

BELOW-THE-HOOK LIFTING DEVICE
Engineering Note Cover Page

Lifting Device Numbers:

FNAL Site No/ _____ Div. Specific No. PPD 139 Asset No. _____
 If applicable If applicable If applicable

ASME B30.20 Group: (check one) Group I Structural and Mechanical Lifting Devices
 Group II Vacuum Lifting Devices
 Group III Magnets, Close Proximity Operated
 Group IV Magnets, Remote Operated

Device Name or Description 72" maximum span lifting bar (Span adjustable in 4" increments)

Device was (check all applicable) Purchased from a Commercial Lifting Device Manufacturer. Mfg Name LMHE USA Model AB250
 Designed and Built at Fermilab Serial #62958-14 WLL=2500# Tare wt = 90#
 Designed by Fermilab and Built by a Vendor. Assy drawing number _____
 Provided by a User or other Laboratory _____
 Other: Describe _____

Engineering Note Prepared by Dave Pushka Date 3-20-2003
 Engineering Note Reviewed by Angloe Date 4-7-2003

Lifting Device Data:

Capacity 2500 #
 Fixture Weight 90#

Service: normal heavy severe (refer to B30.20 for definitions)

Duty Cycle n/a 8, 16 or 24 hour rating (applicable to groups III, and IV)

Inspections Frequency _____

Rated Load Test by FNAL (if applicable) Date _____ Load _____

Check if Load Test was by Vendor and attach the certificate

Satisfactory Load Test Witnessed by: N/A
 Signature (of Load Test Witness) N/A

Notes or Special Information:

Purchased by J. Guerra from McMaster-Carr some years ago.

$$\text{SPAN} = 72'' \text{ (MAX)}$$

$$\text{RATED LOAD} = 2500 \#$$

$$M_{\text{MAX}} = \frac{Pl}{4} = \frac{(2500\#)(72'')}{4} = 45,000 \text{ in-LBS}$$

$$I_{xx} = (2) * 3.85 \text{ in}^4 \quad y = 2''$$

(4x5.4)

$$I_{yy} = (2) * 0.319 \text{ in}^4, \quad y =$$

$$\sigma_B = \frac{My}{I} = \frac{(45,000 \text{ in-LBS})(2'')}{(2) * 3.85 \text{ in}^4} = 11,688 \text{ PSI}$$

$$\sigma_{\text{ALLOW}} = \frac{F_y}{3} = \frac{36,000 \text{ PSI}}{3} = 12,000 \text{ PSI}$$

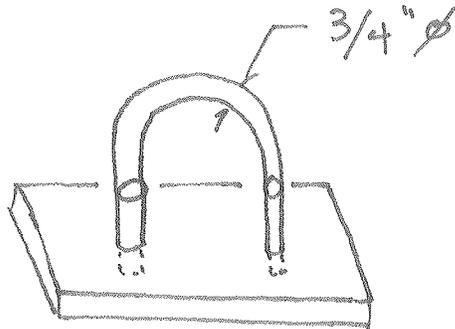
B30.2

$$\therefore \sigma_{\text{BENDING}} < \sigma_{\text{ALLOWABLE}} \therefore \text{OK}$$

CHECK CENTER & END CONNECTIONS -

CENTER CONN:

ASSUME MILD
STEEL, $F_y = 30$



$$\text{TENSILE AREA} = 2 \cdot \frac{\pi}{4} D^2 = 2 \frac{\pi}{4} \left(\frac{3}{4}\right)^2 = 0.88 \text{ IN}^2$$

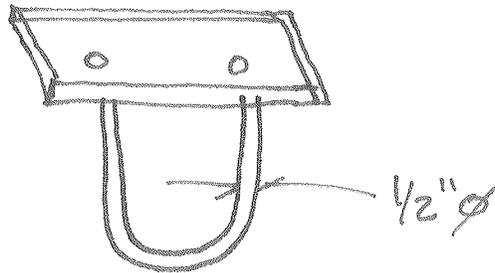
$$P = 2500 \#$$

$$\sigma_T = \frac{P}{A} = \frac{2500 \#}{0.88 \text{ IN}^2} = 2830 \text{ PSI}$$

$$\sigma_{\text{ALLOW}} = \frac{30 \text{ KSI}}{3} = 10 \text{ KSI}$$

$$\sigma_{\text{TENSION}} < \sigma_{\text{ALLOW}} \therefore \text{OK}$$

END CONN:



$$\text{TENSILE AREA} = 2 \cdot \frac{\pi}{4} \left(\frac{1}{2}\right)^2 = 0.39 \text{ in}^2$$

