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MU-C-SERIES STORAGE RACKS

INSTRUCTION MANUAL



Receiving instructions:

After delivery, IMMEDIATELY remove the packaging from the product in a manner that preserves the packaging and maintains the orientation of the product in the packaging; then inspect the product closely to determine whether it sustained damage during transport. **If damage is discovered during the inspection, immediately record a complete description of the damage on the bill of lading.** If the product is undamaged, discard the packaging.

NOTES:

- 1) Compliance with laws, regulations, codes, and non-voluntary standards enforced in the location where the product is *used* is exclusively the responsibility of the owner/end-user.
- 2) VESTIL is **not liable** for any injury or property damage that occurs as a consequence of failing to apply either:
 - a) Instructions in this manual; or b) information provided on labels affixed to the product. Neither is Vestil responsible for *any* consequential damages sustained as a result of failing to exercise sound judgment while assembling, installing, using or maintaining this product.

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Hazard Identification--Explanation of SIGNAL WORDS

This manual uses SIGNAL WORDS to indicate the likelihood of personal injuries, as well as the probable seriousness of those injuries, if the product is misused in the ways described. Other signal words call attention to uses of the product likely cause property damage.

The signal words used appear below along with the meaning of each word:



Identifies a hazardous situation which, if not avoided, **WILL** result in **DEATH** or **SERIOUS INJURY**. Use of this signal word is limited to the most extreme situations.



Identifies a hazardous situation which, if not avoided, **COULD** result in **DEATH** or **SERIOUS INJURY**.



Indicates a hazardous situation which, if not avoided, **COULD** result in **MINOR** or **MODERATE** injury.



Identifies practices likely to result in product/property damage, such as operation that might damage the product.

Each person who assembles, installs, uses, or maintains this product should read the entire manual **in advance and fully understand the directions**. **If after reading the manual you do not understand an instruction, ask your supervisor or employer for clarification, because failure to adhere to the directions in this manual might result in serious personal injury.**

SAFETY GUIDELINES

Vestil diligently strives to identify foreseeable hazards associated with the use of its products. However, material handling is inherently dangerous and no manual can address every conceivable risk. The end-user ultimately is responsible for exercising sound judgment at all times.



Electrocution might result if any part of the rack system or items or materials placed on the rack contacts electrified wires. Reduce the likelihood of electrocution by applying **common sense**:

➤ **DO NOT** *install the rack in a location where contact with electrified wires will occur.*



If this product is used or assembled improperly or carelessly, people in the area might sustain serious personal injuries or even be killed. **ALWAYS** use the product properly:

- **Failure to read and understand the entire manual before assembling, installing, loading or servicing the product constitutes misuse.** Read the manual to refresh your understanding of proper use and maintenance procedures as necessary.

- **DO NOT** exceed the maximum rated load.

- Inspect the rack periodically (AT LEAST once per month). **DO NOT** continue to use the rack if the inspection reveals structural damage. Examples of structural damage include: 1) warped, deformed, or damaged posts (uprights) or beams; 2) cracked welds; 3) enlargement of openings that receive beam studs; 4) corrosion, severe wear, or other condition that affects the ability of the product to support applied weight; 6) damaged, deformed or cracked cross-supports. Immediately tag out the rack, unload it completely, and replace each part that fails to pass an inspection. **DO NOT** use the product until it is fully restored to normal condition. **ONLY** use manufacturer-approved replacement parts.

- **DO NOT** use the product if any unusual noise or movement is observed. If a malfunction occurs, remove the unit from service and notify your supervisor or maintenance personnel about the issue.

- All loads stored on the rack must fit within the dimensions of the rack. **DO NOT** store any load that hangs over the rack.

- **DO NOT** use the pallet rack **UNLESS** it is securely anchored to the ground.

- **ALWAYS** evenly distribute and center the load on the rack.

- **ONLY** use this rack on even, level surfaces.

- **DO NOT** remove or obscure any label. All product labels must be readable and undamaged.

- **DO NOT** climb or sit on the rack.

