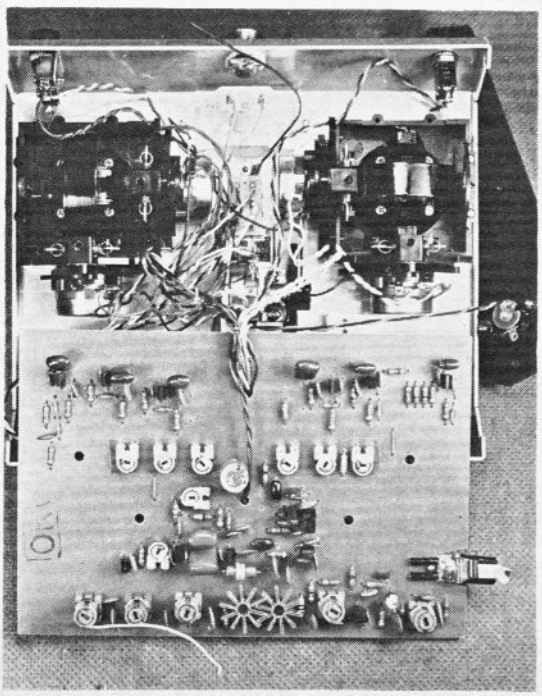
We look at the new

SERIES 'M' FUTABA

SINCE its introduction some four years ago, the Futaba must have become one of the most popular of all units among everyday modellers. We had one of the first 4-function outfits which is still in regular use, but this was no deterrent to the thought of a *Series M* and, having now examined one, it's here to stay!

The M is presented in a manner we have long advocated—open the box, switch on, waggle and everything operates—it being completely wired up with not even a plug and socket to connect. Further, it has features and a completeness which could serve as a model. For example, the earlier 4-wire servos can be intermixed with the new miniature 3-wire ones via a special adapter lead; powerful waterproof servos can be supplied in place of the aircraft type at no extra charge; buddy-box training facilities are built-in; six sets of crystals are supplied; the transmitter sticks have interchangeable end-caps of different lengths, and so on.

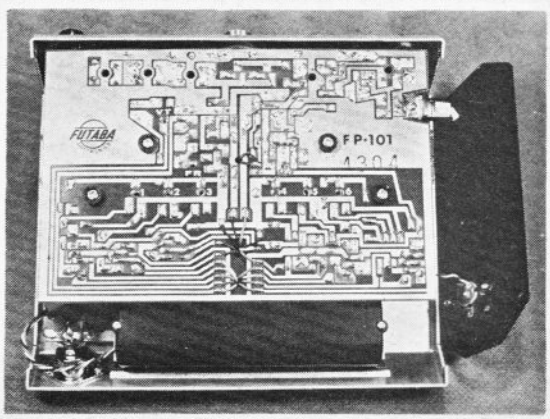
The outfit under review is a 6-function unit, with a positionable auxiliary lever and a two-position switch for the operation of retract gear or similar functions. Four servos are standard, and supplied with two each in either direction (sense) of travel.

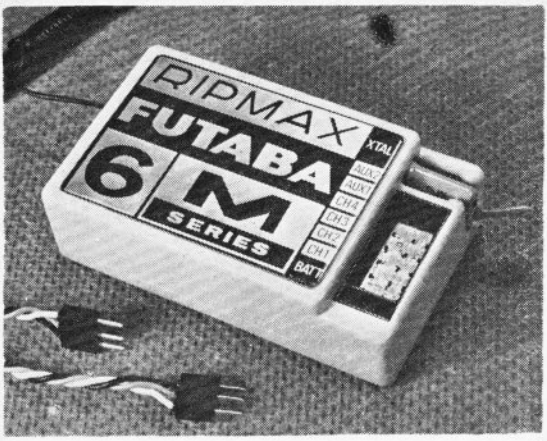


TRANSMITTER

The case is now of bronze coloured vinyl clad aluminium, with eggshell black plastic end caps shaped to provide a comfortable grip. The left panel carries a socket for the charger input, while a neat hinged cover provides access to the plug-in crystal. Alternative long or short end-caps for the control sticks provide an excellent grip for either thumb only, or finger and thumb operation. Stick action is very smooth, and there is no servo float at centre, indicating that the centring

Both sides of the transmitter p.c. board show neatness and economy of layout. New type stick units are very smooth and positive.





of the yoke is first class. Trim levers on the inner and lower faces of the stick units give 20 per cent. of the total throw.