ASSUME MILD STEEL, $F_y = 30 \text{ ksi}$

$$P = \frac{2500 \#}{2} = 1250 \#$$

$$\sigma_{\text{TENSILE}} = \frac{1250 \#}{0.39 \text{ in}^2} = 3183 \text{ psi}$$

$$\sigma_{\text{ALLOW}} = \frac{30 \text{ ksi}}{3} = 10 \text{ ksi}$$

$$\sigma_{\text{TENSILE}} < \sigma_{\text{ALLOW}} \therefore \text{OK}$$

139

L MHE USA

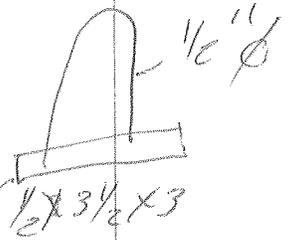
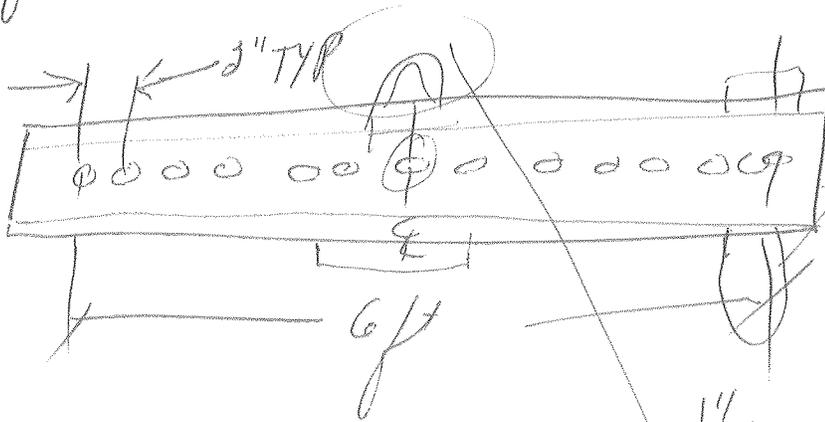
Serial# AB250

WALL 2500 H

→ 62958-14
TARE 90

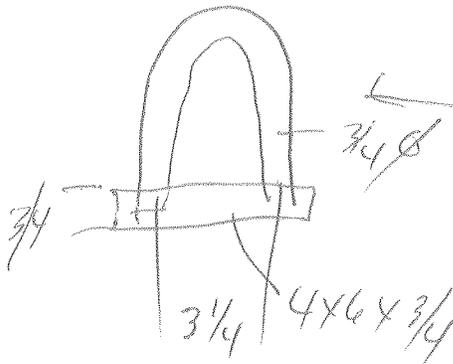
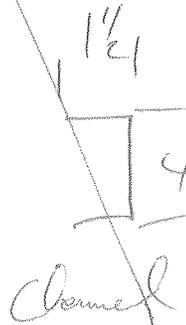
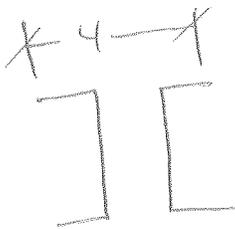
4 in channel 77 1/2 long

6 ft open web 3/16



(2)
C4x5.4

WALL 2500 #
TARE 90 #



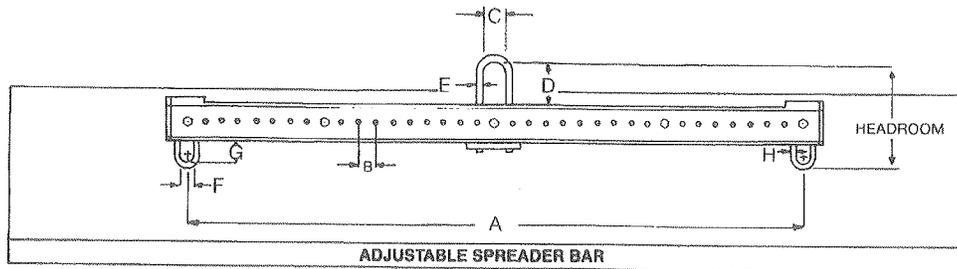
1/4" plate
each end

LETELLIER M.H.E., INC.

