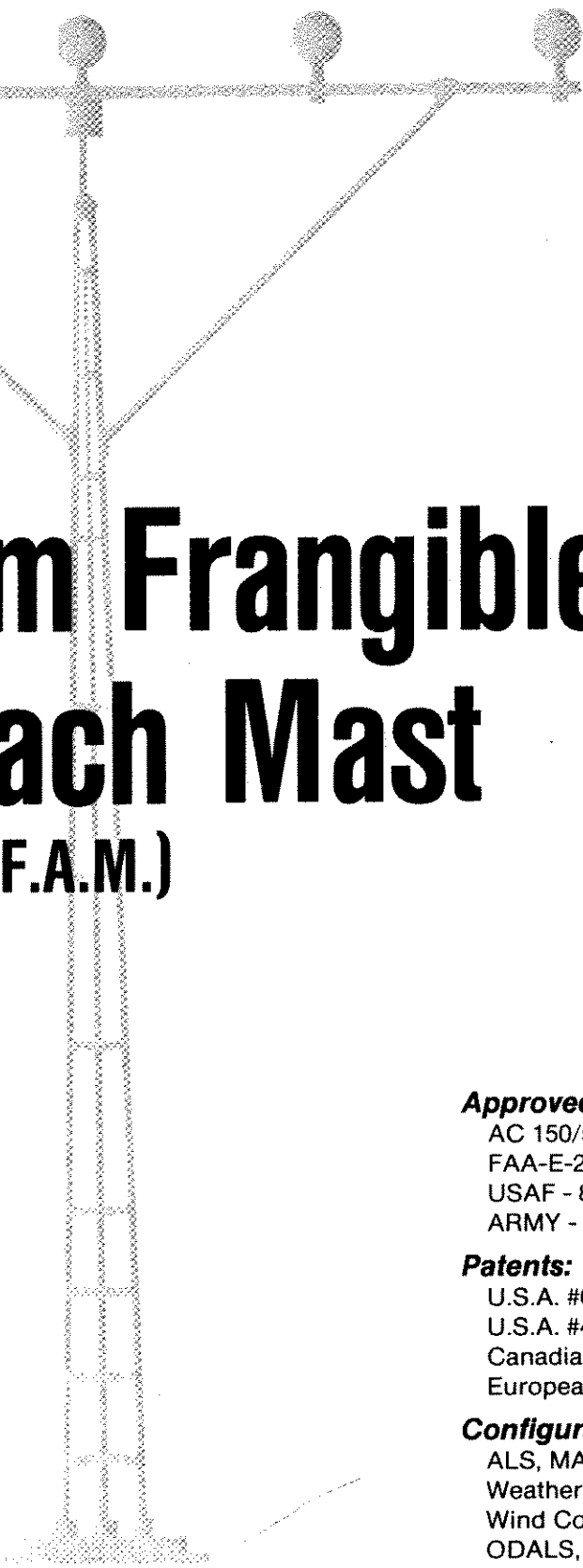


Assembly Instructions



Aluminum Frangible Approach Mast (F.A.M.)




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Manufacturer of the:
VEGA AIRPORT EQUIPMENT

- F.A.M. Aluminum Frangible Masts
- L.I.R. Fiberglass Frangible Masts
- A Complete Line Of Light Bases
And Associated Hardware

Distributed By:




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INDUSTRIES INC.**
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Telex: 710-541-0490 Fax: 315-478-5707

Approved to:
AC 150/5345-45
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Patents:
U.S.A. #617,182
U.S.A. #4,413,455
Canadian #1,163,755
European #0042738

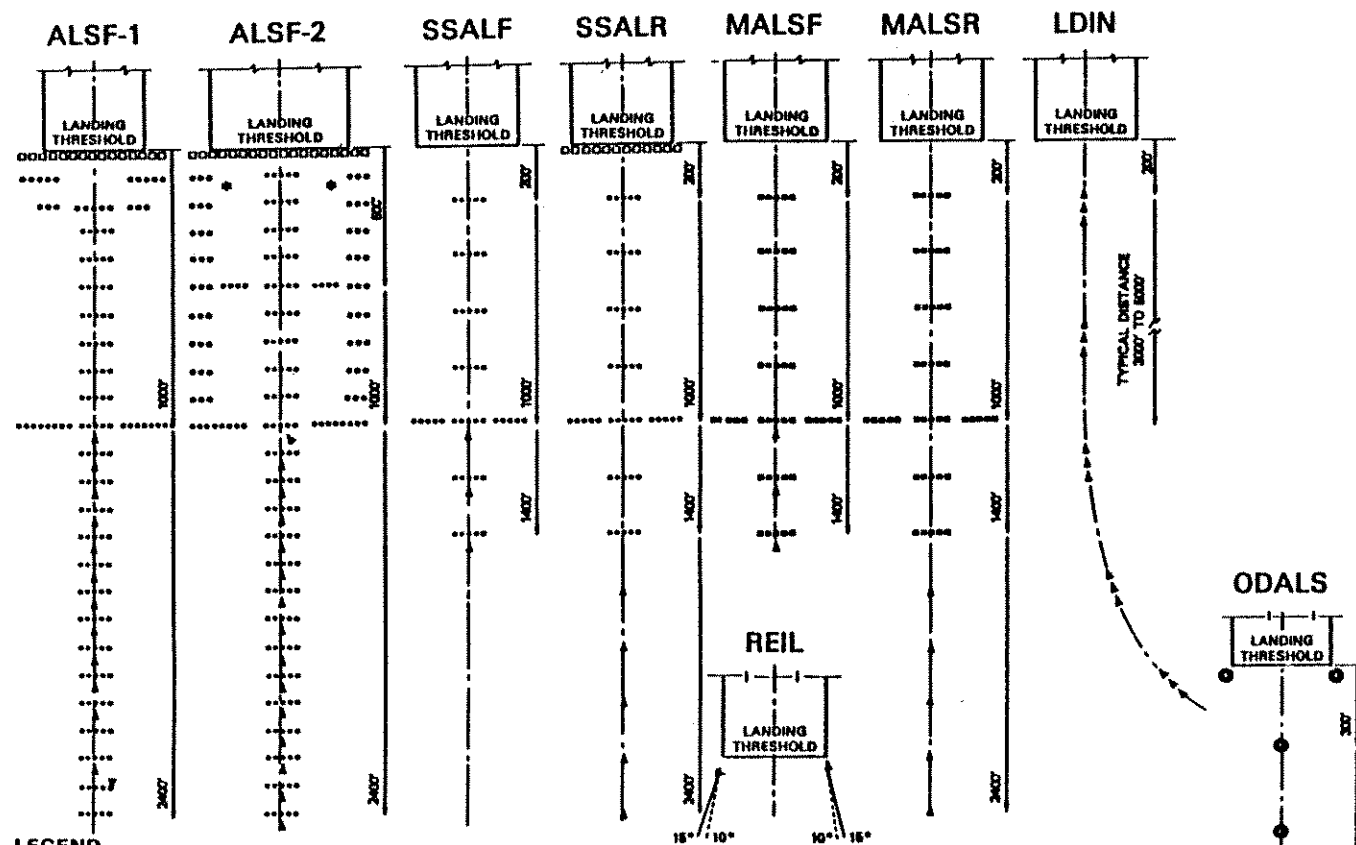
Configurations:
ALS, MALS, SALS, RAIL
Weather Instruments
Wind Cones
ODALS, CALVERT

VISUAL GUIDANCE LIGHTING SYSTEMS

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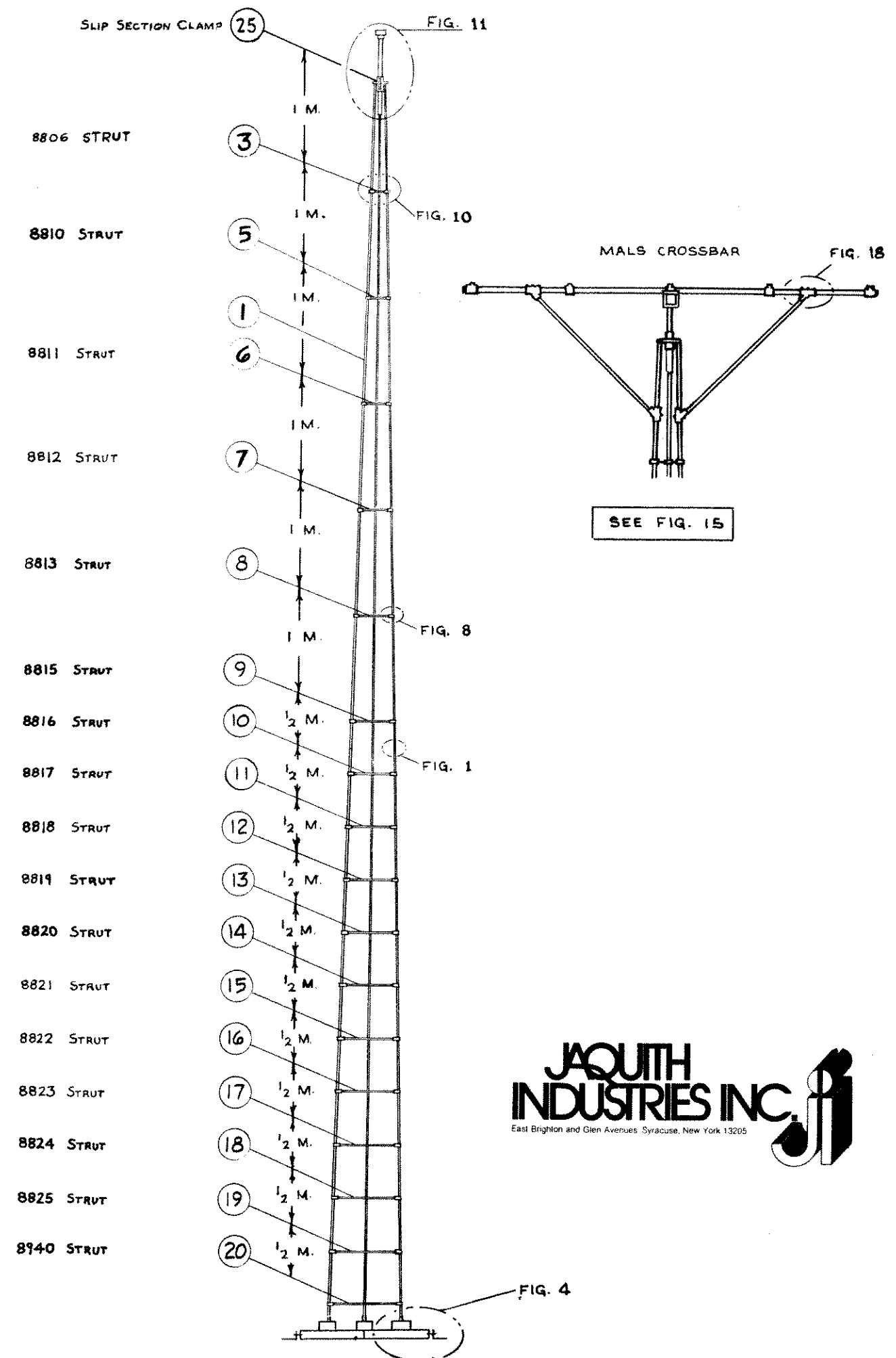
LEGEND

- ALSF-1: APPROACH LIGHTING SYSTEM; WITH SEQUENCED FLASHING LIGHTS—CAT-I OR CAT II W/WAIVER
- ALSF-2: SAME AS ABOVE;—CAT-II STANDARD
- SSALF: SIMPLIFIED SHORT APPROACH LIGHTING SYSTEM; SEQUENCED FLASHING LIGHTS
- SSALR: SAME; RUNWAY ALIGNMENT INDICATOR LIGHTS
- MALSF: MEDIUM INTENSITY APPROACH LIGHTING SYSTEM; SEQUENCED FLASHING LIGHTS
- MALSR: SAME; RUNWAY ALIGNMENT INDICATOR LIGHTS—CAT-I STANDARD
- LDIN: LEAD-IN LIGHTS
- REIL: RUNWAY END IDENTIFICATION LIGHTS
- VASI: RUNWAY APPROACH SLOPE INDICATOR SYSTEM
- ODALS: OMNIDIRECTIONAL APPROACH LIGHTING SYSTEM

- STEADY BURNING RED LIGHTS
- HIGH STEADY BURNING WHITE LIGHTS
- MED. STEADY BURNING WHITE LIGHTS
- ▲ SEQUENCED FLASHING LIGHTS
- ◻ THRESHOLD LIGHTS:
ALSF: 49 ON 5' CENTERS
SSALR: 16 ON 10' CENTERS
- RED AND WHITE VASI LIGHTS
- 360° FLASHER

* RED SIDE ROW LIGHTS ALIGNED WITH TOUCHDOWN ZONE LIGHTS ON RUNWAY.





