



PREVOST

ENREGISTRÉ - REGISTERED
ISO 9001 & ISO 14001

MAINTENANCE Mi14-01F INFORMATION



DATE: JANUARY 2014

**SUBJECT: HOISTING AND TOWING PROCEDURE FOR X3-45
COMMUTER BUSES**

APPLICABLE TO:

DOB Bus Number Series 2400–2489

DOB Bus Number Series 2490–2789

DOB Bus Number Series 1300–1629

DOB Bus Number Series 1630–1879

- Revision A: - Addition of comments following front tow demonstration at Zerega CMF, Bus 2491, March 2014
- Addition of comments following rear tow demonstration at Zerega CMF, Bus 2425, December 2013
- MI14-01A merged with MI12-03. MI12-03 is canceled
- Revision B: - Introduction of ZF A-132 drive axle
- Addition of comments following rear tow demonstration, June 2014
- Revision C: - Addition of tow truck connector, April 2020
- Revision D: - Updated 2.1 to show rubber chocks, secure front and rear, updated DOB numbers. July 2020
- Revision E: - Addition of 2.1.2 Mechanical Release of The Emergency/Parking Brake procedure and other updates
- Revision F: - 03/11/2024 Addition of DOB numbers 1630-1879 for contract B40695

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1 HOISTING AND TOWING POINTS

1.1 GENERAL DESCRIPTION

This procedure applies to NYCT X3-45 Commuter buses DOB bus number series 2400-2489; 2490-2789, 1300-1629 & 1630-1879.

There are several hoisting and towing points. Use only these points when performing hoisting and towing of the bus (Figure 1).

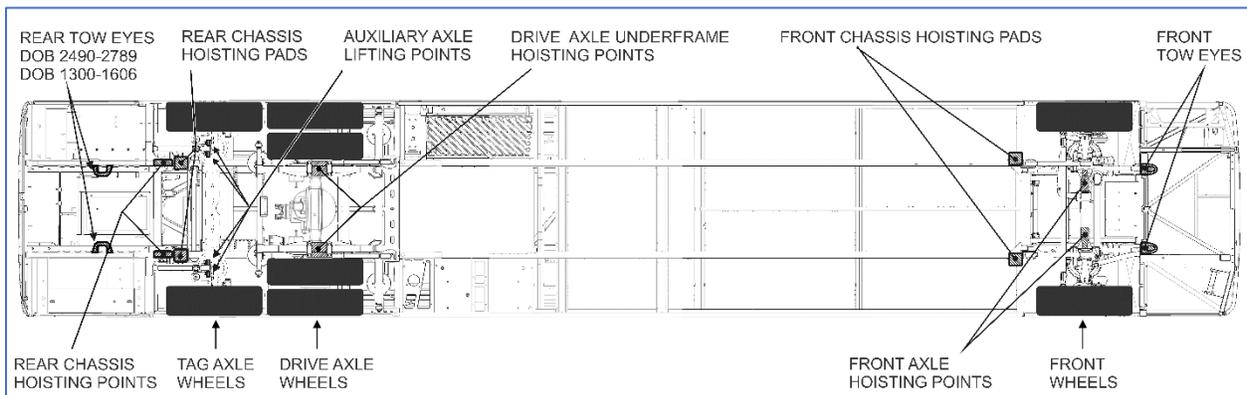


Figure 1: HOISTING AND LIFTING POINTS DIAGRAM

1.2 CHASSIS HOISTING POINTS

The vehicle is provided with six chassis hoisting points. Use chassis hoisting points in replacement of wheels as lifting points when the vehicle cannot be supported from an axle on which repair or maintenance is being done, otherwise use wheels as lifting points.

When using the chassis hoisting points to support the bus, **the tag axle must be unloaded at all time.** To prevent damages to the suspension, **always support the drive and front axles using jack stands** when using chassis hoisting points.

CHASSIS HOISTING POINTS
2 hoisting pads with receptacles located aft of the front axle (figure 4)
2 hoisting pads with receptacles located aft of the tag axle (figure 3)
2 hoisting points located aft of the tag axle (figure 2)



Figure 2: CHASSIS HOISTING POINTS - AFT OF TAG AXLE



Figure 3: CHASSIS HOISTING RECEPTACLES - AFT OF TAG AXLE



Figure 4: CHASSIS HOISTING RECEPTACLES - AFT OF FRONT AXLE



Figure 5: JACK STAND AT CHASSIS HOISTING RECEPTACLE - AFT OF FRONT AXLE, ROAD SIDE



Figure 6: JACK STAND AT CHASSIS HOISTING RECEPTACLE - AFT OF FRONT AXLE, CURB SIDE



Figure 7: JACK STAND AT CHASSIS HOISTING RECEPTACLE - AFT OF TAG AXLE, ROAD SIDE



Figure 8: JACK STAND AT CHASSIS HOISTING RECEPTACLE - AFT OF TAG AXLE, CURB SIDE



Figure 9: 10-TON CAPACITY JACK STAND



Figure 10: 16500 LBF CAPACITY



Figure 11: 20-TON CAPACITY JACK STAND



WARNING

Prior hoisting, park the bus on a level surface and apply parking brake.

The bus can be supported at the chassis hoisting pads (refer to HOISTING AND LIFTING POINTS diagram). Use a jack stand of 10 tons capacity at each of the four chassis hoisting pads.



WARNING

Hydraulic jacks are intended for lifting only. Do not get under the bus for any reason unless it is properly supported with safety jack stands.

1.3 AXLES HOISTING POINTS

AXLES HOISTING POINTS

2 front axle hoisting points (Figure 12 to figure 15)

2 drive axle underframe hoisting points (Figure 16 & Figure 17)

2 hoisting points under the tag axle (tag axle must be unloaded) (Figure 18)

To assure stability, always use the two hoisting points under a specific axle simultaneously.

Two hoisting points are located under the tag axle. Using the tag axle as rear hoisting points for the vehicle should be avoided. When possible, use the drive axle as hoisting point.

The vehicle can be lifted from the front axle and the drive axle underframe using lifting equipment of appropriate capacity.

APPROXIMATE WEIGHT PER AXLE

vehicle supported at front axle and drive axle underframe

Front axle: 12,000 lb. (5 443 kg)

Drive axle: 26,500 lb. (12 020 kg)



WARNING

The suspension must be in the normal ride position before hoisting.



WARNING

To prevent damage to suspension components, always unload the tag axle before hoisting the bus.



WARNING

The hoisting points on the tag axle must be used for raising the tag axle only.

FRONT AXLE HOISTING POINTS – DOB Bus Number Series 2400-2489

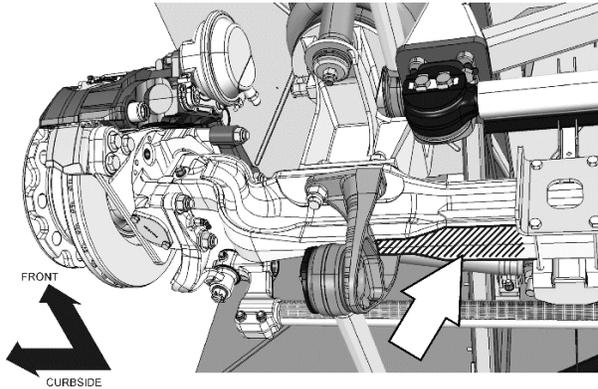


Figure 12: FRONT AXLE HOISTING POINT - CURBSIDE

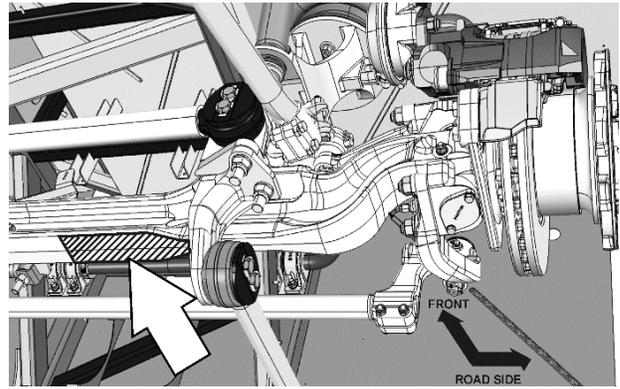


Figure 13: FRONT AXLE HOISTING POINT – ROAD SIDE

FRONT AXLE HOISTING POINTS – DOB Bus Number Series 2490-2789, 1300-1629 & 1630-1879.

