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MECH DIV AAR, THEIR LETTER

DATED APR 3, 1930 FILE 4R. 11.0.69

SIGNED A. W. Mosbleck.

DATE 22 APRIL 1930

TEA, MTMC, FT EUSTIS, VA.

CHAPARRAL

LOADING AND BRACING ON FLAT CAR OF SUPPORT MAINTENANCE SHOP SET, AN/TSM-96

INDEX

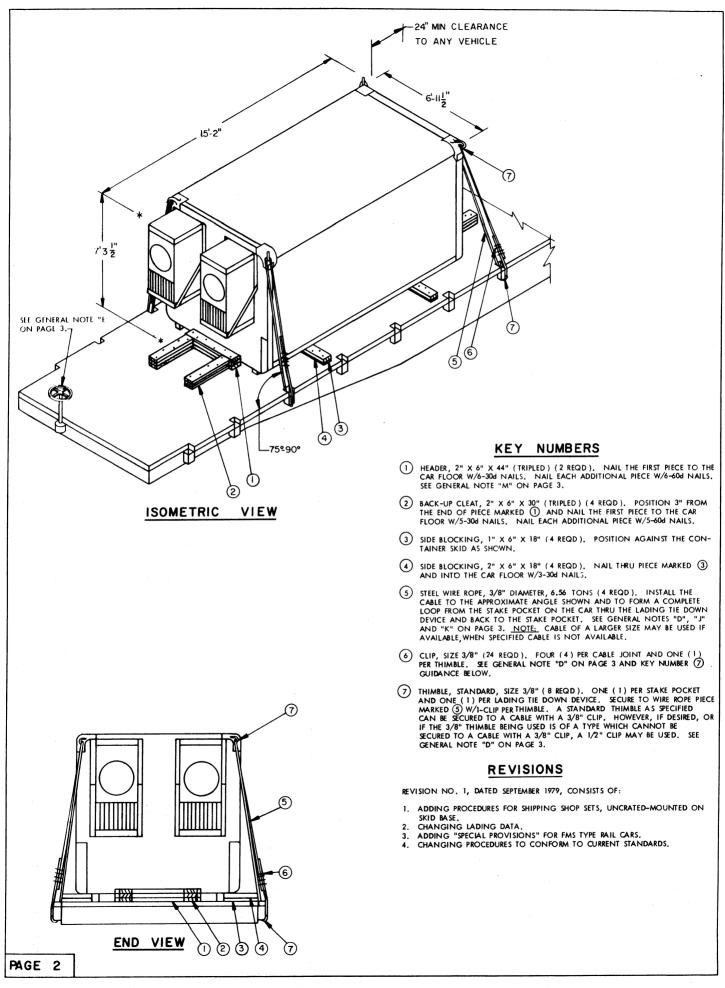
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SUPPORT	MAINTENANCE	SHOP SE	「(CRATED)	4
SUPPORT	MAINTENANCE	SHOP SE	T (UNCRATED, MOUNTED ON SKID BASE) 5	5

THIS OUTLOADING PROCEDURAL DRAWING INCLUDES PROCEDURES FOR GENERAL SERVICE FLAT CARS (FM) AND FOR CUSHIONED FLAT CARS (FMS) EQUIPPED WITH SPECIAL CHAIN TIE-DOWN DEVICES OF VARIOUS DESIGN AND MANUFACTURE.

THIS DRAWING, INCLUDING REVISION 1, SUPERSEDES DRAWING 19-48-7178-GSE 5CH3, DATED MAY 1970.