F.A.M. THE FRANGIBLE APPROACH MAST

Approved under F.A.A. 150/5345-45, F.A.A. E-2604

For ALS, SSALS, MALS, ODALS, RAIL, CALVERT,
WINDCONES, WEATHER INSTRUMENTS

Licensed by the Swedish Board of Civil Aviation
Pivot Base Patent # U.S. 1,163,775 Int'l #0042738

INTRODUCTION

The F.A.M. mast is designed to collapse on impact by an aircraft, with minimal damage to the aircraft.

The mast is constructed using principles of friction. When assembled correctly, the mast will withstand wind loadings of 100 mph, or 75 mph with 1/2 in. ice coating.

Secondary electrical connections enter mast at base. Wires are drawn up inside mast leg(s) according to F.A.A. design. Entire mast base hinges to lower the mast for maintenance.

IMPORTANT: One loose joint, nut, or bolt can cause the mast to collapse even without impact by an aircraft. Be sure to follow all assembly instructions exactly!

NOTE: Mast legs are two feet shorter than actual height ordered.

Example: 12'6" mast = three 10'6" legs
35'5" mast = three 20' legs + three 13'5" legs

(Exceptions are 22'-1" through 23'11" masts: 22'-1" = three 18' + three 2'-1" legs; 23'11" = three 19' + three 2'11" legs).

IMPORTANT: Use a flat, level table to insure proper assembly. If mast has a crossbar, the crossbar must be supported.

Tools Needed for Assembly

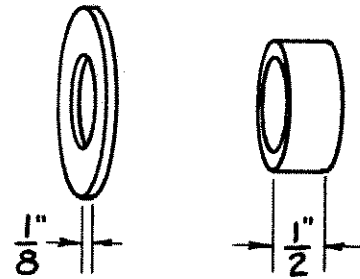
- crescent wrench or metric open-end wrenches
- thin wall, deep-socket 10mm size
- torque wrench: maximum torque required for assembly = 105 in. lbs.
- adjustable base support
- metric ruler (39 3/8 in. = 1.0 meter)
- tap guide* - strap wrench*
- tap, size PG 16*
- allen head wrench, crossbar only, size 1/8"

*Recommended by manufacturer for more efficient assembly and for future maintenance. Order from manufacturer

CHART "A"

NUMBER OF SPACERS REQUIRED FOR SPECIFIED MAST HEIGHT.

MAST HEIGHT		SPACERS		FROM		TO		SPACERS		FROM		TO	
FROM	TO	1/8	1/2	FROM	TO	FROM	TO	1/8	1/2	FROM	TO	FROM	TO
6' 0	6' 4	3	1	15' 0	15' 4	24' 0	24' 4	3	1	33' 0	33' 4		
6' 5	6' 9	2	1	15' 5	15' 9	24' 5	24' 9	2	1	33' 5	33' 9		
6' 10	7' 1	1	1	15' 10	16' 1	24' 10	25' 1	1	1	33' 10	34' 1		
7' 2	7' 6	0	1	16' 2	16' 6	25' 2	25' 6	0	1	34' 2	34' 6		
7' 7	7' 10	3	0	16' 7	16' 10	25' 7	25' 10	3	0	34' 7	34' 10		
7' 11	8' 3	2	0	16' 11	17' 3	25' 11	26' 3	2	0	34' 11	35' 3		
8' 4	8' 7	1	0	17' 4	17' 7	26' 4	26' 7	1	0	35' 4	35' 7		
8' 8	8' 11	0	0	17' 8	17' 11	26' 8	26' 11	0	0	35' 8	35' 11		
9' 0	9' 4	3	1	18' 0	18' 4	27' 0	27' 4	3	1	36' 0	36' 4		
9' 5	9' 9	2	1	18' 5	18' 9	27' 5	27' 9	2	1	36' 5	36' 9		
9' 10	10' 1	1	1	18' 10	19' 1	27' 10	28' 1	1	1	36' 10	37' 1		
10' 2	10' 6	0	1	19' 2	19' 6	28' 2	28' 6	0	1	37' 2	37' 6		
10' 7	10' 10	3	0	19' 7	19' 10	28' 7	28' 10	3	0	37' 7	37' 10		
10' 11	11' 3	2	0	19' 11	20' 3	28' 11	29' 3	2	0	37' 11	38' 3		
11' 4	11' 7	1	0	20' 4	20' 7	29' 4	29' 7	1	0	38' 4	38' 7		
11' 8	11' 11	0	0	20' 8	20' 11	29' 8	29' 11	0	0	38' 8	38' 11		
12' 0	12' 4	3	1	21' 0	21' 4	30' 0	30' 4	3	1	39' 0	39' 4		
12' 5	12' 9	2	1	21' 5	21' 9	30' 5	30' 9	2	1	39' 5	39' 9		
12' 10	13' 1	1	1	21' 10	22' 1	30' 10	31' 1	1	1	39' 10	40' 0		
13' 2	13' 6	0	1	22' 2	22' 6	31' 2	31' 6	0	1				
13' 7	13' 10	3	0	22' 7	22' 10	31' 7	31' 10	3	0				
13' 11	14' 3	2	0	22' 11	23' 3	31' 11	32' 3	2	0				
14' 4	14' 7	1	0	23' 4	23' 7	32' 4	32' 7	1	0				
14' 8	14' 11	0	0	23' 8	23' 11	32' 8	32' 11	0	0				



ASSEMBLING THE F.A.M. MAST

1.) See Fig. 1. Thread extension screw (29) into mast leg (1) approximately half the length of the extension screw. Assemble leg box joint (30) onto extension screw and tighten so that ends give a face-to-face joint. Repeat this procedure for the remaining two legs.

NOTE: Mast legs must be secure to leg box joints. (30)

Assemble leg box joint (Fig. 4) with spacers to keeper angle (31). See Chart "A" to determine correct spacers needed for your mast height. Follow with jam nut (32).

2.) If mast height is over 22 Ft. (6.07M), a two-piece leg must be assembled: Always position the shortest length at top. Follow sequence as Fig. 1, using extension screw (29) and the mast legs, (1)-(2)

3.) Starting from the end opposite the leg box joints, measure down and mark each leg at one meter increments for the first six meters. Mark in half-meter increments for the remainder. Repeat on all mast legs.

NOTE: One Meter equals 39-3/8 In.

4.) Onto each leg, slide the appropriate number of bracing clips (Fig. 3) to match each measured mark.

NOTE: Bracing clip embossed arrow points towards top of mast. (See Fig. 3.)

5.) Attach all three legs to the slip section clamp (25) using aluminum mounting head screws (26) (one each) and (27) (two each) as in Fig. 5. Install (27) into legs which will carry power. Use (26) on remaining leg. See Fig. 7 to define which legs should be used for power.

NOTE: Mounting head screws (27) have top internal thread size 1/2"-14 NPT for F.A.A. approved wiring connections to light fixture or crossbar junction box. Do not securely tighten mounting head screws yet. For windcone installation, use (60) instead of (25).

FIG. 1

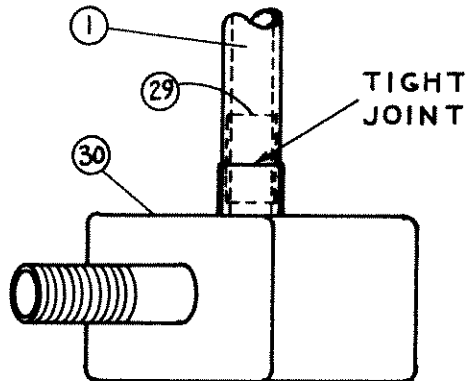
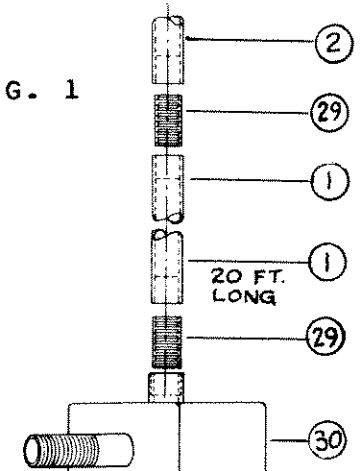
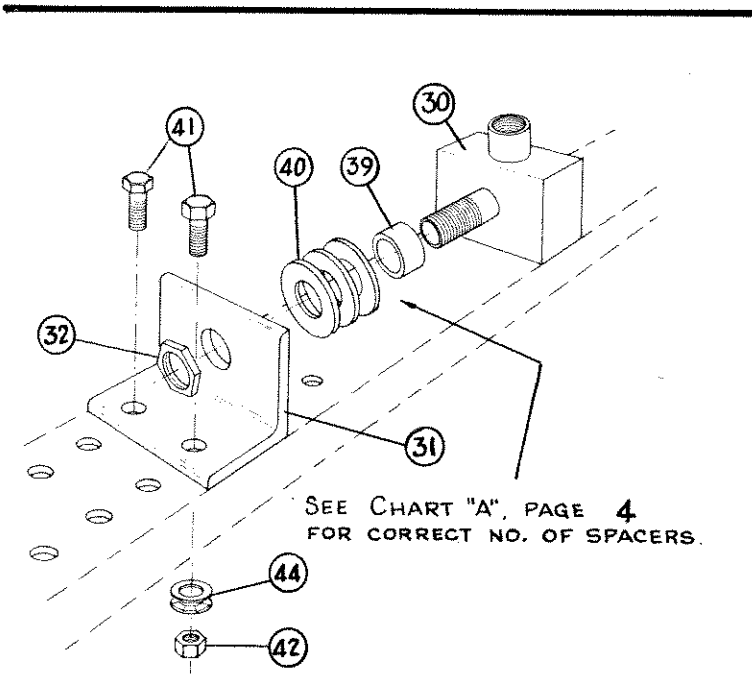
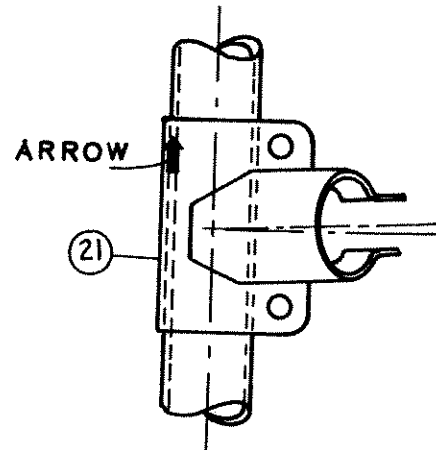


FIG. 2



SEE CHART "A", PAGE 4 FOR CORRECT NO. OF SPACERS.

SEE CHART "B", PAGE 5, TO DETERMINE PROPER SET OF HOLES.

