

# CHAPARRAL

## LOADING AND BRACING ON FLAT BED OR "LOW-BOY" TRAILER OF TRACK VEHICLE, M730, W/O FIRE UNIT

THIS DRAWING, INCLUDING REVISION 1, SUPERSEDES  
DRAWING 19-48-7563-GSE11CH5, DATED NOVEMBER 1969.

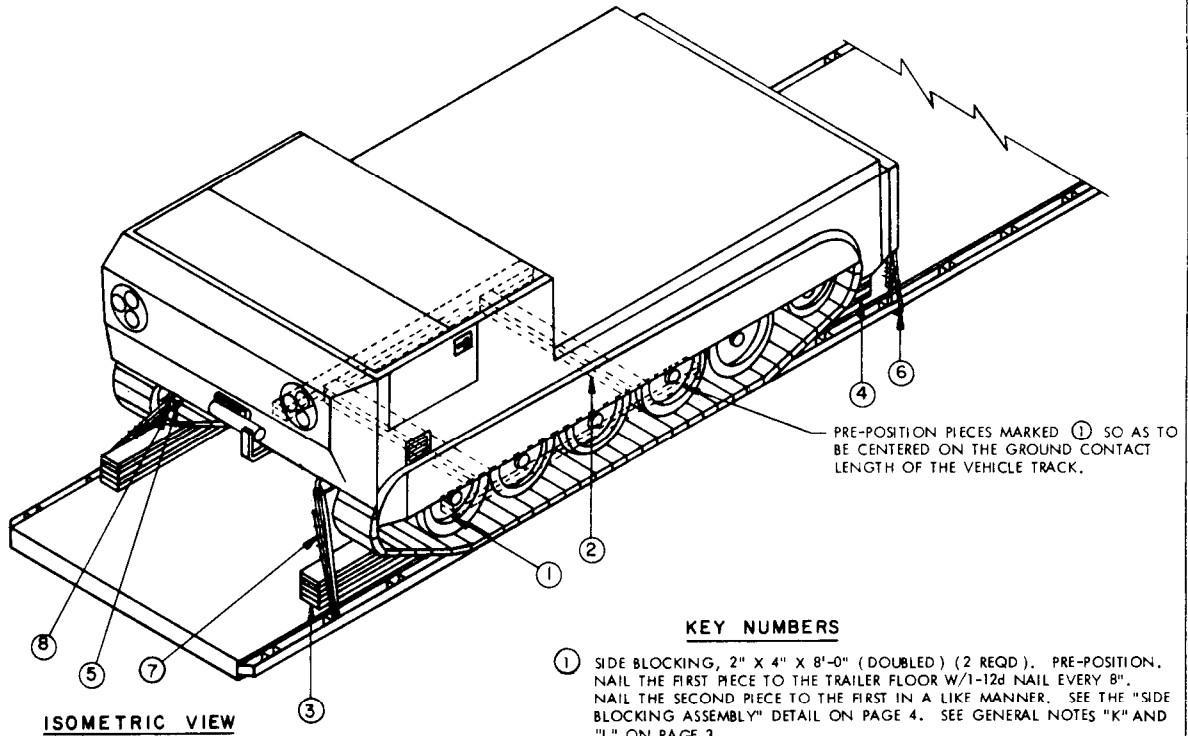
| REVISIONS |        |                    |   | REVISIONS   | P.B.              | P.B. / M.W.P. / R.A.W. | D.R.G. / S.P. |
|-----------|--------|--------------------|---|---|-------------------|------------------------|---------------|
| 1         | JUL 79 | M.W.P.<br>R.W.F.E. | <i>William J. Goguen</i><br><i>John X. Boyd</i> | CHECKER   | R.S.T.B. / R.A.W. | W.F. Goguen            | D.R.G. / S.P. |
|           |        |                    |   | APPROVED, U.S. ARMY MISSILE COMMAND   |                   |                        |               |
|           |        |                    |   | APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY<br>MATERIAL DEVELOPMENT AND READINESS COMMAND (DARCOM) |                   |                        |               |
|           |        |                    |   | <i>John X. Boyd</i><br>U.S. ARMY DEFENSE AMBULANCE CENTER AND SCHOOL                                      |                   |                        |               |
|           |        |                    |   | U. S. ARMY DARCOM DRAWING   |                   |                        |               |
|           |        |                    |   | JULY 1979   |                   |                        |               |
|           |        |                    |   | CLASS   | DIVISION          | DRAWING                | FILE          |
|           |        |                    |   | 19  | 48                | 7563                   | GSE<br>11CH5  |

