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July 2, 1996

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

William F. Caton
Secretary
Federal Communications Commission
1919 M Street, N.W.
Washington, DC 20554

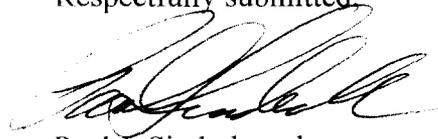
Re: *Implementation of Section 207 of the Telecommunications Act of 1996:
Restrictions on Over-the-Air Reception Devices: Television Broadcast and
Multichannel Multipoint Distribution Service -- CS Docket No 96-83
WRITTEN EX PARTE COMMUNICATION*

Dear Mr. Caton:

On behalf of the Wireless Cable Association International, Inc. ("WCA") and in accordance with Section 1.1206(a)(1) of the Commission's Rules, we hand you herewith for inclusion in the docket of the above-referenced proceeding two copies of a written *ex parte* presentation delivered today to Suzanne Toller of the Office of Commissioner Rachelle B. Chong and Jacqueline Spindler and Randi Albert of the Cable Services Bureau.

Please contact the undersigned should you have any questions regarding this *ex parte* presentation.

Respectfully submitted,



Paul J. Sinderbrand

Counsel to the Wireless Cable Association
International, Inc.

041

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OFFICE OF SECRETARY

HAND DELIVERY

Suzanne Toller, Esq.
Legal Advisor
Office of Commissioner Rachelle B. Chong
Federal Communications Commission
1919 M Street, N.W., Room 844
Washington, DC 20554

Re: *Implementation of Section 207 of the Telecommunications Act of 1996:
Restrictions on Over-the-Air Reception Devices: Television Broadcast and
Multichannel Multipoint Distribution Service -- CS Docket No 96-83
EX PARTE COMMUNICATION*

Dear Ms. Toller:

When Richard A. Alston, President of the Wireless Cable Association International, Inc. ("WCA"), and I met with you last week to discuss WCA's positions regarding the issues raised in the *Notice of Proposed Rulemaking* in the above-referenced proceeding, I promised to provide you with an example of the policies that wireless cable operators follow to assure that reception antennas are mounted in a safe and secure manner. Enclosed are the relevant pages from a manual that one of the largest wireless cable operators provides to each of its installers establishing rules to govern the antenna mounting process. As you will see, installers are carefully directed to mount antennas in a manner that has been developed to assure that they do not pose a safety hazard.

In prior comments to the Commission, WCA has indicated a willingness to work with BOCA or other appropriate representatives of local governments to develop uniform building code provisions that reasonably assure the safe and secure mounting of wireless cable reception antennas, without the need for prior approval of each installation. WCA believes that standards of the sort set out in the enclosed material would not impair the installation of reception antennas, and would not object were wireless cable operators required to mount reception antennas in such fashion.

However, the Commission must assure that onerous mounting standards or prior approval requirements are not adopted by localities under the guise of protecting safety, but that are really intended to protect the revenue flow from cable franchise fees. Thus, WCA remains convinced that no restriction affecting the installation, maintenance or use of a wireless cable antenna should be

Suzanne Toller, Esq.
July 2, 1996
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enforceable unless it has been found by the Commission not to impair reception. WCA appreciates that the Commission would prefer not to review thousands of local restrictions: quite frankly, WCA's members would prefer not to fight thousands of expensive and time consuming battles before the Commission. One way to avoid that would be for the Commission to adopt WCA's suggestion and strongly urge the local governments to develop in conjunction with WCA a uniform set of restrictions, presumably through BOCA's uniform building code, that can be approved once by the Commission and then enforced locally without further Commission intervention.

I hope this material proves helpful to you. If I can provide any further information, please do not hesitate to call.

Respectfully submitted,



Paul J. Sinderbrand

Counsel to the Wireless Cable Association
International, Inc.

Enclosure

cc: Office of the Secretary (2 copies)
Jacqueline Spindler
Randi Albert
Richard A. Alston

- Have the customer remove any objects, which could be damaged, from the top of the television set or in the immediate work area
- Give the customer all pertinent installation literature (channel guide... etc.). Ask them to review this material while you are completing the installation, and explain that you will be glad to answer any questions they have upon completion of the installation
- Do not unplug anything in order to plug in a drill, converter, etc. without the customer's permission.

MMDS Antenna Installation

- The MMDS signal is microwave ,and requires line of sight to be received. There cannot be any physical obstructions (trees, buildings, etc.) between the transmit and receive antennas.
- Before permanently mounting the MMDS antenna the technician should verify that he can receive adequate signal from that location by using a test antenna and a field strength meter.

Note: If the installation is being performed during the winter be sure that the signal is not being transmitted through trees that have lost their leaves. In the spring the signal will be blocked by the leaves.

- The size of the MMDS antenna used is based on the distance the installation is from the transmitter. The further away from the transmitter the larger the receive antenna must be (See Ring Map in the Illustrations Section)
- The following signal levels, at the downconverter, using a 21db test antenna with a 28 dB gain downconverter, can be used as a general guide to determine what size antenna is required for a single outlet installation:

1. Greater than 6dBmv but less than 8dBmv	26dB ant.
2. Greater than 8dBmv but less than 11dBmv	24dB ant.
3. Greater than 11dBmv but less than 14dBmv	21dB ant.
4. Greater than 14dBmv but less than 25dBmv	18dB ant.
5. Greater than 25dBmv	12dB ant.

- Too much signal at the input of the downconverter will cause distortion and not enough

will cause snowy television pictures.

- After the proper antenna is installed the level on the output of the 28 dB downconverter should be no less than 11 dBmV minus the cable loss.
- The MMDS antenna must be mounted a minimum of 8 inches from the off air antenna.

Downconverter

- The downconverter converts the microwave signal to a standard VHF signal that can be received by the set-top converter and TV (See table 1a for frequency and channel conversion).
- The downconverter should be mounted on the mast directly below the MMDS antenna.
- Care must be taken to insure that all connections made to the downconverter are weather-proofed.
- The 50 ohm connector should be finger tight plus one quarter turn with pliers, and then waterproofed with T tape.
- The F connector should be tightened with a torque wrench. DO NOT over tighten this connector; it will strip out inside the downconverter and ruin it. This connection also needs to be waterproofed with grease (on the inside threaded portion of the connector) and T tape.
- After the MMDS antenna and downconverter are installed, apply power to the downconverter and connect your field strength meter to the output. Tune to channel 53 @ 397MHz. Move the antenna on the mast to peak the signal and tighten the antenna down.

Integrated Downconverter

- The integrated downconverter is built to be inserted into the MMDS antenna feed horn.
- It comes in one size for an 18dB antenna. Extension sleeves are used to adapt it to the 21 and 24dB antennas. The extension sleeves are marked for each antenna. It will not work on a 12dB or 26dB antenna.
- The integrated downconverter does not have a 50 ohm connector; the F connector is connected directly to the feed horn. Waterproof with T tape.
- The power supply is connected in the same manner as a standard power supply.

Off-Air Antenna

- The off-air antenna must be positioned facing the TV transmit site. (See Ring Map for transmitter location)
- The off-air antenna is placed at the top of all masts 10 foot or lower. It is placed at the 10 foot level on all other masts.
- A matching transformer is used to adapt the 300 ohm connector on the antenna to the 75 ohm connector on the cable.
- The F connector on the 75 ohm side of the matching transformer is to be waterproofed with T tape.
- The off-air antenna should be placed above the MMDS antenna whenever possible. This allows for easier servicing of the MMDS antenna and downconverter.

(See Figure #1 for equipment placement on the mast)

Mast

- A 16 gauge, 10 foot mast is to be used anytime an installation is performed with a wall mount, chimney mount, or eave mount.

Note: If there is 6 feet or less of the mast remaining above the highest clamp, NO guy wires are necessary.

