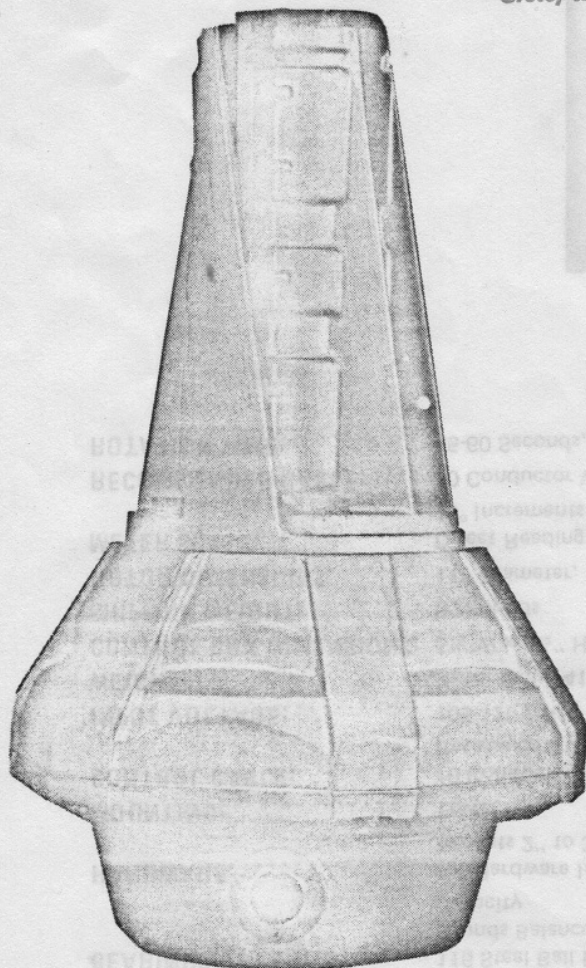


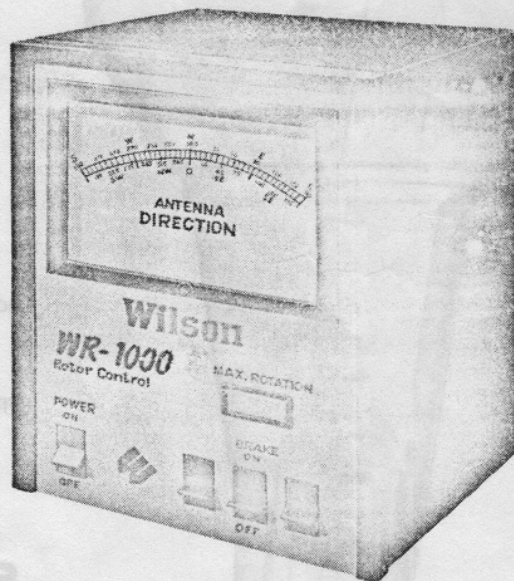
K9AJ

MICHAEL J. McGIRR, M.D.
13 Oak Hill Drive
Crete, Illinois 60417

OWNER'S MANUAL



WR-1000 ROTOR



Wilson Electronics Corp.

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

WR-1000 SPECIFICATIONS

MAXIMUM LOAD: 40 Square Feet Windload Area
HOUSING: Heavy Cast Aluminum
MOTOR: High Torque; 4,000 Inch Pounds
Stall Torque

BRAKE TYPE: Solenoid-Controlled Wedge Type
BRAKE TORQUE: 12,000 Inch-Pounds
GEARS: Steel Spur-Ring Gear
BEARINGS: 116 Steel Ball Bearings; 2,000
Pounds Balanced Weight
Capacity