**DO NOT SCALE**

**REVISION**

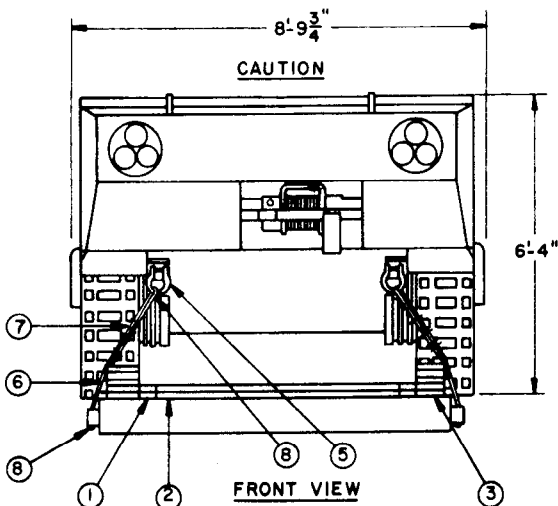
REVISION NO. 1, DATED JULY 1979, CONSISTS OF:

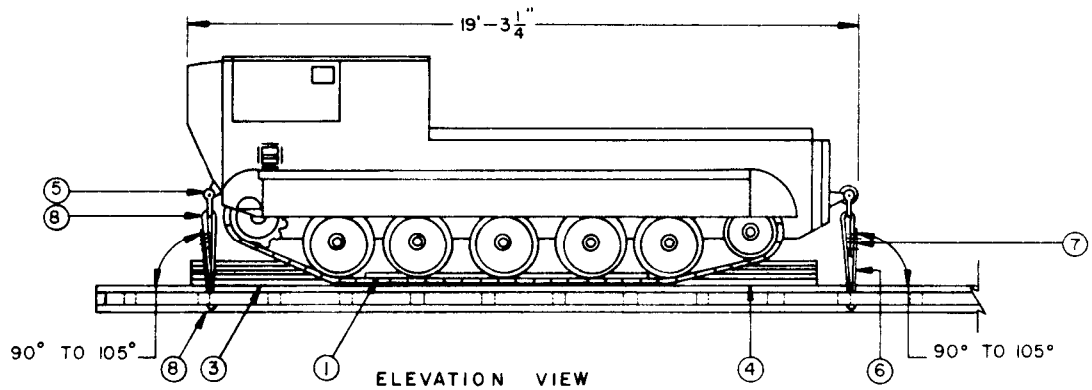
1. DELETING BOW MOUNTING BRACKETS.
2. DELETING X FROM XM730.
3. CHANGING LADING DATA.
4. ADDING "SPECIAL PROVISIONS" FOR USE OF CHAINS AND LOAD BINDERS.
5. CHANGING PROCEDURES TO CONFORM TO CURRENT STANDARDS.



