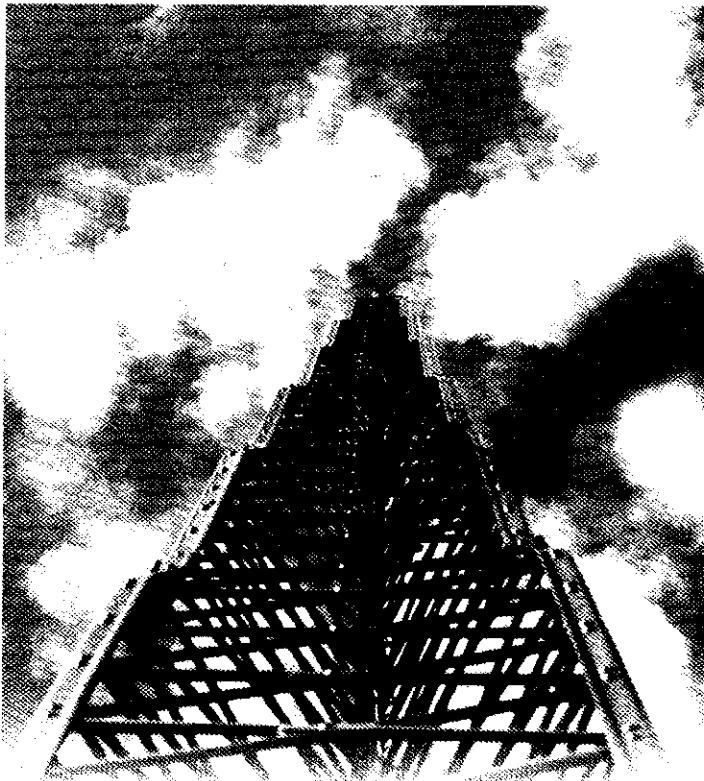




## B X S E R I E S T O W E R S



PRODUCTS FOR A  
GROWING WORLD  
OF TECHNOLOGY

S P E C I F I C A T I O N S

**BX TOWER****Part Number**  
**8' BX Sections**

Part Number	Wt.
BX1A	26
BX2	24
BX2A	31
BX3	29
BX3A	39
BX4	42
BX5	60
BX6	65
BX7	75
BX8	83

Nuts and bolts are included in section prices.

**BX Accessories**

BXMK2	Mast hardware kit w/rotor post for top and rotor plate	2
FL	Heavy duty mast clamp	3
TB3	Heavy duty thrust bearing, recommended for 2" O.D. tubing (for use with section 3 with field drilled hole)	2-1/2
TB4	Heavy duty thrust bearing, recommended for 3" O.D. tubing (for use with section 3 with field drilled hole)	3
BXSM	Side mount (28" - 40") w/4", 1-1/4" OD mast (fits sections 1 through 6)	12
BXHBU	Adjustable house bracket (8" - 24") (fits sections 1 through 4)	15
BXSK1	Extra step kit for section 1 (3 steps on one face)	1
BXSK2	Extra step kit for section 2 (3 steps on one face)	1
BXSK3	Extra step kit for section 3 (3 steps on one face)	1

**Top and Rotor Plates**

BXT1A	Top plate for section 1 with hardware nuts, bolts, and ACWS	2
BXT2A	Top plate for section 2 with hardware nuts, bolts, and ACWS	2
BXT3A	Top plate for section 3 with hardware nuts, bolts, and ACWS	2-1/2
BXR1A	Rotor plate for section 1 with hardware nuts, bolts, and ACWS	1-1/2
BXR2A	Rotor plate for section 2 with hardware nuts, bolts, and ACWS	2
BXR3A	Rotor plate for section 3 with hardware nuts, bolts, and ACWS	2-1/2

**Masts**

M8	8' mast (1-1/4")	6-1/2
M4	4' mast (1-1/4")	3

Refer to alphabetical/numerical price list for current prices.

March 1, 1989

<u>Part Number</u>	<u>Wt.</u>
<b>Self-Supporting Standard</b>	
<b>BX Tower with (M8) 8' Mast</b>	

<u>Part Number</u>	<u>Wt.</u>
<b>Self-Supporting Heavy Duty</b>	
<b>BX Tower w/(FL) Mast Clamp</b>	

<u>Part Number</u>	<u>Wt.</u>
<b>Self-Supporting Extra H.D.</b>	
<b>BX Tower w/(FL) Mast Clamp</b>	

BX24	96			
BX32	142	HBX32	187	HDBX32
BX40	205	HBX40	254	HDBX40
BX48	273	HBX48	328	HDBX48
BX56	351	HBX56	419	
BX64	450			

**Note:** Concrete base stubs are not included with the above towers. Order all bases as a separate item. However, three steps are included on one face of the top section on the above towers.

**Part Number****4' Concrete Base Stubs (Set of 3)**

(Tower height not to exceed 64 ft.)

BXB3	Stubs for section 3	13
BXB4	Stubs for section 4	17
BXB5	Stubs for section 5	18
BXB6	Stubs for section 6	22
BXB7	Stubs for section 7	25
BXB8	Stubs for section 8	25

**Self-Supporting 4' Cylinder Base**

(For use without concrete with mounting hardware)

(Tower height not to exceed 48 ft.)

BXCA3	For use with section 3	93
BXCA4	For use with section 4	101
BXCA5	For use with section 5	111
BXCA6	For use with section 6	121
BXCHK	Cylinder base hardware kit (fits sections 3, 4, 5, & 6)	25

**Note:** Cylinder base is not intended for use in loose soil (sand). ROHN does not recommend the use of cylinder bases. Cylinder bases are supplied as a convenience item only.

**Self-Supporting Hinged Concrete Base for All Sections**

(Tower height not to exceed 64 ft.)

BXHC36	Fits sections 3 through 6	2
BXHC78	Fits sections 7 and 8	5

Refer to alphabetical/numerical price list for current prices.

## MAST ASSEMBLY

### BX - STANDARD / HBX - HEAVY DUTY / HDBX - EXTRA HEAVY DUTY TOWERS

- I.D.**  
**Clamp**
- 231  
305  
397
- are
- Wr.**
- Two U-bolt assemblies with "L" brackets are supplied for installing the mast. These "L" brackets are bolted through the slotted holes on the rotor and top plate with the short legs of the "L" bracket toward the outside of the tower. See Drawing C750429.
  - Run the U-bolt through the open side of the formed "V" clamp and into the "L" bracket placing the 5/16" nuts and washers on the U-bolt loosely.
  - To install the mast, place one end of it through the upper U-bolt assembly end plate and slide it down into the lower U-bolt assembly. Then tighten the U-bolt assembly to hold the mast.
  - Adjustments to make the mast vertical may be made by moving the "L" brackets in the slotted holes.

The HBX - Heavy Duty and HDBX - Extra Heavy Duty Towers are furnished with a mast clamp installed on the top plate made from a pipe floor flange, which is provided with three bolts to be used as set screws to secure the mast. The box of hardware consists of one U-bolt assembly as described above and it can be installed on the lower plate as is instructed above, if required.

### ASSEMBLY INSTRUCTIONS

#### BREAKING DOWN THE BUNDLE

- 13  
17  
18  
22  
25  
25
- If your tower includes the 8' mast and/or three 4' base stubs, remove them. Remove the package of nuts, bolts and washers.
  - Lay the bundle on its side and remove the tower sections. Start with the innermost section of the package (the smallest section) and remove by pulling out with quick, firm jerks. It is not necessary nor desirable to pry the tower sections out with tools as damage may result.
  - Inspect all tower sections on delivery to make sure there are no loose or broken rivets caused by transport mishandling. If a rivet is broken or loose, it should be replaced by a snug-fitting machine bolt and nut, securely tightened.

