

EPP
foam

PRANGSTER

VIRTUALLY BOGGLINGLY UNBUSTABLE!

INSTRUCTION MANUAL

E.P.P FOAM SPORT TRAINER

**BASH IT ,
SMACK IT ,
BUMP IT &
CRASH IT**



Specifications

Wingspan _____ 52 inches, 132cm
Wing area _____ 520 sq. inches
Wing section _____ PN1 (symmetrical)
Approximate flying weight _____ 64 ounces, 1800g
Recommended R/C _____ 4 channel minimum
Flying skill level _____ Beginner/expert
Channels _____ Aileron/elevator/rudder/throttle

Additional items required

4 Channel or greater Radio Control system (with 5 standard size servos & 1 Y-lead)
.20 - .40 cu. ins. size engine (up to .53 cu. ins. can be used by expert flyers)
Quick-setting epoxy
Standard modelling tools

Kit features

- Composite construction aileron trainer for beginner/expert
- E.P.P foam and glass-reinforced covering (included) is almost indestructible
- Survives punishment like no other plane
- Modern composite wing with special PN1 section gives outstanding lowspeed flyability
- Ideal for first time flyers and practising new manoeuvres
- Wing section developed specially to produce soft and predictable stall characteristics

INTRODUCTION

The most outlandish and innovative aircraft yet devised was hatched from within the fertile brain of Rob Newman. Rob, finally realising that no earthly pilot would ever be able to fly proficiently after 2 Chicken Vindaloo's and 10 pints of lager; grasped the nettle of opportunity and gave birth to an aircraft so strong, so versatile and so easy to fly that not even he could break it. Thus, prior to the great Eclipse of 1999, was born the Prangster and a great rejoicing was heard from pilots and restaurateurs alike. It flies like a dream, is nearly unbreakable and it has extremely smooth and predictable characteristics which makes it eminently suitable for beginners and pilots wishing to develop their skills. We suggest that beginners use a .25 or .32 cu. ins. engine. The more experienced pilot can fit larger engines up to .40 cu. ins. for fully aerobatic performance with extended vertical performance. The Prangster is easy to assemble and is designed as a shoulder-wing aircraft. With minimal modifications it can also be assembled as a low winger. It has been rigorously crash tested and features revolutionary construction techniques using an E.P.P foam fuselage, composite wings plus Correx tail surfaces and ailerons.

WARNING

CAUTION! The Prangster is not a toy. Even though the plane is made from E.P.P foam, it could potentially cause injury to persons and/or property. You should take care and observe the principles of safety when flying this model. Observe the BMFA safety code at all times. **YOU ASSUME ALL RISK.** Before beginning construction, please read the instructions thoroughly and familiarize yourself with the construction sequence of the Prangster.

PREPARING THE E.P.P FOAM PARTS

The Prangster is constructed primarily of black E.P.P foam which may have pieces of residue attached to it. Such residue should be pulled or rubbed away prior to covering. Pay specific attention to the leading edge of the wing and the pre-cut servo wells.

PREPARING THE FUSELAGE

The two fuselage sides may be lightly sanded along the top and bottom edges to add a slightly rounder appearance. Do not round the edges of the wing or tail plane seating.

FITTING SERVOS

The Prangster needs 5 standard servos to operate.

- ▼ 1. Connect your radio equipment as in fig. 1.
- ▼ 2. Turn your radio on, ensuring that all controls and trims are centred.
- ▼ 3. Fit the servo output arms to the servos as illustrated in fig. 1.

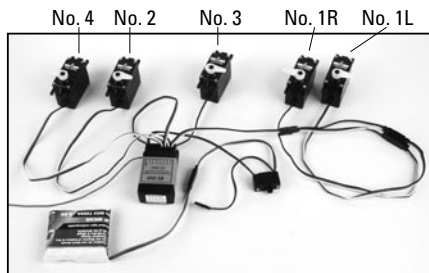


fig. 1

- ▼ 4. Fit servos to your Prangster as shown in fig. 2. The rudder servo fits into servo well number 4, the throttle servo fits into well number 3 and the elevator servo fits into well number 2 in the fuselage. The two aileron servos fit into the wells in the left (1L) and right (1R) wing panels.

