

IDEAS FOR EME

ANTENNA ELEVATION DRIVES



DIVISION OF VARIAN
301 Industrial Way
San Carlos, California

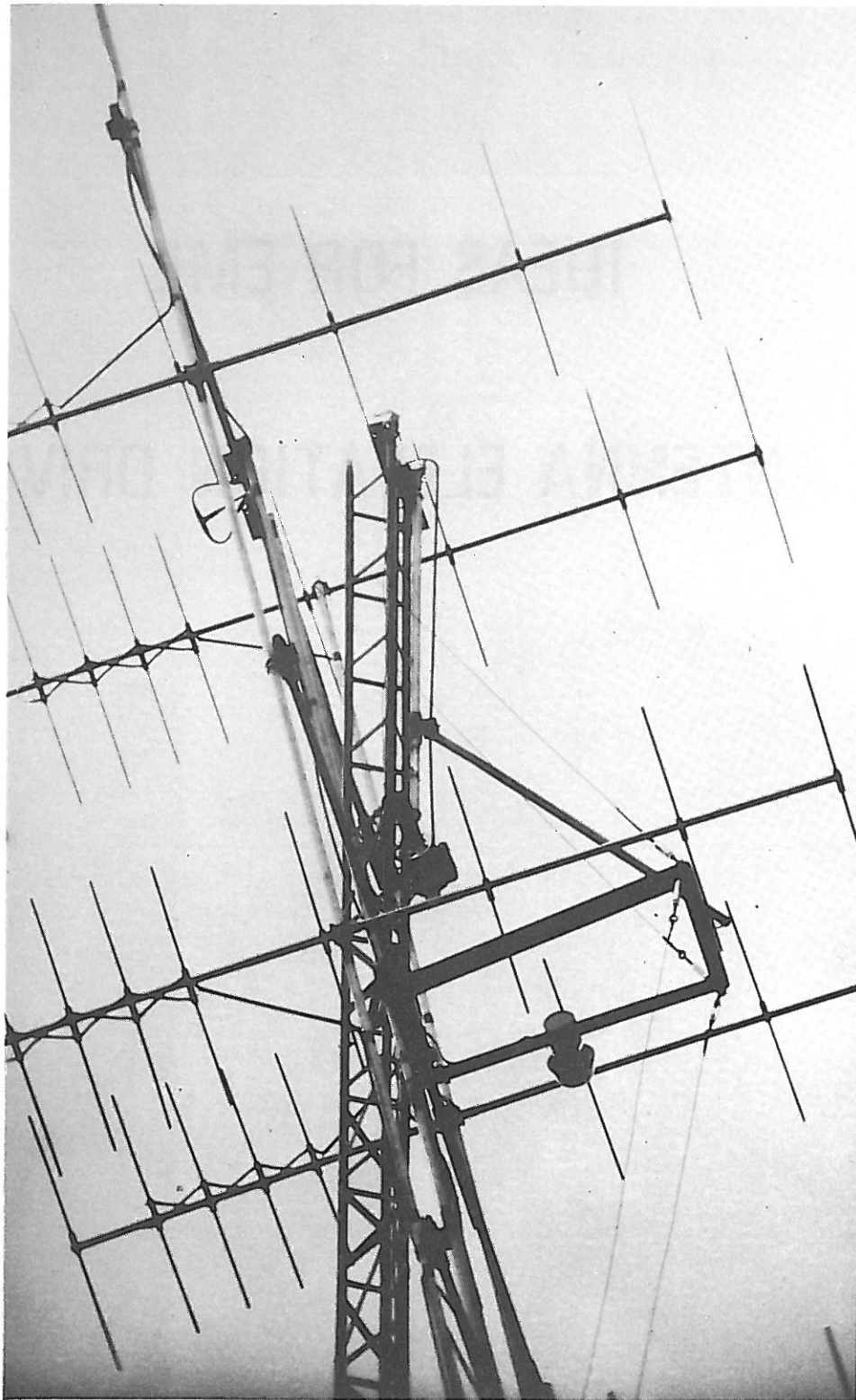


Figure 1.

This is the elevation drive system of W30LV. A motor drives a sprocket and chain which pulls one end of an arm along a linear track. The other end of the arm is attached to an angle frame which tilts the array.