- A 16 gauge telescoping mast can be used when a 10 foot mast is not high enough to achieve line-of-sight. The telescoping mast comes in 20, 30, 40 and 50 foot heights.

Wall Mounts

- There are 5 sizes of wall mount brackets: 4 inch, 6 inch, 12 inch, 18 inch and 24 inch. The size of the bracket used depends on how far the mast needs to be extended from the wall.
- A 24 inch wall mount will be used only if another type of mount is not possible.

- The wall mount brackets must be installed at least 18 inches apart.
- Wall mounts attached to brick or concrete must be attached with lag screws and anchors.
- Wall mounts attached to wood will be attached with lag screws only. The wood must be at least 2 inches thick. (See figure 2, Wall Mount)

Chimney Mounts

- A chimney mount is a strap-type bracket that wraps around the chimney.
- Its intended use is for tile roofs when a wall mount bracket cannot be used.
- Brackets must be placed a minimum of 18 inches apart
- Chimney mounts can only be installed on chimneys made of brick, masonry block or any other masonry compound (i.e. stucco over masonry block). A wood facade built around a flue CANNOT support a chimney mount. Use extreme caution when installing a chimney mount on stucco as the stucco can easily crack or chip. The maximum mast height for this mount is 10ft. (See figure 3, Chimney Mount)

Eave Mounts

- Eave mounts are attached to the eave at the peak of the roof.
- Eave mount brackets are to be placed a minimum of 18 inches apart.
- A 10 foot mast is the maximum mast length to be used with this type of mount.

(See figure 4, Eave Mount)

Tripods/ Quadpods

- Ronnie mount quadpods can be mounted anywhere on a pitched or flat roof, although installing a quadpod on the peak of a roof is not recommended.

- Two lag screws are to be used to attach each of the three legs and 4 lag screws are used to attach the mast foot to the roof. Tar pads will be installed between the tripod feet, including the mast foot, and the roof to prevent water damage (See fig.5).

Note: The lag screws are to be placed in the roof rafters, not the roof membrane.

- The mast is not attached to the roof when installing a tripod
- All masts with tripods must be guyed.
- Five foot tripods are to be used with 20 foot and 30 foot telescoping masts.
- Tripod and quadpods are not to be placed on mobile homes or tin roofs.

Note: Installations requiring roof penetration should only be done if there is no other way to mount the mast.

Flat Top Foam Roof Installation

It is our policy to never penetrate a foam roof.

If guy wires are needed, the ram hooks must be placed on the side of the structure. There are a number of ways to mount the equipment. Each installation will have to be evaluated to determine which procedure will work best. With that in mind, the following are two examples of flat top foam roof installations.

Note: Before any installation on a flat top roof takes place you should always visually check to make sure we are not installing in a place that will gather water when it rains. If the antenna site is called for in a low area contact your supervisor prior to beginning the installation.

Procedure #1 See Figure #14

- Assemble the mount as shown in figure #14
- Arrange each side of the tripod mount with the ends overlapping.
- Insert the enclosed bolts through the side which is marked "this side down".
- Place an open five foot tripod on the assembled mount making sure the bolts in the mount come through the middle hole in the foot

- Secure the five foot tripod to the mount with the enclosed nuts and washers.
- Install the mast, antennas, and downconverter, and guy wires, if necessary.
- To secure the tripod mount to the roof place a 50 lb solid concrete block, sand bag, or other object over each side of the tripod mount. The minimum total weight must be 150 lbs.

Procedure #2 See Figure #14A

- Place three concrete “deck” blocks (approximate weight is 60 lbs each) in a triangular pattern on the roof. Drill two holes in the top of each block and using 2”x1/4” lag screws and lead anchors secure the feet of a five foot tripod to each block. (Deck blocks can be obtained at most building supply stores for about \$5.00/each.)
- Secure the five foot tripod to the blocks.
- Mount the mast, antennas, and downconverter, and guy wires, if necessary.

Ground Mounts

- Ground mounts are attached to a building with the base of the mast on the ground.
- Secure a peak mount to the structure where the mast is going to be installed.
- Push up and lock down the first section of mast. Place the top part of the mast in the peak mount with the base on the ground.
- Place a level on the mast to insure the mast is plumb. Mark the ground and install the ground plate and stake.
- Place the base of the mast on the stake and ground plate.
- Push up the top section of the mast and mount the MMDS antenna, downconverter, and down lead.
- Push up the remaining sections of the mast and route the cable to where the ground block is going to be mounted and cut it to length. Cut a fitting on the cable without crimping it (the fitting will be crimped after the cable has been permanently attached and the service loops and ground block installed) and peak the antenna.

- Mount the off-air antenna and peak the off-air signals
- Guy the mast down and check the MMDS and off-air signals again.

Guyless Installations

Installations using a 50' mast without guy wires are ideal for deed restricted areas, on trailers, or on residences where guy wires can't be attached to the roof or anchored into the ground. The maximum height above roof level is 15'. The actual overall length of the 50' mast will be about 30'. This is due to fact that the mast sections are only being partially extended. This gives the 50' mast extra rigidity and enables it to be used without being guyed down. The following procedures detail the installation methods for one story and two story structures. (See Figure 15 & 16).

One Story House or Trailer

- Guyless ground mounts are attached to a building with the base of the mast on the ground.
- Secure a peak mount to the structure where the mast will be installed.
- Fully extend and lock down the first section of the mast. Extend the second section approximately 6' leaving 3' inside the first section. Drill a 1/4" hole through the mast and insert a cotterpin. Place the top portion of the mast in the peak mount with the base of the mast on the ground.
- Using a level, insure that the mast is plumb. Mark the ground and install the ground plate and stake.
- Place the base of the mast on the stake and ground plate.
- Secure the mast to the peak mount.
- Extend the top section of the mast 4' and lock it down. Drill a 1/4" hole, insert a cotter pin and mount the MMDS antenna, downconverter, and down lead.
- Extend the fourth section of the mast approximately 5' leaving the remainder inside the third section. Drill a 1/4" hole and insert a cotter pin

- Extend the third section approximately 6' leaving the remainder inside the second section. Drill a 1/4" hole and insert a cotter pin
- Route the cable to the ground block location and cut the cable to length. Attach a fitting to the cable and peak the MMDS antenna.
- Mount the off-air antenna, making sure it is within reach from roof level and peak the off-air signals.
(See Figure 15).

Two Story House

- Guyless ground mounts are attached to a building with the base of the mast on the ground.
 - Secure a peak mount to the structure where the mast will be installed.
 - Fully extend and lock down the first and second sections of the mast. Place the top portion of the mast in the peak mount with the base of the mast on the ground.
 - Using a level, insure that the mast is plumb. Mark the ground and install the ground plate and stake.
 - Place the base of the mast on the stake and ground plate.
 - Secure the mast to the peak mount.
 - Extend the top section of the mast 5' and lock it down. Drill a 1/4" hole, insert a cotter pin and mount the MMDS antenna, downconverter, and down lead.
 - Extend the fourth section of the mast approximately 6' leaving the remainder inside the third section. Drill a 1/4" hole and insert a cotter pin
 - Extend the third section approximately 4' leaving the remainder inside the second section. Drill a 1/4" hole and insert a cotter pin.
 - Route the cable to the ground block location and cut the cable to length. Attach a fitting to the cable and peak the MMDS antenna.
- Mount the off-air antenna, making sure it is within reach from roof level and peak the off-air signals. (See figure 16).

Trailer/Mobile Home Installations

IT IS OUR POLICY TO NEVER STAND ON THE ROOF OF A TRAILER IF THE ROOF IS MADE OF TIN OR COMPOSITION SHINGLES.