#### TOWER

After you have chosen the desired type of base for your tower (concrete base with BXB concrete base stubs, BXHC hinged concrete base, or BXCA cylinder base which hinges over and requires no concrete) and it is properly installed per base instructions, bolt the base section (the largest section) to the base. Proceed with the erection as follows:

- 93  
101  
111  
121  
25
- inder
- The legs on each higher section slide inside the previous one and should be positioned on the rivet stop in the previous leg. (This rivet stop is to prevent the tower section being installed from slipping through the previous section and is not for the purpose of aligning the assembly holes.) (Special Note: The BX8 section does not have a rivet stop in it, so extreme caution should be used when installing the BX7 section into the BX8 section.) Proceed by bolting together each section with the proper size bolts.
  - To erect the tower, section by section vertically, you should use an EFBX erection fixture for raising and locating the section being installed into the previous section. (Note: Do not use an erection fixture to lift more than the weight of one tower section at a time.) By using BXHC or BXCA base the tower can be assembled on the ground and hinged up using extreme caution. When hinging up, watch for power lines, trees, etc.
  - Loose, missing or faulty rivets should be replaced with a similar size nut and bolt which can be obtained at any local hardware.

**Note:** 3/8" bolts are to be used on BX1, BX2 and the top of the BX3 sections. 9/16" bolts are used on the bottom of the BX3 and all sections from BX4 through BX8 (BX8 is the largest section).

One set of cross braces on one face of the top section is purposely left off to allow easy access to the rotor plate for installing the mast and rotor. (Note: Only one person should be on the tower at one time.)

**CAUTION...** Be sure hinge bolts on hinged type accessories are loosened before attempting to hinge tower up or down. All hinged type bases are intended to be used to raise tower only without antenna. When raising and lowering tower on any hinge type base, the loads applied for raising the tower must be applied equally on both sides of the tower using a cradle or by using several attachment points in order to prevent overloading a tower member and to reduce the possibility of twist on the tower and hinges at the base. Special care must be taken to avoid the use of raising and lowering methods which may cause damage to tower or base. Tower must be initially raised prior to applying tension to a hoisting line to avoid a large horizontal force pulling the tower into the base. Towers and bases must only be installed and dismantled by professional and experienced installers. Field welding is prohibited on tower, base and anchor bolts.

Be sure to check anchor bolt projections per drawing C760099R7. Make sure the anchor bolt is not interfering with the raising or lowering of the hinge pipe. Check this before attempting to hinge up or lower the tower.

## NOTES ON ASSEMBLING ROTATORS

Most all makes of rotators can be installed on the rotor plate inside the top tower section of the BX standard, HBX heavy duty, and HDBX extra heavy duty towers. There is a short piece of tubing furnished with each tower that can be used as a thrust bearing (for 1-1/4" mast) with the mast clamp installed on the top plate as is described under the heading Mast Assembly. Do not install rotators on the HDBX top plate.

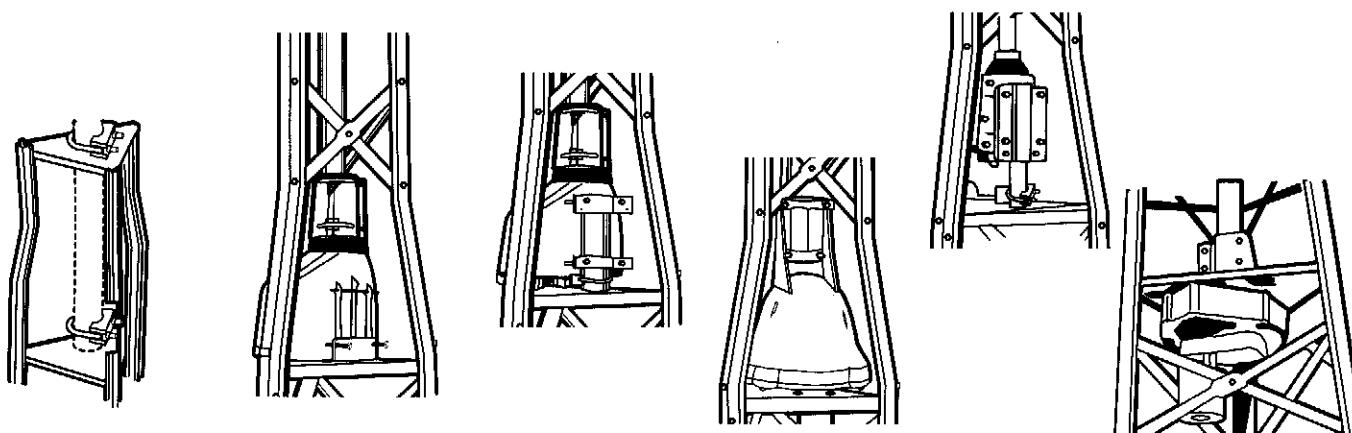
For the HBX - Heavy Duty and HDBX - Extra Heavy Duty Towers, when a rotator is used a 4" piece of tubing or pipe with an I.D. larger than the O.D. of the mast can be installed in the pipe flange clamp and used as a bearing sleeve for the mast to turn in.

### FOR ASSEMBLING THE ROTATOR ITSELF, FOLLOW THE PROCEDURES OUTLINED BELOW:

Some inline model rotators mount directly to the rotor plate. (The lower housing of the rotator is not used when this is done.) The necessary holes for mounting most rotors are pre-punched in the plate itself and the bolts furnished to bolt the lower housing to the upper housing (4-1/4" x 1" bolts) are to be inserted from the bottom of the plate upward and into the rotor. It is desirable to place 3/8" nuts to act as spacers between the rotor plate and the rotator.

These nuts will prevent the terminals of the rotator and the rotor wire from shorting on the rotor plate. An 8" piece of tubing is furnished with each tower. It can be installed into the clamp ("V" clamp and "L" shaped brackets furnished for offset rotor installation only) for the offset type rotors. It is necessary to reverse the clamp assembly (to face outside of the tower), opposite that of installing a standard mast to the rotor plate. Some rotators can be mounted directly to the "L" shaped bracket as shown or to the 8' mast as previously described.

Also, some rotators mount beneath the rotor plate (as pictured). It will be necessary to increase the 1/4" holes in the rotor plate to 3/8" holes to use the 3/8" bolts furnished with these rotators. See pictorial views of typical rotor installations:



In all cases be careful during installation.

#### Notes:

Do not install towers near power lines. All towers should be installed out of falling distance of power lines since every electrical and telephone wire should be considered dangerous.

ROHN recommends anti-climb sections on all towers to prevent unauthorized persons from climbing towers. Only one person should be on the tower at a time.

All antenna installations must be grounded per local or national codes.

All towers should be installed and dismantled by experienced and trained personnel.

All types of antenna installations should be thoroughly inspected by qualified personnel at least twice a year and re-marked with hazard and warning labels to ensure safety and proper performance. A safety package (part number ACWS) is available which includes one anti-climb warning sign and two Danger - Watch for Wires labels along with other printed safety information.



## ASSEMBLY INSTRUCTIONS **BX SELF-SUPPORTING CYLINDER BASES**

1. Assemble the base as shown on Drawing C750409.
2. Place the cylinder in the area the tower is to occupy. (Note: Be sure to position the base so that the tower can be hinged in the direction where there are no obstructions.) Mark off a circle approximately 2 to 3 inches larger than the cylinder.
3. Dig a hole 4 feet deep (deep enough to completely bury the cylinder below ground level).
4. Drop the cylinder in the hole and with it as vertical as possible throw the soil back into the cylinder and around it, tamping it solid after every 6 to 8 inches of fill. (Note: Be sure cylinder is flush or below the ground surface. See Drawing C750409.)
5. When the cylinder is approximately one-half full of dirt, attach the base tower section to the pipe sleeves of the base as shown on Drawing C750409. This is necessary to avoid distortion of the cylinder as you continue to fill and tamp the soil in the base.
6. Continue to fill and tamp the soil into the cylinder within 6 inches of the top.
7. Plumb the tower section by placing a level on the outside of each leg adjusting to the plumb position by loosening and realigning the BXCB1 angle support brackets until the tower is plumb. (Note: The brackets must be extremely tight when the tower section is plumb.)
8. Remove the top 9/16" x 3-1/2" bolts on the pivot side of the tower that holds the pipe sleeves to the yokes. Then remove both bolts on the side opposite the pivot direction. The section can now be hinged to the ground.
9. Assemble the rest of the tower as per BX tower instructions. Hinge the tower up and when vertical put the 9/16" x 3-1/2" bolts back through the yokes and pipe sleeves. Then tighten all base bolts securely.
10. Complete filling the cylinder with dirt and tamp firmly.
11. After installation is completed, the base should be rechecked in about 30 days to be sure that the hardware remains tight and it should be rechecked every six months.

