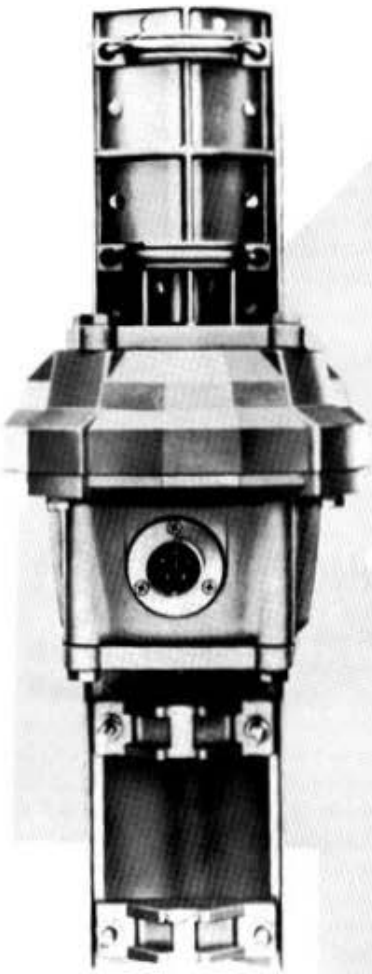
OWNER'S MANUAL



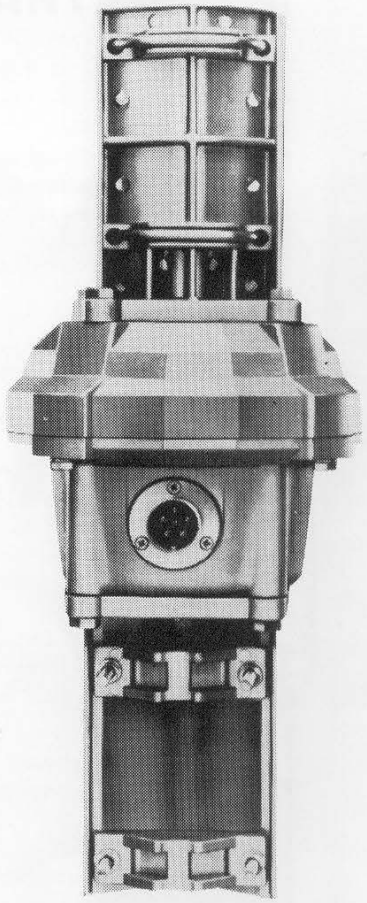
WR-500 ROTOR

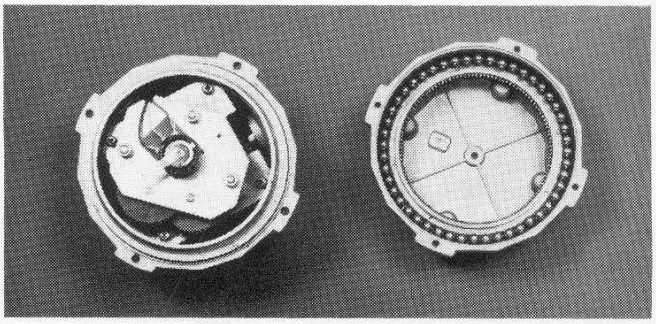
Wilson Electronics Corp.

