

APPROVED BY
BUREAU OF EXPLOSIVES

J.H. Fleishman
DATE 5/5/93

LOADING AND BRACING WITH WOODEN DUNNAGE IN SIDE OPENING ISO CONTAINERS OF SPARROW (AIM-7F) MISSILES IN CNU-305/E SHIPPING AND STORAGE CONTAINERS

INDEX

<u>ITEM</u>	<u>PAGE(S)</u>
GENERAL NOTES AND MATERIAL SPECIFICATIONS - - - - -	2
CNU-305/E CONTAINER DETAIL - - - - -	3
4-CONTAINER LOAD - - - - -	4,5
DETAILS - - - - -	6,7

- LOADING AND BRACING SPECIFICATIONS SET FORTH WITHIN THIS DRAWING ARE APPLICABLE TO LOADS THAT ARE TO BE SHIPPED BY TRAILER/CONTAINER-ON-FLATCAR (T/COFC) RAIL CARRIER SERVICE. THESE SPECIFICATIONS MAY ALSO BE USED FOR LOADS THAT ARE TO BE MOVED BY MOTOR OR WATER CARRIERS.

U.S. ARMY MATERIEL COMMAND DRAWING			
APPROVED, U.S. ARMY ARMAMENT, MUNITIONS AND CHEMICAL COMMAND <i>Timothy R. Free</i>	DRAFTSMAN	TECHNICIAN	ENGINEER
		G. GUAY	
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND <i>William Ernst</i>	VALIDATION ENGINEERING DIVISION	TRANSPORTATION ENGINEERING DIVISION	LOGISTICS ENGINEERING OFFICE
		<i>J.M. W. Smith</i>	<i>J. J. Michels</i>
JULY 1993			
	CLASS	DIVISION	DRAWING
	19	48	8563
			FILE
			SP15J54

DO NOT SCALE

GENERAL NOTES

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1 AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE SPECIFIED OUTLOADING PROCEDURES ARE APPLICABLE TO LOADS OF SPARROW (AIM-7F) MISSILES PACKED IN THE CNU-305/E CONTAINER. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE CNU-305/E CONTAINER WITH MISSILES INSTALLED. SEE PAGE 3 FOR DETAILS OF THE CONTAINER. CAUTION: REGARDLESS OF THE QUANTITY OF CONTAINERS TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF THE SIDE OPENING ISO CONTAINER MUST NOT BE EXCEEDED.
- C. THE LOAD AS SHOWN IS BASED ON A 6,050 POUND 20' LONG BY 8' WIDE BY 8'-6" HIGH SIDE OPENING INTERMODAL COMMERCIAL CONTAINER WITH INSIDE DIMENSIONS OF 19'-4" LONG BY 89" WIDE BY 88" HIGH. THE LOAD IS DESIGNED FOR TRAILER/CONTAINER-ON-FLATCAR (T/COFC) SHIPMENT, HOWEVER, THE LOAD AS DESIGNED CAN ALSO BE MOVED BY OTHER SURFACE MODES OF TRANSPORT. NOTICE: OTHER CONTAINERS OF THE SAME DESIGN CONFIGURATION CAN BE USED.
- D. WHEN LOADING CONTAINERS, THEY ARE TO BE POSITIONED SO AS TO ACHIEVE A TIGHT LOAD (TIGHT AGAINST THE DUNNAGE ASSEMBLIES). ALTHOUGH A TOTAL OF 1 1/2" OF UNBLOCKED SPACE ACROSS THE WIDTH OF A LOAD BAY IS PERMITTED, LATERAL VOIDS WITHIN THE LOAD ARE TO BE HELD TO A MINIMUM. EXCESSIVE SLACK CAN BE ELIMINATED FROM A LOAD BY LAMINATING ADDITIONAL PIECES OF APPROPRIATE THICKNESS TO THE HORIZONTAL PIECES ON THE SIDE SPACER ASSEMBLIES. NAIL EACH ADDITIONAL PIECE W/1 APPROPRIATELY SIZED NAIL EVERY 12". ADDITIONALLY, THE THICKNESS OF THE HORIZONTAL PIECES ON THE SIDE SPACER ASSEMBLIES MAY BE ADJUSTED AS REQUIRED TO FACILITATE VARIANCE IN THE CONTAINER SIZE.
- E. DUNNAGE LUMBER SPECIFIED IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 4" MATERIAL IS ACTUALLY 1-1/2" THICK BY 3-1/2" WIDE AND 4" X 4" MATERIAL IS ACTUALLY 3-1/2" THICK BY 3-1/2" WIDE.
- F. A STAGGERED NAILING PATTERN WILL BE USED WHENEVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES 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.
- G. IN SOME CONTAINERS THERE IS A SLOT AT THE CORNERS OF THE ENDWALLS. PIECES OF DUNNAGE MATERIAL MUST BE LAMINATED TO THE BUFFER PIECES ON THE STRUT ASSEMBLIES TO PROVIDE A FLAT SURFACE FOR THE BUFFER PIECES. A PIECE OF 2" X 4", 2" X 3" OR A SPECIAL WIDTH PIECE CUT-TO-FIT CAN BE USED. THIS FILL PIECE WILL BE NAILED WITH ONE APPROPRIATELY SIZED NAIL EVERY 12". THIS PIECE IS NOT REQUIRED WHEN THE CORNER PORTIONS OF THE CONTAINER ENDWALLS ARE SMOOTH AND FLAT.
- H. CAUTION: DO NOT NAIL DUNNAGE MATERIAL TO THE CONTAINER WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE.
- J. PORTIONS OF THE CONTAINER DEPICTED WITHIN THIS DRAWING, SUCH AS THE SIDE DOORS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.