HARDWARE: All Hardware Included
Accepts 2" to 3" OD Masts

MOUNTING: Tower

CONTROL CABLE: 10 Conductor; Maximum
Resistance 2.5 OHMS

INPUT VOLTAGE: 105-125V AC, 50-60 Hz

WEIGHT: Rotor Only, 41 Pounds

CONTROL BOX DIMENSIONS: 5½"W x 6½" H x 5¾"D

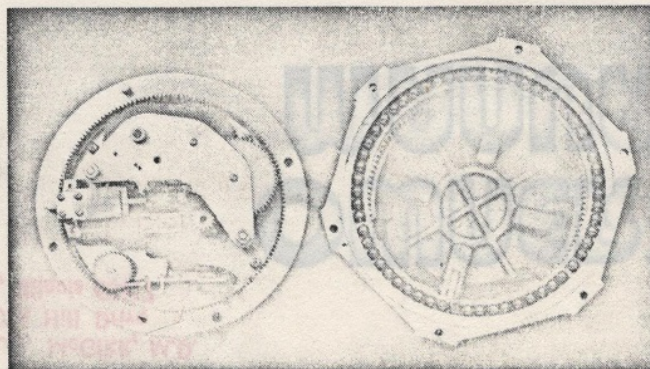
SHIPPING WEIGHT: 52 Pounds

ROTOR DIMENSIONS: 11" Diameter, 19" Height

METER SCALE: Direct Reading, North Centered,
15° Increments

RECOMMENDED CABLE: 10 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

Ten wires are required to control the rotor and indicate its position. The cable should be weatherproof, and contain four conductors of #18 AWG copper wire or larger, and six conductors of #20 AWG copper or larger. For cable runs 100 feet or longer use a wire size of #16 AWG 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 WR-1000 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, 8, 9 and 10 on the control connector are to 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 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 ten-

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. Release the brake switch off— NOTE: The rotor motor will not operate with the brake on. Depress the counterclockwise rotation switch. The rotor should turn counterclockwise. This is: S-E-N-W-S. Release the rotation switch — the rotor will coast down and stop. To turn the rotor clockwise, depress the clockwise rotation switch. This is S-W-N-E-S. During rotation, when the end of the scale is reached, the rotor should stop automatically, and the "maximum rotation" light should come on. Check this for both full clockwise and full counterclockwise positions. Return rotor to full clockwise position and set brake by turning brake switch on.

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 indicator 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. 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 these calibration instructions be followed, and the antenna mounted in the north 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. Meter calibration can be performed at any time it is desired to check the accuracy.

2.4 Rotor Mounting

The WR-1000 rotor system is designed to accommodate amateur and CB antennas with a maximum of 40 sq. ft. of windload area. The WR-1000 provides a full 360° range of rotation, and a meter scale read-out for accurate position indication. The rotor should be inside-mounted on a heavy duty tower, on a steel plate fitted to the tower and drilled with eight mounting holes to match the holes in the lower housing of the rotor. The antenna support should be a 2" to 3" O.D. steel tube with 1/4" wall rotating in a ball thrust bearing at the top of the tower. All reliable tower manufacturers will be glad to advise as to the best method for inside mounting with their product. Upon initial installation, the antenna should be in the north position. CAUTION: The rotor is designed for vertical operation with the lower housing (with the connector) down. Water and other contamination will get into the motor unit if mounted horizontally or upside down. The center of gravity and center of windloading force of the antenna should be as close to the top of the tower (at the thrust bearing) as possible.

SECTION III - OPERATION

3.1 Brake Turn the brake switch to "off" before attempting to rotate the antenna, and back to "on" after the antenna has been rotated to and stopped in the desired position. The motor will not operate with the brake on.

3.2 Rotation With the brake off, rotate the antenna in the direction desired by depressing either the clockwise or the counterclockwise rotation switch. Release the switch slightly before reaching the desired position, allowing for a coastdown that will vary with the moment of inertia of the rotor-antenna combination, and with the wind-loading at that particular time. Coastdown is best determined by trial and observation, and can be expected to vary. If the antenna overshoots the desired position, bring it back with the other rotation switch. Work the switches alternately, as required, until the antenna stops in the desired position. Then turn the brake on. **CAUTION: DO NOT ATTEMPT TO STOP THE ANTENNA WITH THE BRAKE.**

3.3 Play and Slippage 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 the mast than it is due to actual play in the rotor mechanism. To prevent slipping of the mast in the rotor clamp,

tighten all clamp bolts securely. A false indication of slipping may be indicated on the meter. Compare meter readings at different times when the rotor has not been activated.

3.4 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!