**CAUTION...** Be sure hinge bolts on hinged type accessories are loosened before attempting to hinge tower up or down. All hinged type bases are recommended to be used to raise tower only without antenna. When raising and lowering tower on any hinge type base, the loads applied for hinging the tower must be applied equally on both sides of the tower in order to reduce the possibility of twist on the tower and hinges at the base. Special care must be taken to avoid the use of raising and lowering methods which may cause damage to tower or hinges. Hinged bases should only be installed and dismantled by professional and experienced personnel.

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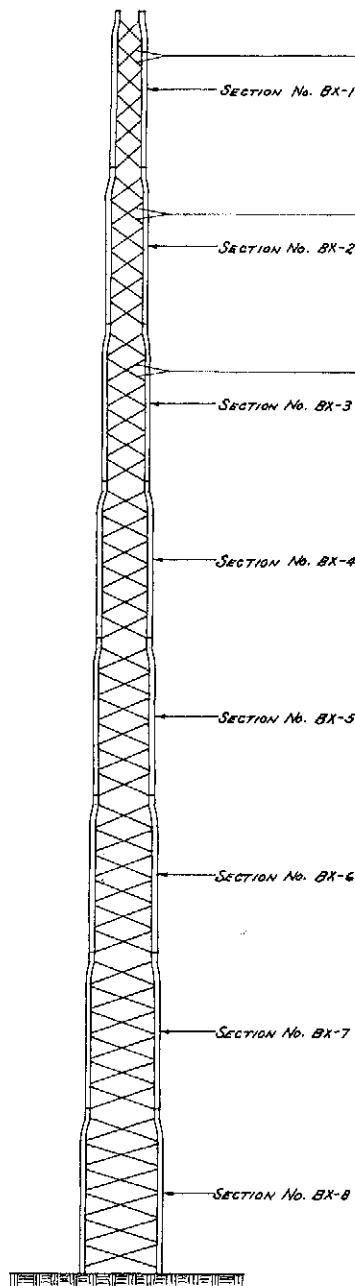
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BX

100-350 2-72 48144

DESCRIPTION	DATE	BY
REVISIONS		
<i>(Signature)</i>		
NO.		
TITLE		
ROHN® MANUFACTURING		
BRANCH OF 		
BX SERIES TOWER		
Typical 60' Tower (Sections 1 thru 8)		
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NAME	DATE	DIV. NO.
DRW. BY	REV. C-6-70	
CAB. NO.	2-272	
VER.	DATE 1-8-76	
WORK.	DATE 1-8-76	
TYPE	DATE 1-8-76	

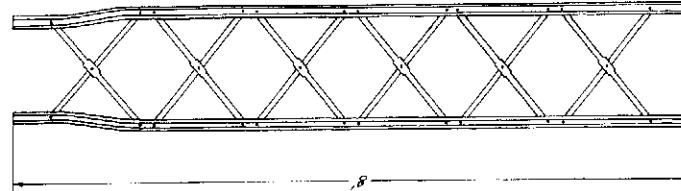
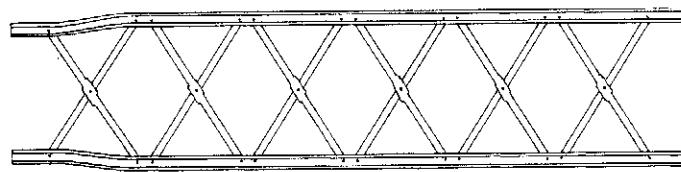
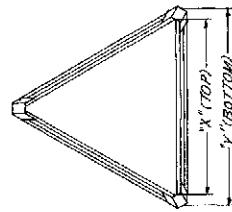
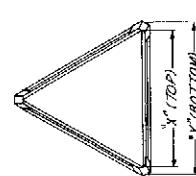
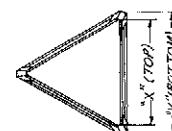


REFERENCE DRAWINGS:

SECTION No.1 : Dwg. No. C-750429.  
 SECTIONS 2 THRU 8 : Dwg. No. C-750430.  
 TOP PLATE, ROTOR PLATE, & MAST  
 CLAMPS : Dwg. No. C-750429.  
 FOUNDATION & ANCHOR BOLT SETTING FOR  
 HINGED CONCRETE BASE : Dwg. No. C-760099.  
 CYLINDER BASE INSTALLATION FOR SECTIONS  
 3, 4, 5 & 6 : Dwg. No. C-750409-R2.  
 DESIGN ASSUMPTIONS : Dwg. No. A-750005.  
 TOWER SECTION PROPERTIES : Dwg. No. B-760024.  
 TOWER DESIGN DATA : Dwg. No. B-760025.  
 TYPICAL TOWER ANALYSIS : Dwg. No. A-760000.  
 ALLOWABLE ANTENNA LOADS : Dwg. No. A-76001.

BX

NOTE: SEE DRAW. NO. C-750430 FOR DETAILS  
OF TRUCK TOP PLATE AND ROTOR PLATE FOR  
SECTIONS 2 AND 3.

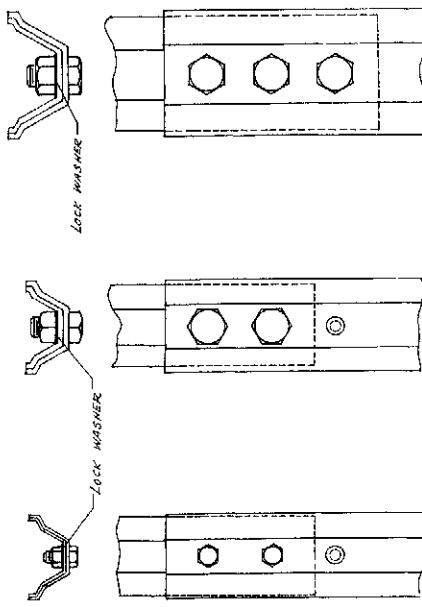


Sections 2, 3, 4

Sections 5, 6

Sections 7, 8

## ELEVATIONS OF TYPICAL SECTIONS

TYPICAL LEG JOINT  
BETWEEN  
SECTIONS 7-8TYPICAL LEG JOINT  
BETWEEN  
SECTIONS 1-2  
SECTIONS 4-5  
SECTIONS 5-6  
SECTIONS 6-7

SECTION No.	LEG JOINT LOCATION	QTY.	"X" SIZE (TOP)		"Y" SIZE (BOT.)	
			TOP	BOT.	TOP	BOT.
BX-2	Top	2	3 $\frac{1}{2}$	3 $\frac{1}{2}$	10 $\frac{1}{2}$	12 $\frac{1}{16}$
BX-2	Bottom	2	3 $\frac{1}{2}$	3 $\frac{1}{2}$	10 $\frac{1}{2}$	12 $\frac{1}{16}$
BX-3	Top	2	3 $\frac{1}{2}$	3 $\frac{1}{2}$	12 $\frac{1}{16}$	15 $\frac{1}{16}$
BX-3	Bottom	2	3 $\frac{1}{2}$	3 $\frac{1}{2}$	12 $\frac{1}{16}$	15 $\frac{1}{16}$
BX-4	Top	2	3 $\frac{1}{2}$	3 $\frac{1}{2}$	15 $\frac{3}{4}$	17 $\frac{7}{16}$
BX-4	Bottom	2	3 $\frac{1}{2}$	3 $\frac{1}{2}$	15 $\frac{3}{4}$	17 $\frac{7}{16}$
BX-5	Top	2	3 $\frac{1}{2}$	3 $\frac{1}{2}$	17 $\frac{5}{8}$	20 $\frac{1}{8}$
BX-5	Bottom	2	3 $\frac{1}{2}$	3 $\frac{1}{2}$	17 $\frac{5}{8}$	20 $\frac{1}{8}$
BX-6	Top	2	3 $\frac{1}{2}$	3 $\frac{1}{2}$	20 $\frac{5}{8}$	22 $\frac{13}{16}$
BX-6	Bottom	2	3 $\frac{1}{2}$	3 $\frac{1}{2}$	20 $\frac{5}{8}$	22 $\frac{13}{16}$
BX-7	Top	2	3 $\frac{1}{2}$	3 $\frac{1}{2}$	23	25 $\frac{1}{2}$
BX-7	Bottom	3	3 $\frac{1}{2}$	3 $\frac{1}{2}$	23	25 $\frac{1}{2}$
BX-8	Top	3	3 $\frac{1}{2}$	3 $\frac{1}{2}$	25 $\frac{1}{16}$	29 $\frac{7}{16}$
BX-8	Bottom	3	3 $\frac{1}{2}$	3 $\frac{1}{2}$	25 $\frac{1}{16}$	29 $\frac{7}{16}$

Note: For straight sections eliminate "X" dimension.