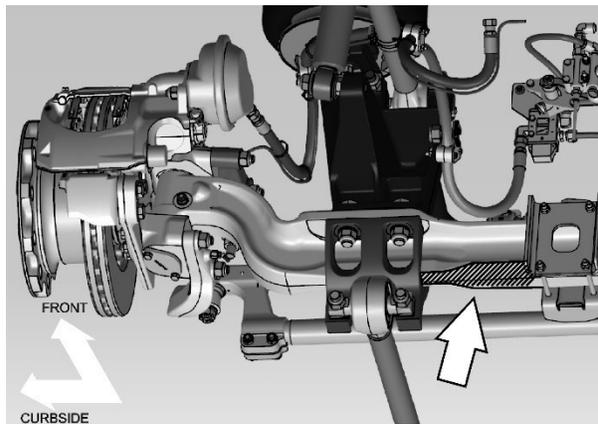


Figure 14: FRONT AXLE HOISTING POINT - CURBSIDE

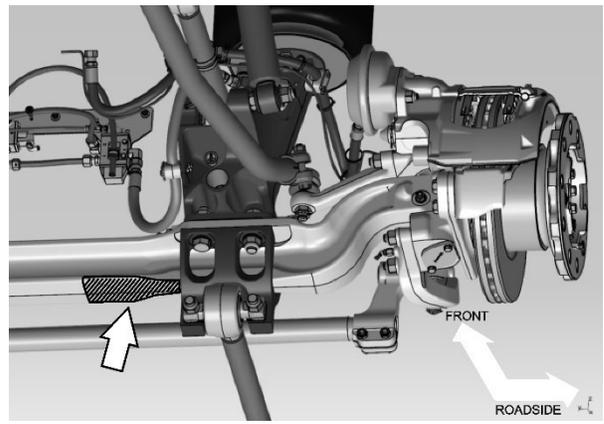


Figure 15: FRONT AXLE HOISTING POINT – ROAD SIDE

DRIVE AXLE UNDERFRAME HOISTING POINTS – DOB Bus Number Series 2400-2489

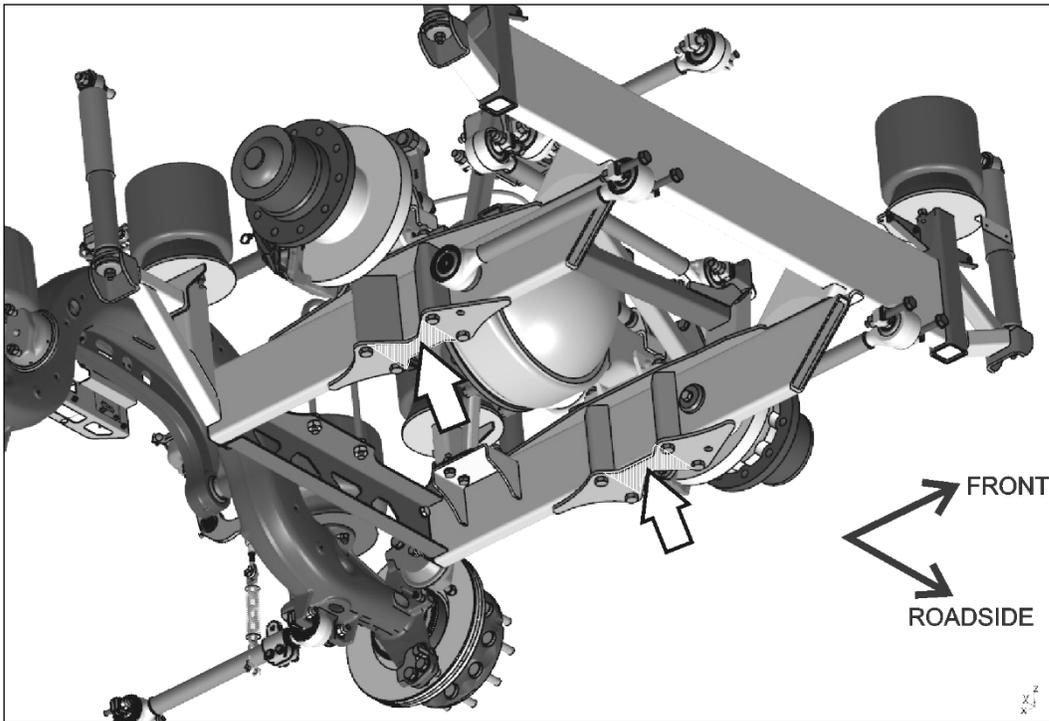


Figure 16: DRIVE AXLE UNDERFRAME HOISTING POINTS – DOB BUS NUMBER SERIES 2400-2489

DRIVE AXLE UNDERFRAME HOISTING POINTS – DOB Bus Number Series 2490-2789, 1300-1629 & 1630-1879

