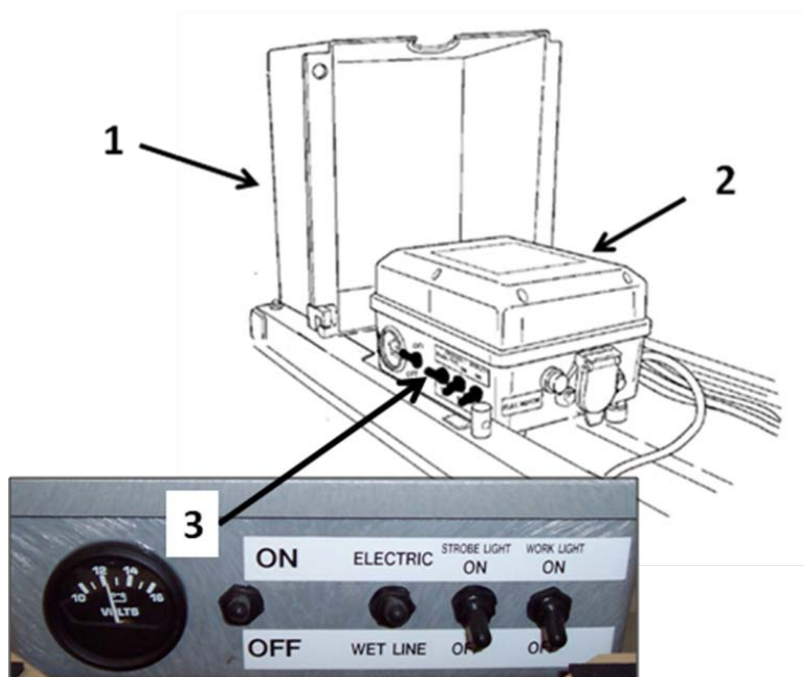


Figure 1 – Electric Control Box and Cover

PREPARE THE TOWING DEVICE - Continued

CAUTION

DO NOT over extend mast. This could cause damage to mast supports

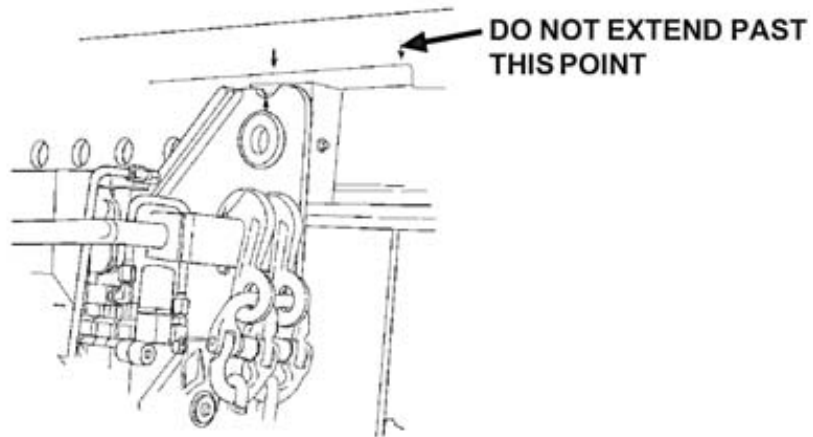


Figure 2 - Do not extend past arrow

- Using valve control levers, **MAST EXTEND** until there is slack in the safety chains (4). Remove the chains and stow. (figure 3)

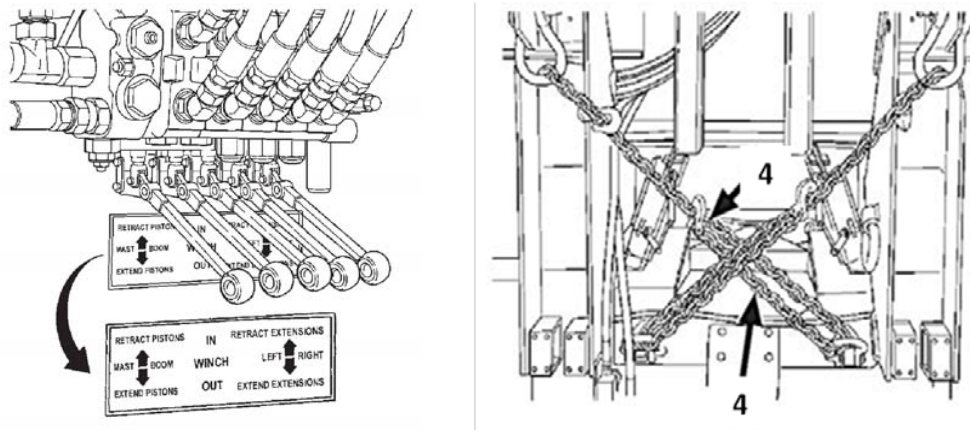


Figure 3 - Valve control levers and safety chain figures

PREPARE THE TOWING DEVICE - Continued

- Remove two clevises (5), two clevis pins (6), and safety chains with spring clips (7) from mast section (8). (figure 4)

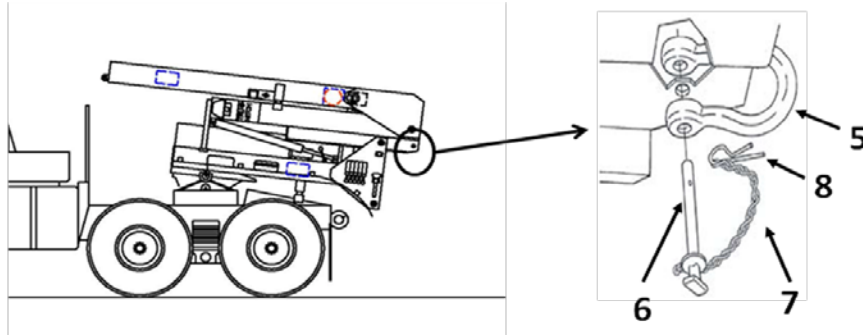


Figure 4- Safety clevis and pin



WARNING

DO NOT operate boom until the safety clevises have been re-installed. If the boom is operated prior to having the mast fully in the track, the entire mast/boom assembly could pivot suddenly creating a crush hazard. Failure to comply could cause serious injury or death to personnel or damage to equipment.

