

REV NO. 1 APPROVED  
 BUREAU OF EXPLOSIVES  
*A. F. Grossmuck*  
 MILITARY ASSISTANT  
 DATE 10/14/65

# LOADING & BRACING IN GONDOLA CARS OF THE EXPLOSIVE AND INERT COMPONENTS, IN RELATED CONTAINERS, FOR THE NIKE-HERCULES GUIDED MISSILE

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<b>LOADING &amp; BRACING IN GONDOLA CARS OF THE EXPLOSIVE AND INERT COMPONENTS, IN RELATED CONTAINERS, FOR THE NIKE-HERCULES GUIDED MISSILE</b>			
DRAFTSMAN <b>JDS</b>	CHECKER <b>GW</b>	DESIGNED BY <b>DIW / AGE</b>	SUBMITTED <i>B. B. Abrams</i> <small>COMMANDER, SAMANNA ARMY DEPOT</small>
<b>REVISIONS</b>			APPROVED <i>Andrew W. Reid</i> <small>ARMY MISSILE COMMAND</small>
1	7/3/65	JDS GW <i>GW</i>	APPROVED BY ORDER OF COMMANDER, ARMY MATERIEL COMMAND <i>Paul...</i> <small>ARMY SUPPLY &amp; MAINTENANCE COMMAND</small>
<b>25 FEBRUARY 1960</b>			
CLASS	DIVISION	DRAWING	FILE
19	48	5392	GM5M8

**DO NOT SCALE**

## GENERAL NOTES

## GENERAL NOTES (CONT'D)

- A. LOAD AS SHOWN ON PAGE 3 IS BASED ON A GONDOLA CAR 37'-0" LONG X 9'-6" WIDE. LARGER CARS MAY BE USED; HOWEVER, CARS LONGER THAN 41'-6" SHOULD NOT BE ORDERED FOR THE SHIPMENT OF A ONE UNIT LOAD. BILL OF MATERIAL BASED ON 36" CAR SIDE HEIGHT. **CAUTION:** CAR SIDE HEIGHT WILL BE LIMITED TO 36" MAX.
- B. LOAD AS SHOWN ON PAGE 4 IS BASED ON A GONDOLA CAR 44'-0" LONG X 9'-6" WIDE. LARGER CARS MAY BE USED; HOWEVER, CARS LONGER THAN 46'-6" SHOULD NOT BE ORDERED FOR THE SHIPMENT OF A TWO UNIT LOAD. BILL OF MATERIAL BASED ON 36" CAR SIDE HEIGHT. **CAUTION:** CAR SIDE HEIGHT WILL BE LIMITED TO 42" MAX.
- C. LOAD AS SHOWN ON PAGE 6 IS BASED ON A GONDOLA CAR 50'-6" LONG X 9'-6" WIDE. LARGER CARS MAY BE USED; HOWEVER, CARS LONGER THAN 50'-6" SHOULD NOT BE ORDERED FOR THE SHIPMENT OF A THREE UNIT LOAD. BILL OF MATERIAL BASED ON 36" CAR SIDE HEIGHT. **CAUTION:** CAR SIDE HEIGHT WILL BE LIMITED TO 42" MAX.
- D. LOAD AS SHOWN ON PAGE 8 IS BASED ON A GONDOLA CAR 57'-6" LONG X 9'-6" WIDE; HOWEVER, LARGER CARS MAY BE USED. BILL OF MATERIAL BASED ON 36" CAR SIDE HEIGHT.
- E. SELECTION OF RAIL CARS FOR THE TRANSPORT OF THESE ITEMS WILL BE IN ACCORDANCE WITH PARAGRAPH 8,300.4, ORDM 3-4, VOL 3.
- F. **NOTICE:** A SHIPMENT WILL BE POSITIONED IN THE RAIL CAR IN COMPLIANCE WITH THE WEIGHT DISTRIBUTION REQUIREMENTS OF THE AAR. THE NUMBER OF UNITS MAY BE ADJUSTED TO FIT THE RAIL CAR CONCERNED OR THE QUANTITY TO BE SHIPPED; HOWEVER, THE APPROVED METHODS CONTAINED HEREIN FOR FULL OR PARTIAL CARLOAD MUST BE FOLLOWED FOR BLOCKING, BRACING AND STAYING OF THESE ITEMS.
- G. FOR THE CARLOADING OF THESE ITEMS, INSTALLATIONS SHOULD REQUEST GONDOLA CARS WITH ANCHOR STRAP TIE DOWN FACILITIES. IN THE EVENT GONDOLA CARS SO EQUIPPED ARE NOT READILY AVAILABLE, ANCHOR STRAP TIE DOWNS MAY BE LOCALLY FABRICATED.
- H. CONTAINER DATA:

- Q. **CAUTION:** THESE OUTLOADING PROCEDURES ARE APPLICABLE FOR TWO-HIGH LOADING OF M42 ROCKET MOTOR ONLY IF THE SHIPPING/STORAGE CONTAINER HAS BEEN MODIFIED IN ACCORDANCE WITH DRAWING C-SSMSV-4027, DATED 12 NOV. 64.

<u>CONTAINER</u>	<u>DIMENSIONS</u>	<u>WEIGHT(APPROX)</u>	<u>DWG NO.</u>
M42 ROCKET MOTOR-----	180-3/8"L X 46-9/16"W X 55-11/16" H-----	6,520 LBS-----	9031177
AFT SECTION IN M410 CNTR-----	223-1/2"L X 54-3/4"W X 61-1/2"H-----	4,606 LBS-----	9031007
WARHEAD IN M409 CNTR-----	99-1/4"L X 54-3/8"W X 61-1/2"H-----	3,170 LBS-----	9031006
CONTROL SURFACE KIT IN M31 CNTR-----	147-1/2"L X 29" W X 42-1/8"H-----	1,050 LBS-----	8524211
ROCKET MOTOR FIN IN M32 CNTR-----	62-5/16"L X 29-5/16"W X 51-3/4"H-----	644 LBS-----	8524212
M39 CNTR-----	51-1/4"L X 29-1/2"W X 51-3/4"H-----	581 LBS-----	9031178
BATTERY-----	34-1/8"L X 19-7/8"W X 15-1/4"H-----	160 LBS-----	SC-A-362244
BATTERY-----	19-5/16"L X 13"W X 10-5/8"H-----	65 LBS-----	8026371

J. TIE BAR FACILITIES, TOGETHER WITH 1-1/4" X .035" STEEL STRAPPING, WILL BE USED TO UNITIZE CONTAINERS AS SHOWN. IF THE CAPACITY OF THE MHE PERMITS, IT IS RECOMMENDED THAT CONTAINERS BE UNITIZED PRIOR TO PLACEMENT ABOARD THE CAR.

K. WHEN ANY STRAP IS SEALED AT AN END-OVER-END LAP JOINT, A MINIMUM OF TWO (2) SEALS WITH TWO (2) CRIMPS PER SEAL MUST BE USED. **CAUTION:** EXERCISE CARE DURING TENSIONING TO PREVENT DAMAGE TO CONTAINERS.

