

CRL MANIPULATOR

MODEL ROW1

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EQUIPMENT DESCRIPTION

This innovative tool has a hydraulically controlled boom so you can set glass in place for glazing in difficult to reach positions. Used in conjunction with a vacuum lifting frame (not included), the CRL ROW1 Manipulator simplifies glass handling anywhere you use it. The boom can also be reversed(see option photo on front cover), which extends the unit's reach. It is easily assembled with simple hand tools in only five minutes. You can knock down the unit and move it from floor to floor to glaze high-rise buildings from the inside. Simply lower the glass into position from one floor above using the standard manual winch; put it in a pickup or van and move it from job to job. Electric Winch options are also available. It has large, easy-rolling wheels. The two optional movable ballast boxes keep it steady even under the maximum load of 1,000 lbs. (453 kg). Optional boom extension and optional outrigger make this tool even more versatile.

IMPORTANT SAFETY INFORMATION



1) **Always** operate and maintain the ROW1 Manipulator in accordance with the instructions and procedures in this manual.



2) **Do not** exceed the capacity of the Manipulator.



3) **Do not** use the Manipulator for any purpose for which it was not designed. It is to be used solely to lift and position glass within the specification limits listed in this manual.



4) **Always** have a clear view of the loading and unloading points and keep the Manipulator on level ground.



5) **Never** use the Manipulator to lift people, even for short distances.



6) **Always** allow the jack to lower naturally. Do not attempt to artificially brake or slow the motion of the jack when lowering.

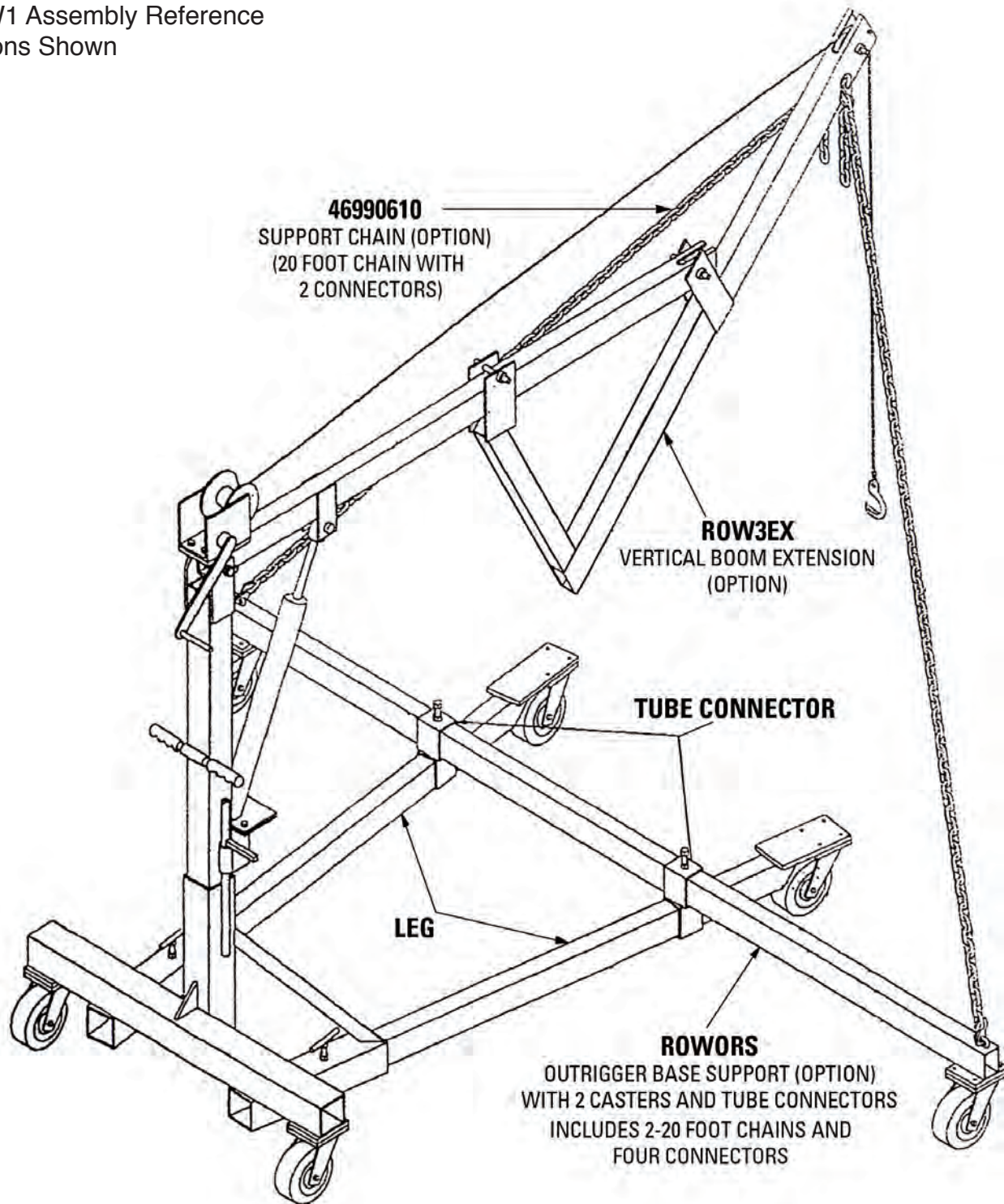
7) **Always** wear safety glasses, proper gloves, and other necessary safety equipment while operating and maintaining the Manipulator. When in doubt, consult with shop safety representative.