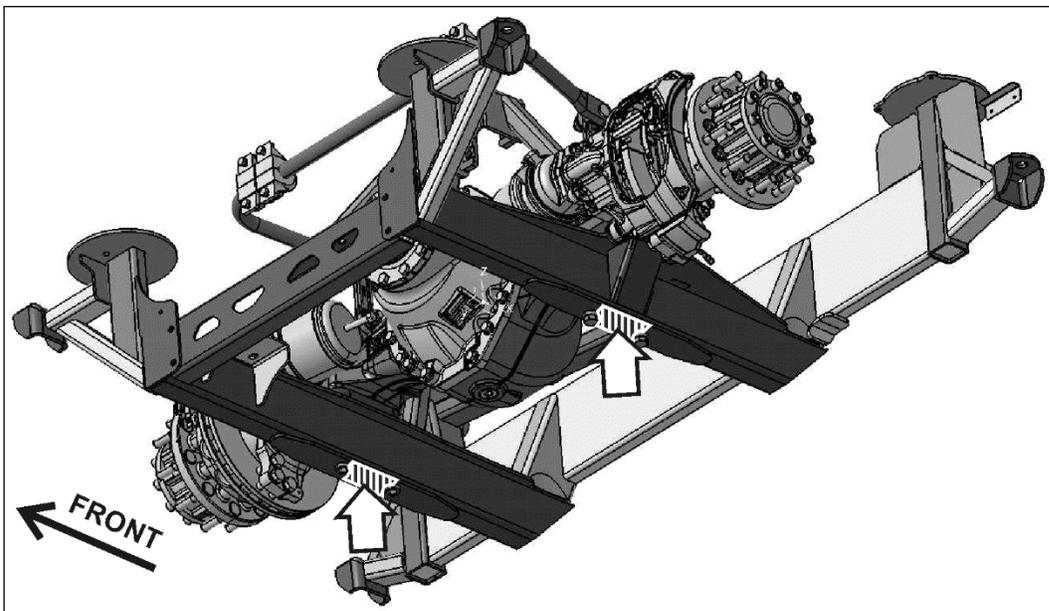


Figure 17: DRIVE AXLE UNDERFRAME HOISTING POINTS – DOB BUS NUMBER SERIES 2490-2789, 1300-1629 & 1630-1879

TAG AXLE HOISTING POINTS

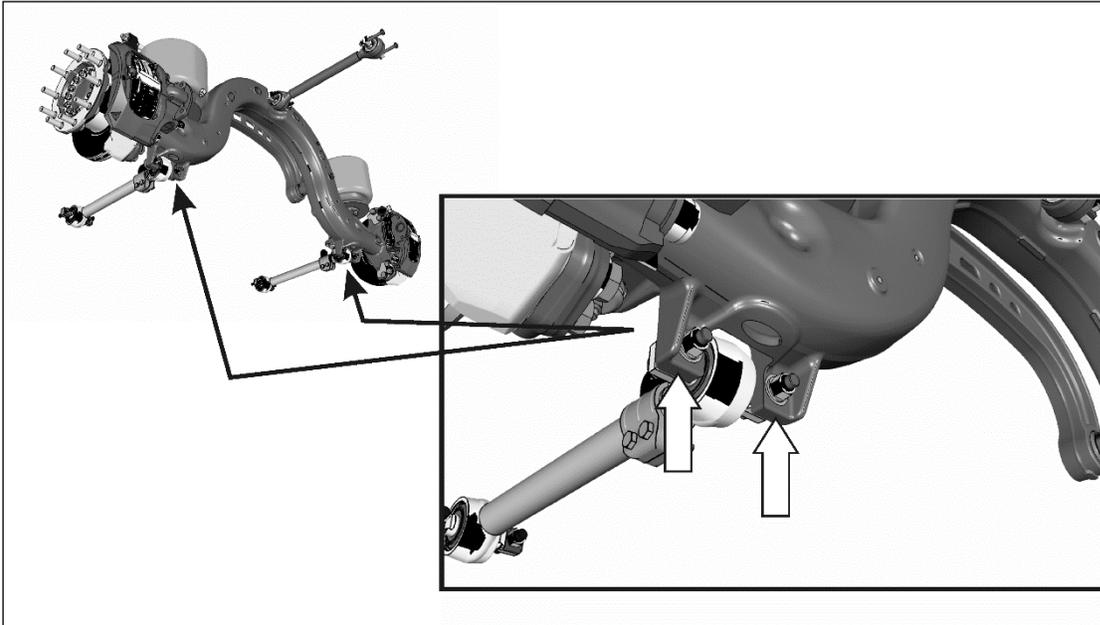


Figure 18: TAG AXLE HOISTING POINTS (use only to support the tag axle)

1.4 WHEELS AS HOISTING POINTS

Use the front and drive axle wheels to lift the bus when using **mobile column lifts**. When doing so, the tag axle must be unloaded at all time.

Using the tag axle wheels as the only lifting point for the rear of the bus should be avoided. However, if the rear of the bus must be lifted using the tag axle wheels only, the tag axle must be unloaded at all time.

2 TOWING

Towing from the front is recommended in order to move an immobilized bus. Prevost does not recommend towing from the rear using hoisting points that are not approved as the bus may sustain structural damage.

The bus should be towed by truck operators authorized and experienced in towing highway buses.

Observe normal precautions including, but not limited to, the ones listed below when towing the bus:

- Make sure the parking brake or the emergency brake is released at time of towing.
- Do not allow passengers to ride onboard the towed bus.
- Tow the bus at a safe speed as dictated by road and weather conditions.
- Accelerate and decelerate slowly and cautiously.
- Avoid sharp turns where possible.



WARNING

Do not carry passengers while the bus is being towed.



CAUTION

Avoid towing the bus from the rear using hoisting points that are not approved as this will cause structural damage. In case of damage to the drive train components, use a low bed semi-trailer.



WARNING

Engage the parking brake to prevent the bus from moving before you begin maintenance or service procedures that require you to be under the bus. Serious personal injury can result.



CAUTION

Lift the bus at the minimal height required for the bus to trail the tow truck.

2.1 BEFORE TOWING PREPARATION

1. Set the transmission to neutral and apply parking brake.
2. Chock the *front and rear* wheels to prevent the bus from moving at time of releasing the parking brake during the towing preparation.
3. On the L.H. dashboard panel, turn on the hazard warning flashers. Preferably, use a towing light bar.



Figure 19: CHOCK THE FRONT AND REAR WHEELS

4. Place the front wheels in a straight-ahead position and keep the steering wheel from turning. To do so, slide the driver's seat close to the steering wheel. Wrap the safety belt around and through the steering wheel and then fasten safety belt.

This will assure the bus to roll in straight direction and eventually to be stopped by the tow truck in the eventuality of a mechanical failure of the tow truck lifting equipment.



Figure 20

2.1.1 Electrical Power and Air Supply

Operate the engine when towing to maintain brake system air pressure. If the engine cannot be operated, connect external air pressure lines from the tow truck.



CAUTION

Do not tow the bus without external air pressure applied to the emergency fill valve if the engine does not operate. Without brake system air pressure, the emergency spring brakes may apply automatically if system air drops below 40 psi (275 kPa). If failure prevents releasing the parking brakes with air pressure, disengage the parking brakes mechanically.

“Brake” quick connect fitting

Flip down the access door located on the front bumper, connect an auxiliary air supply from the tow truck in order to supply air for operation of the bus **service brake** from the tow truck (Figure 21 & Figure 22).

“Air supply” quick connect fitting

While the vehicle is being towed, connect an auxiliary air supply from the tow truck to the quick connect fitting identified AIR SUPPLY to supply air for all systems (brakes, suspension, accessories) through the air dryer (Figure 21 & Figure 22).

Tow truck connector

The tow truck connector provides electrical supply from the tow truck to the rear clearance lights, the rear flasher lights, the tail lights and the stop lights.

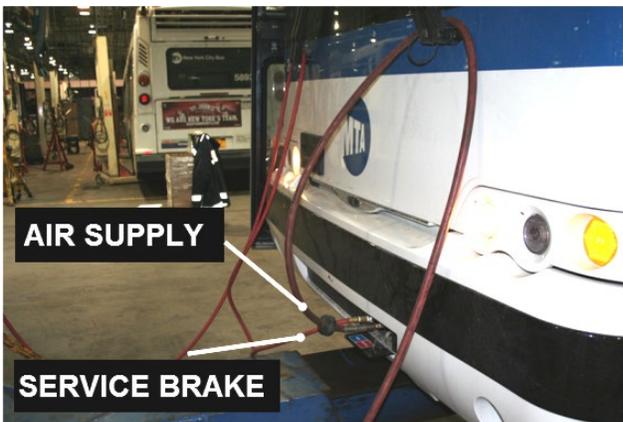


Figure 21

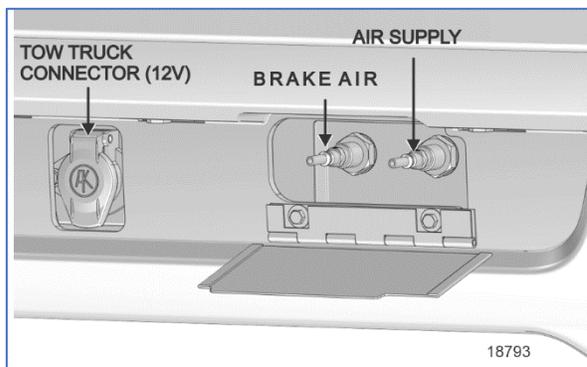


Figure 22: FRONT TOWING AIR SUPPLY ACCESS PANEL QUICK CONNECT FITTINGS

Engine compartment emergency air-fill valve

An additional emergency fill valves is available to supplement the air system when air pressure is low and the engine cannot be operated. This valve is located in the engine compartment (Figure 23) and supplies air for all systems (brakes, suspension and accessories).



Figure 23: ENGINE COMPARTMENT EMERGENCY AIR-FILL VALVE

2.1.2 Mechanical release of the emergency/parking brake

The emergency/parking brake can be released mechanically if for some reasons it cannot be released pneumatically.

1. Turn the release bolt (26) with the help of an open-ended spanner 24 mm A/F in an anti-clockwise direction (torque max. 45 Nm) until the brake is released.

Do not use an impact wrench

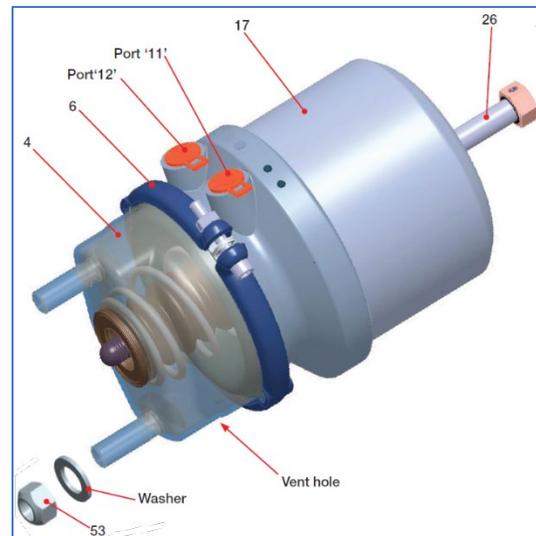


Figure 24: TURN THE RELEASE BOLT (26)

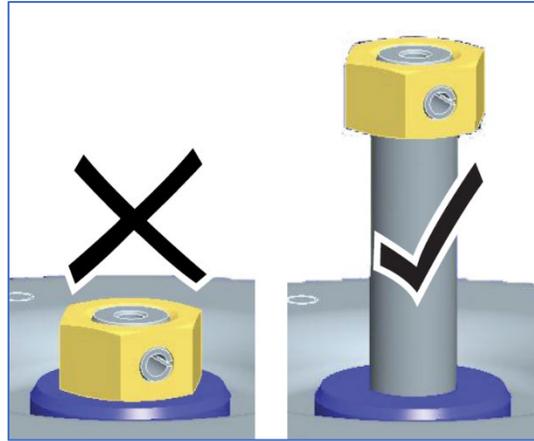


Figure 25: TURN THE RELEASE BOLT (26) IN AN ANTI-CLOCKWISE DIRECTION UNTIL THE BRAKE IS RELEASED

CAUTION!