**KEY NUMBERS**

- ① SIDE BLOCKING, 2" X 4" X 8'-0" (DOUBLED) (2 REQD). PRE-POSITION. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/1-12d NAIL EVERY 8". NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE THE "SIDE BLOCKING ASSEMBLY" DETAIL ON PAGE 4. SEE GENERAL NOTES "K" AND "L" ON PAGE 3.
- ② LATERAL BRACING, 2" X 4" BY CUT TO FIT (DOUBLED) (2 REQD). PRE-POSITION AS SHOWN. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/1-12d NAIL EVERY 8". NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE THE "SIDE BLOCKING ASSEMBLY" DETAIL ON PAGE 4.
- ③ FRONT CHOCK BLOCK (2 REQD). SEE THE DETAIL ON PAGE 4. LOCATE THE BEVELED END AGAINST THE VEHICLE TRACK AND NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/4-12d NAILS. NAIL EACH ADDITIONAL PIECE W/4-20d NAILS.
- ④ REAR CHOCK BLOCK (2 REQD). SEE THE DETAIL ON PAGE 4. LOCATE THE BEVELED END AGAINST THE VEHICLE TRACK AND NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/4-12d NAILS. NAIL EACH ADDITIONAL PIECE W/4-20d NAILS.
- ⑤ SHACKLE, SIZE 7/8" (4 REQD). INSTALL ONE EACH AT THE TWO FRONT AND TWO REAR TIE-DOWN POINTS ON THE VEHICLE. NOTE: THESE SHACKLES ARE NOT REQUIRED IF THE VEHICLE IS ALREADY SO EQUIPPED WHEN OFFERED FOR SHIPMENT. IF THE VEHICLE HAS TOW HOOKS ATTACHED TO THE TIE-DOWN POINTS, THESE SHALL BE REMOVED AND STORED IN THE DRIVER'S COMPARTMENT. SEE GENERAL NOTE "M" ON PAGE 3.
- ⑥ STEEL WIRE ROPE, 1/2" DIAMETER, 11.5 TONS (4 REQD). INSTALL THE CABLE TO APPROXIMATE THE ANGLES AS SHOWN AND TO FORM A COMPLETE LOOP FROM THE TIE-DOWN FACILITY ON THE TRAILER, THROUGH THE SHACKLE, PIECE MARKED ⑤ AND BACK TO THE TRAILER TIE-DOWN FACILITY. SEE GENERAL NOTES "F", "G", AND "H". NOTE: CABLE OF A LARGER SIZE MAY BE USED IF THE SPECIFIED CABLE IS NOT AVAILABLE, OR IF A LARGER SIZE IS BEING USED FOR TIEDOWN OF OTHER ITEMS BEING SHIPPED.
- ⑦ CLIP, SIZE 1/2" (24 REQD). USE FOUR (4) PER CABLE JOINT AND ONE PER THIMBLE. NOTE: A STANDARD THIMBLE AS SPECIFIED CAN BE SECURED TO A CABLE WITH 1/2" CLIP. HOWEVER, IF DESIRED, OR IF THE 1/2" THIMBLE BEING USED IS OF A TYPE WHICH CANNOT BE SECURED TO A CABLE WITH A 1/2" CLIP, A 5/8" CLIP MAY BE USED.
- ⑧ THIMBLE, STANDARD, SIZE 1/2" (8 REQD). ONE (1) PER TRAILER TIE-DOWN FACILITY AND ONE (1) PER LADING TIE-DOWN DEVICE (SHACKLE). SECURE TO THE WIRE ROPE MARKED ⑥ W/1-CLIP PER THIMBLE. NOTE THAT AN "OPEN PATTERN" THIMBLE IS RECOMMENDED.





(GENERAL NOTES CONTINUED)

M. MORE DISTANCE MAY BE REQUIRED BETWEEN THE DRILLED PADS AT THE OPEN END OF A SHACKLE SO THAT IT WILL FIT PROPERLY OVER THE THICKNESS OF THE TOWING/TIEDOWN BRACKET ON THE VEHICLE. TO PROVIDE THE NEEDED CLEARANCE, EQUAL AMOUNTS OF MATERIAL MAY BE REMOVED FROM THE SHACKLE PADS BY GRINDING OR MACHINING.