8) **Always** place some type of counterweight on the rear of the legs when the caster ends of the legs are shifted back toward the jack column. Never move the legs in more than 20 inches from fully extended. **Capacity is reduced when the legs are not fully extended.**

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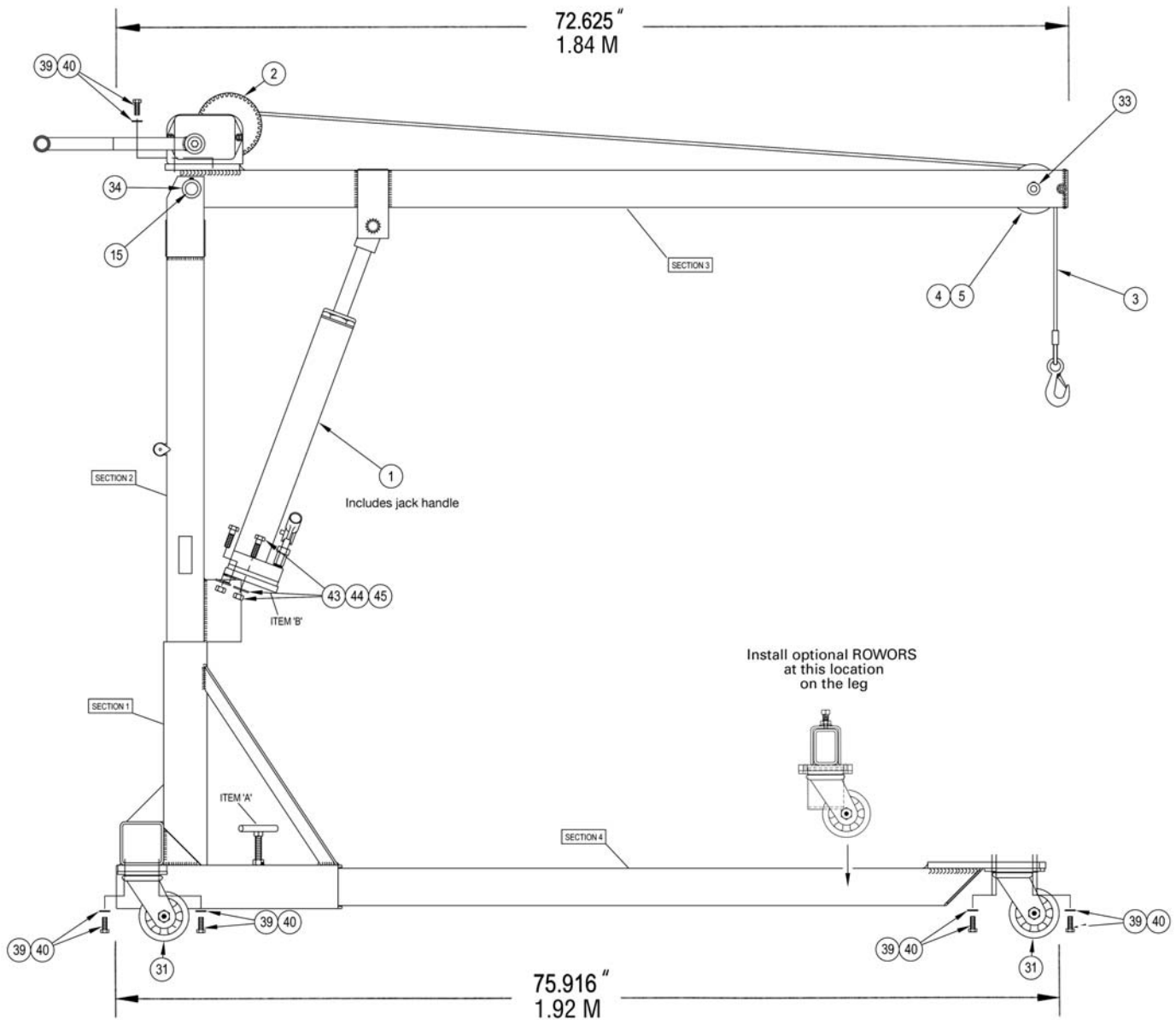
ROW1 Assembly Reference
Options Shown



