

C. E. (T. & R. S.) DEPT.

B. R. B. H. Q.

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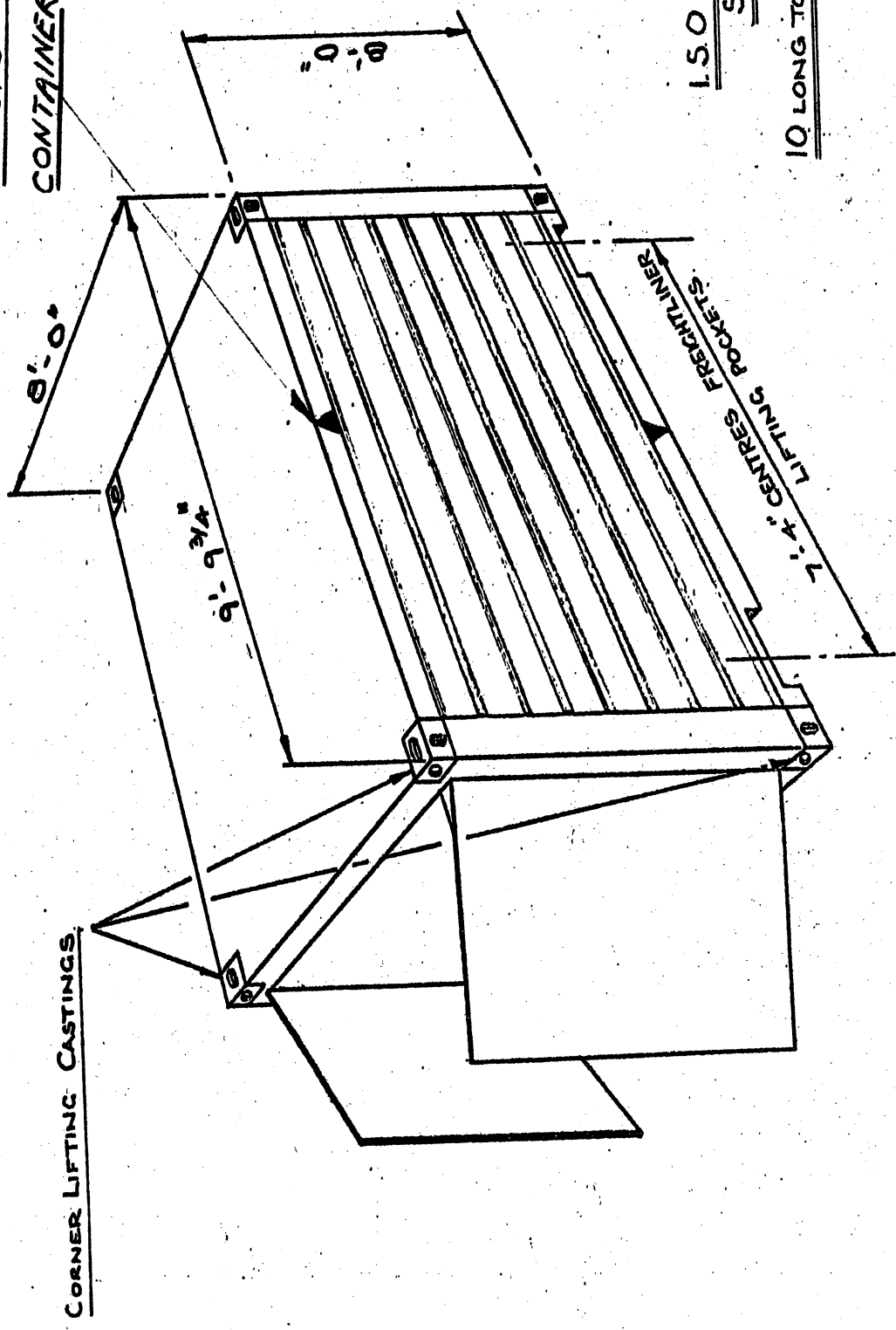
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JAN. 1968 EDITION.

B. R. FREIGHTLINER TRAINS

**FEATURES OF DESIGN REGARDING LIFTING
OF I.S.O. / FREIGHTLINER CONTAINERS AND
LOCATING & SECURING ON ROAD & RAIL VEHICLES.**

RAIL RED TRIANGLES TO
B.S.S. 381C-593 ON E OF
CONTAINER.



10 FOOT.
I.S.O CONTAINER WITH END DOORS.
SHOWING DOOR END.
10 LONG TONS (22,400 POUNDS)

B.R. CONTAINER HANDLING

CEB

SPECIFICATION FOR I.S.O. CONTAINERS WITH
FREIGHTLINER FITTINGS

Type:- Covered 10 FOOT

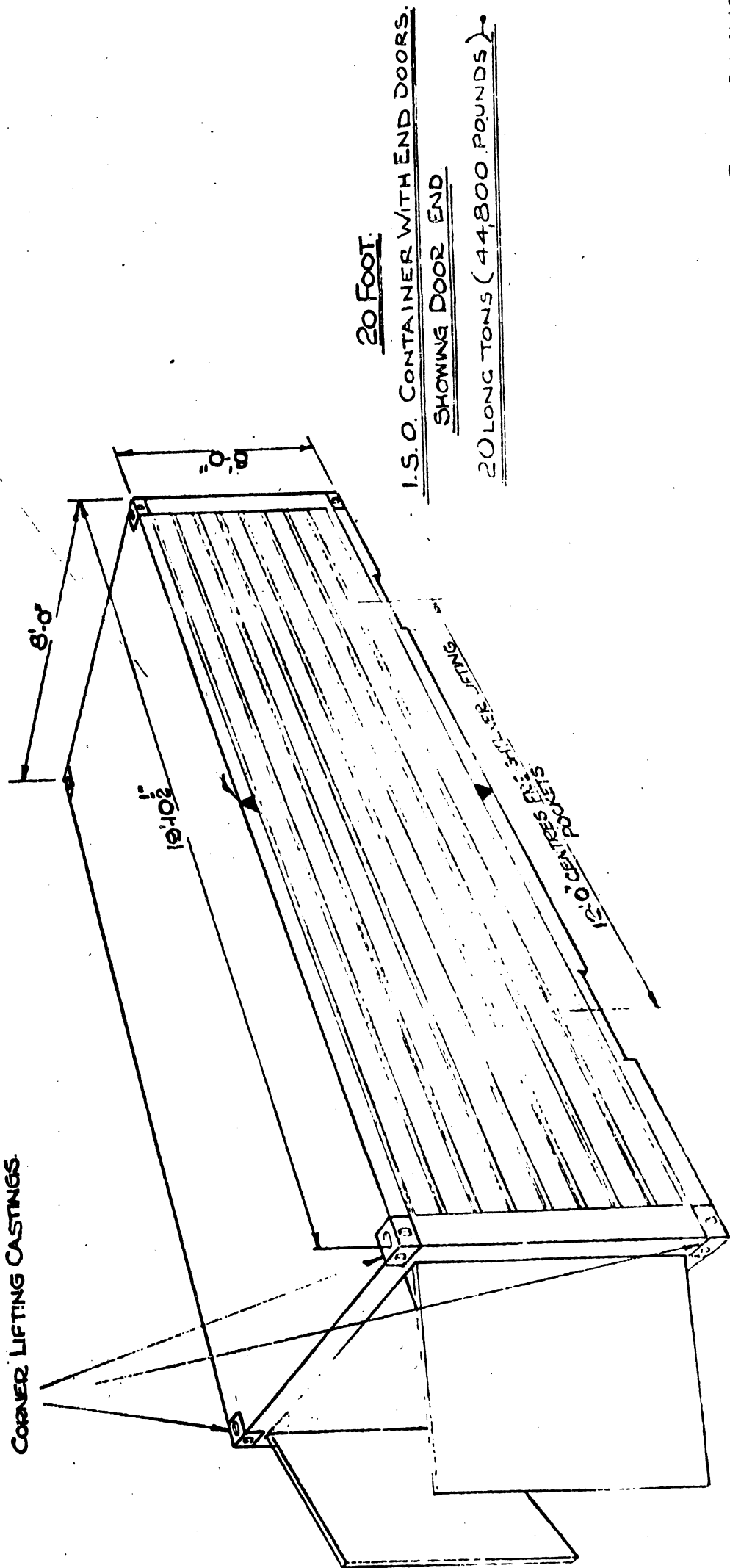
<u>Item</u>	
1. External Dimensions	9' 9 $\frac{3}{4}$ " long x 8'0" wide x 8'0" high O.A.
2. Internal Dimensions	9'2 $\frac{1}{2}$ " long x 7'7. $\frac{3}{8}$ " wide x 7'2 $\frac{1}{2}$ " high
3. Cubic Content	505 cubic ft. Minimum
4. Rating	10 tons (including tare)
5. No. and Types of Doors	1 pair end doors 7'6" wide
6. Lifting	
(a) Freightliner Centres	7'4"
(b) I.S.O. Lifting Using corner castings	9'1 $\frac{3}{4}$ " minimum corner fitting aperture relationship (Lifted at least from top at the corners by devices which apply the lifting forces vertically).
7. Stacking	4 high minimum (Ends and Sides Flush)
8. External Roof	Single Panel. (Peripheral rivets only)
9. Internal Roof	Plywood $\frac{3}{16}$ " thick.
10. External Sides	Horizontally ribbed.
11. Internal Sides	Plywood $\frac{1}{4}$ " thick with flush securing bars and light alloy 1' high protection panel.
12. External Fixed end	Plain Panel
13. Internal Fixed end	Plywood $\frac{1}{4}$ " thick with flush securing bars and light alloy 1 ft. high protection panel.
14. Floor	Timber
15. Ventilation	Adjustable type 1 per side
16. Freightliner Location	2 sockets
17. Freightliner Securing	2 points
18. I.S.O. Securing and Location	4 points using corner castings.

GENERAL DETAILS

- (a) The container will conform to BS3951 : 1967 & BS4228 : 1967 for the specification and testing of series 1 Freight containers.
- (b) General weatherproofing especially door seals.
- (c) Door fastening to be secure and capable of being locked and sealed. All external nuts to be welded and hinge pins not removable.
- (d) Doors able to clip back to sides when open.
- (e) Interior to be smooth and free from projecting rivet heads, nuts and bolt heads, etc.
- (f) Containers for international service to be in accordance with T.I.R. regulations and U.I.C. Leaflet 592.

RAIL RED TRIANGLES TO
B.S.S. 381C-593 ON E OF
CONTAINER.

3



20 FOOT.

I.S.O. CONTAINER WITH END DOORS.
SHOWING DOOR END.

20 LONG TONS (44,800 POUNDS)

BR CONTAINER HANDLING

SPECIFICATION FOR I.S.O. CONTAINERS WITH
FREIGHTLINER FITTINGS

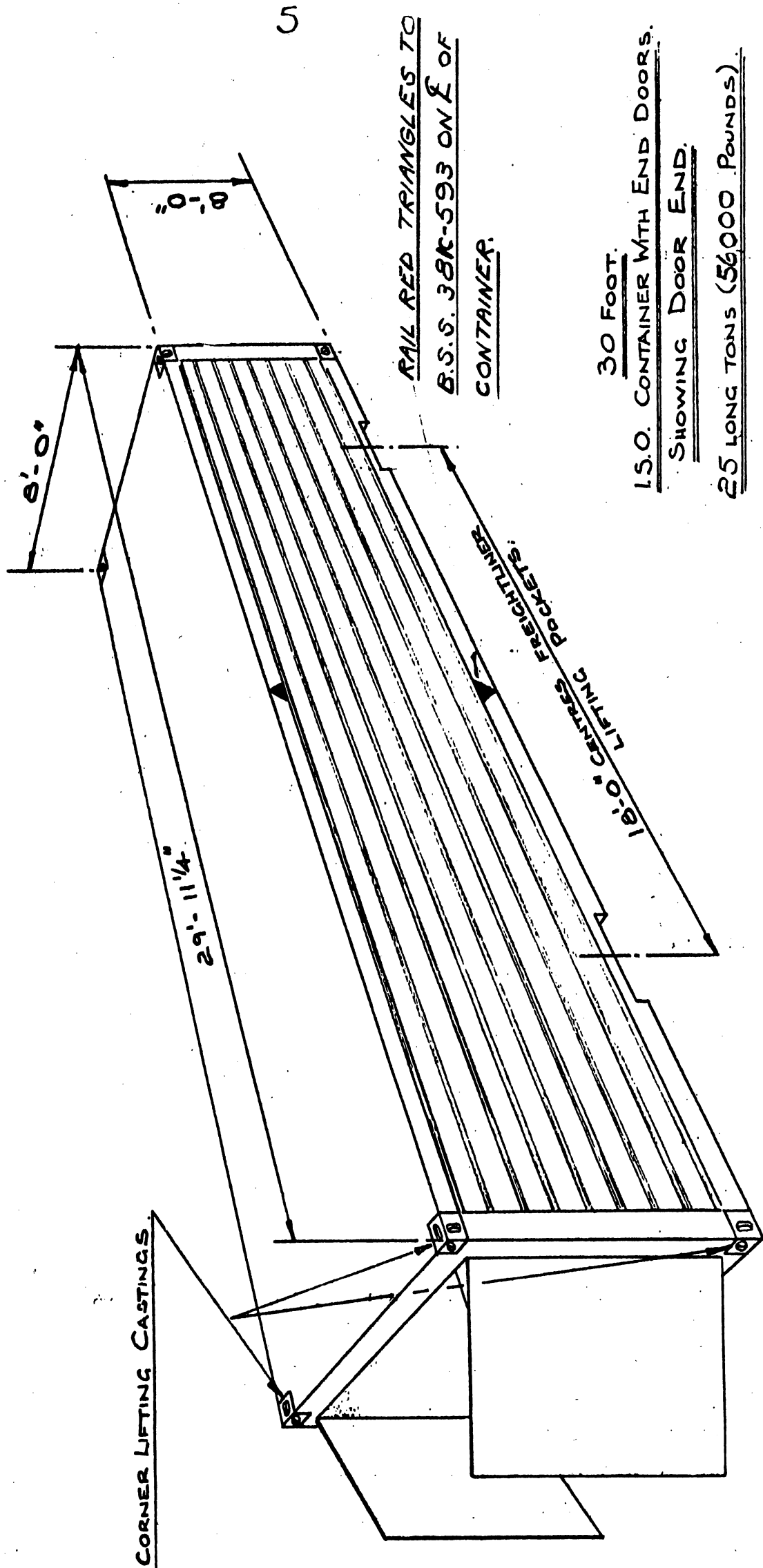
Type:- Covered 20 FOOT

Item

1. External Dimensions	19' 10½" long x 8'0" wide x 8'0" high O.A.
2. Internal Dimensions	19' 3¼" long x 7'7¾" wide x 7'2½" high
3. Cubic Content	1058 Cubic feet minimum
4. Rating	20 tons (including tare)
5. No. and Type of Doors	1 pair end doors 7'6" wide.
6. Lifting	
(a) Freightliner Centres	12'0"
(b) I.S.O. Lifting using corner castings	19'2½" minimum corner fitting aperture relationship (Lifted at least from top at the corners by devices which apply the lifting forces vertically)
7. Stacking	4 high minimum (Ends and Sides flush)
8. External Roof	Single Panel. Peripheral rivets only.
9. Internal Roof	Plywood 3/16" thick.
10. External sides	Horizontally ribbed
11. Internal Sides	Plywood ¼" thick with flush securing bars and light alloy 1 ft. high protection panel.
12. External Fixed End	Plain Panel
13. Internal Fixed End	Plywood ¼" thick with flush securing bars and light alloy 1 ft. high protection panel.
14. Floor	Timber
15. Ventilation	Adjustable type, 1 per side.
16. Freightliner	4 sockets.
17. Freightliner Securing	4 points.
18. I.S.O. Securing and Location	4 points using corner casting.

GENERAL DETAILS

- (a) The container will conform to BS3951 : 1967 & BS4228 : 1967 for the specification and testing of series 1 Freight Containers.
- (b) General weatherproofing especially door seals.
- (c) Door fastening to be secure and capable of being locked and sealed. All external nuts to be welded and hinge pins not removable.
- (d) Doors able to clip back to sides when open.
- (e) Interior to be smooth and free from projecting rivet heads, nuts and bolt heads, etc.
- (f) Containers for international service to be in accordance with T.I.R. regulations and U.I.C. Leaflet 592



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B.R. CONTAINER HANDLING
C.28.