CAUTION:

3.5 Shock Hazard BEFORE CLIMBING TOWER AND/OR PERFORMING ANY MAINTENANCE ON THE WR-1000 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 RAIN-STORM, OR WHEN LIGHTNING IS A POSSIBILITY, FURTHER CAUTION IS GIVEN TO KEEP CLEAR OF ALL POWER AND ELECTRICAL LINES.

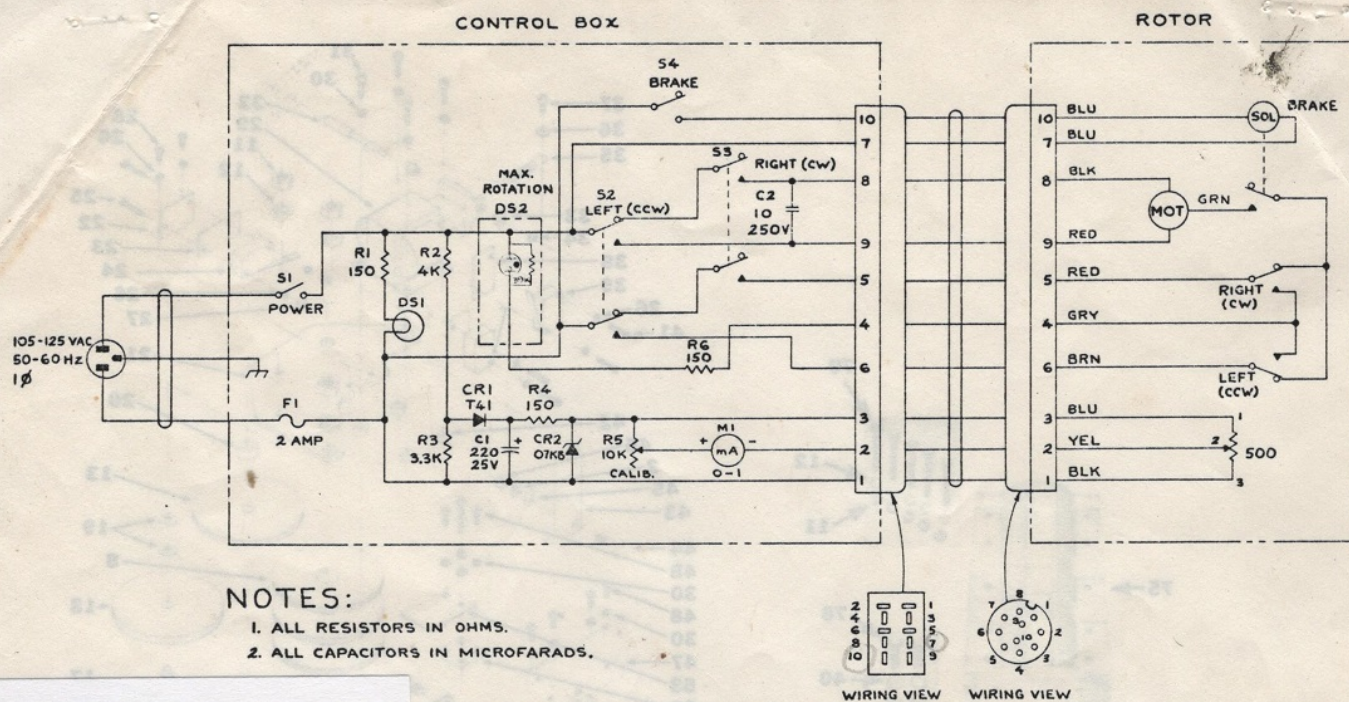
SECTION IV - SERVICE

4.1 Return Shipments Procedure

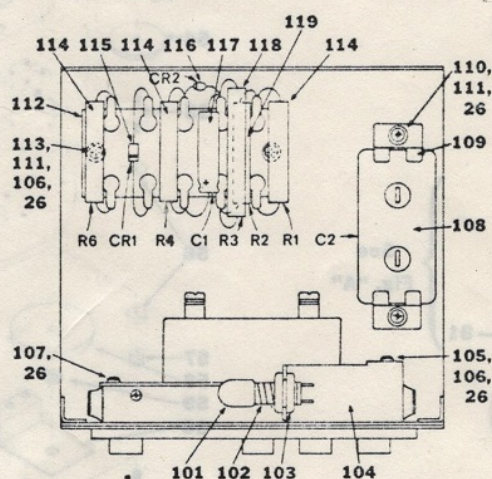
Do not ship equipment to the manufacturer without prior returned goods authorization. If time is extremely important, call for approval. When a shipment is expected, the time it takes to process the incoming shipment, repair it and get it back to you is less than when an unexpected shipment is received 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 be sent to us prepaid. We do not accept collect shipments. All returns should be made in our standard cartons only.