1	REVISIONS				men		/WWW /	12 /201
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DO NOT SCALE



SPECIAL PROVISIONS:

AN UNCRATED SHELTER MAY BE SECURED ON A CUSHIONED FMS TYPE CAR WITH CHAIN TIE DOWN ASSEMBLIES IN LIEU OF USING THE DEPICTED GENERAL SERVICE FM TYPE CAR AND THE SPECIFIED TIE DOWN MATERIALS, PROVIDING THE FOLLOWING CONDITIONS ARE MET:

- THE CAR MUST HAVE A NAILABLE FLOOR AREA AT LEAST 8'-8" WIDE BETWEEN THE OUTER CHANNELS FOR THE SECUREMENT OF PIECES MARKED (1) THRU (4) ON PAGE 2, AND PIECES MARKED (1) THRU (3) ON PAGE 5.
- 2. ONE (1) MOVABLE ANCHOR WITH CHAIN ASSEMBLY TIE DOWN DEVICE MUST BE SUBSTITUTED FOR EACH WIRE ROPE CABLE TIE DOWN MARKED (3) ON PAGE 2 AND MARKED (4) ON PAGE 5. CHAINS WILL BE ATTACHED TO THE LADING AT THE SAME LOCATIONS SHOWN FOR THE WIRE ROPE. NOTE THAT IF THE LADING TIE DOWN DEVICE IS NOT LARGE ENOUGH TO PERMIT PASSAGE OF THE HOOK ON THE CHAIN ASSEMBLY, A 5/8" (OR LARGER) SHACKLE MAY BE USED FOR ATTACHMENT OF THE CHAIN. ANCHOR DEVICES WILL BE LOCATED SO AS TO POSITION THE CHAINS WITHIN THE ANGULAR TOLERANCES SPECIFIED ON THE LOAD VIEWS.
- 3. BEFORE AND DURING INSTALLATION, THE ANCHOR DEVICES SHALL BE INSPECTED FOR BENT HOOKS, STRETCH, GOUGES, BENT LINKS, AND WEAR IN THE CHAINS, AND FOR DAMAGED LOAD BINDERS OR WINCHES, OR ANY OTHER NOTICEABLE DEFECTS. ANY DEFICIENCY SHALL BE CAUSE FOR NOT USING AN ANCHOR AND CHAIN A SSEMBLY.
- 4. CHAINS MUST NOT BE TWISTED DURING INSTALLATION. CHAINS ARE TO BE STRUCK WITH A HAMMER OR BAR AFTER TIGHTENING TO ELIMINATE ANY POSSIBLE MIS-ALIGNMENT OF LINKS. FURTHER TIGHTENING MAY BE REQUIRED TO TAKE UP ANY SIACK THAT DEVELOPS DUE TO LINK ALIGNMENT.
- 5. TURNBUCKLES OR OTHER TENSIONING DEVICES NOT EQUIPPED WITH SELF-LOCKING DEVICES MUST BE WIRED OR PINNED TO PREVENT THEM FROM TURNING OR LOOSENING DURING TRANSIT.
- 6. OPEN HOOKS MUST BE SECURED WITH WIRE AS REQUIRED TO PREVENT THE HOOK FROM BECOMING DISENGAGED FROM THE CHAIN LINK TO WHICH IT IS ATTACHED.
- ANTI-CHAFING MATERIAL MUST BE PLACED AND SECURED BETWEEN THE CHAINS AND THE LADING AT ALL POINTS OF CONTACT, EXCEPT AT DEFINITIVE TIE DOWN POINTS.

BILL OF MATERIAL				
LUMBER	LINEAR FEET	BOARD FEET		
1" X 6" 2" X 6"	6 58	3 58		
NAILS	NO, REQD	POUNDS		
30d (4-1/2") 60d (6")	44 64	2-1/4 6-1/2		
ROPE. STEEL WIRE. 3/8" 76' REQD 19 LBS				

ROPE, STEEL WIRE, 3/8"	76' REQD 19 LBS
CLIP 3/8"	24 REQD 8 LBS
CLIP, 1/2" (ALT FOR 3/8", 8 REQD)	4 LBS
THIMBLES, STANDARD, 3/8"	8 REQD 2 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, 6.56 TONS, 6 X 19, FLEXIBLE IWRC, MACWHYTE WIRE ROPE CO (C EQUAL). REF: FED SPEC RR-W-410.
CLIPS: "U" BOLT, CROSBY, HEAVY DUTY (OR EQUAL). REF: FED SPEC FF-C-450, TYPE I, CLASS I.
STRAPPING, STEEL: CLASS 1, TYPE 1, HEAVY DUTY, FINISH A, B (GRADE 2), OR C. REF: FED SPEC QQ-5-781.
STRAP SEAL:: TYPE D, STYLE 1, II, OR IV, CLASS H. REF: FED SPEC QQ-S-781.

