

TRAVELING CONDITIONS
M-1200

This folio contains procedures for M-1200 travel preparation, travel, and setup after travel. For traveling, the M-1200's weight is reduced by removing the load block, some boom inserts, most counterweights, the ring side segments, and the screw jacks. The travel assist rigging holds the mast and boom securely while traveling. Figure 1 shows the travel assist rigging disengaged.

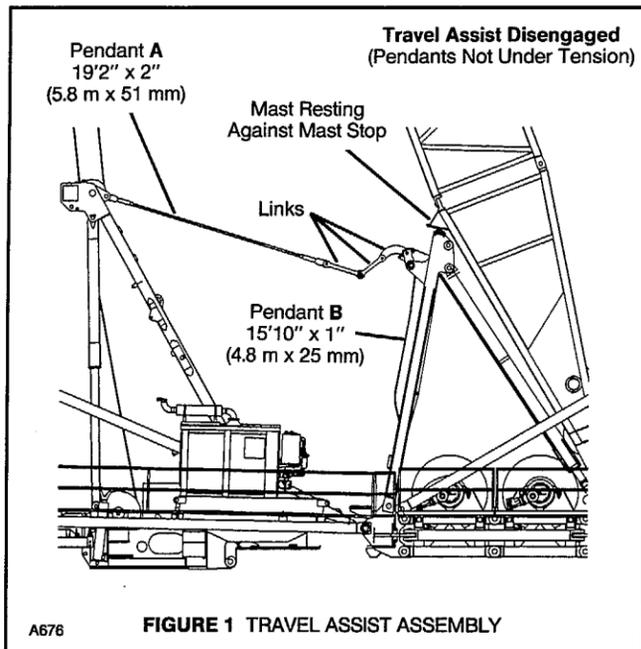


FIGURE 1 TRAVEL ASSIST ASSEMBLY

Operators must be very cautious to allow for the dynamic effects of travel. Before beginning travel preparations, evaluate the travel route. It must be level and provide a firm uniform supporting surface. Prepare the travel surface with mating or steel plates, if required. Columns 6-9 of Table 1 provide data for calculating ground bearing pressure.

An assist crane is needed to remove the counterweight boxes and the ring side segments before traveling. The side segments can be removed with the screw jacks, jack pads,

gear segments, and wear plates in place if the assist crane has adequate capacity. Check the Weights folio in the Operator/Part's Manual to determine weight.

⚠ DANGER EQUIPMENT DAMAGE!

Comply with all travel specifications listed in Table 1. Deviating from specifications can damage crawler drive, boom, gantry, and other components.

Death and serious injury can result.

TRAVEL PREPARATION

1. Swing to center front roller carrier on front ring segment.
2. Lower boom onto blocking on ground. Remove load block. Store wire rope on load hoist drums.
3. Remove boom inserts to required boom length (Column 1, Table 1).
 - a) If equipped with a #75A boom, remove or stow lower boom point hanger (see Column 2, Table 1). See Load Block Reeving folio for storage procedure.
 - b) If equipped with a #72 or #72A boom, remove all inserts except boom butt and one or two 50 ft (15.2 m) inserts (see Table 1). If boom is 100 ft (30.5 m), relocate boom hoist equalizer and platform (Figure 3). Pin equalizer into place.

⚠ CAUTION EQUIPMENT DAMAGE!

Removing all counterweights from one side of counterweight carrier places excessive load on carrier components. Equipment damage may result.

4. Remove counterweights one at a time, alternating from each side and middle. Leave required number of counterweights for raising boom from ground (Column 5, Table 1).
5. For #75A mast only, disconnect mast raising links from counterweight carrier (View D, Figure 3).
6. Raise boom to travel angle (Column 3, Table 1).