When the towing has been carried out, screw the release bolt (26) fully into the actuator, ensuring that the seal in the inner face of the release bolt head seals against its adjacent sealing face and tighten to a torque of min. 20 Nm (never exceed 70 Nm).

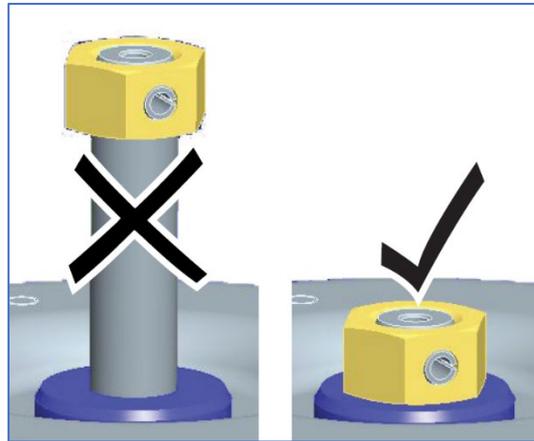


Figure 26: WHEN THE TOWING HAS BEEN CARRIED OUT TURN THE RELEASE BOLT (26) IN A CLOCKWISE DIRECTION UNTIL THE BRAKE IS BACK INTO NORMAL OPERATION

2.1.3 Drive Axle Flange Shafts Removal

1. Apply the bus parking brake.
2. Remove the stud nuts and the washers (with Meritor drive axle) or cap screws (with ZF drive axle) from the flange shaft.

DOB Bus Number Series 2490-2789

cap screw M18x1.5x50mm G10.9 (use 14mm hex socket driver "Allen")

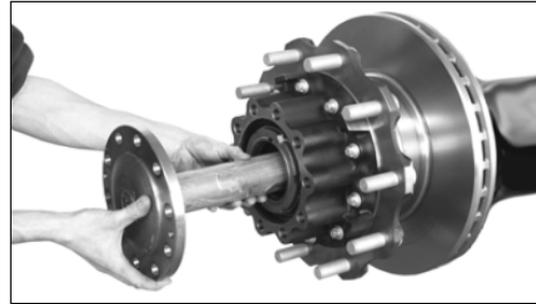


Figure 27: ZF A-132 AXLE

DOB Bus Number Series 1300-1629 & 1630-1879

cap screw external Torx M18x1.5x50mm G10.9 (use E24 External Torx driver)

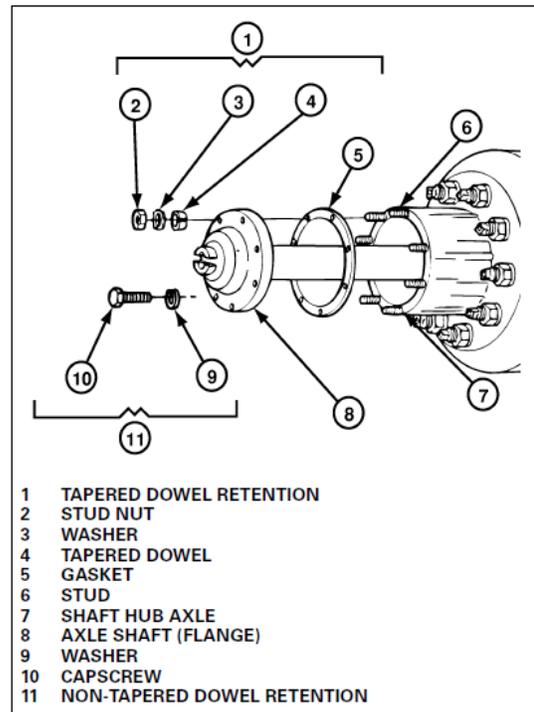


Figure 28: MERITOR RC23-165 AXLE

NOTE: there is oil behind the flange shaft which comes out during disassembly



CAUTION

Do not use a chisel or wedge to loosen the axle flange shaft and tapered dowels. Using a chisel or edge can result in damage to the axle shaft, the gasket and seal, and/or the axle hub.

3. **Meritor axle:** Loosen the tapered dowels in the flange of the axle shaft using the following methods.
 - a) Do not strike the round driving lugs on the flange of an axle shaft. Pieces can break off and cause serious personal injury. A 1.5 inch (38.1 mm) diameter brass hammer can be used as a drift.
 - b) Hold a 1.5 inch (38.1 mm) diameter brass drift against the center of the axle shaft flange, **inside the round driving lugs.**
 - c) Hit the end of the drift with a large hammer (5 to 6 lbs.) to loosen the axle shaft and tapered dowels from the hub.

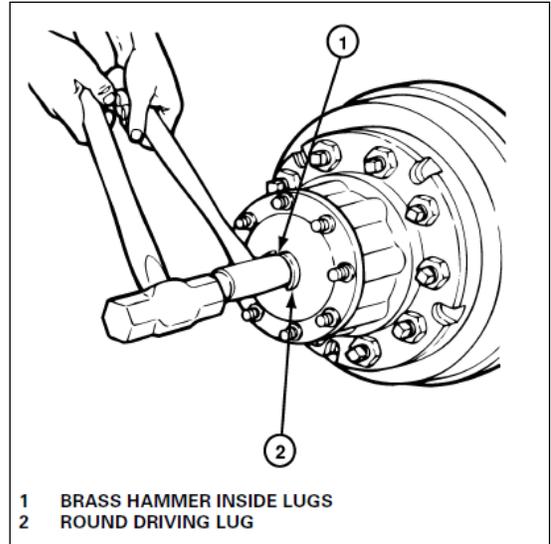


Figure 29: MERITOR RC23-165 AXLE

4. Identify each axle shaft that is removed from the axle assembly so they can be installed in the same location after transporting or repair is completed. (Example: Match mark a mating axle shaft and hub).
5. Remove the tapered dowels (if used), gasket or O-ring and the axle shaft from the axle assembly. Use a container to recover the oil.
6. Remove opposite flange shaft similarly.
7. Install a temporary cover over the open end of each hub where an axle shaft was removed. This will prevent dirt from entering the bearing cavity and loss of lubricant.

After Towing

1. Remove the covers from the hubs.
2. Install the gasket or O-ring, and axle shaft into the axle housing and carrier in the same location it was removed from. The gasket and flange of the axle shaft must be flat against the hub. Rotate the axle shaft and/or the driveline as necessary to align the splines and the holes in the flange with the studs or holes in the hub.
3. **Meritor axle only:** Install the dowels over each stud and into the tapered holes of the flange.
4. Install the washers and stud nuts or cap screws.

MERITOR RC23-165 AXLE	ZF A-132 AXLE
Determine the size of the fasteners and tighten the nuts to the corresponding torque value shown below. <ul style="list-style-type: none"> • 9/16-18 plain nut: 110–165 lbf-ft (149–224 Nm) • 5/8-18 plain nut: 150–230 lbf-ft (203–312 Nm) 	Tightening torque M18x1.5 G10.9 screw 325 lbf-ft (440 Nm)

5. Mount opposite flange shaft similarly.
6. Inspect the lubricant level in the axles and hubs where the axle shafts were removed. Add the correct type and amount of lubricant if necessary.



CAUTION

Make sure axle shafts or driveshaft are installed correctly after towing. Tighten axle shaft and driveshaft nuts to the correct torque settings. Do not invert shafts.