- Using valve control levers or remote control, MAST RETRACT to line up pivot arrows (9 and 10). (figure 5)

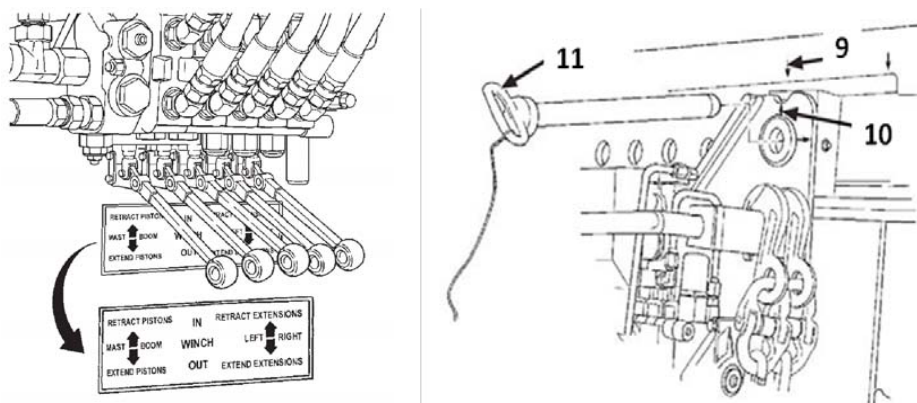


Figure 5 – Valve control levers and mast alignment for pivot pin insertion

PREPARE THE TOWING DEVICE - Continued

6. Insert pivot pins (11) into aligned holes (9 and 10). Do not insert spring clips into pivot pins. (figure 6)

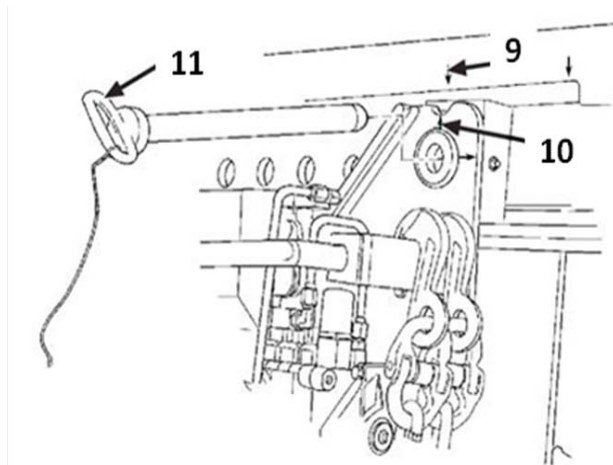


Figure 6- Pivot Pin Insertion for Mast

7. Using valve control levers, MAST EXTEND to raise mast until mast is vertical and flush with main frame, and the pivot pins (11) loosens.

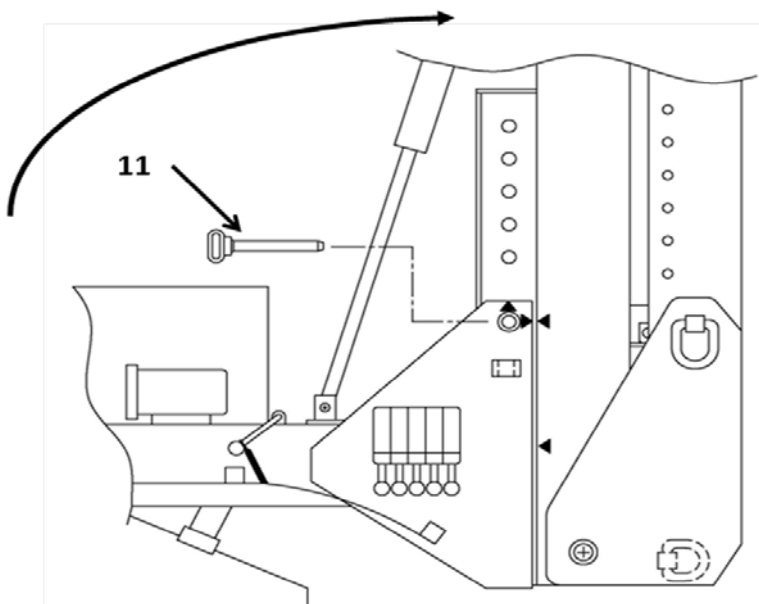


Figure 7 - Mast Vertical/Flush position for pin removal

8. Remove pivot pins. (11) (Figure 7).

PREPARE THE TOWING DEVICE - Continued

9. Using valve control levers, MAST RETRACT to lower mast until it is fully retracted.

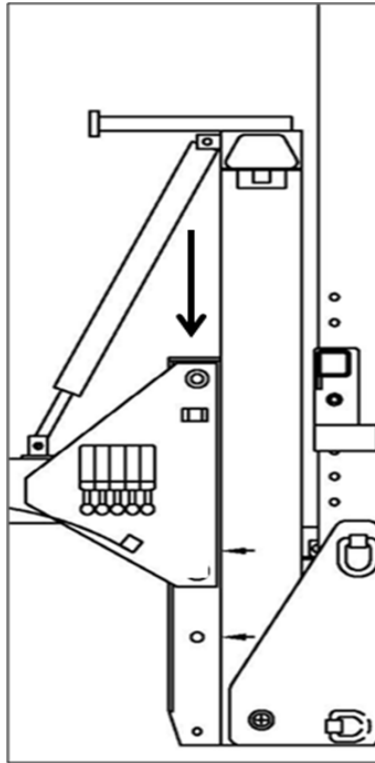


Figure 8 - Mast fully retracted in track.

10. Re-Install two safety clevises at bottom of the mast and secure with clevis pins and spring clips. This ensures that the mast stays safely in the track during boom operations.

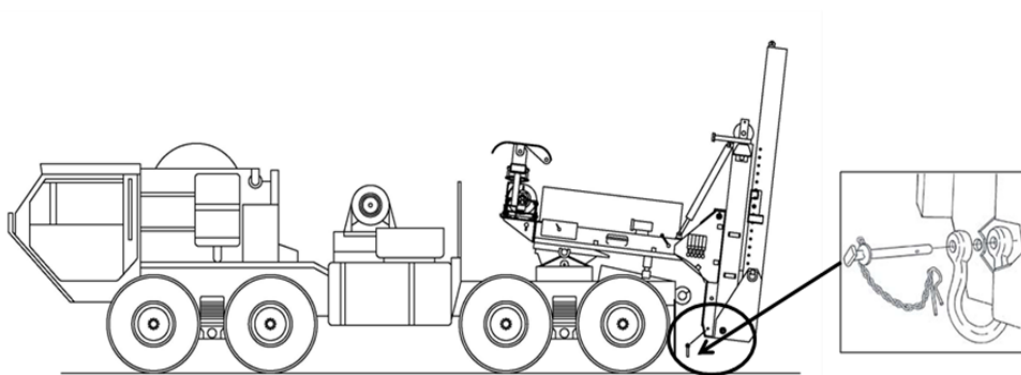


Figure 9 – Safety clevis and pin with spring clips

PREPARE THE TOWING DEVICE - Continued**WARNING**

Never walk under booms during any operations. A crush hazard exists. Failure to comply may cause injury or death to personnel.

Ensure the boom has sufficient clearance overhead prior to bringing boom into a vertical position. Interference with obstructions such as tree limbs or building structures could cause falling debris. Interference with electrical lines could create an electrocution hazard. Failure to comply may result in injury or death to personnel.