FIG. 4

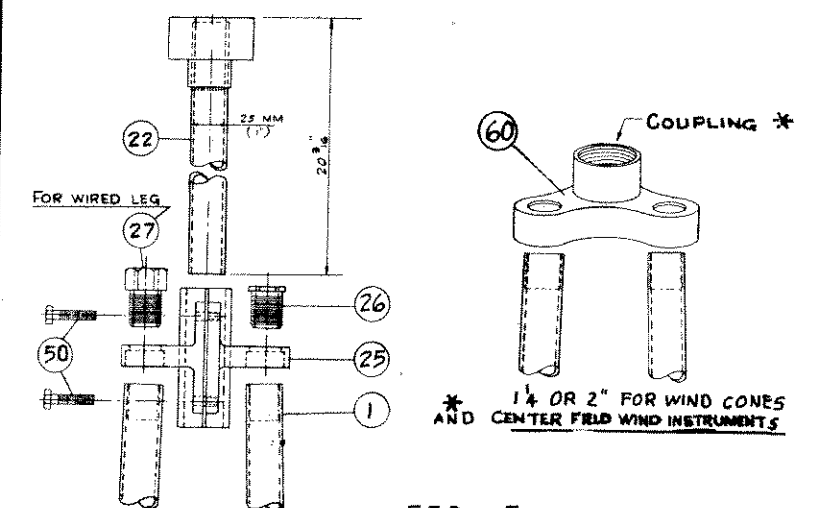


FIG. 5

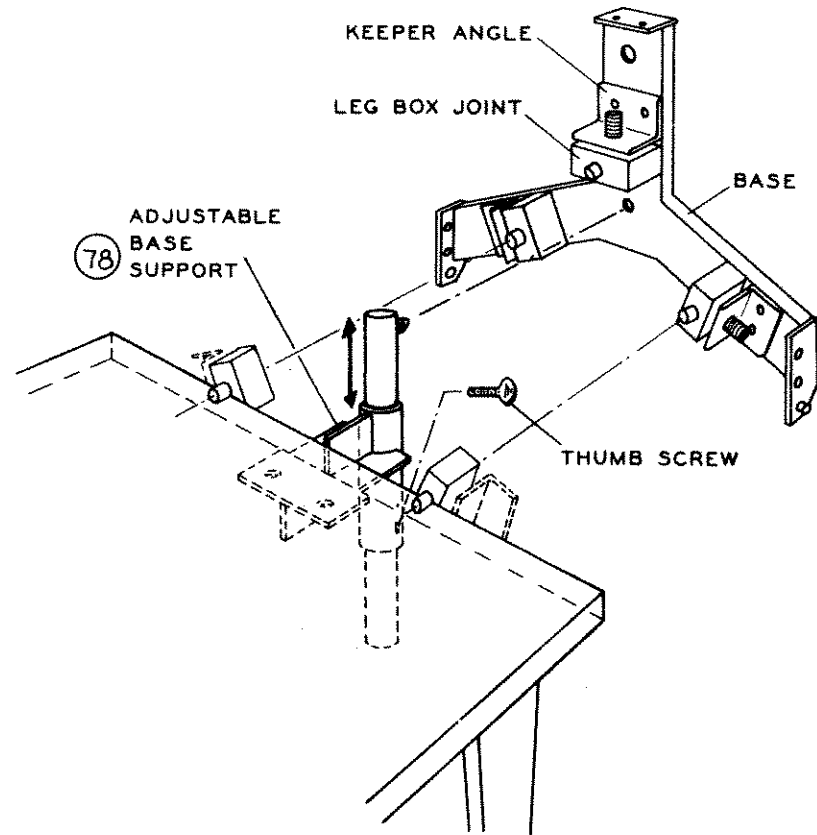
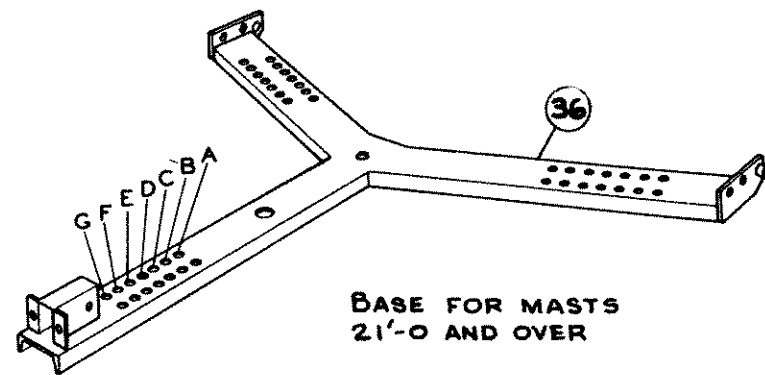
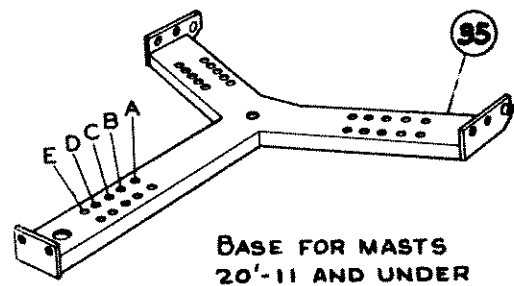


FIG. 6

CHART "B"

TO DETERMINE PROPER SET OF HOLES IN BASE FOR GIVEN MAST HEIGHT.
NOTE: USE CORRESPONDING PAIR OF HOLES IN EACH LEG.



MAST HEIGHT	USE
FROM TO	HOLES
6'-0 8'-11	A
9'-0 11'-11	B
12'-0 14'-11	C
15'-0 17'-11	D
18'-0 20'-11	E

MAST HEIGHT	USE
FROM TO	HOLES
21'-0 23'-11	A
24'-0 26'-11	B
27'-0 29'-11	C
30'-0 32'-11	D
33'-0 35'-11	E
36'-0 38'-11	F
39'-0 40'-0	G

6.) Clamp or bolt the adjustable base support to table top (Fig. 6). When stop is up against table, it is positioned correctly.

7.) (Fig. 4) attach the two power leg keeper angles (30) to base with (2) 3/8" x 1-1/4" S.S. bolts (41) and lockwasher sets (44). Tighten nut (42). Use Chart "B" (Pg. 6) to determine which set of holes in base to use.

With power leg keeper angles attached to base, adjust base support height (Fig. 6) so mast legs are flush on the assembly table. Do not attach third leg now.

8.) Lay out the cross struts in order of increasing length. Start assembling struts into bracing clips as illustrated in Fig. 8. Repeat sequence for remaining clips.

9.) Once all struts are in place, attach the third leg keeper angle to base as in Step 7.

NOTE: Be sure struts and triangular washers are in correct position in bracing clips before tightening bolts. (Step 10).

10.) Starting with bracing clips closest to the base, follow tightening sequence (Fig. 9). Tighten bolts 1 and 2 until the four center tab holes form a clear opening for bolt 3.
 NOTE: Bolts for 1 and 2 must be 25mm length.

Assemble bolt 3 with pair of triangular washers (Fig. 9). Insert bolt 3 and washer thru clip and tighten to 105 In. Lbs.

NOTE: Bolt for 3 must be 30mm length.

NOTE: Be sure washers seat in clip when tightening bolt 3 (Fig. 8).

Tighten bolts 1 and 2 to 105 In. Lbs.

Repeat this sequence on the remaining bracing clips.

MAKE CERTAIN ALL BOLTS ARE TORQUED TO 105 IN. LBS.

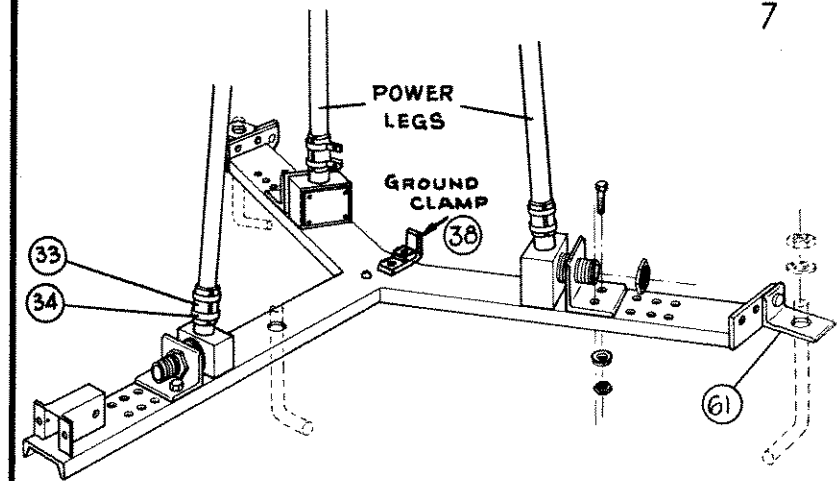


FIG. 7

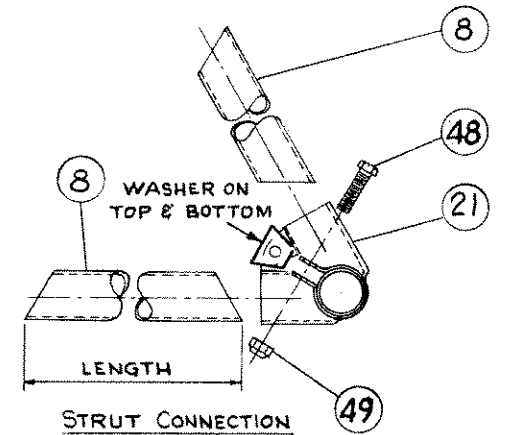


FIG. 8

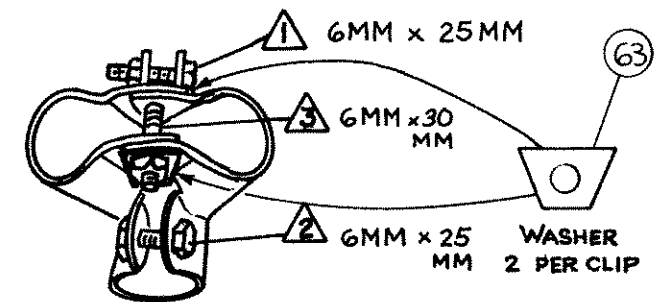


FIG. 9

11.) (See Fig. 11.) Tighten mounting head screws (26) and (27). CAUTION: Do not rotate slip section clamp (25).

12.) (See Fig. 11.) Insert slip section (22) into slip section clamp (25). Adjustment on the slip section is plus or minus 8 In. When proper height is obtained, the slip section clamp bolts (50) should be torqued to 50 In. Lbs.

13.) Masts 21 Ft. and higher must have reinforcing sleeves (33) installed. (See Fig. 12.) The sleeve must butt to top of leg box joint coupling and cover the mast leg. Tighten clamp (34) around sleeves.

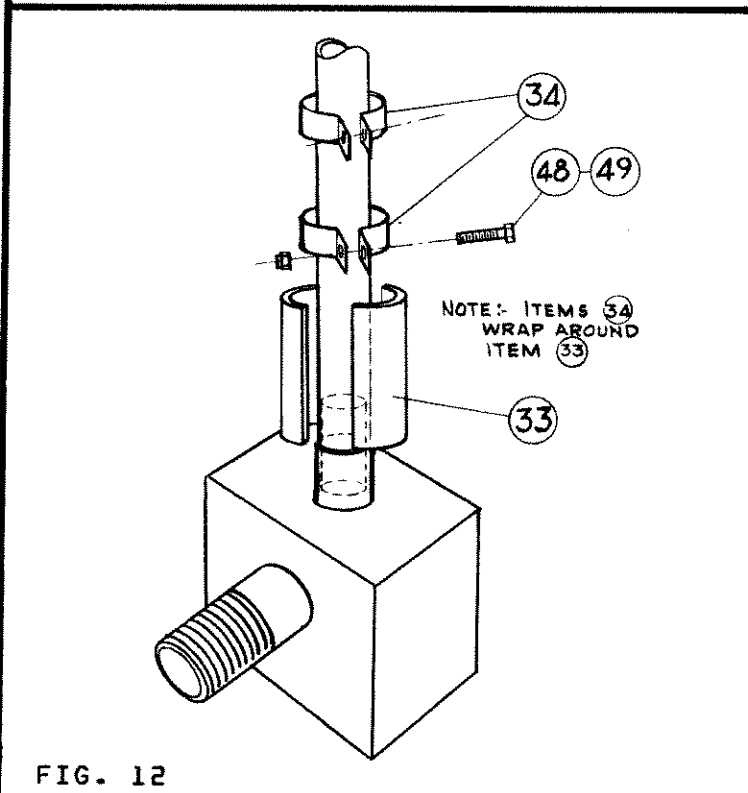
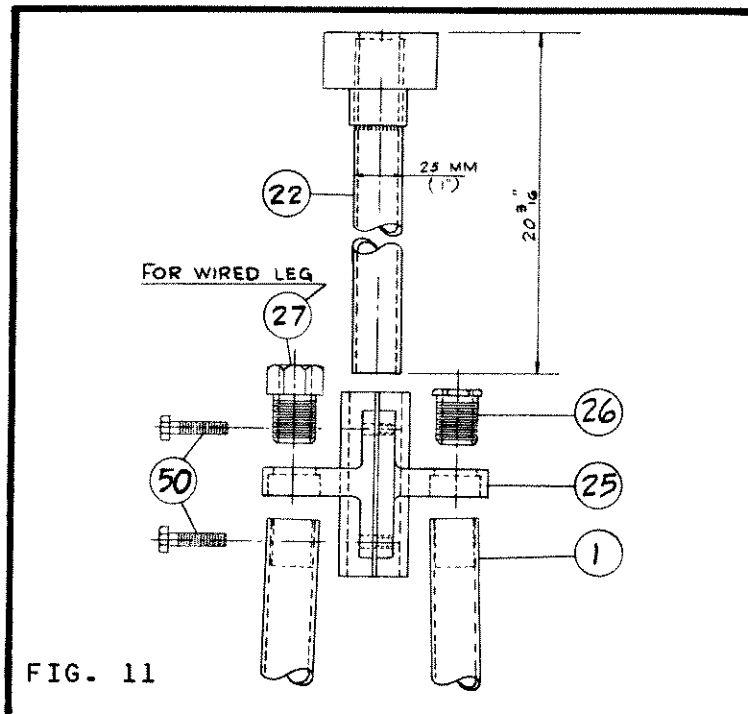
Mast can now be removed from assembly table.