POCKET PROTECTOR ---- : COMMERCIAL GRADE.

GENERAL NOTES

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1.
- B. THE LOADS AS SHOWN ARE BASED ON FLAT CARS 9'-2" WIDE (PLATFORM); WIDER CARS CAN BE USED. ONLY ONE UNIT OF LADING IS SHOWN IN EACH LOAD VIEW; HOWEVER, MULTIPLES OF UNITS, AS SHOWN OR DISSIMILAR IN NATURE, MAY BE LOADED ON A CAR. THE NUMBER OF UNITS TO BE LOADED ON A CAR WILL BE DEPENDENT ON THE SIZE OF THE CAR USED OR THE QUANTITIES OF UNITS TO BE SHIPPED WITH THE VIEW OF FULL UTILIZATION OF CARRIER EQUIPMENT.

NOTICE TO TRANSPORTATION OFFICER:

IN LIEU OF REQUISITIONING A GENERAL SERVICE FM* FLAT CAR AS DEPICTED HEREIN, EVERY EFFORT SHOULD BE MADE TO ACQUIRE AN FMS*TYPE CAR. THIS IS A CUSHIONED CAR EQUIPPED WITH SPECIAL TIE DOWN CHANNELS AND MOVEABLE ANCHOR AND CHAIN ASSEMBLY TIE DOWN DEVICES**, SUCH AS IS USED FOR TRANSPORTING ACRICULTURAL MACHINERY AND HEAVY, EARTH MOVING EQUIPMENT. SEE THE "SPECIAL PROVISIONS" ON THIS PAGE FOR GUIDANCE.

- *ASSOCIATION OF AMERICAN RAILROADS (AAR) MECHANICAL DESIGNATION FOR CAR TYPE, REFERENCE IS MADE TO THE "OFFICIAL RAILWAY EQUIPMENT REGISTER".
- **A TYPICAL CAR OF THIS TYPE IS SHOWN BY FIGURE 88-B OF SECTION 6 IN PUBLICATION OF AAR TITLED "GENERAL RULES GOVERNING THE LOADING OF COMMODITIES ON OPEN TOP CARS".
- C. LADING DATA (UNCRATED):

ITEM DIMENSIONS ----- 15'-2" LONG X 6'-11-1/2" WIDE X 7'-3-1/2" HIGH. ITEM GROSS WEIGHT ---- 3,855 POUNDS (APPROX).

LADING DATA (CRATED):

ITEM DIMENSIONS ----- 16'-5" LONG X 7'-6" WIDE X 8'-5" HIGH. ITEM GROSS WEIGHT ---- 6, 140 POUNDS (APPROX).

LADING DATA (UNCRATED, MOUNTED ON SKID BASE):