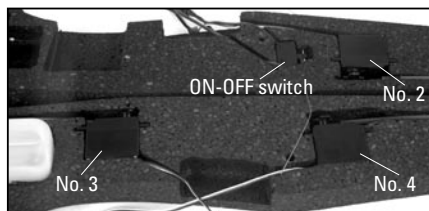


fig. 2

THROTTLE CABLE CONNECTION

- ▼ 1. Connect "throttle cable inner" to the throttle servo output arm using the screw-fit-clevis (see fig. 12 on page 6).
- ▼ 2. Slide "throttle cable outer" over inner cable and locate in pre-cut slot in the bottom of the left fuselage side.

ELEVATOR & RUDDER CONTROLS

- ▼ 1. Attach plastic snap links to the end of the control snakes and connect to the relevant servo horns.
- ▼ 2. Insert snakes into their slots in the fuselage.
- ▼ 3. The rear ends of the snakes will be connected to the control surfaces later.

FITTING ON-OFF SWITCH

- ▼ 1. Drill a small hole (1mm approximately) in the switch to allow switch actuating wire to pass through (see fig. 3).
- ▼ 2. Insert wire and crimp on either side of the switch (see fig. 3).



fig. 3

- ▼ 3. Fit switch harness and switch into the pre-cut hole in the fuselage (fig. 1).

NOTE To operate this switch when the fuselage halves have been joined the ON-OFF wire must exit the top and bottom of the fuselage.

COVERING OF FUSELAGE

- ▼ 1. Cover fuselage lengthways using the provided stranded glass tape (Bullet tape). Lay one strip at a time, overlapping by approximately 6mm

each time. The fuselage halves are covered separately both inside and out. This tape will cover the servos and therefore hold them in place.

NOTE

After covering the servos you will need to cut slots in the Bullet tape to enable the servo arms to travel freely.

- ▼ 2. Ensure that you pierce 5 holes on each side of the fuselage on top of the already pre-cut holes to allow the dowels to be inserted.

TAIL PLANE ASSEMBLY

- ▼ 1. Slide tail plane and fin together.
- ▼ 2. Secure tail plane and fin by using Bullet tape (see fig. 4). Ensure that the Bullet tape is well adhered to both tail plane and fin with approximately half the width of the tape on each surface.

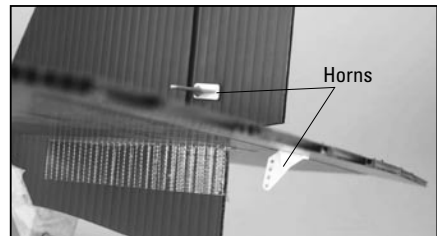


fig. 4

- ▼ 3. The tail plane/fin assembly fits into the pre-cut slot between the two fuselage halves as shown in fig. 5.

NOTE

At this stage do not permanently join fuselage sides or attach tail plane assembly. We suggest you temporarily hold the fuselage together with elastic bands to enable correct positioning of all components.

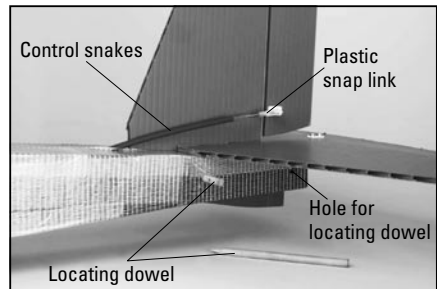


fig. 5

- ▼ 4. Pierce fin below tail plane to match holes in fuselage as shown in fig. 5. This is done to allow locating dowels to pass through the fin. Temporarily fit dowels.
- ▼ 5. Fit plastic control horn to the left side of the rudder approximately 40mm up (see fig. 4 & 5).
- ▼ 6. Fit another plastic control horn to the elevator underside approximately 10mm to the right of the centre line (see fig. 4 & 5).

