

APPROVED BY
 BUREAU OF EXPLOSIVES
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 DATE 12/7/67

ALL SYSTEMS

LOADING AND BRACING (CL & LCL) IN GONDOLA CARS OF TYPE 1 (HALF SIZE) AND TYPE 2^o (STANDARD) CARGO TRANSPORTERS (CONEX CONTAINERS) WHEN LOADED WITH MISSILE / ROCKET ASSOCIATED COMMODITIES^o

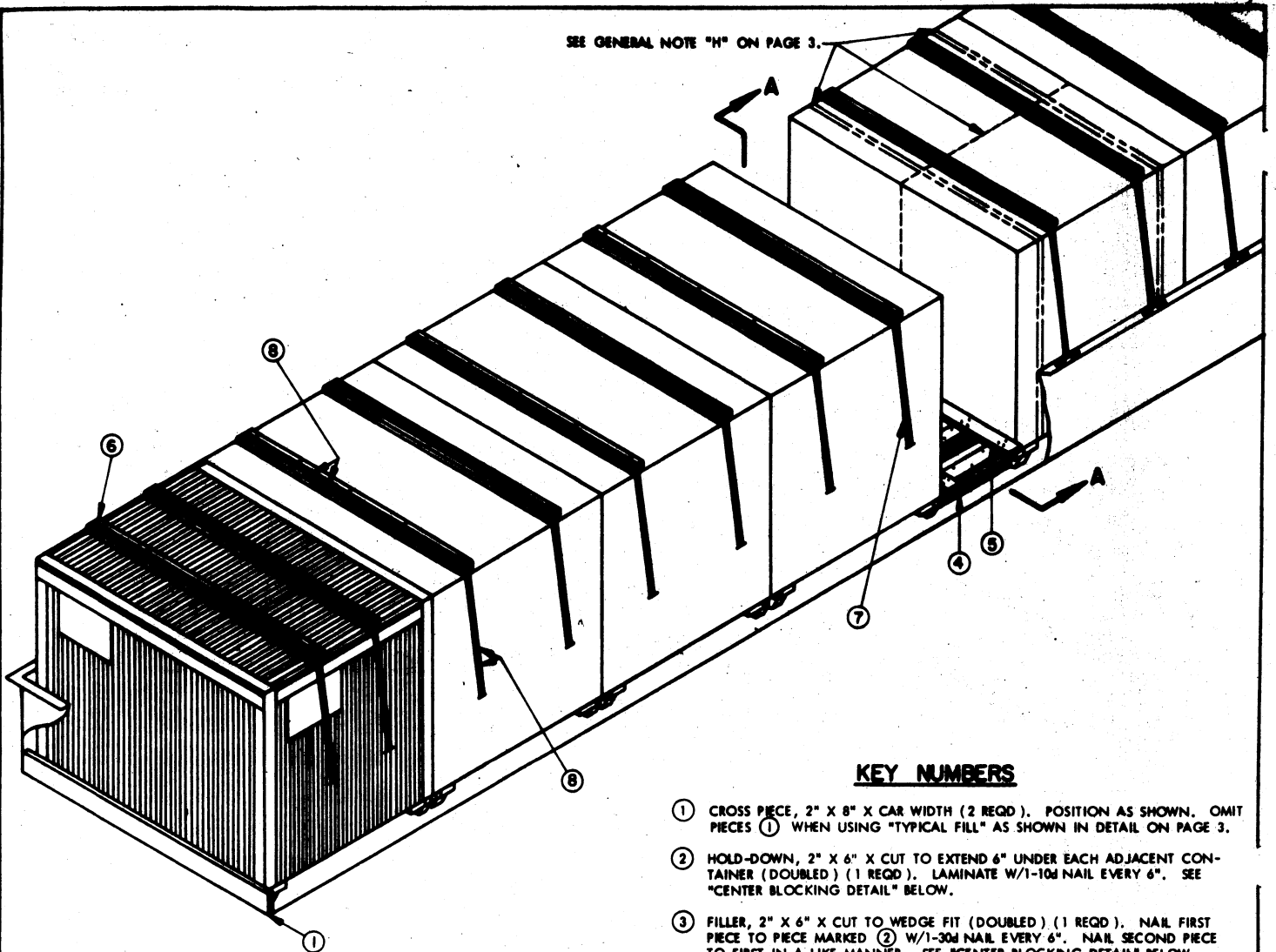
● TYPE 2 (STANDARD) CARGO TRANSPORTER IS NOT TO BE USED FOR OVERSEAS SHIPMENT OF MILITARY EXPLOSIVES AND HAZARDOUS MUNITIONS. SEE GENERAL NOTE "C" ON PAGE 3 FOR WAIVER PROVISIONS.