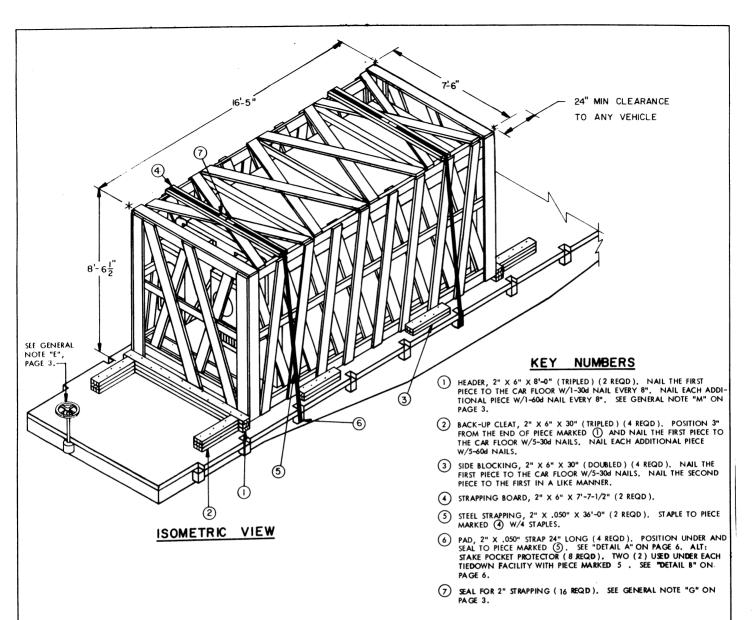
ITEM DIMENSIONS ----- 16'-3" LONG X 7'-4" WIDE X 7'-11" HIGH. ITEM GROSS WEIGHT ---- 5,055 POUNDS (APPROX)

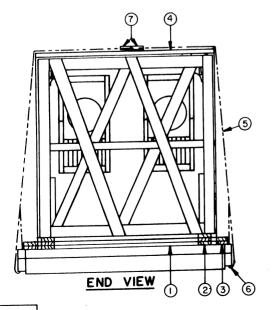
- D. REFER TO ORD DWG 19-48-C-ORD.JU-588, "WIRE ROPE AND ANNEALED WIRE APPLICATION METHODS FOR SECURING LADING ON RAIL & MOTOR CARRIER EQUIP", FOR PROPER TIEDOWN APPLICATION.
- E. REFER TO ASSOCIATION OF AMERICAN RAILROADS MANUAL, "GENERAL RULES GOVERNING THE LOADING OF COMMODITIES ON OPEN TOP CARS", FOR APPLICABLE LOADING RULES; PREFACE, 1-A, 2, 3, 4, 5, 9, 14 AND 15.
- F. ONLY CARS WITH "SOUND" FLOORS WILL BE USED. CARS WITH STEEL FLOOR ENDS AND/OR EXPOSED STEEL BOLSTERS WHICH INTERFERE WITH PROPER POSITIONING OR NAILING OF THE DUNNAGE WILL NOT BE USED. SEE "TYPICAL END BLOCKING FOR CARS WITH EXPOSED STEEL BOLSTERS (TOP VIEW)" DETAIL ON PAGE 6, FOR APPLICATION OF DUNNAGE METHODS WHICH PERMIT THE USE OF SOME CARS THAT HAVE EXPOSED STEEL COMPONENTS.
- G. WHEN ANY STRAP IS SEALED AT AN END-OVER-END LAP JOINT, OR AS SHOWN IN DETAILS "A" AND "B" ON PAGE 6, A MINIMUM OF TWO (2) SEALS, BUTTED TOGETHER, WITH TWO (2) PAIR OF CRIMPS PER SEAL MUST BE USED.
- H. CAUTION: STAKE POCKETS WILL BE USED FOR ANCHORING TIEDOWN STRAPPING WHENEVER POSSIBLE. DO NOT USE SWIVEL RING TYPE ANCHOR DEVICES. IF OTHER TYPES ARE USED, THEY MUST BE OF SUFFICIENT WIDTH TO RECEIVE 2" STRAPPING, AND ALSO BE OF A DESIGN WHICH WILL PROVIDE A BEARING SURFACE ACROSS THE FULL WIDTH OF THE STRAPPING THAT WILL NOT DEFORM A STRAP, ESPECIALLY AT THE EDGES, WHEN IT IS TENSIONED.
- J. TO ACHIEVE PROPER CABLE TENSION, EMPLOY TWO (2) CABLE "GRIPPERS" AND AN APPLICABLY SIZED "COME-A-LONG" TYPE MECHANICAL HOIST.
- K. CAUTION: IT IS RECOMMENDED THAT CABLE BE INSTALLED TO THE APPROXIMATE ANGLE SHOWN; HOWEVER, IF PLACEMENT OF THE CAR STAKE POCKETS PREVENTS THIS, CARE MUST BE EXERCISED TO ENSURE THAT THE CABLES ON THE SAME SIDE OF THE LADING BE INSTALLED SO THEIR RETENTION FORCES ACT IN OPPOSITE LONGITUDINAL DIRECTIONS --- CONTACT OF THE CABLE WITH THE EDGE OF THE LADING IS PROHIBITED.
- L. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE UNLESS OTHERWISE DIMENSIONED. FOR EXAMPLE, 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE.
- M. NOTICE: A STAGGERED NAILING PATTERN WILL BE USED WHEN DUNNAGE IS NAILED TO THE FLOOR OF THE TRANSPORTING VEHICLE, OR WHEN LAMINATING DUNNAGE. ADDITIONALLY, 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.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
	TOTAL WEIGHT	4.015 LBS

