

MAIN SPECIFICATION

Electric Power Supply

220 Volt 50/60 Hz 80VA

Antenna Rotation	1102 MXX 80/65 Sec.	1103 MXX 110/90 Sec.
Allowable Antenna Fly Wheel Effect(GD^2) Shown Table 1	300 Kg Sq M	700 Kg Sq M
Rotation Torque	800 Kg.Cm	1000 Kg.Cm
Braking Torque		10000 Kg.Cm
Allowable Antenna Wind Surface		2.5 Sq M
Bending Moment		7000 Kg.Cm
Vertical Load		400 Kgs Max.
Antenna Mast Diameter		40 To 62 mm
Connecting Cable		7 Conductors

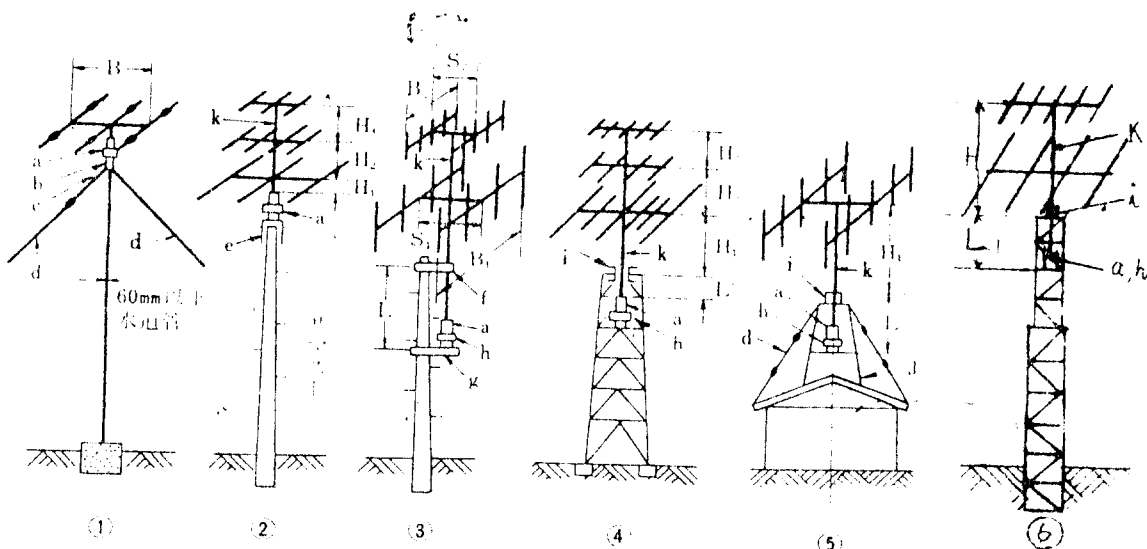
CONSTRUCTION

1. The rotating and the braking sections are incorporated in a complete water proof aluminum diecast alloy housing. ~~housing~~ The compact housing ensures an easy rotation.
2. The braking system is a twin magnetic plunger type and connected directly to the controller rotation switch in the controller.
3. Depressing the switch releases the braking system, and the second switch movement will start the rotation of the rotating system. In other words, unless it is rotating, the switch is always in brake position.

ANTENNA TOWER AND ANTENNA MAST MOUNTING

1. The antenna towers (see Fig.) can be installed and assembled in six different ways.
 1. Steel pipe Mounting
 2. Panza Mast Mounting (A)
 3. Panza Mast Mounting (B)
 4. Steel Tower Mounting
 5. Roof mounting
 6. Crank-up Tower Mounting

Fig. 1 Various Antenna Mounting System

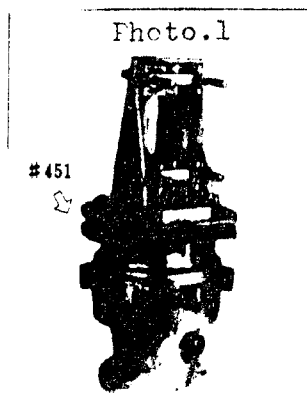


- a. MXX Type Emotator.
- b. Mast Clamp.
- c. Stay Clip.
- d. Stay Wire.
- e. Panza Mast Cap
- f. Mast Support
- g. Emotator Support
- h. Universal Coupling
- i. Stay Bearing.
- j. Roof Tower.
- k. Antenna Mast.