NOTE When fitting control horns, ensure that these are fitted well forward on the control surfaces with their holes lining up with the hinge line.

- ▼ 7. Connect white plastic horn to the control snakes using plastic snap links.

FUEL TANK ASSEMBLY

Assemble the fuel tank as per the instructions enclosed in the packet. Fit the "tank to engine" pipe and "tank to silencer" pipe and locate the complete assembly into the pre-cut hole in the front of the fuselage.

WING CONSTRUCTION

- ▼ 1. You will need to establish which wing is left and which is right. You do this by looking at the pre-cut servo wells. These must be on the underside of the wing and nearest to the fuselage.
 - ▼ 2. Glue wooden wing spars into metal dihedral joiner using epoxy. Trial fit spar assembly into wing panels ensuring that wing has dihedral.
- NOTE** The dihedral angle is preset by the metal joiner.

- ▼ 3. The spar assembly can now be inserted into each wing in turn ensuring that the servo cutouts are on the underside of the wing (see fig. 6). Hold the two wing halves together by wrapping a piece of Bullet tape around the joint.

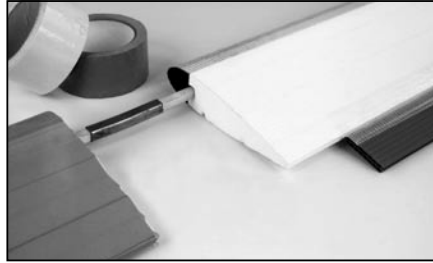


fig. 6

- ▼ 4. Fit the shaped wing tips (slant facing down) onto the ends of the wings using Bullet tape (see fig. 7).

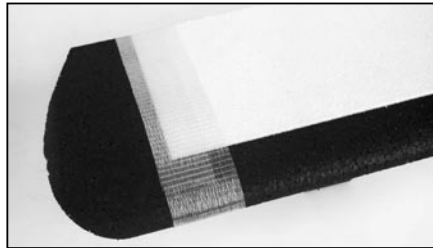


fig. 7

- ▼ 5. Separate the two 40mm square ply plates supplied and glue them into the wing servo wells using epoxy.

NOTE The servos will be fitted to the ply plates with double sided tape.

- ▼ 6. Fit the wing servos (1L & 1R) into the pre-cut wells making sure that they adhere to the double-sided tape and are centralised (turn your radio on, ensuring that all controls and trims are centred).

NOTE The servo horns must be pointing outward. Servo wires will be tidied during the covering of the wing.

COVERING THE WINGS

Before commencing the wing covering there are three important things to remember:

- ▼ 1. The servo wires will be tidied at this point. This can either be done by cutting a slot in the wing undersurface between the servo bay and the wing

root and pushing the servo wire into this slot. Or, if you prefer, just lay the wire flat on the undersurface of the wing and tape over it. Both servo wires should exit together on the undersurface of the wing at the centre.

- ▼ 2. The Bullet tape will cover the servos. This is done to ensure that the servos will not move.
- ▼ 3. Whilst covering the wing you will need to cut a chord-wise slot in the Bullet tape to allow the servo arms to travel through their full throw.

Apply successive lengths of Bullet tape to the entire length of the wing - overlap the wing tips too. Lay one strip of Bullet tape at a time, working forward and overlapping approximately 6mm each time. When you reach the leading edge of the wing, carry the overlap 15mm over the leading edge and onto the opposite side of the wing. Lay an extra strip above and below the wing spar. When your wing is completely covered, add a strip of Bullet tape over the leading edge and trailing edge of your wing to reinforce it (see fig. 8).

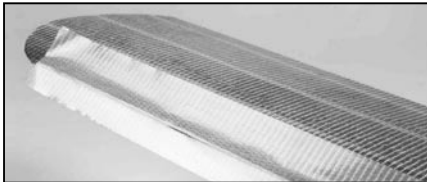


fig. 8

AILERON CONSTRUCTION

Peel off the covering from the tape on the inside of the pre-formed ailerons, fold and join as per fig. 9.