- **DO NOT** modify the rack in any way. **Unauthorized modifications automatically void the limited warranty (see p. 6) and might make the rack unsafe to use.**



Proper maintenance is essential for this product to function properly and to last as long as possible.

- Always use this product in accordance with the instructions in this manual and consistent with any training relevant to the storage of materials on racks.

- Keep the rack clean & dry.

Product Specifications by Model:

Model	Height	Base support length	Capacity	Arm model	Net Weight
MU-C-6-12	6ft.	25 ³ / ₈ in.	8,100 lb. (~3,681.8kg)	MSA-C-12 or MIA-C-12	130 lb. (59.1kg)
MU-C-6-18	6ft.	31in.	6,600 lb. (~3000kg)	MSA-C-18 or MIA-C-18	135 lb. (61.4kg)
MU-C-6-24	6ft.	37in.	5,500 lb. (~2,500kg)	MSA-C-24 or MIA-C-24	140 lb. (63.6kg)
MU-C-6-36	6ft.	49 ³ / ₈ in in.	4,700 lb. (~2,136.4kg) OR 4,100 lb. (~1,863.6kg)	MSA-C-30; MIA-C-30 OR MSA-C-36; MIA-C-36	150 lb. (68.1kg)
MU-C-8-12	8ft.	25 ³ / ₈ in.	7,600 lb. (~3,454.5kg)	MSA-C-12 or MIA-C-12	150 lb. (68.1kg)
MU-C-8-18	8ft.	31in.	6,300 lb. (~2,863.6kg)	MSA-C-18 or MIA-C-18	155 lb. (70.5kg)
MU-C-8-24	8ft.	37in.	5,300 lb. (~2,409.1kg)	MSA-C-24 or MIA-C-24	160 lb. (72.7kg)
MU-C-8-36	8ft.	49 ³ / ₈ in in.	4,500 lb. (~2,045.5kg) OR 4,000 lb. (~1,818.2kg)	MSA-C-30; MIA-C-30 OR MSA-C-36; MIA-C-36	170 lb. (77.3kg)
MU-C-10-12	10ft.	25 ³ / ₈ in.	7,100 lb. (~3,227.3kg)	MSA-C-12 or MIA-C-12	170lb. (77.3kg)
MU-C-10-18	10ft.	31in.	5,900 lb. (~2,681.8kg)	MSA-C-18 or MIA-C-18	175lb. (79.5kg)
MU-C-10-24	10ft.	37in.	5,000 lb. (~2,272.7kg)	MSA-C-24 or MIA-C-24	180lb. (81.8kg)
MU-C-10-36	10ft.	49 ³ / ₈ in in.	4,400 lb. (~2,000kg) OR 3,800 lb. (~1,727.3kg)	MSA-C-30; MIA-C-30 OR MSA-C-36; MIA-C-36	190lb. (86.4kg)