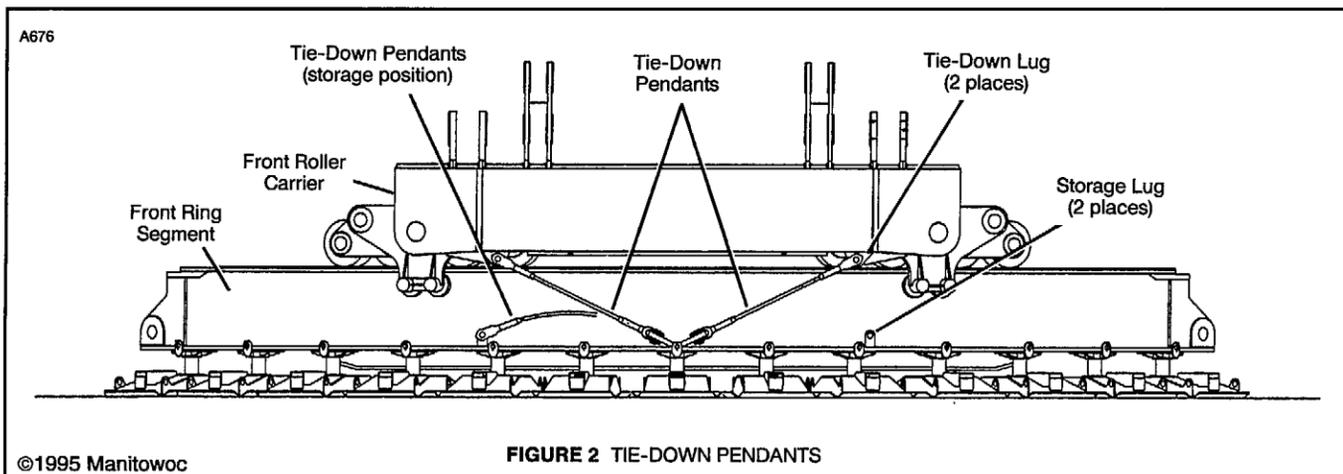
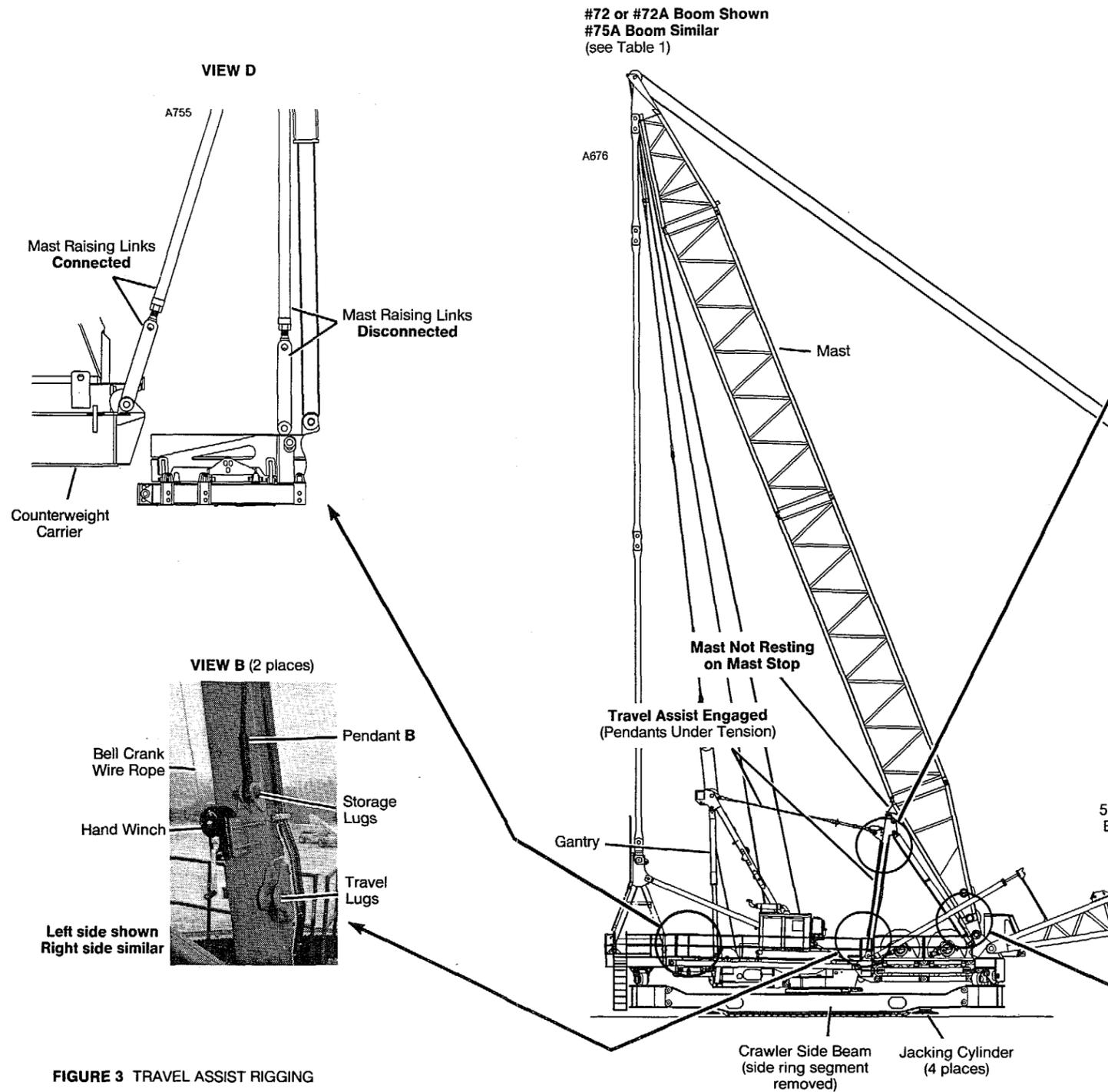