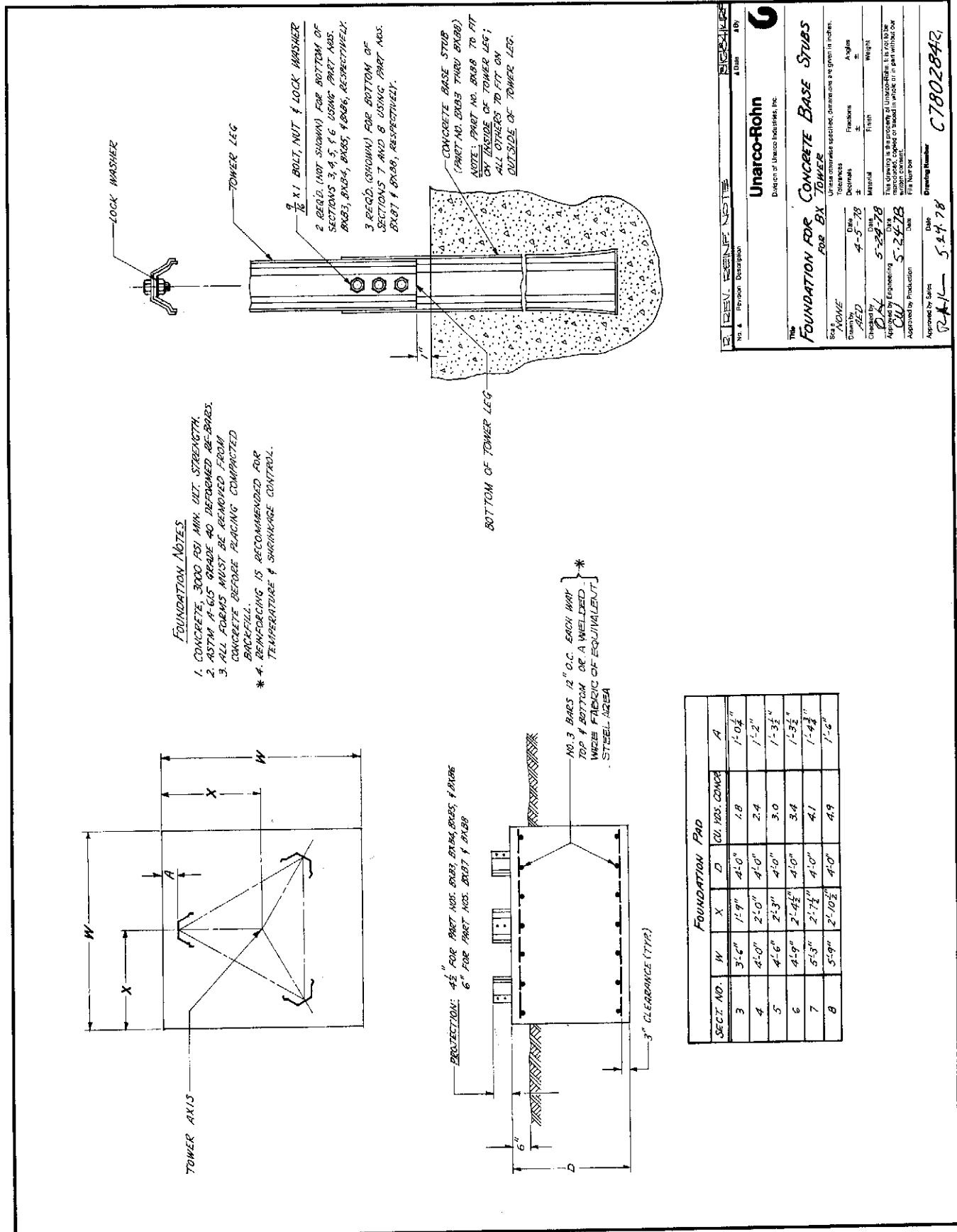
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REVISIONS			

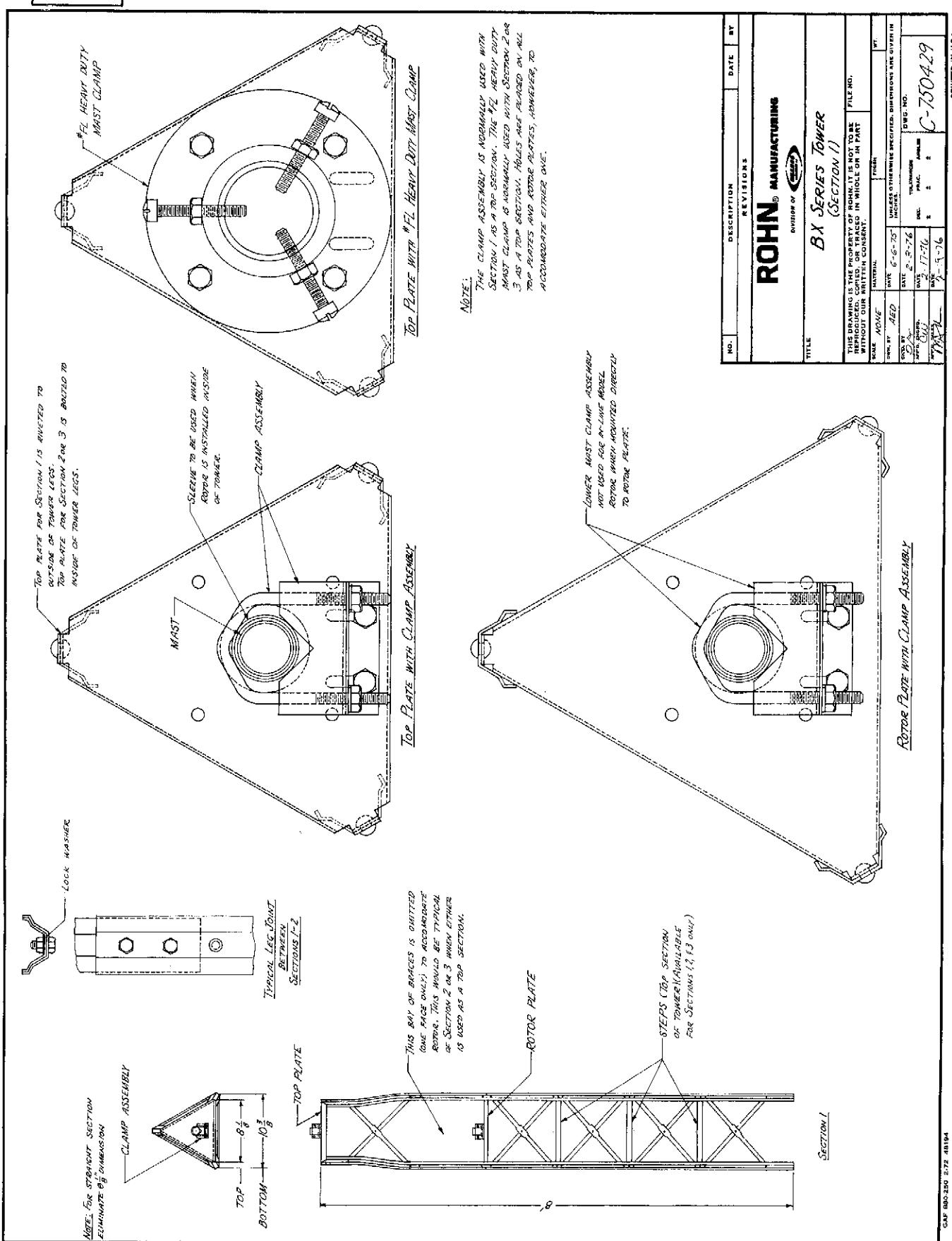
BX SERIES TOWER

(SECTIONS 2 THROUGH 8)