A large portion of our property damage claims are due to installations on trailer homes. Most damage occurs when the side of the structure is penetrated to attach the ram-hooks and peak mount. The framing of a trailer is structurally inadequate to support the stress exerted at the penetration points. As the mast height increases and the wind load increases, the stress on the ram hooks is increased. The same conditions occur when a trailer “settles”. After a trailer has been installed at a location it can actually sink, as much as 2”, into the ground within first two years. The additional tension on the guy wires increases the outward force on the lag bolts used to fasten the ram-hooks to the side of the structure. This causes a break in the weather-seal formed by the tacky-tape and creates a pathway for moisture to enter. Because of the potential for damage the following procedures should be observed whenever a trailer installation is necessary.

- The maximum height for trailer installations will be limited to 30’ from the ground.
- Make as few penetrations as possible.
- All penetrations will be sealed with tar and tacky tape.
- Use “guyless” installations whenever possible
- If a guyed installation is necessary the mast should be installed in the 01, 05, 11, or 15 Antenna Survey Code position and three down-guy anchors employed (See figure17). This will eliminate the need for ram hooks. **Care must be taken to ensure that the proper guy angles and distances can be obtained.**

Guy Wires

- Three guy wires will be used on each 10 ft section under all circumstances.
- Before installing the guy wires make sure you will have enough room on the roof to properly place them from the location of the antenna.

- The guy wire should be wrapped through the guy ring 2 times and around itself 8 times
- Turnbuckles are used to adjust tension on the guy wires. One turnbuckle is used for every guy wire. One end of the turnbuckle is to be attached to the ram hook in the roof and the other end is attached to the guy wire. Use no more than two turnbuckles per ram hook.
- Guy wires are to be placed in a triangular configuration in 120 degree intervals from the mast. (See Figure 10)
- The guy wires should not be over-tightened. Run the guy wire through the turnbuckle eyelet, and around itself 4 times. Then adjust the tension. After the tension is adjusted, insure the mast is plum then thread the end of the guy wire through the turnbuckle housing to keep it from turning and releasing the tension on the guy wires. Next wrap the guy wire around the ram hook once and thread back through the top turnbuckle eyelet and around itself 4 times tightly. Cut the guy wire so 1 foot of wire is left. Then wrap that wire loosely around itself.
- A 3 foot tripod with a 10 foot mast requires one set of 3 guy wires. The guy ring is placed 6 feet up from the bottom of the mast and ram hooks are placed between the tripod legs, in the side of the roof, a minimum of 7 feet out from the center of the tripod.
- A 5 foot tripod is used with a 20 foot mast and requires 2 sets of 3 guy wires each. The first set is placed 6 feet from the top of the mast with a guy ring. The ram hooks are placed a minimum of 14 feet out from the center of the tripod. The mast guy wires are then attached to one end of the turnbuckle. The other end of the turnbuckle is attached to the ram hook. (See Figure 6).
- A 5 foot tripod and a 30 foot mast requires 3 sets of 3 guy wires each. The guy wires are positioned on the mast at the 10, 20, and 26 foot levels. The ram hooks are placed in the roof a minimum of 21 feet out from the center of the tripod. The turnbuckles are attached in the same manner as on a 20 foot mast (See Figure 7).
- On the 40 and 50 foot ground mounts one of the guy wire anchor points will be in the ground on a 90 degree angle from the structure the mast is attached to. An auger or rock anchor is used at this anchor point. The auger or rock anchor is to be placed a minimum of 7 feet out for every 10 feet of mast above the ground. The ram hooks are to be placed a minimum of 7 feet out for every 10 feet of mast above the roof. A yellow guy guard will be used on each guy wire that is attached to an anchor. (See Fig 8 & 9).

NOTE: Whenever possible place the ram hooks in the fascia board rather than penetrating the roof.

Grounding

- **Grounding of the antenna and cable is required to comply with the National Electrical Code (NEC) as well as state and local codes**
- **The ground wire must be run as straight as is practical from the antenna and ground block/splitter to an approved grounding conductor**
- **The mast and the cable will be grounded with separate #10 ground wire. The ground wire will be attached to the building, using one-hole clips spaced 12 inches apart.**
- **To ground the cable for a single outlet, install a ground block (See Fig 11). On multiple outlet installs the ground wire is to be attached to the ground lug on the splitter. The other end of the ground wire is attached to the nearest approved grounding conductor.**
- **To ground the mast, the ground wire is to be attached to one of the bolts on the tripod, wall mount, etc., and run to the ground block or nearest grounding conductor.**
- **Ground wire from the ground block/ splitter/ mast must not exceed 25 feet without a supervisor's approval.**
- **The following are the only approved grounding conductors, listed in order of desirability:**
 1. **Metal electric meter riser (See Fig 12)**
 2. **Existing power ground (See Fig 13).**
 3. **Ground Rod (ground rod must be counter sunk into the earth).**
- **Under no circumstances will the ground be attached to any natural gas lines or hot water pipes.**
- **The ground wire will be tagged at the ground block/splitter with a tag that reads:**

**CAUTION
DO NOT REMOVE
GROUND WIRE**

Cable

- **RG-6 dual coaxial cable is to be used on all installs, unless otherwise approved.**
- **Care should be taken not to sharply bend or kink the coaxial cable.**