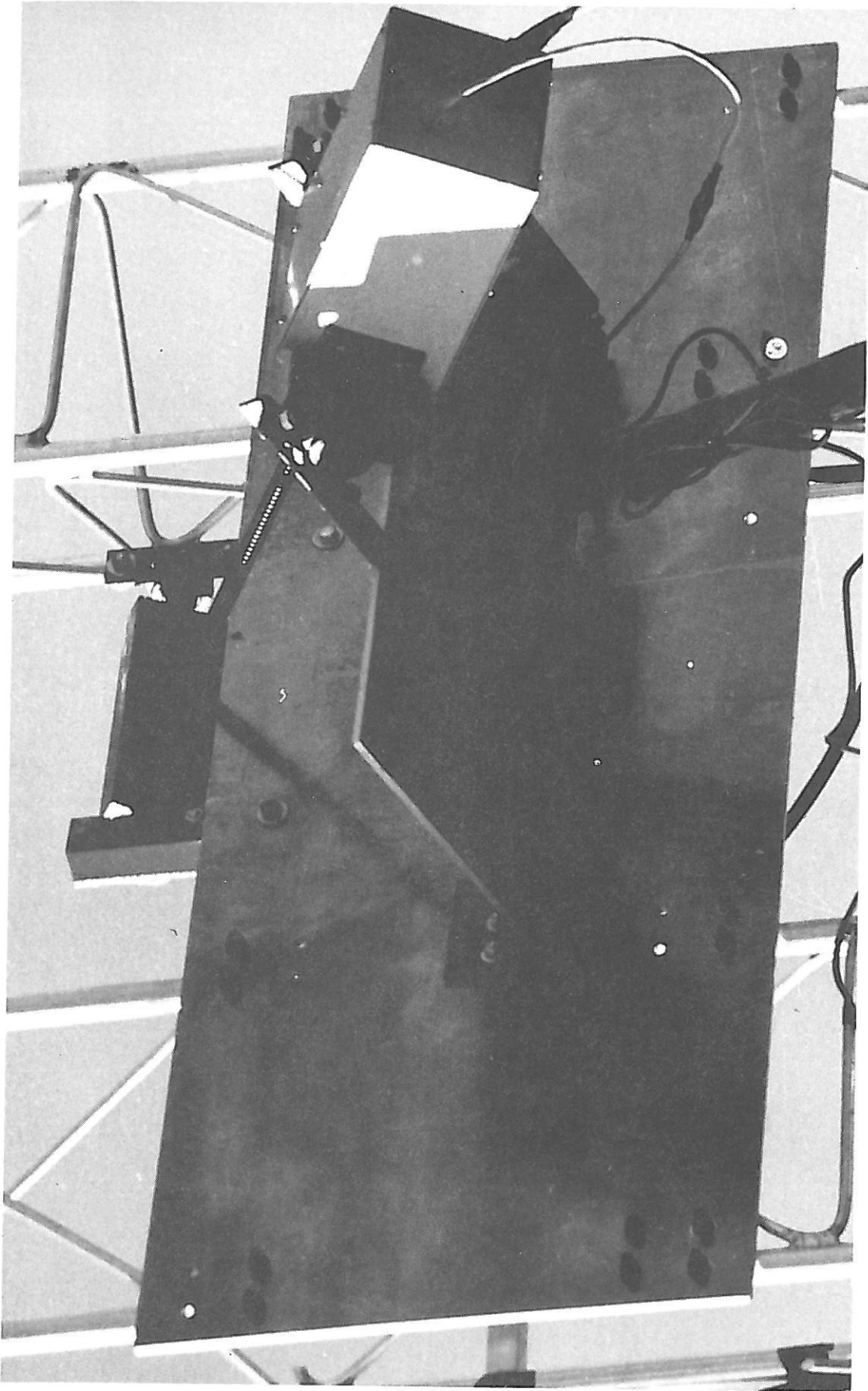


Figure 2.

This is one of W8KPY's elevation systems. The elevation motor is mounted inside the box on the right. The use of pillow blocks allows the motor and top drive nut to pivot as the antenna elevation hinge changes angle.

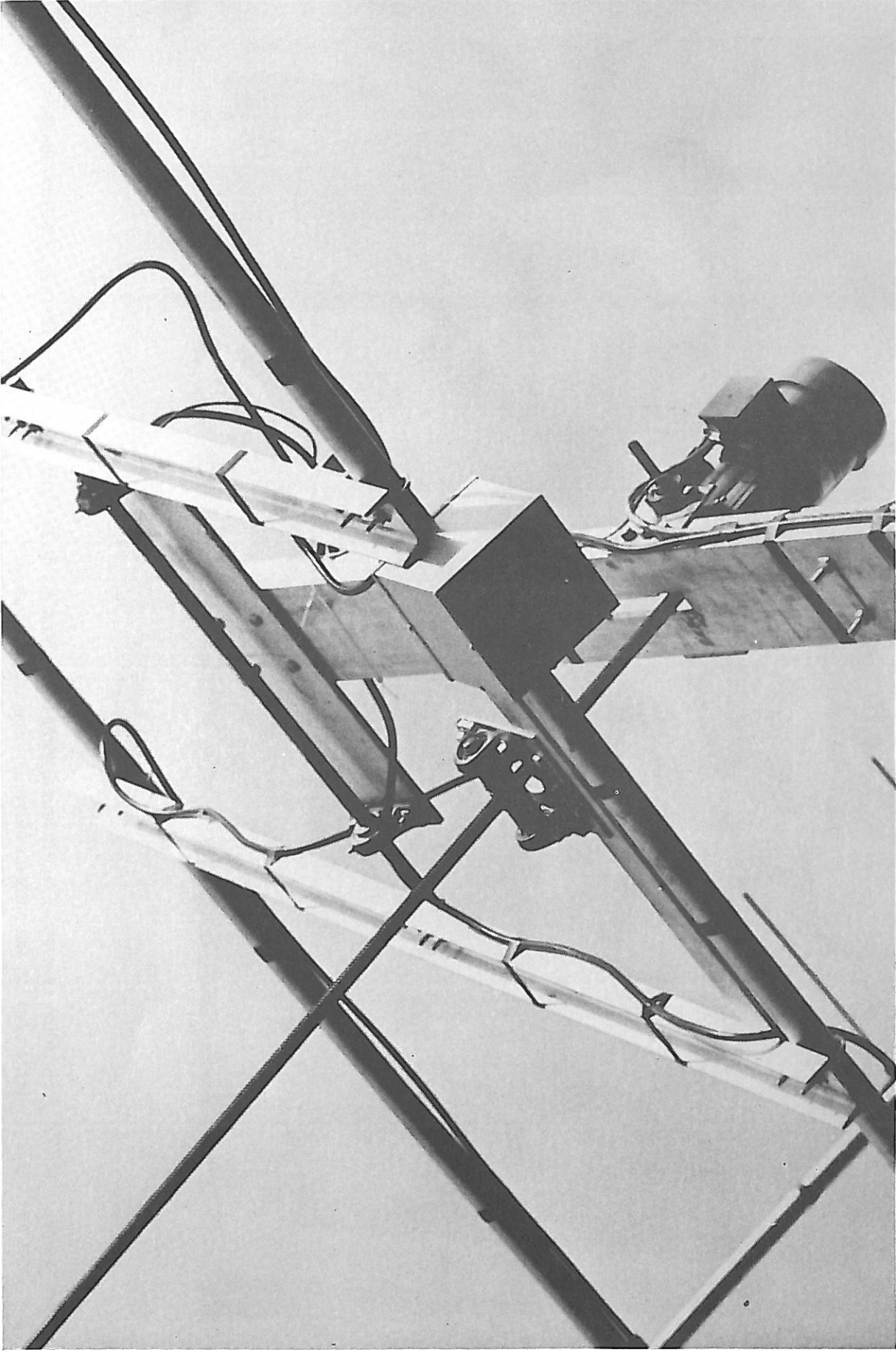


Figure 3.

Here is the K5VWW method of changing elevation on an 'H'-frame type of main boom. A lead screw, reversible motor, and pillow blocks makes the job look easy.