FIGURE 2 TIE-DOWN PENDANTS



①	②	③	④	⑤	⑥	⑦	⑧	⑨
Boom Length ft (m)	Boom Point	Travel Boom Angle (degrees)	Travel Cwt. (boxes)	Cwt. to Raise or Lower Boom (boxes)	Overall Weight Thousands lb (kg)	Center of Gravity in (cm)	Pressure Hard Surface psi (mT/m)	Pressure Soft Surface psi (mT/m)
BOOM NO. 75A								
150 (45.7)	Stowed	55	2	3	1137 (516)	79 (200)	330 (232)	95 (66.8)
	Removed	35	2	2	1118 (507)	77 (195)	310 (218)	90 (63.3)
175 (53.3)	Stowed	63	2	5	1150 (522)	78 (198)	325 (228)	95 (66.8)
	Removed	50	2	3	1127 (511)	79 (200)	325 (228)	95 (66.8)
200 (60.9)	Stowed	69	2	6	1162 (527)	78 (198)	330 (232)	95 (66.8)
	Removed	59	2	4	1144 (519)	80 (203)	335 (235)	95 (66.8)
225 (68.5)	Removed	65	2	6	1152 (523)	79 (200)	330 (232)	95 (66.8)
250 (76.2)	Removed	68	2	7	1171 (531)	81 (206)	350 (246)	100 (70.3)
BOOM NO. 72 OR 72A - Butt + one 50' (15.2m) Insert								
100 (30.5)	Removed	20	1	1	1147 (520)	84.4 (214)	365 (255)	100 (71)
BOOM NO. 72 OR 72A - Butt + two 50' (15.2m) Inserts								
150 (45.7)	Removed	58	2	2	1233 (559)	82.4 (209)	380 (265)	105 (75)

Center of gravity provided is distance from center of rotation toward boom.

FIGURE 3 TRAVEL ASSIST RIGGING



COLLAPSING BOOM!

Boom can collapse while traveling if not at correct angle. Be sure boom is at specified travel angle.

7. Remove counterweights to number specified for travel (Column 4, Table 1).
8. Unpin tie-down pendants from storage lugs on front ring segment. Attach pendants to tie-down lugs on front roller carrier (Figure 2). Then engage swing lock and apply swing brake.



TIPPING CRANE HAZARD!