Equipment Placement

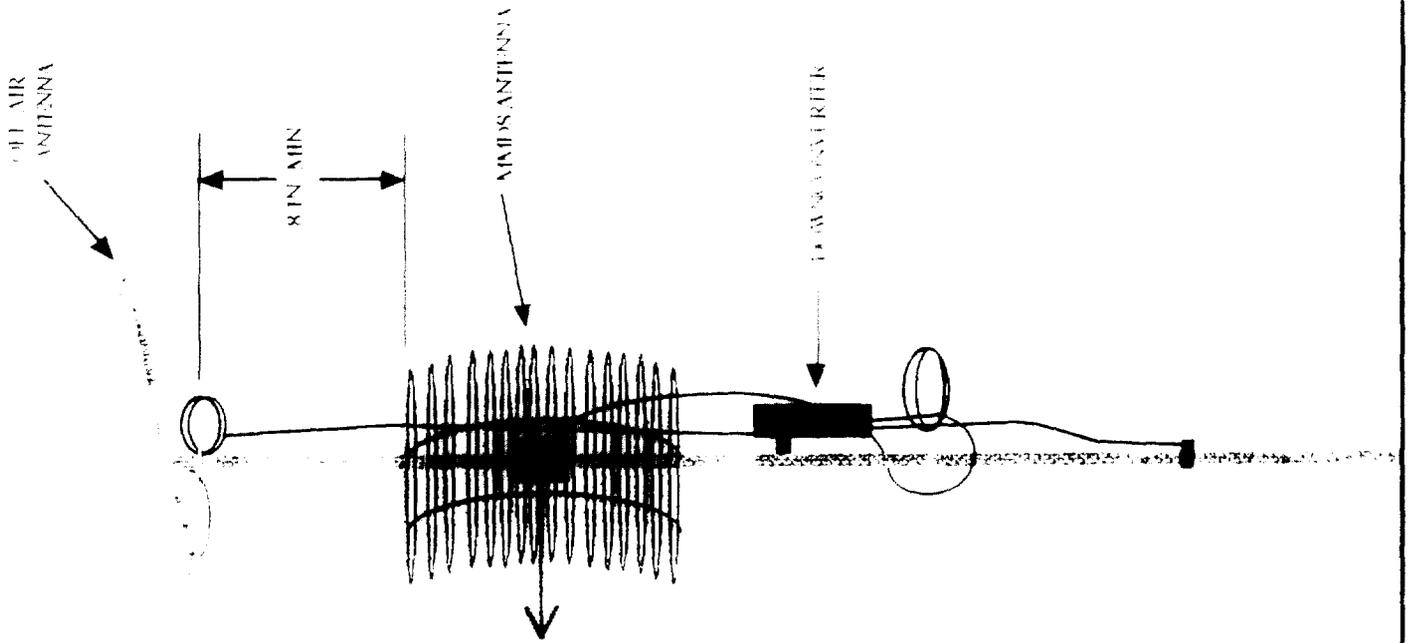
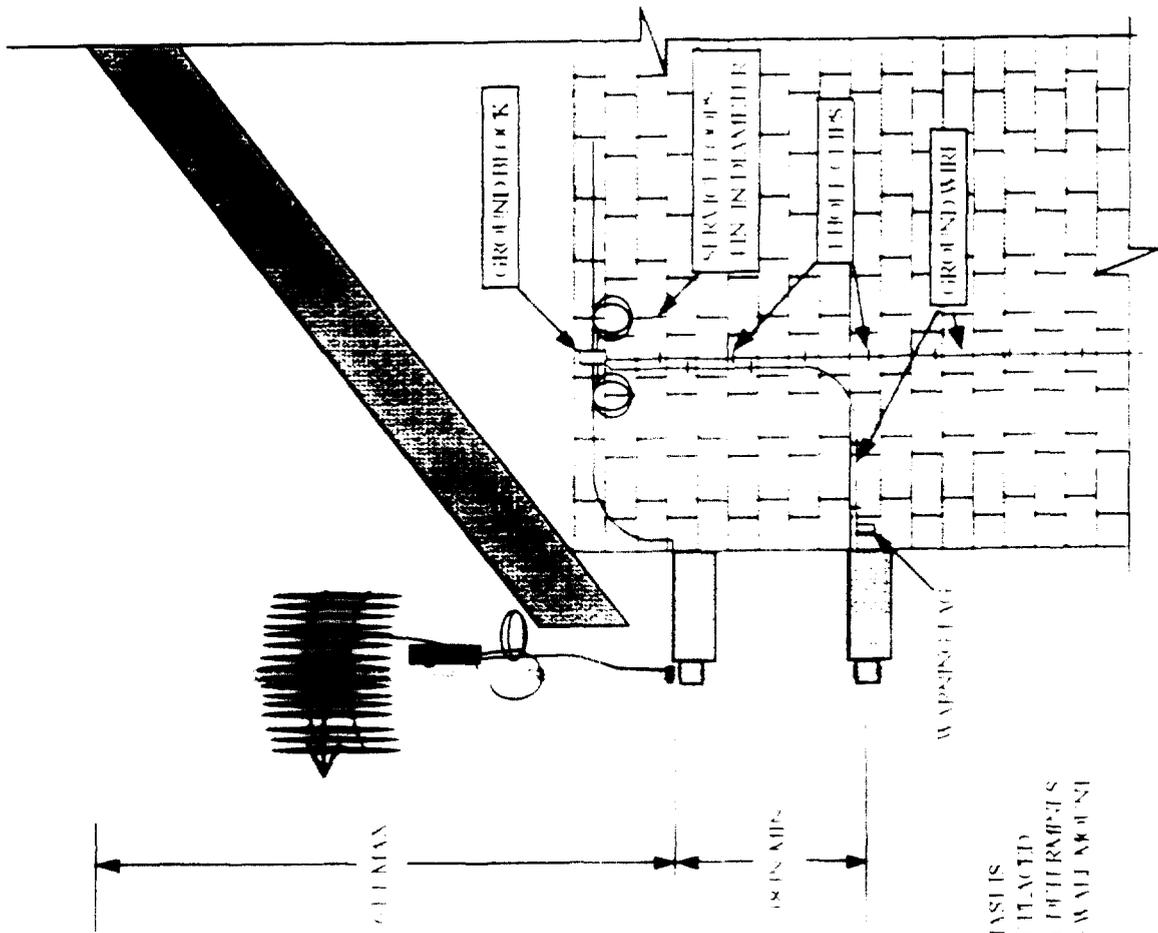
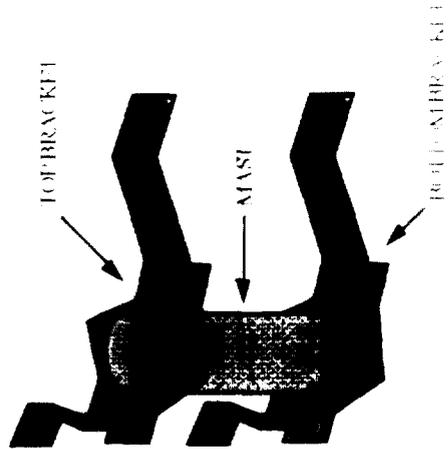


Fig. 1

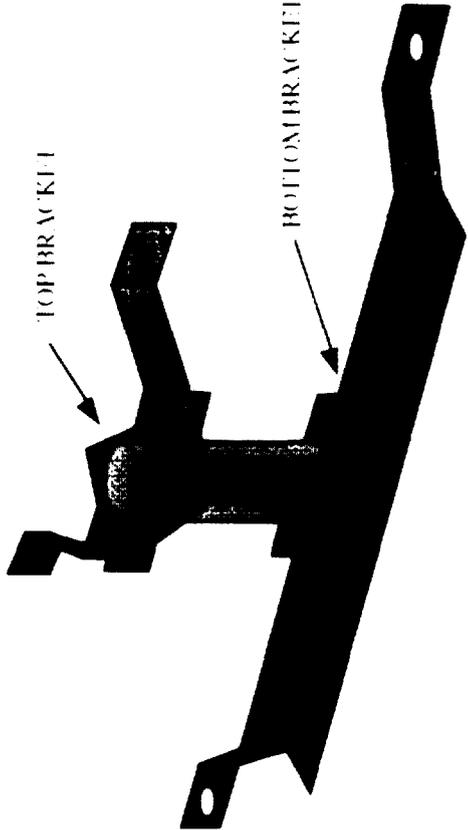
Wall Mount



NOTE:
HOW FAR THE MASTS
REQUIRE TO BE PLACED
FROM THE WALL DEPENDS
ON THE SIZE OF THE WALL MOUNT

Fig. 2

Universal Eave Mount



Note:
Bottom bracket comes in two pieces
and is adjustable to the width
of the eave