L. THESE LOADS INCLUDE ICC CLASS "A" EXPLOSIVE. SPECIFIED OUTLOADING PROCEDURES CAN ALSO BE UTILIZED FOR THE SHIPMENT OF THE DEPICTED CONTAINERS WHEN THEY ARE EMPTY OR LOADED WITH AN ITEM WHICH IS IDENTIFIED DIFFERENTLY BY NOMENCLATURE THAN THE ITEM DESIGNATED WITHIN THE DRAWING TITLE.

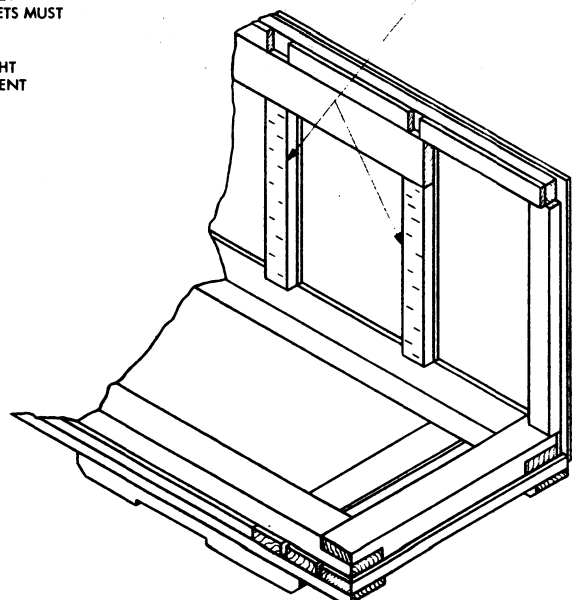
M. THE WORDS "ANTI-SKID PLATES" WILL BE STENCILED IN ONE INCH (1") LETTERS ON BOTH SIDES OF THE CONTAINERS TO SHOW THE LOCATIONS OF THESE PLATES.

N. IF EDGE PROTECTORS FOR 2" STRAPPING ARE NOT COMMERCIALY AVAILABLE, THEY MAY BE FORMED FROM 18 (MIN) GAGE SHEET STEEL 9" LONG X 6" WIDE.

O. IF RAIL CAR IS NOT EQUIPPED WITH PLACARD BOARDS ON BOTH ENDS AND BOTH SIDES, 16" X 24" BOARDS MUST BE PROVIDED, AS REQUIRED. **CAUTION:** BOARDS OR BOARD MOUNTING BRACKETS MUST NOT BE NAILED TO LADING.

P. SLIGHT VARIATION IN COVER CONFIGURATION ON THE M409 CNTR AND THE M410 CNTR MIGHT NECESSITATE TURNING ONE CONTAINER OF LATERALLY ADJACENT CONTAINERS 180° TO PREVENT METAL TO METAL CONTACT.

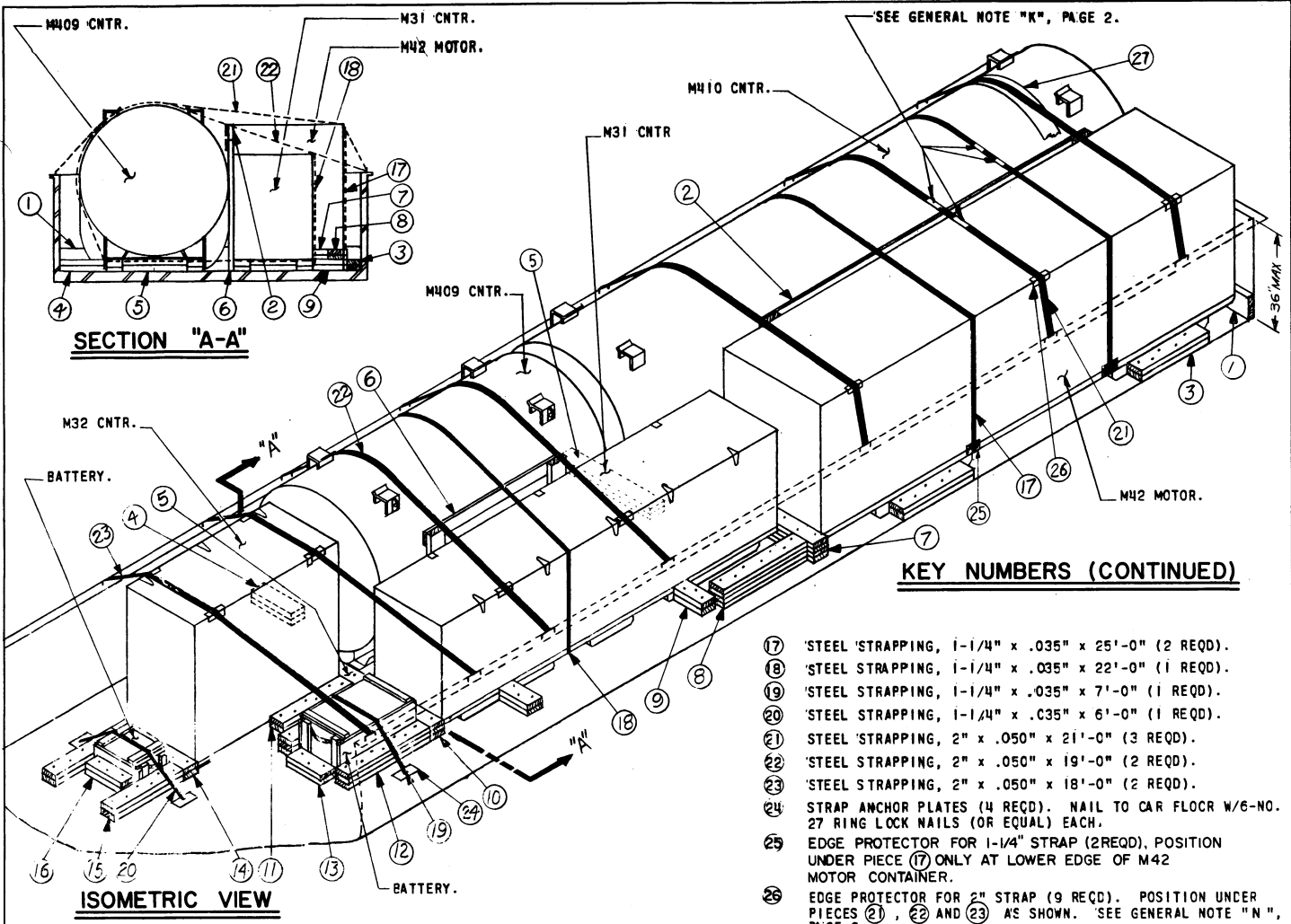
2" X 4" X CUT TO FIT.  
REF: 33-1/4" (5 REQD PER SIDE PANEL, 10 REQD PER BOX)  
(NOMINAL SIZE LUMBER). POSITION AGAINST 1" X 4"  
VERTICAL SIDE MEMBERS AS SHOWN. NAIL FROM EXTERIOR  
OF BOX THRU PLYWOOD SHEATHING AND 1" X 4" VERTI-  
CAL SIDE MEMBERS INTO 2" X 4" MATERIAL W/10-12d  
NAILS AT EACH LOCATION. USE STAGGERED NAILING  
PATTERN. CLINCH.