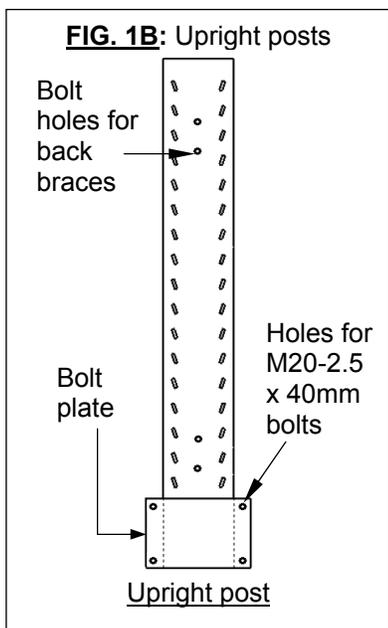
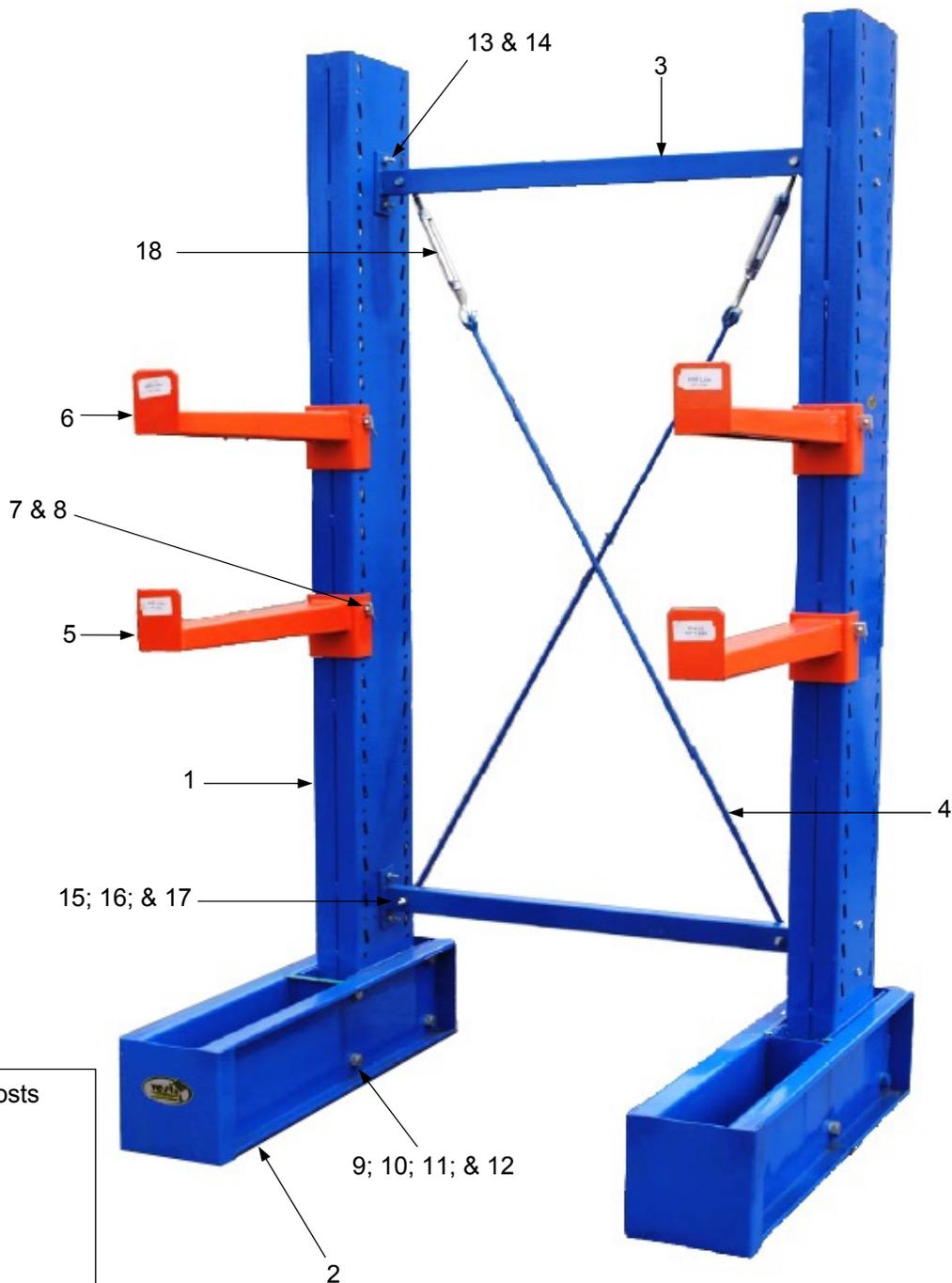
Straight arms

Model	Arm length	Capacity	Net weight
MSA-C-12	12in. 30.5cm	1,000 lb. 454.5kg	11 lb. 5kg
MSA-C-18	18in. 45.7cm	750 lb. 340.9kg	13 lb. 5.9kg
MSA-C-24	24in. ~61cm	600 lb. 272.7kg	15 lb. 6.8kg
MSA-C-30	30in. 76.2cm	500 lb. 227.3kg	17 lb. 7.7kg
MSA-C-36	36in. 91.4cm	400 lb. 181.8kg	19 lb. 8.6kg