NOTE: Take care transporting mast to installation site.

14.) Before attaching mast base to concrete pad, see Page 28 for anchor bolt placement.

CAUTION: Masts 6 Ft. to 20' 11" use one size bolt pattern. Masts 21 Ft. to 40 Ft. use a different pattern size. The concrete pad must be level in finish form. Follow F.A.A. design to install concrete pad.

To attach mast base to concrete pad, it is recommended to remove steel base from mast by removing bolts (41) attaching the keeper angles to the base. (Fig. 4.)



15.) Place base onto concrete pad. Position anchor angles (Fig. 13) on to the pins of the base. Place anchor angles, while attached to base, over the anchor bolts. Secure with washer and nut.

NOTE: Make sure anchor angles are perpendicular to base. If not, when base is rotated, base and anchor angles may bind. Raise base to vertical position and reattach keeper angles to base.

16.) Since moving the base from assembly area to site may relieve stress and loosen the bracing clip bolts, it is important to recheck bracing clips before raising mast. The bracing clip bolts must have a minimum torque of 75 in. lbs. remaining.

For raising mast over 21 Ft. high use Lifting Device (Fig 26, P. 17).

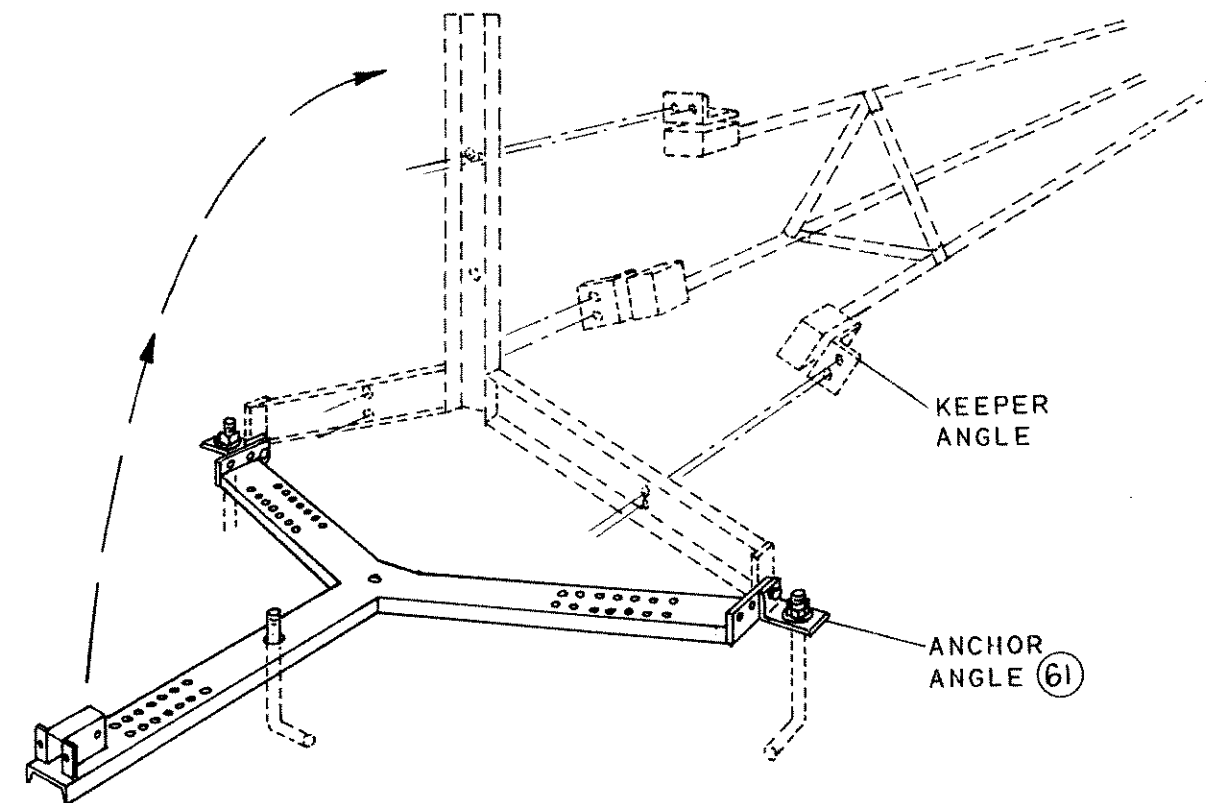


FIG. 13

ASSEMBLING THE MAST CROSSBAR
(Fig. 15)

1.) Most crossbars come in three pieces: A long center tube (51) with a junction box in the center and three light sockets (57), and two short tubes (52) with one light socket each. Join short tubes to each end of long center tube with angular fittings (55) and (56).

2.) Align light sockets. Hand tighten bolts (1), (2), (3), (4) and (7) (Fig. 18).

3.) Assemble slip section (23) to junction box at center of crossbar (51) using four 6mm X 25mm stainless steel bolts and nuts (48) and (49). Tighten. See Fig. 16.

4.) Slip section is now inserted into 25mm slip section clamp (25). Calculate exact height needed.

Note: Slip section has adjustment of 8 in. up or down. This may be needed for the type of light fixture used.

5.) Tighten the 8mm bolts (50) in slip section clamp. Tighten enough to keep crossbar perpendicular to fall line of mast.

6.) Insert diagonal brace (53) into angular fitting (55) and (56).

NOTE: Insert fully into fitting as in Fig. 18.

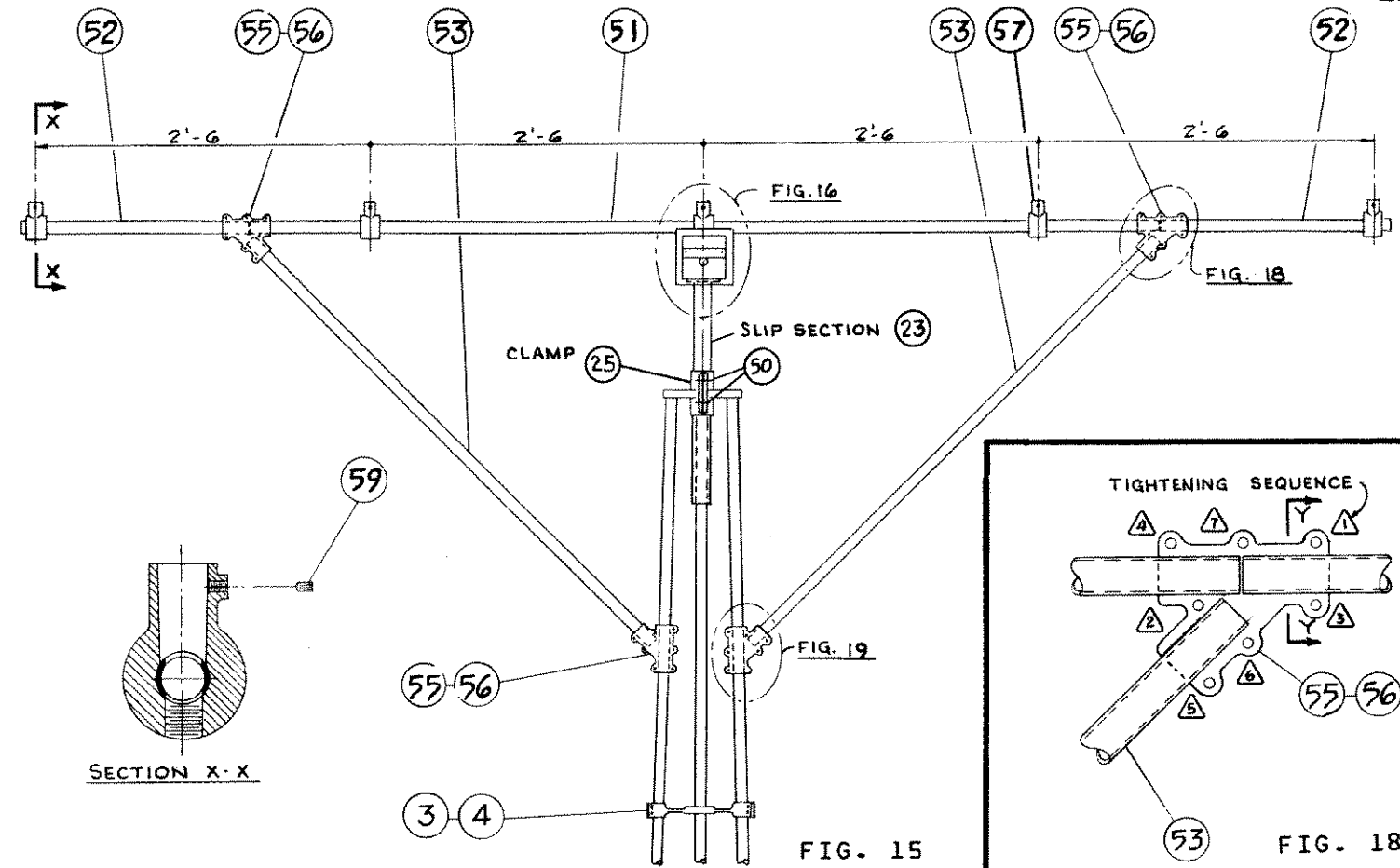
Tighten angular fittings evenly according to the tightening sequence. (Fig. 18). The maximum torque required to tighten angular fittings is 35 in. lbs.

7.) Before attaching diagonal braces to the mast legs:

First: Make sure crossbar is at the correct height needed.

Second: Make sure crossbar is level (90 degrees to center line of mast). Where diagonal braces intersect mast legs when crossbar is level, place angular fittings around diagonal brace and mast leg. (See Fig. 19).

Due to the compound angle of diagonal braces, their fit into the groove on the angular fitting is not perfect. Therefore, use extreme caution in drawing down the 6mm bolts evenly until diagonal brace pops into groove of the angular fitting. Use tightening sequence shown in Fig. 18.