**GENERAL NOTES**

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1.
- B. THE LOAD AS SHOWN IS BASED ON A FLAT BED OR "LOW-BOY" TRAILER 8'-0" WIDE WITH A WOOD OR A WOOD AND METAL FLOOR. TRAILERS WITH ALL METAL FLOORS WILL NOT BE USED. ONLY ONE UNIT OF LADING IS SHOWN; HOWEVER, MULTIPLES OF UNITS, AS SHOWN OR DISSIMILAR IN NATURE, MAY BE LOADED ON A TRAILER. THE NUMBER OF UNITS TO BE LOADED ON A TRAILER WILL BE DEPENDENT ON THE SIZE OF THE TRAILER USED OR THE QUANTITIES OF UNITS TO BE SHIPPED, WITH THE VIEW OF FULL UTILIZATION OF CARRIER EQUIPMENT. CAUTION: THE LOAD AS SHOWN MAY REQUIRE "CLEARANCE" CONSIDERATION BECAUSE OF EXCESSIVE LADING WIDTH.
- C. ONLY TRAILERS CAPABLE OF SAFELY TRANSPORTING THE LADING TO THE DESTINATION WITHOUT DAMAGE WILL BE SELECTED. TRAILERS SELECTED MUST HAVE "SOUND" FLOORS WHICH PROVIDE NAIL RETENTION PROPERTIES EQUAL TO OR BETTER THAN THE SPECIFIED DUNNAGE LUMBER, AND A SUFFICIENT NUMBER OF TIE-DOWN FACILITIES OF A STRENGTH EQUAL TO OR BETTER THAN THE SPECIFIED LADING TIE-DOWN ASSEMBLIES.
- D. SHIPMENT GROSS WEIGHT, AXLE DISTRIBUTION OF LADING WEIGHT, AND OVERALL DIMENSIONS MUST MEET STATE LAW REQUIREMENTS.
- E. LADING DATA:  
 ITEM DIMENSIONS ----- 19'-3-1/4" LONG X 8'-9-3/4" WIDE X 6'-4" HIGH.  
 ITEM GROSS WEIGHT ----- 16,233 POUNDS (APPROX).
- F. REFER TO ORD DWG 19-48-C-ORDJU-588, "WIRE ROPE AND ANNEALED WIRE APPLICATION METHODS FOR SECURING LADING ON RAIL & MOTOR CARRIER EQUIP", FOR PROPER TIE-DOWN APPLICATION.
- G. SEE THE "SPECIAL PROVISIONS" ON PAGE 4 FOR SPECIFICATIONS WHICH MUST BE APPLIED IF CHAINS AND LOAD BINDERS ARE USED.
- H. TO ACHIEVE PROPER CABLE TENSION, EMPLOY TWO (2) CABLE "GRIPPERS" AND AN APPLICABLY SIZED "COME-A-LONG" TYPE MECHANICAL HOIST. NOTE: CABLES WILL BE TENSIONED SUFFICIENTLY TO CAUSE THE BODY OF THE TRACK VEHICLE TO DEPRESS APPROXIMATELY ONE INCH (1").
- J. CAUTION: IT IS RECOMMENDED THAT THE CABLE TIE-DOWNS BE INSTALLED TO APPROXIMATE THE ANGLES SHOWN; HOWEVER, IF PLACEMENT OF THE TRANSPORTER TIE-DOWN FACILITIES PREVENTS THIS, CARE MUST BE EXERCISED TO ENSURE THAT THE CABLE TIE-DOWNS ON THE SAME SIDE OF THE LADING ARE INSTALLED SO THEIR RETENTION FORCES ACT IN OPPOSITE LONGITUDINAL DIRECTIONS.
- K. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 4" MATERIAL IS ACTUALLY 1-1/2" THICK BY 3-1/2" WIDE.
- L. NOTICE: A STAGGERED NAILING PATTERN WILL BE USED WHEN DUNNAGE IS NAILED TO THE FLOOR OF THE TRANSPORTING VEHICLE, OR WHEN LAMINATING DUNNAGE. ALSO, THE NAILING PATTERN FOR AN UPPER PIECE OF LAMINATED DUNNAGE WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL FOR THAT PIECE WILL NOT BE DRIVEN THROUGH ONTO OR RIGHT BESIDE A NAIL IN A LOWER PIECE.