4288 SO. POLARIS AVENUE • P. O. BOX 19000 • LAS VEGAS, NEVADA 89119
(702) 739-1931 • TELEX 684-522

WR-500 SPECIFICATIONS

MAXIMUM LOAD:	6 Square Feet Windload Area
HOUSING:	Heavy Cast Aluminum
MOTOR:	High Torque; 780 Inch Pounds Stall Torque
BRAKE TYPE:	Disc
BRAKE TORQUE:	1300 Inch Pounds
GEARS:	Stainless Steel Drive
BEARINGS:	96 Steel Ball Bearings; 750 Pounds Balanced Weight Capacity
HARDWARE:	All Hardware Included, Accepts 1-3/8" to 2-1/8" OD Masts
MOUNTING:	In-Line or Tower
CONTROL CABLE:	8 Conductor; Maximum Resistance 2.5 OHMS
INPUT VOLTAGE:	105-125V AC, 50-60 Hz
WEIGHT:	Rotor Only, 12 Pounds
CONTROL BOX DIMENSIONS:	6-3/4"W x 3-3/16" H x 4-7/8" D
SHIPPING WEIGHT:	20 Pounds
ROTOR DIMENSIONS:	7" Diameter, 17" Height, Including Top and Bottom Mounting Brackets
METER SCALE:	Direct Reading, North Centered, 5° Increments
RECOMMENDED CABLE:	8 Conductor Weather Proof
ROTATION TIME:	45-60 Seconds, with 60 Hz input





SECTION I - UNPACKING

1.1 Removing From Carton

Carefully remove rotor from the packing carton and examine it for any signs of shipping damage.

1.2 In Case of Damage

The responsibility for safe delivery rests with the carrier. The responsibility in obtaining reimbursement for damage rests with you. Prompt action on your part will speed adjustment. Our warranty in no way covers malfunction or damage which is a result of improper handling by the carrier. Under no circumstance should you return merchandise to your dealer before obtaining prior approval. To do so can jeopardize your investment and the cost of necessary repairs will be a burden you will have to assume.

1.3 Shipping Carton

Save the carton and packing material, you may need it at a later date for storage or shipment of the rotor.

SECTION II - INSTALLATION

2.1 Cable Requirements

Eight wires are required to control the rotor and indicate its position. The cable should be weatherproof and contain eight conductors of # 22 copper wire or larger. For cable runs 100 feet or longer use a wire size of # 20 gauge or larger. For best operation, voltage drop due to line loss should not exceed 2%. However, the rotor will operate with greater voltage drop with only slight degradation of performance. The WR500 comes supplied with cable connectors for the control box and the rotor. With the control connector and the rotor connector on the work table, connect the cable between the two connectors. Make sure wires 1, 2, 3, 4, 5, 6, 7, and 8 on the control connector are to 1, 2, 3, 4, 5, 6, 7, and 8 on the rotor connector respectively. Caution: No loose strands of wire should touch adjacent terminals or other metal parts on the connector.

2.2 Pre-Installation Check

It is recommended that a preliminary operational check be made on the rotor system prior to actual installation. With the rotor sitting in the upright position and connected to the control box by the eight wire cable, plug the control box power cord into a convenient 115V AC 50 to 60 Hz wall socket. Turn the power switch on. The meter should be illuminated. Depress the clockwise rotation switch. The rotor should turn clockwise. This is S-W-N-E-S. Release the rotation switch, rotor will coast down and stop. During rotation, when the end of scale is reached, the maximum rotation light will come on. To turn the rotor counterclockwise, depress the counterclockwise switch. This is S-E-N-W-S. Prior to actual installation, check the calibration and familiarize yourself with this procedure. It is best done while the system is set up for the pre-installation check (see meter calibration).

2.3 Meter Calibration

Rotors are shipped from the factory stopped at the N (North) position. With the power switch on, rotate the rotor clockwise until the end of rotation is reached when the Max. Rotation will light. If the indicator needle does not point S on the right hand side, turn the calibration knob and adjust the indicator to that position. Meter calibration can be performed at any time it is desired to check the accuracy. When power is off, the needle will fall to the left hand south position. When power is on, the needle will indicate the antenna position. It is imperative that the previous calibration instructions are followed and the antenna is mounted in the south position. If an attempt is made to calibrate the antenna in any other position the linearity of the rotor will be degraded and the true indications will be off in varying degrees.