A clearly calibrated meter is positioned centre top, and the on-off switch below this is shrouded to prevent accidental operation. The neck strap engages in twin lugs via metal hooks. Opening the case reveals a very neatly laid out printed circuit board, which is resist masked and dip soldered, with only the harness wires hand soldered.

Size: $7\frac{3}{4}$in. (wide) × $6\frac{1}{4}$in. (deep) × 2in., plus stick projection—$1\frac{7}{16}$in. short; $1\frac{11}{16}$in. long end-caps.
Aerial: $6\frac{1}{8}$in. extending to $44\frac{1}{2}$in. Screws onto a threaded spigot securely fixed to the case body.
Weight: $2\frac{1}{2}$lb.
Stick Effort: typically 3oz.

RECEIVER

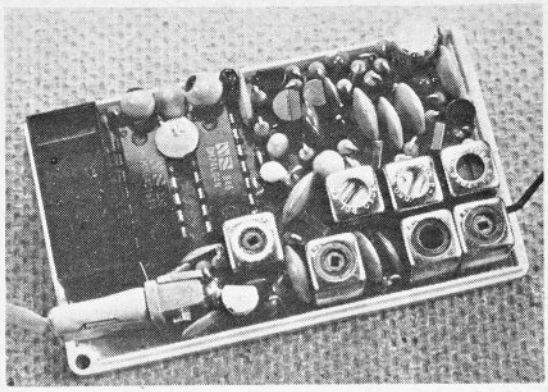
Of single deck construction, this has four screened coils in addition to the IF coils, twin IC decoders and integral socket bank for power input, servo outputs, and the crystal. It is a simple matter to change the crystal or to interchange the servo plugs in order to alter the "sense." A label clearly identifies the various sockets, while the power socket is separated from the others by a moulded-in shield.

Size: $2\frac{5}{8}$ × $1\frac{9}{16}$ × $\frac{3}{4}$in.
Weight: 2oz.

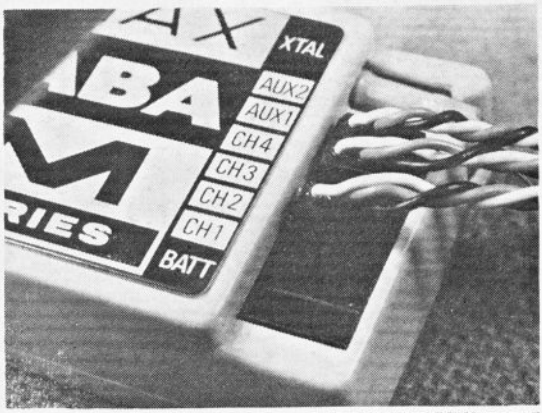
SERVOS

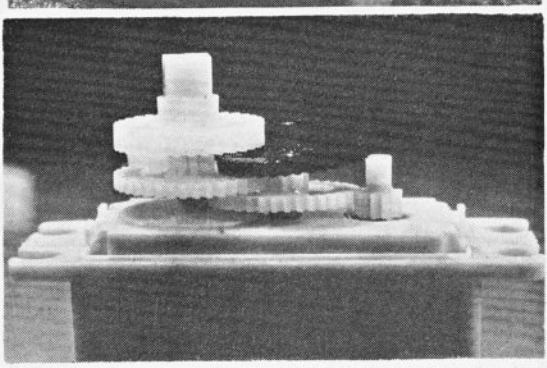
The FP-S5 servos certainly look different, with their chamfered top covers which allow excellent clearance for the linkages. They are of rotary output and have mechanical stops on the four stage all nylon gear train. The pot. is of generous size and a Copal motor is used. The servo disc seats on a square shaft, brass bushed to receive the holding screw, while the edge of the disc has reference marks for checking throw and centring. The disc itself is pierced to provide differential, with an additional hole to each side of centre. Very fine adjustment is ensured by having the holes on adjacent segments at slightly different centres. Also supplied for each servo are 3-armed levers which extend the throw to nearly an inch. Even at this throw the power is surprising. The servos are absolutely silent under ambient conditions; not a tick can be heard unless they are actually in motion.