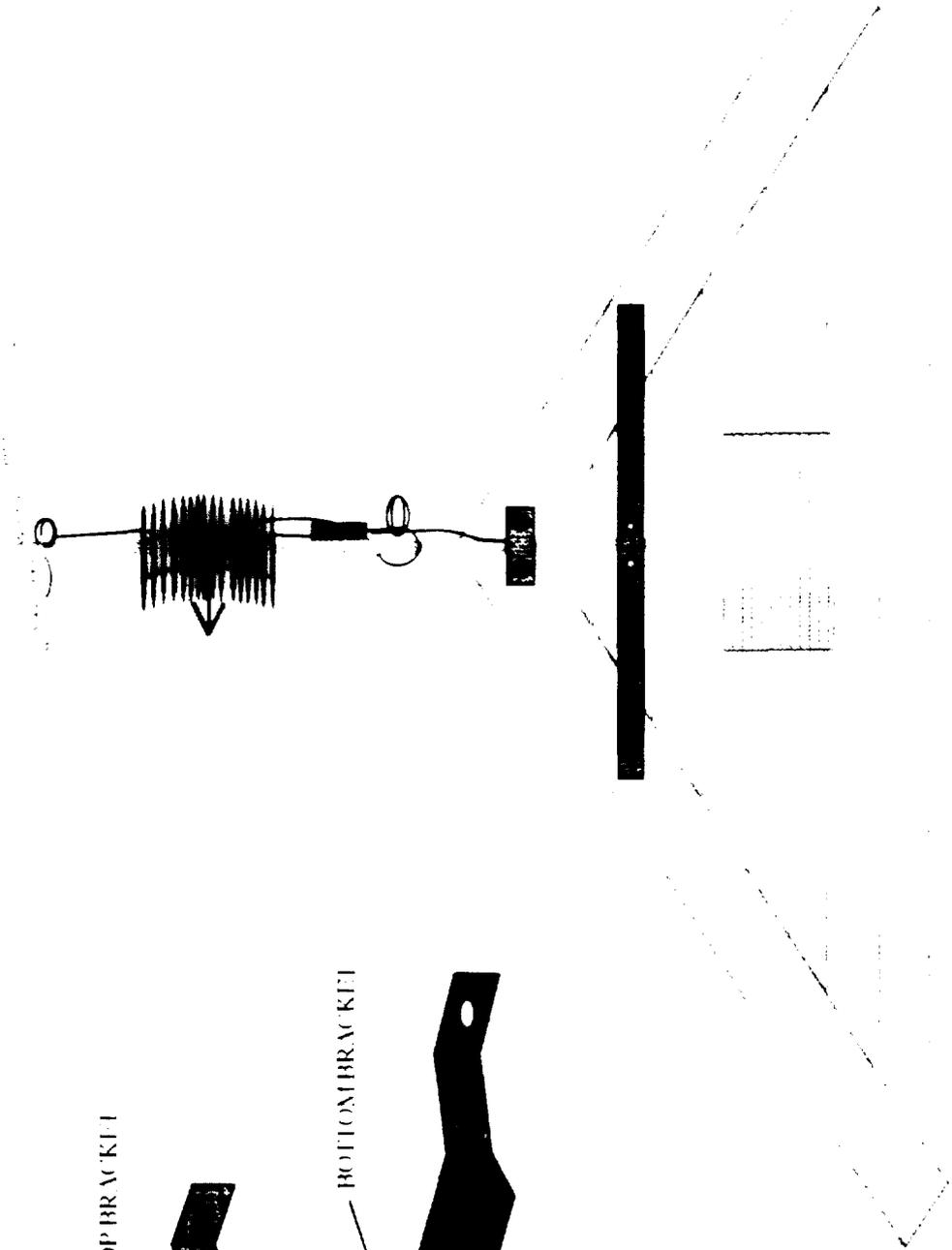
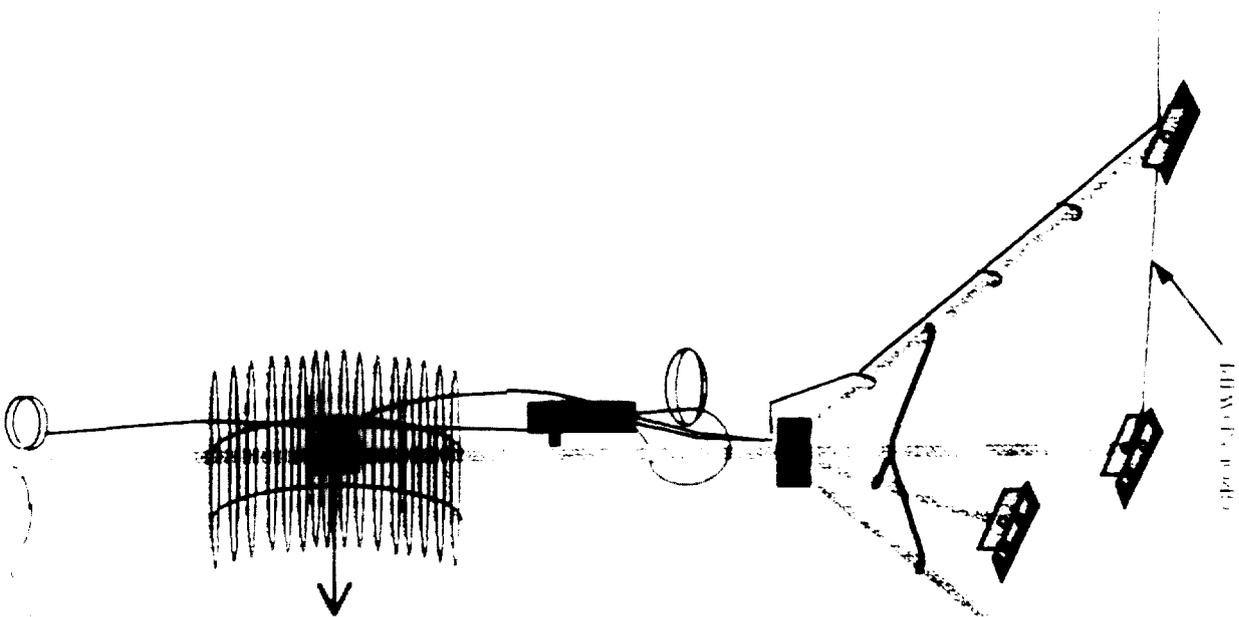
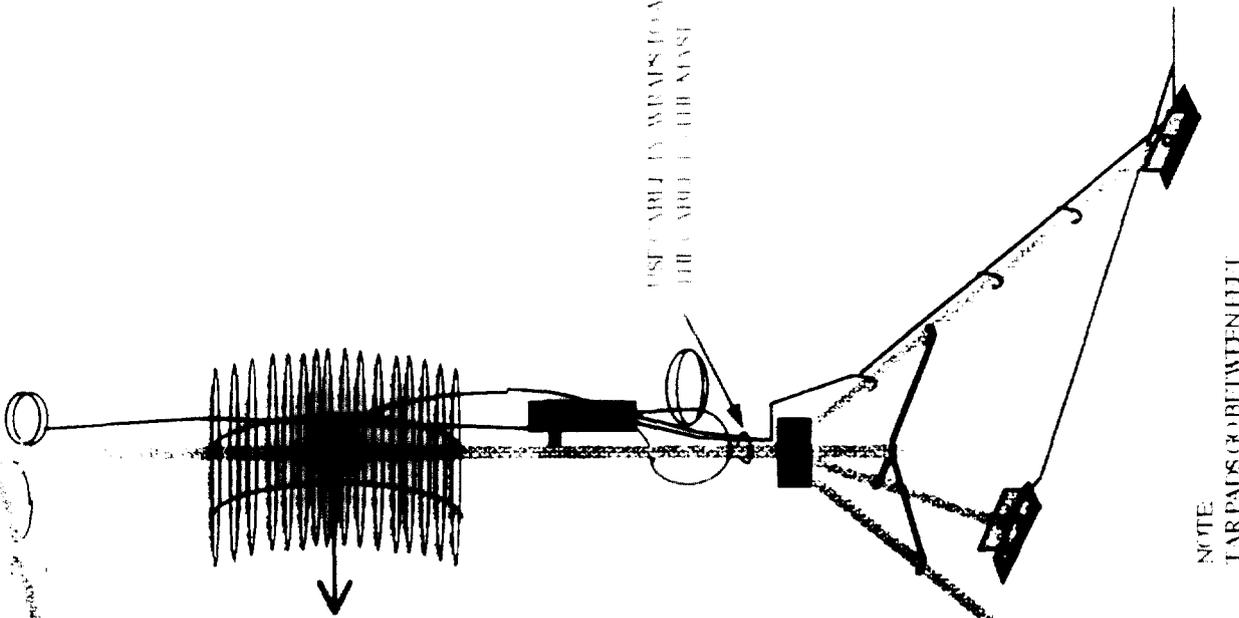