NOTE

After performing step 11, if terrain is not level or interferes with booms, it is permissible to “Extend” the mast slightly to create boom clearance off the ground.

11. Using valve control levers, BOOM EXTEND to lower boom approximately level to and just above ground. (figure 10)

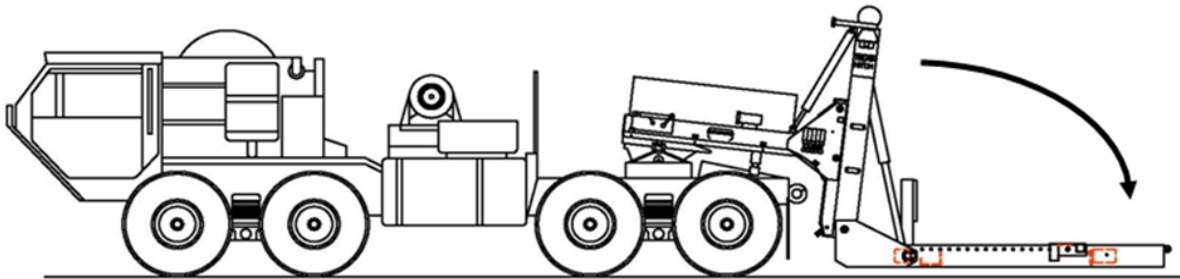


Figure 10 – FWTRD shown on prime mover in “Prepared” configuration

END OF WORK PACKAGE



WARNING

All persons not involved in the loading or unloading operation must stand clear of the prime mover and the fifth wheel towing and recovery device. A crush hazard exists. Failure to comply may result in death or injury to personnel.

Due to the dimensions and center of gravity of some loads, procedures as described in WP's 0009 00, 0010 00, 0011 00, and 0012 00 must be followed when loading and unloading equipment. Shifting loads can create a crush hazard. Failure to comply may result in damage to equipment and injury or death to personnel.

Visibility from the prime mover is significantly reduced when backing, whether the fifth wheel towing and recovery device is loaded or not. Never stand between the prime mover and FWTRD when the prime mover is backed under or near a towed load. A crush hazard exists. Failure to comply may result in serious injury or death to personnel.

Keep speeds under 5mph when loading and unloading vehicles. Speeds above 5 mph will exaggerate motions and create hazardous conditions such as shifting loads or a crush hazard, which could result in injury or death to personnel and or damage to the equipment.

CAUTION

The upper section of the Tow Bar assemblies weigh 47 lbs. Use an assistant and caution when removing and handling them to prevent injury to personnel or damage to equipment.

When tilting the tow bar assemblies, use caution when removing pins so that the upper section does not fall out suddenly and cause injury to personnel.

NOTE

Prime mover and disabled vehicle should be on the same ground level when coupling. If ground levels are uneven, use winch to maneuver disabled vehicle to an even level with prime mover.

PREPARE THE TOW BAR ASSEMBLIES- Continued**NOTE**

If the vehicle being recovered is not equipped with front towing eyes, skip to WP 0010 00 - Step 1.

Some vehicles have tow eyes that are incompatible widths to engage the Tow Bar Assemblies. If this is the case, skip to WP 0010 00 - Step 1.

Tow Bars are not for use with the STRYKER. If you are towing the STRYKER, skip this WP and refer to WP 0010.1 00 for specific STRYKER lift tow info.

The Tow Bar Assemblies are mounted on a holder located at the right rear fender of the FWTRD behind the tool box.

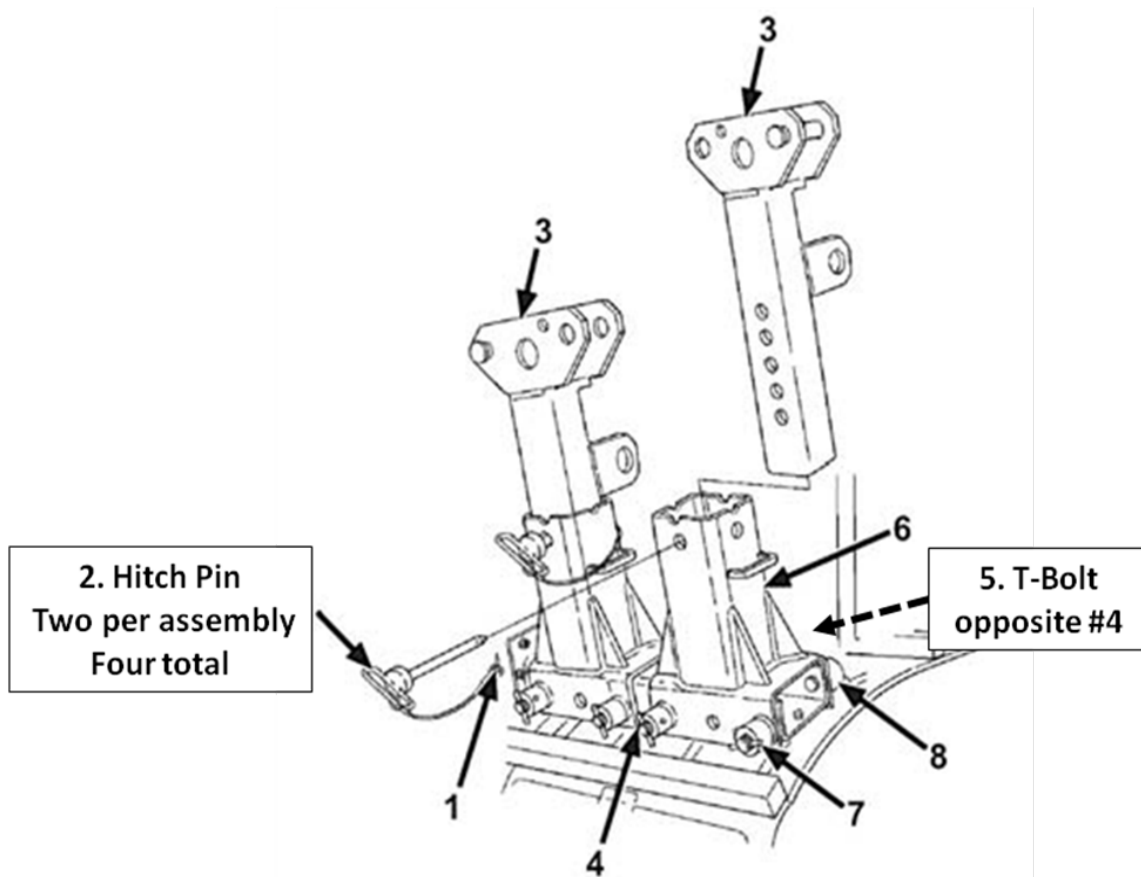


Figure 1 – Tow Bar Assemblies

PREPARE THE TOW BAR ASSEMBLIES- Continued**NOTE**

Refer back to Figure 1 for Item numbers referenced in the steps.