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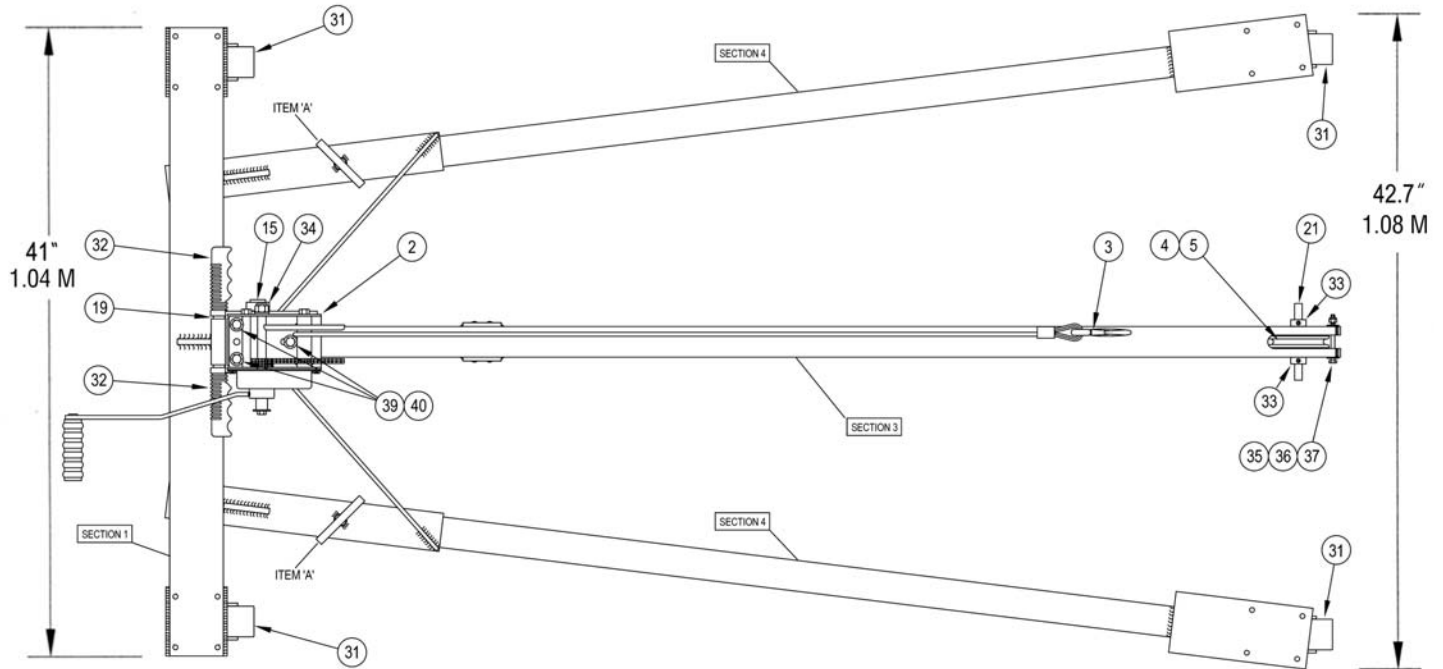
MODEL ROW1