Size: $1\frac{9}{16}$ (plus $\frac{1}{4}$in. over lugs) × $1\frac{1}{2}$in. (plus $\frac{1}{4}$in. over disc) × $\frac{11}{16}$in. wide.

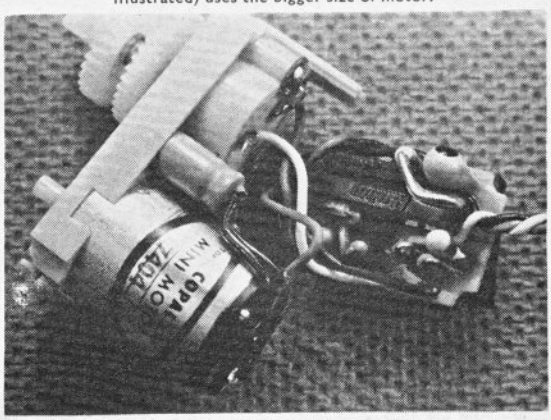


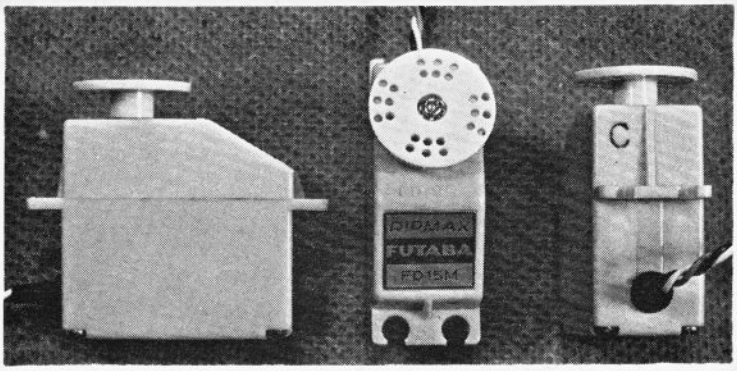
The single deck receiver is very compactly laid out. Note positioning of the plug-in crystal and servo plugs, which have the wires moulded-in for safe handling.





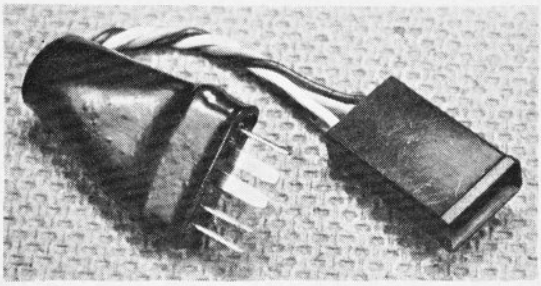
Above: the servo gear train is moulded in nylon, while the aircraft unit uses the smaller size Copal motor (below). The marine unit (not illustrated) uses the bigger size of motor.