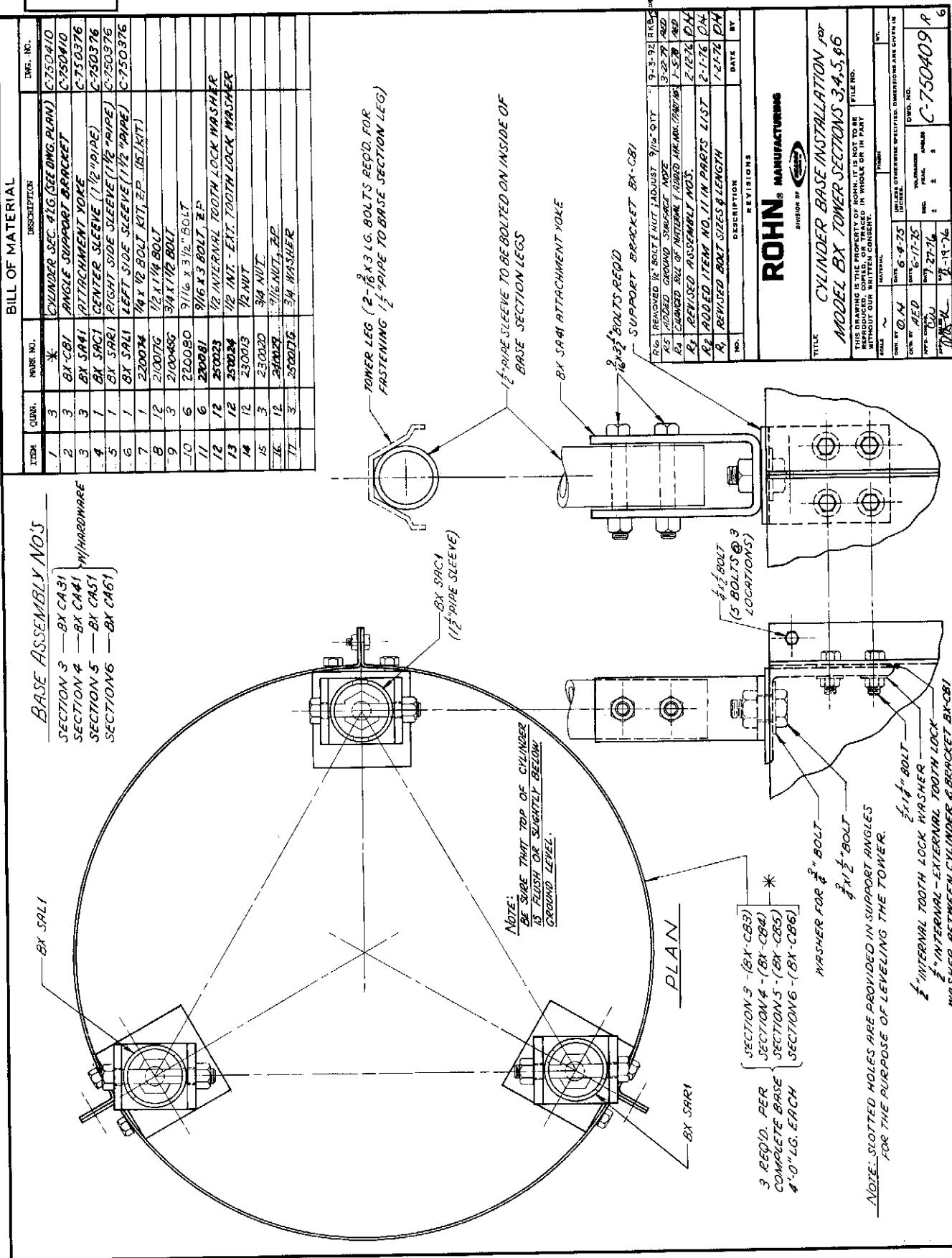
BX SERIES TOWER (SECTIONS 2 THROUGH 8)				PRINTED IN U.S.A.
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NAME	POSITION	DATE	REVISION	PRINT
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APR. 1970	JULY 1970	APR. 1970	JULY 1970	APR. 1970
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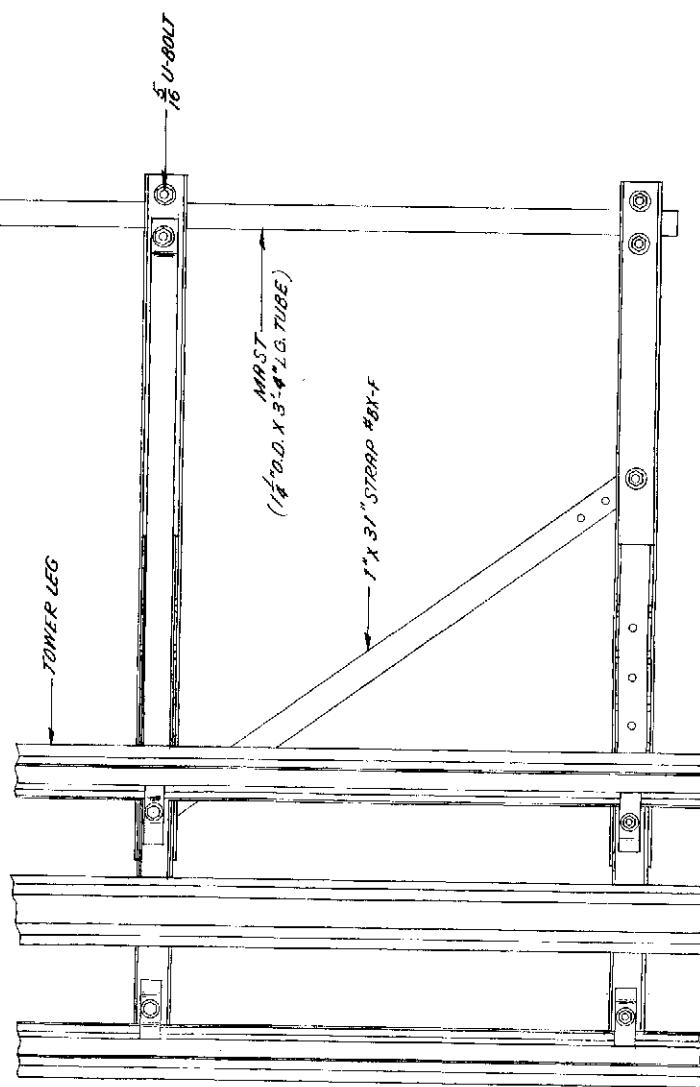
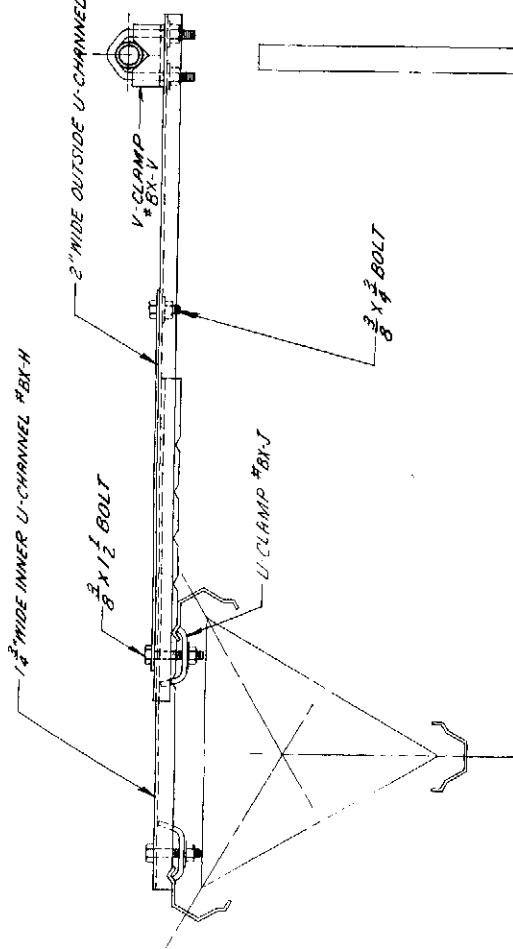


BX



BILL OF MATERIAL			
ITEM	QUANTITY	DESCRIPTION	ITEM NO.
1	2	BX-S	2" WIDE OUTSIDE CHANNEL
2	2	BX-H	1 1/2" WIDE INNER CHANNEL
3	4	U-CLAMP	C-76028-2
4	1	BX-F	C-76028-18
5	1	STRAP	C-76023-38
6	4	1/2" O.D. X 1/8" G.A. TUBE 3/4" LONG	
7	5	200086 3/8" X 1/2" BOLT	
8	1	200021 3/8" NUT	
9	5	200025 3/8" WASHER	
10	2	270034 1/4" U-BOLT	
11	4	240014 1/4" NUT	
12	4	250010 1/4" WASHER	
13	2	BX-V	V-CLAMP

*NOTE: WASHERS REQUIRED FOR ALL BOLTS.*



R2  
ADDED BILL OF MATER., DELETED BACK BRACE 2-23-77 AND  
ADDED PRET. NOS.