ROW1 Parts Reference

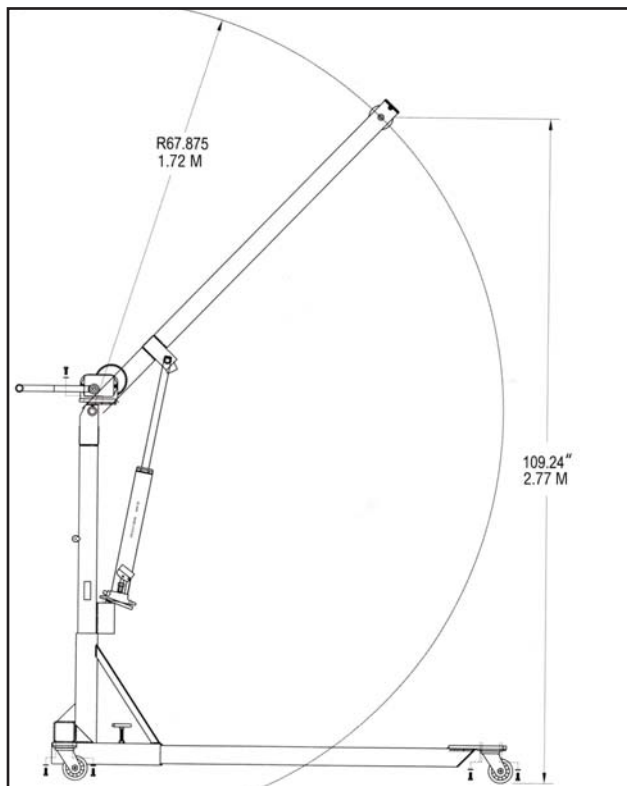


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ROW1 Parts Reference



REF.	QTY.	CAT. NO.	DESCRIPTION
1	1	39933500	HYDRAULIC CYLINDER KIT
2	1	46906800	WINCH
3	1	46900720	CABLE
4	1	46900671	PULLEY, 4"
5	1	44000701	PULLEY BEARING
15	1	21600331	1" STEEL SHAFT PIN, 5.5"
21	1	21600151	1/2" STEEL SHAFT PIN, 5"
31	4	46306150	CASTER
32	2	DMP105	VINYL GRIP
33	2	15200061	1/2" I.D. COLLAR WITH SET SCREWS
34	2	15200141	1" I.D. COLLAR WITH SET SCREWS
35	2	45113721	FLAT WASHER, 1/4"
36	1	45103640	LOCK NUT 1/4-20
37	1	45000020	BOLT, 3" X 1/4-20
39	19	15000531	BOLT, 3/4" X 3/8-18
40	19	45113510	FLAT WASHER, 5/16"
43	2	15113950	FLAT WASHER, 3/8"
44	2	45100081	HEX NUT, 7/16-14
45	2	15000801	BOLT, 1-1/2" X 7/16-14



CRL MANIPULATOR MODEL ROW1

OPTIONAL EQUIPMENT FOR THE ROW1 MANIPULATOR

Ballast/Counterweight Tanks for ROW1

Counterweight tanks for adding ballast for stability. A pair of welded, 16 gauge steel tanks. 15" x 10" x 24" high (381 x 254 x 610mm) each. Shipping Wt. for a pair: 55 lbs.(25kg.). Industrial painted finish. These tanks sit on lumber (supplied by customer) across the legs, as far from the load as possible. Fill with concrete blocks or bricks.

CAT. NO.	DESCRIPTION
ROWBLST	Pair of Ballast Tanks

Minimum order is one pair.