1. Remove spring pin (1) from hitch pin (2) and remove the top hitch pin from upper section of the outer tow bar assembly (3) (figure 1). Set aside hitch pin (2) for future use. Leave the lower hitch pin in place. (figure2)

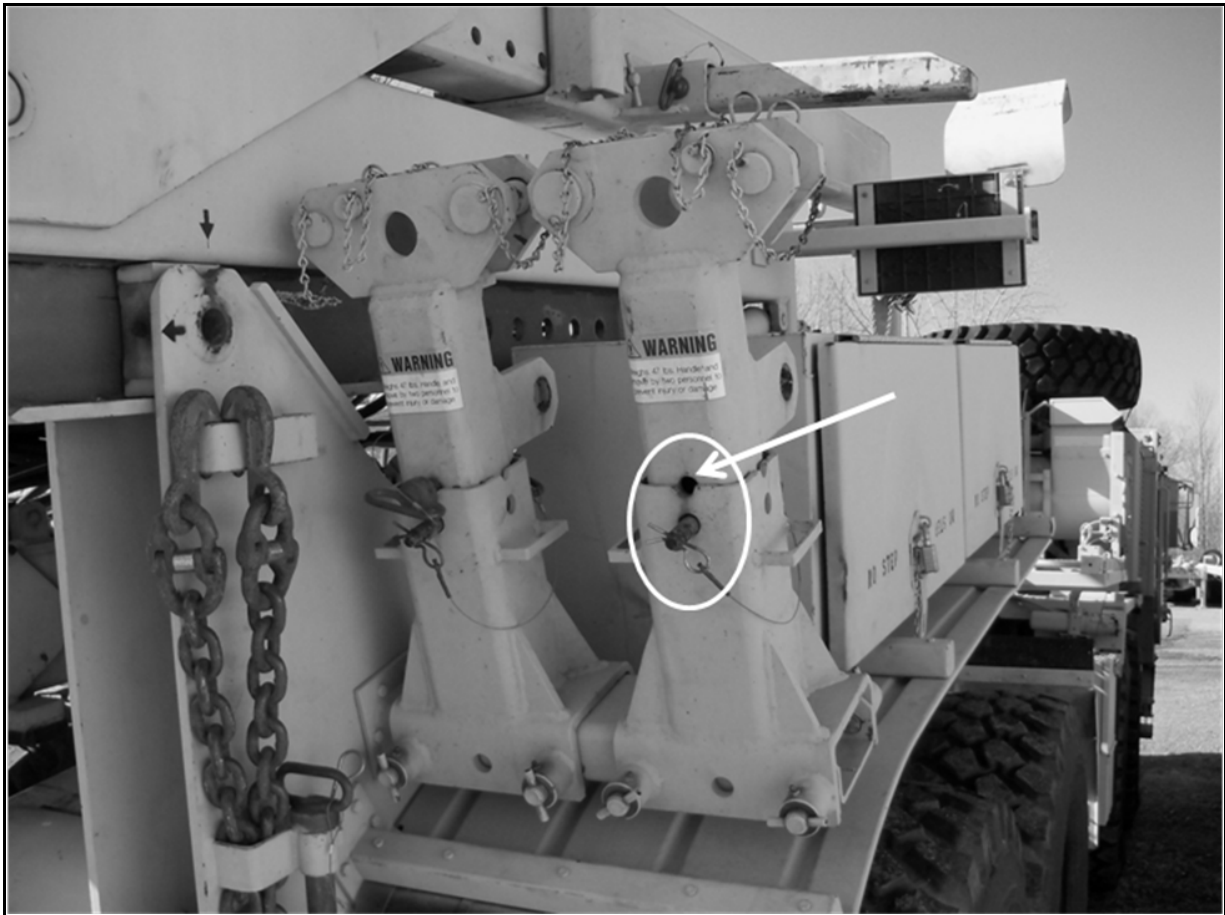


Figure 2 – Upper hitch pin removed. Lower pin left in place

PREPARE THE TOW BAR ASSEMBLIES- Continued

- Loosen T-bolts (4 and 5). With an assistant, tilt the lower section of the tow bar assembly (6) away from the storage bracket.(figure 3)



Figure 3 – Outer Tow Bar Assembly tilted away

CAUTION

Upper section of the Tow Bar assemblies weigh 47 lbs. Use an assistant and caution when removing and handling them to prevent injury to personnel or damage to equipment.

- Using an assistant, remove the remaining spring pin (1) from hitch pin (2) and remove the upper section (3). Set upper section aside for future use.



Figure 4 – Upper section removed

0009 00-3

PREPARE THE TOW BAR ASSEMBLIES- Continued

4. Rotate lower section (6) back onto holder and loosen T-bolts (7 and 8). Remove the lower section (6). Set aside for future use. (figure 5)

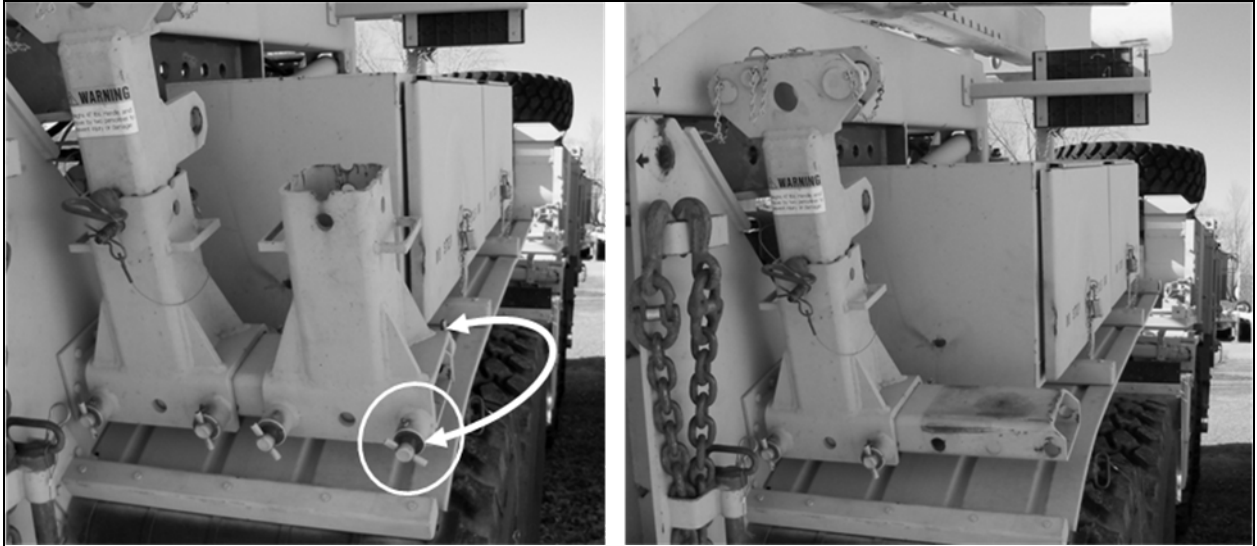
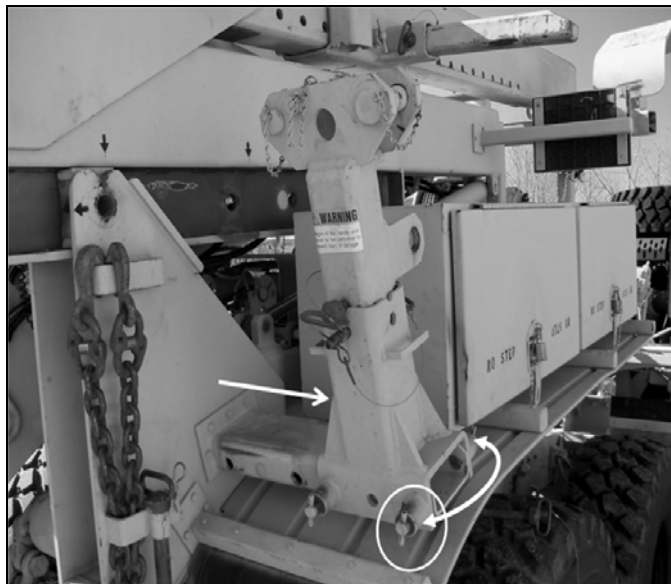