Swinging is not allowed when side ring segments are removed.

Perform step 8 to prevent swinging. Otherwise, front roller carrier may swing off ring. Crane will tip.

9. Remove locking pins A from holes A in mast assist cylinders (View A, Figure 3). Jog mast assist cylinders using switch in cab as necessary to remove pins.



SWINGING PARTS!

Hold clevis assembly in place when removing locking pin. Assembly can swing out against body. Weight of assembly can crush body parts or break bones.

10. Using switch in cab, EXTEND mast assist cylinders 1 - 2 ft (0.3 - 0.6 m).
11. Unpin pendants B from storage lugs (View B, Figure 3).
12. Turn hand winch in direction required to loosen pendants B (View C, Figure 3).
13. Pin pendants B to travel lugs. Turn hand winch in opposite direction to release tension on bell crank wire rope.
14. If not installed, thread turnbuckle onto clevis rod end (View A, Figure 3). Install end plates to prevent accidental removal of turnbuckle.
15. Using switch in cab, RETRACT mast assist cylinders to pull travel assist pendants tight. Pendants are tight when cylinders stall out (hydraulic oil flows past cylinder relief valves). Then return switch to OFF.

NOTE Steps 16-28 must be completed with mast assist cylinders holding travel assist rigging under tension.

16. Turn power switch to ON (Figure 4) to pressurize jacking system.
17. Remove and store wear plate keepers at four locations shown in View A, Figure 5.
18. Raise ring 1 in. (25 mm)—extend jacking cylinders—using outer two handles at side beam control valves (View B, Figure 5).
19. Extend front and rear center screw jacks until jack pads are firmly against ground.
20. Sight along top of rear ring segment with a transit.
Adjust rear jacking cylinders so center and both ends of rear ring segment (locations marked X in Figure 5) are at same height.
21. Repeat step 20 for front ring segment.
22. Remove screw jacks and pads (View C, Figure 5) from both side ring segments if weight of segments

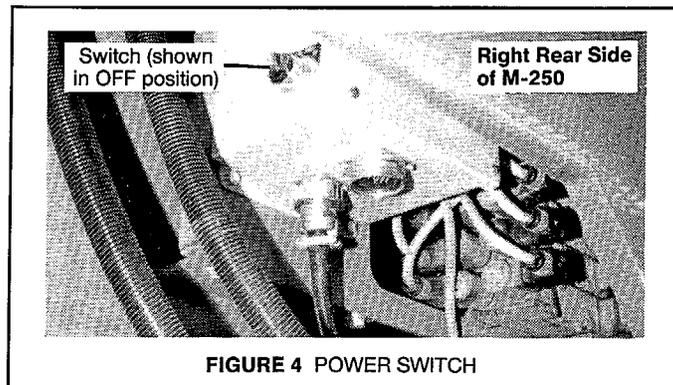


FIGURE 4 POWER SWITCH

exceeds capacity of assist crane.

- Each side ring segment weighs approximately 59,100 lb (26 808 kg) with screw jacks installed.
- Each side ring segment weighs approximately 32,515 lb (14 749 kg) with screw jacks removed.

23. Install one of the following type lifting devices at desired side ring segment:

- a) Lever-operated hoist connected to hook of assist crane and to center lifting lug on side ring segment.
- b) Portable hydraulic jack installed under center of side ring segment.
- c) Hook from assist crane connected to center lifting lug on side ring segment.

NOTE Either method 23a or 25b is preferred because it will provide the most control when removing deflection from side ring segment.

Method selected must be capable of handling:

- 47,000 lb (21 319 kg) with screw jacks installed,
- 26,000 lb (11 794 kg) with screw jacks removed.

24. Remove side ring segment connecting pins, as follows:

- a) Look at flange joint between side and front/rear ring segments (View C, Figure 5).

Flange ends at both joints must be square with each other. Ring segment connecting pins will be difficult to remove if flange ends are not square.