No. 4  
Revision Date: 1-22-77

4 Date: 4-14-77

4 By:

**Unarco-Rohn**  
Division of Unarco Industries, Inc.

**BX-SM MOUNT ASSEMBLY**

Scale ~ Unless otherwise specified, dimensions given in inches.

Drawn by C. AF Date 10-9-75

Checked by J. L. Date 10-10-75

Approved by Engineering Date 10-10-75

Approved by Production Date

File Number

Drawing No. C-750946 R2  
Date 9-30-77

## TYPICAL TOWER ANALYSIS

TOWER DESIGN DATA: MODEL BX-64

WIND PRESSURE — 20 PSF

ANTENNA LOAD — 6 SQ. FT. AT 3 FT. ABOVE

TOWER TOP -  $\frac{1}{2}$  IN. LINE

ANTENNA WT. = 50 LBS.

LINE WT. = 0.5 LBS./FT.

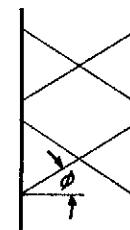
NOTE: ANTENNAS DEVELOPING A LARGE TWISTING  
MOMENT DUE TO WIND MUST NOT BE USED ON  
THIS TOWER. ANTENNAS SHOULD BE LIMITED  
TO THOSE HAVING A MAXIMUM BOOM LENGTH OF  
10 FT.

SECTION No.	8	7	6	5	4	3	2	1
DISTANCE FROM TOP (FT.)	61.7	53.7	46.0	38.3	30.7	23.0	15.3	7.7
WIND ON SECTION (LBS.)	179.7	161.7	150.0	139.5	115.5	107.7	101.1	96.0
WIND ON ANTENNA & LINE (LBS.)	5.5	5.3	5.3	5.3	5.3	5.3	5.3	127.4
TOTAL WIND ON SECTION (LBS.)	185.2	167.0	155.3	144.8	120.8	113.0	106.4	223.4
SHEAR (LBS.)	1215.9	1030.7	863.7	708.4	563.6	442.8	329.8	223.4
MOMENT (FT.-LBS.)	37,770	28,790	21,530	15,500	10,620	6770	3810	1690
FACE WIDTH (FT.)	2.284	2.047	1.824	1.602	1.381	1.184	.989	.794
.866 × FACE WIDTH (FT.)	1.978	1.773	1.580	1.388	1.196	1.025	.856	.688
LEG LOAD (LBS.) ①	19,100	16,240	13,630	11,170	8880	6600	4450	2460
SECTION WEIGHT (LBS.)	82	75	64	59	41	28	23	22
TOTAL WEIGHT (LBS.)	476	390	312	244	181	136	104	77
*LEG LOAD WITH WEIGHT (LBS.)	19,260	16,370	13,730	11,250	8940	6650	4490	2480
SHEAR ONE FACE (LBS.) ②	815	691	579	475	378	297	221	150
COS $\phi$	.904	.883	.858	.827	.783	.733	.667	.580
*LOAD EACH BRACE (LBS.) ③	451	391	337	287	241	203	166	129

$$\textcircled{1} \text{ LEG LOAD} = \frac{\text{MOMENT}}{.866 \times \text{FACE WIDTH}}$$

$$\textcircled{2} \text{ SHEAR ONE FACE} = .67 \times \text{SHEAR}$$

$$\textcircled{3} \text{ LOAD EACH BRACE} = \frac{\text{SHEAR ONE FACE}}{2 \times \cos \phi}$$



\*REFER TO DWG. NO. B-760025 FOR ALLOWABLE LOADS OF MEMBERS & CONNECTIONS.

Dwg. No. A-760000

## MODEL BX TOWER

## ALLOWABLE ANTENNA LOADS \*

WIND PRESSURE = 20 PSF (70.7 MPH)

NOMINAL HEIGHT, FT.	COMBINATION OF TOWER SECTIONS	CATALOG No.	AREA, SQ.FT.	THRUST, LBS.
24	BX-1-2-3	BX-24	6	120
	BX-2-3-4	HBX-24	12	240
	BX-3-4-5	HDBX-24	20	400
32	BX-1-2-3-4	BX-32	6	120
	BX-2-3-4-5	HBX-32	12	240
	BX-3-4-5-6	HDBX-32	18	360
40	BX-1-2-3-4-5	BX-40	6	120
	BX-2-3-4-5-6	HBX-40	10	200
	BX-3-4-5-6-7	HDBX-40	18	360
48	BX-1-2-3-4-5-6	BX-48	6	120
	BX-2-3-4-5-6-7	HBX-48	10	200
	BX-3-4-5-6-7-8	HDBX-48	18	360
56	BX-1-2-3-4-5-6-7	BX-56	6	120
	BX-2-3-4-5-6-7-8	HBX-56	10	200
64	BX-1-2-3-4-5-6-7-8	BX-64	6	120

\* THIS LOAD CAN BE APPLIED AT A POINT 3FT. ABOVE THE APEX OF THE TOWER IN ADDITION TO THE GIVEN WIND PRESSURE ACTING ON THE TOWER.

NOTE: ANTENNA TYPES SHOULD BE LIMITED TO THOSE HAVING A MAXIMUM BOOM LENGTH OF 10 FEET. NO ENGINEERING DATA RELATING TO THE USE OF BOOM LENGTHS IN EXCESS OF 10 FEET IS AVAILABLE AND THE USE OF SUCH BOOM LENGTHS IS NOT RECOMMENDED.

DWG. NO. A-760001R1

PARTS LIST P-540  
(Replaces P-470)

August 1, 1990

~~BX~~

B X T O W E R

TOWERS AS PACKAGED FOR SHIPPING		OPTIONAL ACCESSORIES																											
TOWER MODEL		EFBX	BXSM	BXHC78	BXHC36	BXCHK*	BXCA6	BXCA5	BXCA4	BXCA3	BXB8	BXB7	BXB6	BXB5	BXB4	BXB3	ACWS	M8	BX8	BX7	BX6	BX5	BX4	BX3A	BX3	BX2A	BX2	BX1A	
BX	24	X	X															X	-										
	32	X	X															X	X										
	40	X	X															X	X										
	48	X	X															X	X										
	56	X	X															X	X										
	64	X	X															X	X										
BHBX	24		X	X													X	-											
	32		X	X														X	X										
	40		X	X														X	X										
	48		X	X														X	X										
	56		X	X														X	X										
HDBBX	24																												
	32																												
	40																												
	48																												

\*Supplied with all Cylinder Bases.