SECTION X-X

FIG. 15

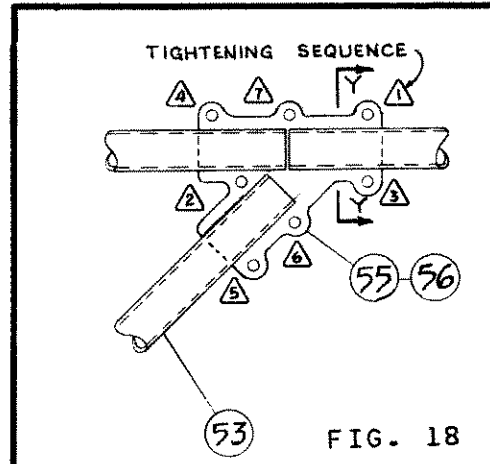


FIG. 18

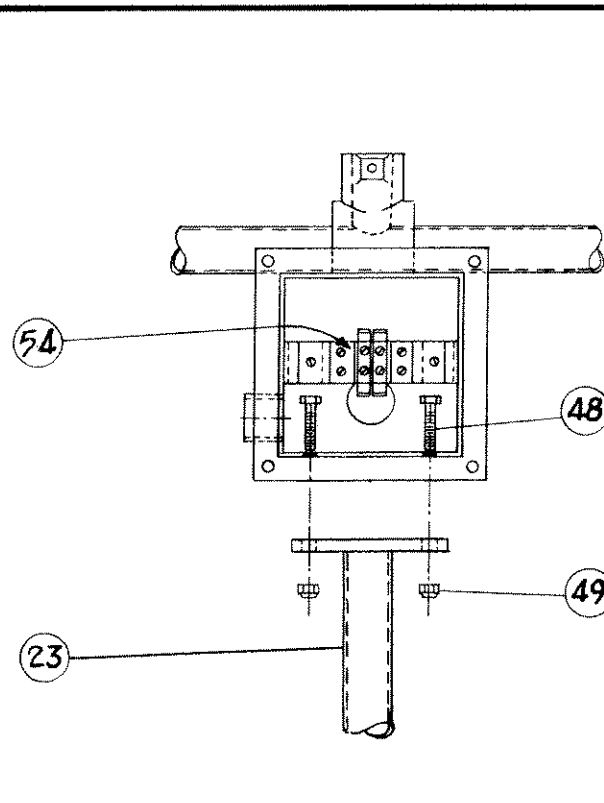


FIG. 16

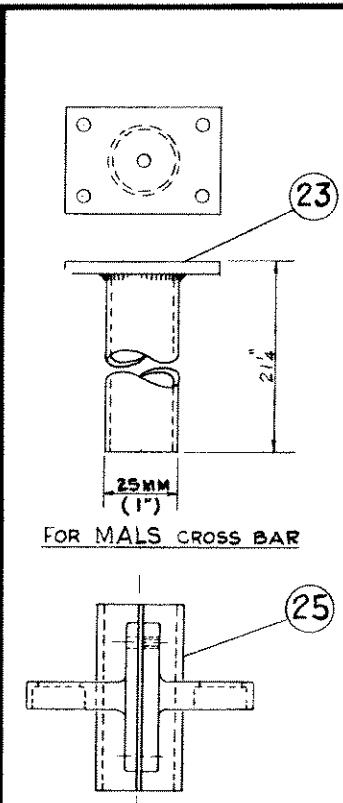


FIG. 17

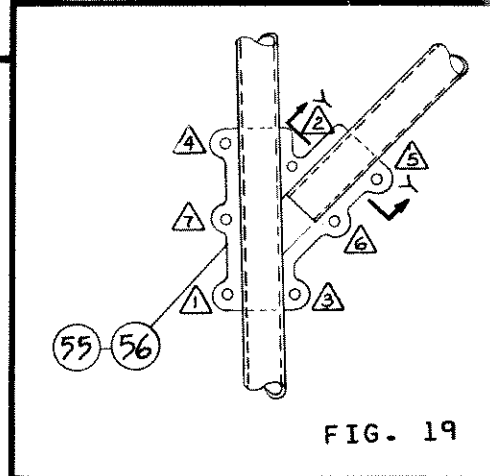


FIG. 19

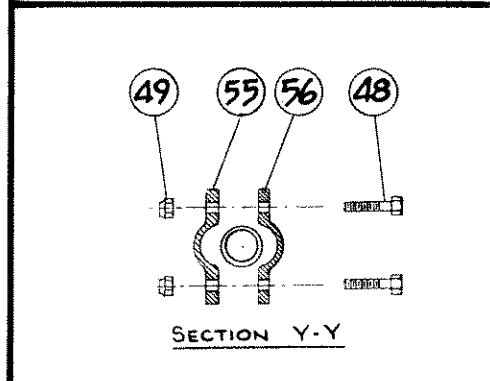


FIG. 14

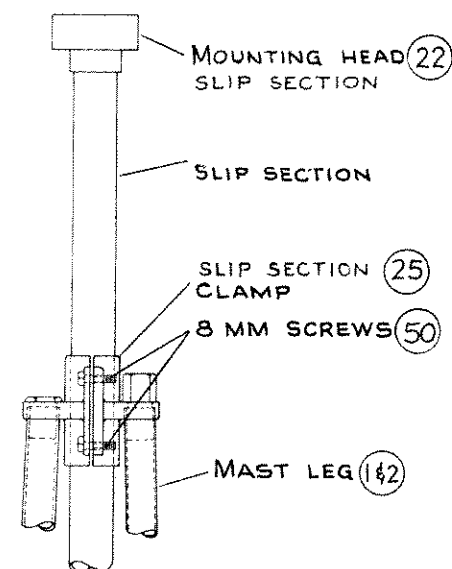


FIG. 20

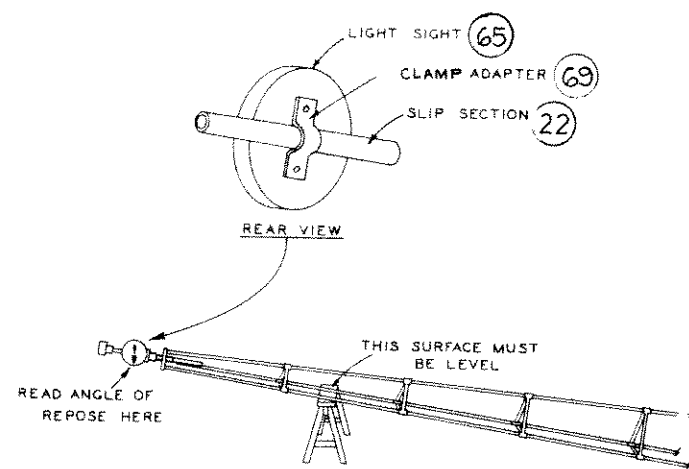


FIG. 21

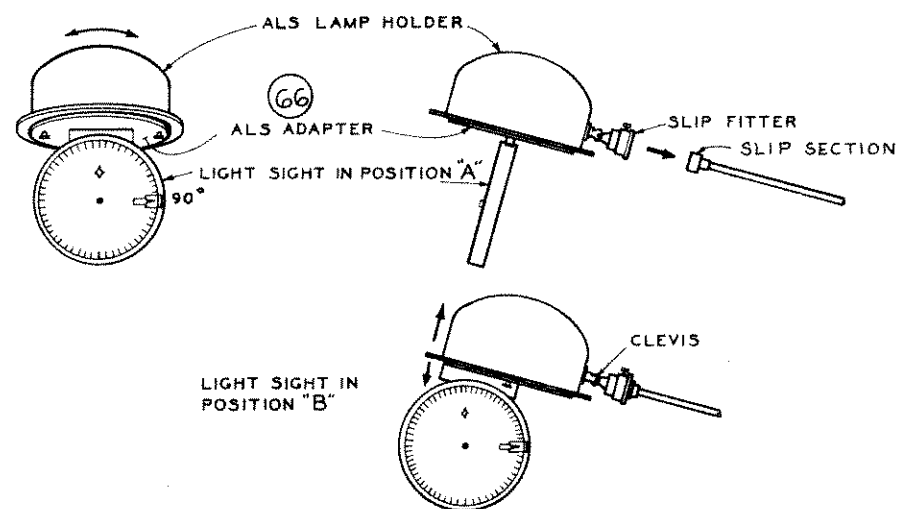


FIG. 22

ATTACHING LAMPS TO MAST ASSEMBLY

Single Lamps: such as ALS, RAIL, Omni-Directional Strobe

1. See Fig. 20. Insert mounting head slip assembly into slip section clamp and set it at midpoint of slip section.
2. Adjust up to 8 In. by moving slip section up or down within clamp. Slip section positioned at the midpoint will give the height of the light above ground, as ordered.
3. Tighten two 8mm screws evenly to 50 In. Lbs. of torque.
4. Slip-fitter of specified fixture will now fit over mounting head. Attach using instructions of fixture's manufacturer.
5. Rotate light sight to position "B" on adapter. Set angle of elevation (allowing for angle of repose) by loosening clevis on fixture and rotating light to required elevation as shown by reading on light sight in free-wheeling mode.

Example: Elevation desired is 14 degrees. Light sight in free-wheeling mode reads 84 degrees. Angle of repose is 10 degrees. To adjust, rotate light until it reads 90 degrees minus 10 degrees = 80 degrees. Continue to rotate until light sight reads 66 degrees. Tighten clevis on fixture.

6. Put light sight in lock mode, and attach a nylon cord. Raise mast and tighten all nuts and anchor bolts.

7. Pull nylon cord and allow light sight to come to rest. Release cord and lower mast. Read angle direct from light sight to make final adjustment. Loosen clevis nut slightly. With light sight in free-wheeling mode and with scale at rest, rotate fixture the necessary number of degrees from original position. Lamp is now set to proper elevation. Tighten clevis.

NOTE: If fall line of mast is different from flight path, use light sight as shown in position "A". Loosen set screws and rotate lamp fixture the number of degrees equal to the displacement angle of the fall line to the flight path.

SETTING ANGLE OF APPROACH LIGHTS AZIMUTH (HORIZONTAL) AND ELEVATION (VERTICAL)

Single Light Fixture: such as ALS

1. Place mast in down position (see Fig. 21).
2. Use clamp adapter to determine angle of repose by attaching to slip section (see Fig 20).
3. Attach ALS lamp holder to mounting head by means of slip-fitter supplied with the fixture. Attach "light sight" and ALS adapter (as shown in position "A", Fig. 22) to ALS lamp holder.
4. With two front legs supported on a level plane (see Fig. 22), and with light sight reading 90 degrees, lamp holder will be facing in direction of the fall line. This is true azimuth if fall line is parallel to flight path.

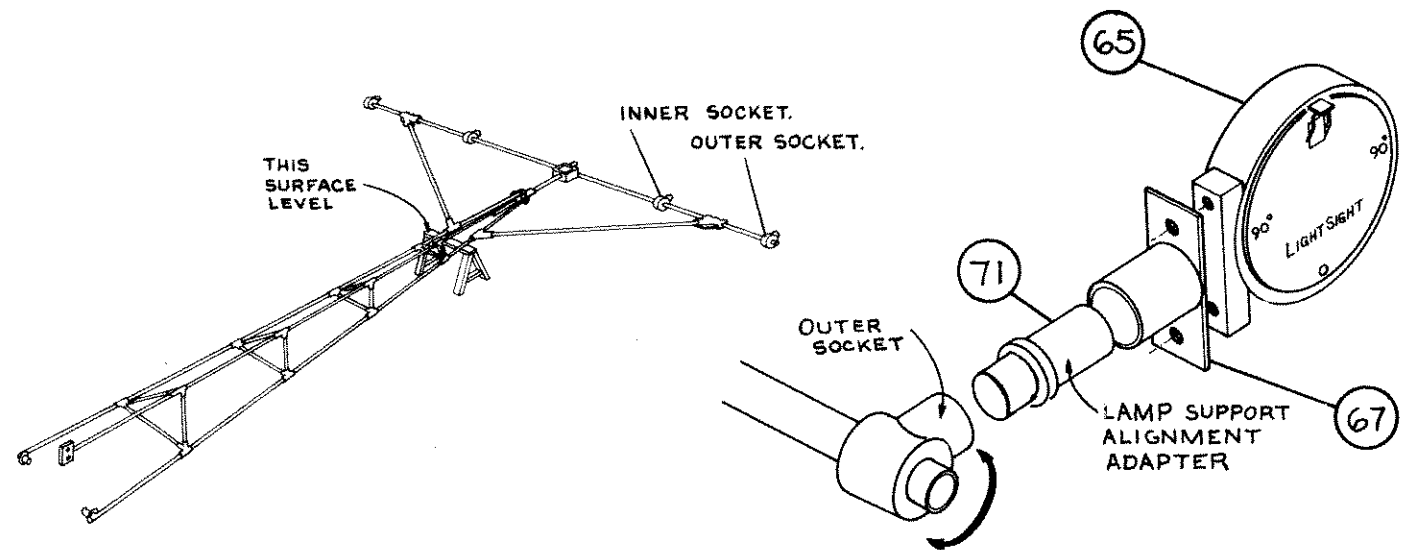


FIG. 23

II. SETTING ANGLES OF MULTIPLE MALS LIGHTS ON CROSSBAR

1. Place mast in down position. Use clamp adapter to determine angle of repose by attaching to slip section. (See Fig. 21, P. 12).
2. Using socket adapter, align outer socket of MALS bar to the same reading as indicated on inner sockets (Fig. 23).
3. (Fig. 24) with clamp adapter, attach light sight at the two positions shown. When light sight read 0 degrees at both places, cross bar will be horizontal. It may be necessary to apply slight force to crossbar to bend at junction box to achieve 0 degree reading at both places (Fig. 24).