PAGE 3





BILL OF MATERIAL			
LUMBER	LINEAR FEET	BOARD FEET	
2" X 6"	114	114	
NAILS	NC. REQD	POUNDS	
30d (4-1/2")	84	4-1/4	
60d (6")	88	9	

SEALS FOR 2" STRAPPING ------ 16 REQD ----- 3 LB STAPLES FOR 2" STRAPPING ----- 8 REQD ----- NIL

LOAD AS SHOWN

ITEM

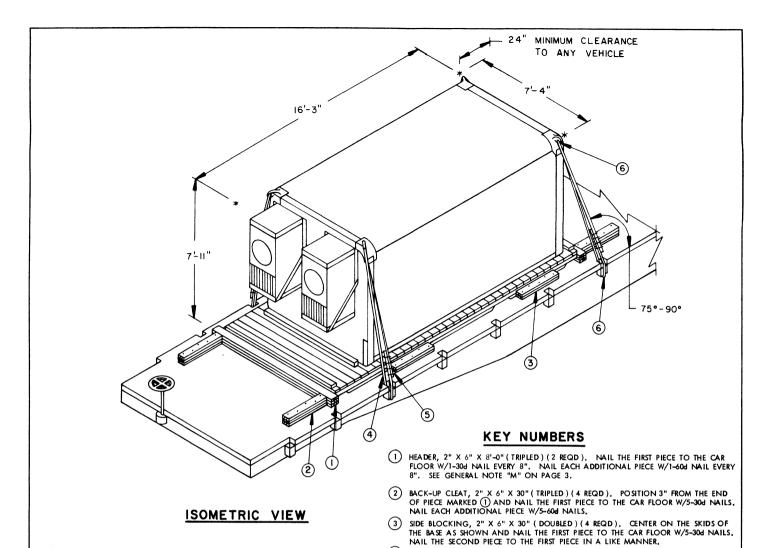
QUANTITY

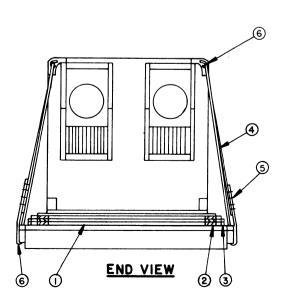
WEIGHT (APPROX)

SHOP SET (CRATED) ------ 1 ------- 6,140 LBS DUNNAGE ------ 272 LBS DUNNAGE ----

TOTAL WEIGHT ----- 6,412 LBS

PAGE 4





BILI	OF MATERIA	L
LUMBER	LINEAR FEET	BOARD FEET
2" X 6"	98	98
NAILS	NO, REQD	POUNDS
30d (4-1/2") 60d (6")	84 88	4-1/4

1/2" CLIP MAY BE USED. SEE GENERAL NOTE "D" ON PAGE 3.