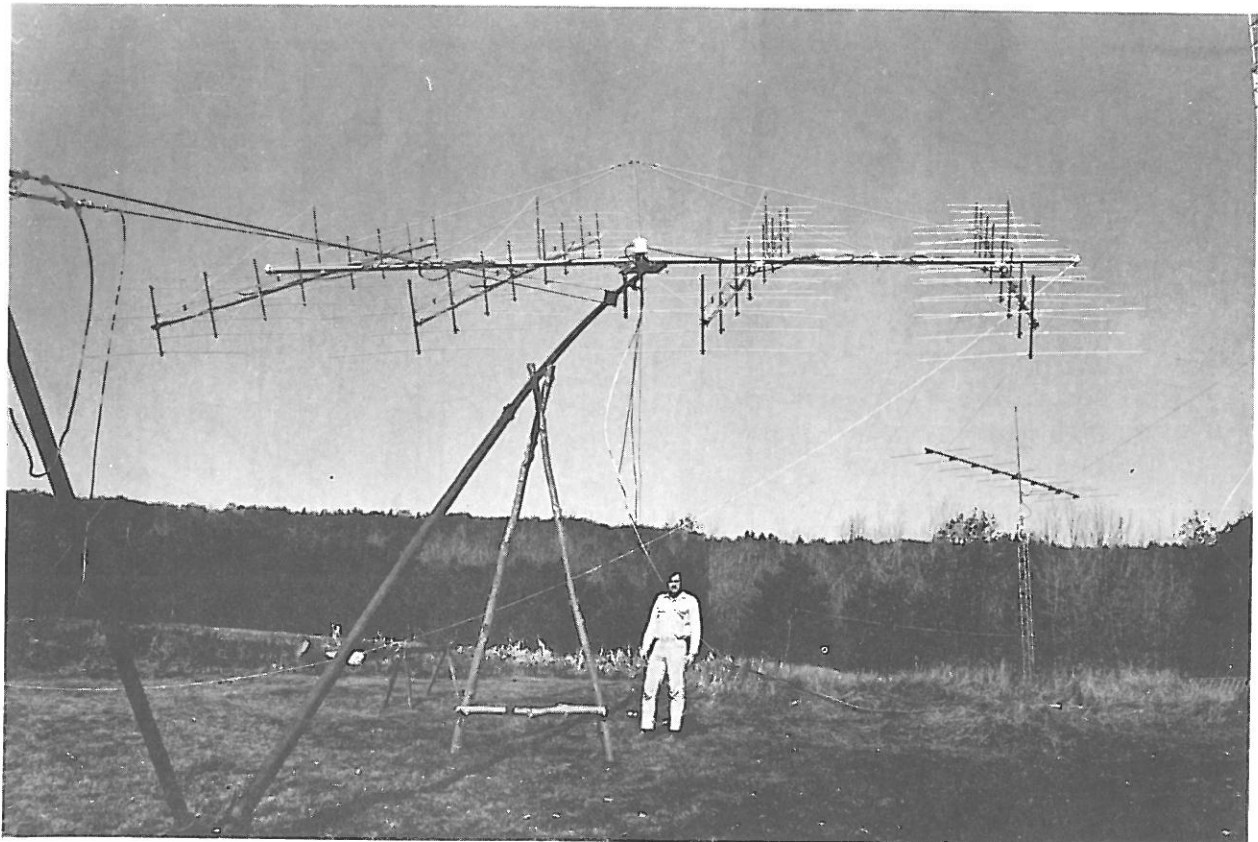
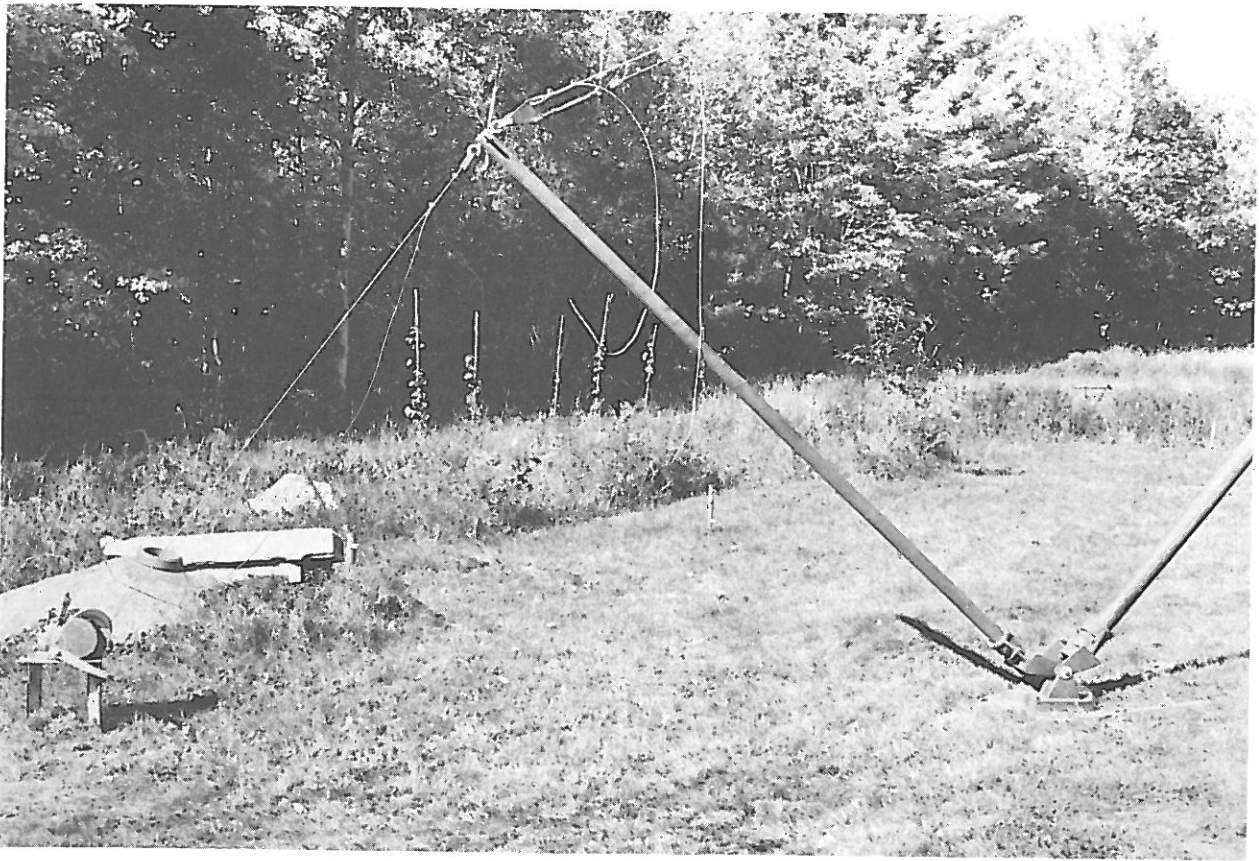
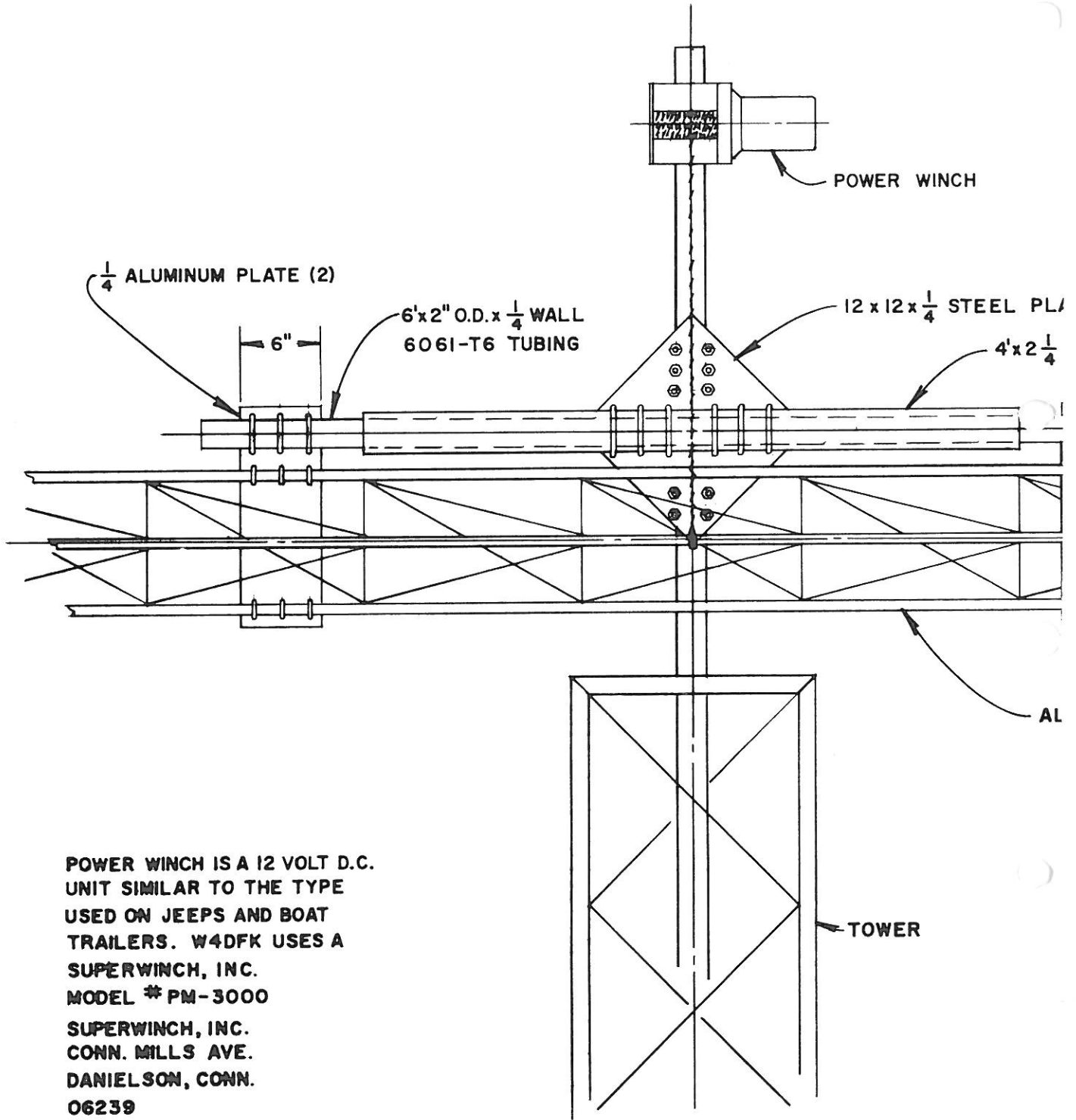