## MATERIAL SPECIFICATIONS

LUMBER:	SEE PARAGRAPH 8,400, ORDM 3-4, VOL 3.
NAILS:	COMMON, CEMENT COATED, FED SPEC FF-N-105. ALT: ANNULAR-RING TYPE NAIL OF SAME SIZE.
STRAPPING, STEEL:	TYPE 1, CLASS "A" OR "C", FED SPEC QQ-S-781, FOR FSN SEE SB-38-100.
ANTI-SKID PLATES:	SIGNODE NO. 1 OR EQUAL
ANCHOR PLATES:	SIGNODE OR EQUAL.
ANTI-CHAFING MATERIAL:	NEUTRAL BARRIER MATERIAL MIL-B-121 OR EQUAL.

## MODIFICATION OF M42 MOTOR CONTAINER



**SECTION "A-A"**

**ISOMETRIC VIEW**

37'-0" LONG (MIN) x 9'-6" WIDE CAR FOR WOOD FLOOR GONDOLA ONLY.

**KEY NUMBERS (CONTINUED)**

- 17 STEEL STRAPPING, 1-1/4" x .035" x 25'-0" (2 REQD).
- 18 STEEL STRAPPING, 1-1/4" x .035" x 22'-0" (1 REQD).
- 19 STEEL STRAPPING, 1-1/4" x .035" x 7'-0" (1 REQD).
- 20 STEEL STRAPPING, 1-1/4" x .035" x 6'-0" (1 REQD).
- 21 STEEL STRAPPING, 2" x .050" x 21'-0" (3 REQD).
- 22 STEEL STRAPPING, 2" x .050" x 19'-0" (2 REQD).
- 23 STEEL STRAPPING, 2" x .050" x 18'-0" (2 REQD).
- 24 STRAP ANCHOR PLATES (4 REQD). NAIL TO CAR FLOOR W/6-NO. 27 RING LOCK NAILS (OR EQUAL) EACH.
- 25 EDGE PROTECTOR FOR 1-1/4" STRAP (2 REQD). POSITION UNDER PIECE 17 ONLY AT LOWER EDGE OF M42 MOTOR CONTAINER.
- 26 EDGE PROTECTOR FOR 2" STRAP (9 REQD). POSITION UNDER PIECES 21, 22 AND 23 AS SHOWN. SEE GENERAL NOTE "N", PAGE 2.
- 27 ANTI-CHAFING, NEUTRAL BARRIER MATERIAL. PLACE UNDER ALL STRAPPING AT POINTS OF CONTACT WITH METAL CONTAINERS.

**KEY NUMBERS**

- 1 2" x 8" x CAR WIDTH (1 REQD). POSITION AGAINST CAR END WALL AS SHOWN. MAY BE OMITTED WHEN USING "TYPICAL FILL" AS SHOWN IN DETAIL, PAGE 10.
- 2 ANTI-CHAFING ASSEMBLY "A" (1 REQD). SEE DETAIL, PAGE 10.
- 3 2" x 6" x 30" (DOUBLED) (2 REQD). NAIL FIRST PIECE TO CAR FLOOR W/5-16d NAILS. NAIL SECOND PIECE TO FIRST IN LIKE MANNER.
- 4 2" x 5" x CUT TO FIT BETWEEN CONTAINER SKIDS AND CAR SIDE WALL (DOUBLED) (4 REQD). NAIL FIRST PIECE TO CAR FLOOR W/3-16d NAILS. NAIL SECOND PIECE TO FIRST IN LIKE MANNER.
- 5 2" x 5" x 48" (DOUBLED) (2 REQD). NAIL FIRST PIECE TO CAR FLOOR W/1-16d NAIL EVERY 9". NAIL SECOND PIECE TO FIRST W/1-40d NAIL EVERY 8".
- 6 ANTI-CHAFING ASSEMBLY "B" (1 REQD). SEE DETAIL, PAGE 10.
- 7 2" x 6" x 48" (QUADRUPLED) (1 REQD). NAIL FIRST PIECE TO CAR FLOOR W/1-16d NAIL EVERY 8". NAIL EACH ADDITIONAL PIECE W/1-40d NAIL EVERY 8".
- 8 2" x 6" x 36" (QUADRUPLED) (1 REQD). ALIGN WITH CONTAINER SKID AND NAIL FIRST PIECE TO CAR FLOOR W/7-16d NAILS. NAIL EACH ADDITIONAL PIECE W/7-40d NAILS.
- 9 2" x 6" x 12" (DOUBLED) (2 REQD). NAIL FIRST PIECE TO CAR FLOOR W/3-16d NAILS. NAIL SECOND PIECE TO FIRST IN LIKE MANNER.
- 10 2" x 6" x 31" (TRIPLED) (1 REQD). NAIL FIRST PIECE TO CAR FLOOR W/5-16d NAILS. NAIL EACH ADDITIONAL PIECE W/5-40d NAILS.
- 11 2" x 6" x 30" (DOUBLED) (2 REQD). NAIL FIRST PIECE TO CAR FLOOR W/6-16d NAILS. NAIL SECOND PIECE TO FIRST W/6-40d NAILS.
- 12 2" x 6" x 36" (TRIPLED) (2 REQD). NAIL FIRST PIECE TO CAR FLOOR W/7-16d NAILS. NAIL EACH ADDITIONAL PIECE W/7-40d NAILS.
- 13 2" x 6" x 15" (DOUBLED) (1 REQD). NAIL FIRST PIECE TO CAR FLOOR W/3-16d NAILS. NAIL SECOND PIECE TO FIRST W/3-40d NAILS.
- 14 2" x 6" x 31" (DOUBLED) (1 REQD). NAIL FIRST PIECE TO CAR FLOOR W/5-16d NAILS. NAIL SECOND PIECE TO FIRST W/5-40d NAILS.
- 15 2" x 6" x 30" (DOUBLED) (2 REQD). NAIL FIRST PIECE TO CAR FLOOR W/6-16d NAILS. NAIL SECOND PIECE TO FIRST W/6-40d NAILS.
- 16 2" x 6" x 15" (DOUBLED) (1 REQD). NAIL FIRST PIECE TO CAR FLOOR W/3-16d NAILS. NAIL SECOND PIECE TO FIRST W/3-40d NAILS.

**BILL OF MATERIAL**

LUMBER	LINEAL FEET	BOARD FEET
1" x 4"	17	6
2" x 6"	143	143
2" x 8"	10	14
NAILS		POUNDS
6d (2")	12	1/4
16d (3-1/2")	137	3
40d (5")	121	7-1/4
STRAPPING, STEEL, 1-1/4" x .035"-----85'		REQD-----13 LBS
STRAPPING, STEEL, 2" x .050"-----137'		REQD-----46 LBS
STRAP ANCHOR PLATE-----4		REQD-----1 LB
EDGE PROTECTOR FOR 2" STRAP-----9		REQD-----2-1/4 LBS
ANTI-CHAFING MATERIAL-----4S		REQD
NO. 27 RING LOCK NAILS-----24		REQD
EDGE PROTECTOR FOR 1-1/4" STRAP-----2		REQD-----1/2 LB

**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT (APPROX)
M42 MOTOR-----1		6,520 LBS
M410 CNTR-----1		4,606 LBS
M409 CNTR-----1		3,170 LBS
M31 CNTR-----1		1,050 LBS
M32 CNTR-----1		644 LBS
BATTERY-----1		160 LBS
BATTERY-----1		65 LBS
DUNNAGE-----1		481 LBS
<b>TOTAL WEIGHT-----</b>		<b>16,696 LBS</b>