4.2 Shipping Methods

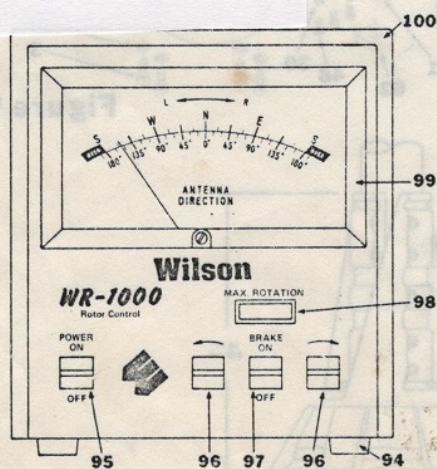
When a shipment is returned it will be handled in one of three ways. Where all service is in warranty, the shipment will be returned prepaid via a carrier of our choice. If there are any charges not covered by warranty, we will hold the shipment and advise you of cost which you can then send or upon 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 is the best method 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.



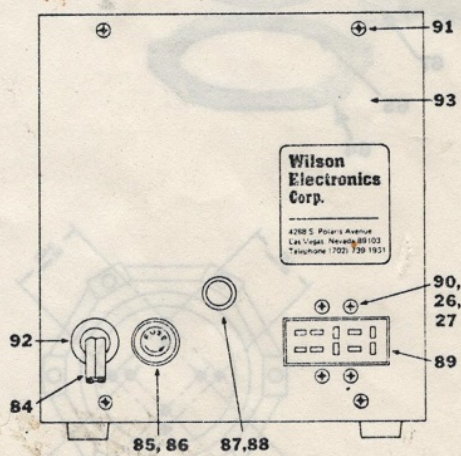
ROTOR SCHEMATIC



(See Parts List, Page 7)