Figure 4.

K1WHS found this Quasi-Polar mount in a surplus store. With a little ingenuity an elevation drive system can be developed around what can be found in junkyards and surplus stores.

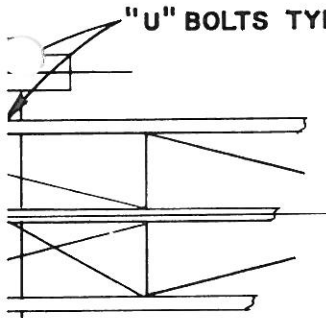


POWER WINCH IS A 12 VOLT D.C.
 UNIT SIMILAR TO THE TYPE
 USED ON JEEPS AND BOAT
 TRAILERS. W4DFK USES A
 SUPERWINCH, INC.
 MODEL # PM-3000
 SUPERWINCH, INC.
 CONN. MILLS AVE.
 DANIELSON, CONN.
 06239

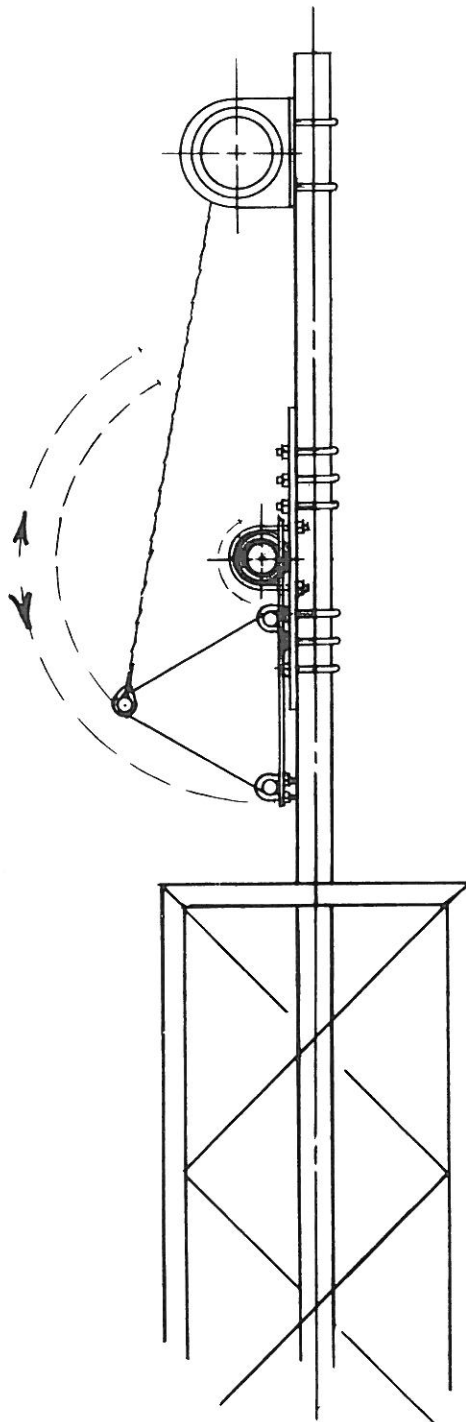
Figure
 This drawing describes the unique system us
 winch is used to hoist the array into position

