REV NO. I APPROVED BY MECH DIV AAR, THEIR LETTER DATED AMP 79 FILE 4.1.0.67
SIGNED A. DEC 1979
TEA, MTMC, FT EUSTIS, VA.

CHAPARRAL

LOADING AND BRACING ON FLAT CAR OF ORGANIZATIONAL MAINTENANCE SHOP SET, AN/TSM-95 AND AN/TSM-95A

INDEX

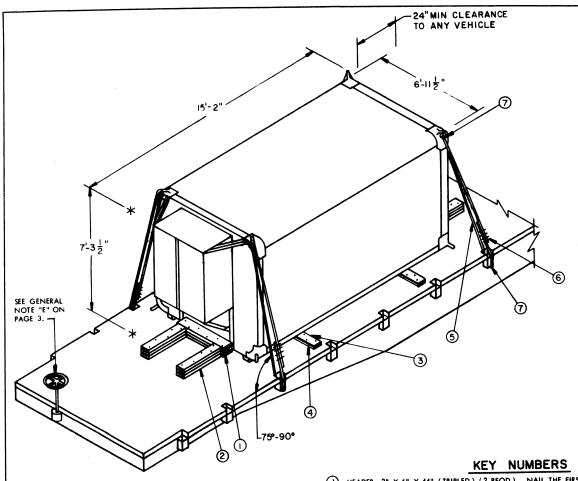
<u>item</u>			PAGE (S	
ODG AN IZATIONIAL A	AN INTENIANCE SHOP	SFT	(CRATED)(UNCRATED-MOUNTED ON SKID BASE)	4

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 19-48-7177-GSE 5CH2, DATED MAY 1970.

		REVIS	IONS	P.B.	AWD	New n	n' Am
1	AUG 79	100 mg	Wan I Strayen	William & Moguen			
		/		APPROVED BY		Boy and	U.S. ARMY D. (DARCOM) ENTER AND SCHOOL
						ARCOM D	RAWING
				CLASS	DIVISION	DRAWING	FILE
		/		19	48	7177	GSE 5CH2

DO NOT SCALE



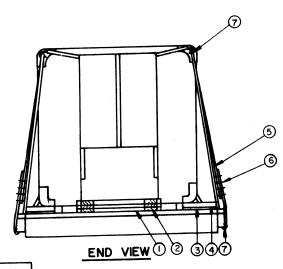
ISOMETRIC VIEW

- 1 HEADER, 2" X 6" X 44" (TRIPLED) (2 REQD). NAIL THE FIRST PIECE TO THE CAR FLOOR W/6-304 NAILS. NAIL EACH ADDITIONAL PIECE W/6-604 NAILS. SEE GENERAL NOTE "M" ON PAGE 3.
- 2) BACK-UP CLEAT, 2" X 6" X 30" (TRIPLED) (4 REQD). POSITION 3" FROM THE END OF PIECE MARKED ① AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/5-30d NAILS. NAIL EACH ADDITIONAL PIECE W/5-60d NAILS.
- $\ensuremath{ \mbox{(3)}}$ SIDE BLOCKING, 1" X 6" X 18" (4 REQD). POSITION AGAINST THE CONTAINER SKID AS SHOWN.
- (4) SIDE BLOCKING, 2" X 6" X 18" (4 REQD.). NAIL THRU PIECE MARKED (3) AND INTO THE CAR FLOOR W/3-30d NAILS.
- (5) STEEL WIRE ROPE, 1/2" DIAMETER, 11.5 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 TIE DOWN 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.
- (6) CLIP, SIZE 1/2" (24 REQD). FOUR (4) PER CABLE JOINT AND ONE (1) PER THIMBLE. SEE GENERAL NOTE "D" ON PAGE 3 AND KEY NUMBER (7) GUIDANCE BELOW.
- THIMBLE, STANDARD, SIZE 1/2" (8 REQD). ONE (1) PER STAKE POCKET AND ONE (1) PER LADING TIEDOWN DEVICE, SECURE TO WIRE ROPE PIECE MARKED (3) W/1-CLIP PER THIMBLE. A STANDARD AS SPECIFIED CAN BE SECURED TO A CABLE WITH A 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. SEE GENERAL NOTE "D" ON PAGE 3.