2.2 TOWING FROM THE FRONT

The towed bus must be lifted from the front with front wheels off the ground. The tow truck must be equipped with the proper lifting equipment i.e. tow bar, axle forks and holders to reach under the **front axle** or the **front tow eye pads** since no other lifting points are recommended for towing. Lifting and towing from any other point are not authorized as it may cause structural damage. **To prevent overloading the drive axle, do not unload or raise the tag axle when towing the bus.**

To prevent damage to the bus, use the **front tow eye pads** fixed to the bus chassis between the front axle and the front bumper. Use only a solid link tow bar and safety chains to tow the bus.

1. Block the wheels to prevent the bus from moving.
2. Perform the BEFORE TOWING PREPARATION. Refer to paragraphs 2.1 and 2.1.1.
3. Disconnect both drive axle shafts to prevent damage to the transmission. Plug axle tube to prevent oil loss. Refer to **2.1.2 DRIVE AXLE SHAFTS REMOVAL**.



CAUTION

Transmission lubrication is inadequate when towing. The axle shafts must be disconnected to avoid serious damage to the transmission.

To prevent damage to the drive train components, disconnect drive axle shafts before towing. Do not attempt to push or pull-start a bus equipped with an automatic transmission.

Failure to disconnect the propeller shaft, remove the drive axle shafts or lift the drive wheels off the ground before towing can cause serious transmission damage and void the warranty.

2.2.1 First Lift

To allow lifting equipment fitted with axle forks to reach under the front axle or tow eyes, it is necessary to perform a first lift of the front of the bus using the tow eye pads as lifting points. This first lift will allow tow cans or blocks to be placed underneath front tires.

1. Retract the tow truck stinger arm.
2. On the first lift, position the tow bar fork holders under the front tow eye pads (Figure 30 to Figure 32) to lift the bus in order to place the front wheels firmly on the tow cans or blocks.

**Center to center measurement
between
tow eyes= 37 inches** (Figure 30)

**Note: No axle forks are needed for this
first lift**

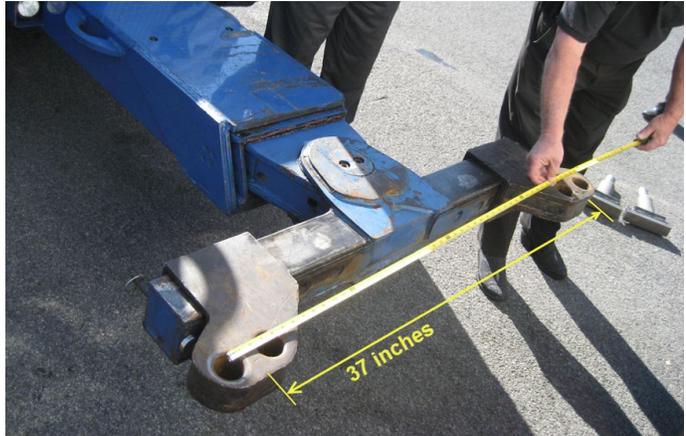


Figure 30

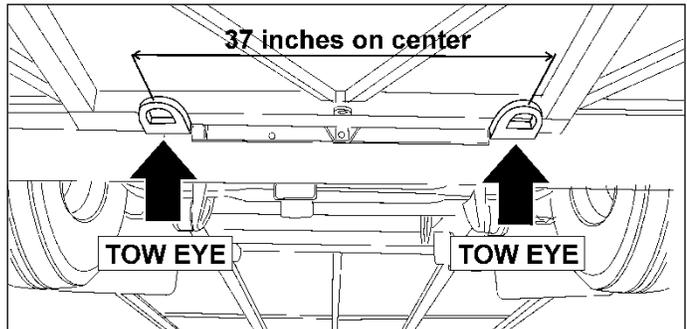


Figure 31



Figure 32: TOW EYE

3. Deploy the tow truck stinger arm, placing the axle fork holders under the tow eye pads (Figure 33).

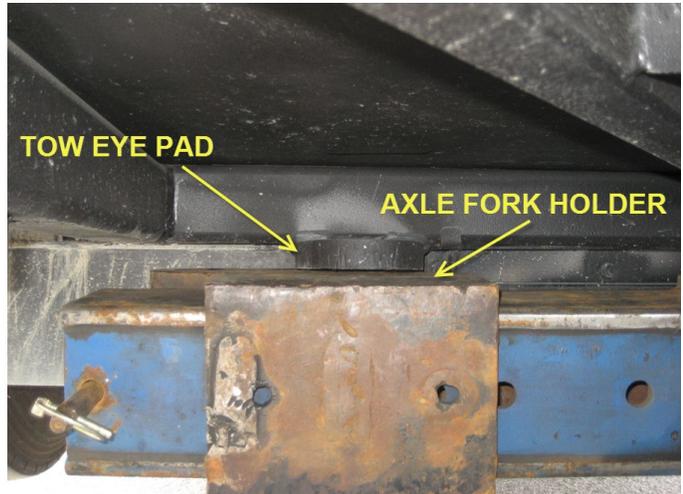


Figure 33

4. Lift the front end of the bus high enough to allow installation of tow cans or blocks. Place the tow cans or blocks perfectly centered underneath each front wheel (Figure 34).
5. With precaution, lower the front of the bus



Figure 34

2.2.2 Second Lift - Front Tow Eye Pads as Lifting Point for Towing

The tow eye pads fixed to the vehicle chassis, fore of the front axle will be used as front end lifting point for towing.

1. Perform the first lift as instructed in paragraph 2.2.1 if not already done.
2. Place the axle forks on the tow bar fork holders (Figure 35). **Use the inner fork receptacles.**

Use 3" to 4 ½" mouth axle forks preferably



Pre-adjust spacing between axle forks to = 37 inches

3. Lower the tow bar and position under the front tow eye pads.
4. Adjust fork holders position and hand guide the forks into each front tow eye (Figure 35).
5. Lift the tow bar until the axle forks fit snugly into the front tow eyes (Figure 36).

Axle forks properly engaged in tow eyes (Figure 37 & Figure 38)

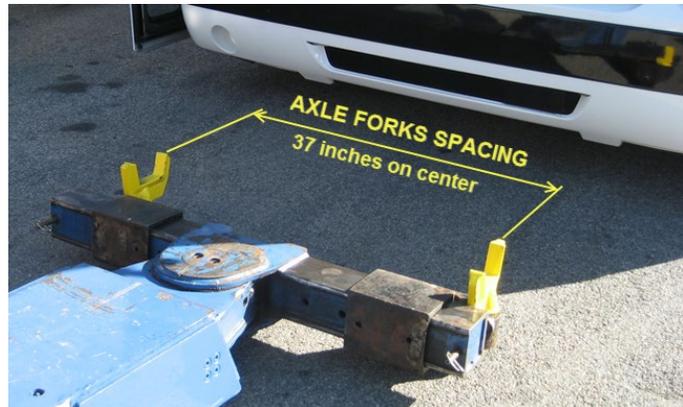


Figure 35



Figure 36



Figure 37

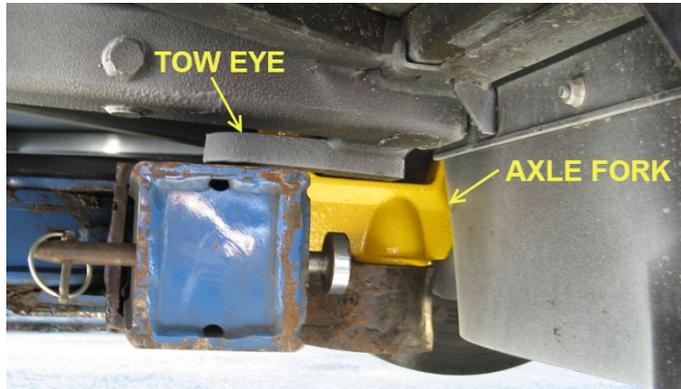


Figure 38

6. Raise the front of the bus.
7. Install a jack stand under the stinger arm for support and safety purposes and then lower the stinger arm so it rests on the jack stand (Figure 39). The tow cans or blocks can be removed from under the front axle wheels.