Inclined arms

Model	Arm length	Capacity	Net weight
MIA-C-12	12in. 30.5cm	1,000 lb. 454.5kg	11 lb. 5kg
MIA-C-18	18in. 45.7cm	750 lb. 340.9kg	13 lb. 5.9kg
MIA-C-24	24in. ~61cm	600 lb. 272.7kg	15 lb. 6.8kg
MIA-C-30	30in. 76.2cm	500 lb. 227.3kg	17 lb. 7.7kg
MIA-C-36	36in. 91.4cm	400 lb. 181.8kg	19 lb. 8.6kg

FIG. 1A: MU-C exploded parts diagram (bills of materials appear on p. 3 & 4)



MU-C-6 bill of materials

NOTE: You will receive straight and/or inclined arms as per your order.

Item no.	Part no.	Description	Quantity
1	MU-1-UR-6	Double-sided upright post, 6ft. model	2
2	MU-1-DB-6	Double-sided base frame, 6ft. model	2
3	MB-3-BB	Back brace (medium duty)	as ordered
4	MB-4-CB	Cross bar (medium duty)	as ordered
5	MSA-C-6	Straight arm, medium duty, 6ft. model	as ordered
6	MIA-C-6	Inclined arm, medium duty, 6ft. model	as ordered
7	MU-7-LB	Locking bar	1 per arm
8	MU-8-PIN	Pin	2 per arm
9	MU-9-BOLT	M20-2.5 x 40mm bolt	16
10	MU-10-WA	M20 flat washer	16
11	MU-11-LW	M20 lock washer	16
12	MU-12-HN	M20-2.5 hex nut	16
13	MU-13-BOLT	M10-1.5 x 130mm bolt	8
14	MU-14-NN	M10-1.5 lock nut	8
15	MU-15-BOLT	M10 x 65mm bolt	4
16	MU-16-WA	M10 flat washer	4
17	MU-17-LN	M10 lock nut	4
18	MU-18-TB	Turnbuckle (required only for specific sizes)	2

MU-C-8 bill of materials

NOTE: You will receive straight and/or inclined arms as per your order.

Item no.	Part no.	Description	Quantity
1	MU-1-UR-8	Double-sided upright post, 8ft. model	2
2	MU-1-DB-8	Double-sided base frame, 8ft. model	2
3	MB-3-BB	Back brace (medium duty)	as ordered
4	MB-4-CB	Cross bar (medium duty)	as ordered
5	MSA-C-8	Straight arm, medium duty, 8ft. model	as ordered
6	MIA-C-8	Inclined arm, medium duty, 8ft. model	as ordered
7	MU-7-LB	Locking bar	1 per arm
8	MU-8-PIN	Pin	2 per arm
9	MU-9-BOLT	M20-2.5 x 40mm bolt	16
10	MU-10-WA	M20 flat washer	16
11	MU-11-LW	M20 lock washer	16
12	MU-12-HN	M20-2.5 hex nut	16
13	MU-13-BOLT	M10-1.5 x 130mm bolt	8
14	MU-14-NN	M10-1.5 lock nut	8
15	MU-15-BOLT	M10 x 65mm bolt	4
16	MU-16-WA	M10 flat washer	4
17	MU-17-LN	M10 lock nut	4
18	MU-18-TB	Turnbuckle	2

MU-C-10 bill of materials

NOTE: You will receive straight and/or inclined arms as per your order.