| BILL OF MATERIAL                        |                |            |
|---|----------------|------------|
| LUMBER                                  | LINEAR FEET    | BOARD FEET |
| 2" X 4"                                 | 53             | 36         |
| 2" X 8"                                 | 65             | 87         |
| NAILS                                   | NO. REQD       | POUNDS     |
| 12d (3-1/4")                            | 96             | 1-3/4      |
| 20d (4")                                | 64             | 2-1/2      |
| ROPE, STEEL WIRE, 1/2" DIA -----        | 48' REQD ----- | 21 LBS     |
| CLIP, 1/2" -----                        | 24 REQD -----  | 11 LBS     |
| CLIP, 5/8" (ALT FOR 1/2", 8 REQD) ----- |                | 5 LBS      |
| THIMBLE, STANDARD, 1/2" -----           | 8 REQD -----   | 2 LBS      |
| SHACKLE, 7/8" -----                     | 4 REQD -----   | 9 LBS      |

**MATERIAL SPECIFICATIONS**

**LUMBER** -- DOUGLAS FIR OR COMPARABLE LUMBER WITH STRAIGHT GRAIN AND FREE OF MATERIAL DEFECTS. REF: FED SPEC MM-L-751.

**NAILS** -- COMMON, REF: FED SPEC FF-N-105.

**ROPE** -- STEEL WIRE, PLAIN, PREFORMED, REGULAR LAY, 11.5 TONS, 6 X 19, FLEXIBLE IWRC, MACWHYTE WIRE ROPE CO. (OR EQUAL). REF: FED SPEC FF-W-410.

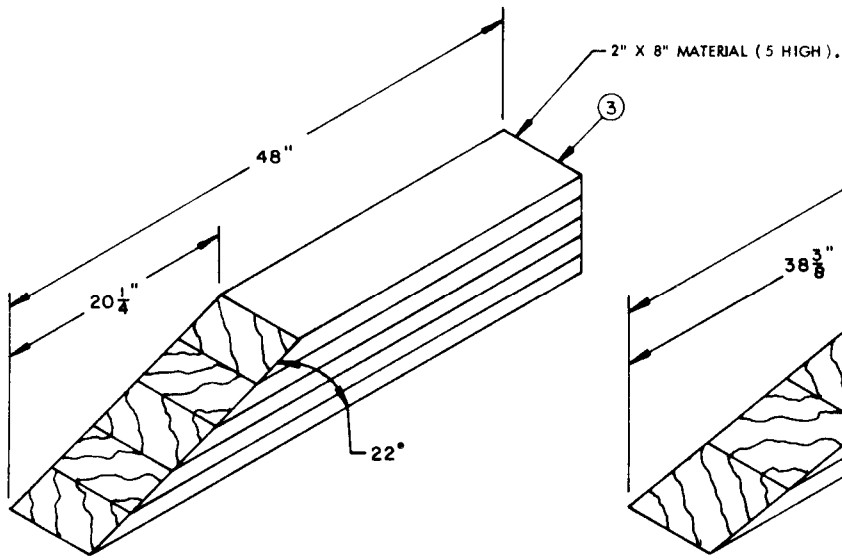
**CLIP** --- "U" BOLT, CROSBY, HEAVY DUTY (OR EQUAL). REF: FED SPEC FF-C-450, TYPE I, CLASS 1.

**SHACKLE**: MIL-S-5675A.

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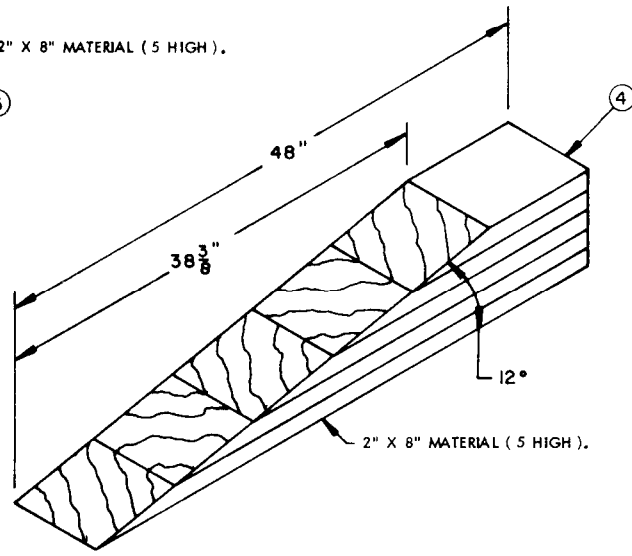
**LOAD AS SHOWN**

| ITEM                | QUANTITY | WEIGHT (APPROX) |
|---------------------|----------|-----------------|
| M730, TRACK VEHICLE |          |                 |
| W/O FIRE UNIT ----- | 1 -----  | 16,233 LBS      |
| DUNNAGE -----       |          | 294 LBS         |
| TOTAL WEIGHT -----  |          | 16,527 LBS      |