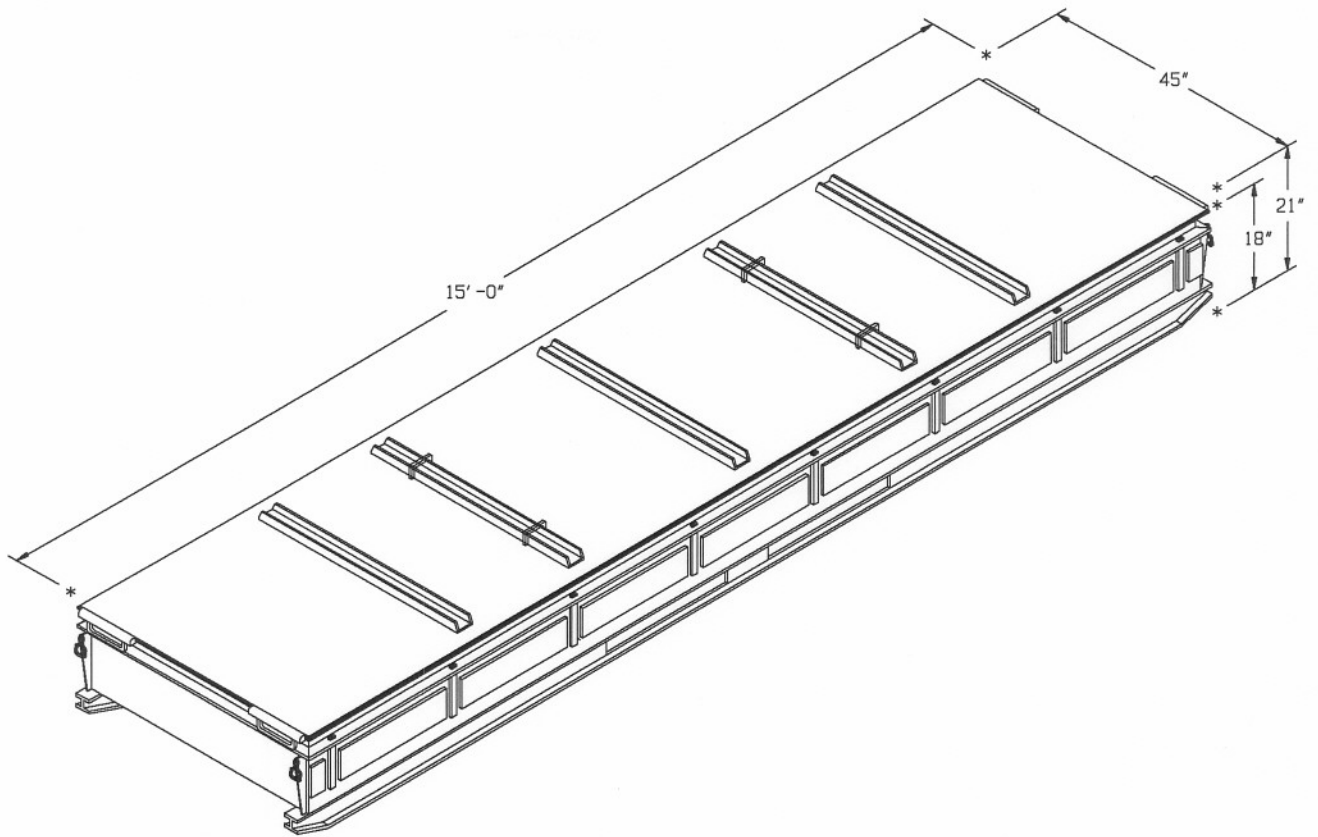
(CONTINUED AT RIGHT)