2. The Antenna mast mounting can categorized into two systems.

a. Mounting system 1,2 can be mounted directly to the EMOTATOR mast clamp. This is called the "Independent Mounting System". In this system , the antenna mast length (H) from the Emotator should be kept as short as possible. Where the rotator is to be mounted Fig.1 (1), it will be necessary to attach the mast clamp model No.1215 (heavy duty) or No.1213 to the under side of rotator.

b. Mounting system Fig. 3,4,5 and 6 are mounted in the center of the mast by using the bearing adapter. This is called the "Rotating Antenna Mast System". When the rotator is installed in a tower, as in this case, it must be fixed tightly with bolts on the rotor mounting plate in the tower. This mounting surface must be perfectly flat, and the top tower hole must be concentric with the axis



of rotation of the top part of the Emotator. Owing to these circumstances, we recommend that our " Universal Coupling " be used to overcome these unforeseen problems that may occur and recommend that our model No.451 Universal Coupling be used. See Photo, where the No.451 is mounted.

3. Size of useful antenna for Emotator and antennas Fly Wheel Effect.

A simple explanation of this should be given here. For example, an automobile is speeding at a given speed and the transmission is set at "neutral" and you still note that the engine Power is not moving the rear two tires, but the automobile will keep running. This is called the inertia running, and the same effect is present on the rotating antenna system. Once it starts to rotate, even if the power source is Cut-off, the antenna and the Emotator will keep rotating for awhile. This is called the Fly wheel rotation on the antenna system too. The antenna system in the fly wheel rotation stage should not be stopped abruptly as it will generate a big force.

The largeness of the fly wheel effect will depend on the antenna system, the larger antenna, the larger GD2.

The various amateur antennas sold on the market have the following GD2.

Table 1

	種 類		種 類		種 類		種 類		種 類		種 類			
	A	GD ²	A	GD ²	A	GD ²	A	GD ²	A	GD ²	A	GD ²		
H F Band	7M 2EVp	140	7M 3EVp	455	7M 2EF	750	7M 3EF	1500	7M 2ECQ	4.50	7M 3ECQ	700		
	14M 3EF	70	14M 4EF	250	14M 5EF	700	14M 6EF	1100						
	21M 3EF	19	21M 5EF	200	21M 2EHV	18	21M 2EHQ	40	21M 6EF	6.25	21M 8EF	1600		
	28M 4EF	35	28M 5EF	50	28M 2EHV	15	28M 2EHQ	35						
	0.31	0.31	0.53	0.53	0.25	0.25	0.31	0.31						
H F Muti Band	7.14M 3EVp	150	7.14M 4EVp	200	14.21M 3E	38	14.21M 4E	42	21.28M 3E	36	21.28M 4E	40		
	T 3E Jr	25	T 3E	75	T 4E	125	T 6E	180	T 2ECQ	58				
50MH _z Band	4E	3.2	4E 2S	6.4	4E 2P	65	2EHV	12	2EHQ	30		200		
	0.35	0.35	5E	10	5E 2S	21	5E 2P	150	6E	15	6E 2S	30	0.8	6E 2P
144MH _z Band	6E	1.0	6E 2P	3.5	6E 2P 2S	7.0	6E 4P	35	6E 4P 2S	70				
	0.18	0.18	8E	2	8E 2P	7	8E 2P 2S	14	8E 4P	60	8E 4P 2S	1.10		
	0.2	0.2	10E	3.5	10E 2P	9.5	10E 2P 2S	20	10E 4P	65	10E 4P 2S	1.30		
	0.21	0.21	12E	2.5	12E 2P	10	12E 2P 2S	22	12E 4P	70	12E 4P 2S	1.50		
	1.5	1.5	X 8E	520	X 8E	3.1	X 8E 2P	12	X 10E	5	X 10E 2P	19		
432MH _z Band	0.08	0.08	10E	0.35	10E 2P	1.4	10E 2P 2S	3	10E 4P	5.8	10E 4P 2S	12		
	0.06	0.06	12E	0.5	12E 2P	2	12E 2P 2S	4	12E 4P	10	12E 4P 2S	20		

A=Wind Surface, M²; GD²=Fly Wheel Effect, KgM²; E= No. of Element; P= No. of Stack(paralel); S= Vertical Stack; CQ= Cubical quad; HV= HB9CV Antenna; HQ= Swiss Quoad; Vp= Short beam; Jr= Junia Type; W= Wide Space; X=Cross Element; T= Tri Band Antenna;

It is very simple to taking into consideration an antenna system by checking the GD2. 1103MXX 700
 For example the Emotator 1102MXX, allowable GD2=300, and A=2.5 m²