16650 South State Street (Bldg. #1)
 South Holland, IL 60473

Phone: 708-339-0545 Toll Free: 800-334-LMHE (5643) Fax: 708-339-3581

THE ADJUSTABLE SPREADER BEAM MANUAL & TEST CERTIFICATE



ADJUSTABLE SPREADER BAR

CATALOG NUMBER	REACH FT. A	ADJ. INCR. B	HEADROOM RECH'D	UPPER BAR			LOWER BAILS		WORKING LOAD LBWT
				WIDTH C	HEIGHT D	DIAMETER E	WIDTH F	REACH G	
AB-250	6	2"	12"	2.50"	5"	.75"	1.50"	3"	2500#
AB-400	6	2"	15"	3"	6"	1"	2"	4"	4000#
AB-800	8	2"	22"	4"	8"	1.25"	3"	6"	8000#
AB-1000	10	2"	26"	5"	10"	1.50"	3"	6"	10000#

TEST CERTIFICATE

Letellier Material Handling Equipment hereby certifies that this has been subjected to a tension proof test as set forth below.

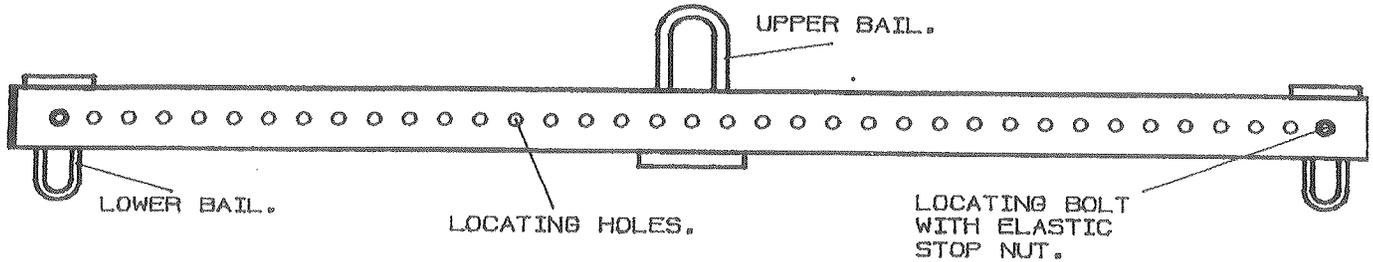
DESCRIPTION: AB250 Adjustable Spreader Beam
 TARE WEIGHT: 90 lbs SERIAL NUMBER: 62958-14
 RECOMMENDED SAFE WORKING LOAD LIMIT: 2,500 lbs
 PROOF TESTED TO: 5,000 lbs DATE: 03/12/01

WARRANTY

The above described spreader bar is warranted in material and workmanship. LMHE's liability is limited to replacing or repairing at its nearest authorized agent this beam or any part thereof, which within one year from this date, shall have been returned to it, and which its examination discloses to be defective. The seller shall not be responsible for the conditions of the beam, or any portion thereof, if any repairs or modifications to beam or any portions thereof, has been made by any other party without written authorization of LMHE. This warranty is expressly in lieu of all other warranties expressed or implied and of all other obligations or liabilities of LMHE. LMHE neither assumes nor authorizes any other persons to assume for it any liability in connection with sale or use. This warranty is specifically subject to the terms of sales covering the purchase and use of lifting devices as printed on page two of LMHE catalogs.

LIFTING WITH THE ADJUSTABLE SPREADER BAR

(AB) ADJUSTABLE SPREADER BAR.



Your Adjustable Spreader Bar is designed for use in a wide range of lifting applications. This manual demonstrates some, but not all, of the rigging configurations and [RULES OF USE] of the beam.