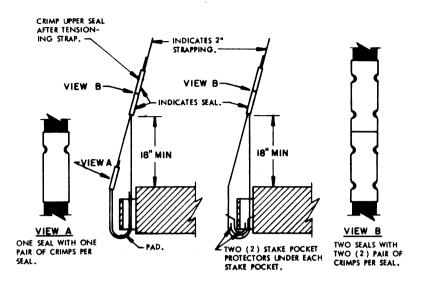
STEEL WIRE ROPE, 3/8" DIAMETER, 6.56 TONS (4 REQD). INSTALL THE CABLE TO THE APPROXIMATE ANGLE SHOWN AND TO FORM A COMPLETE LOOP FROM THE STAKE POCKET ON THE CAR THRU THE LADING TIEDOWN DEVICE AND BACK TO THE STAKE POCKET. SEE GENERAL NOTES "D", "J" AND "K" ON PAGE 3. NOTE: CABLE OF A LARGER SIZE MAY BE USED IF AVAILABLE, WHEN SPECIFIED CABLE IS NOT AVAILABLE.

(5) CLIP, SIZE 3/8" (24 REQD). FOUR (4) PER CABLE JOINT AND ONE (1) PER THIMBLE. SEE GENERAL NOTE "D" ON PAGE 3 AND KEY NUMBER (6) GUIDANCE BELOW.

THIMBLE STANDARD, SIZE 3/8" (8 REQD). ONE (1) PER STAKE POCKET AND ONE (1) PER LADING TIE DOWN DEVICE. SECURE TO WIRE ROPE PIECE MARKED (4) W/1-CLIP PER THIMBLE. A STANDARD THIMBLE AS SPECIFIED CAN BE SECURED TO A CABLE WITH A 3/8" CLIP. HOWEVER, IF DESIRED, OR IF THE 3/8" THIMBLE BEING USED IS OF A TYPE WHICH CANNOT BE SECURED TO A CABLE WITH A 3/8" CLIP, A

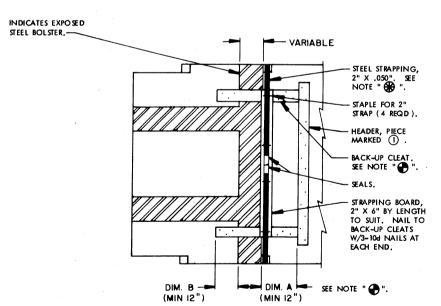
ITEM	QUANTITY	WEI	GHT (APPROX)
	D, MOUNTED 1	5,055 241	
TOI	AL WEIGHT	5,296	LBS

PAGE 5



DETAIL A

METHOD OF INSTALLING 2" STRAPPING AND PAD AT STAKE POCKET. DETAIL B METHOD OF INSTALLING 2" STRAPPING AND STAKE POCKET PROTECTORS (ALT PAD).



TYPICAL END BLOCKING FOR CARS WITH EXPOSED STEEL BOLSTERS (TOP VIEW)

SEE GENEINAL NOTE "F" ON PAGE 3. THE BLOCKING AS SHOWN IS APPLICABLE FOR THE CRATED ITEM ON PAGE 4 AND THE UNCRATED ITEM MOUNTED ON SKID BASE ON PAGE 5. ADJUST AS NECESSARY FOR THE UNCRATED LOAD ON PAGE 2.

NOTE 🏶 :

THE OPTIONAL STRAP HOLD DOWN FOR END BLOCKING IS FOR CARS WITH OR WITHOUT EXPOSED STEEL BOLSTERS.

NOTE 😷 :

WHEN LOADING CARS HAVING EXPOSED STEEL BOLSTERS, BOTH DIMENSION "A" AND DIMENSION "B" MIST'BE AT LEAST 12". AND THE SUM OF DIMENSIONS "A" AND "B" MUST BE EQUAL TO OR GREATER THAN THE LENGTH OF A BACK-UP CLEAT (PIECE MARKED ②), TO PROVIDE FOR PROPER NAILING TO THE CAR FLOOR. SEE PIECE MARKED ② ON PAGE 2 OR 4 OR 5.