Boom Extension for ROW1

Extension Boom for the ROW1. Extends working reach three feet. Attaches quickly with a few simple hand tools. Includes 2 pins and collars for mounting. 43" x 75" (1092 x 1905mm). 50 Lbs., (22.6 kg.) when shipped separately. Total lift capacity is reduced to 700 Lbs.

CAT. NO.	DESCRIPTION
ROW3EX	3' Boom Extension

Minimum order is one each.

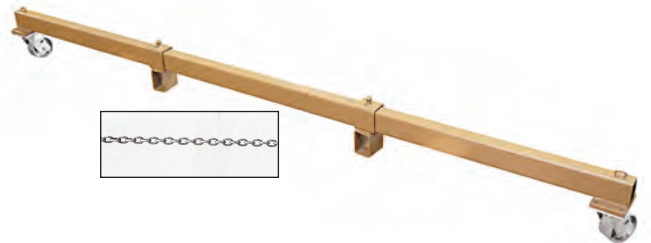


Outrigger for ROW1

Outrigger for the ROW1 attaches quickly with a few simple hand tools and adds stability while maintaining maneuverability. Includes 2 steel 4 inch swivel casters. 106" x 10" high (2692 x 254mm). 95 Lbs. (43kg.), when shipped separately. Made from 2" x 3" steel tube. Includes 2-20' (6.1M)lengths of support chain and 4 connectors.

CAT. NO.	DESCRIPTION
ROWORS	Outrigger

Minimum order is one each.



Electric Winch with Remote for ROW1

This 110V AC electric winch attaches to the boom in place of the manual winch. It makes lifting large glass lites much easier. NOTE: This item is not available for shipment to CRL customers outside of the United States.

CAT. NO.	DESCRIPTION
EW	Electric Winch

Minimum order is one each.



Support Chain for ROW1

This 20' (6.1m) chain and 2 connectors is included with the ROWORS. Provides stability and prevents torsional movement of the boom support tube on the ROW1 Manipulator.

CAT. NO.	DESCRIPTION
ROWOSC	Outrigger Support Chain

Minimum order is one 20' chain.



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ACCESSORIES FOR THE ROW1 MANIPULATOR

ROW40 and ROW40T Vacuum Cup Frames

CRL 4 Cup Steel Rotating Hand Cup Lifting Frame offers an economical way to expand your lifting capabilities. Holds 4 large steel handle vacuum cups and holds 500 lbs. The frame rotates 180° and has a locking handle. 36 x 24 in (915 x 610 mm) Shipping weight, 50 lb (22.68kg) The ROW40T has a feature that allows the glass to be rotated and manually tilted 90° from horizontal to vertical. Includes one anchor shackle for connecting to ROW1 manipulator.

CAT. NO.	DESCRIPTION
ROW40	Hand Cup Lifting Frame
ROW40T	Tilting Hand Cup Lifting Frame

Minimum order is one each.

ROW60 and ROW60T Vacuum Cup Frames

CRL 6 Cup Steel Rotating Hand Cup Lifting Frame offers an economical way to expand your lifting capabilities. Holds 6 large steel handle vacuum cups and holds 700 lbs. The frame rotates 180° and has a locking handle. 60 x 24 in (1525 x 610 mm) Shipping weight, 90 lb (40.82kg) The ROW60T has a feature that allows the glass to be manually tilted 90° from horizontal to vertical. Includes one anchor shackle for connecting to ROW1 manipulator.

CAT. NO.	DESCRIPTION
ROW60	Hand Cup Lifting Frame
ROW60T	Tilting Hand Cup Lifting Frame

Minimum order is one each.

W5450 Vacuum Cup

W5450 9" (229 mm) diameter Vacuum Cups feature a higher lifting capacity for glass, and a pad with flexible edges to handle Plexiglass and other materials that may bend when lifted. The W5450CS has a more concave rubber pad designed to lift both curved and flat loads including flat glass, bent glass, and auto glass. Features a durable metal handle and Red-Line indicator that warns user of vacuum loss.

CAT. NO.	DESCRIPTION
W5450	Metal Handle Vacuum Cup
W5450CS	Metal Handle Concave Vacuum Cup

Minimum order is one each.