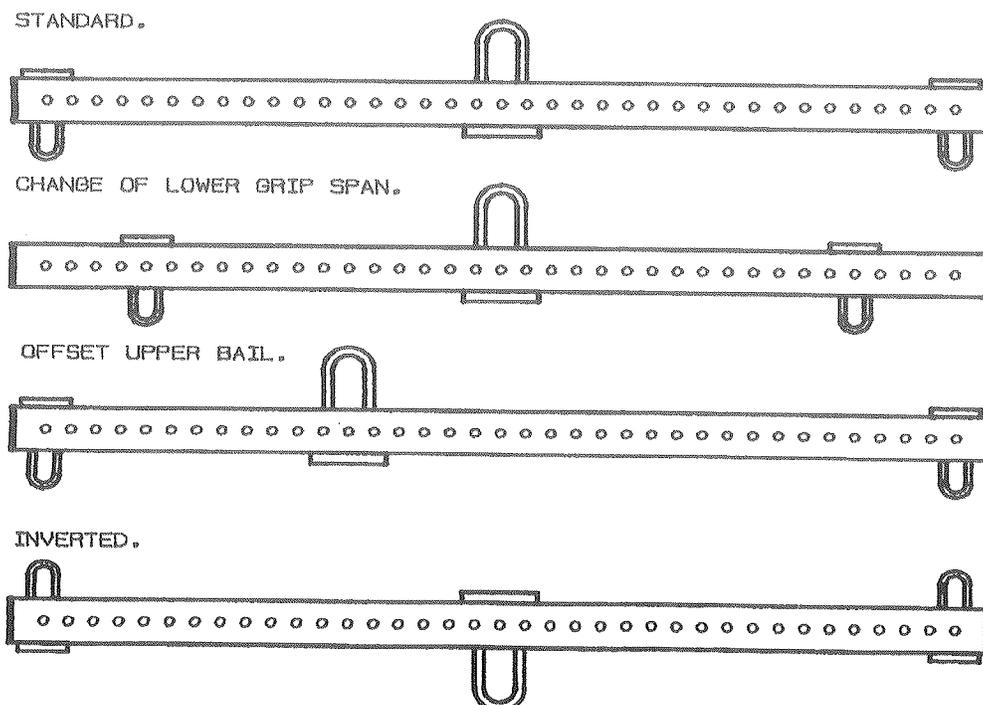
Consult your local Letellier dealer or call Letellier M.H.E., Inc. 1-800-334-5643 if you are uncertain of any particular rigging applications. Always obey the [CAUTIONS] and [RULES OF USE] When rigging your Adjustable Spreader Bar.

Adjustable Spreaders are designed to operate within the accepted limits and safety margins of OSHA and B30.2 standards at any combinations of upper and lower bail locations.

Lower bails may be moved in or out to change grip span. The upper bail may be moved to offset unbalanced loads.

Both upper and lower bails are held in locations by bolts with elastic stop nuts. Bail locations are selected by loosening these bolts, sliding the bail in the required locating hole and replacing the nut and bolt in that selected location.

All locating bolts must be firmly tightened before attempting any lift.



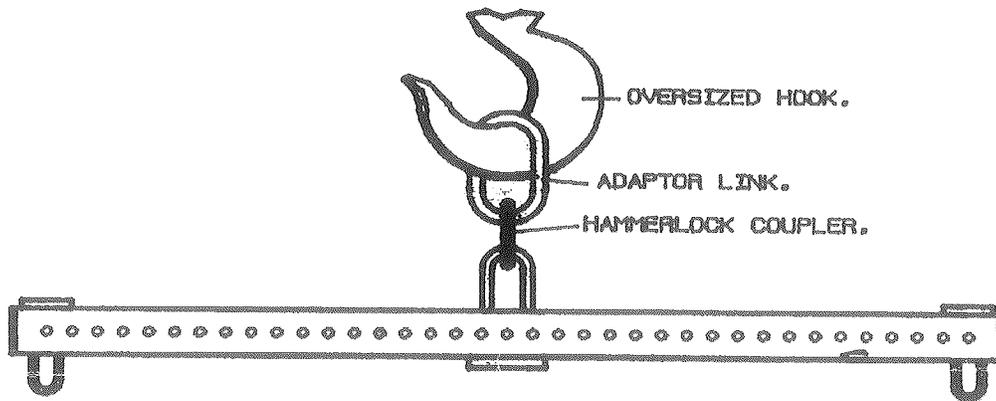
RIGGING

Both upper and lower bails are designed to accept a wide range of lifting media. [CAUTION] Always make certain rigging media equals or exceeds the capacity of your Adjustable Spreader Bar.