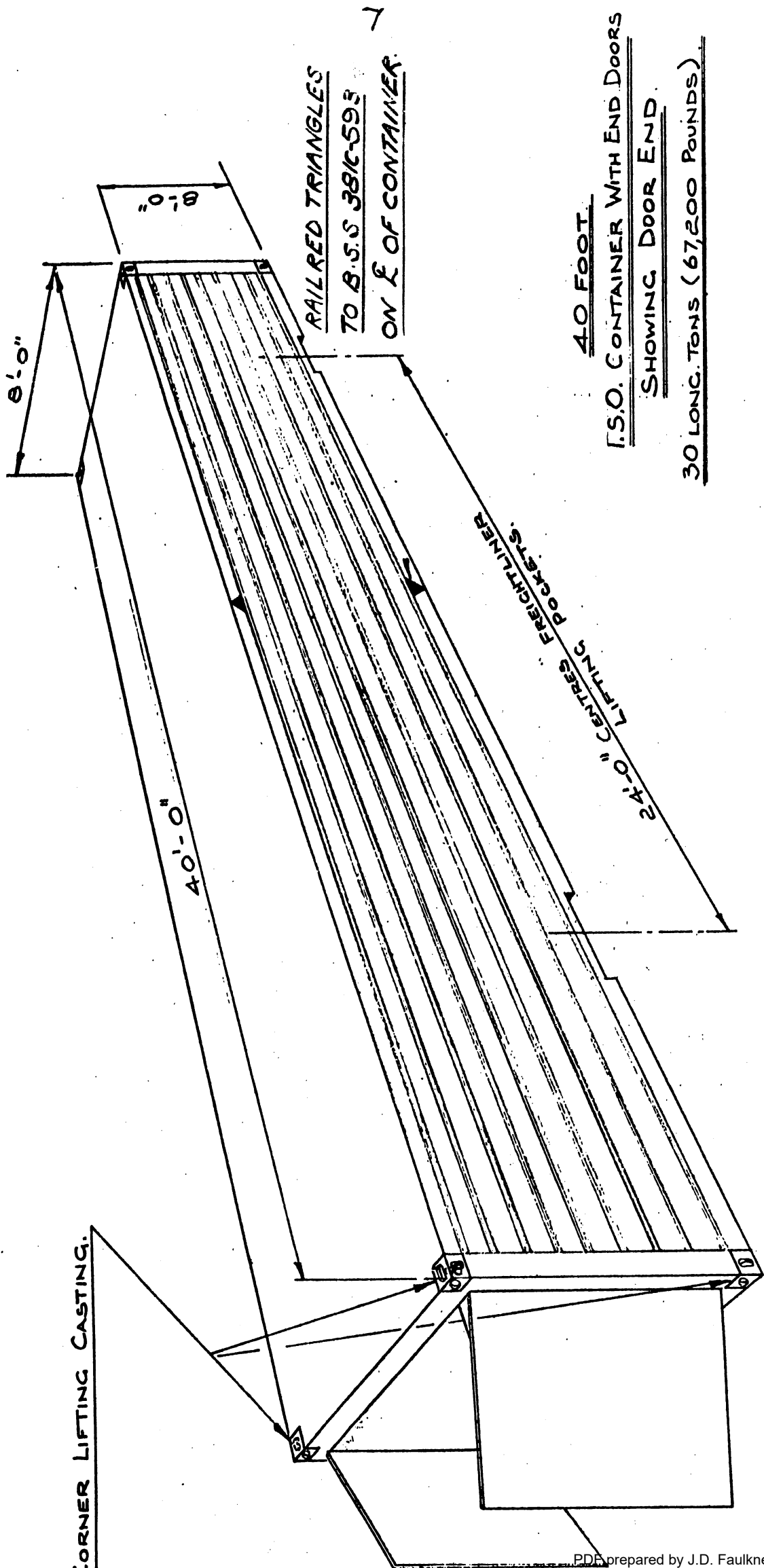
SPECIFICATION FOR I.S.O. CONTAINERS WITH
FREIGHTLINER FITTINGS

Type:- Covered 30 FOOT

<u>Item</u>	
1. External Dimensions	29' 11 $\frac{1}{4}$ " long x 8'0" wide x 8'0" high O.A.
2. Internal Dimensions	29' 4" long x 7'7 $\frac{3}{8}$ " wide x 7'2 $\frac{1}{2}$ " high.
3. Cubic Content	1610 cubic feet
4. Rating	25 tons (including tare)
5. No. and Type of Doors	1 pair end doors 7'6" wide
6. Lifting:	
(a) Freightliner centres	18' 0"
(b) I.S.O. Lifting using corner castings	29' 3 $\frac{1}{2}$ " minimum corner fitting aperture relationship (Lifted at least from top at the corners by devices which apply the lifting forces vertically.
7. Stacking	4 high minimum (Ends and sides flush)
8. External Roof	Single Panel, peripheral rivets only.
9. Internal Roof	Plywood $\frac{3}{16}$ " thick.
10. External Sides	Horizontally ribbed.
11. Internal Sides	Plywood $\frac{1}{4}$ " thick with flush securing bars and light alloy 1 ft. high protection panel.
12. External Fixed end	Plain Panel
13. Internal Fixed end	Plywood $\frac{1}{4}$ " thick with flush securing bars and light alloy 1 ft. high protection panel.
14. Floor	Timber
15. Ventilation	Adjustable type 1 per side
16. Freightliner Location	4 sockets
17. Freightliner Securing	6 points
18. I.S.O. Securing and location	4 points using corner castings

GENERAL DETAILS

- (a) The containers will conform to BS3951 : 1967 & BS4228 : 1967 for the specification and testing of series 1 Freight Containers.
- (b) General weatherproofing, especially door seals
- (c) Door fastening to be secure and capable of being locked and sealed. All external nuts to be welded and hinge pins not removable.
- (d) Doors able to clip back to sides when open.
- (e) Interior to be smooth and free from projecting rivet heads, nuts and bolt heads, etc.
- (f) Containers for international service to be in accordance with T.I.R. regulations and U.I.C. Leaflet 592



CORNER LIFTING CASTING.

RAILED TRIANGLES
TO B.S.S. 381C-593
ON E OF CONTAINER.

40 FOOT

I.S.O. CONTAINER WITH END DOORS
SHOWING DOOR END.

30 LONG. TONS (67,200 POUNDS)

24'-0" CENTRES FREIGHTLINER
LIFTING POINTS.

B.R. CONTAINER HANDLING.

C.E.B.

SPECIFICATION FOR I.S.O. CONTAINERS WITH
FREIGHTLINER FITTINGS

Type:- Covered 40 FOOT

<u>Item</u>	
1. External Dimensions	40'0" long x 8'0" wide x 8'0" high O.A.
2. Internal Dimensions	39'4½" long x 7'7 ³ / ₈ " wide x 7'2½" high
3. Cubic Content	2,160 cu. ft.
4. Rating	30 tons (including tare)
5. No. and type of doors	1 pair end doors, 7'6" wide.
6. Lifting	
(a) Freightliner centres	24'0"
(b) I.S.O. Lifting using corner castings	39'4" minimum corner fitting aperture relationship (Lifted at least from top at the corners by devices which apply the lifting forces vertically).
7. Stacking	4 high minimum (ends and sides flush)
8. External roof	Single panel, peripheral rivets only.
9. Internal roof	Plywood ³ / ₁₆ " thick.
10. External sides	Horizontally ribbed.
11. Internal Sides	Plywood ¹ / ₄ " thick with flush securing bars with light alloy 1 ft. high protection panel.
12. External fixed end	Plain panel.
13. Internal fixed end	Plywood ¹ / ₄ " thick with flush securing bars with light alloy 1 ft. high protection panel.
14. Floor	Timber
15. Ventilation	Adjustable type 1 per side.
16. Freightliner Location	4 sockets.
17. Freightliner securing	6 points.
18. I.S.O. Securing and location	4 points using corner castings.

GENERAL DETAILS

- (a) The container will conform to BS3951 : 1967 & BS4228 : 1967 for the specification and testing of series 1 Freight Containers.
- (b) General weatherproofing, especially door seals
- (c) Door fastening to be secure and capable of being locked and sealed. All external nuts to be welded and hinge pins not removable.
- (d) Doors able to clip back to sides when open.
- (e) Interior to be smooth and free from projecting rivet heads, nuts and bolt heads, etc.
- (f) Containers for international service to be in accordance with T.I.R. regulations and U.I.C Leaflet 592

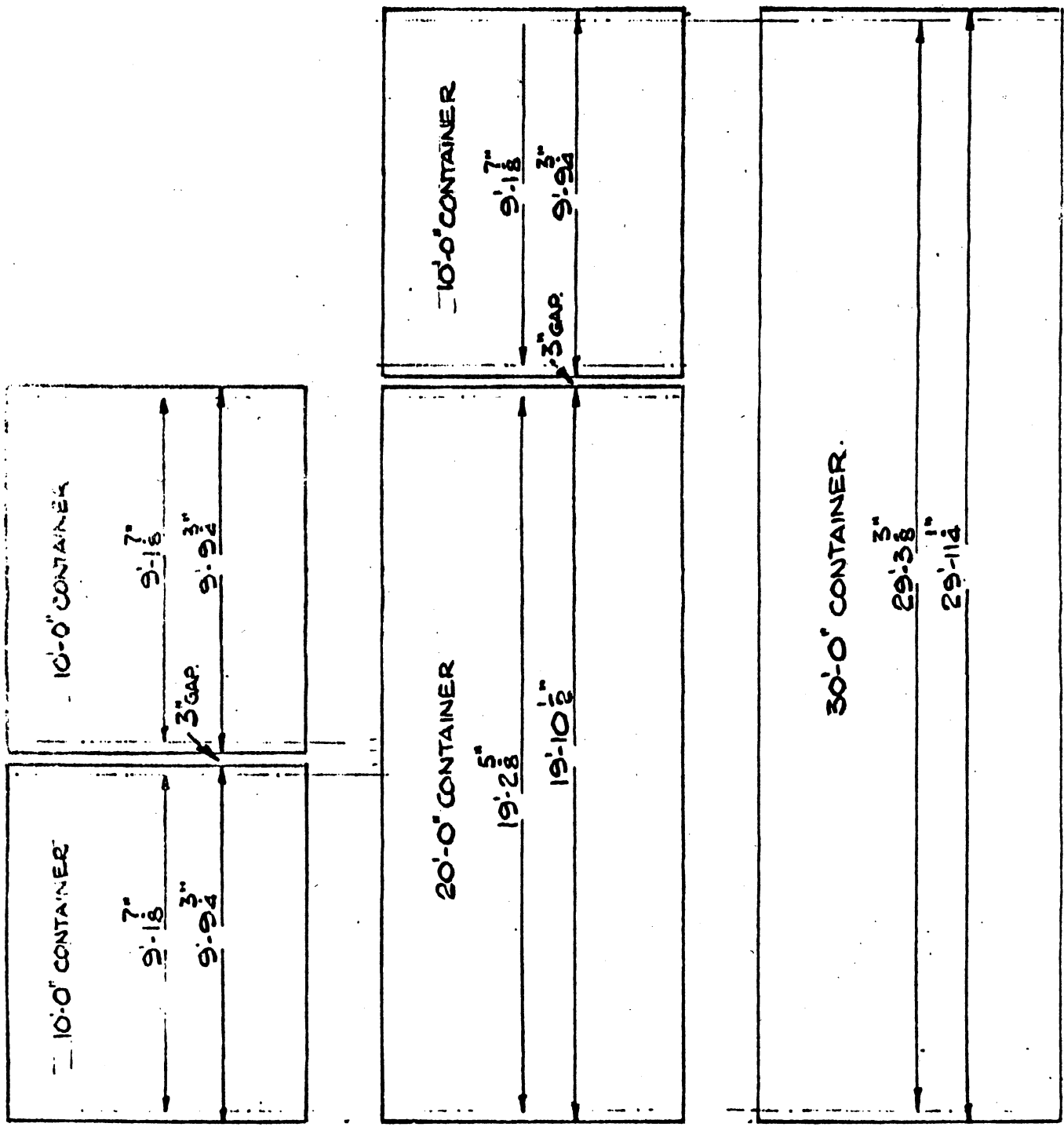


DIAGRAM SHOWING LONGITUDINAL GAPS BETWEEN CONTAINERS WHEN ISO SECURING POINTS ARE LOCATED ON WAGONS TO SUIT CONTAINERS OF VARYING LENGTHS.

BRB DEPT

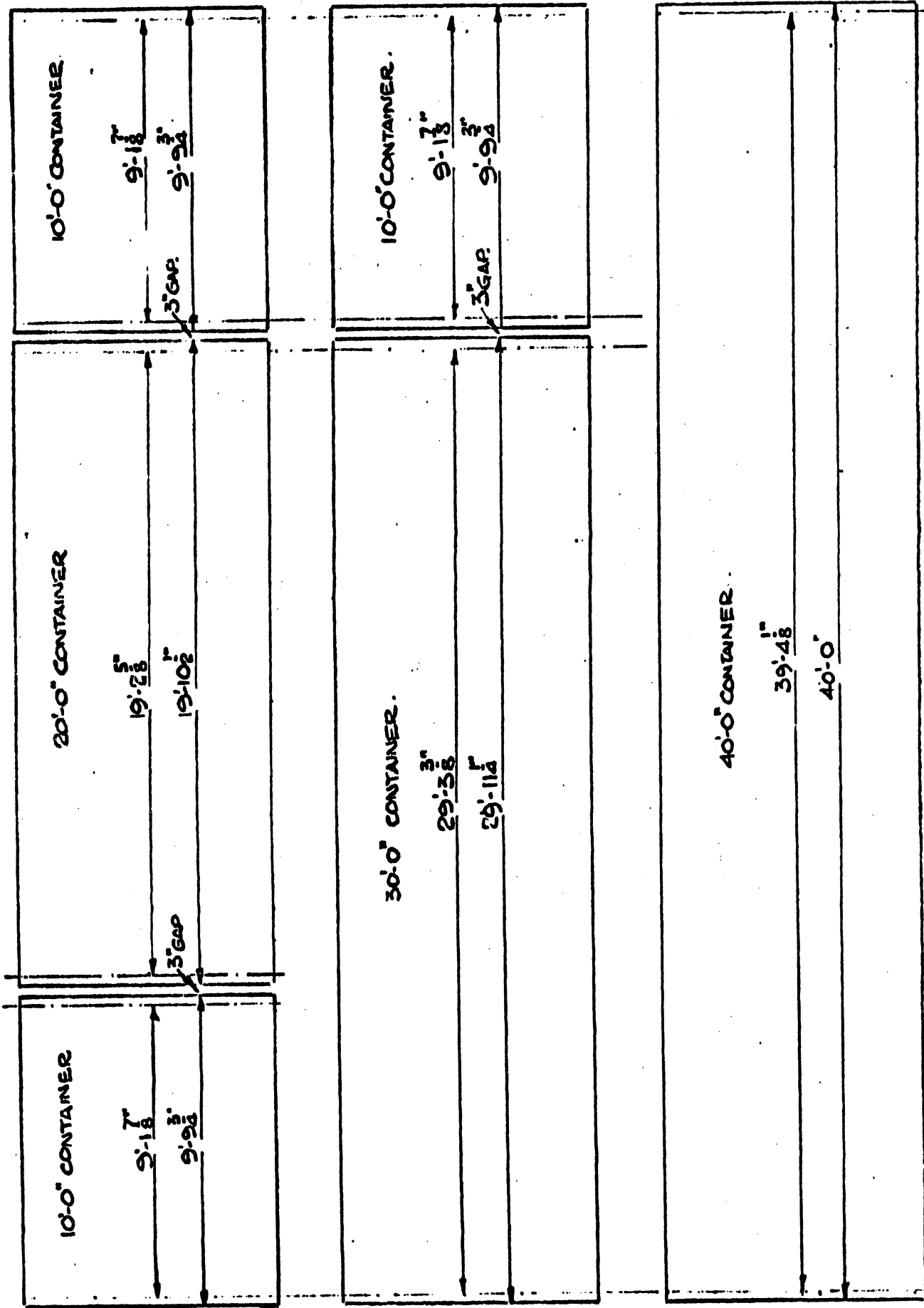
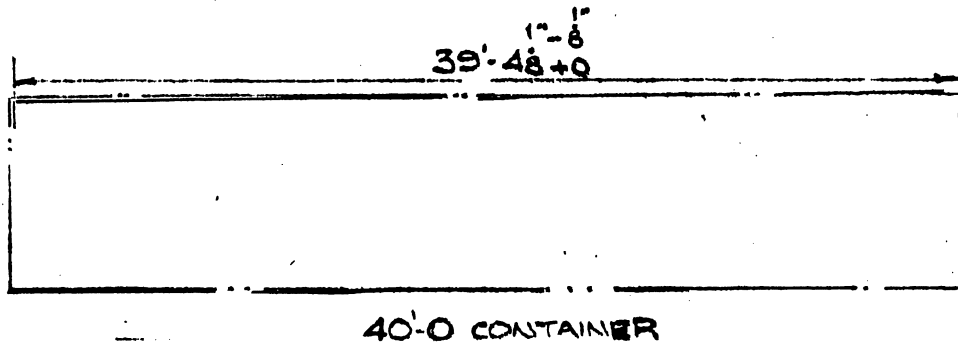
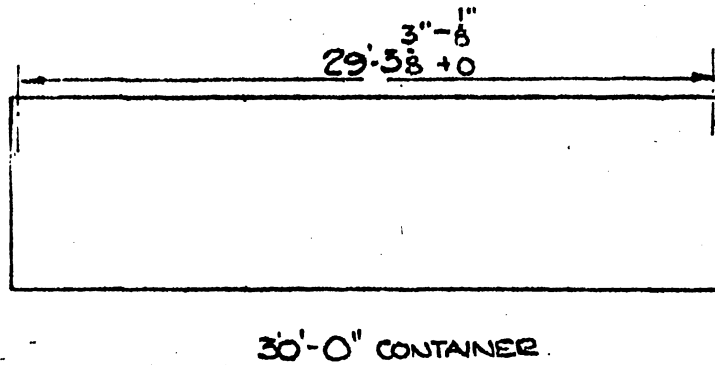
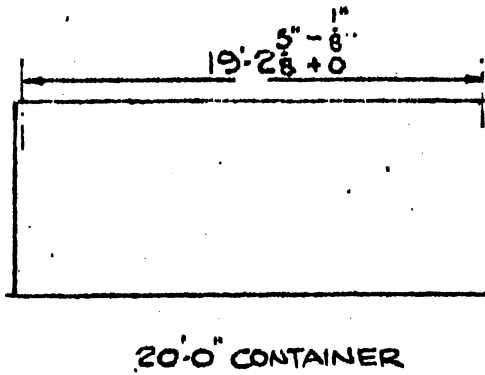
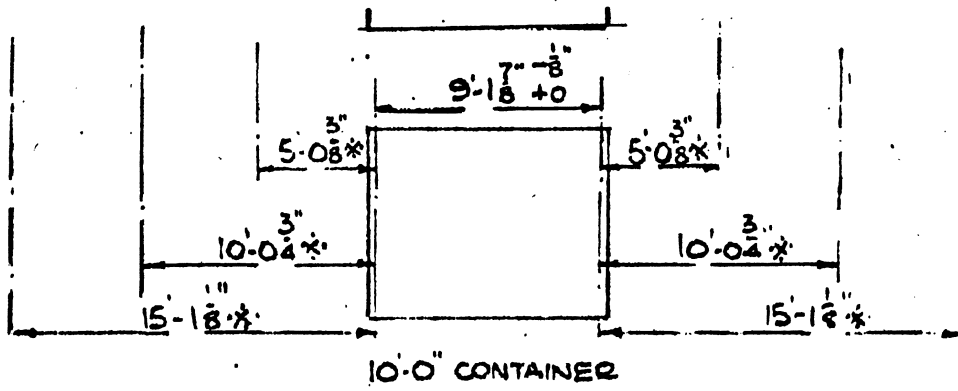
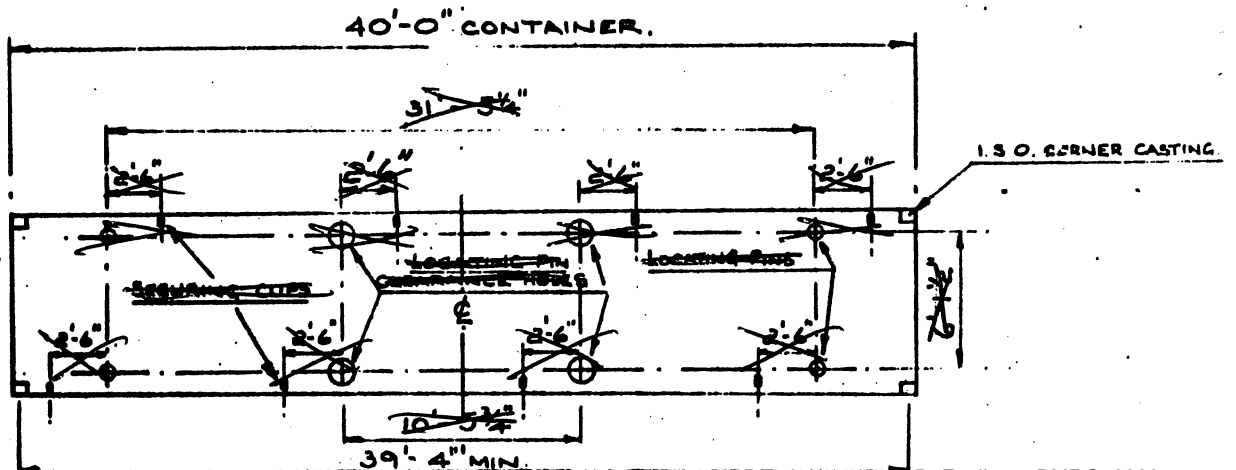
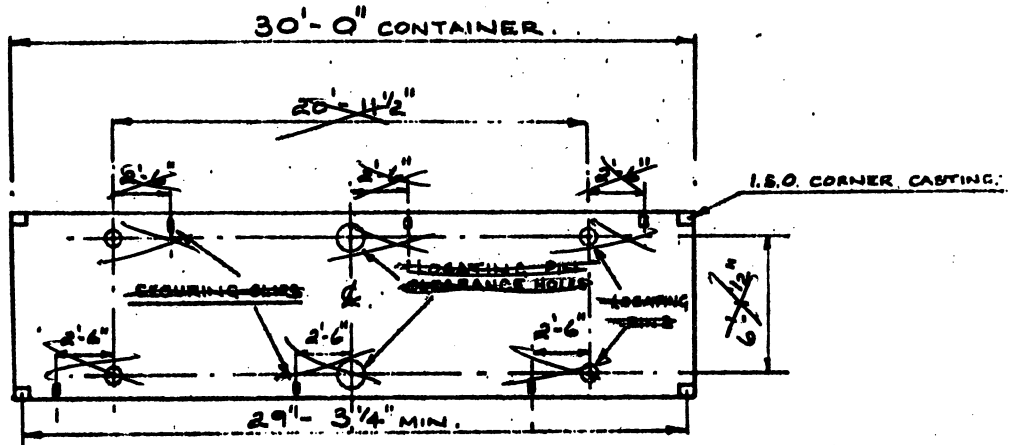
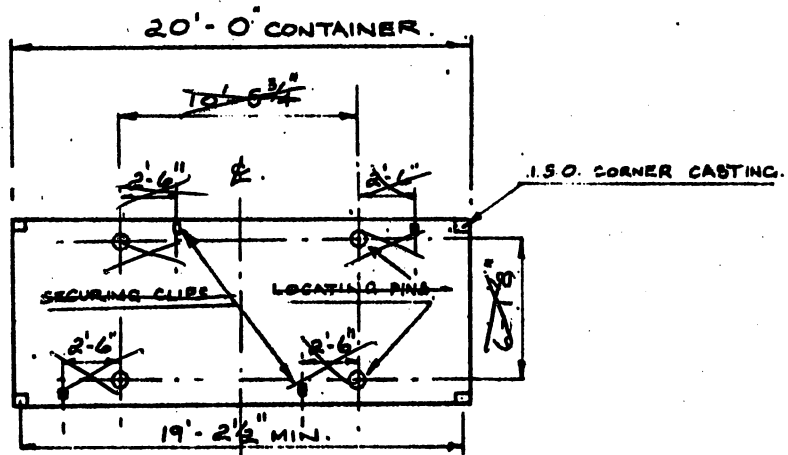
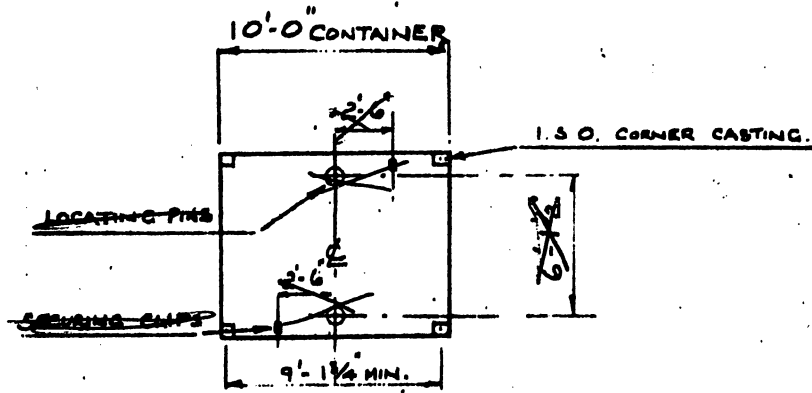