○ THE OUTLOADING PROCEDURES DELINEATED HEREIN ARE APPLICABLE TO THE MOVEMENT OF CONEX CONTAINERS WHICH ARE LOADED WITH ANY RELATIVELY SMALL COMMODITY, WHETHER AMMUNITION OR GROUND SUPPORT EQUIPMENT ORIENTED. HOWEVER, OTHER REGULATIONS/DIRECTIVES APPLY TO SUCH MATTERS AS SELECTION OF ITEM FOR CONEX MOVEMENT, ITEM PACKAGING SPECIFICATIONS AND SO FORTH.

DO NOT SCALE

DESIGNED BY TRS CHECKED BY <i>GBF</i>	PROJ ENG <i>DIW</i> INFO CENTER <i>GBF</i>	DRAWN BY <i>ADL</i>	CHECKED BY <i>WBS Harding Col.</i> COMMANDING OFFICER, GRANMA ARMY DEPOT
REVISIONS			APPROVED <i>Andrew W. Heid</i> ARMY MISSILE COMMAND
			APPROVED BY CHIEF OF COMBUSTION GENERAL U. S. ARMY MATERIEL COMMAND <i>Paul Klein</i> U. S. ARMY MATERIEL COMMAND
			13 MARCH 1968
		CLASS	DIVISION
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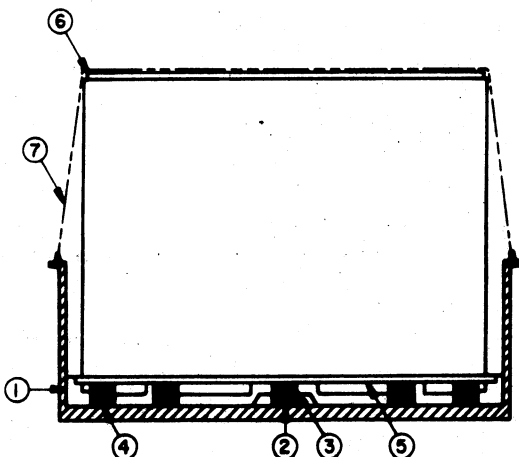
SEE GENERAL NOTE "H" ON PAGE 3.