Figure 5 – Lower section removed

5. Loosen all four T- bolts on the inner tow bar assembly and slide to the outer position. Re-tighten T- bolts (7 and 8) (figure 6).

Figure 6 – Setup to remove 2nd Tow Bar assembly

6. Repeat steps 1 through 4 for remaining tow bar assembly.

PREPARE THE TOW BAR ASSEMBLIES- Continued**NOTE**

Both the upper and lower sections of the tow bar assemblies are made with offsets. This allows positioning the assemblies for variations in the distance between the towing eyes on the towed vehicles.

If the FWTRD has been used with the Tilt Deck Recovery Trailer (TDRT), it will be necessary to temporarily move the FWTRD receiver with wheel stop prior to performing step 7.

7. Position the lower section (6) onto the boom and line up the center hole (9) with the second hole from the mast. Do not tighten lower T-bolts.
8. Install the upper section (3) into the lower section (6).

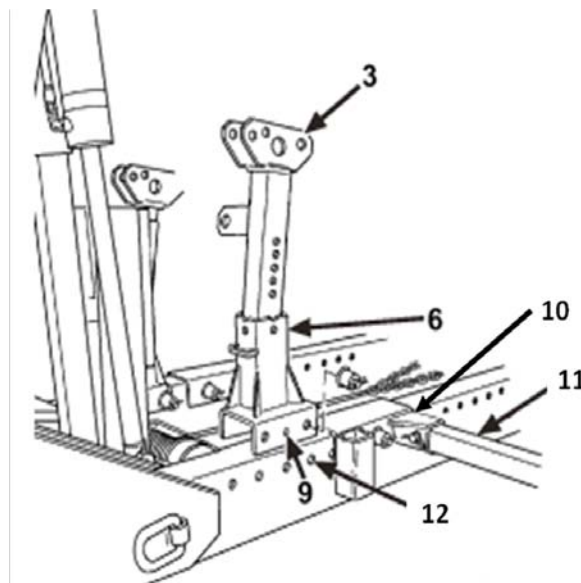


Figure 7 – Preparing Tow Bar Assemblies on FWTRD Booms

9. Repeat steps 7 and 8 for the remaining tow bar assembly.
10. Position of the left and right receivers (10) and tire stops (11) so that the uppers section (3) can engage the tow eyes of the vehicle to be towed without interference from the towed vehicle tires.
11. Proceed to WP 0010 00 for connecting disabled vehicle to the Tow Bar Assemblies.

END OF WORK PACKAGE

PREPARING FOR LIFT TOW - PRE-PICKING

Pre-picking operations can be performed with the Fifth Wheel Towing and Recovery Device. There are three different types of pre-picks/lifts that can be performed.

- A. Basic pre-picking utilizes the FWTRD booms with a fulcrum point (blocking) as a first class lever. See FM 4-30.31 for an explanation of levers. This method can be used to shore one end of a disabled vehicle prior to performing lift tow with the FWTRD.
- B. Basic lifting using the FWTRD Booms. The main frame of the FWTRD will rest on support pads. As an example, this method can be utilized to lift and move a wheel/tire assembly or engine/transmission that has been separated from a disabled vehicle.
- C. The recovery winch can be utilized with the FWTRD to lift one end of a disabled vehicle for the placement of shoring or installation the Cross Bar for Sledding with Sledding Shoes. See WP 0009.4 00 for steps utilizing the Cross Bar for Sledding.

**WARNING**

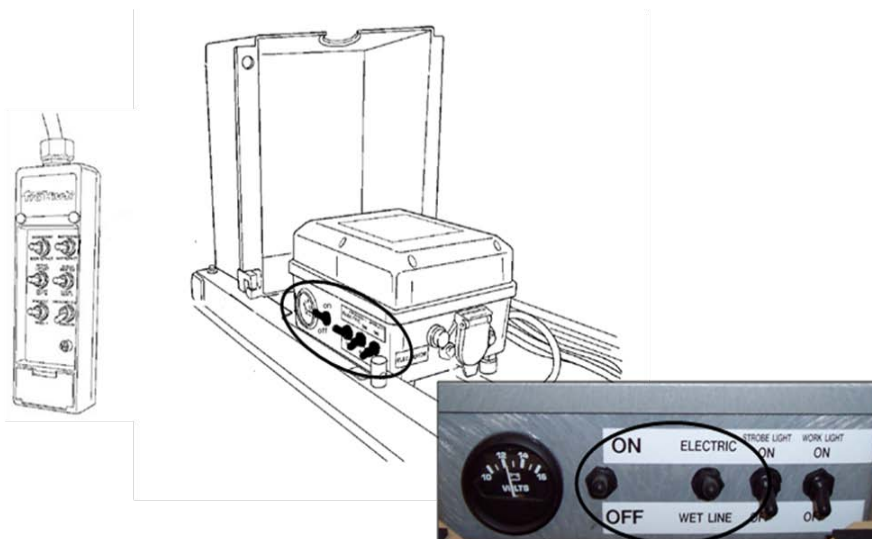
Wheels on the towed vehicle should be chocked and parking brakes engaged prior to performing pre-picking. Failure to comply could result in the vehicle moving unexpectedly creating a crush hazard causing serious injury or death to personnel.