UPPER BAILS

Generally, the upper bail of the AB Series beams fit conveniently with hoists, of equivalent capacity. If, for some reason, you wish to use the AB series beam with a hook too large to fit the upper bail; the preferable method of adapting is to use an oblong link suitable to the hoist and adapt to the AB upper bail with the appropriate "Hammerlock" coupling links.

Always use proof tested components. "Hammerlock" couplers and custom adapter links are available from Letellier M.H.E., Inc.



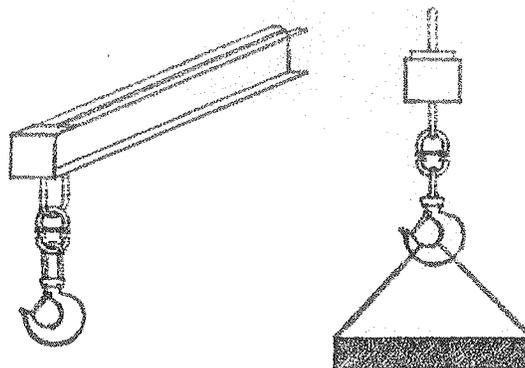
LOWER BAILS

Again, these bails are sized to accept "Hammerlock" couplers, "Kuplex" couplers or shackles of a size compatible with your AB series beam.

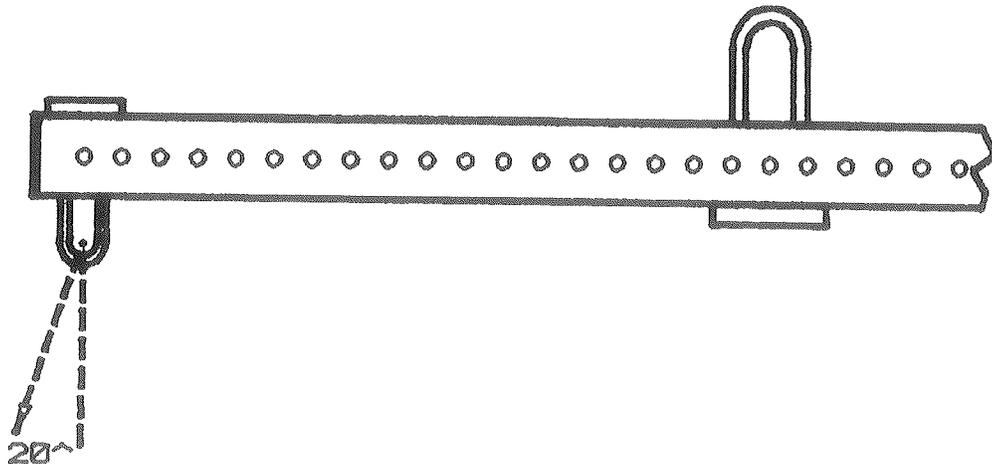
These fittings can be utilized to attach to chain, wire rope or nylon media, or to directly attach rigging or swivel hooks.

If your Adjustable Spreader Bar is intended for use with a range of different slings, the preferred lower attachment is a swivel hook connected to the lower bail with a "Hammerlock" coupler. Swivel hooks turn, following load forces, eliminating any side loads on the bail or beam. They also turn 90 degrees allowing basket or 4 point lifts.

Two legs at each end (4 point or basket)



Make certain lower slings are sufficiently long so as not to exceed a 20 degree angle between the beam and the load.