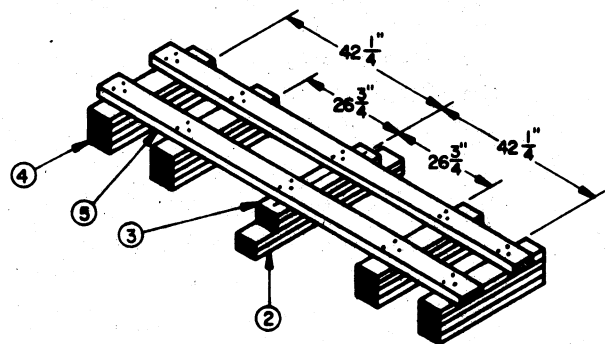
ISOMETRIC VIEW

KEY NUMBERS

- ① CROSS PIECE, 2" X 8" X CAR WIDTH (2 REQD). POSITION AS SHOWN. OMIT PIECES ① WHEN USING "TYPICAL FILL" AS SHOWN IN DETAIL ON PAGE 3.
- ② HOLD-DOWN, 2" X 6" X CUT TO EXTEND 6" UNDER EACH ADJACENT CONTAINER (DOUBLED) (1 REQD). LAMINATE W/1-10d NAIL EVERY 6". SEE "CENTER BLOCKING DETAIL" BELOW.
- ③ FILLER, 2" X 6" X CUT TO WEDGE FIT (DOUBLED) (1 REQD). NAIL FIRST PIECE TO PIECE MARKED ② W/1-30d NAIL EVERY 6". NAIL SECOND PIECE TO FIRST IN A LIKE MANNER. SEE "CENTER BLOCKING DETAIL" BELOW.
- ④ STRUT, 2" X 6" X CUT TO WEDGE FIT (QUADRUPLED) (4 REQD). NAIL THE SECOND PIECE TO THE FIRST PIECE W/1-10d NAIL EVERY 6". NAIL THE THIRD PIECE TO THE SECOND AND THE FOURTH PIECE TO THE THIRD W/1-30d NAIL EVERY 6". SEE "CENTER BLOCKING DETAIL" BELOW.
- ⑤ STRUT BRACE, 2" X 6" X CAR WIDTH MINUS 4" (2 REQD). NAIL TO PIECE MARKED ③ AND PIECES MARKED ④ W/3-12d NAILS AT EACH JOINT.
- ⑥ STRAPPING BOARD, 2" X 6" X 8'-5" (16 REQD). POSITION AS SHOWN IN "ISOMETRIC VIEW" ABOVE.
- ⑦ LOAD HOLD-DOWN, STEEL STRAPPING, 2" X .050" X 21'-0" (16 REQD). STAPLE TO PIECE MARKED ⑥ W/5-2" STAPLES. STRAPPING LENGTH IS BASED ON 36" CAR SIDE HEIGHT.
- ⑧ SEAL FOR 2" STRAPPING (6 REQD PER STRAP) (96 REQD PER CAR LOAD). SEE GENERAL NOTE "E" ON PAGE 3.



SECTION A-A



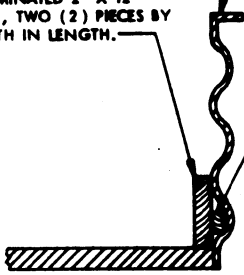
CENTER BLOCKING DETAIL

IF STRUTS ARE GREATER THAN 8'-0" IN LENGTH, SEE THE "STRUT HOLD-DOWN DETAIL" ON PAGE 4.

HORIZONTAL PIECE,
3" X 12" X CAR WIDTH. NAIL
TO SOLID FILL AS REQUIRED.
ALT: LAMINATED 2" X 12"
MATERIAL, TWO (2) PIECES BY
CAR WIDTH IN LENGTH.

INDICATES A TYPICAL
CORRUGATED END WALL.

SOLID FILL, AS REQD.



TYPICAL FILL

END BLOCKING FOR CARS WITH
CORRUGATED END WALLS.