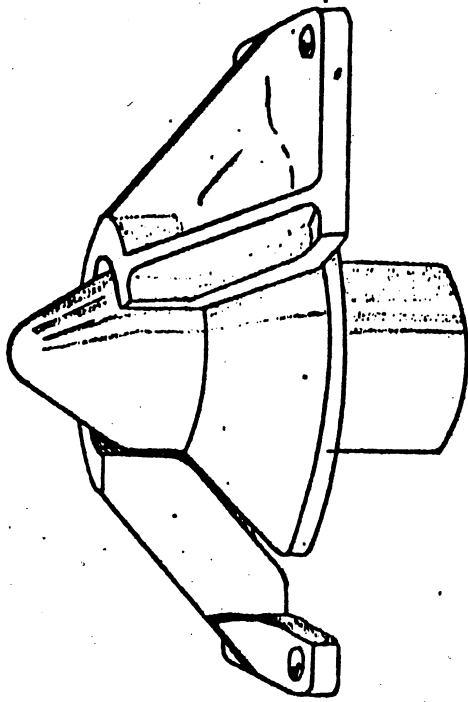
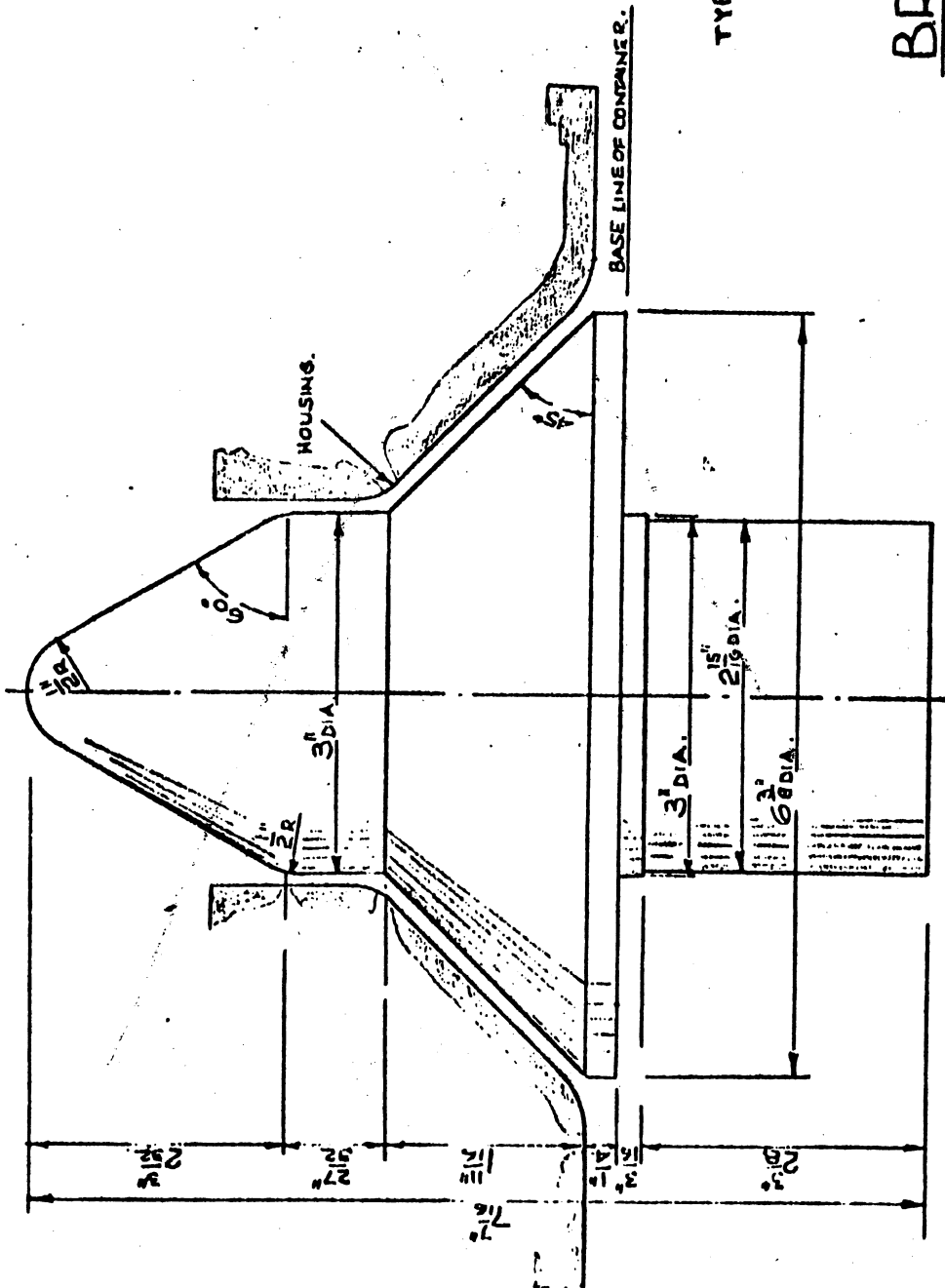
DIAGRAM SHOWING LONGITUDINAL GAPS BETWEEN CONTAINERS WHEN I.S.O SECURING POINTS ARE LOCATED ON WAGONS TO SUIT CONTAINERS OF VARYING LENGTHS



DIMENSIONS MARKED THIS * INDICATE LENGTH ADJUSTMENT REQUIREMENTS TO SUIT VARYING LENGTHS OF CONTAINER LIFTING POINTS.

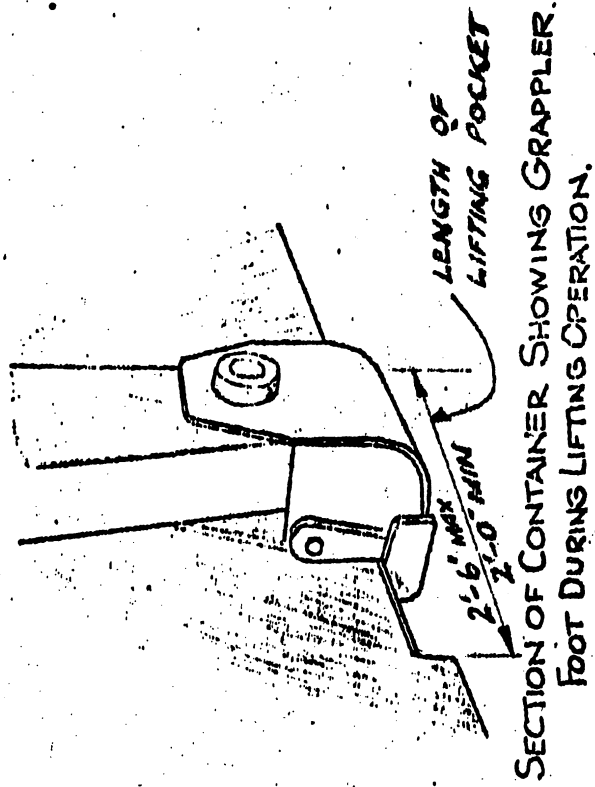
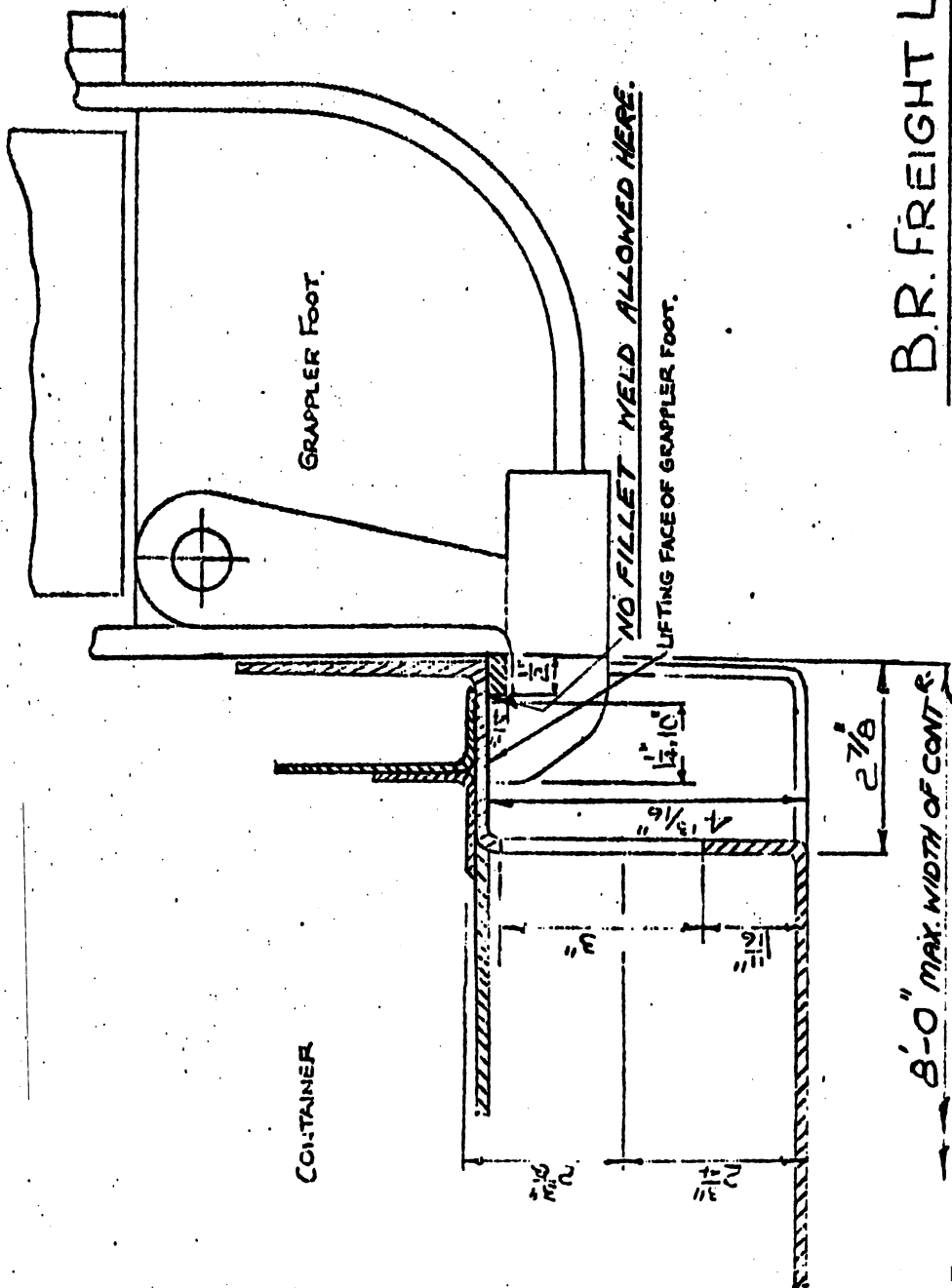
FLOOR PLANS OF I.S.O. CONTAINERS
~~WITH FREIGHTLINER FITTINGS.~~





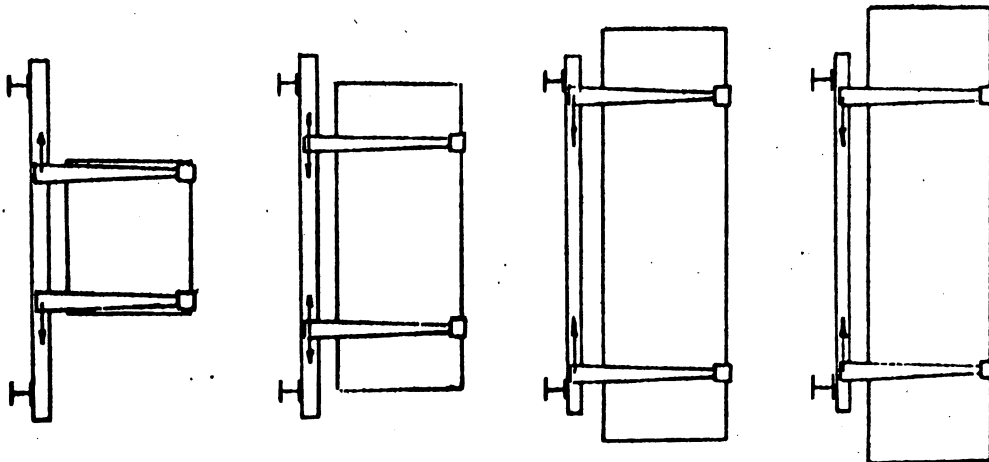
TYPICAL VIEW OF LOCATING PIN IN CONTAINER HOUSING
(SECTION OF HOUSING CUT-AWAY)

BR. FREIGHT LINER TRAIN
DETAILS OF CONTAINER LOCATING PIN

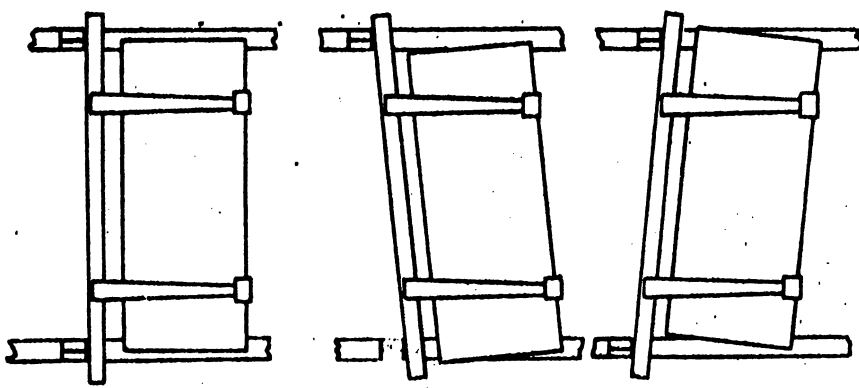


B.R. FREIGHT LINER TRAIN. LIFTING.