REVISIONS

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

- ADDING PROCEDURES FOR SHIPPING SHOP SETS, UNCRATED-MOUNTED ON SKID BASE.
- ADDING AN/TSM-95A TO THE TITLE.
 CHANGING LADING DATA.
 ADDING "SPECIAL PROVISIONS" FOR FMS TYPE RAIL CARS.
- CHANGING PROCEDURES TO CONFORM TO CURRENT STANDARDS.



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 ASSEMBLY.
- 4. CHAINS MUST NOT BE TWISTED DURING INSTALLATION, CHAINS ARE TO BE STRUCK WITH A HAMMER OR BAR AFTER TIGHTENING TO ELIMINATE ANY POSSIBLE MISALIGN-MENT OF LINKS, FURTHER TIGHTENING MAY BE REQUIRED TO TAKE UP ANY SLACK 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.
- 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, 1/2" 76' REQD 34 LBS CLIP, 1/2" 24 REQD 10.5 LBS CLIP, 5/8" (ALT FOR 1/2", 8 REQD) 5 LBS THIMBLES, STANDARD, 1/2" 8 REQD 2 LBS					

MATERIAL SPECIFICATIONS

POCKET PROTECTOR -- : COMMERCIAL GRADE.

<u> </u>	: 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.
<u>ROPE</u>	: STEEL WIRE, PLAIN, PREFORMED, REGULAR LAY, 11.5 TONS, 6 X 19, FLEXIBLE IWRC, MACWHYTE WIRE ROPE CO (OR 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 I, TYPE I, HEAVY DUTY, FINISH A, 8 (GRADE 2), OR C. REF: FED SPEC QQ-5-781.
STRAP SEAL	TYPE D, STYLE I, II, OR IV, CLASS H. REF: FED SPEC QQ-5-781.

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 CAR 91-2" WIDE (PLATFORM); WIDER CARS CAN BE USED. ONLY ONE UNIT OF LADING IS SHOWN; 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 AGRICULTURAL 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 ----- 6,500 POUNDS (APPROX).

LADING DATA (CRATED):

ITEM DIMENSIONS ------ 16'-5" LONG X 7'-6" WIDE X 8'-5" HIGH. ITEM GROSS WEIGHT ----- 8,785 POUNDS (APPROX).

LADING DATA (UNCRATED, MOUNTED ON SKID BASE):

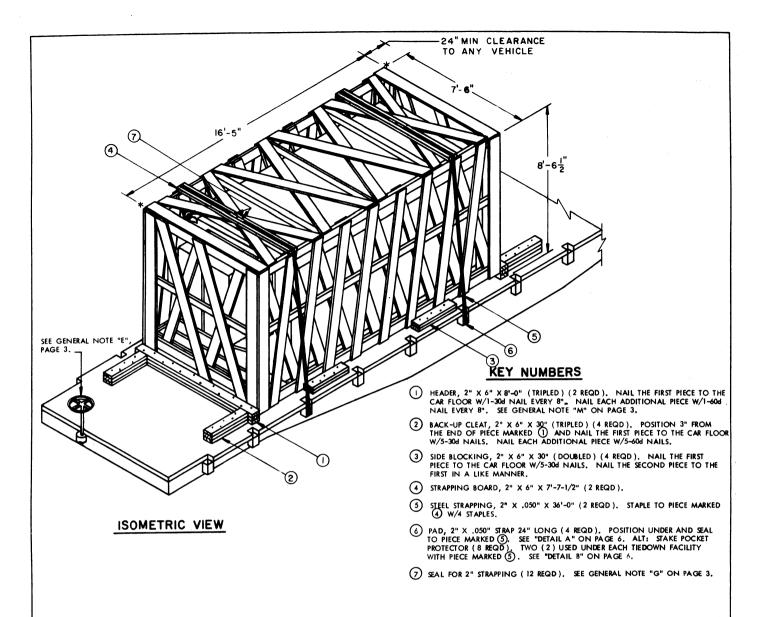
ITEM DIMENSIONS ------ 16'-3" LONG X 7'-4" WIDE X 7'-11" HIGH. ITEM GROSS WEIGHT ----- 7,700 POUNDS (APPROX).