**FRONT CHOCK BLOCK**

REFER TO KEY NUMBER ③ ON PAGE 2 FOR NAILING SPECIFICATIONS.



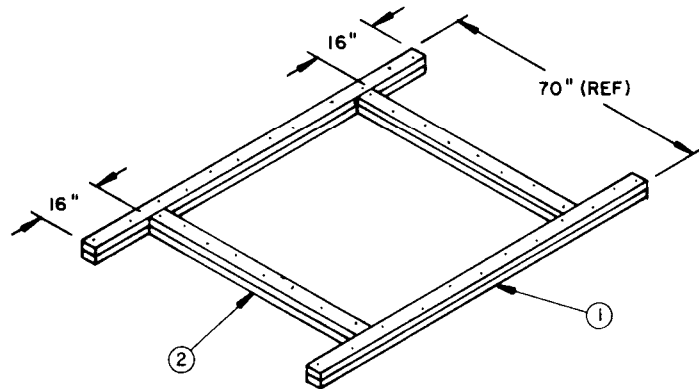
**REAR CHOCK BLOCK**

REFER TO KEY NUMBER ④ ON PAGE 2 FOR NAILING SPECIFICATIONS.

**SPECIAL PROVISIONS:**

LADING MAY BE SECURED BY CARRIER-OWNED CHAINS AND LOAD BINDERS IN LIEU OF SPECIFIED WIRE ROPE CABLE, PROVIDING THE FOLLOWING CONDITIONS ARE MET:

1. ONLY CHAINS AND LOAD BINDERS OF GOOD QUALITY SHOULD BE USED. **CAUTION:** EXTREME CARE MUST BE USED IN TENSIONING CHAINS TO PREVENT DAMAGE TO THE TRACK VEHICLE OR DEFORMATION OF THE TRAILER TIE DOWN DEVICES.
2. TWO (2) LINES OF 3/8" CHAIN OR FOUR (4) LINES OF 1/4" CHAIN MAY BE SUBSTITUTED FOR EACH WIRE ROPE CABLE MARKED ⑥. CHAINS SHALL BE INSTALLED AT THE SAME LOCATIONS SHOWN FOR WIRE ROPE CABLES AND IN THE SAME MANNER AS DIRECTED IN GENERAL NOTES "M" AND "J" ON PAGE 3.
3. IF DESIRED, CHAINS OF A LARGER SIZE THAN SPECIFIED ABOVE MAY BE USED.
4. BEFORE AND DURING INSTALLATION, THE CHAINS AND LOAD BINDERS SHALL BE INSPECTED FOR BENT HOOKS, STRETCH, GOUGES, BENT LINKS, WEAR, AND ANY OTHER NOTICEABLE DEFECTS. ANY DEFICIENCY SHALL BE CAUSE FOR REJECTION OF A CHAIN OR LOAD BINDER. CHAINS MUST NOT BE TWISTED DURING INSTALLATION.
5. THE TENSIONING DEVICE OF EACH LOAD BINDER MUST BE SAFETY-WIRE TIED TO PREVENT ACCIDENTAL OPENING OR LOOSENING IN TRANSIT.
6. ANTI-CHAFING MATERIAL MUST BE PLACED AND SECURED BETWEEN THE CHAINS AND LADING AT ALL POINTS OF CONTACT, EXCEPT AT DEFINITIVE TIE DOWN POINTS.



**SIDE BLOCKING ASSEMBLY**

REFER TO KEY NUMBERS ① AND ② ON PAGE 2 FOR NAILING SPECIFICATIONS.