**ONE UNIT LOAD**



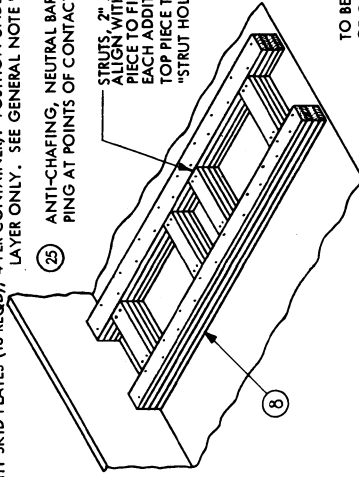
BILL OF MATERIAL		
LUMBER	LINEAL FEET	BOARD FEET
1" X 4"	74	25
2" X 4"	120	80
2" X 6"	91	91
2" X 8"	51	72
4" X 4"	10	14
NAILS	NO. REQD	POUNDS
6d (2")	56	1/2
10d (3")	170	2-3/4
12d (3-1/4")	46	1
STRAPPING, STEEL, 1-1/4" X .035"	233' REQD---	34 LBS
STRAPPING, STEEL, 2" X .050"	196' REQD---	66 LBS
EDGE PROTECTOR FOR 2" STRAP	10 REQD---	2-1/2 LBS
STAPLES FOR 2" STRAPPING	3 REQD	
ANTI-SKID PLATES	16 REQD---	4 LBS
ANTI-CHAFING MATERIAL	AS REQD	
EDGE PROTECTOR FOR 1-1/4" STRAP	4 REQD---	1 LB

**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT (APPROX)
M42 MOTOR	2	13,040 LBS
M410 CNTR	2	9,212 LBS
M409 CNTR	2	6,340 LBS
M 31 CNTR	2	2,100 LBS
M32 CNTR	2	1,288 LBS
BATTERY	2	320 LBS
BATTERY	2	130 LBS
DUNNAGE	2	818 LBS
TOTAL WEIGHT		33,248 LBS