2.4 Rotor Mounting

The WR500 rotor system is designed to accommodate light amateur and CB antennas with a maximum of six sq. ft. of wind area. The WR500 provides a full 360° range of rotation and a meter scale read-out for accurate position indication. Mast mounting and top plate mounting are the two common ways of mounting the WR500. The WR500 rotor is shipped from the factory stopped at the N (North) position. During the pre-installation check, rotate the system (i.e. the rotor properly connected to the control box) clockwise until the end of rotation and by handling the calibration knob adjust the indicator to the right hand S position. Install rotor in this condition and point beam south so that the lead wires will not foul. The rotor mechanism has limit switches in both the clockwise and counterclockwise positions. This prevents the rotor from wrapping up the central cables. Wire up the rotor and control box and apply power, the meter should read south on left side of dial. The center of gravity and center of wind loading force of the antenna should be as close to the top of the rotor casing as possible. One to three feet is practical with most installations. When an antenna with a boom length exceeding eight feet is to be mounted more than eight feet above the top of the rotor, use of a heavy duty tower with the rotor mounted inside is mandatory. The antenna support then should be a two inch O.D. steel tube with ¼" wall rotating in a ball thrust bearing at the top of the tower. The rotor should be mounted inside the tower within four feet of this bearing. All reliable tower manufacturers will be glad to advise as to the best method for inside mounting with their product. A rugged mount can be made easily with angle iron and U-bolts that will fit any tower. The WR500 readily mounts on a pipe or top of tower but certain precautions must be observed to obtain good service. Successful operation of the WR500 with moderate size antennas is assured if a proper mechanical installation commensurate with the total size of the entire system is made. Do

not attempt to gain another ten feet of height by attempting to mount an antenna of any size on top of a 1¼" "TV" mast on top of the rotor. You are just going to pick up pieces after the first wind gust! If there is any doubt about a top mount, then we recommend investing in a good inside tower installation. It's an excellent investment. Caution: The rotor is designed for vertical operation with the bell shaped housing in the up position. Water and other contamination will get into the motor unit if mounted horizontal or upside down.

SECTION III - OPERATION

3.1 Mechanical Operation

To prevent binding under adverse operating conditions, a small amount of play is designed into the rotor. Even a degree or so of rotor play will permit several inches of movement at the end of a long antenna boom, or at the tips of the elements. Frequently, the slight motion of the antenna array in gusts of winds is due more to the natural flexing of the elements and mast than it is due to actual play in the rotor mechanism. Occasionally in very high winds the disc brake on the WR500 may slip; it takes approximately 1300 inch lbs. of force to overcome the disc brake. This generally will not occur unless the antenna is very large. Another problem regarding antenna slippage is a matter of the antenna slipping in the mast support. A false indication of suspected slipping may be indicated on the meter. Compare meter readings at different times when the rotor has not been activated. Check the nuts on the U-bolts so that they are tight.

3.2 Electrical Operation

Field experience has shown that most operational difficulties with the rotor are traceable to broken, shorted, or grounded wires, usually at the connectors. Time spent in cutting the leads to exact length, tinning, forming, cutting insulation to exact lengths and clamping to prevent strain on any single wire on the connector will pay big dividends later in long and trouble free performance. Put it up right and leave it up!

3.3 Shock Hazard

CAUTION: BEFORE CLIMBING TOWER AND/OR PERFORMING ANY MAINTENANCE ON THE WR500 TOWER SYSTEM OR YOUR ANTENNA SYSTEM, MAKE CERTAIN ALL A.C. POWER IS DISCONNECTED FROM YOUR INDICATOR UNIT. IN ADDITION, DO NOT ATTEMPT TO INSTALL OR ADJUST YOUR ROTOR OR TOWER DURING A RAINSTORM OR WHEN LIGHTNING IS A POSSIBILITY. FURTHER CAUTION IS GIVEN TO KEEP CLEAR OF ALL POWER AND ELECTRICAL LINES.