Item no.	Part no.	Description	Quantity
1	MU-1-UR-10	Double-sided upright post, 10ft. model	2
2	MU-1-DB-10	Double-sided base frame, 10ft. model	2
3	MB-3-BB	Back brace (medium duty)	as ordered
4	MB-4-CB	Cross bar (medium duty)	as ordered
5	MSA-C-10	Straight arm, medium duty, 10ft. model	as ordered
6	MIA-C-10	Inclined arm, medium duty, 10ft. model	as ordered
7	MU-7-LB	Locking bar	1 per arm
8	MU-8-PIN	Pin	2 per arm
9	MU-9-BOLT	M20-2.5 x 40mm bolt	16
10	MU-10-WA	M20 flat washer	16
11	MU-11-LW	M20 lock washer	16
12	MU-12-HN	M20-2.5 hex nut	16
13	MU-13-BOLT	M10-1.5 x 130mm bolt	8
14	MU-14-NN	M10-1.5 lock nut	8
15	MU-15-BOLT	M10 x 65mm bolt	4
16	MU-16-WA	M10 flat washer	4
17	MU-17-LN	M10 lock nut	4
18	MU-18-TB	Turnbuckle	2

Assembly

Assembly requires lifting and manipulating very heavy components. At least 3 people should work together to assemble this rack system.

1. Assemble the rack on a level, even surface. Be certain to account for necessary aisle space, for example to accommodate lifting equipment, when selecting the assembly location.
2. Position the base frame pieces (MU-1-DB-#) in their desired locations. Notice that there are two plates welded to the inside of the base frame near the center, which creates a rectangular box. This post box is where the bottom end of an upright post will go. There are also 4 bolt holes on each long side of the box.
3. Look at an upright post (MU-1-UR-#) and notice that two bolt plates are welded to the bottom end of the post. There are four bolt holes in each bolt plate.
4. Insert the bottom end of a post into the post box of a base frame piece. Align the bolt holes in the bolt plates (of the post) with the bolt holes in the base frame. Insert M20-2.5 x 40mm bolts through each of the 8 bolt holes; then secure them with an M20 flat washer, M20 lock washer, and M20-2.5 hex nut.
5. Fasten another post to another base frame piece.