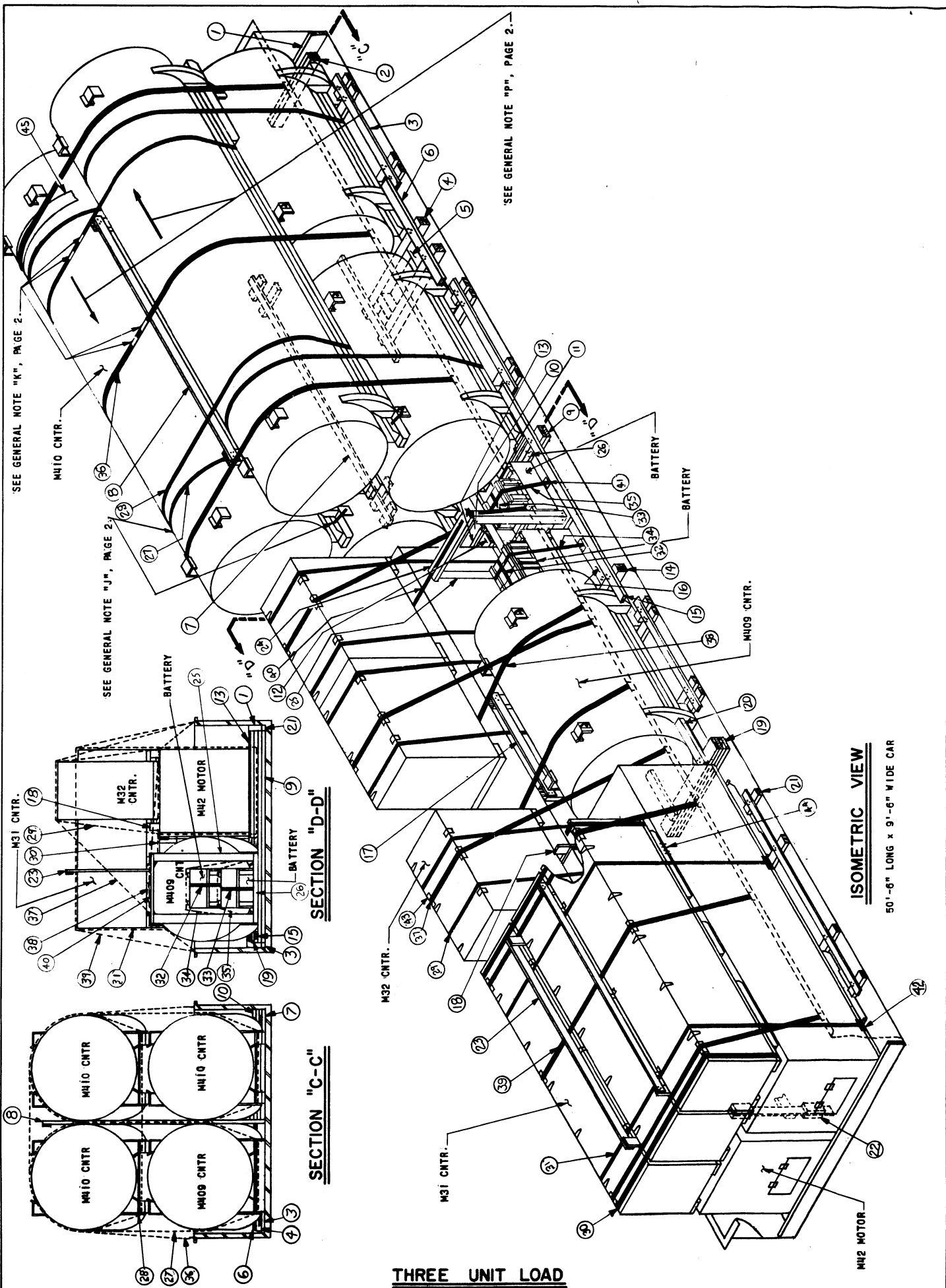
**KEY NUMBERS**

- 1 2" X 8" X CAR WIDTH (2 REQD). POSITION AGAINST CAR END WALL AS SHOWN. MAY BE OMITTED WHEN USING "TYPICAL FILL" AS SHOWN IN DETAIL, PAGE 10.
- 2 SIDE BLOCKING "C" (2 REQD). SEE DETAIL, PAGE 10.
- 3 ANTI-CHAFING ASSEMBLY "E" (1 REQD). SEE DETAIL, PAGE 10.
- 4 4" X 4" X CAR WIDTH MINUS 2" (1 REQD).
- 5 2" X 4" X 44" (2 REQD). NAIL TO 4 W/3-12d NAILS.
- 6 SIDE BLOCKING "B" (2 REQD). SEE DETAIL, PAGE 10.
- 7 ANTI-CHAFING ASSEMBLY "B" (1 REQD). SEE DETAIL, PAGE 10.
- 8 2" X 6" X CAR WIDTH MINUS 2" (QUADRUPLED) (2 REQD). LAMINATE SECOND PIECE TO FIRST W/1-10d NAIL EVERY 8". LAMINATE THIRD AND FOURTH PIECES IN LIKE MANNER.
- 9 SOLID FILL, 8" WIDE MATERIAL X 7'-6" LONG (AS REQD) (12" MAXIMUM). TOENAIL TO 8 AND/OR SELF W/1-12d NAIL EVERY 12". SEE "CENTER FILL" DETAIL, BELOW.
- 10 2" X 4" X 40" (2 REQD). NAIL TO 8 W/3-12d NAILS EACH JOINT. ADJUST LENGTH WHEN USING LONGER CAR THAN SHOWN.
- 11 SIDE BLOCKING "A" (2 REQD). SEE DETAIL, PAGE 10.
- 12 ANTI-CHAFING ASSEMBLY "C" (1 REQD). SEE DETAIL, PAGE 10.
- 13 ANTI-CHAFING ASSEMBLY "D" (4 REQD). SEE DETAIL, PAGE 10.
- 14 STRAPPING BOARD, 2" X 4" X 30" (1 REQD). POSITION AS SHOWN.
- 15 STEEL STRAPPING, 1-1/4" X .035" X 26'-0" (4 REQD).
- 16 STEEL STRAPPING, 1-1/4" X .035" X 22'-0" (2 REQD).
- 17 STEEL STRAPPING, 1-1/4" X .035" X 33'-0" (2 REQD).
- 18 STEEL STRAPPING, 1-1/4" X .035" X 13'-0" (1 REQD).
- 19 STEEL STRAPPING, 2" X .050" X 21'-0" (5 REQD).
- 20 STEEL STRAPPING, 2" X .050" X 29'-0" (1 REQD). STAPLE TO 14 W/3-2" STAPLES.
- 21 STEEL STRAPPING, 2" X .050" X 31'-0" (2 REQD).
- 22 EDGE PROTECTOR FOR 1-1/4" STRAP (4 REQD). POSITION UNDER PIECE 17 ONLY AT LOWER EDGE OF M42 MOTOR CONTAINERS.
- 23 EDGE PROTECTOR FOR 2" STRAP (10 REQD). POSITION UNDER PIECES 20 AND 21 AS SHOWN. SEE GENERAL NOTE "N", PAGE 2.
- 24 ANTI-SKID PLATES (16 REQD), 4 PER CONTAINER. POSITION UNDER SKIDS OF CONTAINERS IN SECOND LAYER ONLY. SEE GENERAL NOTE "M", PAGE 2.



**CENTER FILL**

TO BE USED WHEN EXCESS SPACE IN LENGTH OF CAR IS GREATER THAN 12".



### BILL OF MATERIAL

LUMBER	LINEAL FEET	BOARD FEET
1" X 4"	84	28
2" X 4"	148	99
2" X 6"	101	101
2" X 8"	24	32
4" X 4"	40	54
NAILS		
6d (2")	NO. REQD	POUNDS
10d (3")	62	1/2
12d (3-1/4")	184	3
	77	1-1/2
STRAPPING, STEEL, 1-1/4" X .035" REQD----- 462' REQD----- 66 LBS		
STRAPPING, STEEL, 2" X .050" REQD----- 302' REQD----- 101 LBS		
STRAP ANCHOR PLATE----- 4 REQD----- 1 LB		
EDGE PROTECTOR FOR 2" STRAP----- 15 REQD----- 3-1/2 LBS		
ANTI-SKID PLATES----- 24 REQD----- 6 LBS		
ANTI-CHAFING MATERIAL----- AS REQD		
NO. 27 RING LOCK NAILS----- 24 REQD		
STAPLES FOR 2" STRAPPING----- 3 REQD		
EDGE PROTECTOR FOR 1-1/4" STRAP----- 20 REQD----- 3-1/2 LBS		

### LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
M42 MOTOR	3	19,560 LBS
M410 CNTR	3	13,818 LBS
M409 CNTR	3	9,510 LBS
M31 CNTR	3	3,150 LBS
M32 CNTR	3	1,932 LBS
BATTERY	3	480 LBS
DUNNAGE	3	195 LBS
		971 LBS
TOTAL WEIGHT		49,616 LBS

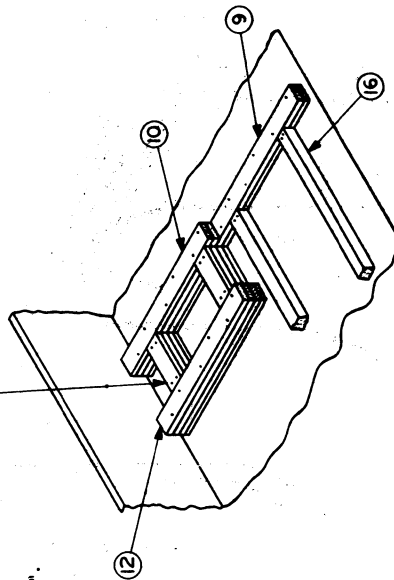
### KEY NUMBERS

- 1 2" X 8" X CAR WIDTH (2 REQD). POSITION AGAINST CAR END WALL AS SHOWN. MAY BE OMITTED WHEN USING "TYPICAL FILL" AS SHOWN IN DETAIL, PAGE 10.
- 2 2" X 4" X 38" (DOUBLED) (1 REQD). NAIL FIRST PIECE TO 1 W/5-10d NAILS. NAIL SECOND PIECE TO FIRST IN LIKE MANNER.
- 3 SIDE BLOCKING "B" (3 REQD). SEE DETAIL, PAGE 10.
- 4 4" X 4" X 62" (2 REQD). POSITION AS SHOWN.
- 5 4" X 4" X CUT TO FIT (2 REQD). ALIGN WITH CONTAINER SKIDS. TOENAIL TO 4 W/2-12d NAILS EACH END.
- 6 2" X 4" X 60" (2 REQD). NAIL TO 4 W/3-12d NAILS EACH JOINT.
- 7 SIDE BLOCKING "C" (1 REQD). SEE DETAIL, PAGE 10.
- 8 ANTI-CHAFING ASSEMBLY "J" (1 REQD). SEE DETAIL, PAGE 10.
- 9 2" X 6" X CAR WIDTH MINUS 2" (DOUBLED) (1 REQD). LAMINATE W/1-10d NAIL EVERY 8".
- 10 2" X 6" X 54" (DOUBLED) (1 REQD). NAIL FIRST PIECE TO 2 W/1-10d NAIL EVERY 8". NAIL SECOND PIECE TO FIRST IN LIKE MANNER.
- 11 2" X 4" X 38" (DOUBLED) (1 REQD). NAIL FIRST PIECE TO 2 W/3-10d NAILS. NAIL SECOND PIECE TO FIRST IN LIKE MANNER.
- 12 2" X 6" X 54" (QUADRUPLED) (1 REQD). NAIL SECOND PIECE TO FIRST W/1-10d NAIL EVERY 8". NAIL EACH ADDITIONAL PIECE IN LIKE MANNER.
- 13 SOLID FILL, 8" WIDE MATERIAL X 54" LONG (AS REQD) (12" MAX). TOENAIL TO 10, 12 AND/OR SELF W/1-12d NAIL EVERY 12". SEE "CENTER FILL" DETAIL, BELOW.
- 14 4" X 4" X 54" (1 REQD). POSITION AS SHOWN.
- 15 2" X 4" X 11'-0" (2 REQD). NAIL TO 3 AND 14 W/3-12d NAILS EACH JOINT. ADJUST LENGTH WHEN USING LONGER CAR THAN SHOWN.
- 16 4" X 4" X CUT TO FIT (2 REQD). ALIGN WITH CONTAINER SKIDS. TOENAIL TO 3 AND 14 W/2-12d NAILS EACH END.
- 17 ANTI-CHAFING ASSEMBLY "F" (1 REQD). SEE DETAIL, PAGE 10.
- 18 ANTI-CHAFING ASSEMBLY "H" (1 REQD). SEE DETAIL, PAGE 10.
- 19 2" X 6" X 62" (QUADRUPLED) (1 REQD). NAIL SECOND PIECE TO FIRST W/1-10d NAIL EVERY 8". NAIL EACH ADDITIONAL PIECE IN LIKE MANNER.
- 20 2" X 4" X 21" (2 REQD). NAIL TO 19 W/3-12d NAILS.
- 21 SIDE BLOCKING "A" (2 REQD). SEE DETAIL, PAGE 10.
- 22 ANTI-CHAFING ASSEMBLY "C" (1 REQD). SEE DETAIL, PAGE 10.
- 23 ANTI-CHAFING ASSEMBLY "G" (2 REQD). SEE DETAIL, PAGE 10.
- 24 2" X 6" X 37" (2 REQD). NAIL LOWER PIECE TO 18 W/3-12d NAILS EACH END. NAIL UPPER PIECE TO 25 W/3-12d NAILS EACH END.
- 25 4" X 4" X 51" (2 REQD). TOENAIL TO 24 W/4-12d NAILS.
- 26 2" X 4" X 37" (1 REQD). NAIL TO 19 W/3-12d NAILS EACH END.
- 27 STEEL STRAPPING, 1-1/4" X .035" X 28'-0" (4 REQD).
- 28 STEEL STRAPPING, 1-1/4" X .035" X 26'-0" (2 REQD).
- 29 STEEL STRAPPING, 1-1/4" X .035" X 24'-0" (6 REQD).
- 30 STEEL STRAPPING, 1-1/4" X .035" X 25'-0" (2 REQD).
- 31 STEEL STRAPPING, 1-1/4" X .035" X 31'-0" (2 REQD).
- 32 STEEL STRAPPING, 1-1/4" X .035" X 12'-0" (1 REQD).
- 33 STEEL STRAPPING, 1-1/4" X .035" X 8'-0" (1 REQD).