GENERAL NOTES

- A. THE LOAD AS SHOWN IS BASED ON A GONDOLA CAR WHICH IS 32'-6" LONG X 9'-2" (MIN) WIDE. LARGER CARS MAY BE USED; HOWEVER, CARS LONGER THAN 32'-6" SHOULD NOT BE ORDERED FOR SHIPPING THE DEPICTED LOAD. THE "BILL OF MATERIAL" FOR THE LOAD AS SHOWN IS BASED ON A CAR WHICH HAS 36" HIGH SIDE WALLS; HOWEVER, A CAR WITH ANY HEIGHT SIDE WALL CAN BE USED. WHEN MAKING A FULL-LOAD SHIPMENT THAT CONTAINS A LESS-THAN-SHOWN QUANTITY, A CAR OF A LENGTH WHICH BEST SUITS THE QUANTITY TO BE SHIPPED SHOULD BE ORDERED SO THAT THE MOST EFFICIENT SHIPPING RATE WILL APPLY AND/OR SO THAT A MINIMUM AMOUNT OF DUNNAGE WILL BE REQUIRED.
CAUTION: THE USE OF CARS WITH DROP DOORS IN FLOOR IS PROHIBITED.
- B. FOR DETAILS OF CARGO TRANSPORTER, TYPE 1 (1/2 SIZE). SEE MILITARY SPECIFICATION MIL-8-11886.
OUTSIDE DIMENSIONS ---- 51" LONG X 75" WIDE X 82-1/2" HIGH.
TARE WEIGHT ----- 1,050 LBS (APPROX).
MAXIMUM CONTENT WEIGHT --- 7,800 LBS.
FOR DETAILS OF CARGO TRANSPORTER, TYPE 2 (STANDARD), SEE MILITARY SPECIFICATION MIL-8-11886.
OUTSIDE DIMENSIONS ---- 102" LONG X 75" WIDE X 82-1/2" HIGH.
TARE WEIGHT ----- 1,430 LBS (APPROX).
MAXIMUM CONTENT WEIGHT --- 7,800 LBS.
- C. FOR OVERSEAS SHIPMENTS, SEE PROVISIONS OF PART 146.29-90, TITLE 46, CODE OF FEDERAL REGULATIONS. CARGO TRANSPORTERS, COMPLYING WITH SPECIFICATION MIL-8-21560, MAY BE USED FOR THE TRANSPORTATION OF MILITARY EXPLOSIVES AND HAZARDOUS MUNITIONS SUBJECT TO THE FOLLOWING CONDITION.