TF007 ANTI SHEAR STRAPS

To reduce the amount of shear force while lifting insulating glass units with vacuum cups on only one side, simply employ a pair of CRL Wood's Insulating Glass Anti-Shear Supports. When used with vacuum lifting frames, attach a pair of the supports to the bottom of the unit for vertical lifts. If rotating the unit, attached at 90 degrees as shown in the diagram for support in both directions.

CAT. NO.	DESCRIPTION
TF007	Anti Shear Straps

Minimum order is one pair.



ROW40T



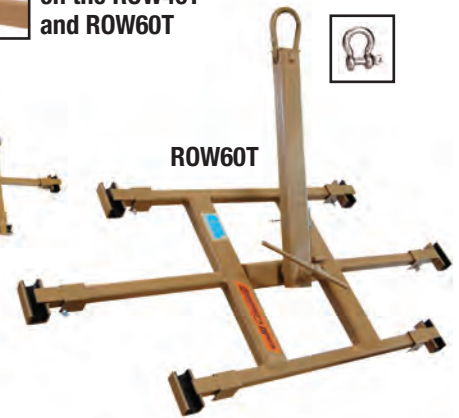
ROW40



Vertical lock on the ROW40T and ROW60T



ROW60



ROW60T



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Assembly Instructions for ROW1

1. Attach 2 casters to the base with #39 bolts and #40 washers. (Casters may be factory installed)
2. Bolt 1 caster to each leg with bolts and washers as above.(Casters may be factory installed)
3. Slide the legs into the tubes of the base section and secure by tightening the "T" bolts.
4. Insert the Boom Post into the vertical tube in the base. Be sure the handle is facing back and the large square tube for the jack is facing forward.
5. Bolt the winch to the top of the Boom using 3-#39 bolts and 3-#40 washers. You may need to unwind the cable from the winch to get access to the front bolt hole. The winch may have separate instructions for attaching the crank handle.
6. Place the Boom onto the Boom Post and secure it with the 1" shaft, #15. Place the 1" collars, #34, on each end of the shaft and tighten the set screws in each collar.
7. Place the #5 bearing into the #4 pulley and secure the pulley to the end of the Boom with 1/2" shaft, #21. Tighten the set screws of the 2 collars (#33) to the 1/2" shaft.
8. Feed the cable from the winch over the pulley and insert the 3" bolt (#37). Secure with washer #35 and 1/4-20 lock nut #36.
9. Lift the boom by hand while inserting the jack assembly into the Boom Post and the top of the jack into the Boom Socket. **THIS STEP WILL BE SAFER AND MUCH EASIER WITH A HELPER.**

Assembly Instructions for adding ROW3EX boom extension

1. Remove pulley from the boom and place pulley in the Extension Arm.
2. Remove the cable retaining bolt (#37) from the end of the Boom.
3. Use a 1/2" shaft and collars to attach the ROW3EX extension to the end of the Boom. See Illustration on page 3.
4. Use another 1/2" shaft and collars to attach the back of the extension to the Boom. Refer to the Illustration on page 3.
5. Run the cable over the pulley and insert the cable retaining bolt(#37) with washer and lock nut.

NOTE: When using the ROW3EX Extension, Boom capacity is reduced from 1000 Lbs to 700 Lbs.

Assembly Instructions for adding ROWORS outrigger

1. Support the base under the boom mounting tube and have a helper hold the boom and mounting tube up.
2. Remove one leg by loosening the "T" Bolt and sliding the leg out of the base. Be sure the base and boom are supported.
3. Loosen the bolt on the Tube Connector on the Outrigger support.
4. Position the Outrigger and slide the leg through the Tube Connector and back into the base tube. Tighten the "T" bolt.
5. Do the same procedure (Steps 2-4) for the other leg and position the outrigger about 6-10 inches from the Leg Casters. The Outrigger should be perpendicular (at right angles) to the boom. (See page 3)
6. Tighten the bolts on the Outrigger Tube connectors and be sure the "T" bolts are tight.
7. Attach one 20' (6.1m) support chain to each side of the Boom Extension and the Outrigger. See Figure A on page 3. Chains and connectors are included with the Outrigger (ROW3EX)

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