Figure 39

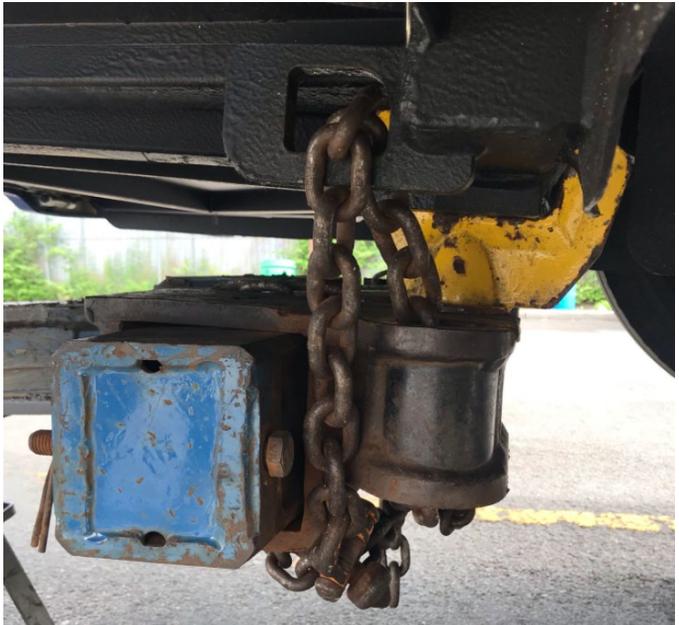
8. Tie the two choke chains together to secure the tow eyes to the tow bar attachment **through the outer fork receptacles** (Figure 40).



Figure 40: DOB BUS NUMBER SERIES 2400–2489 & 2490–2789
CHOKE CHAINS ROUTING



**Figure 41: DOB BUS NUMBER SERIES 1300-1629 & 1630-1879
CHOKE CHAINS ROUTING**



**Figure 42: DOB BUS NUMBER SERIES 1300-1629 & 1630-1879
CHOKE CHAINS ROUTING**

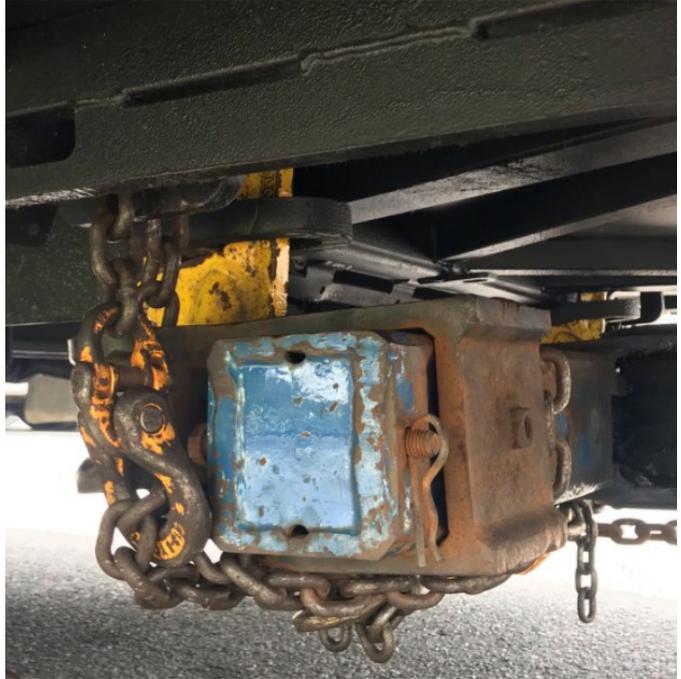


Figure 43: : DOB BUS NUMBER SERIES 1300-1629 & 1630-1879
CHOKE CHAINS ROUTING



Figure 44

9. Attach the two tow truck safety chains from each of the two front lower radius rods (Figure 45) of the bus to the truck's tow eyes (Figure 46).



Figure 45

10. Connect the two truck air lines to the service and brake supply air quick connect fittings adjacent and right above the front bumper (for more details, refer to paragraph 2.1.1 Air Supply in this document).



Figure 46

11. Raise the stinger arm and remove the support jack stand.
12. Lower the bus. The front tires should be 7" to 8" above the ground before the tow can proceed.
13. Use bungee cords to support the safety chains (Figure 47).



Figure 47

14. If required, use the appropriate jig to assure that the highest point on the bus **does not exceed** the maximum allowable height for towing (Figure 48).
15. Make sure the **parking brake** is released before moving the vehicle.
16. Observe safety precautions when towing.



Figure 48

Avoid sharp turns where possible as safety chains may rub and damage the front bumper (Figure 49)



Figure 49

2.2.3 Second Lift - Front Axle as Lifting Point for Towing

This method uses the front axle as lifting point for towing (see Figure 12 to Figure 15).

1. Perform the first lift as instructed in paragraph 2.2.1 if not already done.
2. Install regular axle forks onto tow bar fork holders.

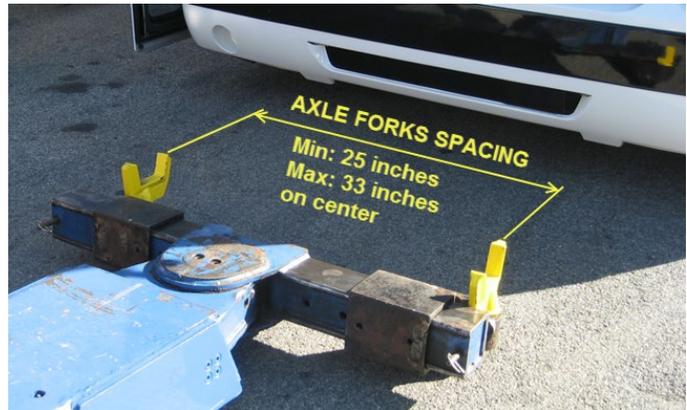


Figure 50

Pre-adjust spacing between axle forks

Minimum spacing: 25 inches
Maximum spacing: 33 inches

3. Lower the stinger arm to position the axle forks under the front axle hoisting points (Figure 12 to Figure 15).
4. Lift the tow bar until the axle forks grab the front axle I-beam at the hoisting points (Figure 51 & Figure 52).
5. Raise the front of the bus.

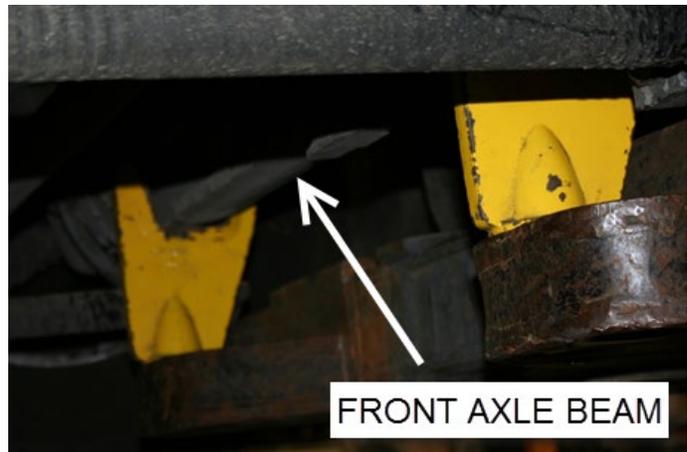


Figure 51

6. Install a jack stand under the stinger arm for support and safety purposes and then lower the stinger arm so it rests on the jack stand (Figure 53). The tow cans or blocks can be removed from under the front axle wheels.
7. Tie the two choke chains together to secure the front axle to the tow bar. Take up any slack that may remain and maintain proper tension on chains.