FRONT VIEW
CONTROL BOX



REAR VIEW CONTROL BOX

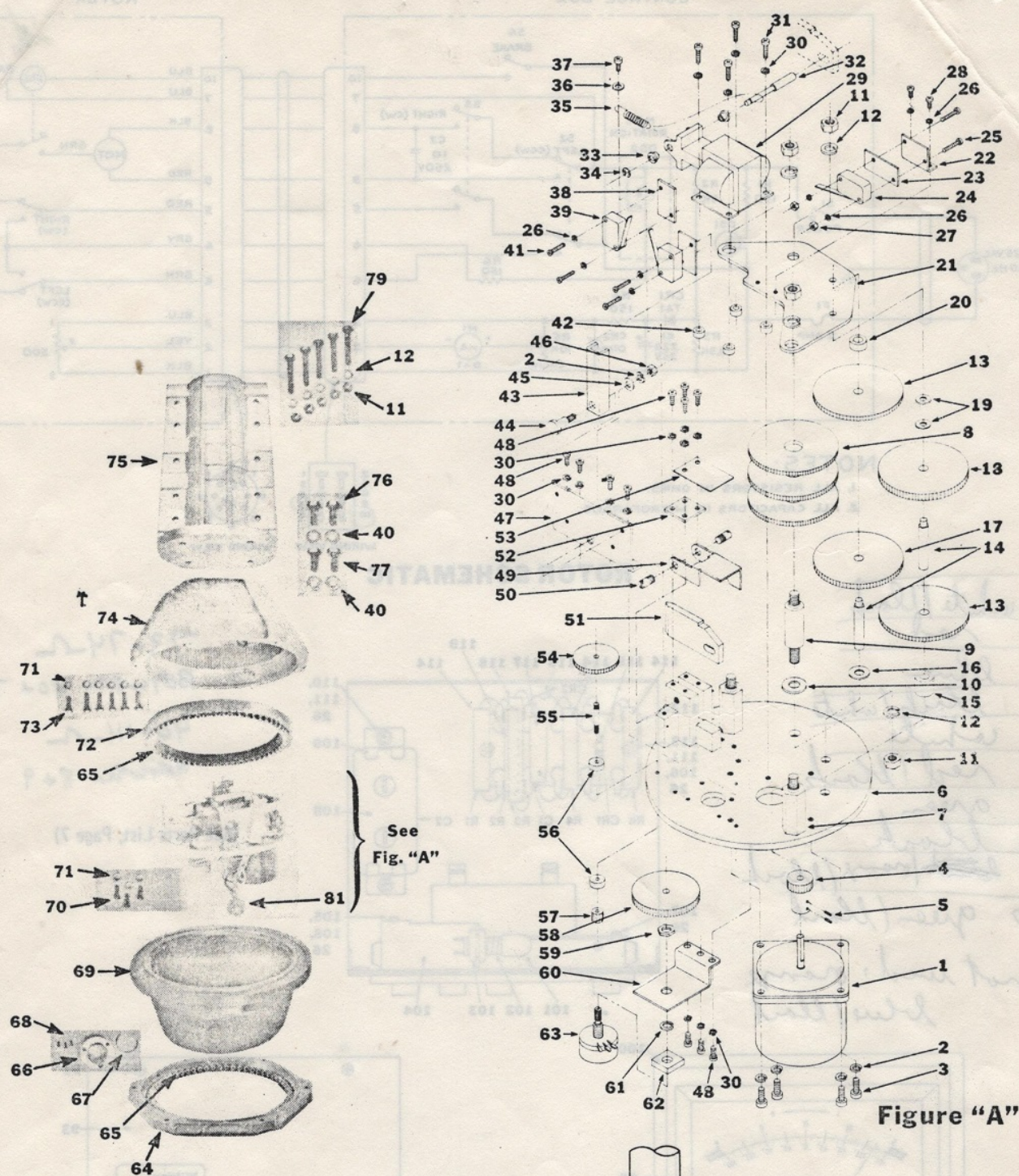
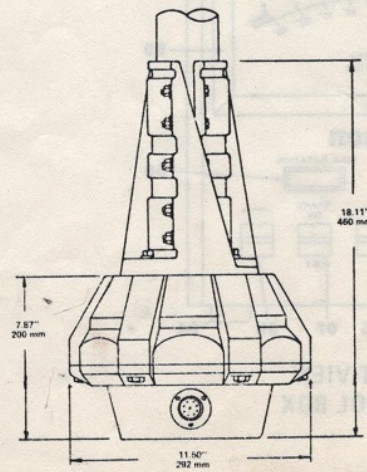
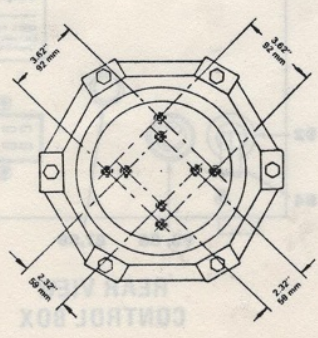


Figure "A"