### KEY NUMBERS (CONT'D)

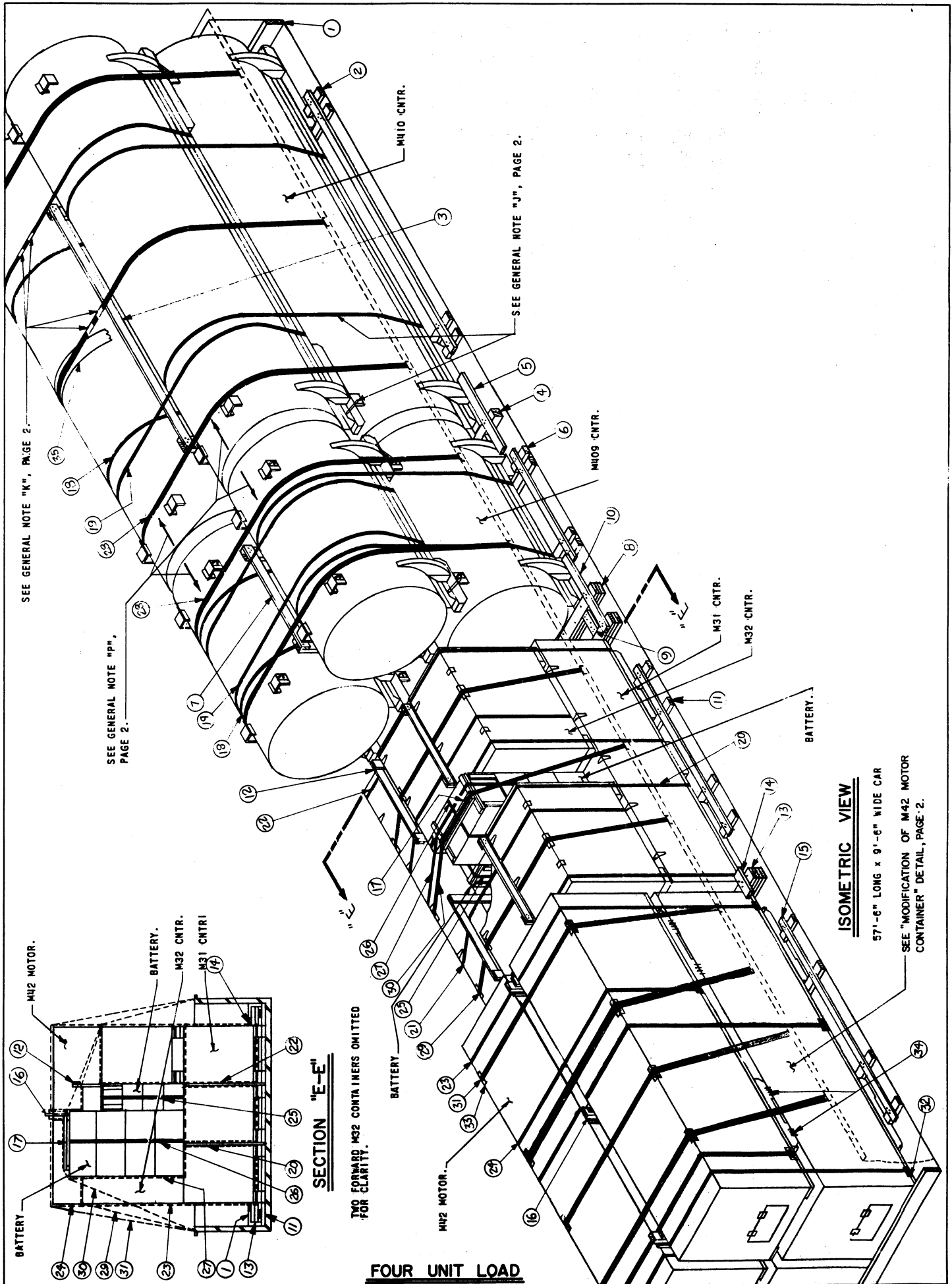
- 34 STEEL STRAPPING, 1-1/4" X .035" X 12'-0" (1 REQD).
- 35 STEEL STRAPPING, 1-1/4" X .035" X 10'-0" (1 REQD).
- 36 STEEL STRAPPING, 2" X .050" X 30'-0" (3 REQD).
- 37 STEEL STRAPPING, 2" X .050" X 24'-0" (3 REQD).
- 38 STEEL STRAPPING, 2" X .050" X 20'-0" (2 REQD).
- 39 STEEL STRAPPING, 2" X .050" X 27'-0" (3 REQD).
- 40 STEEL STRAPPING, 2" X .050" X 19'-0" (1 REQD). STAPLE TO 29 W/3-2" STAPLES.
- 41 STRAP ANCHOR PLATES (4 REQD). NAIL TO 16 W/6-NO. 27 RING LOCK NAILS (OR EQUAL) EACH.
- 42 EDGE PROTECTOR FOR 1-1/4" STRAP (20 REQD). POSITION UNDER PIECES 29 AND 31 ONLY AT LOWER EDGE OF M42 MOTOR CONTAINERS.
- 43 EDGE PROTECTOR FOR 2" STRAP (15 REQD). POSITION UNDER PIECES 37, 38, 39, AND 40. SEE GENERAL NOTE "N" PAGE 2.
- 44 ANTI-SKID PLATES (24 REQD, 4 PER CONTAINER). POSITION UNDER SKIDS OF CONTAINERS IN SECOND LAYER ONLY. SEE GENERAL NOTE "M", PAGE 2.
- 45 ANTI-CHAFING, NEUTRAL BARRIER MATERIAL. PLACE UNDER ALL STRAPPING AT POINTS OF CONTACT WITH METAL CONTAINERS.