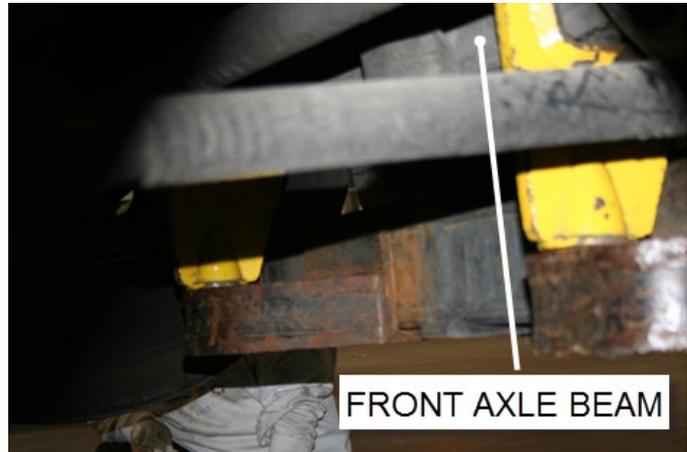


Figure 52



Figure 53

8. Attach the two tow truck safety chains from each of the two front tow eyes of the bus to the truck's tow eyes (Figure 54 & Figure 55).
9. Connect the two truck air lines to the service and brake air supply quick connect fittings adjacent and right above the front bumper (for more details, refer to paragraph 2.1.1 Air Supply in this document).
10. Raise the tow bar in order to remove the jack stand from under the stinger arm.
11. Lower the bus. The front tire should be about 7" to 8" above the ground before the tow can proceed.

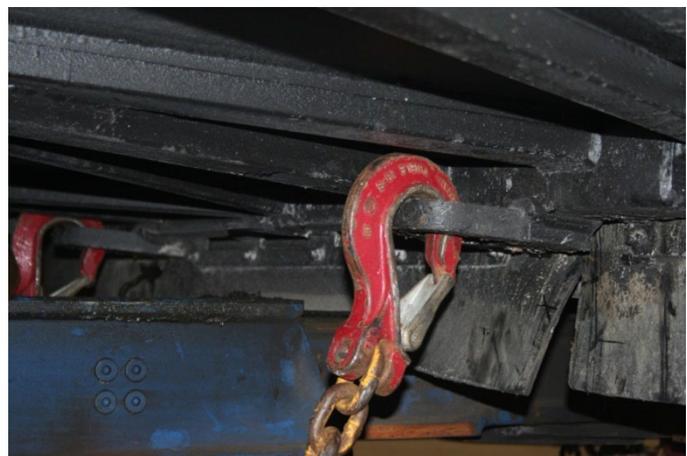


Figure 54



Figure 55

12. Use bungee cords to support the safety chains (Figure 56).

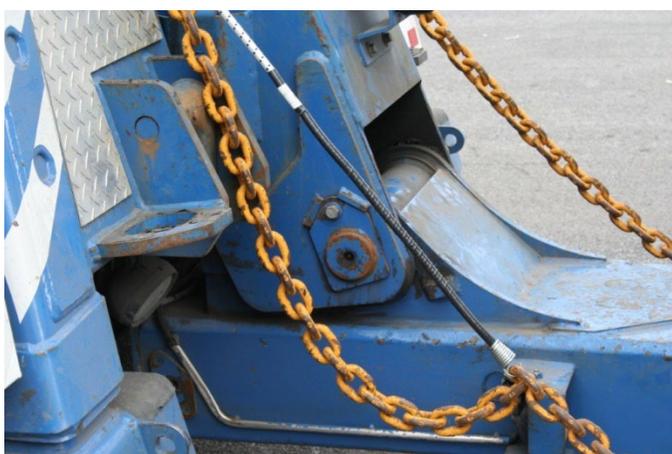


Figure 56

13. Make sure that the **parking brake** is released before moving the vehicle.
14. Observe safety precautions when towing.



Figure 57

Avoid sharp turns where possible as safety chains may rub and damage the front bumper (Figure 58)



Figure 58



CAUTION

Make sure a safe distance is kept between the front of the bus and the tow truck. This space ensures that bus does not suffer damages when being towed.



CAUTION

Make sure axle shafts or driveshaft are installed correctly after towing. Tighten axle shaft and driveshaft nuts to the correct torque settings. Do not invert shafts.



DANGER

Do not carry passengers while the bus is being towed.

2.3 TOWING WITH ALL WHEELS ON THE GROUND USING REAR TOW EYES – FITTED ON DOB BUS NUMBER SERIES 2490–2789, 1300-1629 & 1630-1879 ONLY

To recover a bus which is no longer on a drivable surface, chains can be looped around or hooked to the rear tow eyes.

This method should be used when the bus has to be moved with its wheels on the ground over a short distance only. After the bus has been brought back on a drivable surface, it should be lifted and towed from the front, with front wheels off the ground.

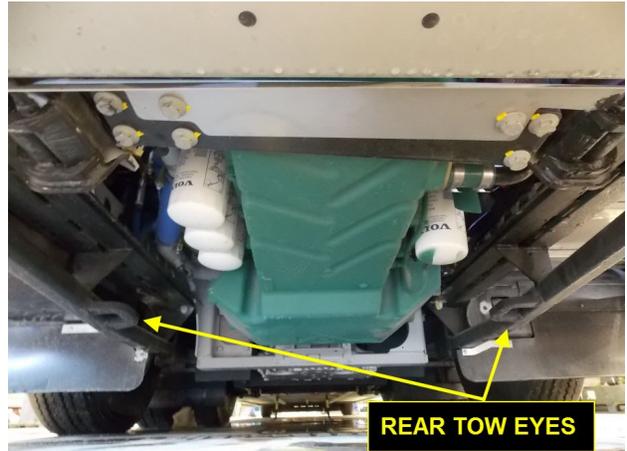


Figure 59: REAR TOW EYES ON SIDE-MEMBERS LOCATED UNDER ENGINE CRADLE SUPPORT RAILS

3 REAR TOW USING NOT APPROVED LIFTING POINTS - FOR EMERGENCY SITUATIONS ONLY

FOR EMERGENCY SITUATION ONLY



CAUTION

The bus should **NOT** be lifted and towed from the rear unless an emergency situation occurs or when the bus has already been damaged and must be moved over a very short distance such as in a parking lot.

Lifting the rear end from the engine cradle or from the side-members located under the engine cradle support rails should be avoided. Doing so may cause structural damage (see image further in this document).

3.1 PRECAUTIONS

In an emergency or if the vehicle has to be moved over a short distance, the side-members may be used as lifting point. Try to lift from the strongest location along the side-members which is near the rear subframe vertical member (Figure 60).

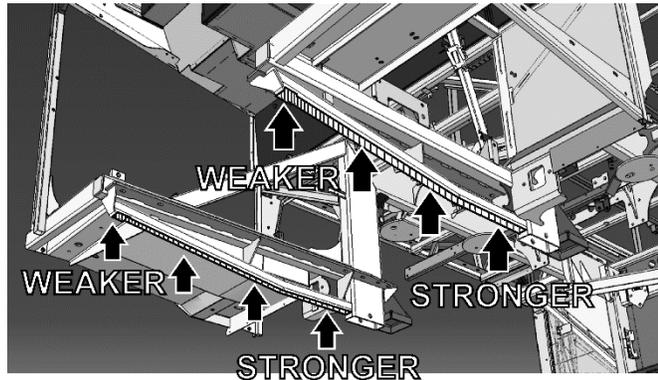


Figure 60: LIFTING POINTS NOT APPROVED FOR REAR-END TOWING – SIDE-MEMBERS LOCATED UNDER THE ENGINE CRADLE SUPPORT RAILS

Lift with precautions as the vehicle may sustain structural damage at the vertical structure shown on the image at right (Figure 61).

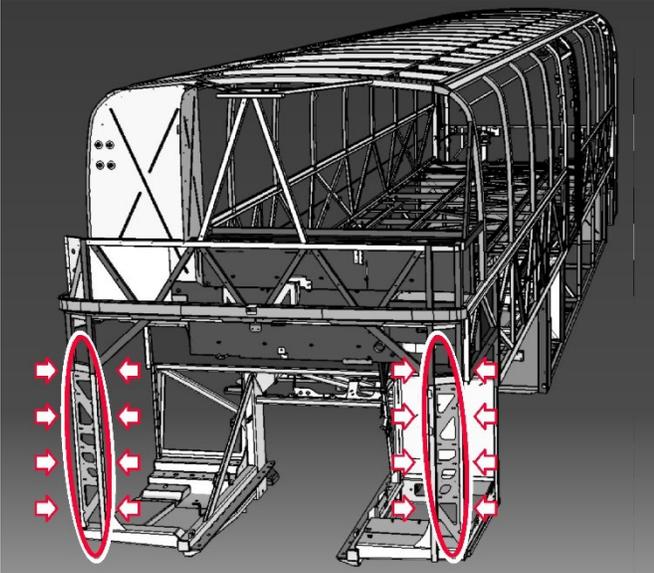


Figure 61: THE VEHICLE MAY SUSTAIN STRUCTURAL DAMAGE WHERE INDICATED WITH ARROWS DURING TOWING FROM THE REAR

 **DANGER**
Do not carry passengers while the bus is being towed.

3.2 FIRST LIFT

A first lift of the bus is necessary. This first lift will allow tow cans or blocks to be placed underneath the drive axle tires.

