NEW
ROTO-BEAM
ANTENNA ROTATOR

and
SYNCHRO
ANTEN-A-CATOR
STATION CONTROL

POINT TO POINT COMMUNICATION
—that's what you want—that's what you get through the use of the ROTO-BEAM ROTATOR and SYNCHRO ANTEN-A-CATOR. Message traffic—voice or code—is directed or beamed over a narrow arc which tends for secrecy, minimizes QRM, and in addition, increases signal strength 6 to 9 DB (power gain of 5 to 8) in the desired direction, without increasing the power of the transmitting source. Equally effective on either transmission or reception.

PRECISE DIRECTIONAL CONTROL OF WAVE PROPAGATION
HERE ARE THE ENGINEERING DETAILS OF THIS PRECISION EQUIPMENT WHICH BEAMS RF COMMUNICATION ENERGY WITH HIGH EFFICIENCY

- Direct connections to the antenna, which permit impedance matching to a transmission line through the use of a transformer network, or quarter wave line. (Space provided inside lower housing casting for flexible coaxial ¼ wave matching section, if this type of Z section is used.

- Collector rings with 300° contact, self-cleaning copper floating brush assembly are noiseless on reception and will safely carry up to 20 amperes RF. Low PF high frequency Alsimag 196 insulation.

- Continuous rotation in either direction through the use of a three-wire reversible, variable speed, high torque, 110 volt, 60 cycle ball bearing motor; maximum speed 1½ rpm.

- Sealed air dielectric coaxial tube (52 ohm characteristic impedance—other impedances on special order), between antenna terminals and collector rings. Both conductors insulated from ground. Rain shield guards over exposed coaxial terminals.

- Pads or bosses cast in top housing casting and bottom of spider for attaching insulators, if single loop inductive coupling is desired for two-band operation.

- Oilite oversize bearings—never require oil.

- Cast OH38 special aluminum alloy weather-sealed housing.

- Critical parts are made of stainless steel, brass, beryllium copper, and copper to avoid the possibility of corrosion and fungus growths.

- Connections are made through the bottom of the housing. Provides better protection from the weather.

- Furnished completely wired with weather-proof AN six-prong plug and socket for rapid and adequate connection to ANTEN-A-CATOR control.

- Ruggedly built to withstand year in and year out service. Platform or spider will easily support half wave antenna four-element arrays from 12mc up.

- Dimensions approximately 16½" high (not including coaxial terminal insulators), width or diameter 14". Spider for attaching frame work of antenna is 13" wide x 18" long. Weight approximately 60 lbs.

FOR ARRAYS FROM 12 MC UP INCLUDING
DEPENDABLE HIGH ACCURACY
SYNCHRO ANTEN-A-CATOR

- Synchro or selsyn motor controlled indicator pointer is clearly and sharply visible underneath the indirectly, evenly lighted, four colored translucence 7 1/2° Plex-I-Glass compass dial.
- Accuracy of compass guaranteed within 1 1/2°.
- Two - switch control — “off-on” — and power motor control for COUNTER CLOCKWISE—STANDBY—AND CLOCKWISE rotation of ROTO-BEAM ROTATOR.
- 45° sloping panel 9" x 10". Gray crinkle finished metal cabinet (zinc chromate treated) size 11" high, 10 1/2" wide, 10" deep.
- For the protection of all the electrical equipment in both the ROTO-BEAM ROTATOR and the ANTEN-A-CATOR, a 5 ampere fuse with panel mounting fuse holder is mounted on the back of the cabinet.
- Complete with six-prong cable connector for rotator control, and two-prong connector for 100 volt, 60 cycle AC supply voltage.
- Both the ANTEN-A-CATOR station control and the ROTO-BEAM ROTATOR are built with a high degree of precision. Their cost is much less than the increased cost of a larger transmitter that would be required to give the same signal strength at a distant receiving point.

DETAILS . . . YES, IMPORTANT ONES!

Although the cast aluminum alloy housing is rain proof, rapid changes in temperature may occasionally result in a slight amount of sweating. Under normal conditions, this is not serious, but for critical work, a screw plug in the middle of the bottom housing may be removed, and in its place, a special screw top can of dehydrating material (Silica Gel) is attached. This will keep the sealed air in the housing thoroughly dry.