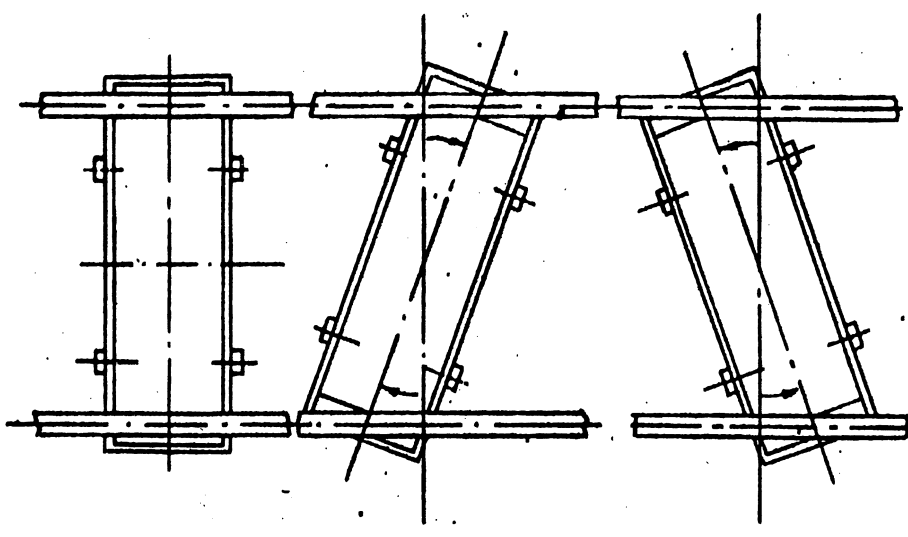
CROSS-SECTION THROUGH LIFTING POCKET, SHOWING GRAPPLER FOOT IN POSITION



SIDE VIEWS SHOWING ADJUSTMENT OF GRAPPLER ARMS TO SUIT VARYING LENGTHS OF CONTAINER



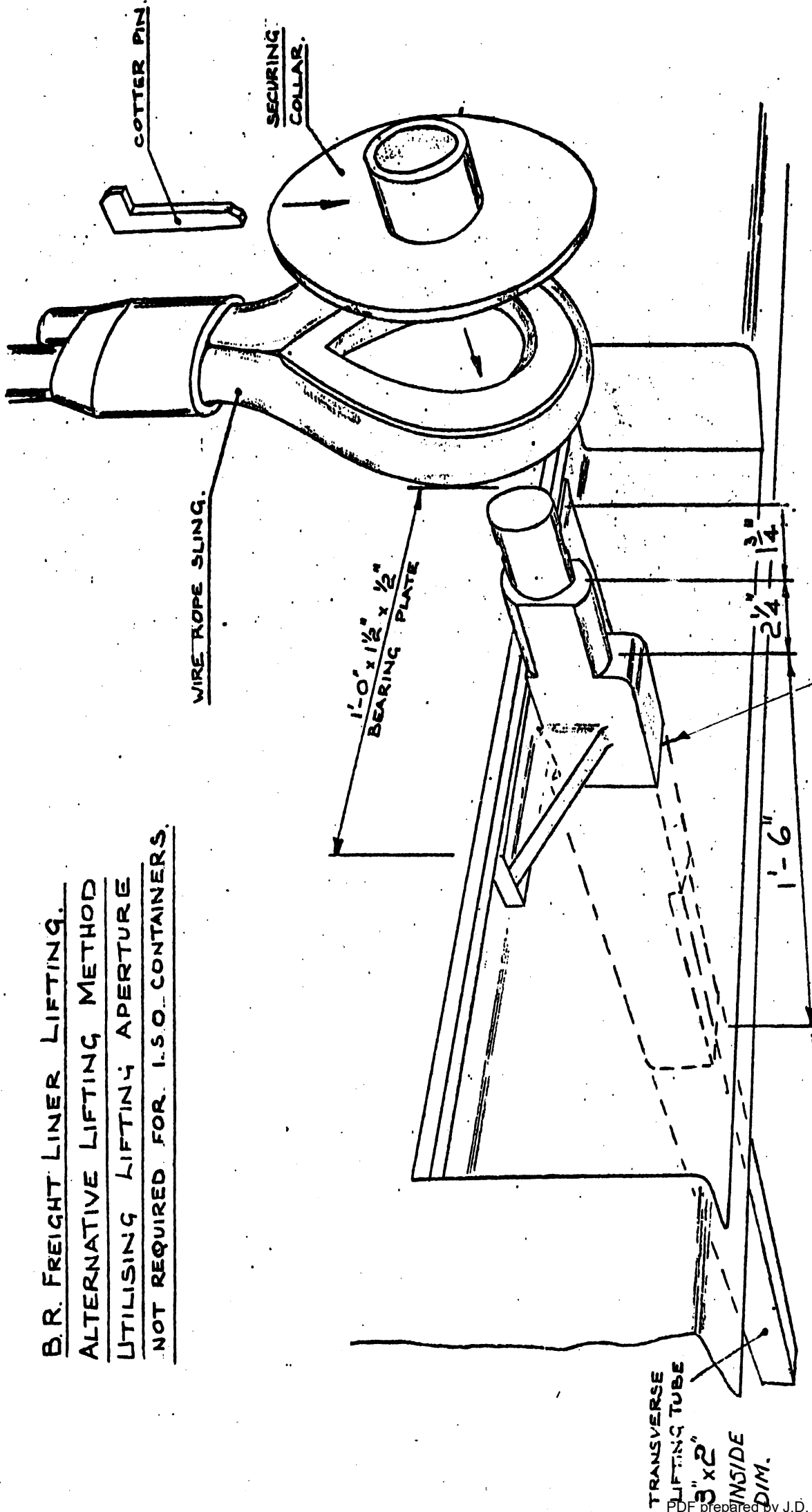
SIDE VIEW SHOWING LONGITUDINAL TILT.



PLAN VIEW SHOWING LATERAL SLEWING

DIAGRAMS SHOWING VERSATILITY OF METHOD OF LIFTING CONTAINERS

B. R. FREIGHT LINER LIFTING.
ALTERNATIVE LIFTING METHOD
UTILISING LIFTING APERTURE
NOT REQUIRED FOR I.S.O. CONTAINERS.

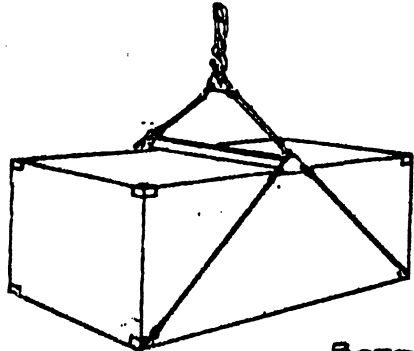


NOTE. 3"x2" APERTURE NOT REQD.
IF SECONDARY LIFTING POINTS
ARE AVAILABLE FOR EMERGENCY
LIFTS.

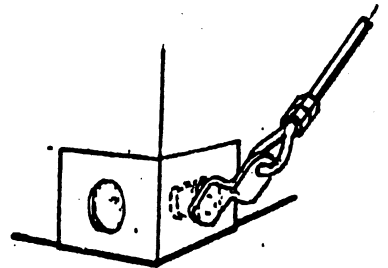
TRANSVERSE
LIFTING TUBE
3"x2"
INSIDE
DIM.

CORNER FITTINGS
TYPICAL USAGE

1.

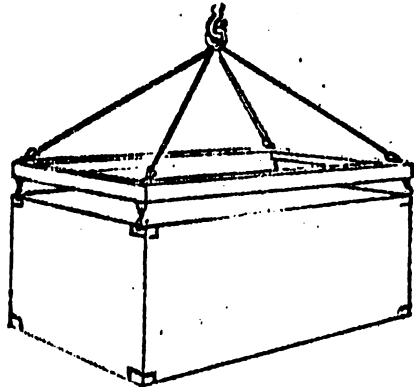


BOTTOM LIFT.

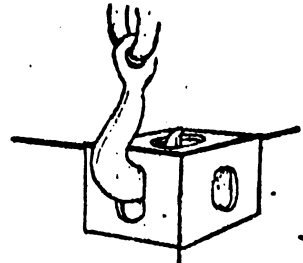


SPECIAL HOOK.

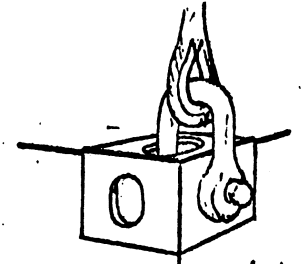
2.



TOP LIFT (MANUAL)



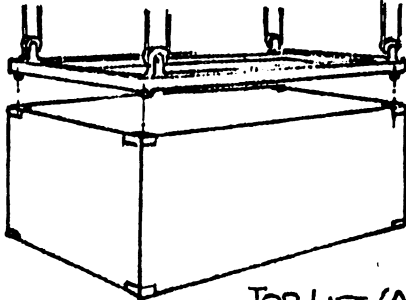
STD.
5 TON.
HOOK.



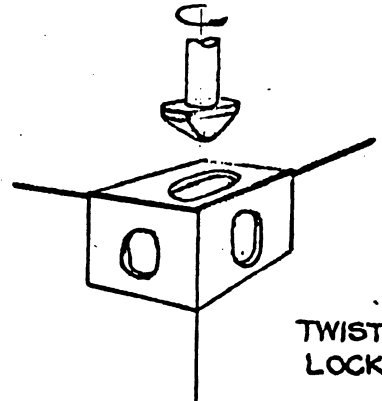
STD.
'D' SHACKLE.

RECOMMENDED 4 POINT LIFT 3 FOR
SAFETY AND STABILITY.

3.

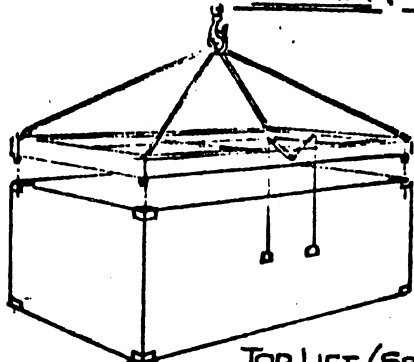


TOP LIFT (AUTOMATIC)



TWIST
LOCK

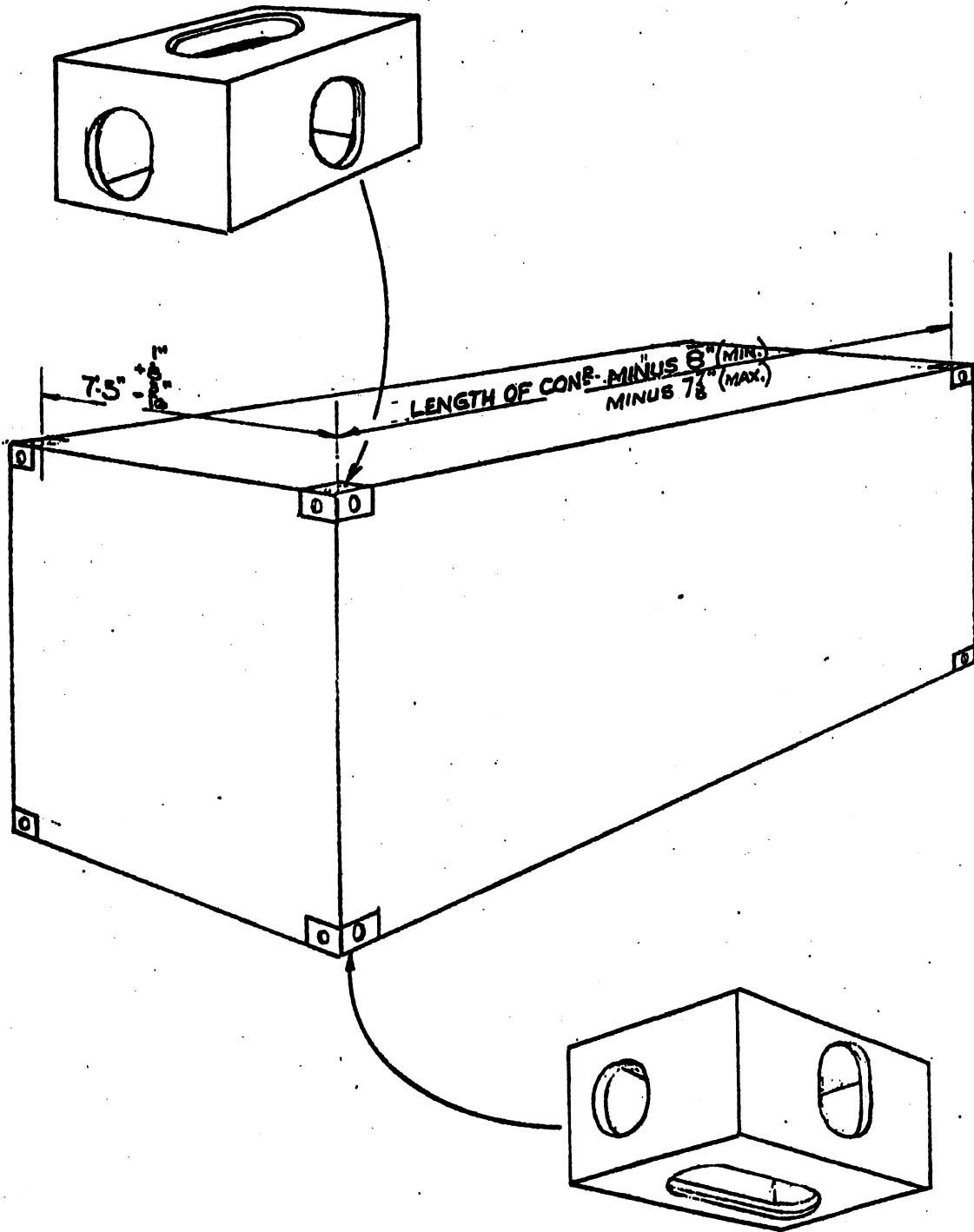
4.