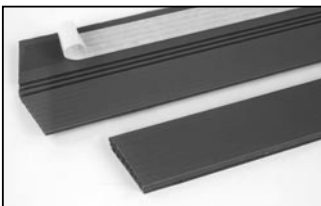


fig. 9

FITTING AILERONS

- ▼ 1. Place the wing on a flat board upside down and run a strip of Bullet tape the length of the aileron along the back edge of the wing. The Bullet tape should be 1/3 attached to the wing and 2/3 hanging from the back of the wing.
- ▼ 2. Now turn the wing over and lay the aileron onto the exposed Bullet tape. Temporarily space out from the wing trailing edge using the dowels in the kit (see fig. 10).

NOTE:

The folded edge of the ailerons must face forward. The tip of the ailerons must line up with the wing tips. This will leave a gap of approximately 10cm between the ailerons at the centre of the wings allowing clearance for the fuselage, dowels and wing retaining elastic bands.

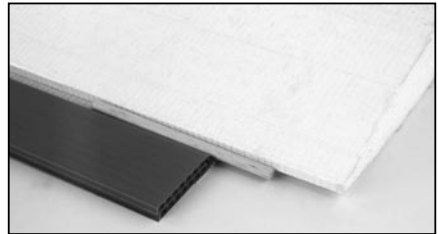


fig. 10

- ▼ 3. Remove the spacers and apply a strip of Bullet tape on top of the wing and aileron whilst keeping the aileron at the required distance from the wing trailing edge (see fig. 11).

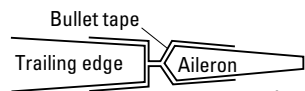
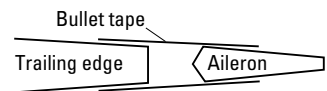


fig. 11

- ▼ 4. All that is now required is to keep the wing flat on the board and push the aileron towards the wing. The Bullet tape will now form a perfect hinge (see fig. 11).

- ▼ 5. Fit dowel reinforcement to the trailing edge of the wing in the space between the ailerons to protect the wing from damage from the elastic bands. The dowel is simply taped in place with Bullet tape.

NOTE You may need to trim the length of the dowel to fit tidily in the space between the ailerons.

FITTING AILERON CONTROL HORNS

Fit the plastic control horns to the aileron underside approximately 160mm from the in-board end of the aileron. This should line up with the wing servo output arm.

NOTE When fitting control horns, ensure that these are fitted well forward on the control surfaces with their holes lining up with the hinge line.

FITTING AILERON CONTROL RODS

Using two threaded rods, screw nylon clevises onto the threaded ends and make z-bends in the other ends to attach to the aileron horns. Make sure that the servos are in their central positions and the ailerons are also central. Fine adjustment can be achieved by screwing clevises in or out.

FITTING THE ENGINE

- ▼ 1. Screw engine mount to the front of the cowling using self-tapping screws. Refer to fig. 12 for position of throttle cable exit and engine mount.

NOTE Ply reinforcing bulkhead is fitted inside the cowl and the engine mount retaining self-tapping screws bite into this.

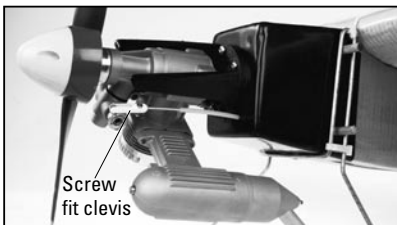


fig. 12

- ▼ 2. You could alternatively use a rubber engine mount (JP part no. 5508176) (see fig. 13). Please note, this is not supplied with the kit.



fig. 13

- ▼ 3. Fit engine to engine mount.
- ▼ 4. Drill a 4mm hole in the cowling for the throttle cable as shown in fig. 12. This should line up with the pre-cut slot in the left fuselage side.
- ▼ 5. Pass the throttle cable and fuel pipes through their relevant holes in the cowling. Slide cowling back until dowel holes line up. Place undercarriage over holes and slide dowels in place locating both the undercarriage and cowl assembly (see fig. 12).
- ▼ 6. Connect throttle cable to engine using the screw-fit-clevis (see fig. 12)