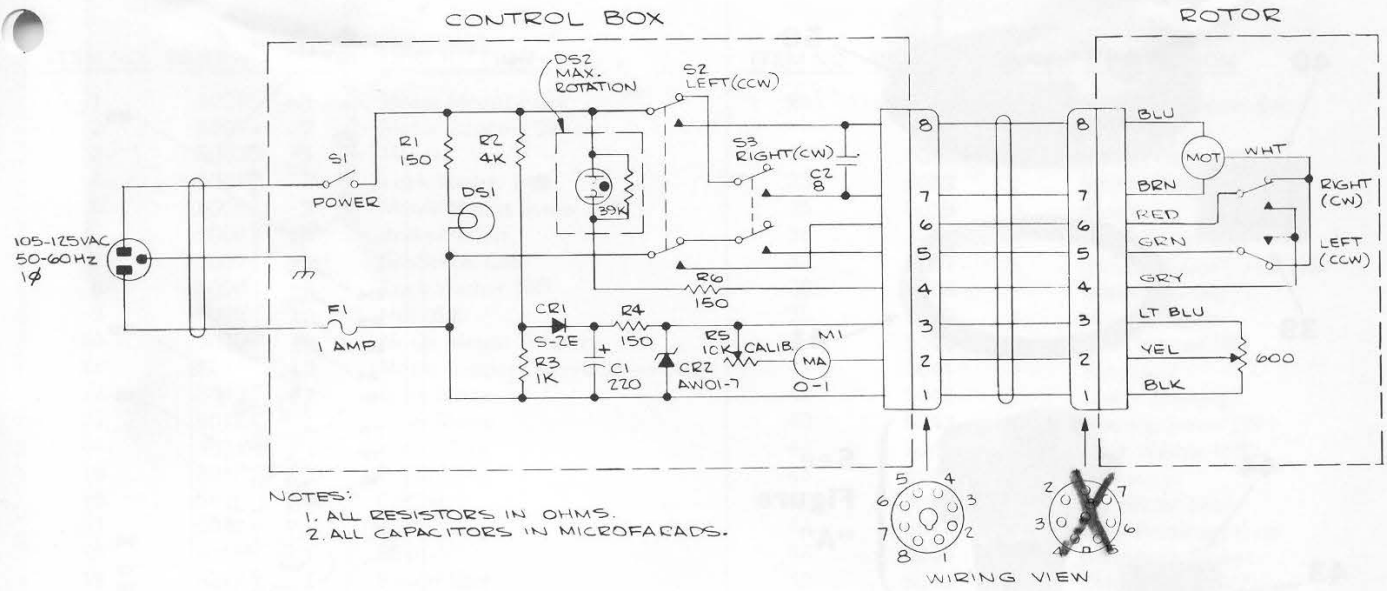
SECTION IV - SERVICE

4.1 Return Shipments Procedure

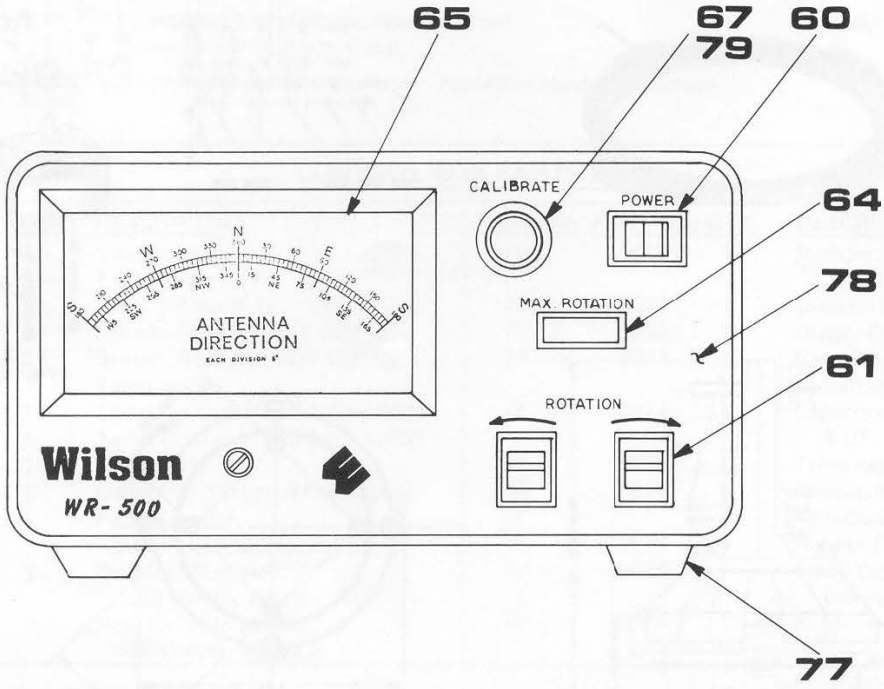
Do not ship equipment to the manufacturer without prior returned goods authorization. If time is extremely important, call for approval. When a shipment is expected, the time it takes to process the incoming shipment, repair it and get it back to you is less than when an unexpected shipment is received and has to be processed. It is very important that the shipment be well packed and fully insured. Damage claims must be settled between you and the carrier and will greatly delay any returns. Proper packing will normally avoid this trouble. All shipments must ge sent to us prepaid. We do not accept collect shipments. All returns should be made in our standard cartons only.