ONLY TYPE 1 TRANSPORTERS SHALL BE USED. TYPE 2 MAY ONLY BE USED UNDER SPECIAL AUTHORITY OF THE COMMANDANT OF THE COAST GUARD. THE LOAD CONTENT SHALL NOT EXCEED 7,800 LBS.
- D. SELECTION OF RAIL CARS FOR THE TRANSPORT OF THESE ITEMS WILL BE IN ACCORDANCE WITH DOT (ICC) REGULATIONS AND AR 55-355 IN FULL.
- E. WHEN ANY STRAP IS SEALED, IRRESPECTIVE OF THE TYPE OF JOINT BEING MADE, A MINIMUM OF TWO (2) SEALS (BUTTED TOGETHER) WITH TWO (2) CRIMPS PER SEAL MUST BE USED.
- F. **NOTICE:** A SHIPMENT WILL BE POSITIONED IN THE RAILCAR IN COMPLIANCE WITH THE WEIGHT DISTRIBUTION REQUIREMENTS OF THE AAR. THE NUMBER OF UNITS MAY BE ADJUSTED TO FIT THE RAILCAR CONCERNED OR THE QUANTITY TO BE SHIPPED; HOWEVER, THE APPROVED METHODS, CONTAINED HEREIN FOR A FULL OR PARTIAL CARLOAD, MUST BE FOLLOWED AS CLOSELY AS POSSIBLE FOR BLOCKING, BRACING, AND STAYING OF THE DEPICTED ITEMS.
- G. FOR THE CARLOADING OF THIS ITEM, INSTALLATIONS SHOULD REQUEST GONDOLA CARS WHICH HAVE TIEDOWN-STRAP ANCHOR FACILITIES. IN THE EVENT GONDOLA CARS SO EQUIPPED ARE NOT READILY AVAILABLE, TIEDOWN-STRAP ANCHORS MAY BE LOCALLY FABRICATED AS DETAILED ON PAGE 4.
- H. LOADS DEPICTED HEREIN ARE BASED ON CARGO TRANSPORTER, TYPE 2, (STANDARD). FOR CARLOADING OF CARGO TRANSPORTER, TYPE 1, (1/2 SIZE); TWO (2) 1-1/4" X .035" STEEL STRAPS 33'-0" LONG ARE REQUIRED TO UNITIZE EACH TWO (2) CARGO TRANSPORTERS AS TYPICALLY SHOWN IN THE ISOMETRIC VIEWS.
- J. LOADING, BLOCKING AND BRACING METHODS SHOWN HEREIN ARE APPROVED FOR HIGH-DENSITY LOW-VOLUME MATERIAL, INCLUDING EXPLOSIVE ITEMS, INTERNALLY BLOCKED AND BRACED INSIDE A TRANSPORTER IN ACCORDANCE WITH APPROVED "FILLING" DRAWINGS OF THE 19-48 SERIES, OR APPLICABLE PARAGRAPHS OF DOT REGULATIONS (TARIFF NO. 19 AND SUBSEQUENT ISSUES THEREOF).
- K. **CAUTION:** A LOADED TRANSPORTER MUST NEVER BE POSITIONED IN A CAR WITH THE DOORS FACING IN THE DIRECTION OF CAR TRAVEL --- LOAD WITH CONTAINER SKIDS CROSSWISE OF CAR.
- L. IF A RAILCAR IS NOT EQUIPPED WITH PLACARD BOARDS ON BOTH ENDS AND BOTH SIDES, 16" X 24" BOARDS MUST BE PROVIDED AS REQUIRED, PROVIDING THE LOAD BEING SHIPPED REQUIRED PLACARDING. PLACARDS AND/OR PLACARD BOARDS MUST NOT BE FASTENED TO THE LADING.
- M. PORTIONS OF THE DEPICTED CARS WITHIN THIS PROCEDURAL DRAWING, SUCH AS A CAR SIDE WALL, HAVE BEEN OMITTED FOR CLARITY PURPOSES.
- N. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 6" MATERIAL IS ACTUALLY 1-5/8" THICK BY 5-5/8" WIDE AND 2" X 8" MATERIAL IS ACTUALLY 1-5/8" THICK BY 7-1/2" WIDE.

BILL OF MATERIAL (SEE "NOTE" BELOW)

LUMBER	LINEAR FEET	BOARD FEET
2" X 6"	205	205
2" X 8"	19	24
NAILS	NO. REQD	POUNDS
10d (3")	25	1/2
12d (3-1/4")	30	1/2
30d (4-1/2")	50	2-1/2
STRAPPING, STEEL, 2" X .050"	336' REQD	112 LBS
STAPLE FOR 2" STRAPPING	80 REQD	NIL
SEAL FOR 2" STRAPPING	96 REQD	20 LBS

NOTE:

FOR CARGO TRANSPORTER, TYPE 1, (1/2 SIZE), ADD STRAPPING,
STEEL, 1-1/4" X .035" ----- 528' REQD ----- 76 LBS.
SEAL FOR 1-1/4" STRAPPING ---- 32 REQD ----- 2 LBS.

MATERIAL SPECIFICATIONS

- LUMBER ----- : SEE TM 715-5300-1, DUNNAGE LUMBER; FED SPEC MM-L-751.
- NAILS ----- : COMMON, CEMENT COATED OR CHEMICALLY ETCHED,
FED SPEC FF-N-105.
ALT: ANNULAR-RING TYPE NAILS OF THE SAME SIZE.
- STRAPPING, STEEL: TYPE I OR IV, CLASS A OR C, FED SPEC QQ-5-781.
FOR FSN SEE 58-38-100.