Only thoroughly sound and proved engineering principles were considered in the design of the ROTO-BEAM ROTATOR and SYNCHRO ANTEN-A-CATOR station control. Consider, for a moment, the oilite bearings. Their special shapes and large sizes were finally chosen only after their use in connection with this apparatus had been studied and approved by the people who make them—Amplex Division of Chrysler Corporation. Their report stated “ample provision has been made for both radial and thrust loads.” Equally rigid specifications cover all other parts and materials. This is a broad claim, but it is backed up with an ironclad guarantee for your protection.

HYPER AND ULTRA-HIGH FREQUENCIES
Although a two-element system can be used, a three or four-element array, with one or two directors and one reflector, is definitely recommended because of its better recognized characteristics.

**FOUR-ELEMENT PARASITIC ARRAY CHARACTERISTICS**

With a ½ wave four-element system having 0.10 wave length spacing of directors and 0.15 wave length spacing of the reflector, the free space pattern for either transmission or reception is approximately 20° on either side of center. The DB gain is 7 to 9; the power gain 6 to 8, and the front to back ratio 30 to 1.

**THREE-ELEMENT PARASITIC ARRAY CHARACTERISTICS**

With a ½ wave three-element system, also having 0.10 wave length spacing of directors and 0.15 wave length spacing of the reflector, the free space pattern for either transmission or reception is approximately 35° on either side of center. The gain is 6 to 7 DB; the power gain 5 to 7, and the front to back ratio 15 to 25 DB.

**WHICH IS BETTER, A THREE OR FOUR-ELEMENT ARRAY?**

As more directors or reflectors, or both, are added, the gain increases rapidly, but the antenna resistance becomes lower. Consequently, a higher Q results, which means the selectivity increases. For this reason, a four-element array is most popular when operating on one frequency or several frequencies that are very close together, because optimum performance can be secured only over a very narrow band. Efficiency decreases rapidly on either side of the frequency for which the elements are adjusted. A three-element array is generally recommended because it is easier to tune or adjust and because it also operates with good efficiency over a wider band of frequencies than a four-element system.

**FEEDING AND TRANSMISSION LINE**

Most any system of feeding can be used, such as a stub, a quarter wave matching system, or a filter type transformer. It is desirable to use an untuned or flat line for maximum power transfer. This can be accomplished by proper matching of impedances.

**ELEMENTS**

For the antenna, reflector and director elements No. 24ST or No. 61ST aluminum (heat treated for rigidity) telescoping tubing is suggested. The diameter of this tubing depends on the physical size of the array—the lower the frequency, the heavier the tubing. This tubing, having the required diameters and wall thicknesses for the necessary rigidity to prevent undue sagging, and also proper lengths of telescoping sections for the frequency band you will operate on, as well as mounting insulators and clamps, will be supplied upon request.

**HIGH AND ULTRA HIGH FREQUENCY ARRAYS**

Special design, construction, and insulation of the ROTO-BEAM ROTATOR make it definitely suited and recommended for either vertical or horizontal high and ultra high frequency directional arrays. Most any type can be used, such as parasitic, or driven elements.

**LET US HELP YOU WITH YOUR PROBLEMS**

Our Engineering Department will gladly work out installation details, if you advise us of the frequency that will be used. Information on figuring compass bearings and distances between the source and specified distant points is also available. This service is gladly given without obligation.

GORDON SPECIALTIES CO., 823 S. WABASH AVE., CHICAGO 5, U. S. A.
DELUXE DUAL THREE-
Ten and Twenty Meters.

Mims De Luxe
SIGNAL SQUIRTER

FEATURES

- CONTINUOUS ROTATION EITHER DIRECTION
- INDUCTOSTUB EFFICIENCY FEED
- TWO BAND OPERATION
- THE DE LUXE ROTATOR
- POSITIVE ELECTRICAL BRAKE
- HIGH DIRECTIVITY
- RIGID LOW LOSS ELEMENTS
- EASILY TUNED
- DURABLE AND EFFICIENT
- NON RESONANT FEED LINE

"Put Your Signal Where You Want It
When You Want It There!"
THE INDUCTOSTUB, one of our outstanding developments, brought to rotary beams flexibility of impedance matching, accuracy and efficiency. Basically, this revolutionary development is a condensed high Q quarter wave transformer providing exact impedance match and thus insuring optimum efficiency. It is the only system offering these features plus continuous rotation in either direction without use of metallic or physical connection. Every Rotator with Inductostub mounted is checked at RF before shipment.

The system is fed by the most efficient feed used by the amateur—the open wire non-resonant line. A 465 ohm line consisting of two #12 wires spaced two inches is standard. Special Inductostub assemblies can be furnished to match lines of other impedances. Each type of array uses a different Inductostub system and the Dual Three has two.