5. Put light sight in lock mode. Attach nylon cord. Raise mast and hand tighten all nuts and anchor bolts. Pull nylon cord and allow light sight to come to rest. Release nylon cord and lower mast to original down position, reading angle direct from light sight.

6. To make final adjustment, put light sight in free-wheeling mode. Note: Reading when light sight is at rest. Loosen clevis pin slightly and rotate fixture the necessary number of degrees, plus or minus, from the observed position. Light is now set to proper elevation. Make same adjustment in degrees to the other fixtures.

Example: If achieved reading after lowering mast is 12 degrees but 14 degrees is desired, place light sight in free-wheeling mode. If it reads 87 degrees, rotate lamp holder to 85 degrees for the 2-degree increase in elevation. Put light sight on each of the fixtures, and rotate the 2 degrees. Make sure to tighten clevis after each adjustment.

NOTE: If fall line of mast is different from flight path, attach light sight to crossbar using clamp adapter, as shown in Fig. 25.

Loosen bolts on angular fitting clamps on front legs. Also loosen bolts on slip section clamp (Fig. 15 and 19, P. 10). Rotate around slip section, and when reading on light sight is equal to the angle displacement of fall line of flight path, tighten all loosened bolts to 25 In. Lbs.

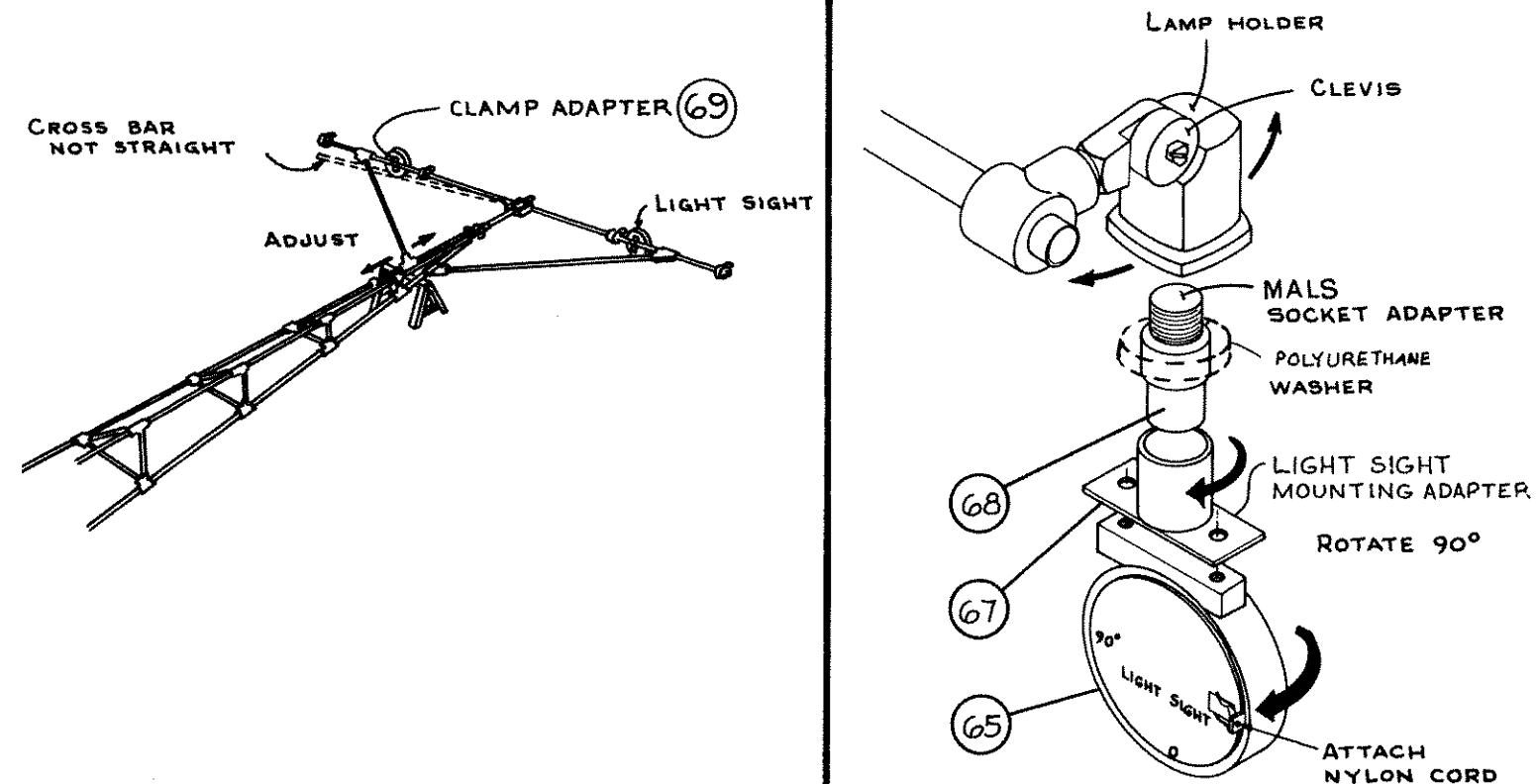
NOTE: Fig. 18, (P. 11) for bolt-tightening sequence on angular fittings. Tighten slip section bolts to 50 In. Lbs.

NOTE: If crossbar is not straight through the diagonal braces (Fig. 24), loosen screws in angular fitting at legs, and gently slide angular fitting on mast leg to set arms straight by eye. This will result in a slight difference of elevation between the two angular fittings on the legs. This difference is unimportant.

4. Using MALS socket adapter, set lamp holder square with bar.

Rotate light sight by loosening set screws in adapter to set light to required elevation.

With light sight in free-wheeling mode, rotate light fixture with slightly loosened clevis. Subtract the angle of repose plus the desired elevation from 90 degrees. Tighten clevis. Repeat for other lamps on crossbar.



LIGHT SIGHT IN THIS POSITION TO SET CROSS BAR PERPENDICULAR TO FALL LINE. ROTATE LIGHT 90 DEGREES TO ADJUST ELEVATION OF LAMP HOLDER.

FIG. 24

LIFTING DEVICE
REQUIRED ON ALL MASTS OVER 21 FT.

Lifting Device includes:

- (1) Winch Base
- (1) Lifting Arm
- (1) Winch w/20 Ft. of 1/8 In. airplane cable and hardware
- (1) Static Line: 1/8 In. airplane cable 35 Ft. long and hardware
- (1) Pole Hook
- (1) 3/8 X 3 1/2 In. Bolt

1. Attach lifting arm (37) to base by inserting one end into socket. Secure with 3/8 X 3 1/2 In. bolt.

2. Loop static cable around strut and mast leg to a height of approximately 12 Ft. Attach static cable to eye of lifting arm. Draw up slack by adjusting turnbuckle.

3. Secure winch to the ground approximately 3 to 4 Ft. away from lifting arm. Attach winch cable to lifting arm. Leave a little slack to allow lifting arm to raise.

LOWERING SINGLE MAST. See Fig. 28. Remove nut on rear anchor bolt to allow base to hinge on front anchor bolts. Allow 2 - 3 Ft. of slack on cable attached to winch. Raise lifting arm by hand (slowly) until slack in cable is taken up. Continue lowering mast by using winch.

NOTE: Take care to lower mast slowly and smoothly onto stands.

RAISING SINGLE MAST. Winch the mast upwards to same "lifting by hand" height as when lowering the mast. Continue to raise tower by lowering lifting arm by hand until mast is erect. Replace nut on anchor bolt and tighten securely.

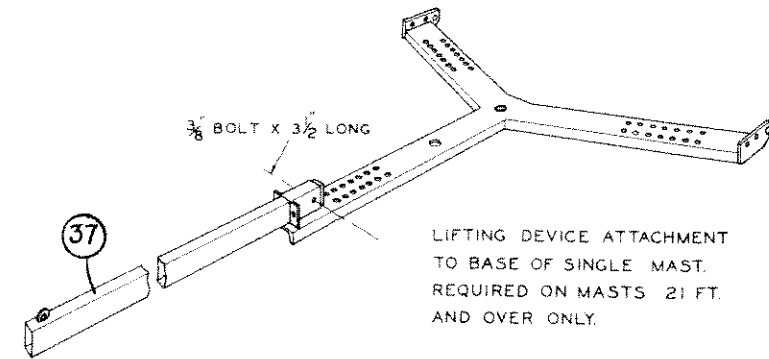


FIG. 26

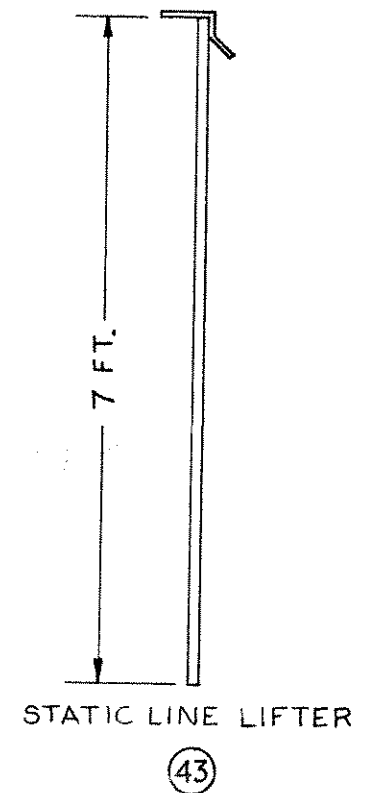
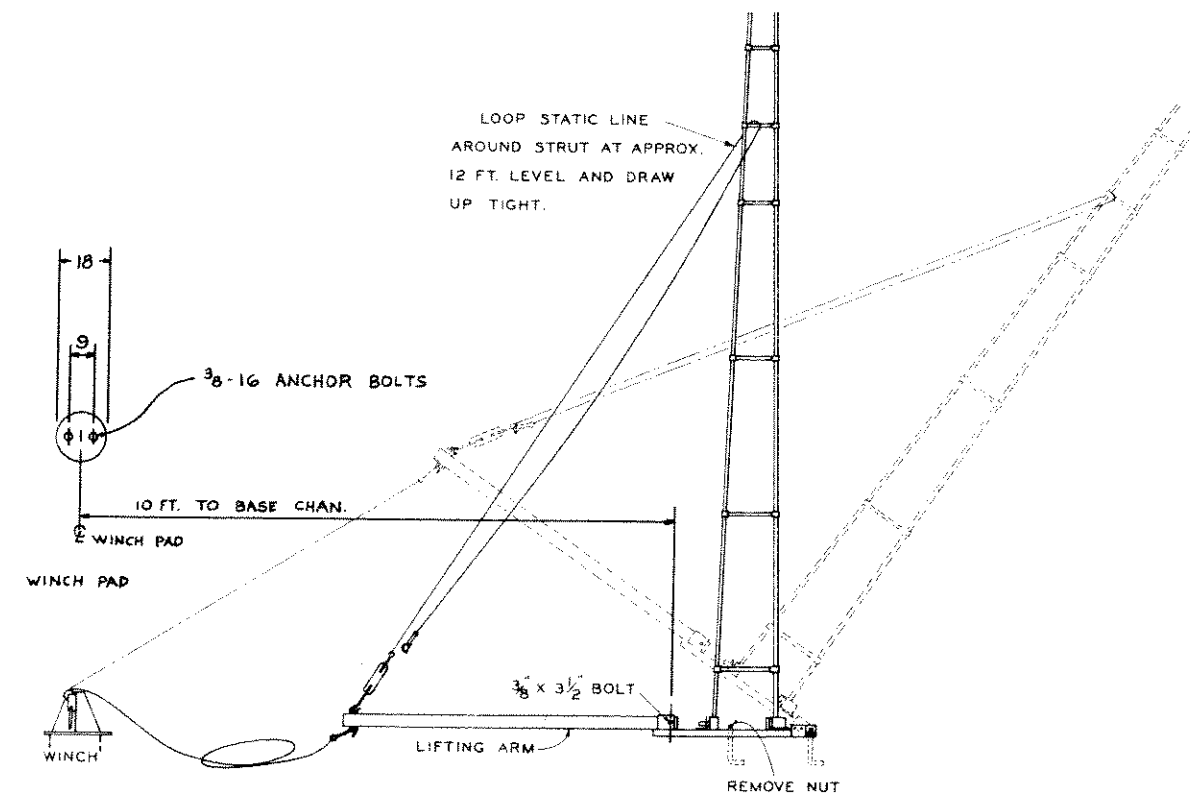


FIG. 27



ASSEMBLING TWIN MAST CROSSBAR
(Fig. 29)

NOTE: See Pages 4 to 9 for assembly of mast.