Fig. 4



QUADPOD



TRIPOD

NOTE:
TAR PAIDS GO BETWEEN THE
TRIPOD AND THE RIG OF SURFACE

Fig. 5

20 Foot Guyed Mast

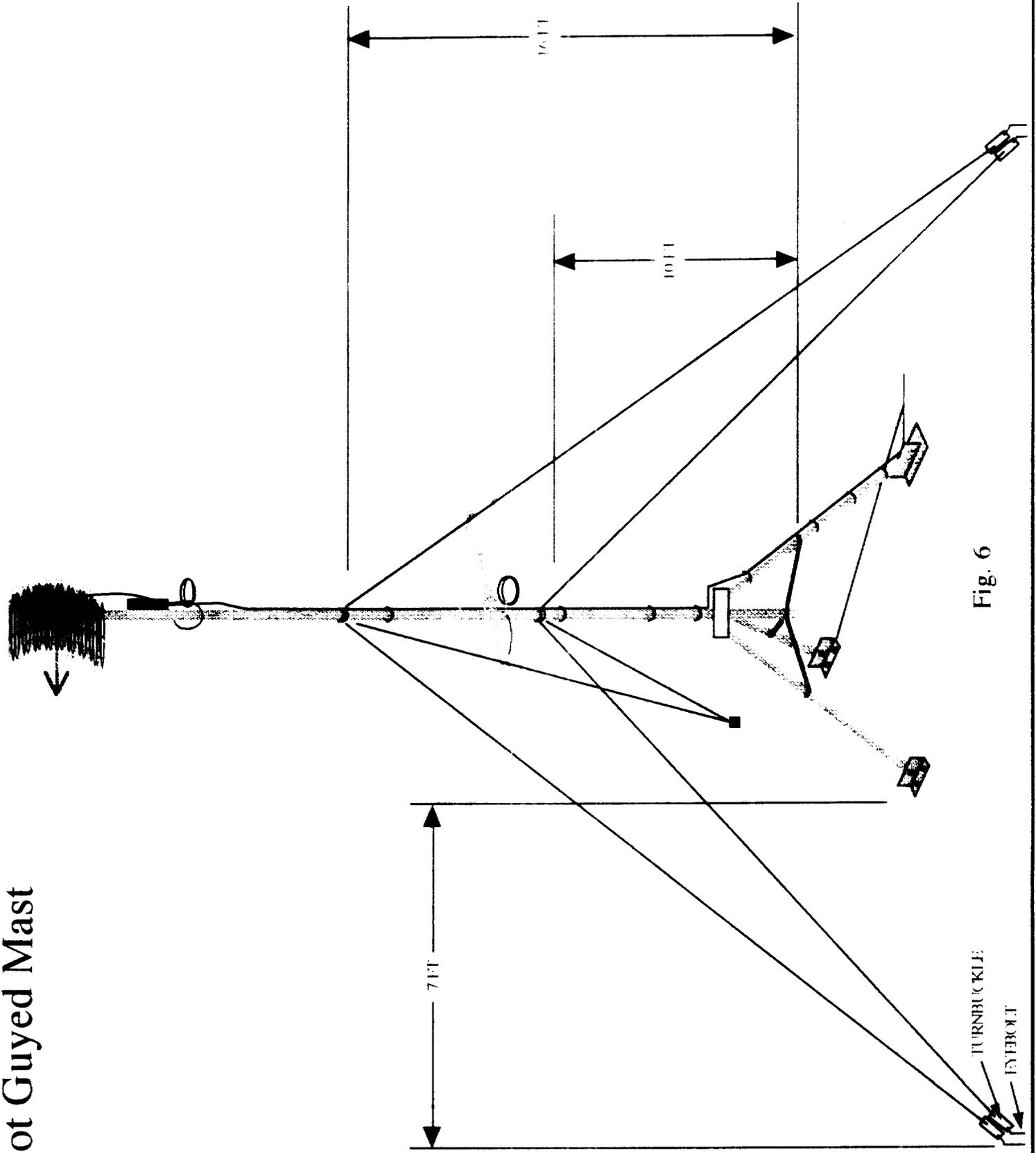


Fig. 6

TURNBUCKLE