**NOTE:** Be sure you select type of base and ORDER SEPARATELY for BX, HBX, and HDBX towers.

**CAUTION** .... AX hardware is not interchangeable with BX hardware.

All types of antenna installations should be thoroughly inspected by qualified personnel at least twice a year and re-marked with hazard and warning labels to insure safety and proper performance.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

## MODEL BX TOWER DESIGN ASSUMPTIONS

### TOWER MATERIAL SPECIFICATIONS:

LEGS: ASTM A-446 GRADE C STEEL (MINIMUM YIELD POINT - 45,000 PSI)  
 (GALVANIZED ACCORDING TO ASTM A-525)

BRACES: COLD ROLLED C-1017 STEEL (MINIMUM YIELD POINT - 36,000 PSI)  
 (GALVANIZED ACCORDING TO ASTM A-525)

LEG SPLICING BOLTS: SAE GRADE 5 STEEL

RIVETS: 2017-T4 ALUMINUM ALLOY

### TOWER MEMBER ALLOWABLE DESIGN STRESSES:

NOTE: ALLOWABLE STRESSES BELOW HAVE BEEN INCREASED  
 BY 33 $\frac{1}{3}$ % FOR THE WIND LOAD CONDITION.<sup>(1)</sup>

#### LEGS:

COMPRESSION — (STRESS VARIES ACCORDING TO SLENDERNESS RATIO)<sup>(2)</sup>

BEARING — 126,000 PSI<sup>(3)</sup>

SHEAR — 24,000 PSI<sup>(4)</sup>

#### BRACES:

COMPRESSION — (STRESS VARIES ACCORDING TO SLENDERNESS RATIO)<sup>(2)</sup>

BEARING — 100,800 PSI<sup>(3)</sup>

SHEAR — 19,330 PSI<sup>(4)</sup>

#### BOLTS:

SHEAR — 29,300 PSI (THREADS EXCLUDED FROM SHEAR PLANE)<sup>(5)</sup>

#### RIVETS:

SHEAR — 18,120 PSI<sup>(2)</sup>

BEARING — 53,400 PSI<sup>(6)</sup>

<sup>(1)</sup> PAR. 3.1.2.1 OF A.I.S.I. "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS", 1968 EDITION.

<sup>(2)</sup> A.I.S.C. MANUAL OF STEEL CONSTRUCTION, 7<sup>TH</sup> EDITION, PG. 5.84 & 5.86.

<sup>(3)</sup> PAR. 4.5.3 OF A.I.S.I. SPECIFICATIONS, 1968 EDITION.

<sup>(4)</sup> A.I.S.C. MANUAL OF STEEL CONSTRUCTION, 7<sup>TH</sup> EDITION, PG. 5.64.

<sup>(5)</sup> PAR. 4.5.4 OF A.I.S.I. SPECIFICATIONS, 1968 EDITION.

<sup>(6)</sup> ALUMINUM CONSTRUCTION MANUAL, "SPECIFICATIONS FOR ALUMINUM STRUCTURES", 1967 EDITION.

### TOWER SHAPE FACTORS:

#### INDIVIDUAL MEMBERS (LEGS, BRACES, TRANSMISSION LINES)

SHAPE FACTOR: 1.00 FOR FLAT ELEMENTS  
 .67 FOR CYLINDRICAL ELEMENTS

#### TOWER SECTION:

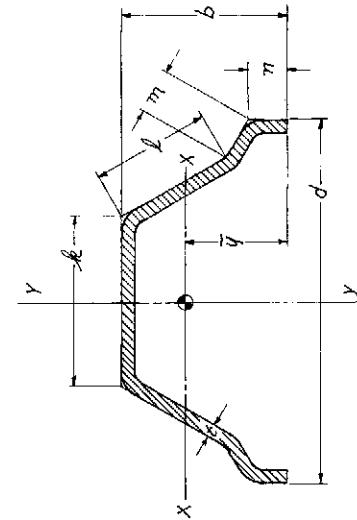
SHAPE FACTOR: 1.50 TIMES THE PROJECTED AREA OF  
 INDIVIDUAL MEMBERS IN ONE FACE.

Dwg. No. A-750005

### MODEL BX TOWER SECTION PROPERTIES

#### SECTION PROPERTIES OF VERTICAL ELEMENTS

Sect.	<i>t</i> in.	<i>b</i> in.	<i>d</i> in.	<i>h</i> in.	<i>l</i> in.	<i>m</i> in.	<i>n</i> in.	Area, <i>A</i> in. <sup>2</sup>	$\bar{y}$ in.	$I_x$ in. <sup>4</sup>	$I_y$ in. <sup>4</sup>	$T_x$ in. <sup>3</sup>	$T_y$ in. <sup>3</sup>	$r_x$ in.	$r_y$ in.
BX-1	.048	1.1742	2.0984	.7500	1.0134	.1934	.1799	.1637	.0890	.0236	.380	.0746	.675		
BX-2	.048	1.1687	2.2145	.8286	1.0198	.2114	.1999	.1638	.0802	.0236	.388	.0862	.712		
BX-3	.060	1.2157	2.3534	.9210	1.0298	.2330	.2063	.2228	.0733	.0346	.394	.1240	.732		
BX-4	.085	1.2596	2.5541	1.0422	1.0476	.2623	.2812	.3096	.0711	.0548	.408	.208	.809		
BX-5	.1008	1.3058	2.7661	1.1818	1.0704	.2967	.2945	.4151	.0742	.0743	.423	.3122	.814		
BX-6	.1008	1.3428	2.9881	1.3244	1.0932	.3311	.3305	.4407	.0810	.0838	.436	.3926	.944		
BX-7	.1158	1.3946	3.2399	1.4794	1.1206	.3700	.3391	.5384	.0822	.1106	.453	.5594	1.019		
BX-8	.1158	1.5780	3.4916	1.6353	1.1480	.4039	.3794	.6043	.0769	.1540	.505	.7810	1.137		



#### SECTION PROPERTIES OF DIAGONAL ELEMENTS

Sect.	<i>t</i> in.	<i>h</i> in.	<i>w</i> in.	Area, <i>A</i> in. <sup>2</sup>	$\bar{y}$ in.	$I_x$ in. <sup>4</sup>	$I_y$ in. <sup>4</sup>	$T_x$ in. <sup>3</sup>	$T_y$ in. <sup>3</sup>
BX-1	.048	.35	.75	.0354	.235	.00620	.00330	.247	
BX-2	.048	.35	.75	.0354	.235	.00620	.00330	.247	
BX-3	.048	.35	.75	.0354	.235	.00620	.00330	.247	
BX-4	.050	.35	.75	.0375	.228	.00732	.00394	.242	
BX-5	.075	.46	.105	.1125	.307	.002620	.00167	.00330	.245
BX-6	.075	.46	.105	.1125	.307	.002620	.00167	.00330	.245
BX-7	.075	.46	.105	.1125	.307	.002620	.00167	.00330	.245
BX-8	.075	.46	.105	.1125	.307	.002620	.00167	.00330	.245

#### SECTION PROPERTIES OF TOWER

Sect. (3 legs)	<i>A</i> in. <sup>2</sup>	<i>B</i> in.	<i>C</i> in.	<i>D</i> in.	$I_x$ in. <sup>4</sup>	$I_y$ in. <sup>4</sup>	WEIGHT lb./ft.	
BX-1	.49	9.53	8.35	5.99	2.25	5.80	750	3.91
BX-2	.509	11.86	10.27	7.33	3.42	6.85	12.03	4.06
BX-3	.668	14.20	12.30	8.69	4.10	8.20	22.53	5.81
BX-4	.989	16.58	14.35	10.08	4.78	9.57	45.44	6.78
BX-5	1.245	18.23	16.63	11.62	5.55	11.10	76.94	7.86
BX-6	1.322	21.89	18.96	13.16	6.32	12.64	105.9	8.95
BX-7	1.615	24.36	21.27	14.72	7.09	14.18	162.7	10.04
BX-8	1.813	27.41	23.73	16.92	7.91	15.82	227.4	11.20