- b) If necessary, slowly raise center of side ring segment with lifting device until flange ends are square.
- c) Try to remove connecting pins. Pins should be loose and come out easily without excessive force.
- d) Slowly raise and lower center of side ring segment as needed to loosen connecting pins.
- e) If pins fail to come out, slowly operate jacking cylinders—front to rear, side to side, or diagonally—as required to free binding until pins can be removed.

25. Remove side ring segment with assist crane once connecting pins are removed:

- a) Hook assist crane to three lifting lugs (Figure 5) on side ring segment.
- b) Lift side ring segment straight up until it disengages front and rear ring segments.
- c) Lift side ring segment onto transport vehicle.

NOTE If jacking cylinders were operated during step 24, repeat step 20 before attempting to remove other side ring segment.

26. Repeat steps 23-25 for other side ring segment.
27. Mark front and rear center screw jacks for easy identification at installation. To make side segment installation easier, these jacks must be installed at same location they are removed from.
28. Raise ring with jacking cylinders only enough to lift front and rear center jack pads off ground.
Then remove all screw jacks and pads from front and rear ring segments (View C, Figure 5).
29. In cab, place switch for mast cylinders in RETRACT position to assure that travel assist rigging is tight.
30. Fully RETRACT jacking cylinders so crawlers are supporting the machine. Then turn power switch to OFF (Figure 4).
31. Turn nut on turnbuckles to align hole in clevises with holes B in mast assist cylinders (View A, Figure 3). Turnbuckles have right-hand and left-hand threads.

NOTE Pinning clevises to upper holes in mast assist cylinders provides an additional 6 in. (152 mm) if needed for alignment.

32. Pin clevises to holes B on mast assist cylinders (View A, Figure 3) with locking pins A. Securely tighten turnbuckles and lock into place with jam nuts.
33. In cab, place switch for mast cylinders in OFF. Travel assist tension is now held physically through turnbuckle.
34. Confirm that bell crank wire rope to hand winch is slack. Tension exerted while traveling can break wire rope or damage hand winch.
35. Check crawlers, and adjust if necessary per Crawler Adjustment folio.

TRAVELING



BOOM/CRAWLER DAMAGE!

Avoid shock loading boom and rigging! Perform all travel functions — starting, turning, stopping — slowly and smoothly.

If M-1200 is to be turned while traveling, prepare surface with matting or steel plates. Dirt piling up at drive chain and front roller ends of crawlers can damage crawler parts.

Before traveling:

- Warn personnel to stand clear of travel area. Do not travel without a signal person.
- Select and confirm RINGER SETUP mode and turn off both travel pump diverting switches. The crawler control handles are inoperable until these steps are performed.

Travel only forward. Traveling in reverse exerts excessive stress on drive chains which can damage or break drive chains.

If ground conditions do not provide a firm, smooth runway, use timber matting or steel plates to support the machine. Maximum allowable grade for travel is 5% front-to-back. Side-to-side grade should not exceed 2%.

If M-1200 is to be turned, place matting or steel plates under the crawlers to keep ground from building up next to the crawlers.