Pre-picking procedures involve backing the prime mover and should be done by two people, the first person in the prime mover cab and the second acting as a ground guide. The person in the prime mover cab must keep the ground guide in sight at all times. All other personnel should stand completely clear of the area. A crush hazard exists. Failure to comply may result in serious injury or death to personnel.

Placing blocks and shoring during pre-picking procedures can create pinch points. Caution must be used when positioning these items to prevent serious injury or death to personnel.

PREPARING FOR LIFT TOW - PERFORMANCE OF PRE-PICKING – Continued**NOTE**

Using the remote control with the FWTRD operating on wetlines, the first switch of the electric control box must be “ON”, and the second switch set to “WETLINE”. This ensures that as the remote control is utilized during wetline operation, the FWTRD electric motors do not engage. This maintains proper hydraulic fluid levels between the FWTRD and the Prime Mover hydraulic reservoirs.

**BASIC PRE-PICKING**

1. Position prime mover with the FWTRD “prepared” for towing (WP 0008 00) in front of disabled vehicle. (figure 1)

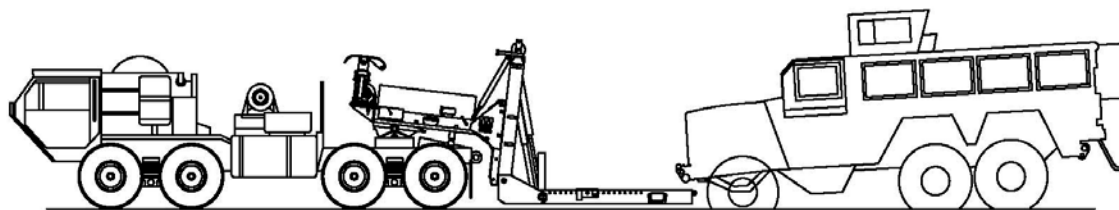


Figure 1 – Prepared in front of disabled vehicle

PREPARING FOR LIFT TOW - PERFORMANCE OF PRE-PICKING – Continued

- Using the remote control, **EXTEND LEFT and EXTEND RIGHT** boom extensions. Extend until the boom extensions pass under the front suspension of the disabled vehicle and are extended approximately 1 foot to the rear of the front A-Arms or cross members. (figure 2)

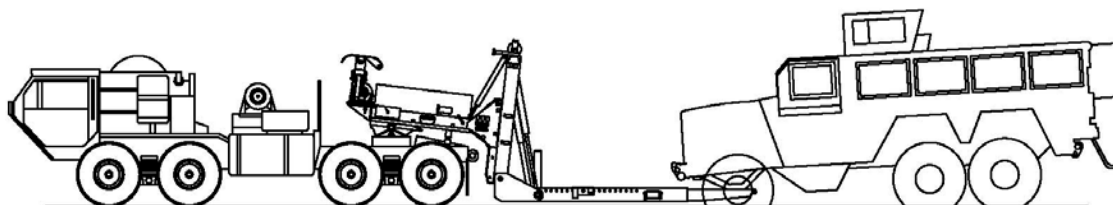


Figure 2- Extensions under suspension

- Place one 2-inch block or rubber pads between the boom extensions and the contact point (suspension, hull) of the disabled vehicle.
- Using the remote control, **BOOM EXTEND** the boom until the transport legs are clear of the tractor after-frame. (figure 3)

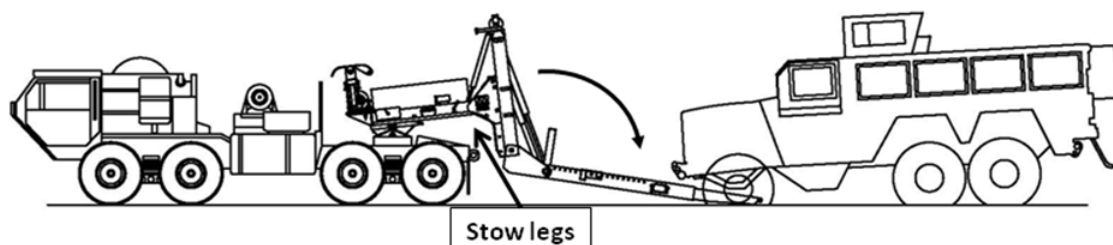


Figure 3 – Booms extended. Stow transport legs

- Rotate the handle counter-clockwise to raise and lock the legs in the stowed position. Secure with the small bungee. (figure 4)

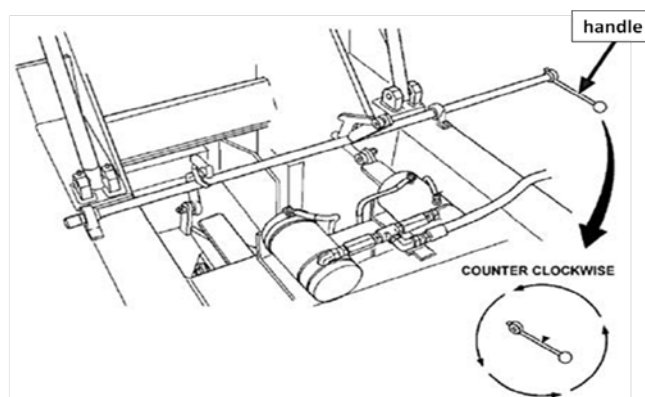


Figure 4 – Transport Legs

PREPARING FOR LIFT TOW - PERFORMANCE OF PRE-PICKING – Continued

6. Place one of the 6 inch blocks under each boom assembly, near the rear boom cross member, to create a fulcrum point. (figure 5)

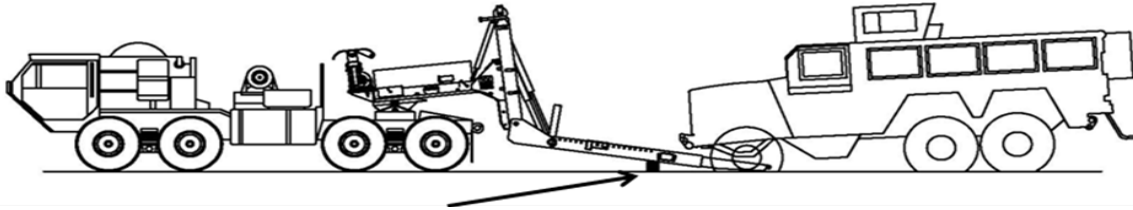


Figure 5 – Insert fulcrum block

7. Using the remote control, **BOOM RETRACT** to lower the front of the booms and raise the rear of the booms. Be sure that all blocks stay in place. Raise the vehicle until the suspension/lift point is approximately 7-8 inches above the ground. (figure 6)