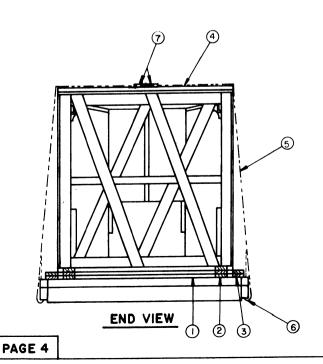
- D. REFER TO ORD DWG 19-48-C-ORDJU-588, "WIRE ROPE AND ANNEALED WIRE APPLICATION METHODS FOR SECURING LADING ON RAIL & MOTOR CARRIER EQUIP", FOR PROPER TIEDOWN APPLICATION, EXCEPT THAT THE NUTS ON 1/2" CABLE CLIPS WILL BE TIGHTENED TO A TORQUE OF 85 TO 95 FOOT POUNDS.
- E. REFER TO ASSOCIATION OF AMERICAN 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 INTERFER WITH PROPER POSITIONING OF NAILING OF THE DUNNAGE WILL NOT BE USED. SEE "END BLOCKING FOR CARS WITH EXPOSED STEEL BOLSTERS" 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 PROJRIETED.
- 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 NAILING DUNNAGE 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.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
SHOP SET		6,500 LBS 178 LBS
	TOTAL WEIGHT	6,678 LBS

PAGE 3





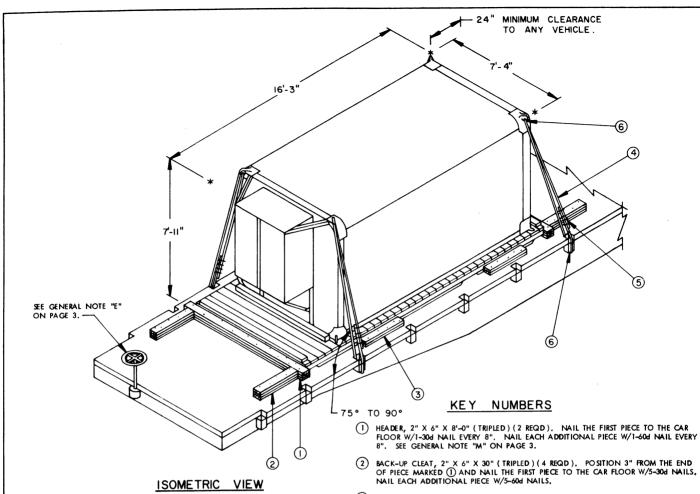
BILL	AL	
LUMBER	LINEAR FEET	BOARD FEET
2" X 6"	114	114
NAILS	NO. REQD	POUNDS
30d (4-1/2")	84	4-1/4
60d (6")	88	9

-	STEEL STRAPPING, 2" X .050"	80'	REQD	27 LBS
	SEALS FOR 2" STRAPPING	16	REQD	3 LBS
	STEEL STRAPPING, 2" X .050"SEALS FOR 2" STRAPPINGSTAPLES FOR 2" STRAPPING	8	REQD	NIL

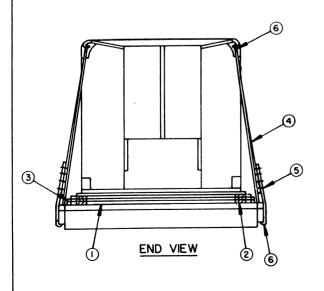
LOAD AS SHOWN

ITEM

QUANTITY WEIGHT (APPROX)