FIG. 2A: Post fastened to base frame

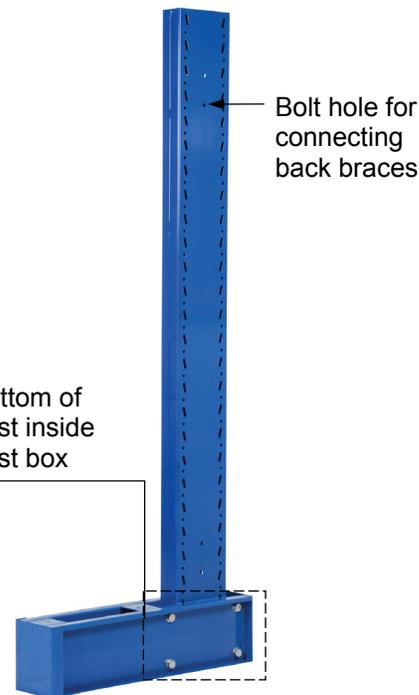
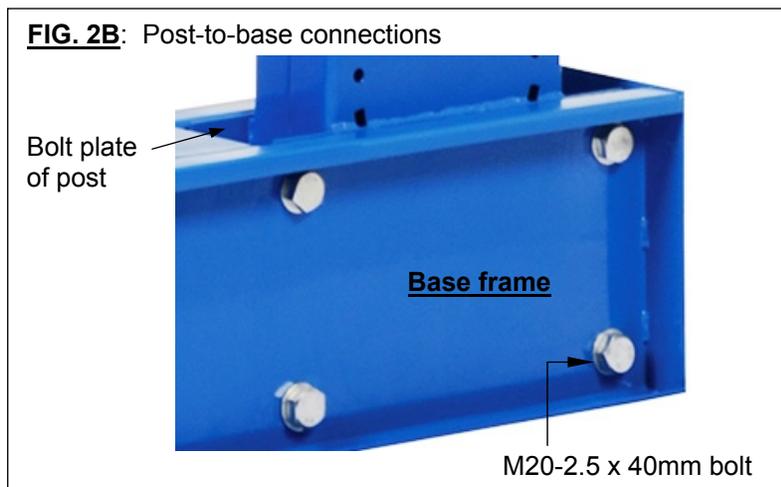
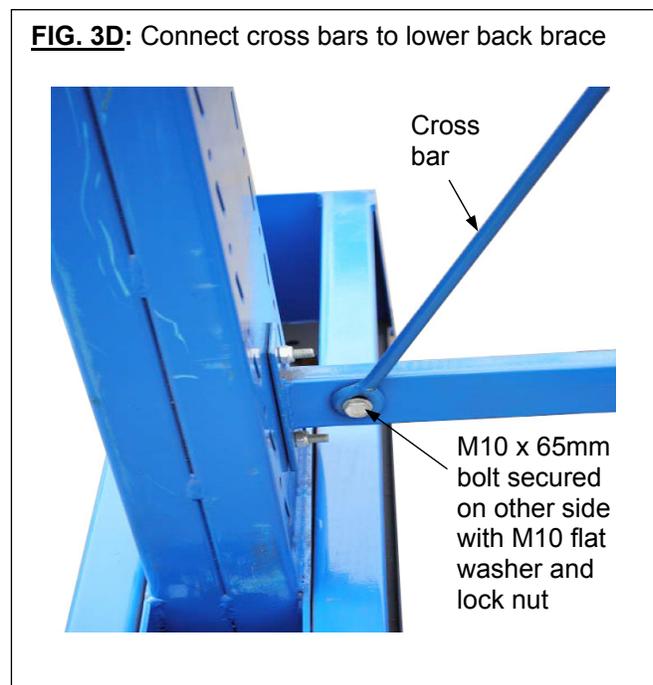
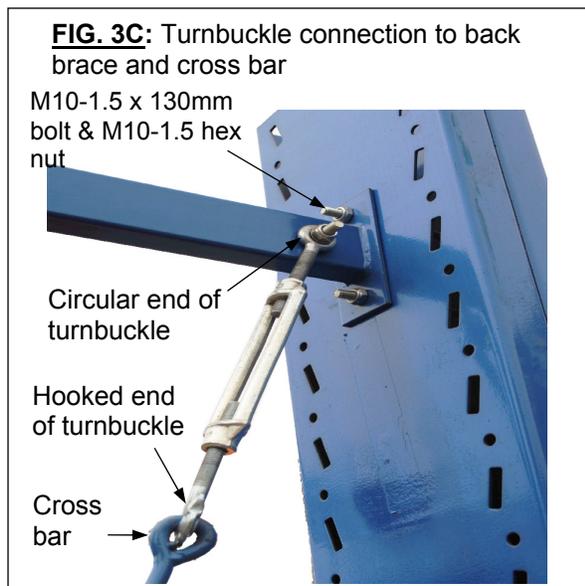
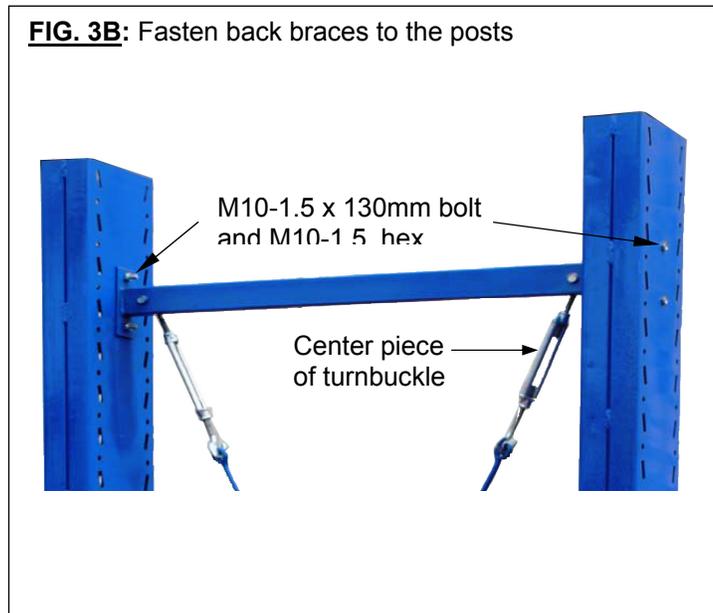
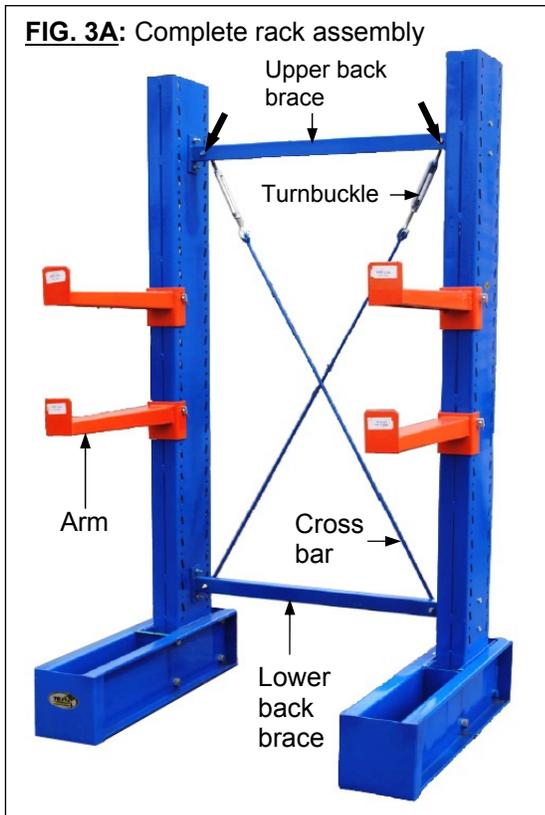