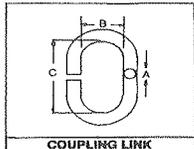
Select the set of lift points on the beam nearest lift point on the load. (Preferably inside load centers)

[CAUTION] Optional locations and the flexibility of the AB Series beams should provide solutions to most lift problems. If modifications of an Adjustable Spreader Bar should be required, consult your Letellier dealer or contact Letellier directly. As received, all components meet ASTM and OSHA requirements. Independent modifications will void all proof test validations and implied warranties.

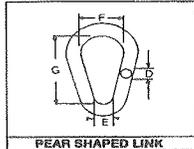
ADDITIONAL L.M.H.E. LIFTING PRODUCTS

FOR MORE INFORMATION ON OUR PRODUCTS CONTACT US AT (800) 334-5643

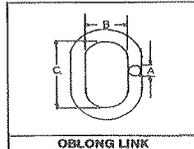
ALLOY CHAIN PRODUCTS



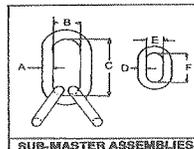
COUPLING LINK



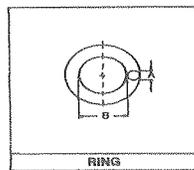
PEAR SHAPED LINK



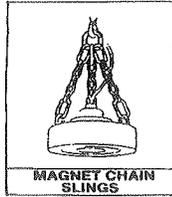
OBLONG LINK



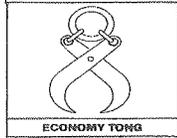
SUB-MASTER ASSEMBLIES



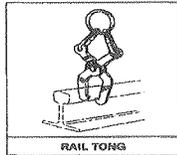
RING



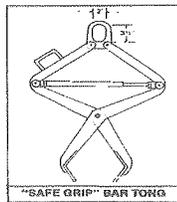
MAGNET CHAIN SLINGS



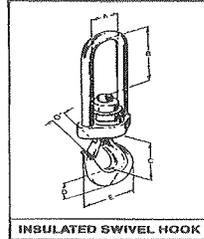
ECONOMY TONG



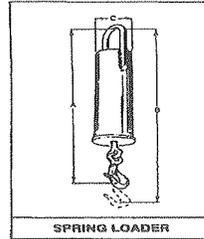
RAIL TONG



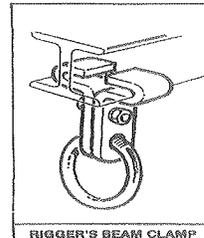
"SAFE GRIP" BAR TONG



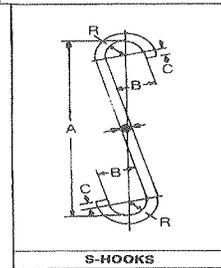
INSULATED SWIVEL HOOK



SPRING LOADER



RIGGER'S BEAM CLAMP



S-HOOKS

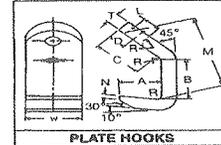
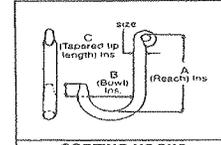
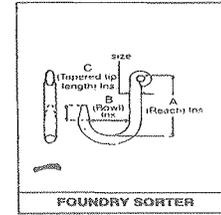