ALUMINUM CONDUIT

"U" BOLTS TYPICAL



4 TOWER SECTIONS FOR BOOM



4DFK, K2RTH and WA2BIT. The electric
as to change the elevation.

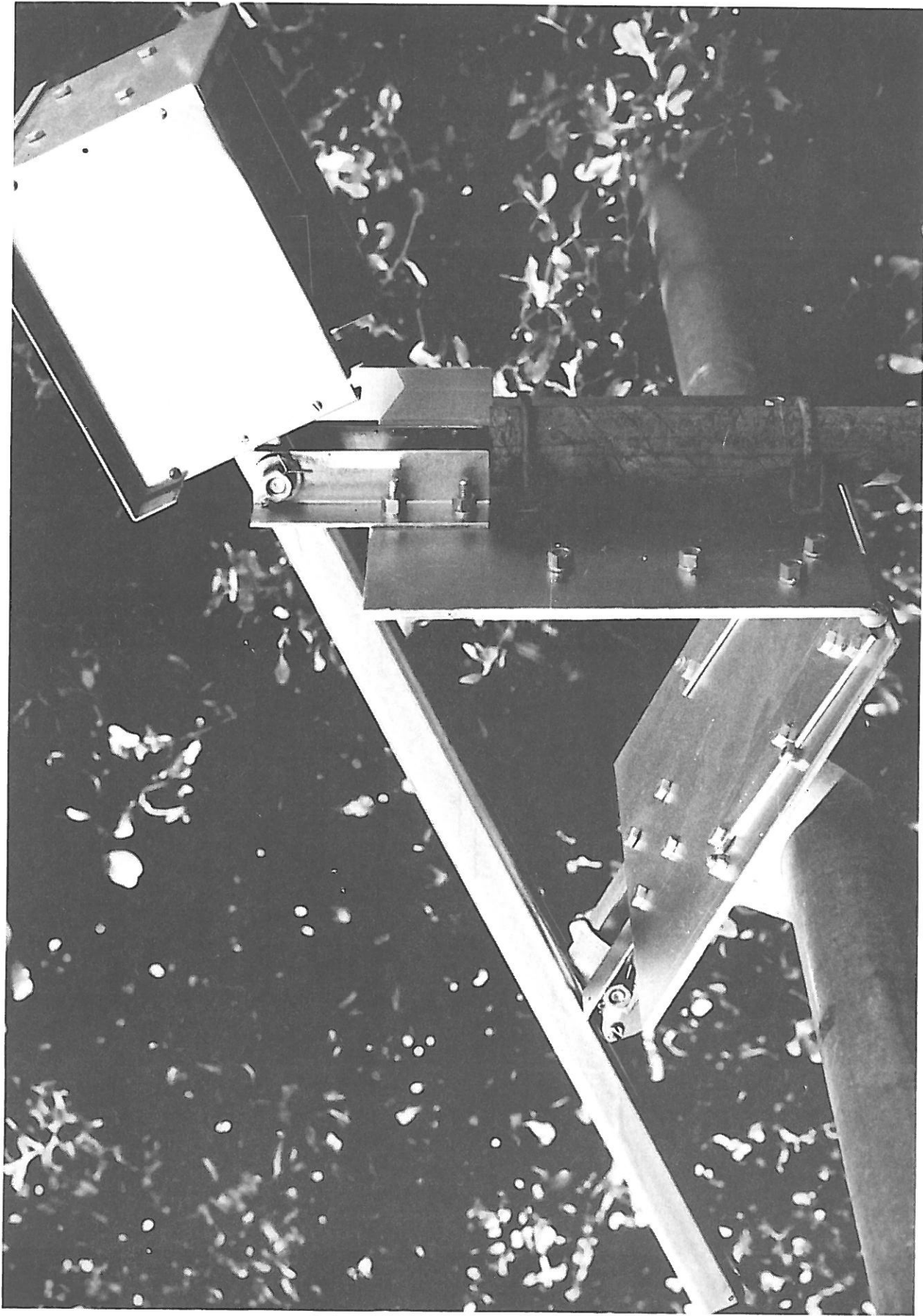


Figure 6.

An elevation system built by W6PO to demonstrate a simple system. A standard automobile bumper jack is used for the lead screw. One-quarter inch steel plates and heavy-duty barn door hinges provide the strength to support the boom on the rotating mast. A direct-current, double-gear motor supplies the remote control drive.