Step 1: Crossbars must be installed at site with mast on bases. Bases are located 81 In. apart. Follow single mast crossbar instructions, Pg. 10, to assemble crossbar and attach to mast.

Step 2: Twin-mast crossbar is three-piece construction. To connect each mast crossbar together, insert center arm socket into angular fittings. Adjust for elevation, then level crossbars by adjusting diagonal braces and slip section.

NOTE: Center arm socket must align with the other crossbar sockets before tightening angular fittings to 35 In. Lbs. of torque. Tighten two bolts at each slip section clamp.

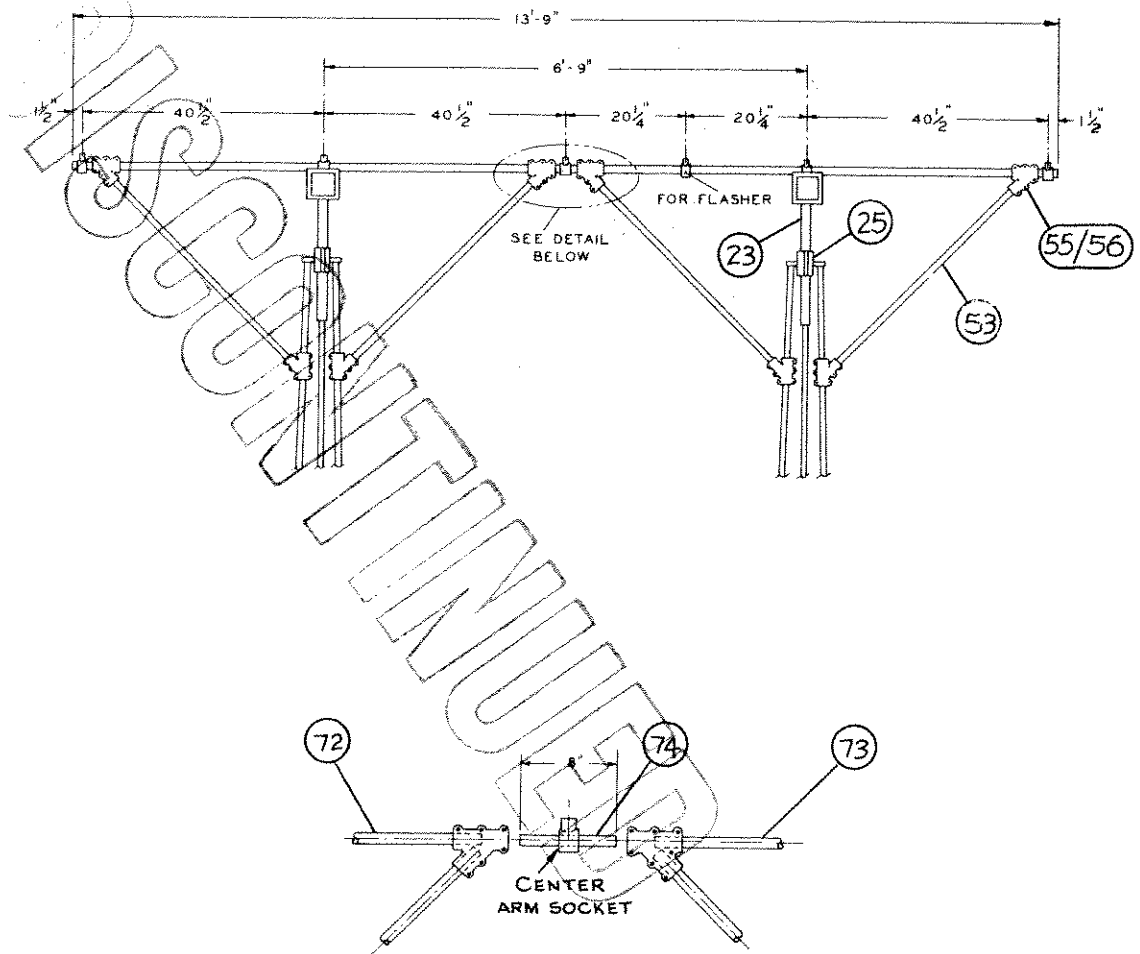


FIG. 29

TWIN-MAST LIFTING DEVICE
REQUIRED ON ALL MASTS

Lifting Device includes:

- (1) Winch Base
- (1) Lifting Arm (37)
- (1) Winch with 20 Ft. of 1/8 In. airplane cable and hardware
- (2) Static Line: 1/8 In. airplane cable 35 Ft. long and hardware
- (1) Pole Hook

1. Connect both bases together with steel channels (45), (46), and (47) by bolting channels to base. Insert lifting arm (37) into brackets and attach, using 3/8 X 3 1/2 In. and 4 In. bolts (Fig. 30).

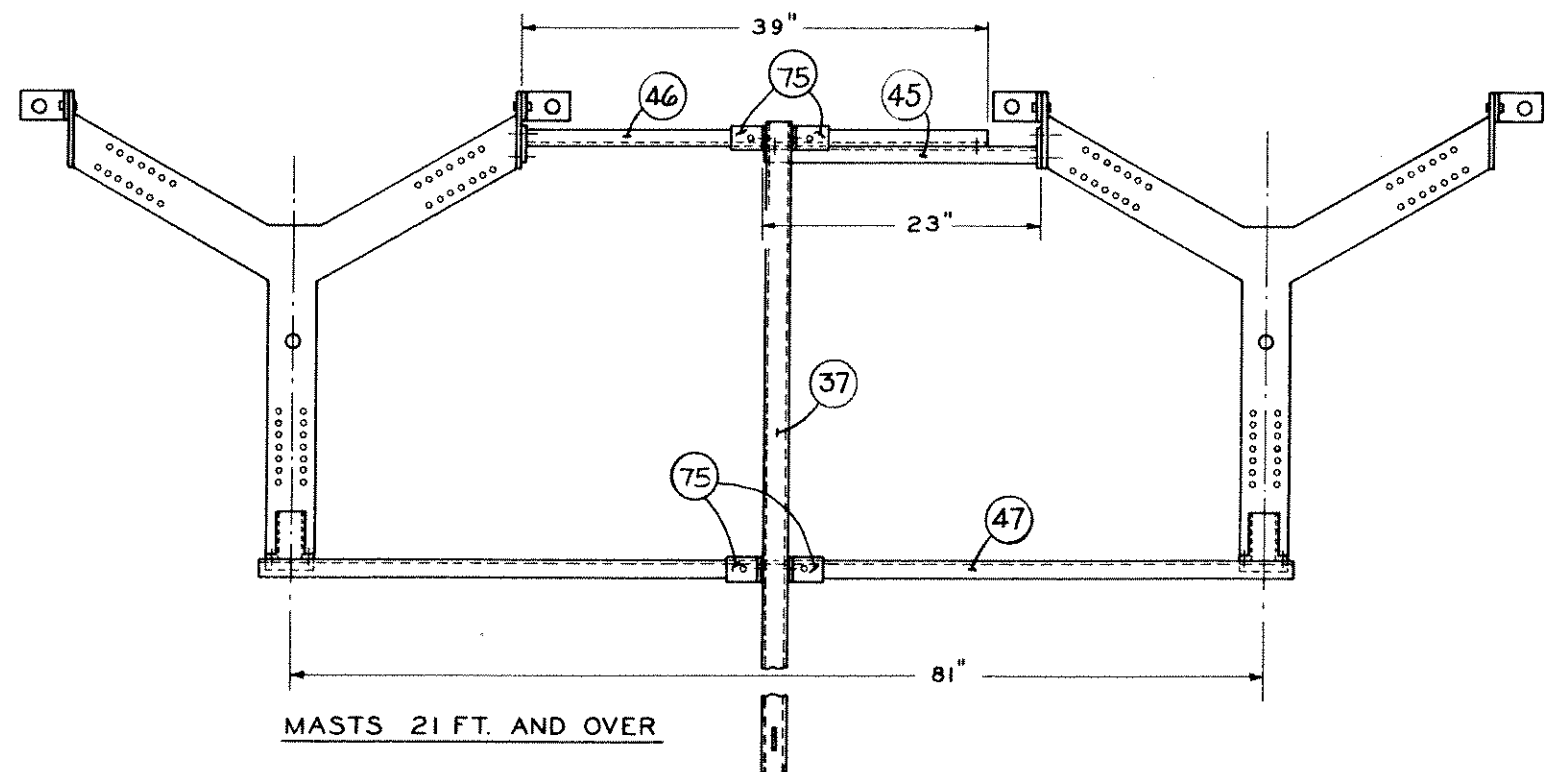
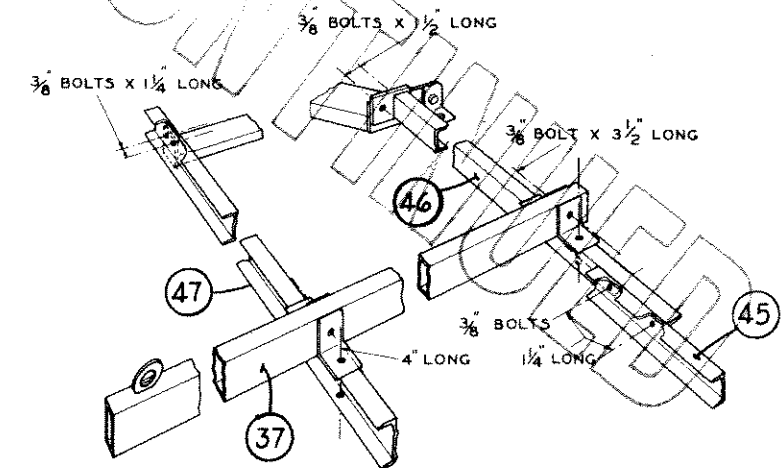
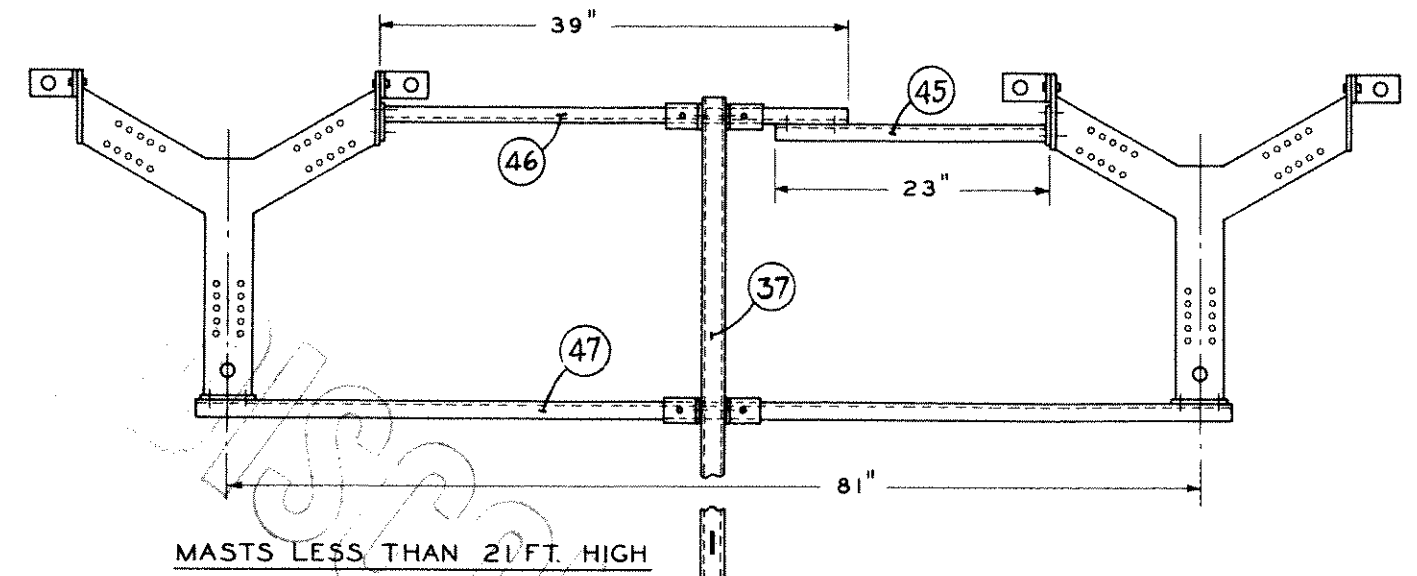
2. Loop static cables around strut and mast leg to a height of approximately 12 Ft. using pole hook (48). Attach static cable to eye of lifting arm. Draw up slack by adjusting turnbuckle.

