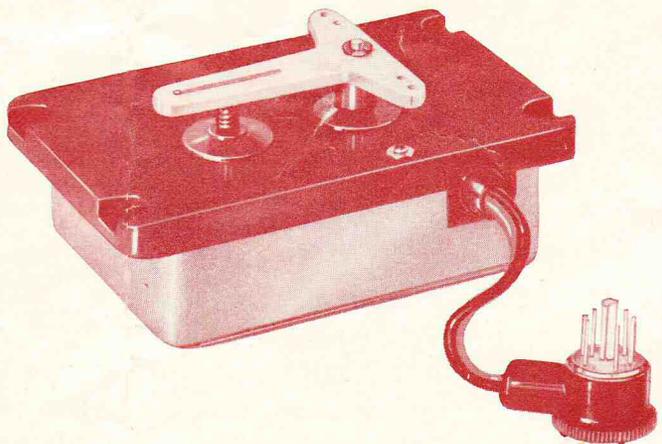# Graupner UNIMATIC

**Single channel
actuator for
rudder and engine
throttle operation**

indent No. 3755
with 8pin mini plug

UNIMATIC

is a single- channel rudder servo, powered by an electric motor and self-neutralizing electrically.

Connection is made by inserting 8-pin mini plug in plug socket of GRUNDIG VARIOTON receiver.

It is suitable for model aeroplanes and ships and can be used alternatively for operating either a control surface (2 possible signal rythms) or for actuating the engine throttle.

The UNIMATIC provides those smooth (not the usual sudden) control surface movements which are a prerequisite of proper R/C flying. Rudder movements can, however, follow eachother in as rapid a rate of sequence as the situation may demand, thus ensuring complete mastery of the model.

UNIMATIC is quite unaffected by vibrations; its steering lever is securely arrested in all positions.

The function

As a rudder servo UNIMATIC is operated by using two different signal rythms; A and B

A. **Equipped with steering disc No. 1,** the standard equipment of the unit, the function is:

1. **Press button 1 x = always left rudder throw**
(or right rudder throw, respectively, if steering lines are crossed or the steering pushrod is attached to the opposite side of the lever arm) for the duration of the signal. Lever arm returns to neutral automatically.

2. **Press button 2 x = always right rudder throw**
(or left rudder, respectively, as explained above) by blipping a quick first signal (approx. 0,1 seconds) and pressing the button for the second signal as long as right rudder is required. After releasing the button lever arm will return to neutral position.

B. **With steering disc No. 2** the device serves as a rudder servo with the following steering sequence: neutral — left — neutral — right etc., with the rudder throw held as long as the button is pressed. The unit neutralizes automatically on release of the button.

UNIMATIC, equipped with steering disc No. 2, can be used as **engine throttle actuator.**

(Check diagram on page . . .)

Replacing the steering discs (see illustration)
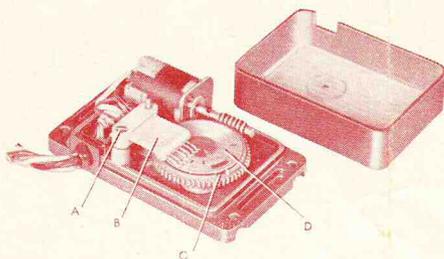
Remove the lid after unscrewing the nut at the bottom of the lid. After removing screw A the contact set B can be lifted approx. $^1/_4$ — $^3/_8$". Attention: do NOT bend the contacts! Using one of the two small recesses C the steering disc E can be lifted with a small screw driver and removed from its support.

Then insert steering disc No. 2 (as required), re-attach the contact set, slip on the lid and secure with the nut.

Clean the disc once in a while to ensure positive contacts.

How to find neutral position when using UNIMATIC with steering disc No. 1 or 2 as rudder servo

After replacing steering discs the steering lever will generally be found not to occupy the exact neutral position. In this case the drive crank which engages the slot of the steering lever must be rotated to the right, until the steering lever is in the correct, dead-neutral position (see illustration). Be sure not to press down the drive crank, while adjusting neutral position, as it might otherwise jam at the panel.
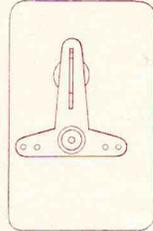
How to adjust steering lever position of UNIMATIC equipped with steering disc. No. 2, engine throttle actuator version

After wiring the unit turn the drive crank to the right until the steering lever is in the end position, i.e. the position of maximum throw (see illustration). In this manner the steering lever, in following signals, will move to either extreme left or right position and hold same until the next signal makes it move again.