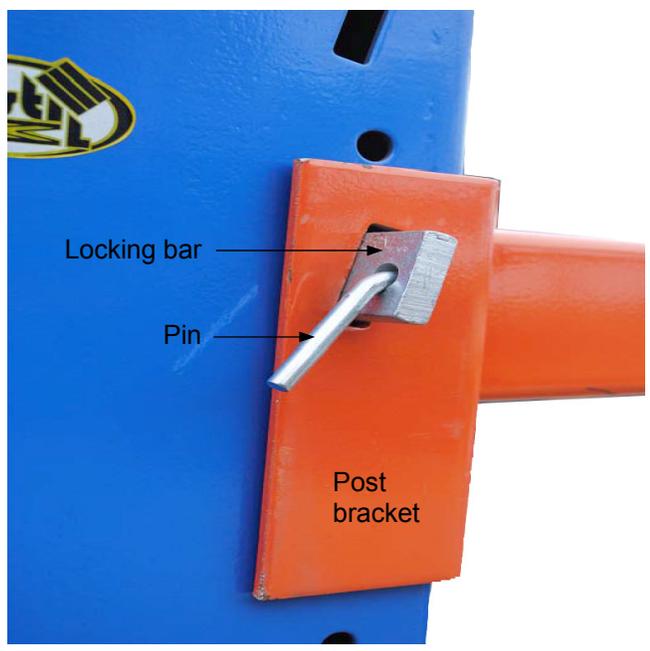
FIG. 2B: Post-to-base connections



6. Attach back braces (MB-3-BB) to the posts. Fasten the braces to the posts with M10-1.5 x 130mm bolts and M10-1.5 hex nuts. (See FIG. 3B & 3C).
7. Attach cross bars to the back braces:
 - a. First, insert M10 x 65mm bolts through the bolt holes at the ends of the upper back brace (See bold arrows near the top of FIG. 3A; connection also shown in FIG. 3B and FIG. 3C).
 - b. Slide the circular end of a turnbuckle onto the end of each bolt (through the upper back brace); then apply an M10 flat washer and an M10 lock nut. (See Fig. 3C).
 - c. Connect one end of a cross bar to the hooked end of the turnbuckle. (See Fig. 3C).
 - d. Align the other end of the cross bar with the bolt holes in the lower back brace; then insert an M10 x 65mm bolt through the end of the cross bar and through the bolt hole in the back brace. Secure the end of the bolt with an M10 flat washer and an M10 lock nut. (See FIG. 3D).