(GENERAL NOTES CONTINUED)

- K. REQUIREMENTS CITED WITHIN THE BUREAU OF EXPLOSIVES PAMPHLET 6C APPLY WHEN THE SHIPMENT MOVES BY TRAILER/CONTAINER-ON-FLATCAR (T/COFC). SPECIAL T/COFC NOTES FOLLOW:
1. A LOADED CONTAINER MUST BE ON A CHASSIS EQUIPPED WITH TWO BOGIE ASSEMBLIES WHEN BEING MOVED IN TOFC SERVICE.
 2. THE LOAD LIMIT OF A T/COFC RAILCAR MUST NOT BE EXCEEDED, NOR WILL A CAR BE LOADED SO THAT THE TRUCK UNDER ONE END OF THE CAR CARRIES MORE THAN ONE-HALF OF THE LOAD LIMIT FOR THAT CAR.
- L. DURING INTRASTATE AND/OR INTERSTATE MOVES BY MOTOR CARRIER, A PROPER CHASSIS OR MODIFIED FLATBED TRAILER MUST BE USED TO PRECLUDE VIOLATION OF ONE OR MORE "WEIGHT LAWS" APPLICABLE TO THE STATE OR STATES INVOLVED.
- M. CONVERSION TO METRIC EQUIVALENTS: DIMENSIONS WITHIN THIS DOCUMENT ARE EXPRESSED IN INCHES AND WEIGHTS ARE EXPRESSED IN POUNDS. WHEN NECESSARY, THE METRIC EQUIVALENTS MAY BE COMPUTED ON THE BASIS OF ONE INCH EQUALS 25.4MM AND ONE POUND EQUALS 0.454 KG.