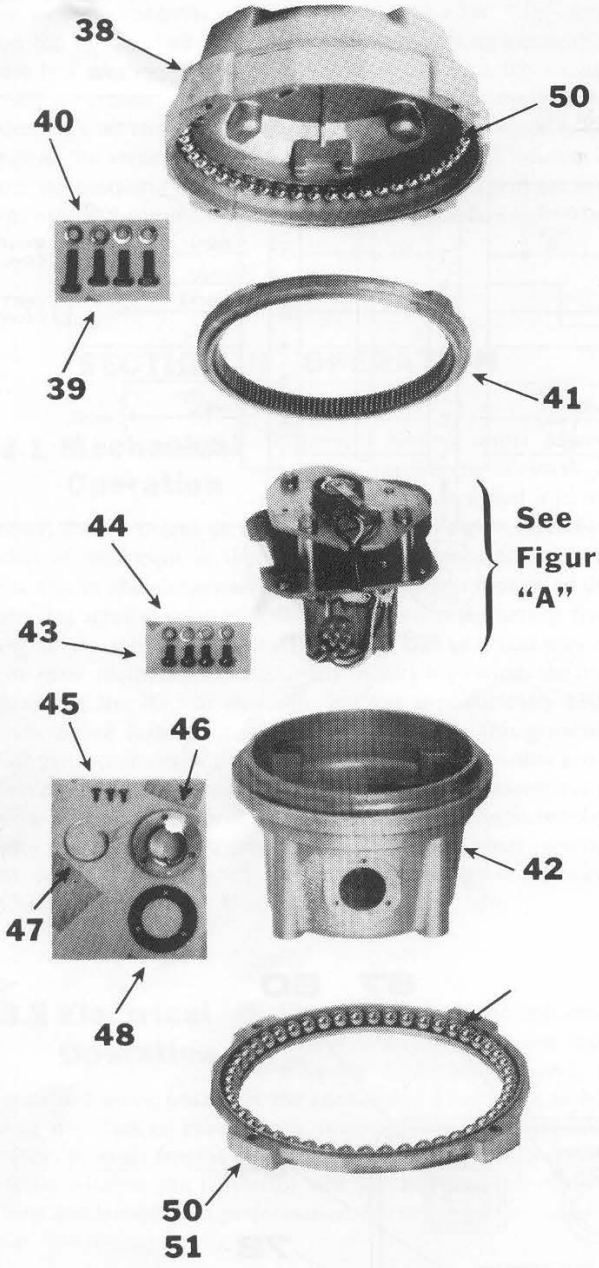
4.2 Shipping Methods

When a shipment is returned it will be handled in one of three ways. Where all service is in warranty, the shipment will be returned prepaid via a carrier of our choice. If there are any charges not covered by warranty, we will hold the shipment and advise you of cost which you can then send or upon your written authorization we will ship COD for any charges not covered by warranty. Then the carrier will collect these charges and the transportation costs on arrival. Unclaimed or refused COD shipments will not be reshipped until payment of service and transportation charges is received. Shipment will then be made collect for reshipment transportation charges. Unclaimed equipment automatically becomes the property of the manufacturer 60 days after the date of refusal or return and will be disposed of for payment of charges due. NOTE: We will not ship by means of a carrier that will not fully insure the shipment. The exception to this is when there is no other means (APO/FPO, etc.) of shipment than parcel post and then we will ship by this means with your written agreement that you assume any loss over that which the carrier will insure. COD shipments cannot be made through APO/FPO addresses. Registered mail and U.P.S. are the best methods of shipment. Replacement parts ordering: All replacement parts orders must be prepaid or COD only. Replacement part price quotes will be furnished upon request for those who desire prepaid shipment or cannot accept COD shipment.



ROTOR SCHEMATIC

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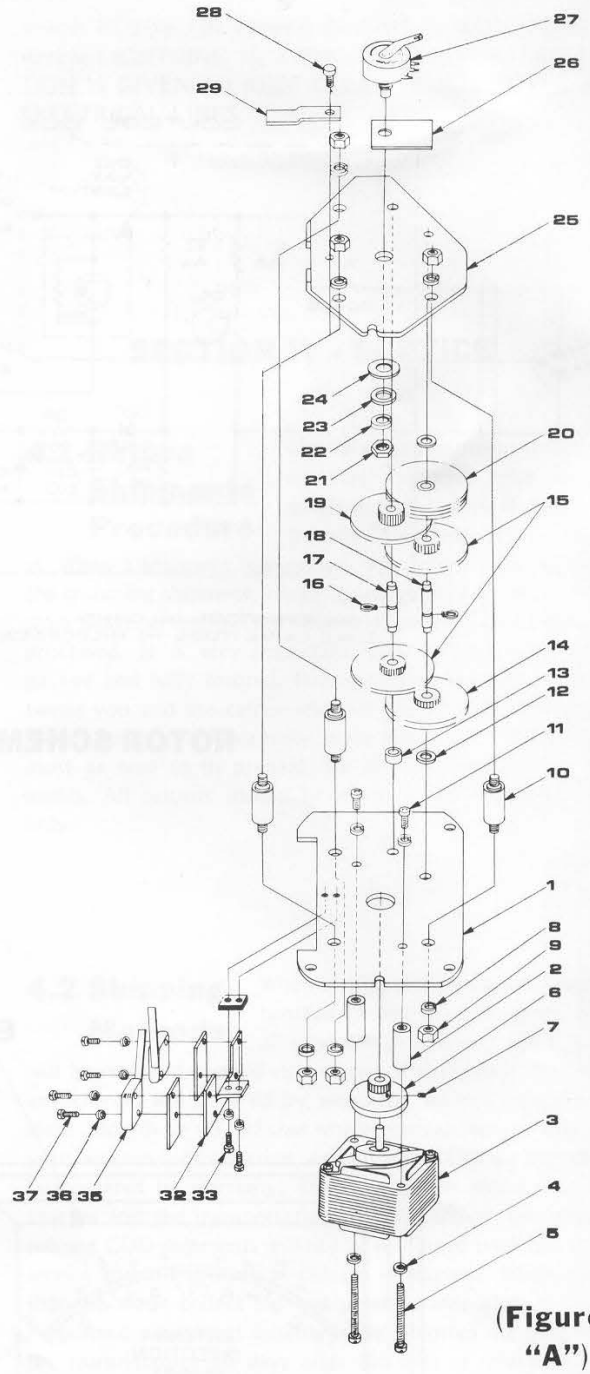
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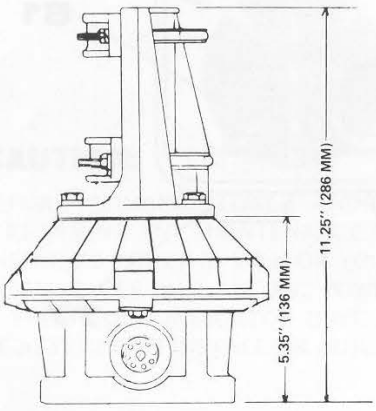
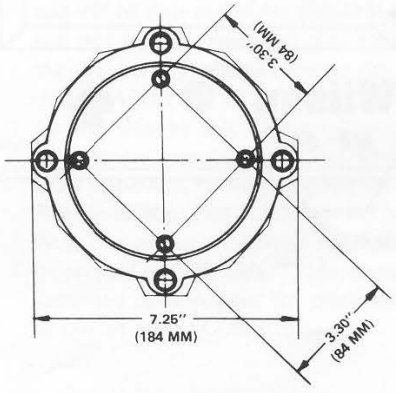
(Figure "A")