Drawn No. B-76024

# MODEL BX TOWER DESIGN DATA

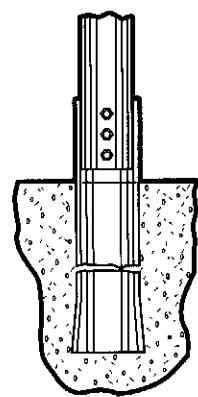
PROTECTED AREAS								ALLOWABLE LOADS AT VERTICAL LEG SPICES								ALLOWABLE LOADS AT DIAGONAL CONNECTIONS							
SECT.	EXPOSED WIDTH (1 LEG) IN. IN.	VERTICAL LEGS		DIAGONALS		TOTAL		TOTAL EXPOSED AREA (1 FACE) FT. <sup>2</sup>	TOTAL EXPOSED AREA (1 FACE) FT. <sup>2</sup>	EXPOSED AREA (1 FACE) FT. <sup>2</sup>	SECTION AREA (1 FACE) FT. <sup>2</sup>	10 PSF	15 PSF	20 PSF	No. DIA.	SPICE BOLTS	THICK. OF LEG, LEG SPLICE CAPACITY	ALLOWABLE TENSILE LOAD, LEG SPLICE CAPACITY	RIVET THICK. OF LEG, LEG SPLICE CAPACITY	AREA IN. <sup>2</sup>	Allow. load, LBS.	Allow. load, LBS.	
		EXPOSED AREA (1 LEG) FT. <sup>2</sup>	WIDTH, IN. IN.	EXPOSED AREA (1 FACE) FT. <sup>2</sup>	WIDTH, IN. IN.	TOTAL EXPOSED AREA (1 FACE) FT. <sup>2</sup>	EXPOSED AREA (1 FACE) FT. <sup>2</sup>																
BX-1	1.73	96	1.15	2.30	.75	173.4	.90	3.20	4.800	48.0	72.0	96.0	2	$\frac{3}{8}$	.048	56.30	$\frac{5}{32}$	.048	.0075	.0112	400	348	
BX-2	1.79	96	1.19	2.38	.75	190.5	.99	3.37	5.055	50.6	75.8	101.1	2	$\frac{3}{8}$	.048	58.0	$\frac{5}{32}$	.048	.0112	.0112	420	348	
BX-3	1.87	96	1.25	2.50	.75	208.2	1.09	3.59	5.385	53.9	80.8	107.7	2	$\frac{9}{16}$	.060	73.20	$\frac{5}{32}$	.048	.0112	.0112	420	348	
BX-4	1.99	96	1.33	2.66	.75	229.0	1.19	3.85	5.775	57.8	86.6	115.5	2	$\frac{9}{16}$	.065	10.910	$\frac{3}{16}$	.060	.0112	.0276	500	500	
BX-5	2.12	96	1.41	2.82	1.05	251.6	1.83	4.65	6.975	69.8	104.6	138.5	2	$\frac{9}{16}$	.068	13.870	$\frac{1}{4}$	.075	.0187	.0491	1000	890	
BX-6	2.24	96	1.49	2.98	1.05	276.6	2.02	5.00	7.500	75.0	112.5	157.0	2	$\frac{9}{16}$	.070	14.880	$\frac{1}{4}$	.075	.0187	.0491	1000	890	
BX-7	2.39	96	1.59	3.18	1.05	303.8	2.21	5.39	8.025	80.9	121.3	161.7	3	$\frac{9}{16}$	.078	18.340	$\frac{1}{4}$	.075	.0187	.0491	1000	890	
BX-8	2.65	96	1.77	3.54	1.05	335.6	2.45	5.99	8.985	88.9	134.8	179.7	3	$\frac{9}{16}$	.078	20.910	$\frac{1}{4}$	.075	.0187	.0491	1000	890	

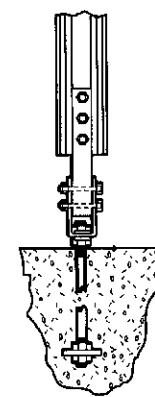
ALLOWABLE COMPRESSIVE LOADS								ALLOWABLE COMPpressive LOADS								Diagonal Braces								
VERTICAL LEGS								VERTICAL LEGS								Diagonal Braces								
SECT.	$L_p$ in.	$T_p$ in.	$\frac{L_p}{T_p}$	$F_a'$ $P_{51}$	$F_a$ $P_{51}$	CROSS- SECT. AREA (1 LEG) IN. <sup>2</sup>	ALLOWABLE LEG LOAD, IN. <sup>2</sup>	$L_p$ in.	$T_p$ in.	$\frac{L_p}{T_p}$	$F_a'$ $P_{51}$	$F_a$ $P_{51}$	CROSS- SECT. AREA (1 LEG) IN. <sup>2</sup>	ALLOWABLE LEG LOAD, IN. <sup>2</sup>	$L_p$ in.	$T_p$ in.	$\frac{L_p}{T_p}$	$F_a'$ $P_{51}$	$F_a$ $P_{51}$	CROSS- SECT. AREA IN. <sup>2</sup>	ALLOWABLE BRACE LOAD, IN. <sup>2</sup>			
BX-1	12 $\frac{1}{2}$	.300	32.9	24.300	32.400	.1637	5.300	15.34	.107	71.7	16.250	21.600	.054	1170										
BX-2	12 $\frac{1}{2}$	.308	32.2	24.380	32.300	.1698	5.520	16.78	.107	78.4	15.540	20.720	.054	1120										
BX-3	12 $\frac{1}{2}$	.304	31.7	24.420	32.350	.2228	7.260	18.41	.107	86.0	14.670	19.550	.054	1060										
BX-4	12 $\frac{1}{2}$	.408	30.6	24.540	32.710	.2296	10.780	20.16	.104	96.9	13.360	17.810	.0675	1200										
BX-5	12 $\frac{1}{2}$	.423	29.6	24.650	32.870	.4151	13.640	22.22	.139	76.9	15.370	20.490	.1125	2310										
BX-6	12 $\frac{1}{2}$	.436	28.7	24.740	32.970	.4207	14.540	24.41	.139	87.6	14.560	19.440	.1125	2180										
BX-7	12 $\frac{1}{2}$	.453	27.6	24.850	33.130	.3884	17.840	26.66	.139	95.9	13.490	17.990	.1125	2020										
BX-8	12 $\frac{1}{2}$	.505	24.8	25.130	33.510	.4043	20.250	29.19	.139	105.0	12.330	16.440	.1125	1850										

$$* L'_0 = \frac{1}{2} L_0$$

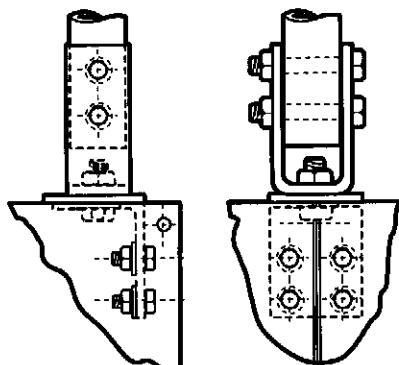
SECT. 5 & 6 RIVET DATA CHANGED 10-1-77  
Draw. No. B-76-0025-R1



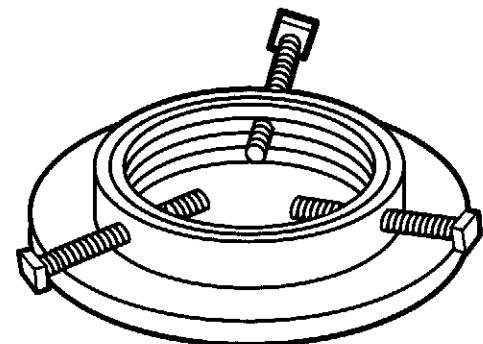
4' Concrete Base Stubs (BX B)



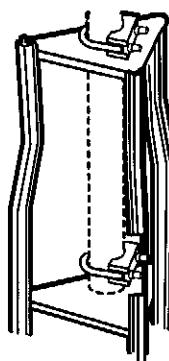
Hinged Concrete Base (BX HC)



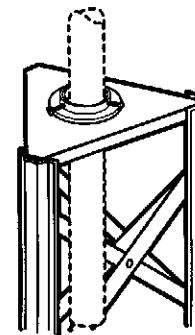
4' Cylinder Base (BX CA)



Heavy Duty Mast Clamp (FL)



Mast Hardware Kit (BX MK2)



Top Plate Assembly (BXT) Heavy Duty Mast Clamp (FL)

Tower Package - compact shipping and storage method. Includes all necessary parts and hardware.  
All towers are recommended to be bracketed for extra safety and to withstand gusty wind conditions.

**Note:** Local building and/or zoning laws frequently require a building permit. Available BX Engineering Data should be submitted for approval prior to purchasing a tower