- 3) SIDE BLOCKING, 2" X 6" X 30" (DOUBLED) (4 REQD). CENTER ON THE SKIDS OF THE BASE AS SHOWN AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/5-30d NAILS, NAIL THE SECOND PIECE TO THE FIRST PIECE IN A LIKE MANNER.
- STEEL WIRE ROPE, 1/2" DIAMETER, 11.5 TONS (4 REQD). INSTALL CABLE TO APPROXIMATE THE ANGLE SHOWN AND TO FORM A COMPLETE LOOP FROM STAKE POCKET
 ON THE CAR THROUGH THE LADING TIE DOWN DEVICE AND BACK TO THE STAKE
 POCKET. SEE GENERAL NOTES "D", "J", "AND "K" ON PAGE 3. LARGER SIZE CABLE
 MAY BE USED IF AVAILABLE, WHEN SPECIFIED CABLE IS NOT AVAILABLE.
- (5) CLIP, SIZE 1/2" (24 REQD). FOUR (4) PER CABLE AND ONE (1) PER THIMBLE. SEE GENERAL NOTE "D" ON PAGE 3, AND KEY NUMBER (6) GUIDANCE BELOW.
- THIMBLE, STANDARD, 1/2" SIZE (8 REQD). ONE (1) PER STAKE POCKET AND ONE (1) PER LADING TI EDOWN DEVICE. SECURE TO WIRE ROPE PIECE MARKED ③
 W/1-CLIP PER THIMBLE. A STANDARD THIMBLE AS SPECIFIED CAN BE SECURED TO A CABLE WITH A 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. SEE GENERAL NOTE "D" ON PAGE 3.

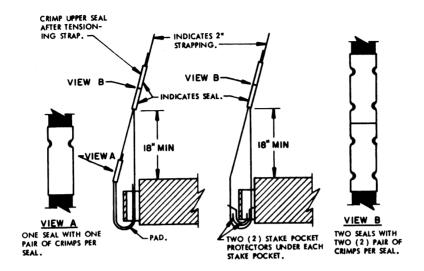


BILL	OF MATERI	AL
LUMBER	LINEAR FEET	BOARD FEET
2" X 6"	98	98
NAILS	NO, REQD	POUNDS
30d (4-1/2") 60d (6")	84 88	4-1/4 9
CLIP, 1/2"	" DIA 84' REQD 24 REQD /2", 8 REQD)	10.5 LBS

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
SHOP SET (UNCR ON SKID BASE) - DUNNAGE	ATED, MOUNTED	7,700 LBS 260 LBS
T	OTAL WEIGHT	7,960 LBS

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DETAIL A

METHOD OF INSTALLING 2"
STRAPPING AND PAD AT
STAKE POCKET.

DETAILB

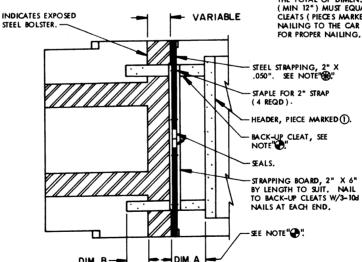
METHOD OF INSTALLING
2" STRAPPING AND STAKE
POCKET PROTECTORS (ALT
PAD).

NOTE 🛞 :

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

NOTE 🔂:

WHEN LOADING CARS WITH EXPOSED STEEL BOLSTERS, THE TOTAL OF DIMENSION "A" AND DIMENSION "B" (MIN 12") MUST EQUAL THE LENGTH OF THE BACK-UP CLEATS (PIECES MARKED ②) TO PROVIDE FOR PROPER NAILING TO THE CAR FLOOR, SEE PIECE MARKED ② FOR PROPER NAILING.



TYPICAL END BLOCKING FOR CARS WITH EXPOSED STEEL BOLSTERS

SEE GENERAL 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.