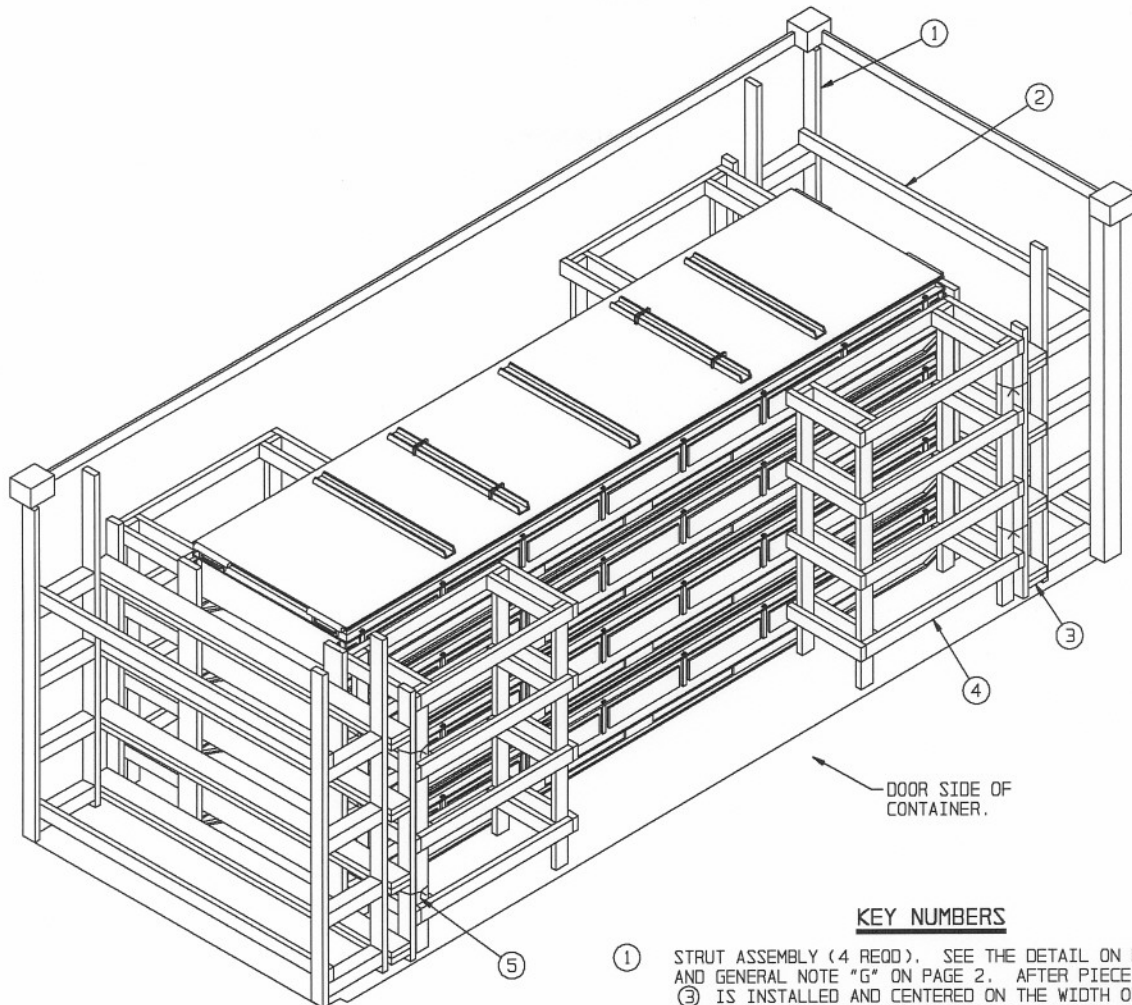
MATERIAL SPECIFICATIONS

- LUMBER - - - - - : SEE TM 743-200-1 (DUNNAGE LUMBER) AND FED SPEC MM-L-751.
- NAILS - - - - - : FED SPEC FF-N-105; COMMON.
- WIRE, CARBON STEEL - : ASTM A853; ANNEALED AT FINISH, BLACK OXIDE FINISH, .0800" DIA, GRADE 1006 OR BETTER.



CNU-305/E CONTAINER

GROSS WEIGHT - - - - - 2,855 LBS (APPROX)
 CUBE - - - - - 98.5 CU FT (APPROX)