3. Secure winch to the ground approximately 3 to 4 Ft. away from lifting arm. Attach winch cable to lifting arm. Leave a little slack to allow lifting arm to raise.

LOWERING TWIN MAST. See Fig. 30. Remove nut on rear anchor bolt to allow base to hinge on front anchor bolts. Allow 2 to 3 Ft. of slack on cable attached to winch. Raise lifting arm by hand (slowly) until slack in cable is taken up. Continue lowering masts by using winch.

NOTE: Take care to lower masts slowly and smoothly onto stands.

RAISING TWIN MAST. Winch the masts upward to same "lifting by hand" height as when lowering the mast. Continue to raise masts by lowering lifting arm by hand until masts are erect. Replace nut on anchor bolts and tighten securely.



MAINTENANCE FOR F.A.M. MAST

NOTE: The design of the F.A.M. mast is based on friction. All threaded connections must be maintained at the proper tightness.

When performing maintenance, follow the installation procedures explained in the manual.

1. Every six months or at time of relamping

A. Visual inspection to verify:

1. Proper elevation of lights
2. Mast shapes are uniform
3. Lights correctly aimed

B. Hardware inspection

1. Check proper tightness of:

- anchor bolt nuts
- keeper angles to base (Items (41), (44) and (43))
- leg box to keeper angle (Items (30) & (37))
- vertical leg to leg box (Items (1) & (30))
- tall tower reinforcing sleeves - proper positioning (Item (33))
- tall tower reinforcing sleeve clamps (Items (34), (48) and (49))
- vertical lower leg to upper leg (masts over 22 Ft.) (Items (1), (2) and (29))
- mounting head screws to vertical legs (Items (1), (2), (26) and (27))
- mounting head slip section bolts (Items (25) & (50)) torque 50 In. Lbs.

NOTE: Before tightening, correctly align slip section and light or crossbar.

- horizontal struts and bracing clips.
Struts must be tight. (Should not be able to rotate or move out of clip).
Check struts for correct location in clips. Torque bolts to maximum 105 In. Lbs. If movement still exists, replace the bracing clips (Item 8852).

C. F.A.M. masts with MALS crossbar

1. Example slip section attachment to crossbar junction box (Items (54) & (23)).

2. Inspect diagonal braces and angular fittings (Items (55), (56) and (53))

- check angular fitting castings, proper torque at 35 In. Lbs.
- see manual P. 11, Fig. 18, for proper tightening sequence.

3. Check light fixture wiring, junction box wiring.

2. Yearly

Inspect base.

- If rusting occurs, touch up with 95% pure zinc paint.
- If masts are exposed to salt spray, check aluminum parts for corrosion. Replace parts if necessary.

ACCESSORIES

Product	Description	Qty	Item 3
T9052	TAP PG-16	(1)	
T9053	TAP HOLDER	(1)	
T9054	STRAP WRENCH	(1)	
T9055	ANCHOR BOLT SET (3)	(3)	
T9072	ADJUSTABLE BASE SUPPORT	(1)	78
T9060	LIGHT SIGHT ASS'Y.		
2090-0751	Carrying Case	(1)	
2090-0083	Light Sight	(1)	65
2067-0103	Pan Hd Screw #10x32x1/4" Cad. Pl.	(2)	
2067-1045	Nylon Twine #18 x 40'	(1)	
T9061	ALS/PAR 56 LIGHT ADAPTER	(1)	66
T9062	LIGHT SIGHT MOUNTING ADAPTER	(1)	67
T9063	MALS/PAR 38 SOCKET ADAPTER	(1)	68
T9064	CLAMP ADAPTER	(1)	69
T9065	LAMP SUPPORT ALIGNMENT ADAPTER	(1)	70
T9067	RAIL/FLASHER ADAPTER	(1)	71
T9069	FLASHER MOUNTING BRACKET		
9118	Flasher Mounting Ass'y.	(1)	
9120	Mounting Angle	(1)	
9907	Stay Triangle Ass'y.	(1)	
1065-0212	3/8 x 16-2" Hex Hd Bolt S/S	(1)	
1068-0719	3/8 x 16 Hex Nut S/S	(1)	
2068-1034	3/8 S/S Flat Washer	(1)	
2068-0110	3/8 S/S Lock Washer	(1)	

*Needed for T9063 and T9065

PARTS LIST

PART NUMBER	ITEM NO.	MAST HEIGHT																		DESCRIPTION		
		C	O	M	M	O	N	M	A	S	T	P	A	R	T	S						
		6'-0"-8'-8"	8'-9"-11'-11"	12'-0"-15'-5"	15'-6"-18'-8"	18'-9"-21'-11"	22'-0"-23'-6"	23'-7"-25'-2"	25'-3"-26'-11"	27'-0"-28'-6"	28'-7"-30'-2"	30'-3"-31'-9"	31'-10"-33'-5"	33'-6"-35'-1"	35'-2"-36'-8"	36'-9"-38'-4"	38'-5"-38'-11"	39'-0"-39'-11"	40'-0"			
8806	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	STRUTS	4-23/32
8810	5		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		6-11/16
8811	6			3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		8-21/32
8812	7				3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		10-5/8
8813	8					3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		12-19/32
8815	9						3	3	3	3	3	3	3	3	3	3	3	3	3	3		14-9/16
8816	10							3	3	3	3	3	3	3	3	3	3	3	3	3		15-9/16
8817	11								3	3	3	3	3	3	3	3	3	3	3	3		16-1/2
8818	12									3	3	3	3	3	3	3	3	3	3	3		17-1/2
8819	13										3	3	3	3	3	3	3	3	3	3		18-1/2
8820	14											3	3	3	3	3	3	3	3	3		19-1/2
8821	15												3	3	3	3	3	3	3	3		20-1/2
8822	16													3	3	3	3	3	3	3		21-7/16
8823	17														3	3	3	3	3	3		22-7/16
8824	18															3	3	3	3	3		23-7/16
8825	19																3	3	3	3		24-7/16
8940	20																	3	3	3		24-15/16
8832	62																		3	3		25-7/16
8807	48	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108			6MM X 25MM BOLT
8808	49	9	18	27	36	45	54	63	72	81	90	99	108	117	126	135	144	153	161			6MM HEX NUT
8836	79	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54			6MM X 30MM BOLT
8852	21	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54			BRACING CLIP
19920	63	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54			TRIANGULAR WASHER (Pair)
8840	29	3	3	3	3	6	6	6	6	6	6	6	6	6	6	6	6	6	6			EXTENSION SCREW
8809	26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			(1) MOUNTING HEAD SCREW
8829	27	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2			(2) MOUNTING HEAD SCREWS
T9811	37	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			SMALL BASE
T9831	38					1	1	1	1	1	1	1	1	1	1	1	1	1	1			LARGE BASE
T9804		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			COMMON BASE PARTS
8727	39	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			(3) 1/2" SPACERS
8842	40	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9			(9) 1/8" WASHERS
9071	30	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			(3) LEG BOX JOINT
9082	61	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2			(2) ANCHOR ANGLE
9083	31	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			(3) KEEPER ANGLE
8886	32	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			(3) 3/4" JAM NUT
1068-0719	42	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6			(6) 3/8 X 16 S/S NUT
1068-0202	41	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6			(6) 3/8-16 X 1-1/4 9/16 BOLT
6068-1415	44	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6			(6) 3/8 LOCKWASHER

PARTS LIST

Product #	Description	Qty	Item #
T9901	TOWER CAP, 1-1/2" THREAD		60
T9900	ODALS MOUNTING SLIP SECTION 2" - 11-1/2" THREAD		77
T9902	H.I.A. MOUNTING SLIP SECTION (25MM)		22
T9850	MALS CROSSBAR		
8912	End Horizontal Bar Ass'y	(2)	52
8919	Aluminum Diagonal Bar 51"	(2)	53
8906	Horizontal Center Bar Ass'y.	(1)	51
T9851	MALS FIBERGLASS CROSSBAR		
	Fiberglass Diagonal Bar 51"	(2)	
	Fiberglass Horizontal Center Bar Ass'y.	(1)	
<u>Common to Both #T9850 and T9851</u>			
8904	Junction Box Cover	(1)	
8925	Bracket Clips	(2)	
2090-0098	Terminal Block	(1)	
2067-0049	Screw #6-32 x 1/2" S/S	(6)	
2053-0076	Neoprene Gasket	(1)	
2067-0105	Screw #10-32 x 1/2" S/S	(4)	
2067-1712	Allen Hd. Set Screw 1/4"	(5)	59
8909	Right Angular Fitting	(4)	56
8910	Left Angular Fitting	(4)	55
8807	6MM Bolt S/S	(32)	48
8808	6MM Nut S/S	(32)	49
9134	25MM Slip Section for Crossbar	(1)	23
8803	25MM Slip Section Clamp	(1)	25
2065-0058	8MM x 20MM Bolt S/S	(2)	50
T9068	TALL MAST REINFORCING SLEEVES FOR MAST 21' AND ABOVE		
8872	Clamps	(6)	34
8875	Sleeve Halves	(6)	33
8807	6MM Bolt S/S	(6)	48
8808	6MM Nut S/S	(6)	49
T9056	WINCH LIFTING DEVICE		
9014	Lifting Arm Ass'y.	(1)	37
9016	Winch Base Ass'y.	(1)	
9091	Static Line Lifter	(1)	43
2090-1004	Winch Ass'y.	(1)	
2090-1024	1/8" Cable-20' Long on Winch	(1)	
2090-1027	Snap Hook	(1)	
2090-1028	Cable Clamp	(1)	

PARTS LIST (continued)

Product #	Description	Qty	Item #
T9056	WINCH LIFTING DEVICE (con't.)		
2090-1024	1/8" Cable - 35' Long	(1)	
2065-1495	3/8 x 16 - 3-1/2" S/S Bolt	(1)	
1068-0719	3/8 x 16 Hex Nut	(1)	
1068-0720	Flat Washer S/S	(2)	
T9855	TWIN MAST CROSSBAR		
9134	25MM Slip Section for Crossbar	(2)	23
8803	25MM Slip Section Clamp	(2)	25
9098	Right Side Crossbar	(1)	72
9099	Left Side Crossbar	(1)	73
9097	Center Bar	(1)	74
8807	6MM S/S Bolt	(70)	48
8808	6MM s/S Nut	(70)	49
8909	Right Angular Fitting	(8)	56
8910	Left Angular Fitting	(8)	55
2065-0058	8MM Bolts	(4)	50
2067-0127	#10 x 24 Hex Hd Allen Screws S/S	(12)	59
9102	Diagonal Braces	(4)	53
T9057	TWIN MAST WINCH LIFTING DEVICE		
9016	Winch Base Ass'y.	(1)	
2090-1024	1/8" Cable - 20' Long		
2090-1027	Snap Hook	(1)	
2090-1028	Cable Clamps	(2)	
9014	Aluminum Lifting Arm	(1)	37
2090-1024	1/8" Cable - 35' Long	(1)	
2090-1027	Snap Hook	(1)	
2090-1028	Cable Clamps	(2)	
9041	Static Line Lifter	(1)	43
9095	Front Channel 86" Long	(1)	47
9091	Left Rear Channel 39" Long	(1)	46
9090	Right Rear Channel 22-7/8" Long	(1)	45
9096	Angle Bracket 3 x 3 x 1/4	(4)	75
1065-0204	3/8 x 16 x 1-1/4" Hex Bolt	(6)	
1065-0856	3/8 x 16 x 1-1/2" Hex Bolt	(4)	
2065-1495	3/8 x 16 x 3-1/2" Hex Bolt	(2)	
2065-1496	3/8 x 16 x 4" Hex Bolt	(4)	
1068-0719	3/8 Hex Nut	(16)	
1068-0720	3/8 Washer	(16)	
<u>Miscellaneous</u>			
A0919	BASE GROUND CLAMP	(1)	38