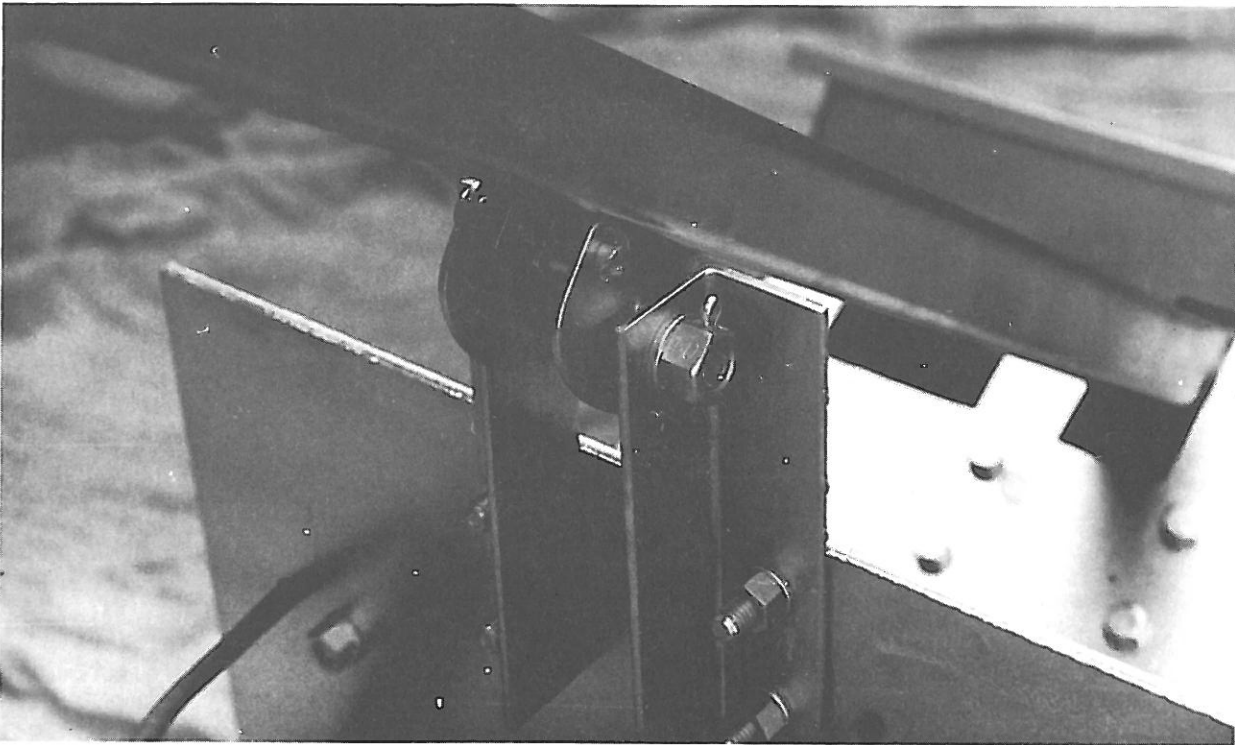
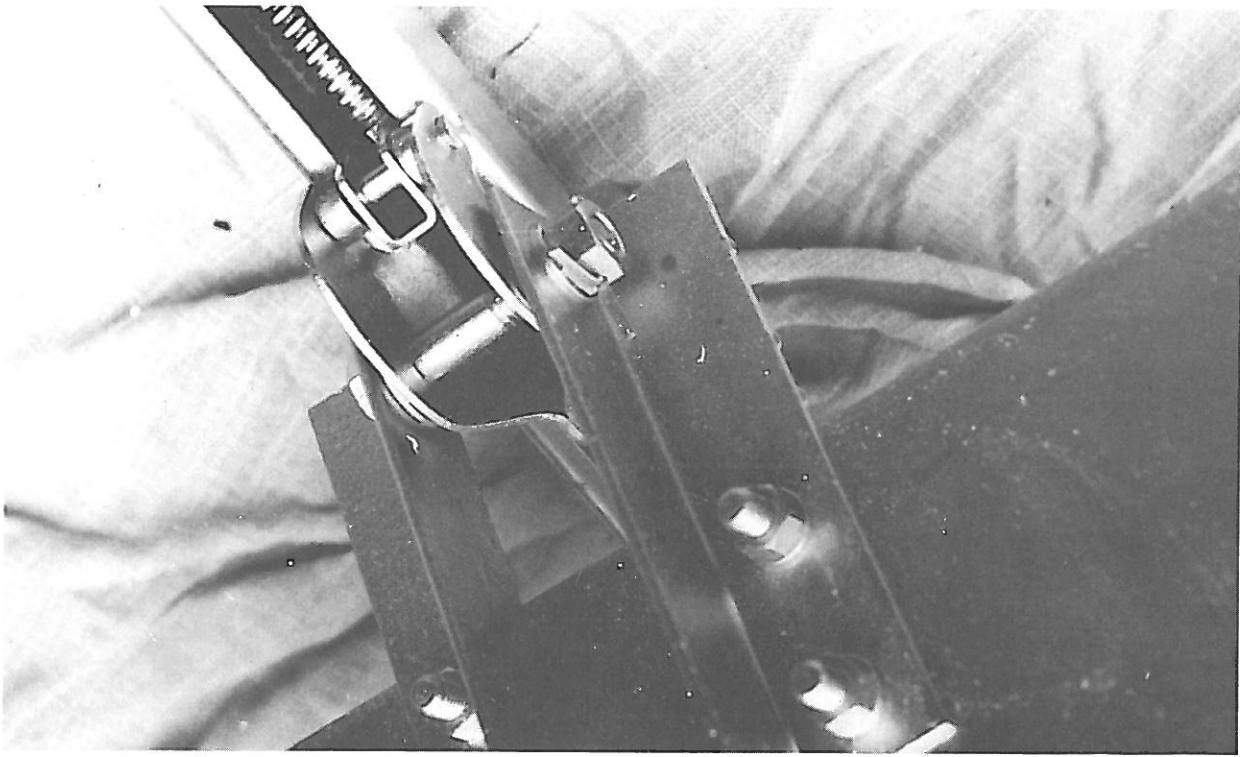


Figure 7.

These two pictures show the bottom drive nut of the W6PO elevation system. The device used to hook under the automobile bumper was removed and replaced with a stainless steel 3/8" bolt to serve as a pivot point.