ROTOR PARTS LIST

| ITEM NO. | PART NO. | QTY. | DESCRIPTION | ITEM NO. | PART NO. | QTY. | DESCRIPTION |
|----------|----------|------|-------------------------------|----------|----------|------|-----------------------------------|
| 1 | 1001 | 1 | Motor | 44 | 1044 | 1 | Shoulder Screw |
| 2 | 1002 | 5 | Lockwasher, 5 mm | 45 | 1045 | 1 | Flat Washer, 5 mm |
| 3 | 1003 | 4 | Screw, 5 mm x 14 mm long | 46 | 1046 | 1 | Hex Nut, 5 mm |
| 4 | 1004 | 1 | Motor Pinion Gear | 47 | 1047 | 1 | Limit Switch Bracket |
| 5 | 1005 | 2 | Set Screw | 48 | 1048 | 7 | Screw, 4 mm x 10 mm long |
| 6 | 1006 | 1 | Motor Mounting Plate | 49 | 1049 | 1 | Brake Sensing Actuator |
| 7 | 1007 | 2 | Gear Plate Standoff | 50 | 1050 | 2 | Screw, Sensing Actuator |
| 8 | 1008 | 3 | Drive Gear | 51 | 1051 | 1 | Brake Dog |
| 9 | 1009 | 1 | Drive Gear Shaft | 52 | 1052 | 1 | Brake Dog Retainer |
| 10 | 1010 | 1 | Flat Washer, 8 mm | 53 | 1053 | 1 | Flat Spring |
| 11 | 1011 | 14 | Hex Nut, 8 mm | 54 | 1054 | 1 | Ring Sensing Gear |
| 12 | 1012 | 14 | Lockwasher, 8 mm | 55 | 1055 | 1 | Sensing Gear Shaft |
| 13 | 1013 | 2 | Gear | 56 | 1056 | 2 | Sensing Gear Bushing |
| 14 | 1014 | 2 | Gear Shaft | 57 | 1057 | 1 | Sensing Gear Pinion |
| 15 | 1015 | 1 | Long Bushing | 58 | 1058 | 1 | Pot Gear |
| 16 | 1016 | 1 | Gear Shaft Washer | 59 | 1059 | 1 | Pot Hex Nut (9mm) |
| 17 | 1017 | 1 | Gear | 60 | 1060 | 1 | Pot Bracket |
| 18 | 1018 | 1 | Gear, Plastic | 61 | 1061 | 1 | Lockwasher, 9 mm |
| 19 | 1019 | 2 | Shim Washer | 62 | 1062 | 1 | Pot Insulator |
| 20 | 1020 | 1 | Short Bushing | 63 | 1063 | 1 | Pot |
| 21 | 1021 | 1 | Gear Plate | 64 | 1064 | 1 | Bearing Race |
| 22 | 1022 | 1 | Bracket, Brake Sensing Switch | 65 | 1065 | 116 | Bearing |
| 23 | 1023 | 1 | Switch Insulator | 66 | 1066 | 1 | Connector Shell |
| 24 | 1024 | 1 | Brake Sensing Switch | 67 | 1067 | 1 | Shell Retaining Ring |
| 25 | 1025 | 2 | Screw, 3 mm x 17 mm long | 68 | 1068 | 3 | Screw, Flat HD, 3 mm x 8 mm long |
| 26 | 1026 | 8 | Lockwasher, 3 mm | 69 | 1069 | 1 | Lower Housing |
| 27 | 1027 | 2 | Hex Nut, 3 mm | 70 | 1070 | 3 | Screw, 6 mm x 14 mm long |
| 28 | 1028 | 2 | Screw, 3 mm x 6 mm long | 71 | 1071 | 9 | Lockwasher, 6 mm |
| 29 | 1029 | 1 | Brake Solenoid | 72 | 1072 | 1 | Ring Gear |
| 30 | 1030 | 15 | Lockwasher, 4 mm | 73 | 1073 | 6 | Screw, 6 mm x 22 mm long |
| 31 | 1031 | 4 | Screw, 4 mm x 14 mm long | 74 | 1074 | 1 | Upper Housing |
| 32 | 1032 | 1 | Brake Actuator | 75 | 1075 | 2 | Clamp Base |
| 33 | 1033 | 2 | Actuator Bushing | 76 | 1076 | 2 | Screw, Hex HD, 10 mm x 30 mm long |
| 34 | 1034 | 1 | E-Ring | 77 | 1077 | 2 | Screw, Hex HD, 10 mm x 24 mm long |
| 35 | 1035 | 1 | Brake Spring | | | | |
| 36 | 1036 | 1 | Flat Washer, 4 mm | 79 | 1079 | 10 | Screw, Hex HD, 8 mm x 48 mm long |
| 37 | 1037 | 1 | Screw, 4 mm x 7 mm long | | | | |
| 38 | 1038 | 2 | Switch Insulator | 81 | 1081 | 1 | Connector, 10 Pin Male |
| 39 | 1039 | 2 | Limit Switch | 82 | 1082 | 1 | Connector, 10 Pin Female |
| 40 | 1040 | 4 | Lockwasher, 10 mm | 83 | 1083 | 1 | Connector, 10 Pin Male |
| 41 | 1041 | 4 | Screw, 3 mm x 15 mm long | | | | |
| 42 | 1042 | 4 | Solenoid Standoff | | | | |
| 43 | 1043 | 1 | Limit Switch Actuator | | | | |