STRUTS, 2" X 6" X CUT TO FIT (QUADRUPLED) (2 REQD). ALIGN WITH CONTAINER SKIDS. LAMINATE SECOND PIECE TO FIRST W/1-10d NAIL EVERY 6". LAMINATE EACH ADDITIONAL PIECE IN LIKE MANNER. TOENAIL TOP PIECE TO 10 AND 12 W/2-12d NAILS EACH END. SEE "STRUT HOLD DOWN" DETAIL, PAGE 10. DELETE SOLID FILL, PC 13.



### CENTER FILL

TO BE USED WHEN EXCESS SPACE IN LENGTH OF CAR IS GREATER THAN 12", IN LIEU OF SOLID FILL, PC 13.





BILL OF MATERIAL		LINEAL FEET	BOARD FEET
LUMBER			
1" X 4"	105	35	
2" X 4"	168	112	
2" X 6"	145	145	
2" X 8"	19	26	
4" X 4"	10	14	
NAILS	NO. REQD	POUNDS	
6d (2")	48	1/2	
10d (3")	271	4-1/4	
12d (3-1/4")	40	3/4	
STRAPPING, STEEL, 1-1/4" X .035"	827	REQD--	119 LBS
STRAPPING, STEEL, 2" X .050"	329	REQD--	110 LBS
EDGE PROTECTOR FOR 1-1/4" STRAP	16	REQD--	3 LBS
ANTI-SKID PLATE	36	REQD--	9 LBS
ANTI-CHAFING MATERIAL	AS	REQD--	AS REQD
STAPLES FOR 2" STRAPPING	3	REQD--	4 LBS
EDGE PROTECTOR FOR 2" STRAP	15	REQD--	4 LBS

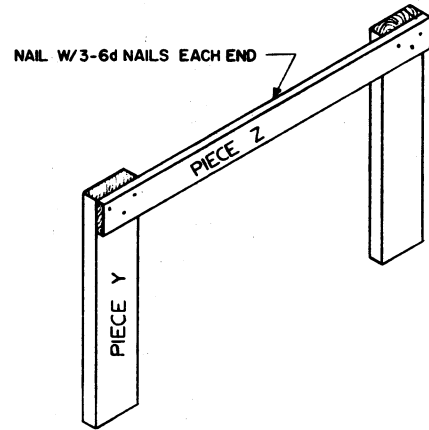
### LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
M42 MOTOR	4	26,080 LBS
M410 CNTR	4	18,424 LBS
M409 CNTR	4	12,680 LBS
M31 CNTR	4	4,200 LBS
M32 CNTR	4	2,576 LBS
BATTERY	4	640 LBS
DUNNAGE	4	260 LBS
		1,081 LBS
TOTAL WEIGHT		65,941 LBS

### KEY NUMBERS

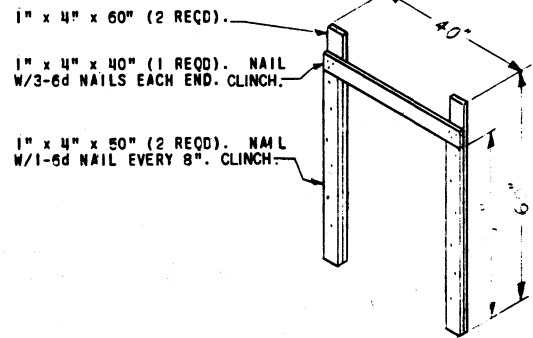
- 1 2" X 8" X CAR WIDTH (2 REQD). POSITION AGAINST CAR END WALL AS SHOWN. MAY BE OMITTED WHEN USING "TYPICAL FILL" AS SHOWN IN DETAIL, PAGE 10.
- 2 SIDE BLOCKING "C" (2 REQD). SEE DETAIL, PAGE 10.
- 3 ANTI-CHAFING ASSEMBLY "J" (1 REQD). SEE DETAIL, PAGE 10.
- 4 4" X 4" X CAR WIDTH MINUS 2" (1 REQD).
- 5 2" X 4" X 44" (2 REQD). NAIL TO ④ W/3-12d NAILS.
- 6 SIDE BLOCKING "B" (2 REQD). SEE DETAIL, PAGE 10.
- 7 ANTI-CHAFING ASSEMBLY "K" (1 REQD). SEE DETAIL, PAGE 10.
- 8 2" X 6" X CAR WIDTH MINUS 2" (TRIPLED) (2 REQD). NAIL SECOND PIECE TO FIRST W/1-10d NAIL EVERY 8". NAIL THIRD PIECE TO SECOND IN LIKE MANNER.
- 9 STRUTS, 2" X 6" X CUT TO FIT (12" MIN) (TRIPLED) (4 REQD). ALIGN WITH CONTAINER SKIDS. NAIL SECOND PIECE TO FIRST W/1-10d NAIL EVERY 6". NAIL THIRD PIECE TO SECOND IN LIKE MANNER. TOENAIL TO ⑥ W/2-12d NAILS EACH END. FOR LESS THAN 12" USE SOLID FILL. SEE KEY NUMBER ⑥, PAGE 5.
- 10 2" X 4" X 48" (2 REQD). NAIL TO ③ W/3-12d NAILS EACH JOINT. ADJUST LENGTH WHEN USING LONGER CAR THAN SHOWN.
- 11 SIDE BLOCKING "D" (2 REQD). SEE DETAIL, PAGE 10.
- 12 ANTI-CHAFING ASSEMBLY "L" (4 REQD). SEE DETAIL, PAGE 10.
- 13 2" X 6" X CAR WIDTH MINUS 2" (QUADRUPLED) (1 REQD). NAIL SECOND PIECE TO FIRST W/1-10d NAIL EVERY 8". NAIL EACH ADDITIONAL PIECE IN LIKE MANNER.
- 14 2" X 4" X 12" (2 REQD). NAIL TO ③ W/3-12d NAILS.
- 15 SIDE BLOCKING "A" (2 REQD). SEE DETAIL, PAGE 10.
- 16 ANTI-CHAFING ASSEMBLY "C" (1 REQD). SEE DETAIL, PAGE 10.
- 17 STRAPPING BOARD, 2" X 4" X 30" (1 REQD). POSITION AS SHOWN.
- 18 STEEL STRAPPING, 1-1/4" X .035" X 28'-0" (8 REQD).
- 19 STEEL STRAPPING, 1-1/4" X .035" X 26'-0" (4 REQD).
- 20 STEEL STRAPPING, 1-1/4" X .035" X 21'-0" (8 REQD). ENCIRCLE M32 CNTR AND M31 CNTR BELOW IT.
- 21 STEEL STRAPPING, 1-1/4" X .035" X 23'-0" (2 REQD). ENCIRCLE TOP LAYER OF M31 AND M32 CNTRS.
- 22 STEEL STRAPPING, 1-1/4" X .035" X 19'-0" (2 REQD). ENCIRCLE STACK OF TWO (2) M31 CNTRS.
- 23 STEEL STRAPPING, 1-1/4" X .035" X 25'-0" (6 REQD). NOTE: PLACE IN POSITION DURING LOADING OPERATION; HOWEVER, DO NOT TENSION AND SEAL UNTIL PIECES ③ HAVE BEEN TENSIONED AND SEALED.
- 24 STEEL STRAPPING, 1-1/4" X .035" X 25'-0" (2 REQD). NOTE: TENSION AND SEAL AFTER PIECES ④ ARE TENSIONED AND SEALED.
- 25 STEEL STRAPPING, 1-1/4" X .035" X 11'-0" (1 REQD).
- 26 STEEL STRAPPING, 1-1/4" X .035" X 14'-0" (1 REQD).
- 27 STEEL STRAPPING, 1-1/4" X .035" X 22'-0" (1 REQD).
- 28 STEEL STRAPPING, 2" X .050" X 30'-0" (5 REQD).
- 29 STEEL STRAPPING, 2" X .050" X 24'-0" (2 REQD).
- 30 STEEL STRAPPING, 2" X .050" X 23'-0" (1 REQD). STAPLE TO ⑦ W/3-2" STAPLES.
- 31 STEEL STRAPPING, 2" X .050" X 27'-0" (4 REQD).
- 32 EDGE PROTECTOR FOR 1-1/4" STRAP (16 REQD). POSITION UNDER PIECES ③ AND ④ ONLY AT LOWER EDGE OF ALL MOTOR CONTAINERS.
- 33 EDGE PROTECTOR FOR 2" STRAP (15 REQD). POSITION UNDER PIECES ② THRU ④ AT TOP EDGE OF ALL CONTAINERS. SEE GENERAL NOTE "N", PAGE 2.
- 34 ANTI-SKID PLATE (36 REQD). POSITION TWO (2) UNDER EACH SKID OF EACH M42 MOTOR AND EACH M32 CONTAINER IN SECOND LAYER. POSITION ONE (1) UNDER EACH SKID OF M31 CONTAINER IN SECOND LAYER. SEE GENERAL NOTE "M", PAGE 2.
- 35 ANTI-CHAFING, NEUTRAL BARRIER MATERIAL. PLACE UNDER ALL STRAPPING AT POINTS OF CONTACT WITH METAL CONTAINERS.