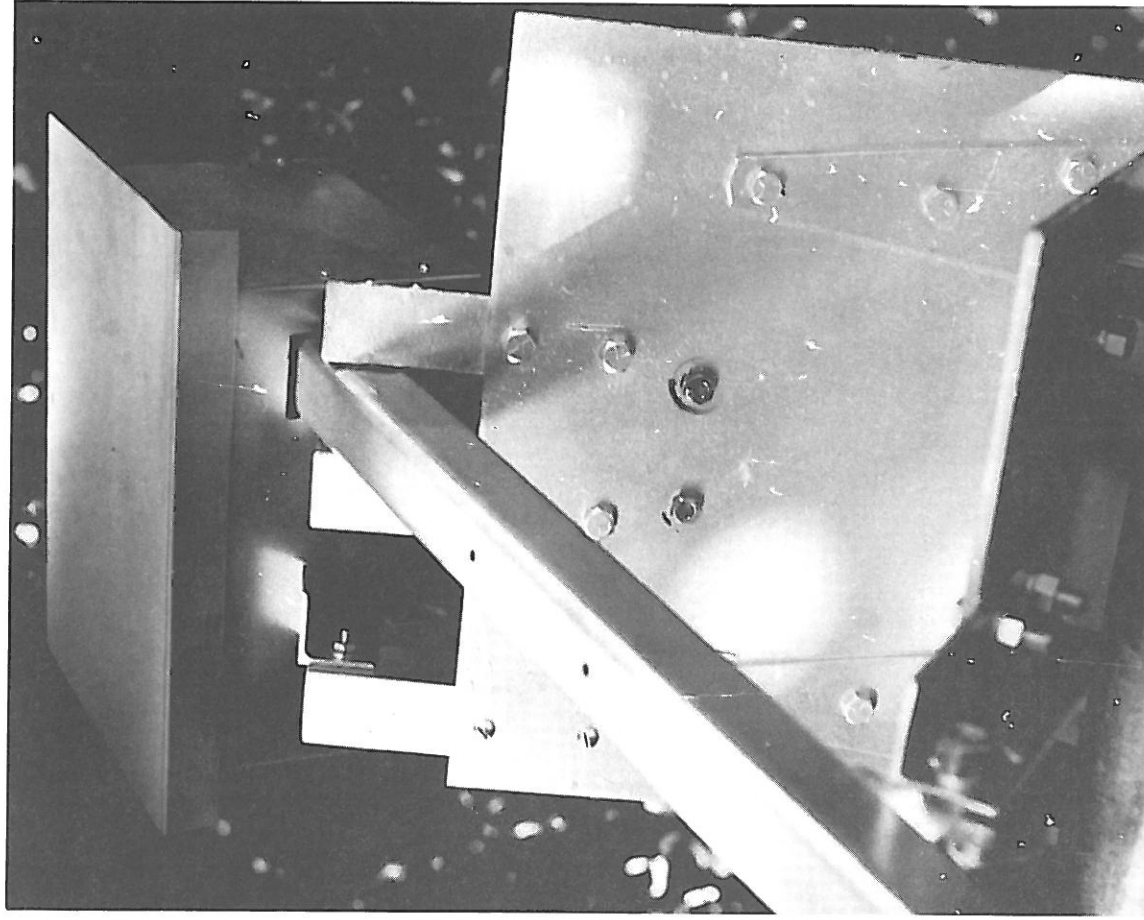
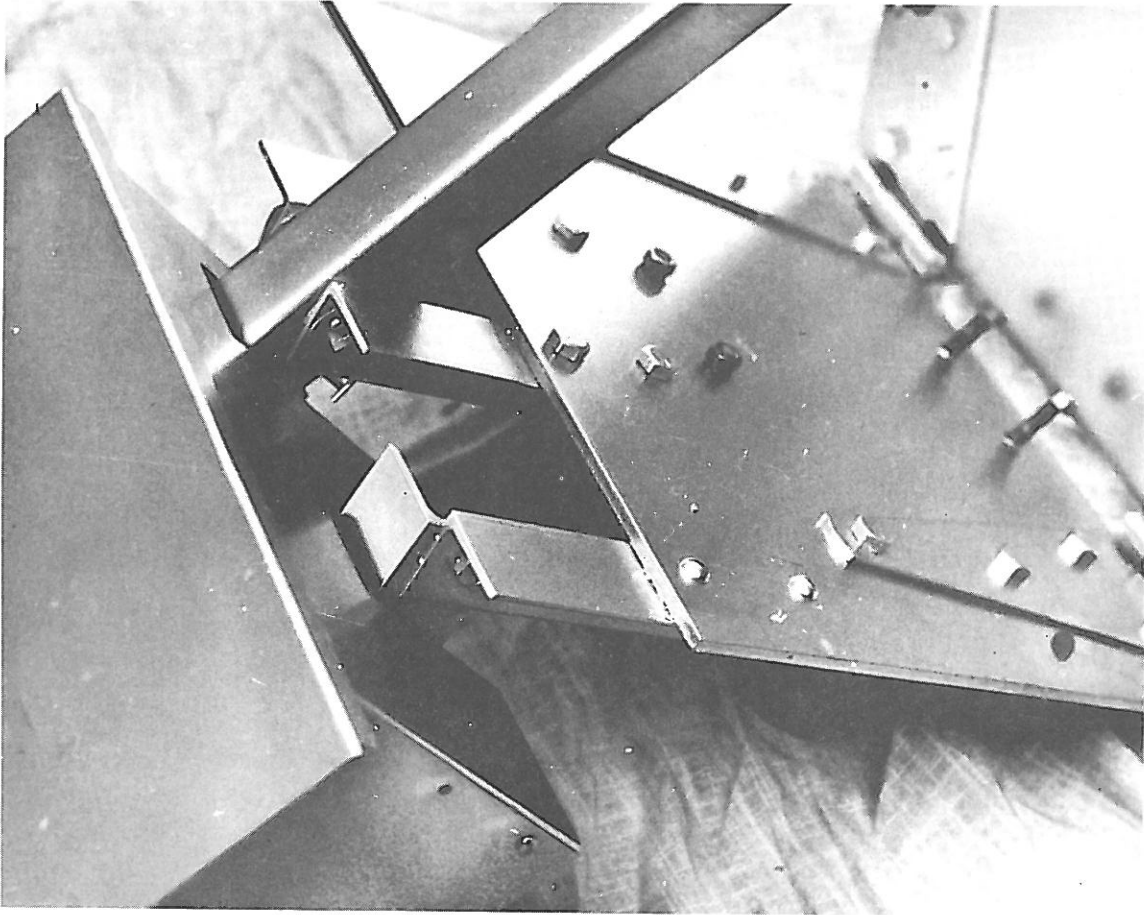
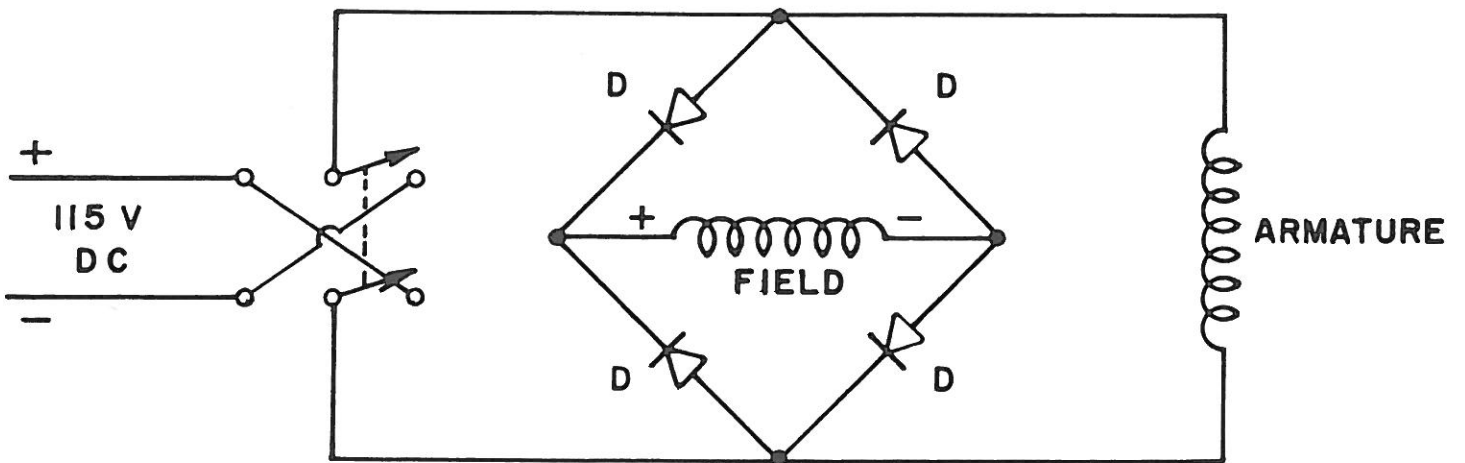
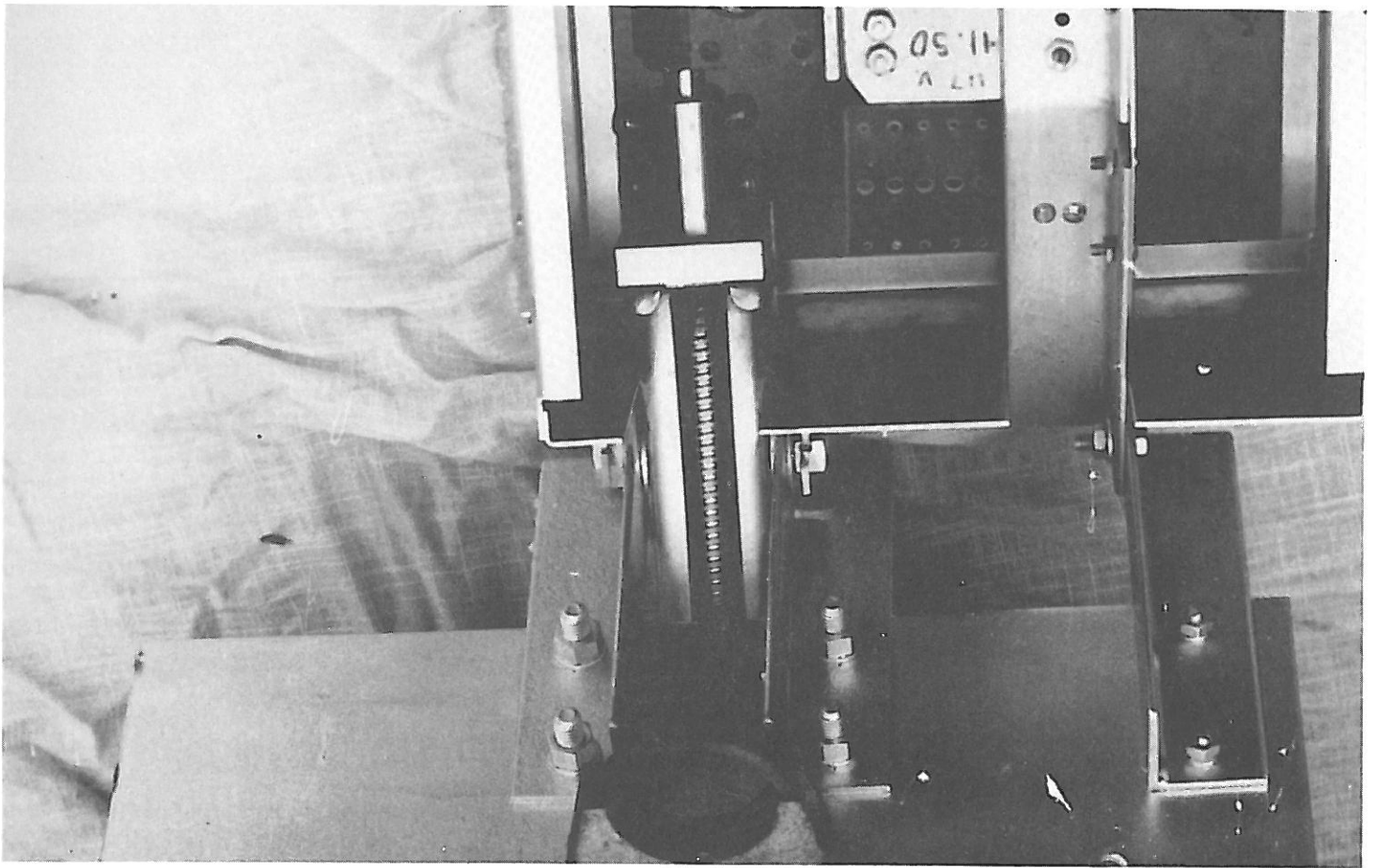


Figure 8.

The gear motor weather protection box and the top pivot points are visible in these pictures of the W6PO elevation unit. Stainless steel bolts are used throughout. This is done more for strength than for corrosion resistance. Cotter pins are used to keep the nuts on the pivot bolts from falling off. The nuts are not tightened down in order to allow movement.



**D - SARKES - TARZAIN 3AF6
600 VOLTS PIV, 3 AMP DIODES**

Figure 9.

A view looking at the top bearing of the lead screw and the bottom of the motor box. The schematic is for the elevation drive motor. The gear motor is a 115 volt D.C. reversible unit. Instead of using several relays to change the direction of rotation, steering diodes are used. A double pole, double throw switch with a center-off position is used. The electron flow through the field is always in the same direction. The electron flow through the armature is changed; therefore the direction of rotation is changed.