11.25" (286 MM)
5.35" (136 MM)


3.30"
(84 MM)
7.25"
(184 MM)
3.30"
(84 MM)

ROTOR PARTS LIST

ITEM NO.	PART NO.	QTY.	DESCRIPTION
1	5001	1	Motor Mount Plate
2	5002	2	Motor Support Sleeve
3	5003	1	Motor
4	5004	2	Lock Washer (4Ø)
5	5005	2	Motor Mount Screw (4Ø)
6	5006	1	Brake/Pinion
7	5007	1	Set Screw (3Ø)
8	5008	6	Lock Washer (6Ø)
9	5009	6	Nut (6Ø)
10	5010	3	Motor Mount Support
11	5011	2	Motor Support Sleeve Screw (4Ø)
12	5012	2	Shim Washer
13	5013	1	Shim Sleeve
14	5014	1	Plastic Gear
15	5015	2	Pinion Gear
16	5016	2	C-Ring
17	5017	1	Shaft
18	5018	1	Shaft
19	5019	1	Pinion Gear
20	5020	1	Drive Gear
21	5021	1	Nut (9Ø)
22	5022	1	Lock Washer (9Ø)
23	5023	1	Washer (9Ø)
24	5024	1	Shim Washer (9Ø)
25	5025	1	Gear Plate
26	5026	1	Pot Insulator
27	5027	1	Pot
28	5028	1	Stopper Bar Screw (5Ø)
29	5029	1	Rotation Stopper Bar
32	5032	1	Switch Plate Insulator
33	5033	2	Switch Plate Screw (3Ø)
35	5035	2	Switch
36	5036	4	Lock Washer (3Ø)
37	5037	4	Switch Mount Screw (3Ø)
38	5038	1	Upper Housing
39	5039	4	Housing Screw
40	5040	4	Lock Washer (6Ø)
41	5041	1	Ring Gear
42	5042	1	Lower Housing
43	5043	4	Housing Screw (6Ø)
44	5044	4	Lock Washer (6Ø)
45	5045	1	Connector
46	5046	1	Connector Shell
47	5047	1	Shell Retaining Ring
48	5048	1	Connector Gasket
49	5049	3	Connector Shell Screw
50	5050	98	Bearing
51	5051	1	Bearing Race
52	5052	2	Mast Holder
53	5053	4	Mast Clamp
54	5054	4	U-Bolt
55	5055	4	Lock Washer
56	5056	4	Nut

Note: Ø = Millimeters

80	5080	1	Connector, 8 Pin Female, Weather Proof
81	5081	1	Connector, 8 Pin Male, Octal