ISOMETRIC VIEW

KEY NUMBERS

- ① STRUT ASSEMBLY (4 REQD). SEE THE DETAIL ON PAGE 6 AND GENERAL NOTE "G" ON PAGE 2. AFTER PIECE MARKED ③ IS INSTALLED AND CENTERED ON THE WIDTH OF THE CONTAINER, TOENAIL THROUGH THE REAR BUFFER PIECE OF EACH STRUT ASSEMBLY INTO EACH BEAM ASSEMBLY OF PIECE MARKED ③ W/2-12d NAILS AT EACH JOINT.
- ② SPREADER PIECE, 2" X 4" BY INSIDE CONTAINER WIDTH MINUS 1" (REF: 7'-2") (4 REQD). NAIL TO THE BUFFER PIECES OF PIECE MARKED ①, W/2-10d NAILS AT EACH END. POSITION AS SHOWN ABOVE.
- ③ END BLOCKING ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 6 AND GENERAL NOTE "F" ON PAGE 2.
- ④ SIDE SPACER ASSEMBLY (4 REQD). SEE THE DETAIL ON PAGE 7 AND GENERAL NOTE "D" ON PAGE 2.
- ⑤ TIE WIRE, NO. 14 GAGE, 36" LONG (8 REQD, 2 PER SIDE SPACER ASSEMBLY). INSTALL TO FORM A COMPLETE LOOP AROUND THE VERTICAL PIECE ON THE SIDE ASSEMBLY AND THE VERTICAL PIECE ON THE END BLOCKING ASSEMBLY. BRING ENDS TOGETHER AND TWIST TAUT.

RECOMMENDED SEQUENTIAL LOADING PROCEDURES

1. PRE-FABRICATE FOUR STRUT ASSEMBLIES, TWO END BLOCKING ASSEMBLIES AND FOUR SIDE SPACER ASSEMBLIES.
2. INSTALL FOUR STRUT ASSEMBLIES, FOUR SPREADER PIECES AND TWO END BLOCKING ASSEMBLIES.
3. INSTALL TWO SIDE SPACER ASSEMBLIES AND WIRE TIE TO END BLOCKING ASSEMBLIES.
4. LOAD THE FOUR CNU-305/E CONTAINERS.
5. INSTALL THE REMAINING TWO SIDE SPACER ASSEMBLIES AND WIRE TIE TO END BLOCKING ASSEMBLIES.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	435	290
2" X 6"	137	137
4" X 4"	21	28
NAILS	NO. REQD	POUNDS
10d (3")	648	10
12d (3-1/4")	32	1/2
WIRE, NO. 14 GAGE	----- 24' REQD	----- 1/2 LBS

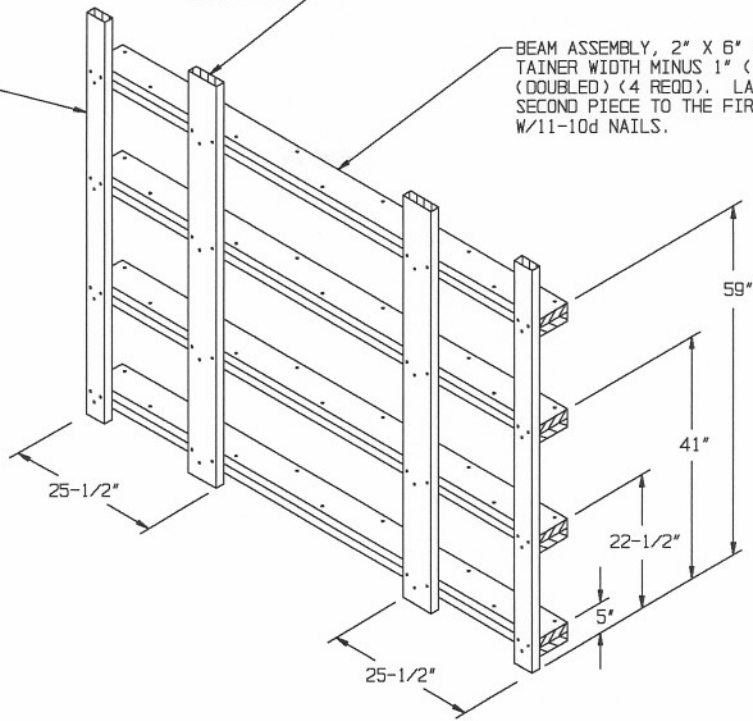
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CNU-305/E CONTAINER	-- 4 -----	11,420 LBS
DUNNAGE	-----	921 LBS
CONTAINER	-----	6,050 LBS
TOTAL WEIGHT -----		18,391 LBS (APPROX)

VERTICAL PIECE, 2" X 4" X 68"
(2 REQD). NAIL TO THE BEAM
ASSEMBLIES W/3-10d NAILS AT
EACH JOINT.