The total stroke of $2 \times {}^3/_{16} = {}^3/_8''$ can thus be utilized for actuating the engine throttle.
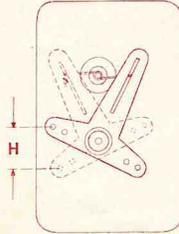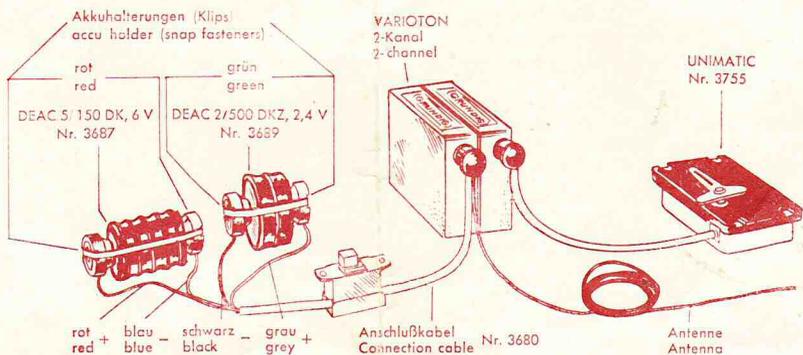
Hook-up

The UNIMATIC

Is equipped with an 8pin mini plug for plug-in connection to the GRUNDIG-VARIOTON receiver. The hook-up of a cascaded UNIMATIC (i. e. operating two such devices from one channel), is not possible. Cable connections are given in the table below.

Hook-up

Contact No.	Colour	Connect to
1	grey	center contact relay 1
2	black	make contact relay 1
3	red	break contact relay 1
4, 5, 6	blue, green, yellow	unoccupied
7	brown	+ 2,4 volts rudder servo
8	white	— 2,4 volts rudder servo

Installation

UNIMATIC is completely unaffected by changes of position. If it cannot be installed in the normal manner, i.e. horizontally, as, for instance, in narrow fuselages, it may be mounted at the flanks of same. Preferably fasten it with 4 screws on a suitable plywood panel.

Akkuhalterungen (Klips)
accu holder (snap fasteners)
rot / red
grün / green
DEAC 5/150 DK, 6 V Nr. 3687
DEAC 2/500 DKZ, 2,4 V Nr. 3689
VARIOTON 2-Kanal / 2-channel
UNIMATIC Nr. 3755
rot + / red + blau − / blue − schwarz − / black − grau + / grey +
Anschlußkabel Connection cable Nr. 3680
Antenne / Antenna

Technical data UNIMATIC

Dimensions: $2^{59}/_{64}$ x $1^{25}/_{32}$ x $1^{17}/_{64}$"
Weight: approx. 2 ozs.
Stroke: (outer holes) $2 \times {}^{13}/_{64}$"

Operating voltage: 2,4 volts
Reduction gear ratio: 60 : 1
Rudder force: 2,77 in oz

Recommended power supplies

The UNIMATIC requires an operating voltage of 2 volts. Optimum voltage is 2,4 volts. For this reason use of

1 DEAC 2/500 DKZ = 2,4 volts, indent No. 3672

as power supply, is recommended.

If an operating voltage of 2 volts (RULAG) is used instead of 2,4 volts, this slows down the rate of motion by a factor of 1,3 and decreases the available rudder force by 1,5.

In any case a 2,4 volts power supply (DEAC) is definitely preferable.
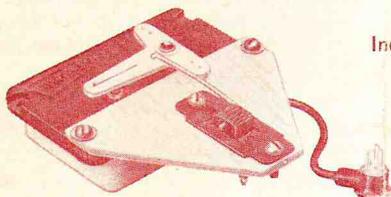
Indent No. 3677 **Extension set UNIMATIC for reversing the polarity of electric motors**

With the ever increasing popularity of multi-channel R/C equipment for remote control of models this extension set rapidly gains in importance, especially for model ship application.

The extension set can be simply mounted on top of a UNIMATIC, indent No. 3755, respectively; it is operated via 1 channel. A polarity switch is actuated following the sequence of pulses (but independent of their lengths) and in turn switches the main drive motor of a ship model in the following sequential order: stop — forward — stop — reverse etc.

Dimensions of the extension set (less UNIMATIC): $2^{61}/_{64}$ x $2^{1}/_{4}$ x $^{53}/_{64}$".

Switch current 3.5 A / 6 volts.

JOHANNES GRAUPNER KIRCHHEIM/TECK GERMANY