TOP LIFT (SEMI-AUTOMATIC)

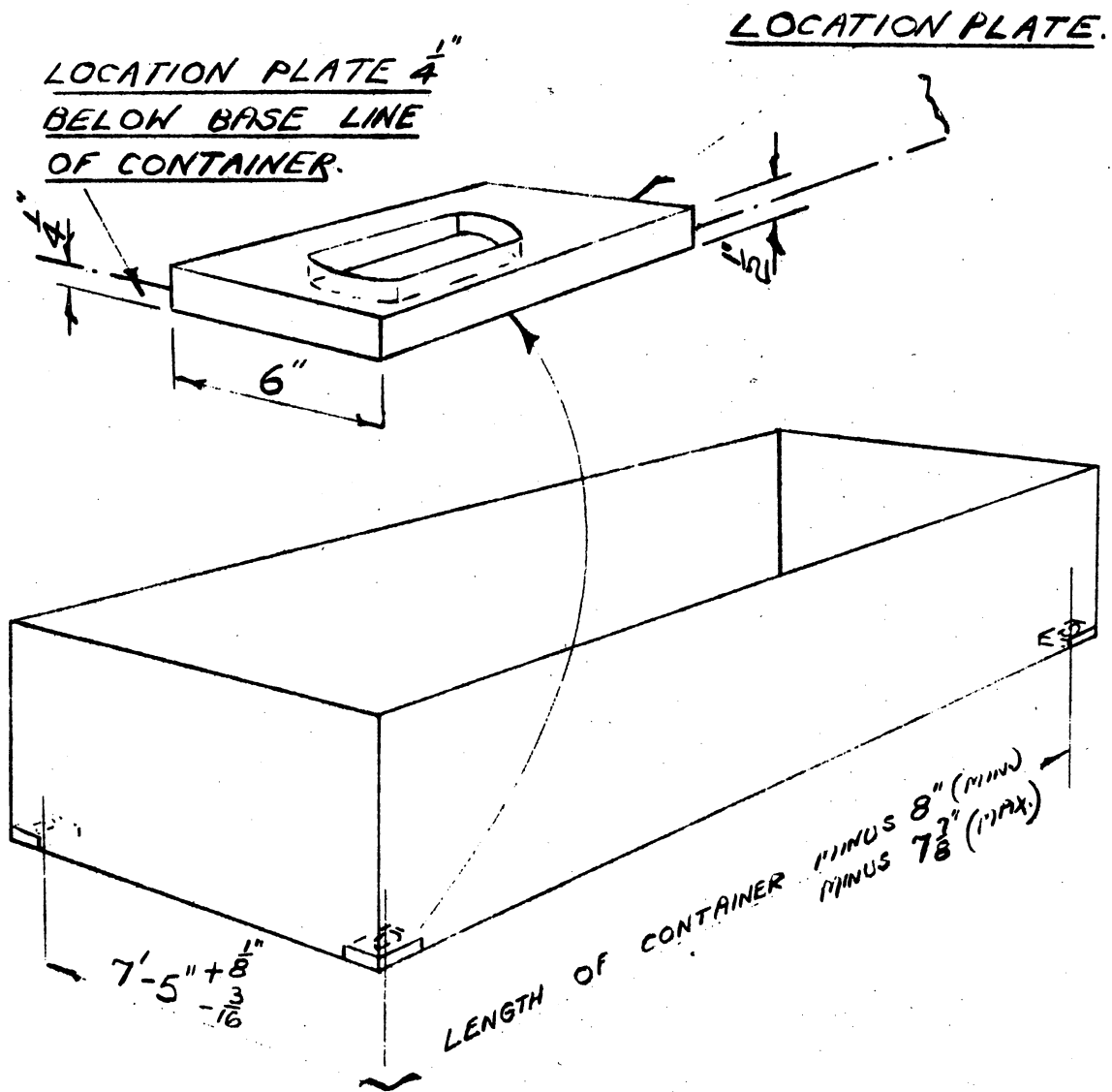
B.R. CONTAINER HANDLING

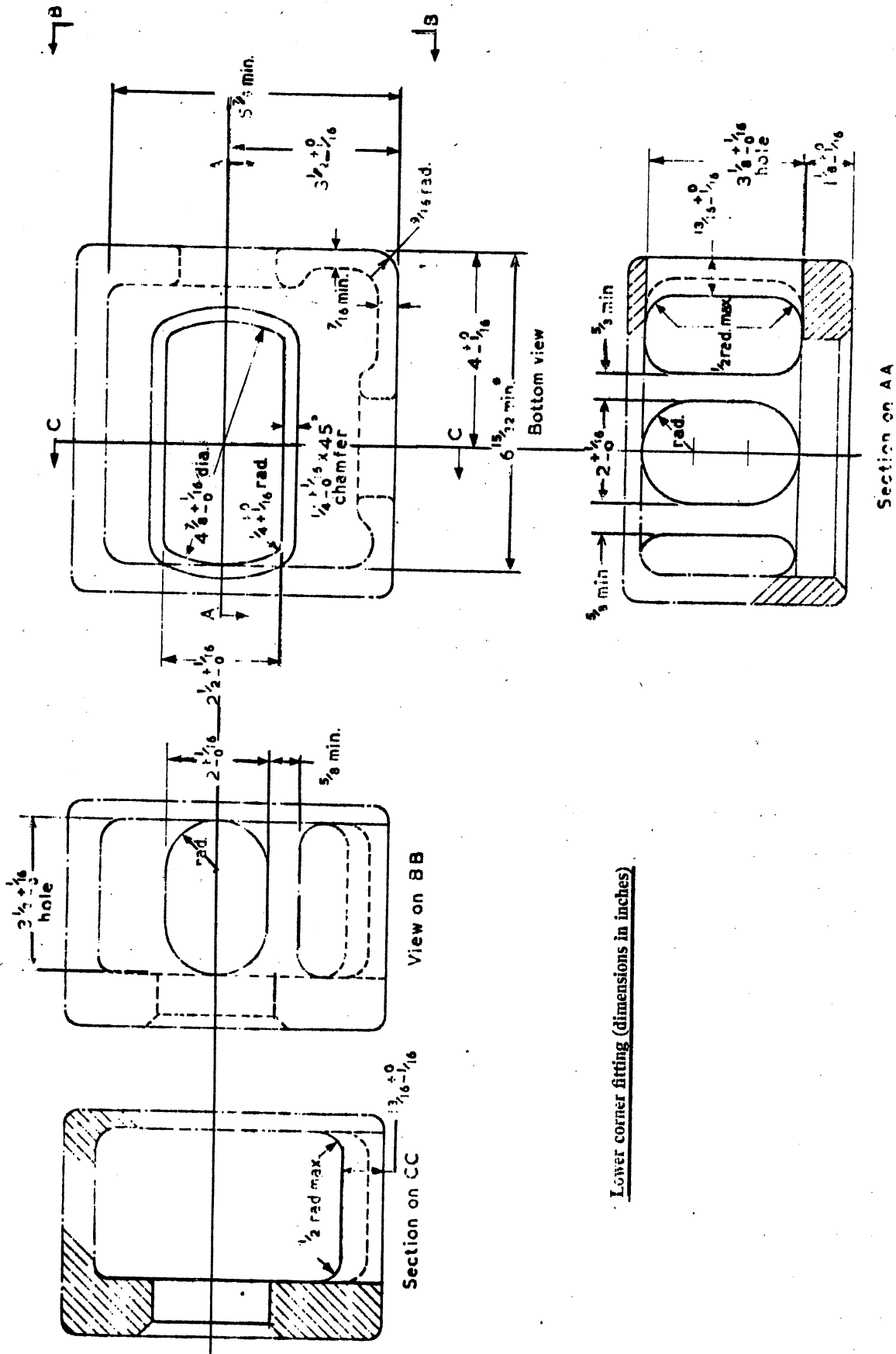
STANDARD CORNER FITTINGS



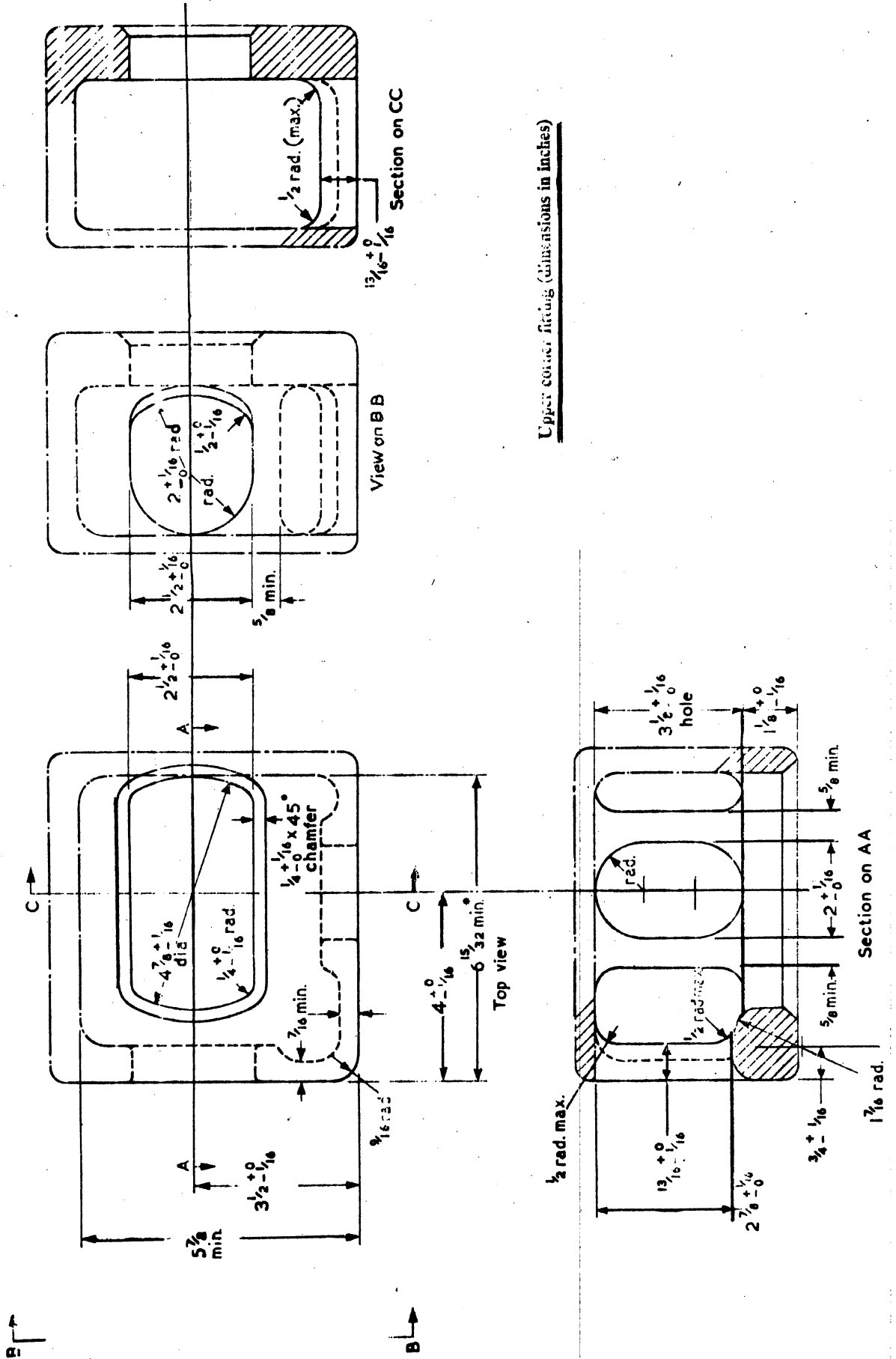
B.R. CONTAINER HANDLING

CENTRES OF LOCATION PLATE HOLES,
ON OPEN CONTAINERS ETC.

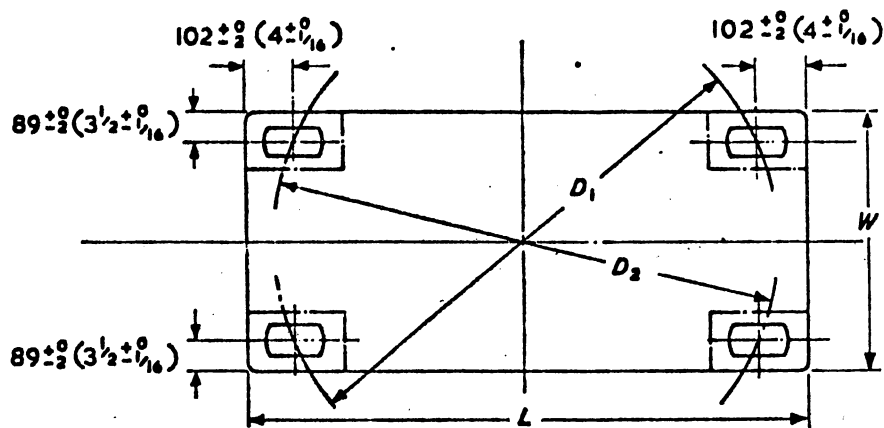




Lower corner fitting (dimensions in inches)



Upper corner fittings (Dimensions in inches)



Dimensions in millimetres (inches in brackets)

View on top or bottom planes

Relationship between corner fitting and container

L = length of container measured over end (outer) faces of corner fittings to which container length tolerances are applied, resulting in maximum permissible length, *L* max. and minimum permissible length, *L* min.

W = width of container measured over side (outer) faces of corner fittings to which container width tolerances are applied,

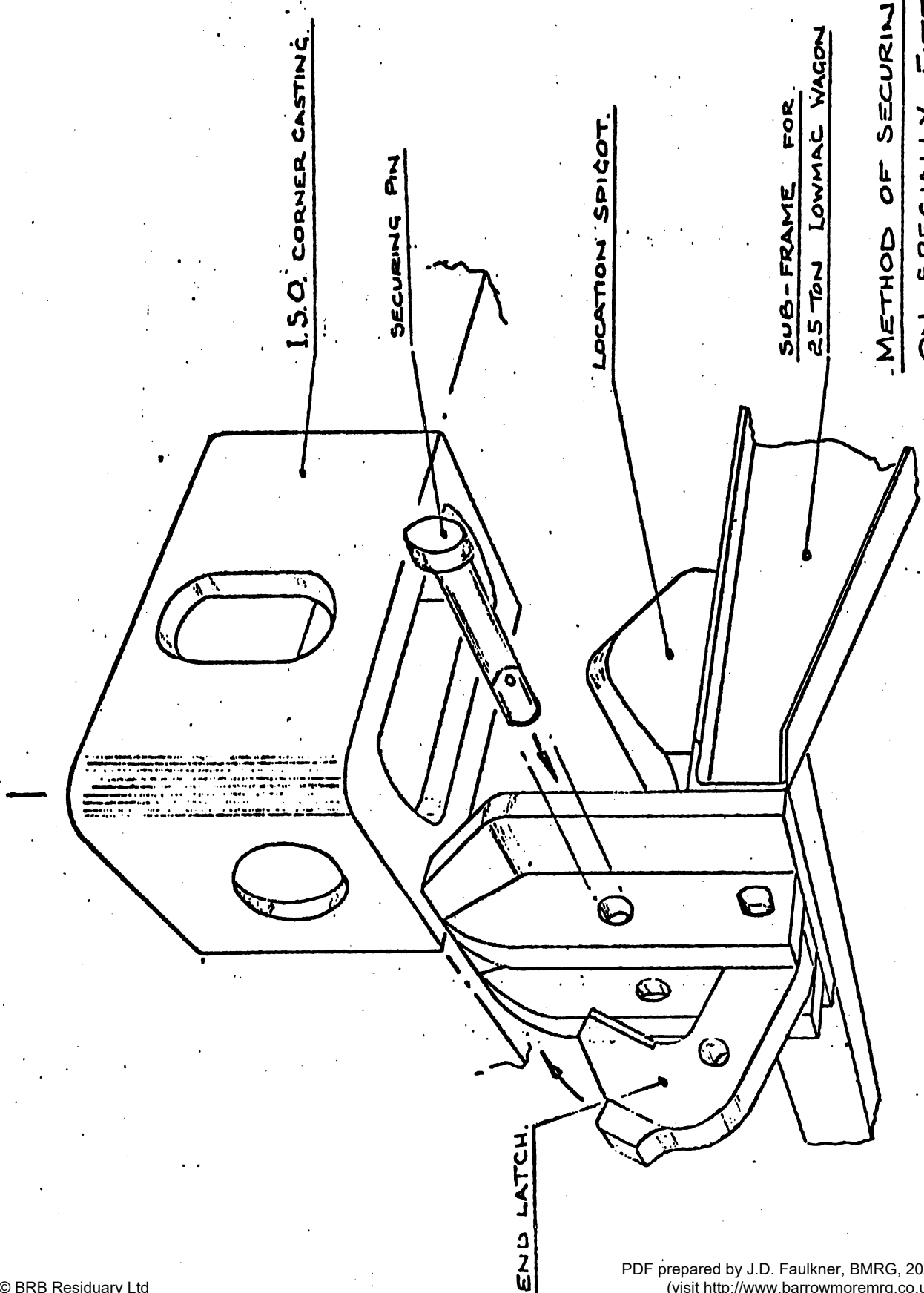
resulting in maximum permissible width, *W* max. and minimum permissible width, *W* min.

D = distance between centre of apertures of diagonally opposite corner fittings resulting in two dimensions, *D*₁ and *D*₂.

K = difference between *D*₁ and *D*₂, i.e. $K = D_1 - D_2$ or $K = D_2 - D_1$.