1. Prepare the bus for towing as instructed in paragraphs 2.1 and 2.1.1
2. If not already done, chock the front wheels.
3. Retract the tow truck stinger arm (Figure 62).
4. Pre-adjust spacing between the axle fork holders. The spacing between the most distant edges of the fork holders should be **30 inches** (Figure 62).

No axle forks will be used for this first lift

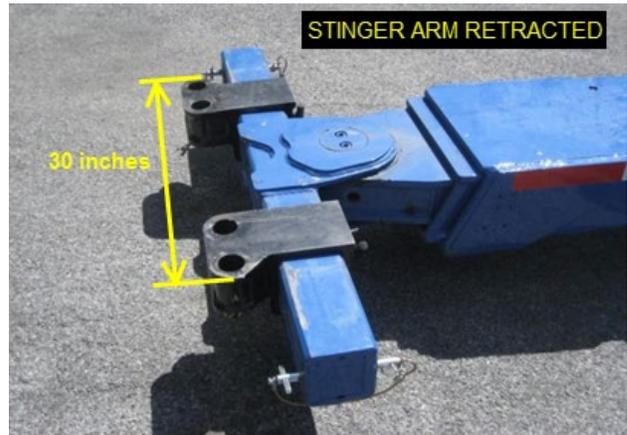


Figure 62

5. Deploy the tow truck stinger arm. Place the fork holders under the engine cradle transverse beam as shown on Figure 63. Lift the tow bar until the fork holders meet the cradle transverse beam.

Lifting from the engine cradle is the least preferred option and should be done only if lifting from under the side-members shown on figure 53 cannot be achieved



CAUTION

Remember, lifting the rear end from the side-members located under the engine cradle or by the engine cradle itself may cause structural damage.



CAUTION

Use caution when lifting from the engine cradle transverse beam. Maintain the bus in that situation during the shortest period of time.



Figure 63

6. Unload or raise the tag axle to prevent it from hanging unsupported. To do so, open the front service compartment located on street side and move the tag axle air valve lever forward as shown on Figure 64.

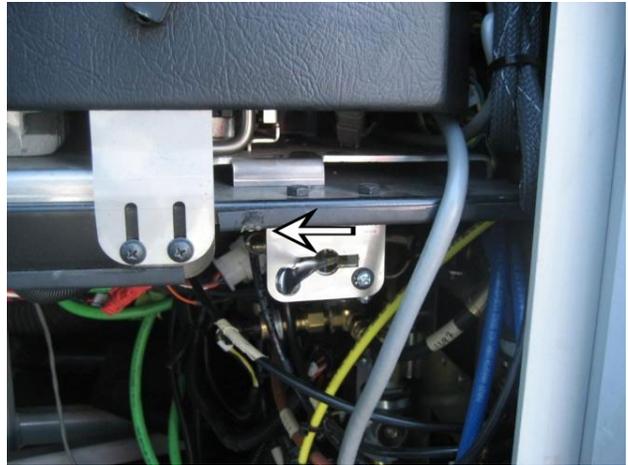


Figure 64

7. Lift the rear end of the bus high enough to allow installation of tow cans or blocks underneath the drive axle wheels (Figure 65).
8. With precaution, lower the rear of bus.



Figure 65

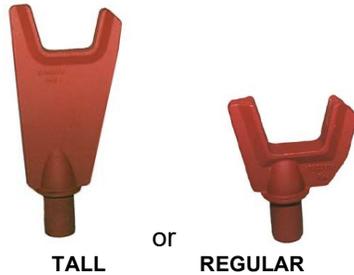
3.2.1 SECOND LIFT

1. Perform the first lift as instructed in paragraph 3.2 if not already done.
2. Retract the tow truck stinger arm.
3. Pre-adjust spacing between the axle fork holders to **43 inches**.



Figure 66

4. Install either long or short axle forks into fork holders.



5. Deploy the tow truck stinger arm. Place the axle forks under the rear tow eyes if equipped or under the side-members (Figure 67 & Figure 68).

Place the forks in a transversal position i.e. perpendicularly to the side-members (Figure 68).

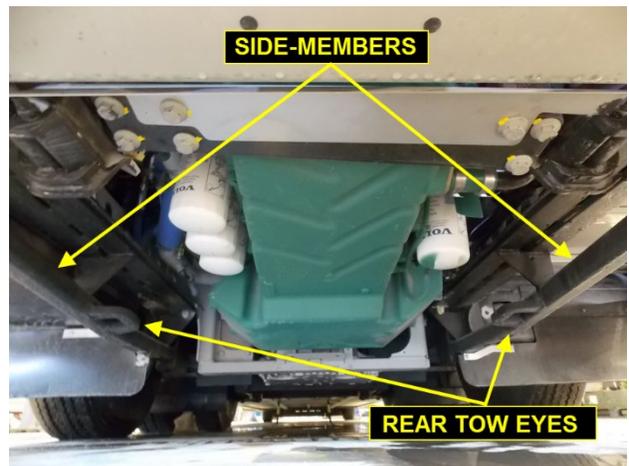


Figure 67: REAR TOW EYES ON SIDE-MEMBERS LOCATED UNDER ENGINE CRADLE SUPPORT RAILS

6. **DOB 2400-2489:** Lift the tow bar until the axle forks grab the side-members (Figure 68).

DOB 2490-2789, 1300-1629 & 1630-1879: Lift the tow bar until the axle forks fit snugly into the side-members tow eyes.

Avoid lifting at the side-members further toward the rear of the bus (close to the bumper)

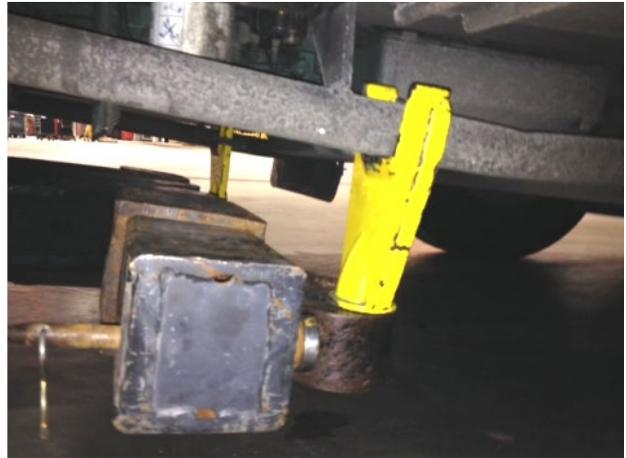


Figure 68: PROPER LOCATION WHEN LIFTING THE SIDE-MEMBERS

7. Place the fork's shorter finger outboard for better clearance (see Figure 69).



Figure 69: PROPER LOCATION WHEN LIFTING THE SIDE-MEMBERS – ON THIS PICTURE, THE BUS IS EQUIPPED WITH REAR TOW EYES

8. Raise the rear of the bus.
9. Install a jack stand under the stinger arm for support and safety purposes and then lower the stinger arm so it rests on the jack stand (Figure 70). The tow cans or blocks can be removed from under the drive axle wheels.



Figure 70

10. Install the choke chains. Tie the two choke chains together to secure the side members to the tow bar (Figure 71 & Figure 72). Take up any slack that may remain and maintain proper tension on chains.



Figure 71

11. Shorten the stinger arm to the minimum safest distance between the bus and the tow truck to allow the towed bus to be as close as possible to the truck yet allowing enough room for the bus to avoid collision with the tow truck during turns.

Stinger to the rear bumper: Between 59" and 63"



Figure 72

12. Attach the two tow truck safety chains from the bus engine cradle cross-member to the truck's tow eyes (Figure 73).
13. Raise the stinger arm and remove the support jack stand.
14. Lower the bus. The drive axle tires should be 5" to 6" above the ground before the short distance tow can proceed.



Figure 73