EYEBOLT

30 Foot Guyed Mast

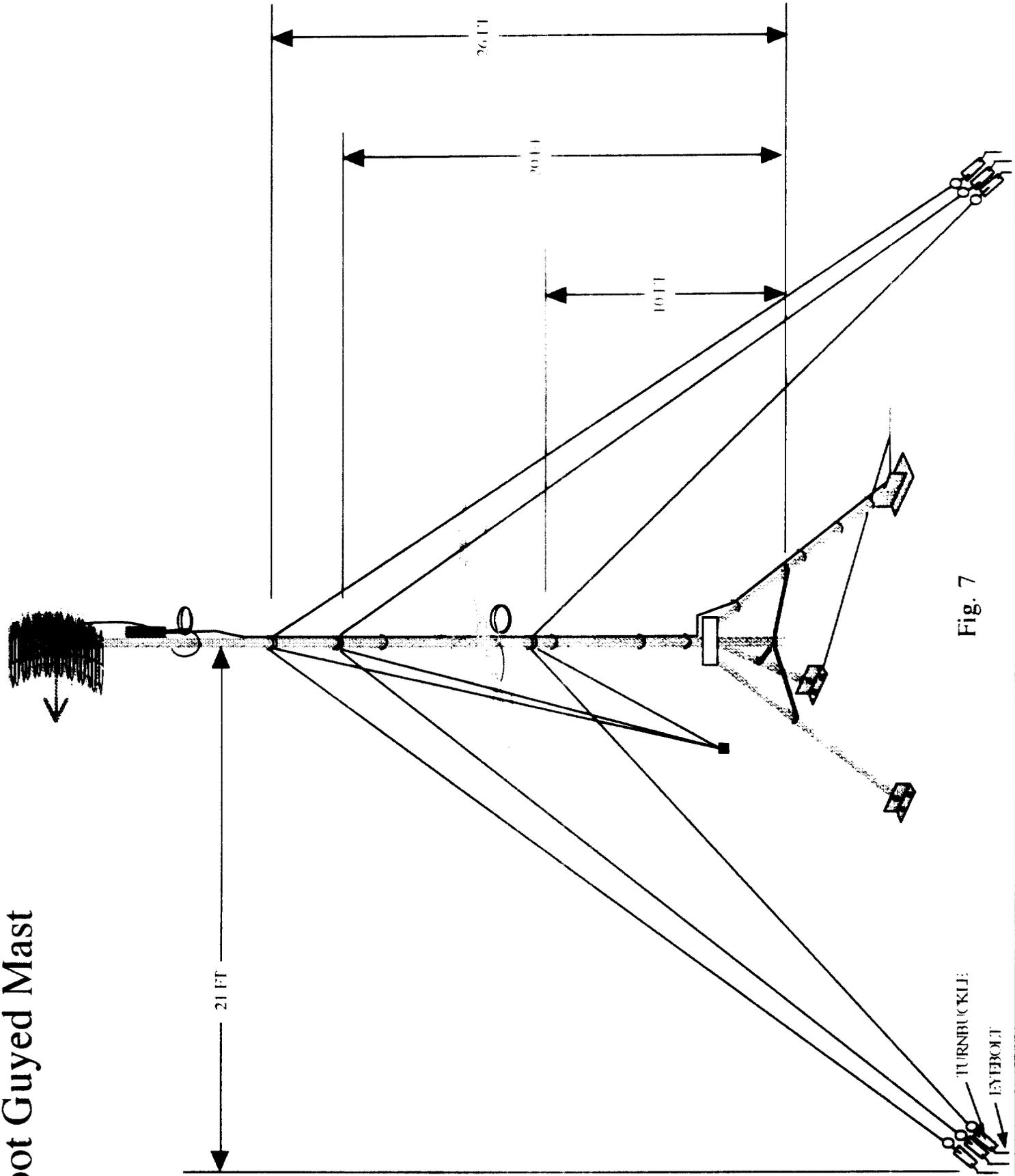


Fig. 7

40 Ft. Push Up Ground Mount

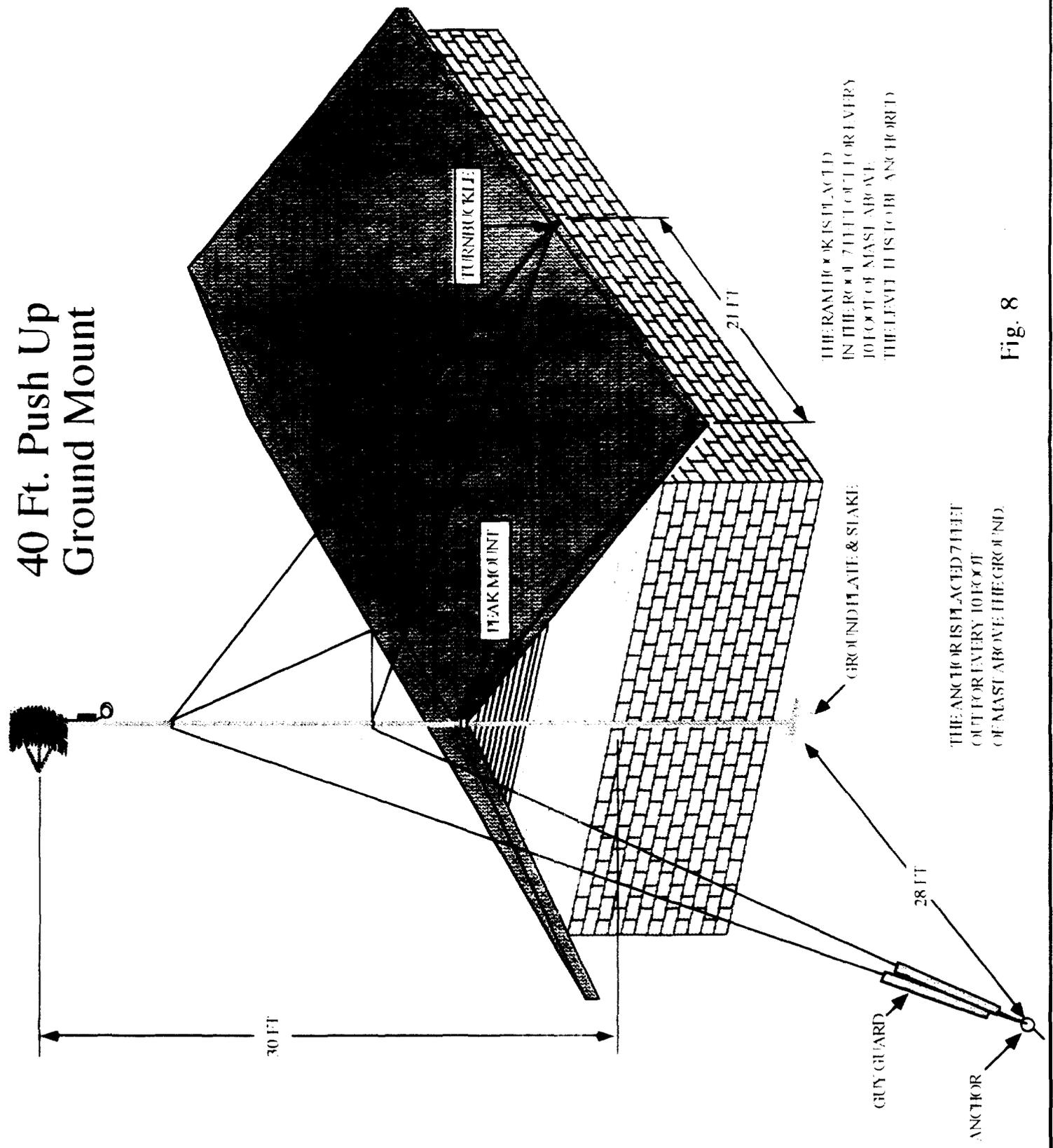


Fig. 8

50 Ft. Push Up Ground Mount