VALUES OF K

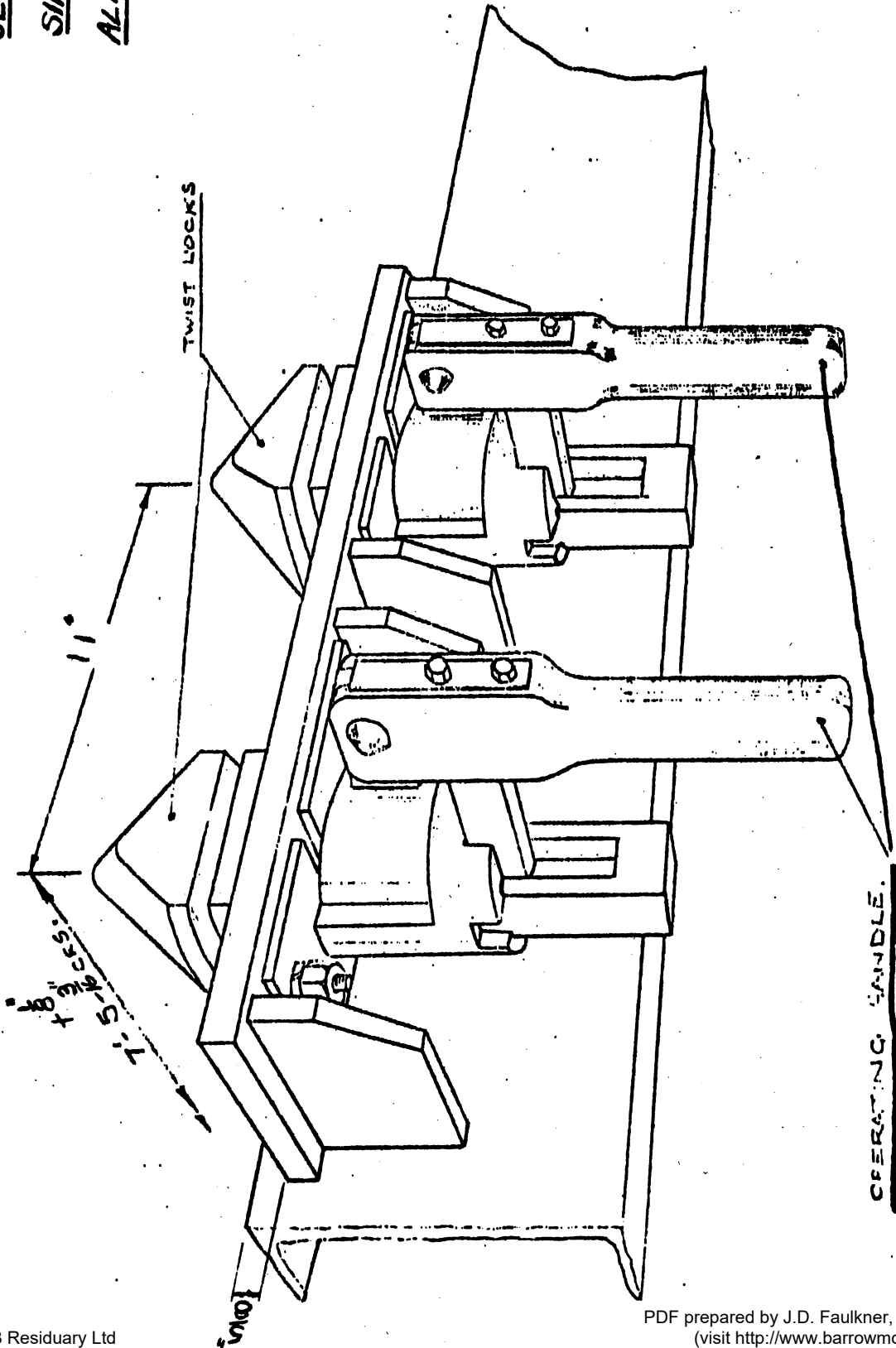
Container designation	L		W		K	L		W		K
	mm	mm	mm	mm	mm	ft in	in	ft in	in	in
A	12 190	+2 -8	2 435	+3 -2	19	40 0	+0 -3/8	8 0	+0 -3/8	3/8
B	9 125	+0 -10	2 435	+3 -2	19	29 11 1/4	+0 -3/8	8 0	+0 -3/8	3/8
C	6 055	+3 -3	2 435	+3 -2	13	19 10 1/2	+0 -1/4	8 0	+0 -3/8	1/2
D	2 990	+1 -4	2 435	+3 -2	10	9 9 3/4	+0 -3/8	8 0	+0 -3/8	3/8



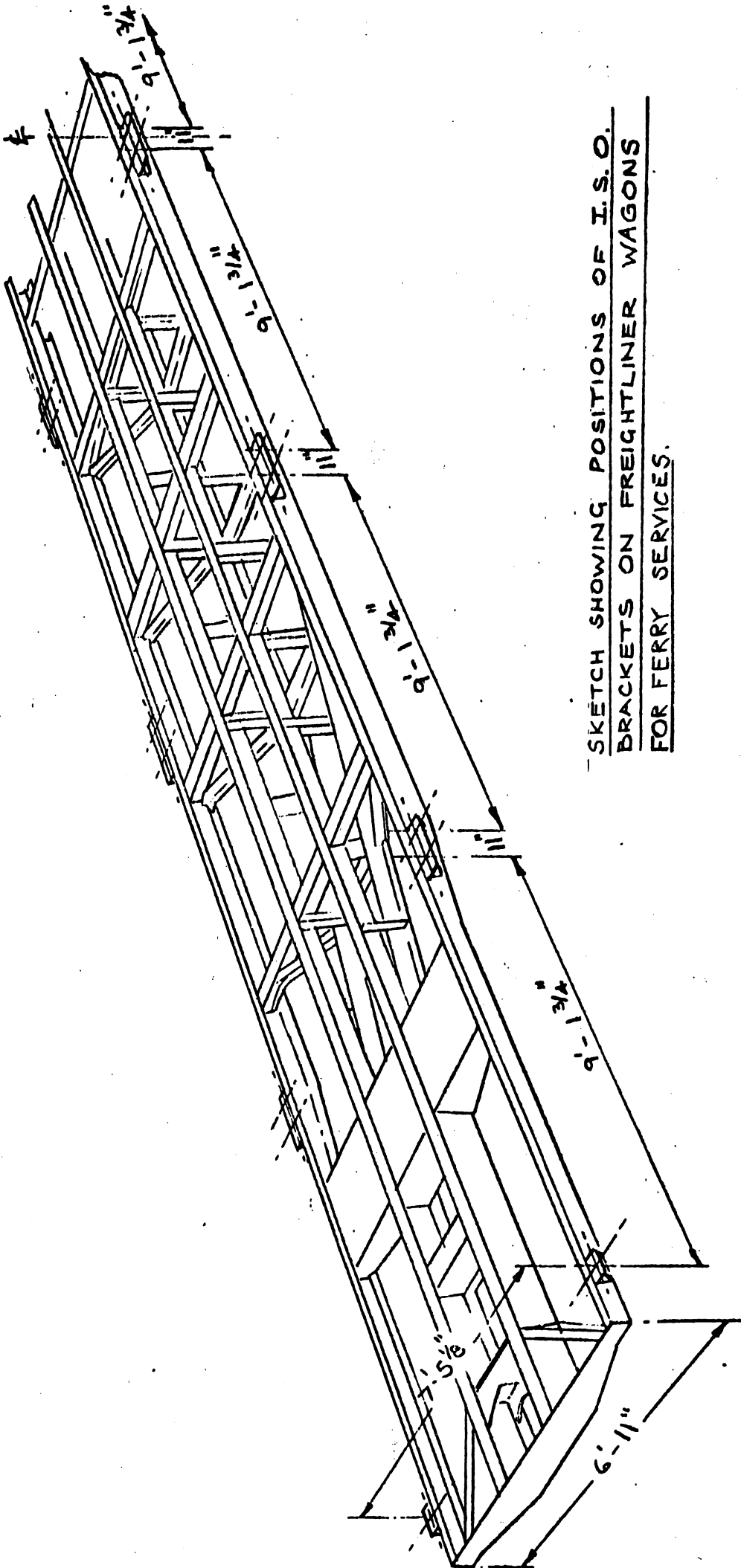
METHOD OF SECURING CONTAINERS
ON SPECIALLY FITTED LOWMAC WAGONS.

DOUBLE BRACKET FOR FERRY SERVICES SHOWN.

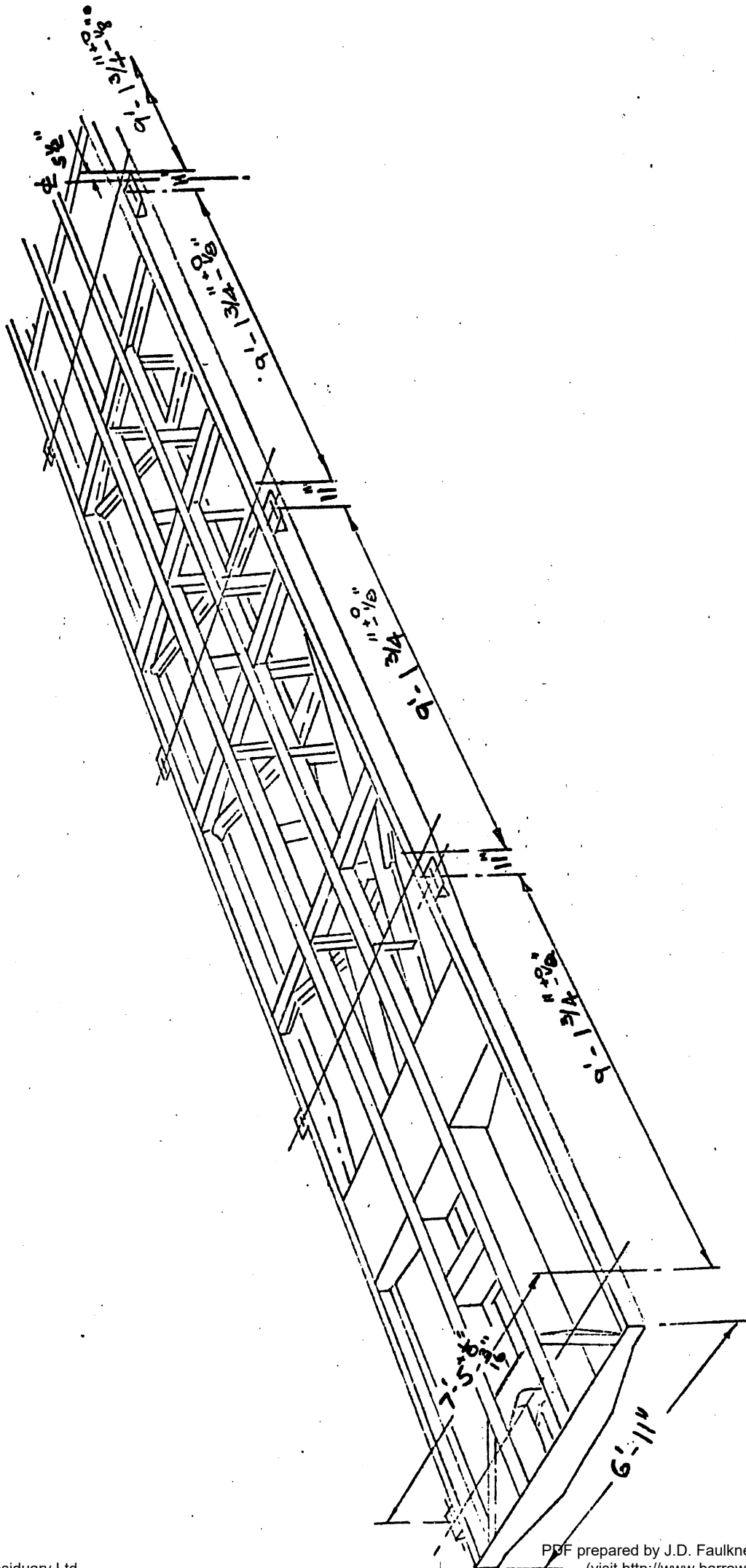
SINGLE BRACKET FITTED TO ALL OTHER VEHICLES.



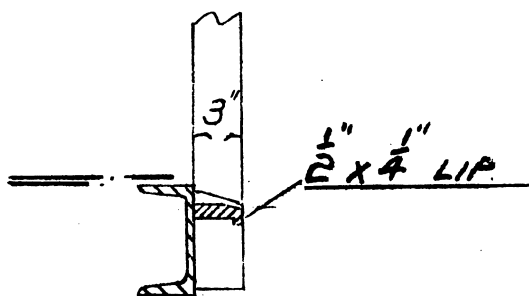
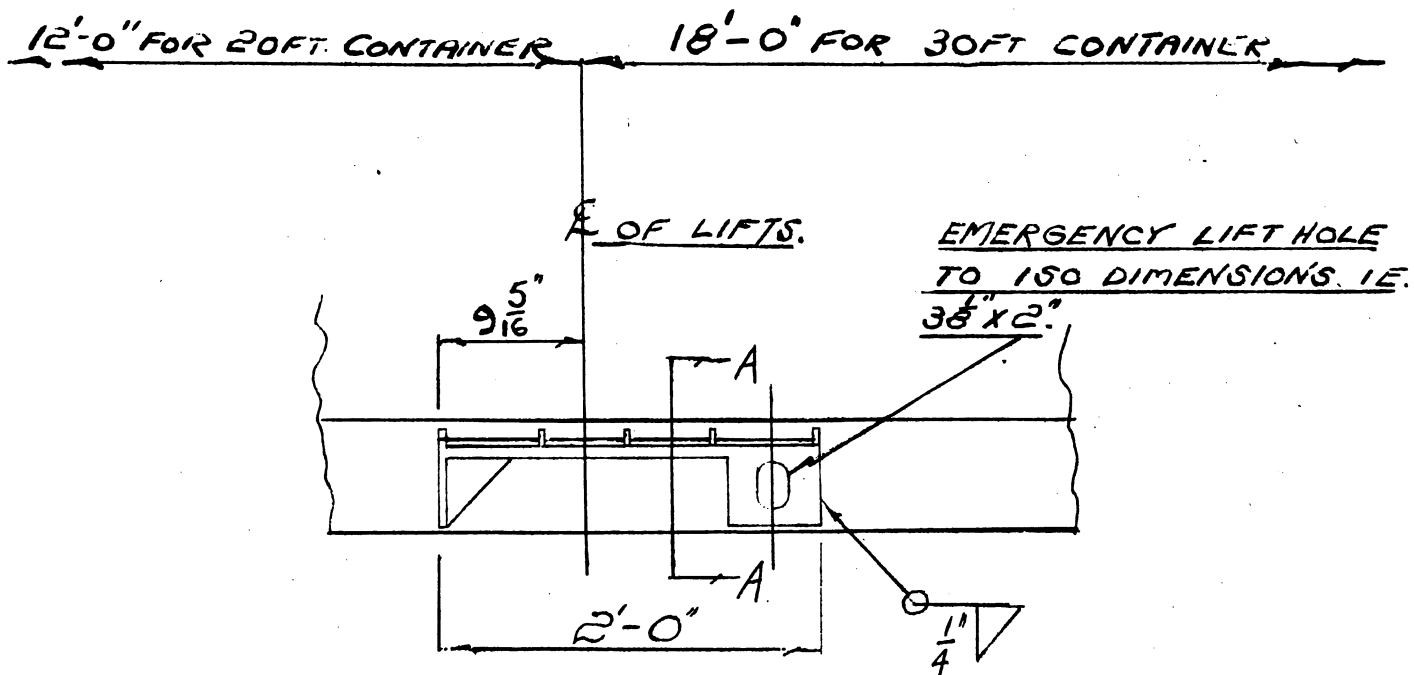
METHOD OF SECURING I.S.O. CONTAINERS ON FREIGHTLINER TRAINS



SKETCH SHOWING POSITIONS OF I. S. O.
BRACKETS ON FREIGHTLINER WAGONS
FOR FERRY SERVICES.

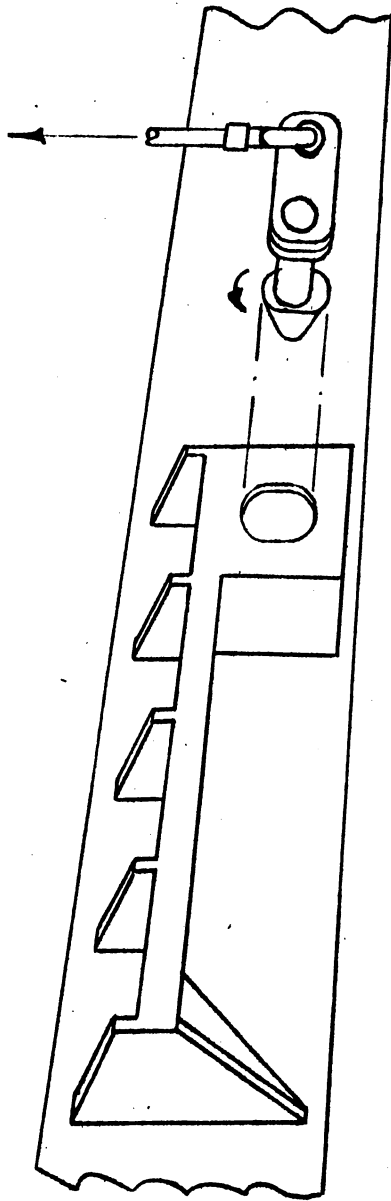


SKETCH SHOWING POSITIONS OF ISO
BRACKETS ON FREIGHTLINER WAGONS.
(DIAGONAL CORNERS)



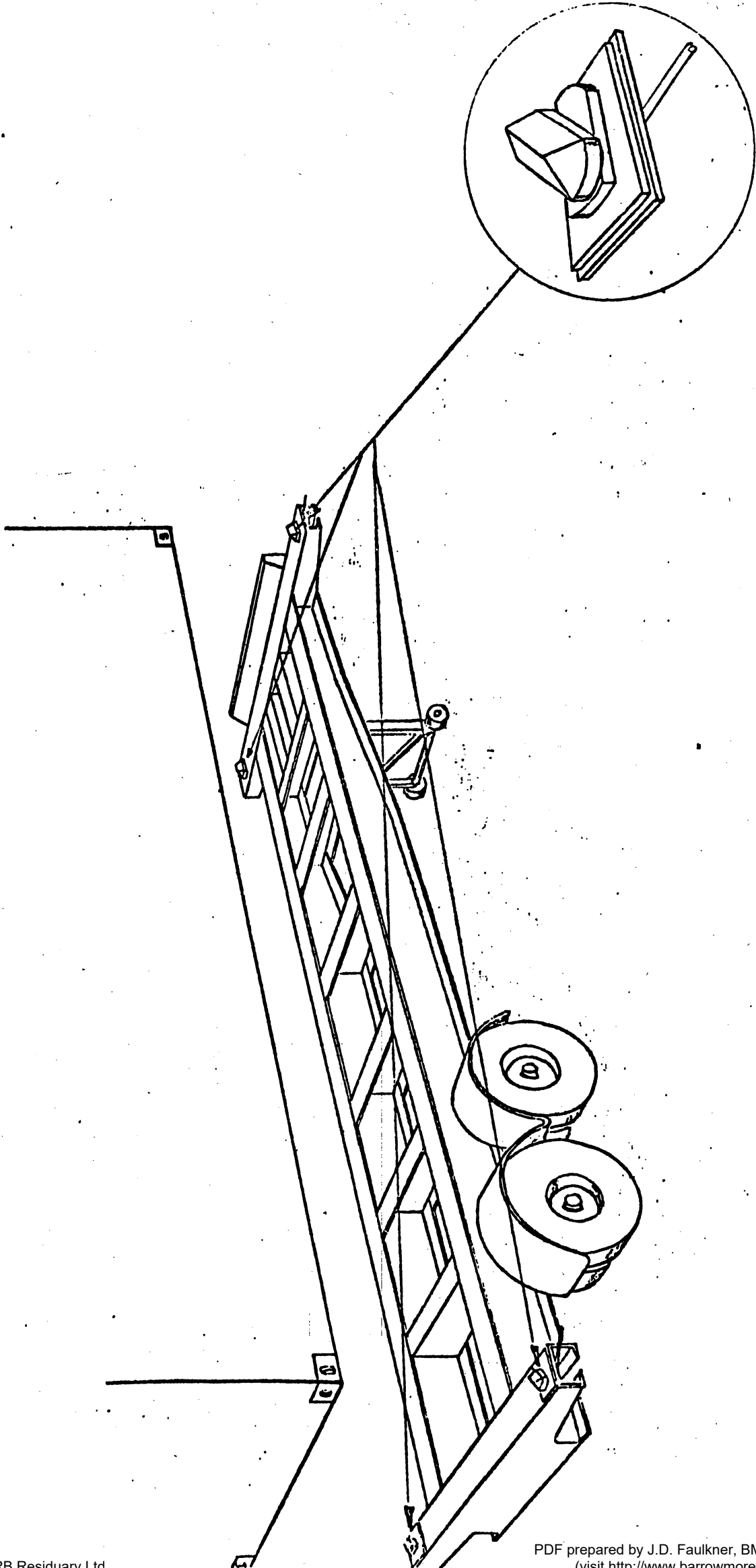
SECTION A-A.