SETUP AFTER TRAVELING

1. Position crane in desired location on firm uniformly supporting surface.

2. Select and confirm desired RINGER mode and DIVERT travel pumps as desired.
 3. Turn power switch to ON (Figure 4) to pressurize hydraulic jacking system.
 4. Raise ring—extend jacking cylinders—using outer two handles at side beam control valves (View B, Figure 5) so there is enough room under ring to install front and rear screw jacks.
 5. Install front and rear screw jacks and pads (marked at removal) and secure to ring with bent locking pins.
 6. Slowly retract jacking cylinders until front and rear screw jack pads just contact ground.
 7. Sight along top of rear ring segment with a transit.
Adjust rear jacking cylinders so center and both ends of rear ring segment (locations marked X in Figure 5) are at same height.
 8. Repeat step 7 for front ring segment.
 9. Install either side ring segment with assist crane, as follows:
 - Each side ring segment weighs approximately 59,100 lb (26 808 kg) with screw jacks installed.
 - Each side ring segment weighs approximately 32,515 lb (14 749 kg) with screw jacks removed.
 - a) Hook assist crane to three lifting lugs (Figure 5) on side ring segment.
 - b) Lift side ring segment into position between front and rear ring segments.
 - c) Lower side ring segment straight down so top holes in side ring segment engage vertical pins in front and rear ring segments.
 - d) Unhook assist crane from side ring segment.
 10. Install one of the following type lifting devices at desired side ring segment:
 - a) Lever-operated hoist connected to hook of assist crane and to center lifting lug on side ring segment.
 - b) Portable hydraulic jack installed under center of side ring segment.
 - c) Hook from assist crane connected to center lifting lug on side ring segment.
- NOTE** Either method 10a or 10b is preferred because it will provide the most control when removing deflection from side ring segment.
- Method selected must be capable of handling:
- 47,000 lb (21 319 kg) with screw jacks installed,
 - 26,000 lb (11 794 kg) with screw jacks removed.
11. Install side ring segment connecting pins, as follows:
 - a) Look at flange joint between side and front/rear ring segments (View C, Figure 5).
Flange ends at both joints must be square with each other. Ring segment connecting pins will be difficult to install if flange ends are not square.
 - b) If necessary, slowly raise center of side ring segment with lifting device until flange ends are square.
 - c) Try to install connecting pins. Pins should go into holes easily without excessive force.
 - d) Slowly raise and lower center of side ring segment as needed to free any binding.

e) If pins fail to go in, slowly operate jacking cylinders—front to rear, side to side, or diagonally—as required to free binding until pins go all the way in.

f) Retain connecting pins with keeper plates.

NOTE If jacking cylinders were operated in step 11, repeat step 7 before attempting to remove other side ring segment.

12. Repeat steps 9-11 for other side ring segment.
13. Install remaining screw jacks and pads (View C, Figure 5).
14. Level ring as instructed in Assembly Guide folio.
15. Fully retract jacking cylinders and turn power switch to OFF (Figure 4).
16. Install and securely tighten wear plate keepers at four locations shown in View A, Figure 5.
17. Using switch in cab, RETRACT mast assist cylinders to ease tension on turnbuckles.



SWINGING PARTS!

Hold clevis assembly in place when removing locking pin. Assembly can swing out against body. Weight of assembly can crush body parts or break bones.

18. Remove locking pins A holding clevises to holes B on mast assist cylinders (View A, Figure 3).
19. Using switch in cab, EXTEND mast assist cylinders 1-2 ft (0.3-0.6 m) to ease tension on travel assist pendants.
20. Remove pins securing pendants B to travel lugs (View B, Figure 3).



MOVING PARTS HAZARD!

Weight of upper travel assist rigging can cause winch handle to spin out of control. Spinning handle can cause injury.

21. Turn hand winch in direction required to raise pendants B to storage lugs (View B, Figure 3).
22. Using switch in cab, fully RETRACT mast assist cylinders. Then return switch to OFF.
23. Install locking pins A in holes A on both cylinders (View A, Figure 3). Jog cylinders as necessary to install pins. Pin pendants B to storage lugs (View B, Figure 3).
24. Unpin tie-down pendants from front roller carrier and pin into stored position (Figure 2).
25. Add counterweights one at a time, alternating from each side and middle as required to lower boom (Column 5, Table 1).



EQUIPMENT DAMAGE!

Installing all counterweights on one side of counterweight carrier places excessive load on carrier components. Equipment damage may result.

26. Lower boom onto blocking on ground. Mast should be resting on mast stop.
27. For #75A mast only, connect mast raising links to counterweight carrier (View D, Figure 3). This step must be done before attempting to lower mast.



COLLAPSING ATTACHMENT!

Connect mast raising links to counterweight carrier before attempting to lower mast. Failing to perform this step will result in structural damage and possible collapse of attachment.

28. Install remaining counterweights.
29. Install boom inserts as needed. On #72 or #72A boom, relocate boom hoist equalizer.
30. Install lower boom point hanger or release from stored position.
31. Install load block and load lines.