Note: Parts 81 & 82 above furnished with Rotor - Packed in Hardware Package

CONTROL BOX PARTS LIST

| ITEM NO. | PART NO. | QTY. | DESCRIPTION | ITEM NO. | PART NO. | QTY. | DESCRIPTION |
|----------|----------|------|---|----------|----------|------|--|
| 26 | 1026 | 10 | Lockwasher, 3 mm | 99 | 1099 | 1 | Meter W/Clips (M1) |
| 27 | 1027 | 4 | Hex Nut, 3 mm | 100 | 1100 | 1 | Cover |
| 84 | 1084 | 1 | Line Cord W/Plug | 101 | 1101 | 1 | Lamp, Incandescent, 110V (DS1) |
| 85 | 1085 | 1 | Fuseholder W/Hardware | 102 | 1102 | 1 | Lamp Socket |
| 86 | 1086 | 1 | Fuse, 2 Amp (F1) | 103 | 1103 | 1 | Grommet, Lamp Socket |
| 87 | 1087 | 1 | Knob W/Set Screw | 104 | 1104 | 1 | Lamp Bracket |
| 88 | 1088 | 1 | Potentiometer (Calibration) | 105 | 1105 | 1 | Screw, 3 mm x 9 mm long |
| | | | 10 K Ohms, W/Hardware (R5) | 106 | 1106 | 3 | Spacer |
| 89 | 1089 | 1 | Connector, 10 Pin Female | 107 | 1107 | 1 | Screw, 3 mm x 4 mm long |
| 90 | 1090 | 4 | Screw, 3 mm x 7 mm long | 108 | 1108 | 1 | Capacitor, Non-Polarized, 10 μ F 250V (C2) |
| 91 | 1091 | 10 | Screw, Sheet Metal, 3 mm x 5 mm long | 109 | 1109 | 2 | Capacitor Clip |
| 92 | 1092 | 1 | Grommet, Line Cord | 110 | 1110 | 2 | Screw, 3 mm x 5 mm long |
| 93 | 1093 | 1 | Rear Panel | 111 | 1111 | 4 | Flat Washer, 3 mm |
| 94 | 1094 | 4 | Rubber Foot W/Hardware | 112 | 1112 | 1 | Terminal Strip, 10 Terminal |
| 95 | 1095 | 1 | Switch, Toggle, Red, SPDT, W/Clips (S1) | 113 | 1113 | 2 | Screw, 3 mm x 11 mm long |
| 96 | 1096 | 2 | Switch, Momentary, DPDT, W/Clips (S2, S3) | 114 | 1114 | 3 | Resistor, 150 ohm, 5W (R1, R4, R6) |
| 97 | 1097 | 1 | Switch, Toggle, Black, SPDT, W/Clips (S4) | 115 | 1115 | 1 | Diode, T41 (CR1) |
| 98 | 1098 | 1 | Lamp Cartridge, Red Neon (DS2) | 116 | 1116 | 1 | Diode, Zener, 07KB (CR2) |
| | | | | 117 | 1117 | 1 | Capacitor, Electrolytic, 220 μ F, 25V (C1) |
| | | | | 118 | 1118 | 1 | Resistor, 3.3K ohm, 7W (R3) |
| | | | | 119 | 1119 | 1 | Resistor, 4K ohm, 5W (R2) |

WR-1000 ADDENDUM

THE MAST CLAMP HAS BEEN REDESIGNED TO PROVIDE MORE VERSATILITY AND INCREASED CLAMPING POWER. PARTS 1078 (CLAMP CAP) AND 1080 (CLAMP SLEEVE SET) HAVE BEEN ELIMINATED. PART 1075 (CLAMP BASE) HAS BEEN REDESIGNED, AND EACH ROTOR PACKAGE CONTAINS TWO OF THESE. SIMPLY BOLT BOTH CLAMP BASES ONTO THE TOP OF YOUR ROTOR, AND ADJUST FOR PROPER FIT TO YOUR MAST, AS SHOWN BELOW.