ANTI-CHAFING ASSEMBLY	PIECE Y	PIECE Z
	A	2"x6"x54"
B	2"x6"x48"	1"x4"x60"
D	1"x4"x48"	1"x4"x48"
E	2"x6"x48"	1"x4"x12'-0"
F	2"x6"x54"	1"x4"x60"
G	1"x4"x48"	1"x4"x10'-0"
J	2"x6"x9'-0"	1"x4"x12'-0"
K	2"x6"x9'-0"	1"x4"x60"
L	1"x4"x8'-5"	1"x4"x48"



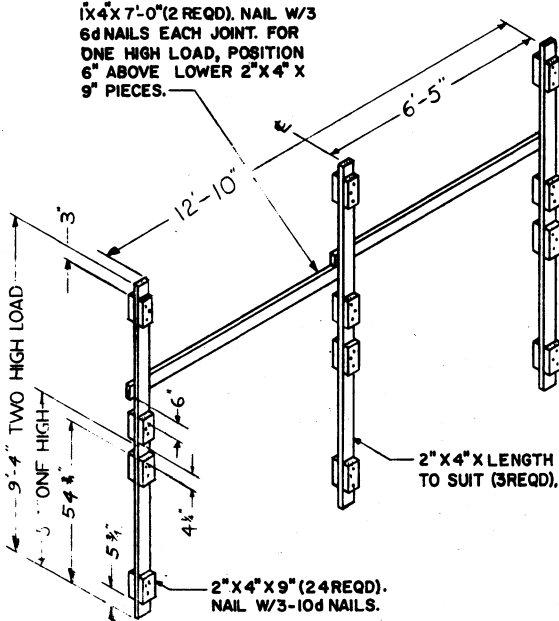
**ANTI-CHAFING ASSEMBLY**

(AS REQD)



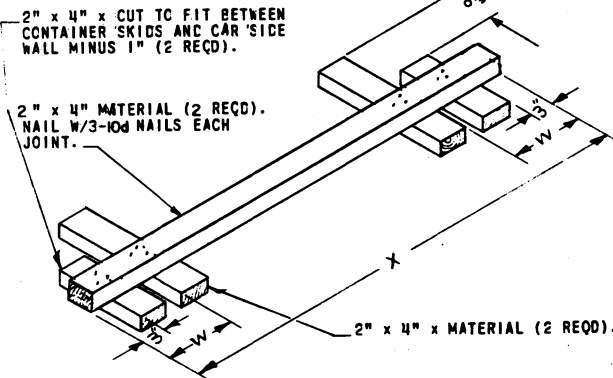
**ANTI-CHAFING ASSEMBLY "H"**

(1 REQD)



**ANTI-CHAFING ASSEMBLY "C"**

(AS REQD)



**SIDE BLOCKING**

(AS REQD)

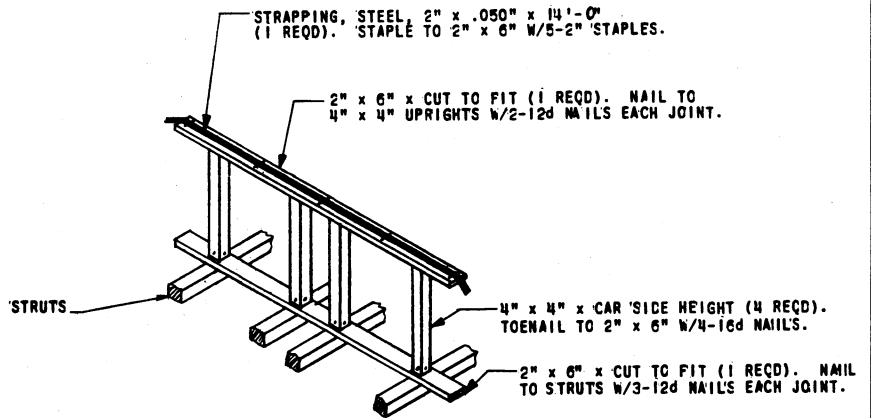
SIDE BLOCKING	DIM W	DIM X
	A	30"
B	9"	64"
C	15"	12'-0"
D	23"	8'-0"

3" x 12" x CAR WIDTH. NAIL TO SOLID FILL AS REQUIRED. ALT: LAMINATED 2" x 12".

SOLID FILL (AS REQD).

**TYPICAL FILL**

FOR CARS WITH CORRUGATED END WALLS



**STRUT HOLD DOWN**

FOR QUADRUPLED 2" X 6" STRUTS GREATER THAN 8'-0" IN LENGTH OR 4" X 4" STRUTS GREATER THAN 48" IN LENGTH. POSITION EVERY 8'-0" OR 48", RESPECTIVELY.

**DETAILS**