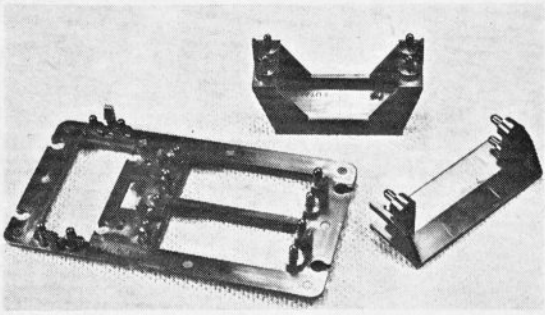


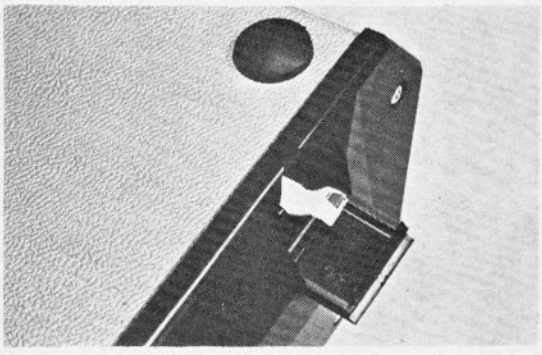


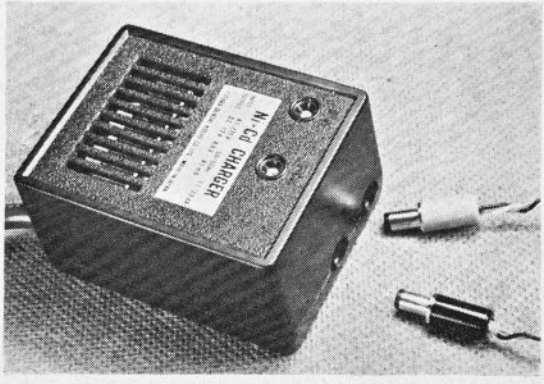
The new type servos have a most distinctive shape. Full size drawings, of both the aircraft and marine units, will appear in a future issue and serve to bring your Propo Book completely up to date.

Other photos show . . . adapter lead to integrate old type servos; servo mounting tray with single servo mount for upright or sideways installation; neat hinged access to the plug-in crystal in the transmitter end cap; dual output charger (for charging Tx and Rx separately or jointly) with very neat plugs, typical of the whole outfit.









Harness: 11in.
Weight: 1.32oz.
Throws: $\frac{13}{16}$in. max. with large arms; $\frac{7}{16}$in. max. with disc. Trim movement plus 20 per cent.
Power: (approx. maximums) 4lb. inner hole; 3lb. outer hole of disc; $2\frac{1}{2}$lb. outer hole of long arm.
Transit: approx. 0.5 sec. without load.

BATTERY

Four "pencell" size ni-cad cells are enclosed in a plastic case and 4.8v. centre tapped, thus making them compatible with the earlier servos. The lead terminates in a shrouded socket.

Size: $2\frac{1}{4}$in. × $1\frac{1}{4}$in. square. Cable exits from end centre and is $3\frac{1}{4}$in. long.

HARNESS

The switch is drilled to take a push-rod for remote operation. All cables are moulded into the plugs and sockets, which are so small that to grip them without holding the wires is not easy. They are polarised with flat, gold plated pins.

Size: 5in. to switch; 11in. to receiver plug.

ACCESSORIES

These include a 3-servo tray with switch mount and two single clips allow for upright or flat mounting of the aileron servo, mounting screws and grommets are included. In addition to the six sets of crystals already mentioned, the appropriate frequency pennants are included with this most comprehensively fitted out unit.

WATERPROOF SERVOS

The FP-S4 servos, which are available as an alternative to the FP-S5 aircraft types, will be welcomed by boating enthusiasts. We tested a sample by immersing it in water for several hours, operating it frequently during this time to increase the internal temperature. On opening it was completely dry. A three-piece case employs neoprene 0-rings between sections, and in a special gland in the non bearing surface of the output shaft, while the cable exit is treated with a silicon compound. The motor is of the large Copal type, but the electronics appear to be similar to those of the FP-S5.

Size: $1\frac{1}{4}$in. (plus $\frac{1}{4}$in. over lugs) × $1\frac{9}{16}$in. (plus $\frac{1}{4}$in. over disc) × $\frac{7}{8}$in.
Harness: 11in.
Weight: 1.83oz.
Throws: similar to FP-S5.
Transit: similar to FP-S5.
Power: over 6lb. in outer hole of disc.

AIRBORNE WEIGHT:

Slightly under 12oz. with four FP-S5 servos.

DISTRIBUTION AND SERVICE:

Ripmax Ltd., Green Street, Enfield, Middx.