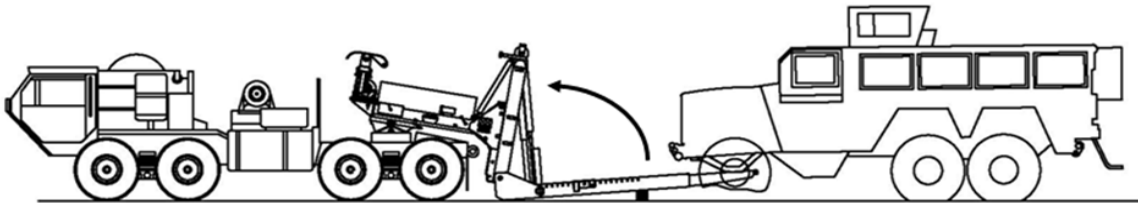


Figure 6 – Disabled vehicle pre-picked

8. Insert shoring material under the lowest point of the disabled vehicle to maintain the pre-picked height. (figure 7)

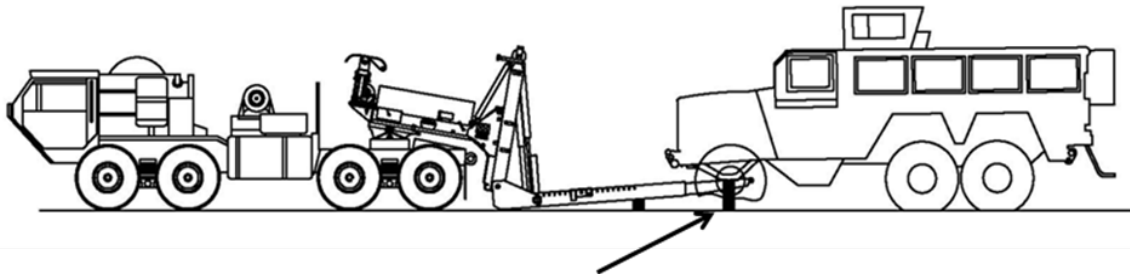
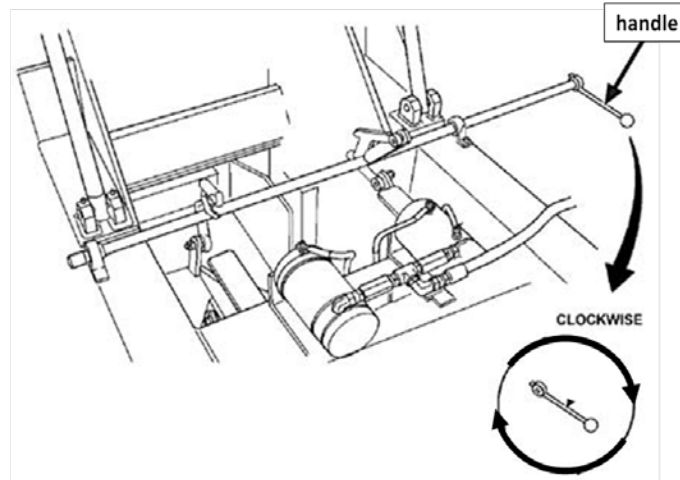


Figure 7 – Shoring the disabled vehicle

9. Using the remote control, **BOOM EXTEND** until the disabled vehicle is resting on the shoring, and the booms and pivot blocks are free. Remove the pivot blocks.

PREPARING FOR LIFT TOW - PERFORMANCE OF PRE-PICKING – Continued

10. Rotate the transport leg handle clockwise and lock the transport legs in the down position.



11. Using the remote control or valve control levers, **BOOM RETRACT** until the FWTRD rests on the transport legs and the booms are again approximately 1 inch above and parallel to the ground.
12. Using the remote control, **RETRACT LEFT AND RIGHT EXTENSIONS.** (figure 7)

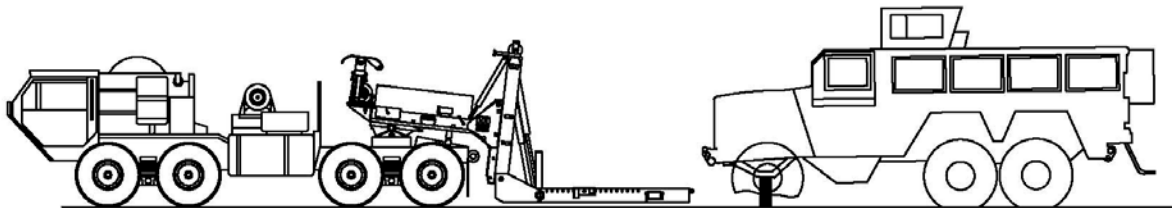


Figure 7 – Pre-pick complete

END OF WORK PACKAGE



WARNING

The following methods are for lifting a stationary object in preparation for towing or recovery only. **NEVER** attempt to tow any vehicle in these configurations. A crush hazard exists. Loads could shift suddenly if towing in this configuration were attempted. Failure to comply can result in damage to equipment and serious injury or death to personnel.

The “Boom Retract” function of the FWTRD is protected by a 2000psi limiter. This is to protect the boom cylinders from damage when performing lift tow operations. When utilizing the FWTRD for basic lifting, be aware that the amount of weight to be lifted will ultimately be determined by the boom retract limiter and should not exceed 10,000 lbs. Exceeding these limits could cause a load to shift or the booms to stop suddenly and create a crush hazard. Failure to comply may result in injury or death to personnel and or damage to the equipment.

These instructions assume that the operator(s) are trained for Recovery Operations and use of the FWTRD/TDRT and have an understanding of the different rigging configurations for performing recovery and lift tow operations as described in FM 4-30.31 Battle Damage Assessment and Recovery and FM 5-125 Rigging Techniques. Failure to comply may result in injury or death to personnel.

These configurations are approved for the XM20 Fifth Wheel Towing and Recovery Device with the M983 LET. Using any other prime mover to perform these lifts has not been tested at the time of writing this TM and could result in unstable conditions including shifting loads and crush hazards. Failure to comply could result in injury or death to personnel and or damage to equipment.

Wheels on the towed vehicle should be chocked and parking brakes engaged prior to performing pre-picking. Failure to comply could result in the vehicle moving unexpectedly creating a crush hazard causing serious injury or death to personnel.

NOTES

This procedure starts with the FWTRD coupled to the prime mover and “Prepared” as described in WP 0008 00 of the TM.

PREPARING FOR LIFT TOW – BASIC LIFTING WITH THE FWTRD – Continued

- Using the remote control, “EXTEND” booms to allow transport legs to be stowed.