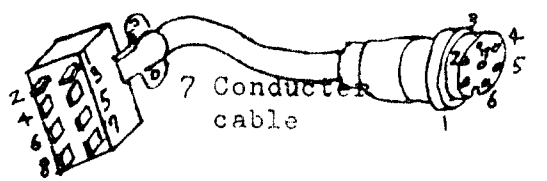
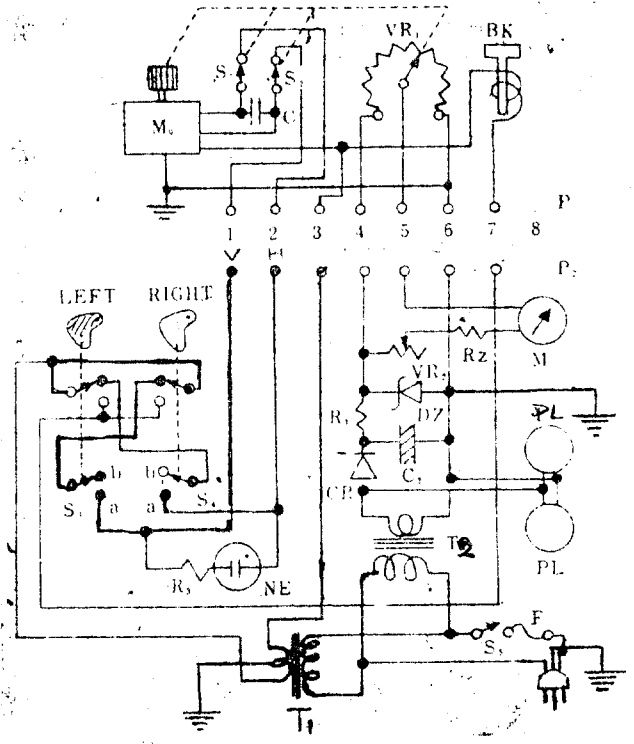
Kind of Antenna	GD2	A	
7M2EVp	140	0.3	therefore use an antenna system with a lower rating than each function.
T3E	75	0.4	
14M10E4P	65	0.85	
Total	280kg.m ²	1.55 m ²	

4. Electrical schematic Diagram

The Emotator rotating mechanism and the controller box internal wiring circuit is listed in Fig. 2

Fig. 2 Electrical schematic Diagram.

- Mo Motor
- S1 S2 Limit Switch
- VR1 600 Ohm Potentiometer
- C1 63μF Condenser
- P1 7 P Connector
- P2 8 P Connector
- S3 S4 Rotation Switch
- M 1 Ma DC Meter
- R1 200 Ohm Resister
- R2 3.5 Kilo Ohm Resister
- R3 150 Kilo Ohm Resister
- VR2 2 Kilo Ohm Variable Resister
- DZ 6 Volt Zener Diode
- C2 100 μF Condenser
- PL 8 Volt Pilot Lamp
- S5 Power Switch
- F 1 Amp. Fuse
- NE Neon Balb
- T1 Powertransformer Secondary 100 volt
- T2 Meter Transformer Secondary 8 Volt
- CR Piv 50 Volt Diode
- BK AC Solenoid Coil