PLATE HOOKS

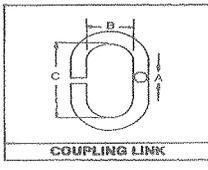


SORTING HOOKS

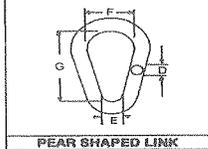


FOUNDRY SORTER

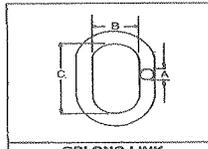
STAINLESS STEEL CHAIN PRODUCTS



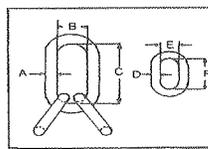
COUPLING LINK



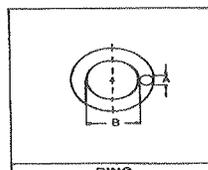
PEAR SHAPED LINK



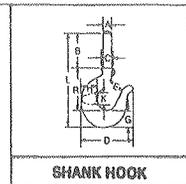
OBLONG LINK



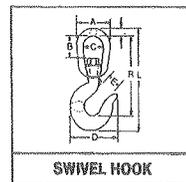
SUB-MASTER ASSEMBLIES



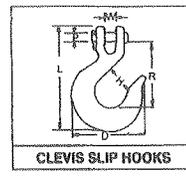
RING



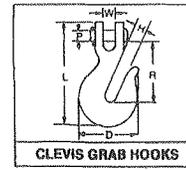
SHANK HOOK



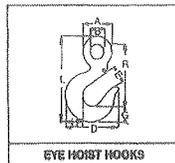
SWIVEL HOOK



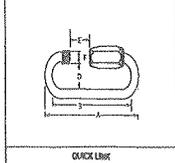
CLEVIS SLIP HOOKS



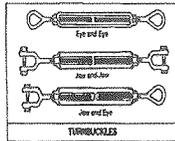
CLEVIS GRAB HOOKS



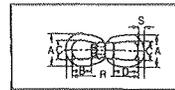
EYE HOIST HOOKS



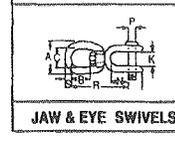
QUICK LINK



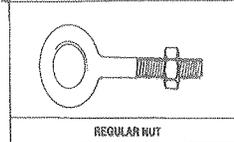
TURNBUCKLES



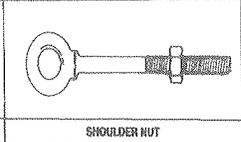
EYE & EYE SWIVELS



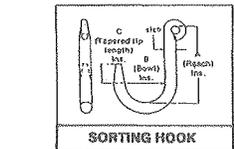
JAW & EYE SWIVELS



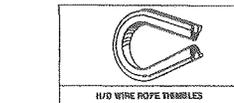
REGULAR NUT



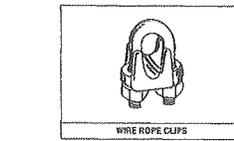
SHOULDER NUT



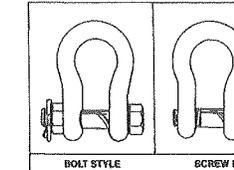
SORTING HOOK



HD WIRE ROPE BUNNIES

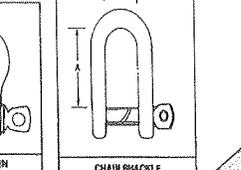


WIRE ROPE CLIPS

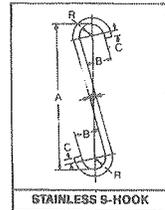


BOLT STYLE

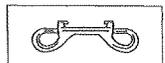
SCREW PIN



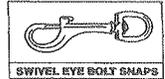
CHAIN SHACKLES



STAINLESS S-HOOK



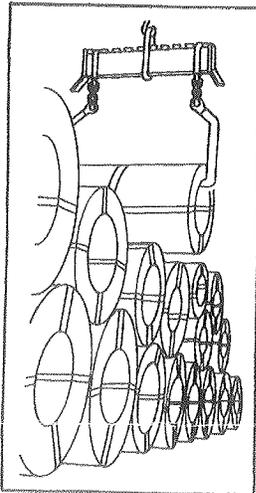
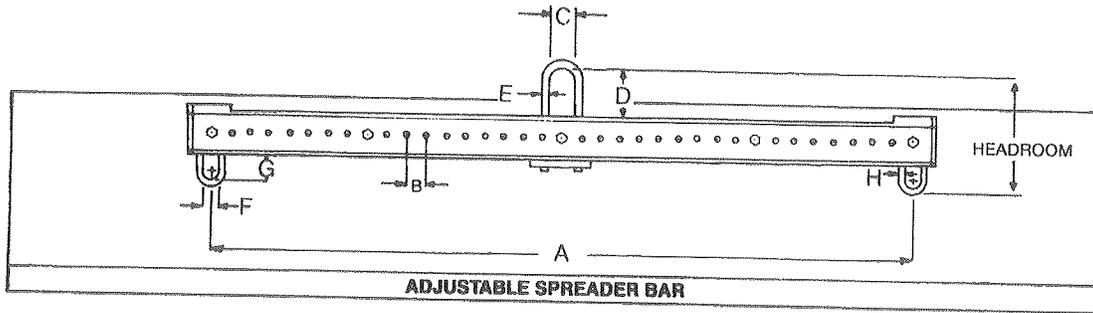
DOUBLE CHAIN SNAPS