SIGMA SQUIRTER ELEMENTS are made of closely corrugated tensile steel tubing copper plated and telescope tapered. This tubing is fabricated to our exact specifications and the assembly of tubing into completed elements is done in our own plant by licensed amateurs. Three coats of synthetic enamel and end seals add long life. These light weight reinforced structures give high strength and surface area with minimum RF resistance and negligible end sag. These elements are giving unflagging service under all climatic conditions having stood the test of the New England hurricane of last year without failure.

CLAMP INSULATORS of novel design afford more than adequate support for the elements. They are simple but positive in mounting and adjustment. These sturdy units are white glazed finished.

MIMS DELUXE ROTATOR is the permanent Rotator for beams of today and days to come. Built of highest grade materials and finished to unusually close tolerances, this "Rolls-Royce" of Rotators features complete weather-proofing and permanent lubrication. Very high starting and running torques assure positive control of large arrays in high winds. An electrically operated brake automatically locks the unit in any desired position. Separate interference free induction motors provide rotation in either direction. Standard motors are for 110 volt 50/60 cycle. Special units can be furnished for 25 cycle or D.C. operation. 220 Volt 50/60 cycle operation is had by 150 watt step-down transformer.

THIS ROTATOR utilizes the 25 years experience of our producers of these units, The Merkle-Korff Gear Co. They have worked with us several years in this development. The unit weighs 56 pounds and every ounce is there for a purpose. The base, housing, and top spider castings are semi-steel. See last page for dimension drawings.

REDUCTION GEARS are heat treated alloy steel. The main worm is hardened steel with tooth contour itself heat treated, accurately ground, lapped and polished. The massive worm gear is precision cut from special analysis bronze. The main shaft and load are carried by ball thrusts supported by oversize roller bearings. The worm is in roller bearings with ball end thrusts. The 2/8" main shaft is hardened steel, precision ground. A 1-1/16" hole thru its length permits use of other feed systems.

THE DELUXE ROTATOR was designed and built to take full advantage of the Inductostub Feed System and to provide years of care free operation. The Rotator is controlled by four wires which handle the two motors and the electrically operated brake. One additional wire is required for the Direction Indicator making a total of five wires for complete control. Four #16 wires inside a metal sheath may be used for control by employing the sheath as the grounded neutral connecting to the AC supply lines. Two lengths of lead covered pair are also frequently used for the control circuit.

SIGNAL SQUIRTER CENTER SECTIONS AND CROSS ARMS are constructed of specially selected dried wood. The main body is of tapered ladder form having as its heart a sturdy box structure protecting the Inductostub and furnishing the necessary strength to withstand high winds. Adequate cross bracing is used. The cross arms are of "T" beam construction. All assembly is with special screw nails assuring continued solid construction. Three coats of best grade synthetic enamel are applied to all wooden parts. The construction of these units has been made as light as is practical without sacrifice of strength.

THE TWO ELEMENT SIGNAL SQUIRTERS accomplish the big shift in operating characteristics as compared with ordinary antennas. This is done by providing a greatly solidified forward lobe. The angle of radiation is lowered to the useful point and it is these things that have furnished the reasons for the greatly increased performance in hundreds of cases. Most users of Signal Squirters say they have averaged two R's increase in signal strength by the use of the beam. The front to rear ratio of the two element array when properly adjusted is 18DB. This adjustment is simple and direct so that any amateur may
obtain it with the minimum effort. The gain of these arrays as compared to a
dipole is between 5 and 6 DB. See last page for field strength pattern.

THREE ELEMENT SIGNAL SQUIRTERS provide a healthy forward gain as
compared to the two element arrays. Of even greater importance, they really
provide a unidirectional pattern. This pattern is extremely effective in reception
as well as transmission.

These units already widely in use over North America and several foreign
countries are showing considerably improved characteristics. There is the ad-
tional forward gain and a greatly increased front to rear ratio. Field strength
tests backed by checks on the air show these arrays to have better than 30 DB
attenuation over more than half the circle and approximately 40 DB front to
rear ratio. The three element arrays have shown more desirable characteristic
and performance for DX work.

THE DELUXE DUAL THREE 10-20 brings the amateur the first rotary beam
offering full performance on ten and twenty meters. The array consists of two
three element beams mounted on one center section. Two separate Inductostub
assemblies feed the arrays and band switching may be accomplished by a
change over relay at the Rotator or separate transmission lines may be run to
the transmitter. DeLuxe Signal Squirters now in use may be readily converted
to Dual Three’s. Information on this will be sent on request.