LOAD AS SHOWN

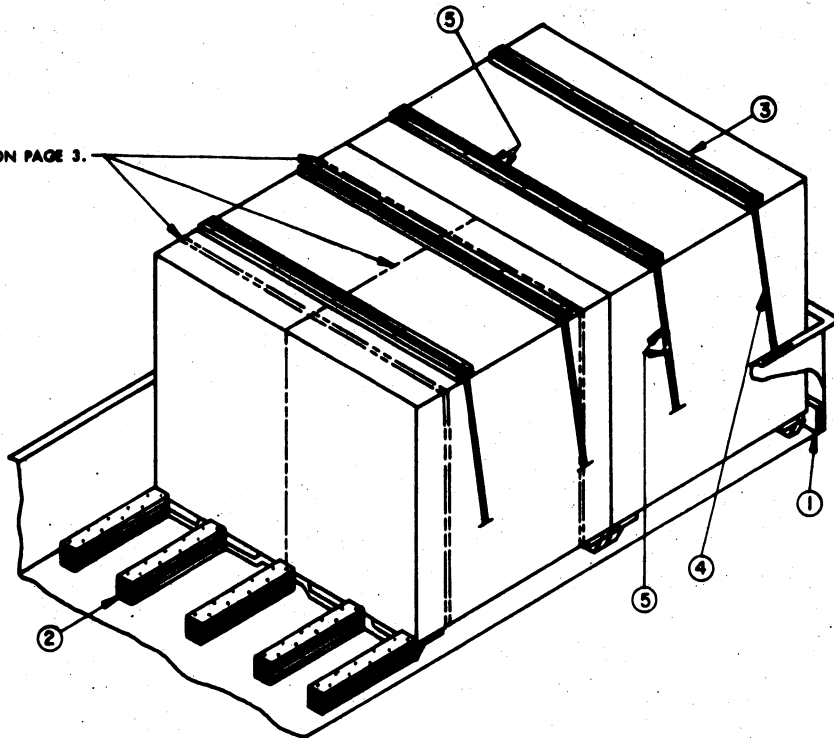
ITEM	QUANTITY	WEIGHT (APPROX)
TYPE 2 CARGO TRANSPORTER	8	73,840 LBS (MAX)
DUNNAGE		708 LBS
		TOTAL WEIGHT --- 74,548 LBS *

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
TYPE 1 CARGO TRANSPORTER	16	141,600 LBS
DUNNAGE		786 LBS
		TOTAL WEIGHT -- 142,386 LBS *

* WEIGHT OF CARLOAD SHOWN WAS COMPUTED BY USING A 7,800 POUND MAXIMUM CONTENT WEIGHT PER TRANSPORTER. ACTUAL WEIGHT DEPENDS UPON THE WEIGHT OF THE COMMODITIES BEING SHIPPED IN THE TRANSPORTERS. **CAUTION:** DO NOT EXCEED LOAD LIMIT STENCILED ON CAR.

SEE GENERAL NOTE "H" ON PAGE 3.