CAST STEEL LIFTING BRACKET FOR MK. II OPEN FREIGHTLINER CONTAINERS.



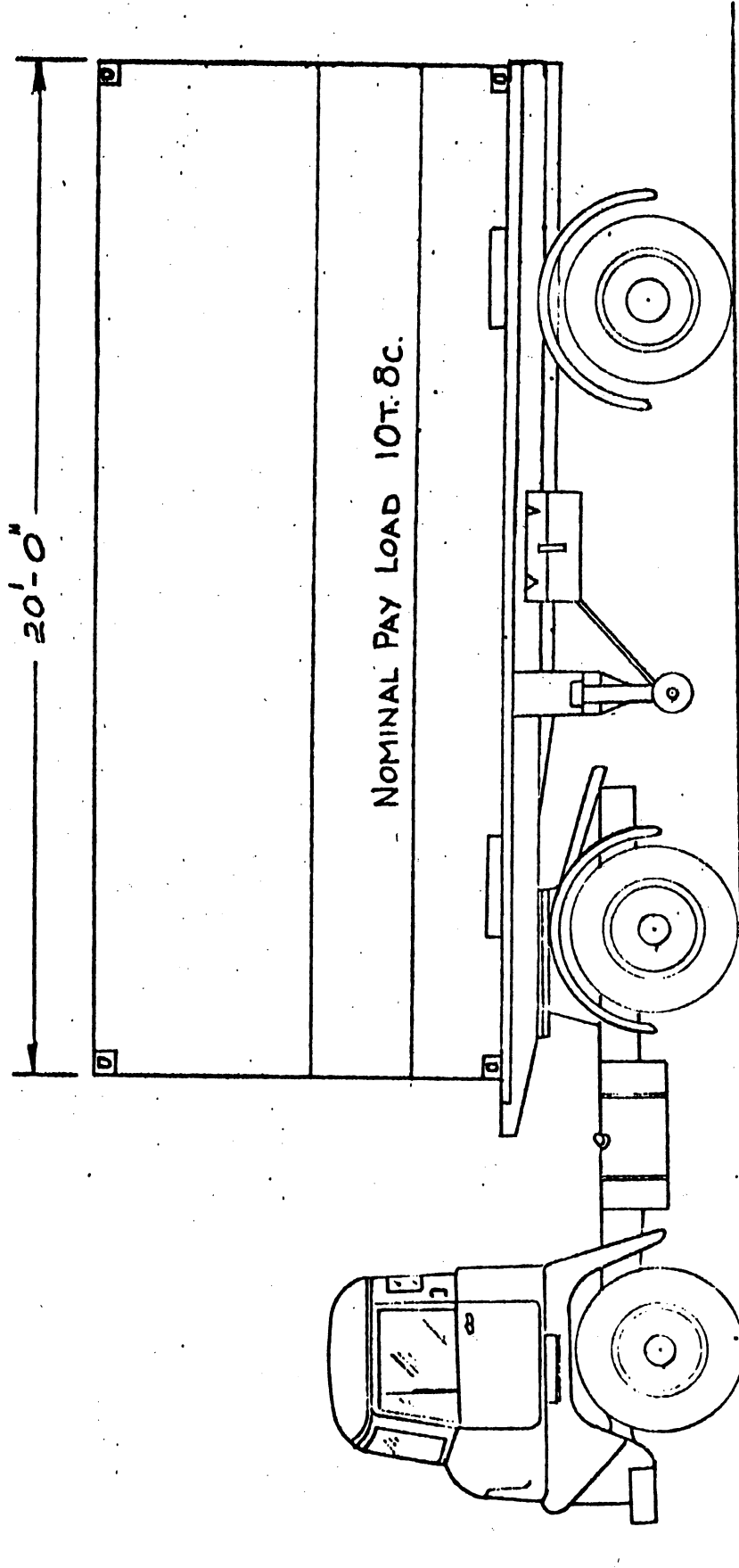
EMERGENCY LIFT FOR MK. II OPEN CONTAINER.

31.

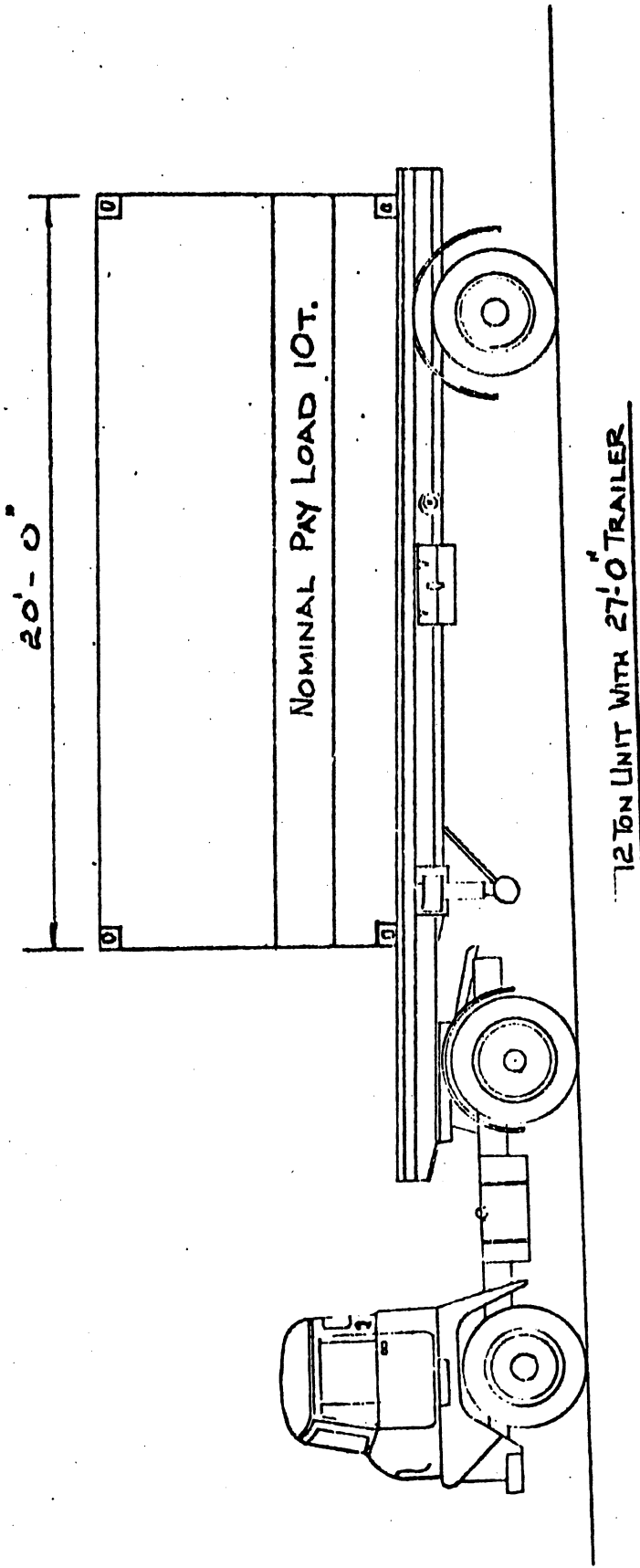


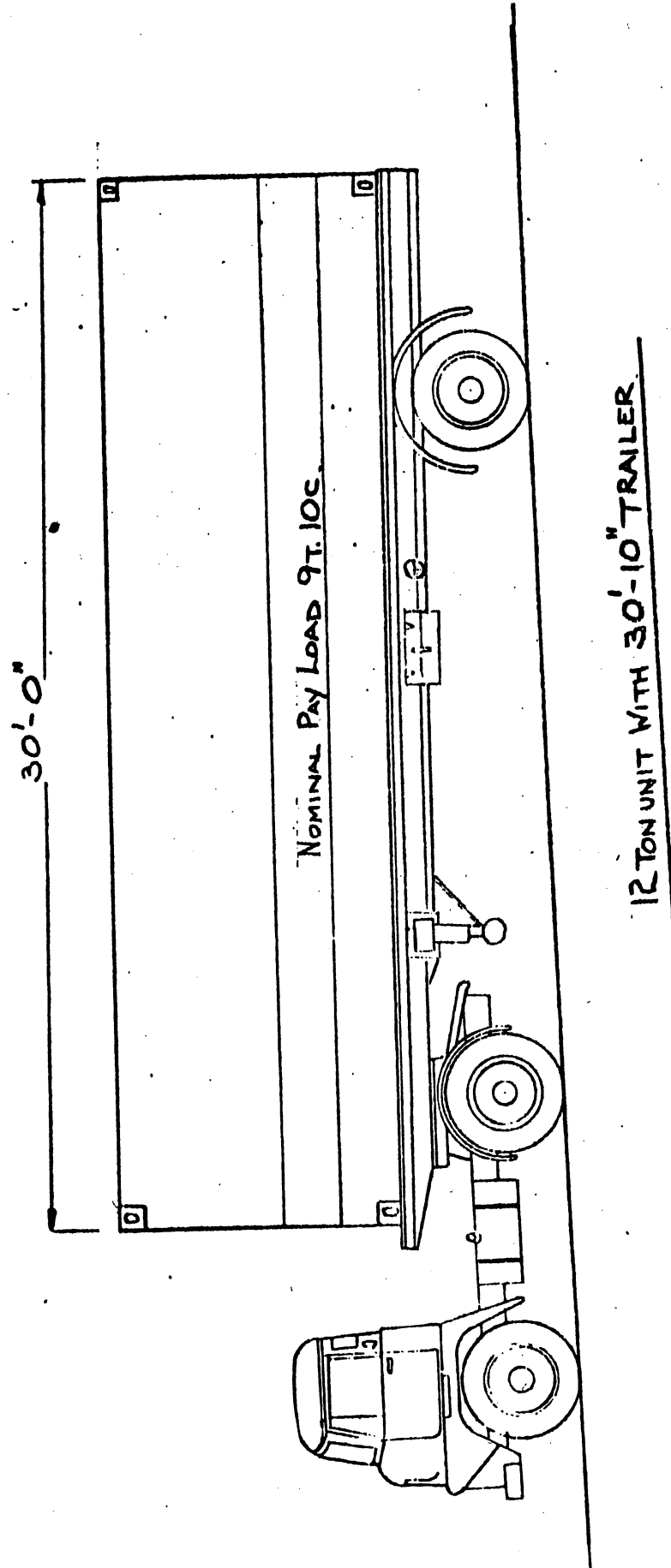
DETAIL OF TWISTLOCK
ASSEMBLY.

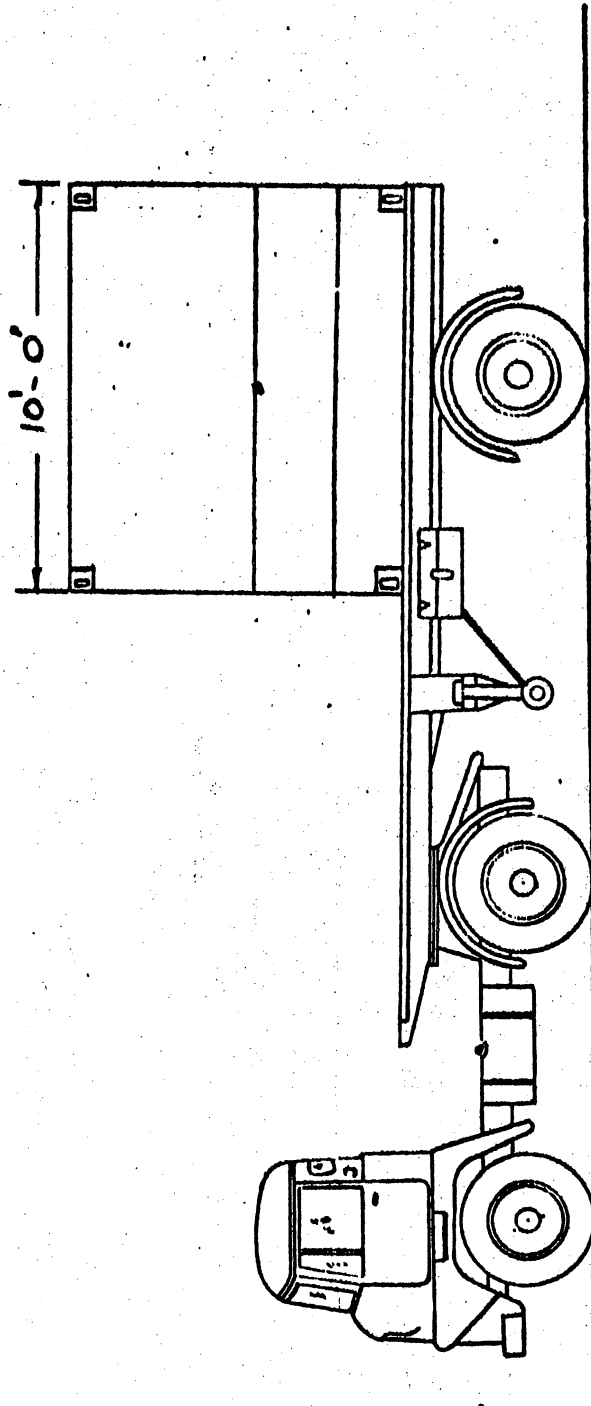
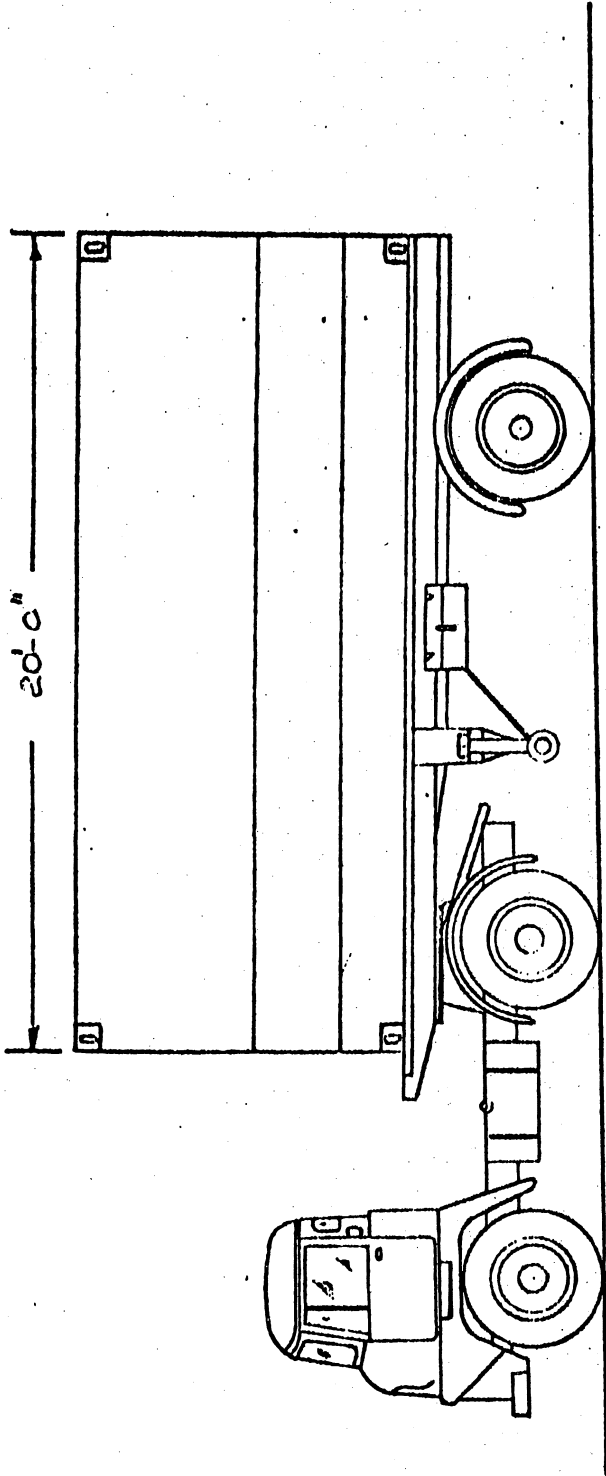
DETAILS OF SECURING I.S.O. CONTAINER-
ON ROAD VEHICLE WITH TWIST LOCK.