That the performance of the Dual Three is of the highest order is evidenced
by the polar diagram of actual field strength measurements made on this
array at W5BDB and illustrated on the last page. This pattern is unchanged from
that before the ten meter array was added.

THE DESIRABLE LOCATION would be a space well clear of surrounding ob-
jects. In practice we find installations made under most adverse conditions
doing exceptionally good jobs. When possible the plane of the array should be
free of absorbing mediums for one half wave. Installations on top of buildings
should have the array one quarter wave or more above the wiring of the
building or any metal roof. It is desirable to have the beam above the ground
or any conductor which may serve as ground from one half to three quarters
wave. These figures may be exceeded on ten meters. Installations one wave or
more above ground are very good for DX but quite frequently have fad ing
tendencies over distances under 1500 miles.

ASSEMBLY AND ERECTION has been made as simple and easily accomplished
as is possible. A minimum amount of time is required to complete the unit
after the kit is received. The Rotator is mounted on its support and oiled once
and for all. Hardware is furnished for the complete assembly and mounting
procedure. The cross arms are to be fastened to the center section and insul-
ators and elements put in place. The array is then lifted into place and is ready
for the “tune-up” which is done according to the exact and definite instructions
furnished.

FIELD STRENGTH PATTERNS are given on the last page. Both measurements
were made using the same equipment and on the same afternoon. The trans-
mitters at W5BEK and W5BDB operate with identical finals and equal power
input and are within a short distance of each other. Patterns are reproduced
to show DB decrease in signal strength as the arrays are rotated. This presen-
tation is given since it is the method in common use on the air regularly in
making reports on antenna performance. These patterns are definitely in line
with the actual performance on the air as experienced in transmission and re-
ception and many users of Signal Squirters will verify the results from their
own experiences.

SIGNAL SQUIRTER PERFORMANCE is best expressed by the hundreds of
them in daily use on the ten and twenty meter bands. If you have not already
had the pleasure of seeing one in action, we suggest you ask your distributor
for the name of one near you—or write the factory. The services of the manu-
facturers of the Original of All Rotary Beams are at your command as a Signal
Squirter owner. Your equipment distributor will appreciate the opportunity to
serve you.

THE SIGNAL SQUIRTER KITS are complete including Rotator with mounted
Inductostub assembly, center section, elements, insulators, and all hardware
ready for installation. For economy in shipping, the center section is sent with
the cross arms unmounted. All holes are drilled and hardware included. A few
minutes puts these permanently in place. The Kit is complete ready for instal-
lation excepting the tower or other support, motor control wires (five wires a
re needed) and the open wire feed line. This feed line should be of #12 enamel
wire with 2” spreaders. Complete instructions are included. Rotator is for 110
Volt 50/60 cycle. Others at special prices. Direction Indicator is separate from
kits. See last page for prices.
## DOMESTIC PRICE LIST

### KITS

<table>
<thead>
<tr>
<th>KITS</th>
<th>CODE WORD</th>
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<tbody>
<tr>
<td>Dual Three 10 and 20 Meter Deluxe Kit</td>
<td>SADUO</td>
</tr>
<tr>
<td>3 Element 20 Meter Deluxe kit</td>
<td>SALGA</td>
</tr>
<tr>
<td>3 Element 20 Meter Deluxe kit less center section</td>
<td>SALIA</td>
</tr>
<tr>
<td>2 Element 20 Meter Deluxe kit</td>
<td>SALAZ</td>
</tr>
<tr>
<td>2 Element 20 Meter Deluxe kit less center section</td>
<td>SABGE</td>
</tr>
<tr>
<td>3 Element 10 Meter Deluxe kit</td>
<td>SABUL</td>
</tr>
<tr>
<td>3 Element 10 Meter Deluxe kit less center section</td>
<td>SABUY</td>
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<tr>
<td>2 Element 10 Meter Deluxe kit</td>
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<tr>
<td>2 Element 10 Meter Deluxe kit less center section</td>
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### ELEMENTS

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<thead>
<tr>
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<tbody>
<tr>
<td>2 1/4 Wave twenty meter elements, crated</td>
<td>EABFS</td>
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<tr>
<td>4 1/4 Wave twenty meter elements, crated</td>
<td>EABCY</td>
</tr>
<tr>
<td>6 1/4 Wave twenty meter elements, crated</td>
<td>EAPFA</td>
</tr>
<tr>
<td>2 1/4 Wave ten meter elements, crated</td>
<td>EAPFE</td>
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<tr>
<td>4 1/4 Wave ten meter elements, crated</td>
<td>EAPIC</td>
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<tr>
<td>6 1/4 Wave ten meter elements, crated</td>
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### CENTER SECTIONS