8. Install the arms. Regardless of whether you purchased inclined or straight arms, the arms will all have a post bracket on one end and a material retention plate on the other end. Attach the arm pieces (MSA-C-## or MIA-C-##) to the posts. Be sure to attach arms at the same level on both posts so that material stored on the rack will be level. To fasten an arm to a post:
 - a. Align the slots in the post bracket with the appropriate slots in a post. The material retention plate should point upwards.
 - b. Insert a locking bar (MU-7-LB) through the slots.
 - c. Insert pins (MU-8-PIN) into the pin holes at each end of the locking bar.

FIG. 4A: Front view of arm**FIG. 4B:** Side view of arm-to-post attachment

9. Adjust the tension of the cross bars by rotating the center piece of the turnbuckle (see FIG. 3B). Insert a screwdriver or similar object into the slot of the center piece and rotate the center piece clockwise or counterclockwise as necessary until the cross bars are tight.

Maintenance:

At least once per month, inspect the rack:

1. Check all hardware/fasteners to verify that all nuts, bolts and washers are in normal condition and are securely fastened together.
2. Look for damage or corrosion that might compromise the structural integrity of any beam or upright frame piece. If any structural damage is present, immediately tag the rack out of service. Replace all damaged components and do not use the rack again until it has been fully restored to normal condition.
3. Verify that all racks are level, plumb and square.

LIMITED WARRANTY

Vestil Manufacturing Corporation (“Vestil”) warrants this product to be free of defects in material and workmanship during the warranty period. Our warranty obligation is to provide a replacement for a defective original part if the part is covered by the warranty, after we receive a proper request from the warrantee (you) for warranty service.

Who may request service?

Only a warrantee may request service. *You are a warrantee if you purchased the product from Vestil or from an authorized distributor AND Vestil has been fully paid.*

What is an “original part”?

An original part is a part used to make the product as shipped to the warrantee.

What is a “proper request”?

A request for warranty service is proper if Vestil receives: 1) a photocopy of the Customer Invoice that displays the shipping date; AND 2) a written request for warranty service including your name and phone number. Send requests by any of the following methods:

<u>Mail</u>	<u>Fax</u>	<u>Email</u>
Vestil Manufacturing Corporation 2999 North Wayne Street, PO Box 507 Angola, IN 46703	(260) 665-1339 <u>Phone</u> (260) 665-7586	sales@vestil.com

In the written request, list the parts believed to be defective and include the address where replacements should be delivered.

What is covered under the warranty?

After Vestil receives your request for warranty service, an authorized representative will contact you to determine whether your claim is covered by the warranty. Before providing warranty service, Vestil may require you to send the entire product, or just the defective part or parts, to its facility in Angola, IN. The warranty covers defects in the following original dynamic components: motors, hydraulic pumps, electronic controllers, switches and cylinders. It also covers defects in original parts that wear under normal usage conditions (“wearing parts”), such as bearings, hoses, wheels, seals, brushes, and batteries.

How long is the warranty period?

The warranty period for original components is 30 days. The warranty period begins on the date when Vestil ships the product to the warrantee. If the product was purchased from an authorized distributor, the period begins when the distributor ships the product. Vestil may extend the warranty period for products shipped from authorized distributors by up to 30 days to the duration necessary to account for shipping time.

If a defective part is covered by the warranty, what will Vestil do to correct the problem?

Vestil will provide an appropriate replacement for any covered part. An authorized representative of Vestil will contact you to discuss your claim.

What is not covered by the warranty?

1. Labor;
2. Freight;
3. Occurrence of any of the following, which automatically voids the warranty:
 - Product misuse;
 - Negligent operation or repair;
 - Corrosion or use in corrosive conditions;
 - Inadequate or improper maintenance;
 - Damage sustained during shipping;
 - Accidents involving the product;
 - Unauthorized modifications: DO NOT modify the product IN ANY WAY without first receiving written authorization from Vestil. Modification(s) might make the product unsafe to use or might cause excessive and/or abnormal wear.

Do any other warranties apply to the product?

Vestil Manufacturing Corp. makes no other express warranties. All implied warranties are disclaimed to the extent allowed by law. Any implied warranty not disclaimed is limited in scope to the terms