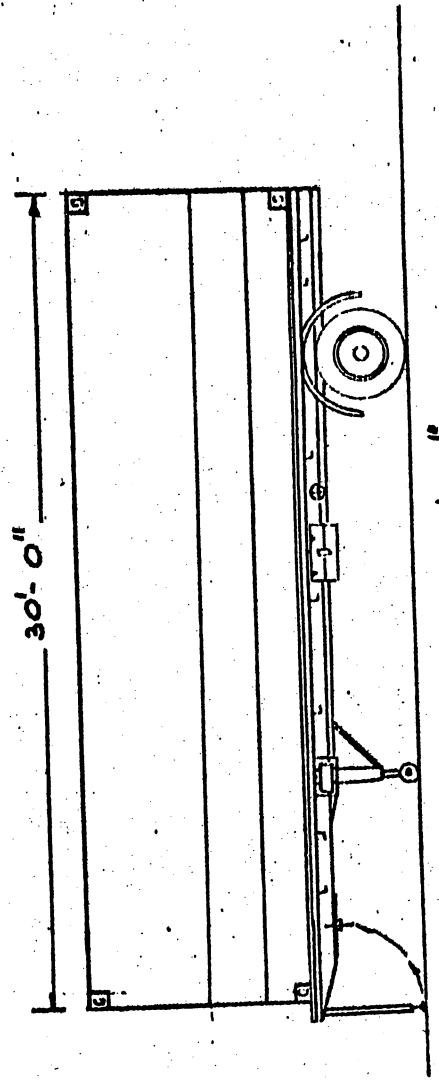
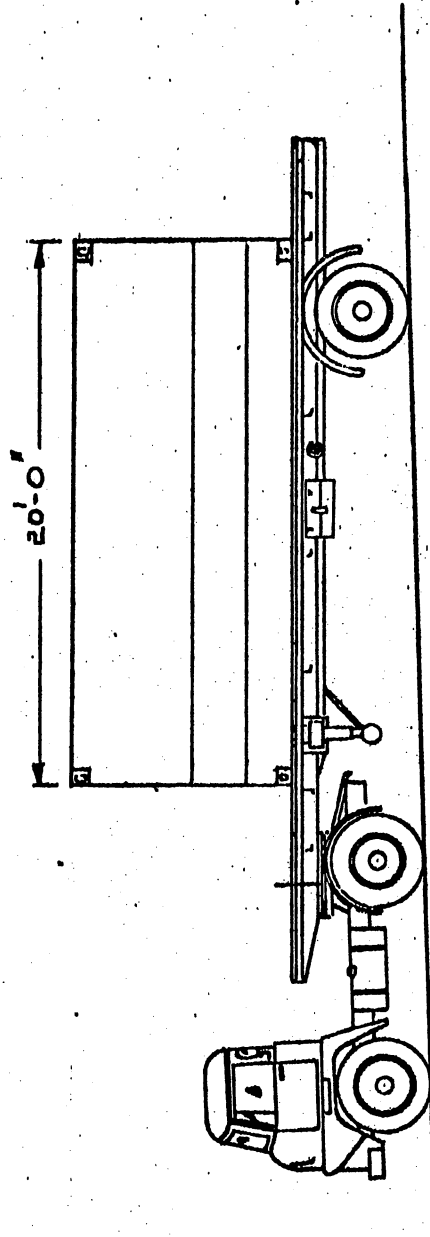
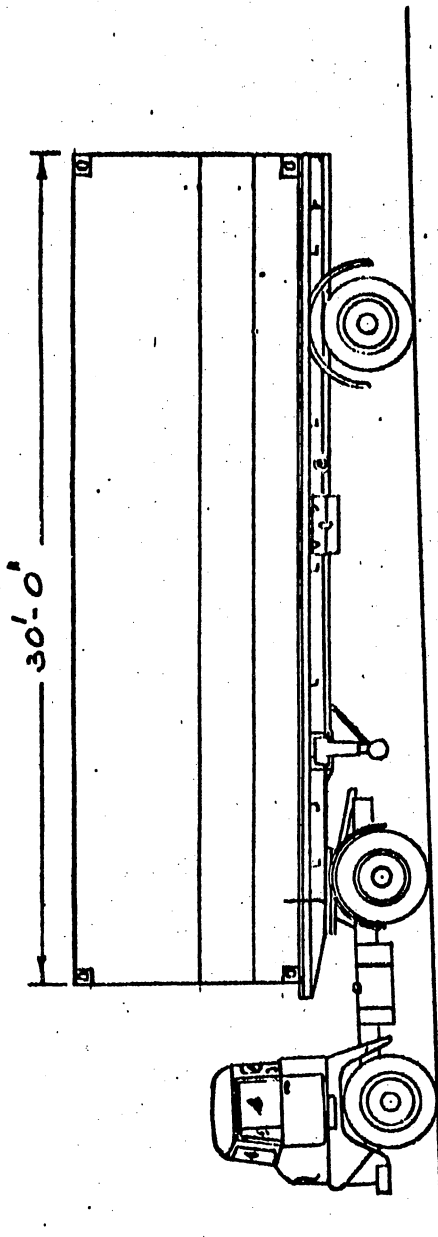
12 TON UNIT WITH 20'-6" TRAILER.



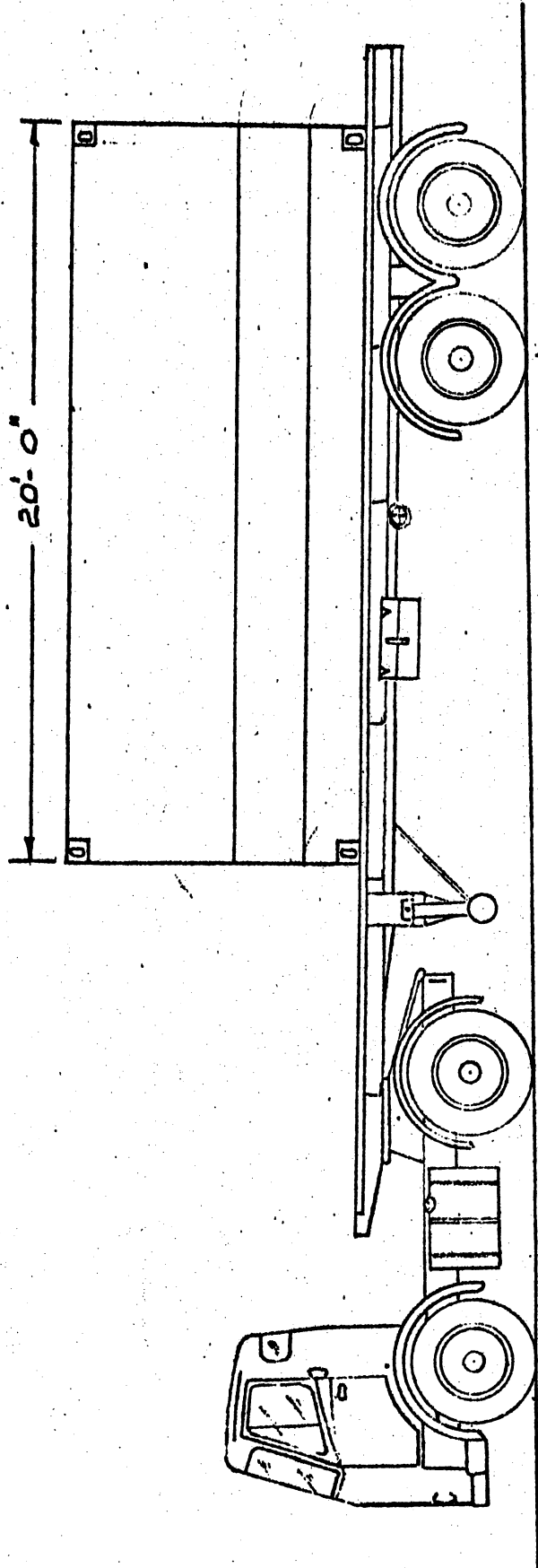
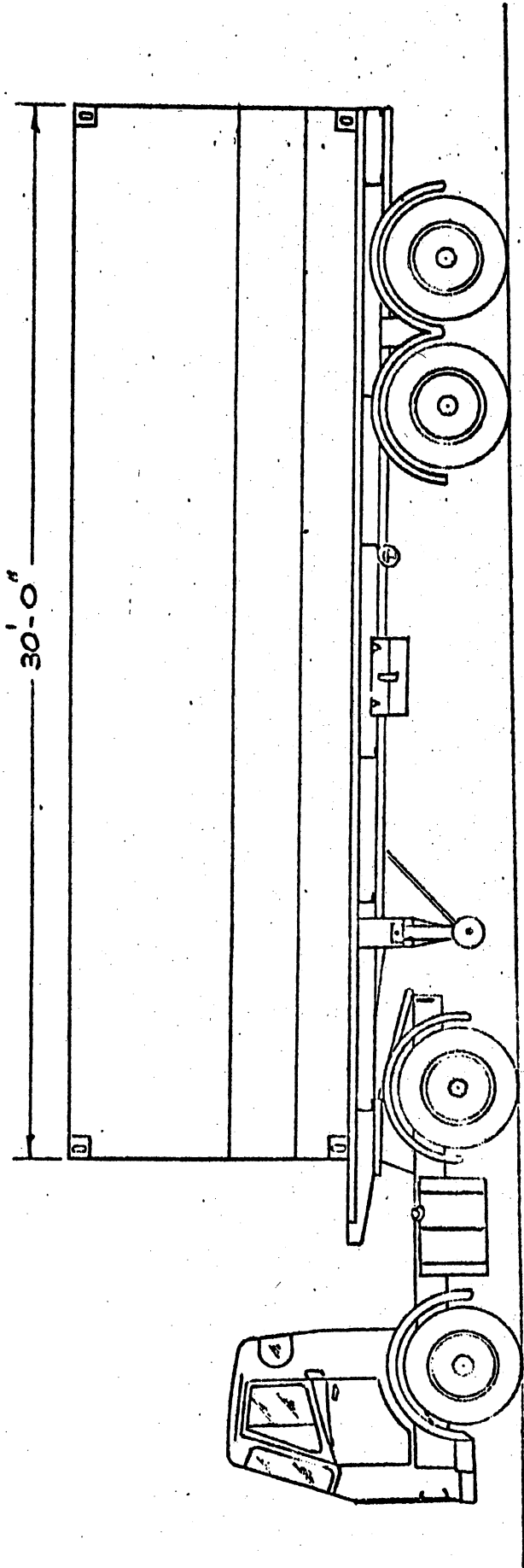




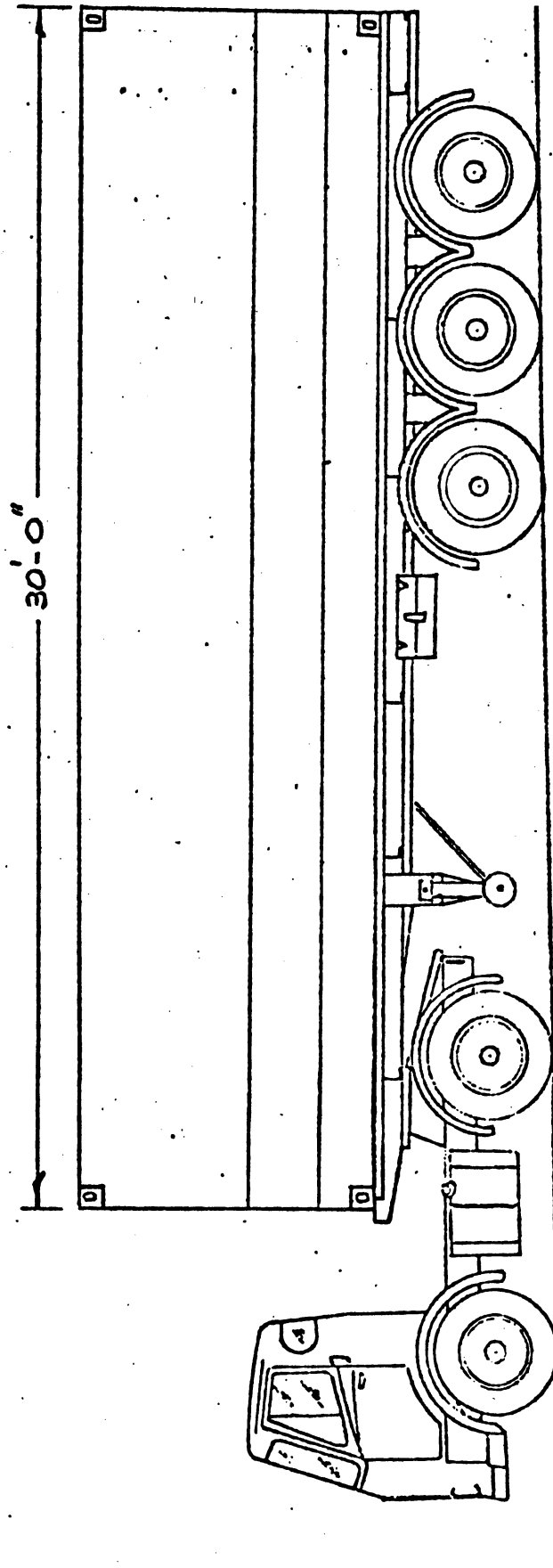
16 TON UNIT WITH 20'6" TRAILERS.



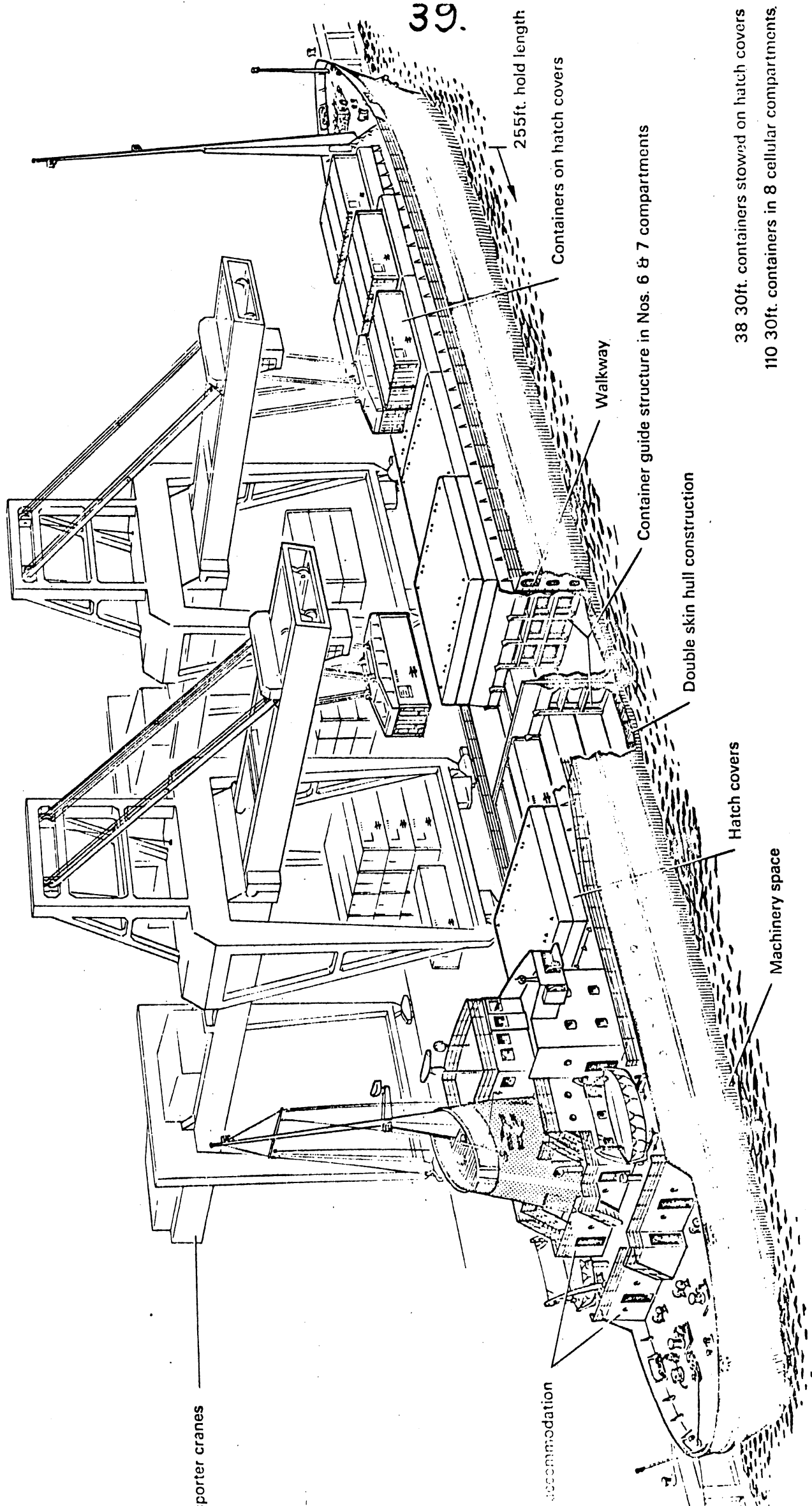
16 TON UNIT WITH 30'-10" TRAILERS



21 TON UNIT WITH 32'-0" TRAILERS.



22 TON UNIT WITH 30'-0" TRAILER.



38 30ft. containers stowed on hatch covers
 110 30ft. containers in 8 cellular compartments.

One of two twin-screw diesel-engined vessels
 to be built for Parkeston Quay - Zeebrugge service

Transporter cranes

Accommodation

255ft. hold length

Containers on hatch covers

Walkway

Container guide structure in Nos. 6 & 7 compartments

Double skin hull construction

Hatch covers

Machinery space

WOLSTENHOLME