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<tbody>
<tr>
<td>20 Meter three element</td>
<td>CARAB</td>
</tr>
<tr>
<td>20 Meter two element</td>
<td>CARMED</td>
</tr>
<tr>
<td>10 Meter three element</td>
<td>CARNA</td>
</tr>
<tr>
<td>10 Meter two element</td>
<td>CARPE</td>
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### ROTATORS

<table>
<thead>
<tr>
<th>ROTATORS</th>
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<tbody>
<tr>
<td>Deluxe Rotator—For use with any Signal Squirter array</td>
<td>RASQU</td>
</tr>
<tr>
<td>Standard Rotator—For use with two element 10 meter array only</td>
<td>RASTU</td>
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### DIRECTION INDICATORS

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<tr>
<td>Indicator for use with Deluxe Rotator</td>
<td>INDDL</td>
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<tr>
<td>Indicator for use with Standard Rotator</td>
<td>INDST</td>
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### ACCESSORIES

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<thead>
<tr>
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<tbody>
<tr>
<td>Clamp Insulators for Elements—Set of Eight</td>
<td>CITWD</td>
</tr>
<tr>
<td>Inductotub assembly—specify band and if 2 or 3 elements</td>
<td>ISTUB</td>
</tr>
<tr>
<td>Spreader Insulators 2&quot;</td>
<td>FINSU</td>
</tr>
<tr>
<td>#12 wire—enameled, soft drawn, per 100 ft.</td>
<td>FWARE</td>
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</tbody>
</table>

**Terms:** Net cash f. o. b. Texarkana, Ark. See your distributor for easy payment plan. Prices subject to change without notice.

**GUARANTEE:** All materials to be as represented and guaranteed against defects and workmanship for a period of 90 days.

_Distributed by_
SS39 SIGNAL SQUIRTER

Price list

The Signal Squirter Kits are complete including Rotater, Inductostub assembly, Center Section, Elements, Insulators, and all hardware ready for installation. For economy in shipping, the center section is shipped without the end pieces mounted - all holes are drilled and hardware included. A very few minutes of time puts these permanently in place. The kit is complete ready for installation except for the tower or other support, motor control wire (three wires are needed), and the open wire feed line. This feed line should be of #12 enamel wire with usual 2" spreaders. Complete instructions are included. Rotater is for 110 v. 60 cycle. Others at special prices. Center section finished in three coats of best paint.

THE KITS

SS39-Twenty Meter Kit-as described above........................ $59.50
SS39-Ten Meter Kit-as described above........................... 49.50

BASE KITS: Same as above except the center section is supplied in knock down form and unpainted.
SS39-20K Twenty Meter Base Kit.................................... $54.50
SS39-10K Ten Meter Base Kit....................................... 44.50

FOUNDATION KITS: Same as complete kit but less center section. All other components included. Blue prints for center section included.
SS39-20FK Twenty Meter Foundation Kit.......................... $49.50
SS39-10FK Ten Meter Foundation Kit.............................. 39.50

DIRECTION Indicator: SS39-DI-Signal Squirter Direction Indicator complete with proper azimuthal map or scale for 10 or 20 meters. Rotation control for antenna is included. Delivery scheduled for latter part of October................................. $17.50

COMPONENTS

SS20E Set of four twenty meter elements crated $13.85
SS20E-1 Set of two " " " $8.00
SS10E Set of four ten meter elements " $6.75
SS10E-1 Set of two ten meter elements " $4.00
SS-R Signal Squirter Rotater 32.50
SS-CS Center section complete, crated 11.50
SS-I 8 Signal Squirter Clamp Type Insulators 3.00
SS-RS Rotostub assembly complete 17.50
SS-SI Spreader Insulators - 2" Ea. .09
SS-FW Feed Wire - #12 enamel per 100 feet .65
SS-MW Motor Wire - two conductors in lead cover 50 ft-$1.50 100 ft-$2.75 Extra lengths per ft. $0.03

TERMS: Cash with order or ten dollars deposit for any regular kit - balance shipped express COD or freight SD/BL attached. Separate components cash with order.

GUARANTEE: All materials to be as represented and guaranteed against defects and workmanship for a period of 90 days.

M I M S R A D I O C O M P A N Y
P.O. Box 504
TEXARKANA, ARK.