RADIO INSTALLATION

- ▼ 1. Fit battery pack into the front hole in the fuselage under the wing (4.8v flat pack).
- ▼ 2. Fit the receiver into the rear hole in the fuselage under the wing.
- ▼ 3. Connect throttle, rudder and elevator servos to the receiver.
- ▼ 4. Connect the switch harness to receiver.
- ▼ 5. Connect the single end of the Y-lead to the aileron socket on the receiver.

CONTROL SURFACE THROWS

Switch on your R/C equipment and set all the control throws to the correct amount by adjusting the length of the horns (shorter means more control

surface movement), or servo arm length (longer means more movement). The control throws should be set up as follows:

- ▼ 1. AILERONS: 10mm up, and 10mm down. Note: Left aileron moves up to make the aircraft turn left.
- ▼ 2. ELEVATOR: 15mm up and 15mm down.
- ▼ 3. RUDDER: 25mm left and 25mm right.
- ▼ 4. THROTTLE: Full movement of throttle stick should give full throttle range at carburettor. Moving the throttle trim fully back will close carburettor off completely and stop engine.

DECORATION

To enhance the appearance of your Prangster use special coloured self-adhesive tape. This is very light and flexes with the aircraft. It is best to cover all of your Prangster as this will help orientation, improve fuel proof qualities and stop U.V rays damaging the Bullet tape. Coloured tape (not supplied) is available in red, yellow, blue, green, black and white (JP part number JPBUL19).

FINAL ASSEMBLY

- ▼ 1. Remove your temporarily fitted elastic bands from the fuselage and permanently join the two fuselage halves together with a single strip of Bullet tape, both top and bottom.
- ▼ 2. Connect the aileron servo plugs to the Y-lead.
- ▼ 3. The wings are fitted to the fuselage with elastic bands. Use a minimum of six bands, three each side.

CENTRE OF GRAVITY

The completed aircraft must balance level or slightly nose down when supported by fingertips placed under each wing 80mm back from the centre front of the wing (leading edge). Add weight to nose of the aircraft or the rear section as required to bring the aircraft into balance.

NOTE For beginners the balance point can be up to 10mm in front of this point and for advanced flyers up to 20mm behind this point.

TRANSMITTER SETUP—MODE 2

Throttle is on the left transmitter stick

- ▼ LEFT STICK FORWARD = High throttle
- ▼ LEFT STICK BACK = Low throttle
- ▼ LEFT STICK RIGHT = Right rudder
- ▼ LEFT STICK LEFT = Left rudder
- ▼ RIGHT STICK FORWARD = Down elevator
- ▼ RIGHT STICK BACK = Up elevator
- ▼ RIGHT STICK RIGHT = Right aileron
- ▼ RIGHT STICK LEFT = Left aileron

TRANSMITTER SETUP—MODE 1

Throttle is on the right transmitter stick

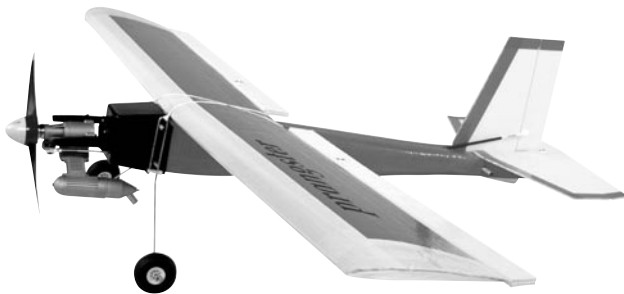
- ▼ LEFT STICK FORWARD = Down elevator
- ▼ LEFT STICK BACK = Up elevator
- ▼ LEFT STICK RIGHT = Right rudder
- ▼ LEFT STICK LEFT = Left rudder
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We wish you many safe and enjoyable flights with your PRANGSTER.

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