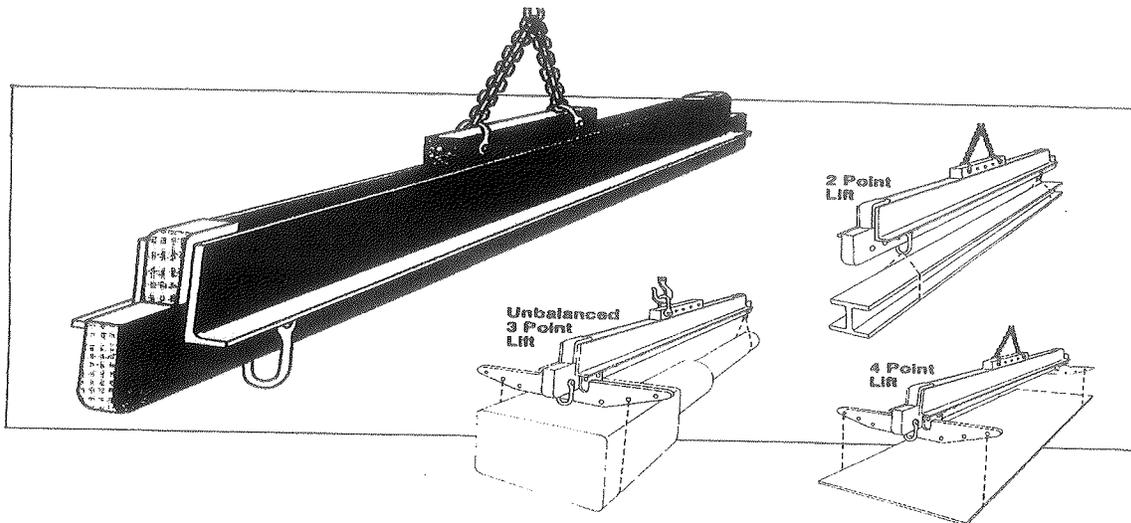
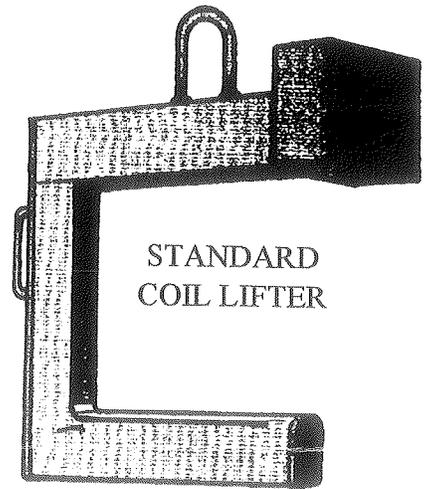
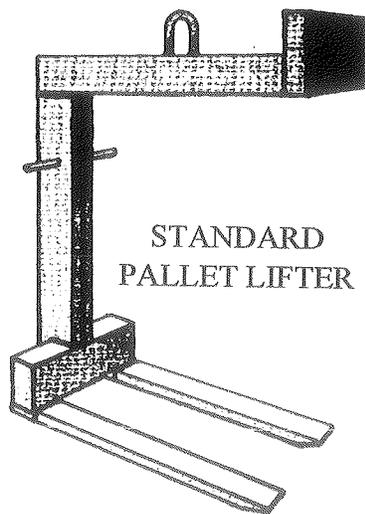
SWIVEL EYE BOLT SNAPS

ADDITIONAL L.M.H.E. LIFTING PRODUCTS

FOR MORE INFORMATION ON OUR PRODUCTS CONTACT US AT (800) 334-5643



DUAL ARM COIL LIFTER



UNIVERSAL SPREADER SYSTEM

In addition to the pictured products, LMHE offers a wide range of lifting products. We also offer custom design and production of unique lifting and material handling gear. Call (800) 334-LMHE to order our catalog, outlining these products and services.