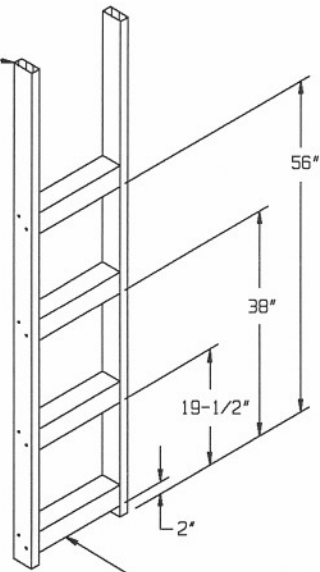
BEARING PIECE, 2" X 6" X 68"
(2 REQD). NAIL TO THE BEAM
ASSEMBLIES W/3-10d NAILS AT
EACH JOINT.

BEAM ASSEMBLY, 2" X 6" BY INSIDE CON-
TAINER WIDTH MINUS 1" (REF: 7'-2")
(DOUBLED) (4 REQD). LAMINATE THE
SECOND PIECE TO THE FIRST PIECE
W/11-10d NAILS.



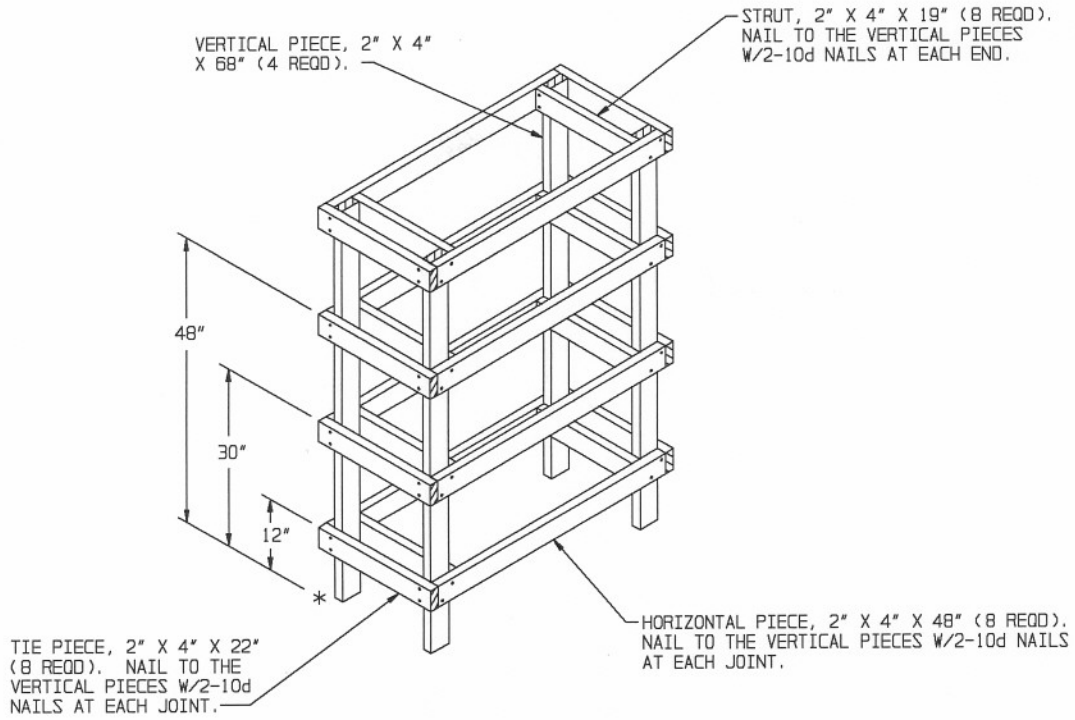
END BLOCKING ASSEMBLY

BUFFER PIECE, 2" X 4" X 7'-0"
(2 REQD). NAIL TO THE STRUTS
W/2-10d NAILS AT EACH JOINT.



STRUT, 4" X 4" X CUT-TO-FIT
(REF: 16") (4 REQD).

STRUT ASSEMBLY



SIDE SPACER ASSEMBLY