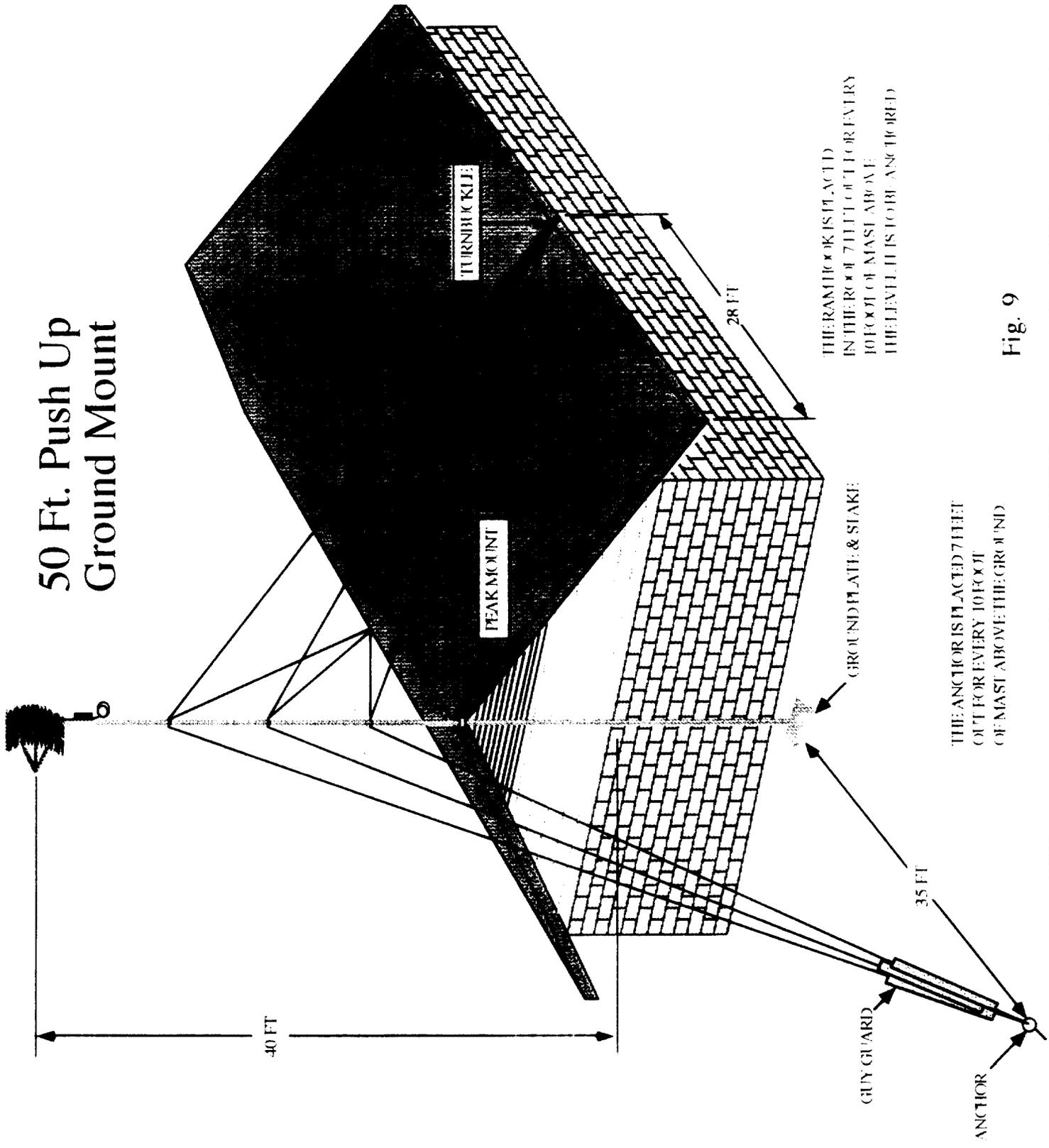


Fig. 9

Guy Wire Angles

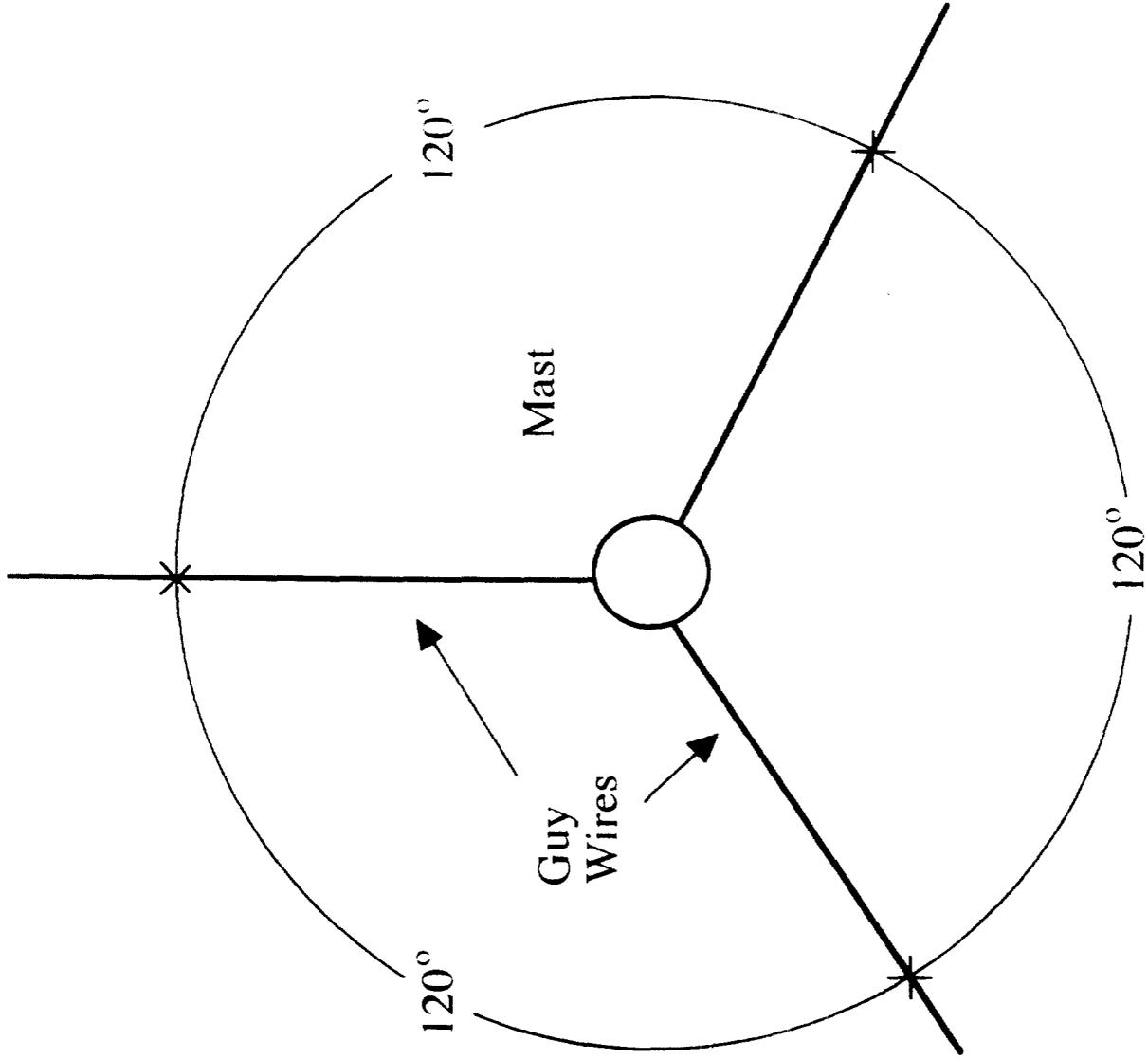


Fig. 10

Ground Block

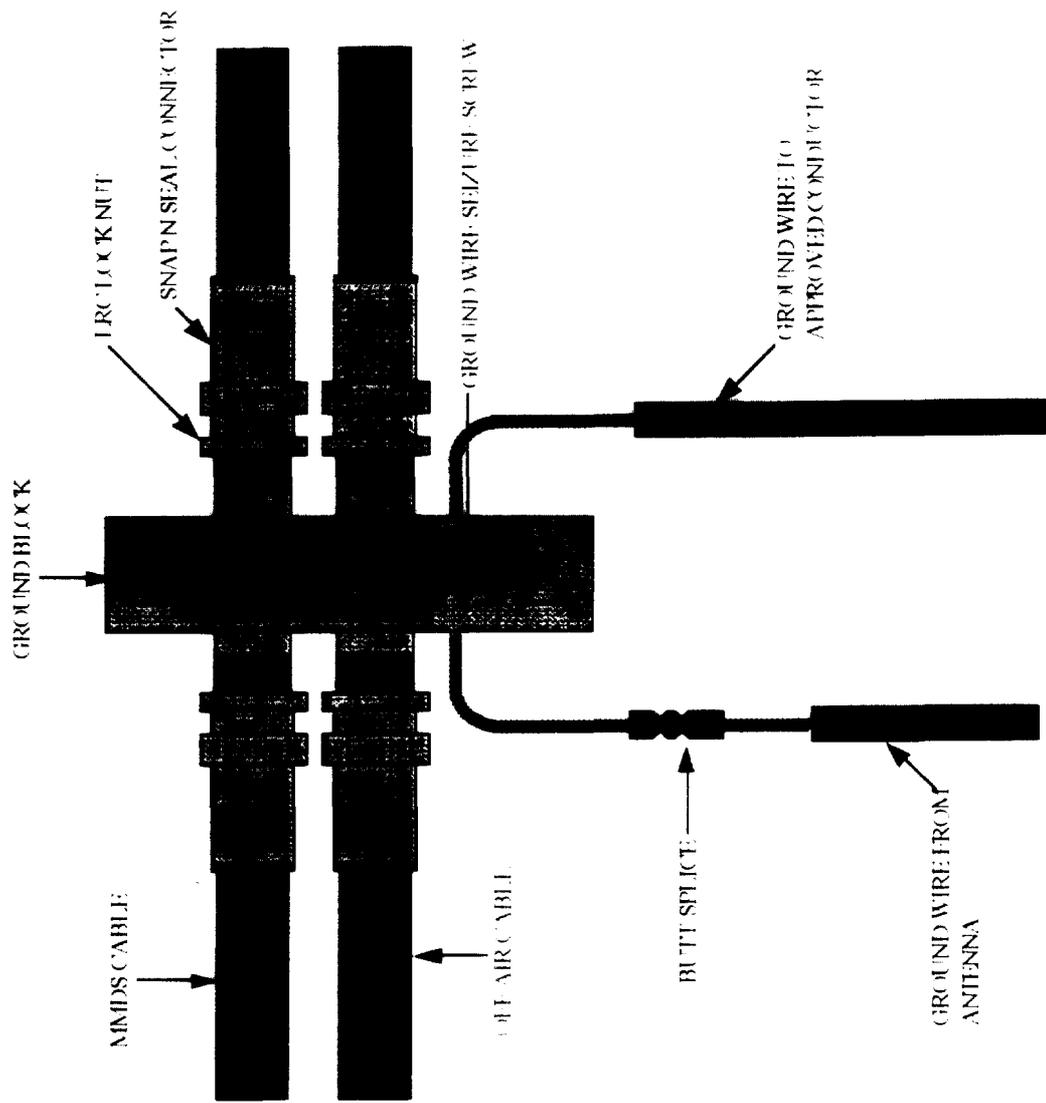


Fig.11