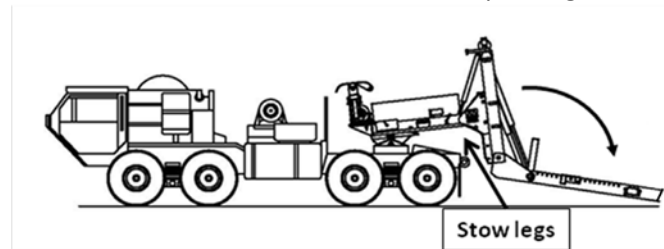


Figure 1 – Boom Extend to stow transport legs

- Rotate the transport leg arm counterclockwise to stow the transport legs. Secure the arm with the small bungee attached to the FWTRD fender. (figure 1)

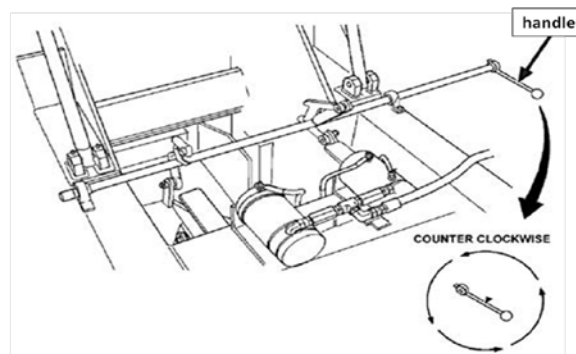


Figure 1 – Transport Legs

- Using the remote control, “RETRACT” the booms until they rest on the ground.
- Using the remote control, “EXTEND” the mast until the main frame rear support pads come to rest on the after frame of the prime mover and the booms have come off the ground slightly. (figure 2)

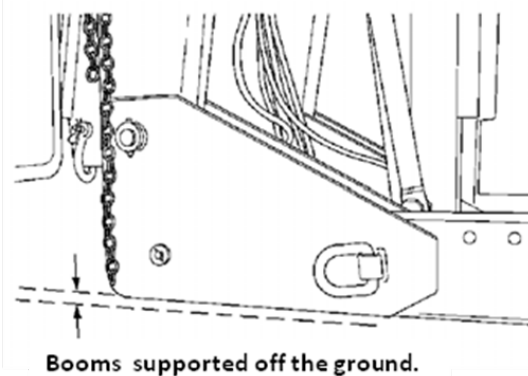


Figure 2 – Main frame support pad resting on the after frame of the prime mover. (Left side shown)

PREPARING FOR LIFT TOW – BASIC LIFTING WITH THE FWTRD – Continued

5. Install two 1/2 inch chains with one hook, cross chained at the front of the FWTRD, from the provided chain receiving holes (located on the 35K winch bracket), to the tie down rings on the side of the prime mover. (figure 3) Take out as much slack as possible by hand.



Figure 3 - Cross chain points FWTRD to prime mover

6. Using the remote control, “EXTEND” the booms to bring the main frame support pads off the after frame of the prime mover.
7. Shorten the two 1/2” cross chains by one link each.
8. Using the remote control, “RETRACT” the booms. The cross chains should tighten as the support pads set back down on the after frame of the prime mover. (figure 4) (If the chains remain slacked after the support pads come to rest, repeat steps 7 and 8.)

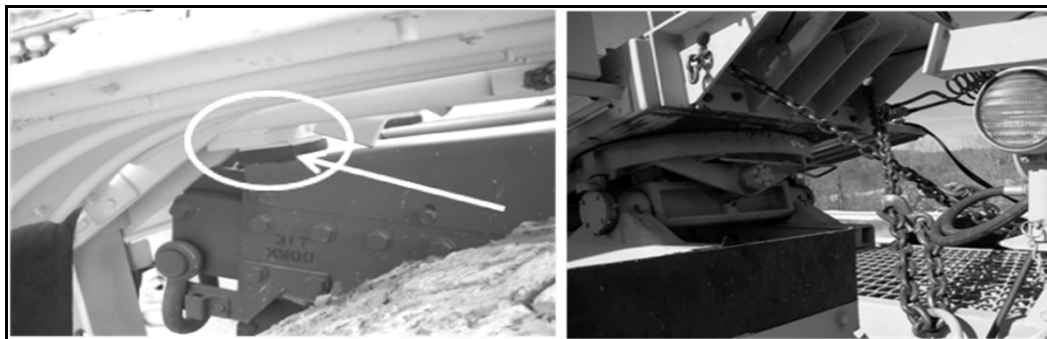


Figure 4 – Cross Chains tight with main frame support pads resting on after frame

PREPARING FOR LIFT TOW – BASIC LIFTING WITH THE FWTRD – Continued

9. Using the remote control “EXTEND” the mast and pin at the fifth hole setting. (figure 5)



WARNING

Do not lift any loads using the boom extensions. They are not designed for lifting. Improper use of the extensions may result in shifting loads creating a crush hazard. Failure to comply may result in injury or death to personnel

10. Once the FWTRD is secured, using the remote control “EXTEND/RETRACT” the booms, as the load dimensions require, positioning the booms over the load.
11. Utilize 1/2” chains from the BII at the FWTRD boom cross member D-rings and attach to the load to be lifted. Always position the load directly under the lifting point. (figure 5)
12. Using the remote control, “RETRACT” the boom to lift the load.

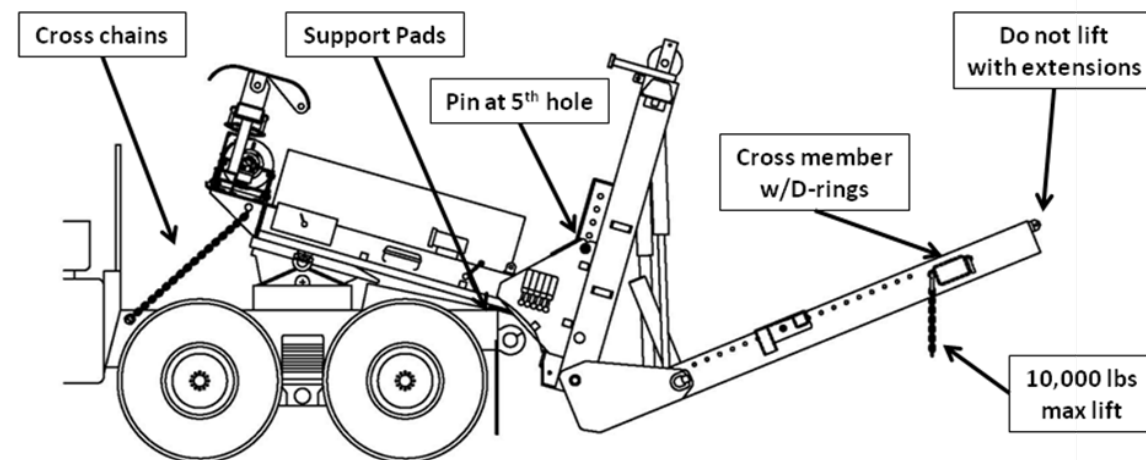


Figure 5 – Key points, Basic Lift with FWTRD

END OF WORK PACKAGE