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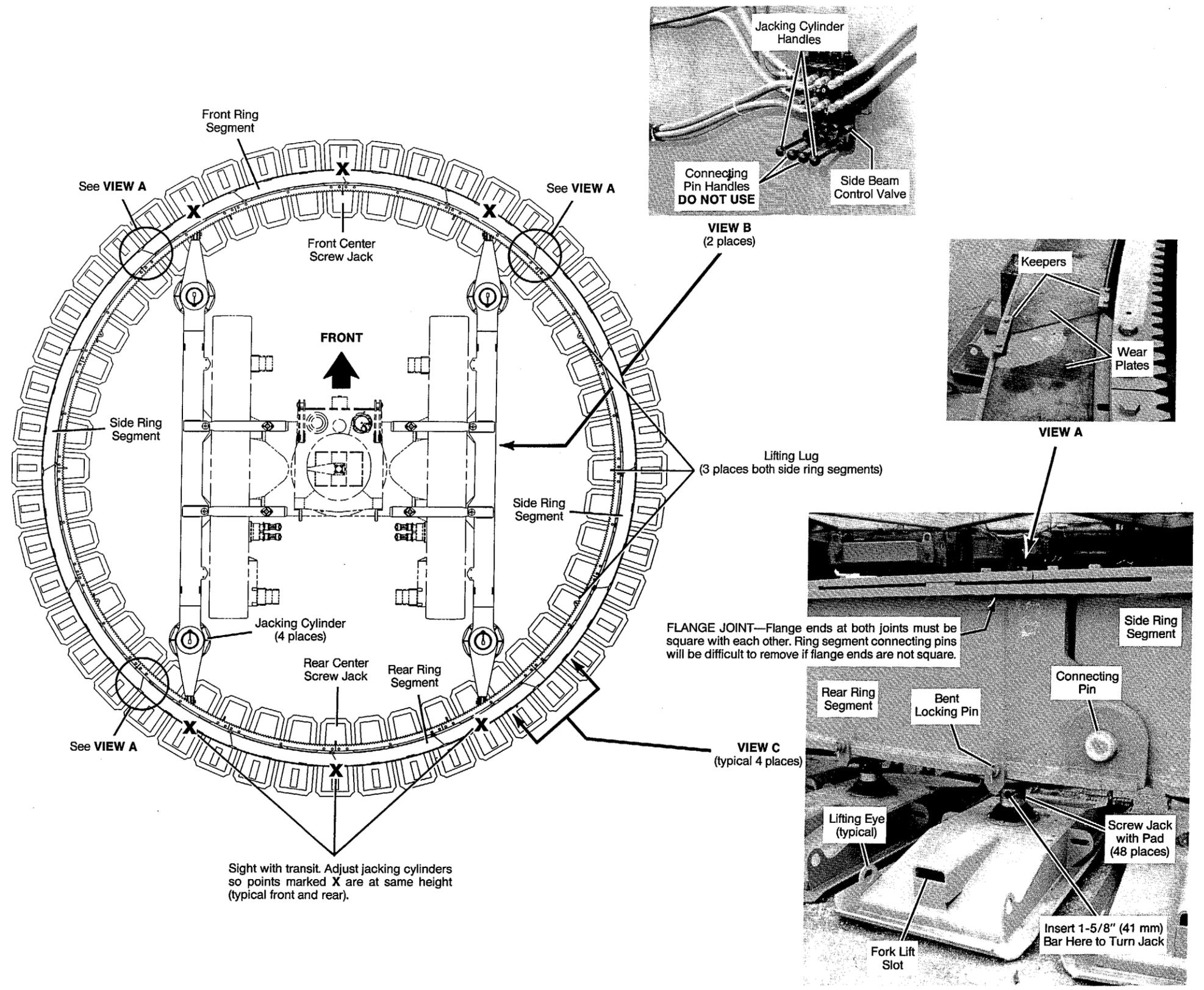


FIGURE 5 RING ASSEMBLY