Note: Parts 80 & 81 above furnished with Rotor - Packed in Hardware Package

CONTROL BOX PARTS LIST

ITEM NO.	PART NO.	QTY.	DESCRIPTION
57	5057	1	Line Cord/Plug
58	5058	1	Fuse Holder
59	5059	1	Fuse, 1 Amp (F1)
60	5060	1	Switch, Rocker, SPST (S1)
61	5061	2	Switch, Rocker, DPDT (S2, S3)
62	5062	1	Lamp Socket
63	5063	1	Lamp, Incandescent, 115V (DS1)
64	5064	1	Lamp Cartridge, Red Neon (DS2)
65	5065	1	Meter (M1)
66	5066	1	Connector Socket, 8 Pin Female
67	5067	1	Potentiometer, 10K OHMS, B Taper (R5)
68	5068	3	Resistor, Wire Wound, 150 OHMS, 1W (R1, R4)
69	5069	1	Resistor, Wire Wound, 4K OHMS, 5W (R2)
70	5070	1	Resistor, Wire Wound, 1K OHM, 3W (R3)
71	5071	1	Diode, 100V P.I.V. #S-2E (CR1)
72	5072	1	Diode, Zener #AWO1-7 (CR2)
73	5073	1	Capacitor, Electrolytic, 220 UF, 25V (C1)
74	5074	1	Capacitor, Non-Polarized, 8 UF, 250V (C2)
75	5075	1	Terminal Strip, 14 Terminals
76	5076	1	Chassis, 2 Parts, Includes Mounting Hardware
77	5077	4	Rubber Feet
78	5078	1	Front Panel, Includes Mounting Hardware
79	5079	1	Knob - With Set Screw

ONE YEAR LIMITED WARRANTY

ROTORS

WILSON ELECTRONICS CORP. ("WILSON") warrants that your new ROTOR has been manufactured free of defects in design, material and workmanship. If this product fails to give satisfactory service due to defects covered by warranty, including any warranty implied by law such as WARRANTIES OF MERCHANTABILITY OR FITNESS, for a period of ONE YEAR FROM THE DATE OF PURCHASE, "WILSON" will, at its option, replace or repair the unit, or any defective part free of charge.

To obtain warranty service, return the ROTOR preferably to your dealer, or if this is inconvenient, pack it securely, and send it with proof of purchase date and a letter explaining the problem, shipping cost prepaid, to CUSTOMER SERVICE DEPARTMENT, WILSON ELECTRONICS CORP., 4288 SO. POLARIS, LAS VEGAS, NEVADA 89103

IMPORTANT

Please note: A written "Return Goods Authorization" must first be obtained from "WILSON" prior to shipping anything to the plant, with a copy of the authorization included inside the carton. Warranty service covers only repair or replacement of the ROTOR only. "WILSON" is not responsible for costs of removal or reinstallation, or shipping to the place of repair. The warranty period is not extended due to repair or replacement.

"WILSON" reserves the right to make reasonable charges for service if there is evidence of damage due to alteration, misuse or installation not according to the enclosed instructions.

"WILSON" IS NOT RESPONSIBLE FOR DAMAGE TO OTHER EQUIPMENT OR PROPERTY OR FOR ANY OTHER CONSEQUENTIAL OR INCIDENTAL DAMAGES OF ANY KIND, WHETHER BASED ON CONTRACT, NEGLIGENCE OR STRICT LIABILITY, MAXIMUM LIABILITY SHALL NOT, IN ANY CASE, EXCEED THE PURCHASE PRICE OF THE UNIT.

(Some states do not allow limitations on how long an implied warranty lasts, or the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusion may not apply to you.)

(This warranty gives you specific legal rights. You may also have other rights which may vary from state to state.)

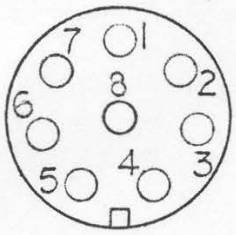
ALSO FROM WILSON;
COMPLETE LINE OF ROTORS, CRANK-UP TOWERS, AMATEUR AND CITIZEN BAND ANTENNAS, AND COMMUNICATION EQUIPMENT.
Write for Illustrated Brochure and Specifications.

Wilson Electronics Corp.

WR 500 CORRECTION

The plug wiring view on page 5 of the instruction manual is incorrect.

The plug which is connected to the rotor should be wired as shown below.



If the rotor control cable plugs are wired pin to pin ("1" to "1", "2" to "2", "3" to "3" etc.) the cable will be correct.