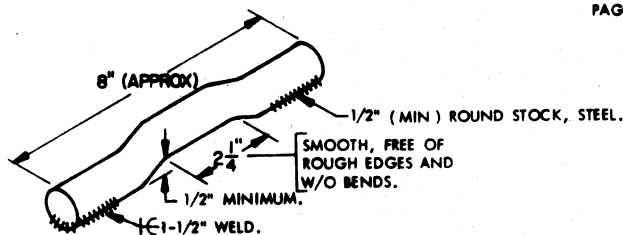
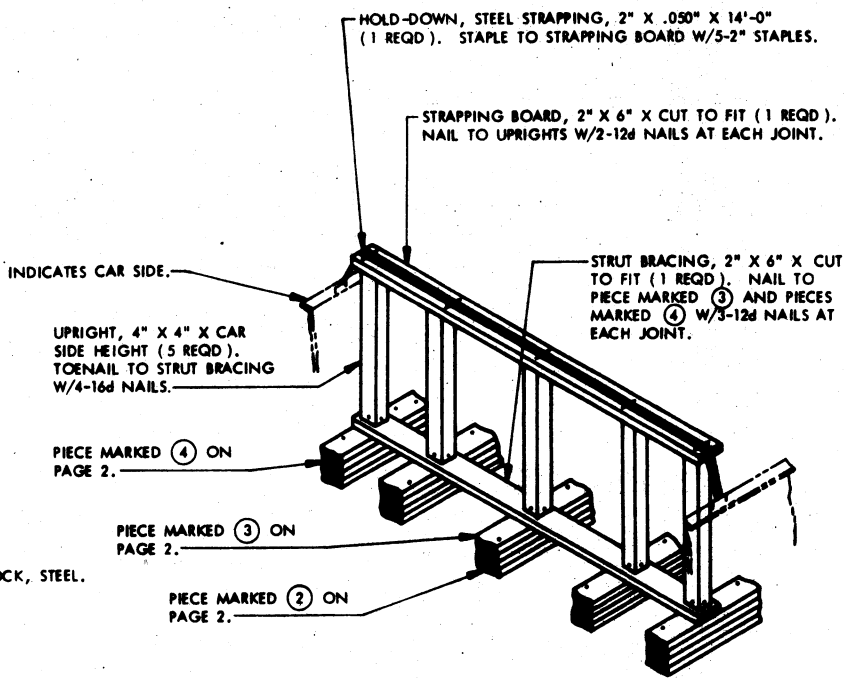
TYPICAL LCL

THE DEPICTED PROCEDURES ARE ONLY FOR USE WITH 9'-0" OR WIDER GONDOLA CARS WHICH HAVE NAIL-ABLE FLOORS. SEE NOTES "●" AND "●" BELOW.

- FIVE (5) BACK-UP CLEATS, SHOWN AS PIECES MARKED (2), ARE ADEQUATE FOR RETAINING UP TO BUT NOT GREATER THAN 20,000 POUNDS OF LCL LADING.
- ALTHOUGH TYPE-2 CONTAINERS ARE SHOWN IN THE LCL LOAD ABOVE, TYPE-1 OR A COMBINATION OF THE TYPES CAN ALSO BE OUTLOADED BY THE SPECIFIED PROCEDURES, PROVIDING THE GUIDANCE WITHIN NOTE "●" ABOVE IS OBSERVED.

KEY NUMBERS

- (1) CROSS PIECE, 2" X 8" X CAR WIDTH (1 REQD). POSITION AS SHOWN. OMIT PIECE (1) WHEN USING "TYPICAL FILL" AS SHOWN ON PAGE 3.
- (2) BACK-UP, 2" X 6" X 48" (QUADRUPLED) (5 REQD). NAIL FIRST PIECE TO CAR FLOOR W/10-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST, THE THIRD PIECE TO THE SECOND AND THE FOURTH PIECE TO THE THIRD W/10-40d NAILS AT EACH LAYER. REFER TO NOTE "●" TO THE LEFT.
- (3) STRAPPING BOARD, 2" X 6" X 8'-5" (4 REQD). POSITION AS SHOWN IN "TYPICAL LCL" ABOVE.
- (4) LOAD HOLD-DOWN, STEEL STRAPPING, 2" X .050" X 21'-0" (4 REQD). STAPLE TO PIECE MARKED (3) W/5-2" STAPLES. STRAPPING LENGTH IS BASED ON 36" CAR SIDE HEIGHT.
- (5) SEAL FOR 2" STRAPPING (6 REQD PER STRAP) (12 REQD PER TYPICAL LCL LOAD). SEE GENERAL NOTE "E" ON PAGE 3.



STRAP ANCHOR DEVICE DETAIL
(1/2" DIAMETER MATERIAL)

STRUT HOLD DOWN DETAIL
FOR USE WHEN STRUTS ARE GREATER THAN 8'-0" IN LENGTH. USE ONE (1) HOLD-DOWN ASSEMBLY FOR EVERY 8'-0" OF STRUT LENGTH.