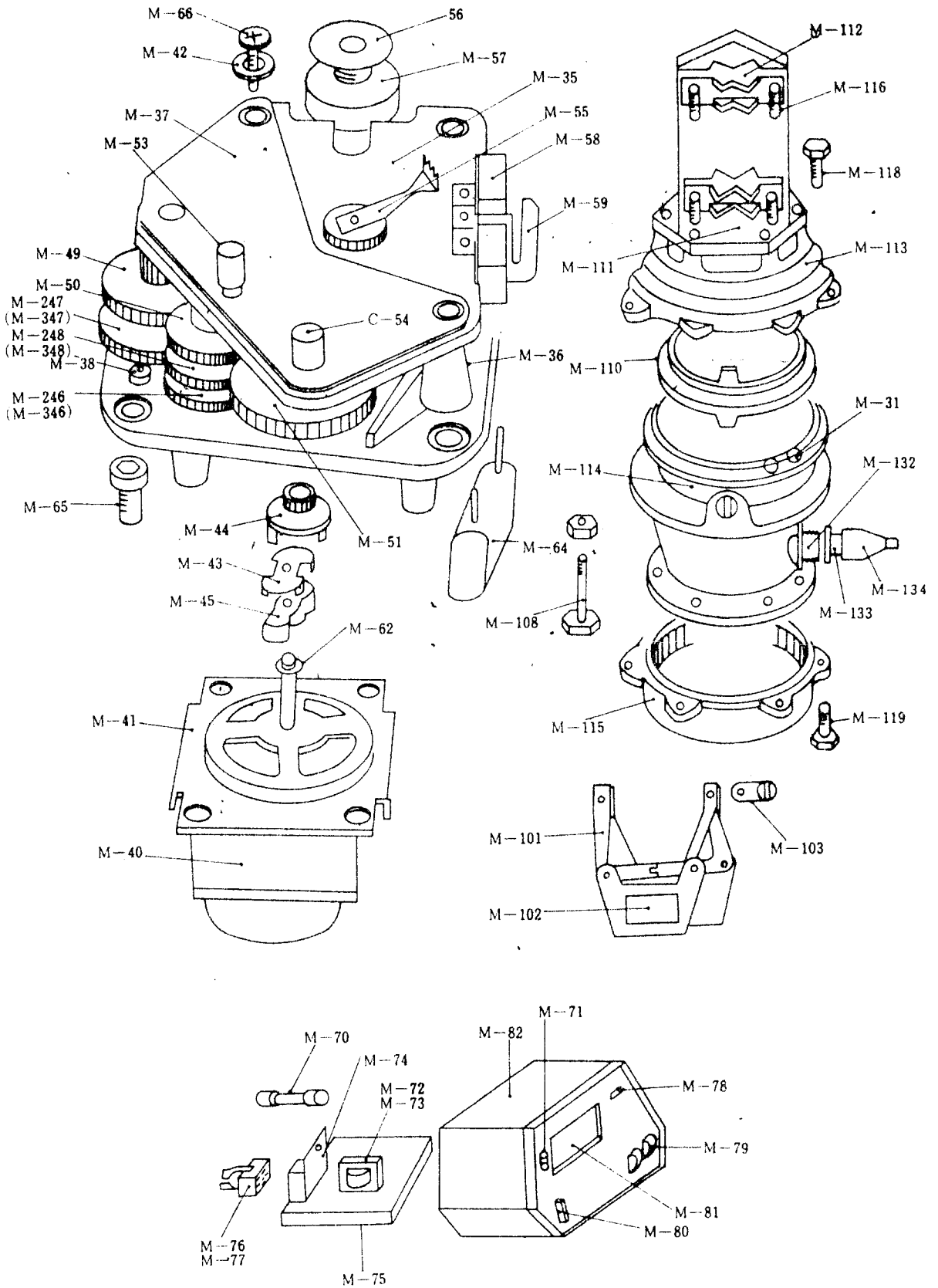


Pin 8 Non Connection

To connect rotator and controller, a color coded seven conductor cable is used. Solder connectors provided to both ends of the cord, marking sure that the metal connector which is to be connected to the rotator, and the Johnson plug for the controller box are correctly positioned.

- 1 = Svart
- 2 = Röd
- 3 = Blå + U.1
- 4 = Gul
- 5 = Grön
- 6 = Grå
- 7 = Brun

Parts List Drawing
() 1103MXX use only in this mark



1102
 1103
 XXX SPARE PARTS LIST

M-31	9.5 Steel Ball	M-66	6 ϕ Screw
M-35	Upper Frame	M-70	1 Amp. Fuse
M-36	Gear Frame	M-71	8 Volt Pilot Lamp
M-37	shaft topper	M-72	Meter Trasfomer
M-38	Spacer	M-73	Power Trasformer
M-39	Spacer	M-74	Circuit Board (With Parts)
M-40	Motor	M-75	Chassis
M-41	Motor Plate	M-76	8 Pin Female Connector
M-42	6 ϕ Washer	M-77	8 Pin Male Connector
M-43	Coupling	M-78	Neon Light
M-44	Pinion	M-79	Rotation Switch Assembly
M-46	Boss	M-80	Power Switch
M-246	No.1 Gear	M-81	1Amp. DC Meter
(M-346	No.1 Gear) For 1103	M-82	Cabinet
M-247	No.2 Gear	M-101	Brake Lever
(M-347	No.2 Gear) For 1103	M-102	Ac Solenoid Coil
M-248	No.3 Gear	M-103	Brake Pin
(M-348	No.3 Gear) For 1103	M-108	Seting Bolt With SW. Nut.
M-49	No.4 Gear	M-110	Stopper Ring
M-50	No.5 Gear	M-111	Mast Bracket
M-51	No.6 Gear	M-112	Clamp
M-53	8 ϕ 31 Shaft	M-113	Gear Case
M-54	8 ϕ 21 Shaft	M-114	Motor Case
M-55	Drive Gear	M-115	Brake Ring
56	VR Gear	M-116	U Bolt
M-57	600-S Potention Meter	M-118	8 ϕ 25 Bolt With SW
M-58	LS Assembly	M-119	6 ϕ 20 Bolt With SW
M-62	E Ring	M-132	7 Pin Connector
M-64	6.8 MF Condenser	M-133	7 Pin Connector Plug
M-65	8 ϕ Cap Screw		