

### SPECIFICATIONS

#### ZERO-EPS-100C

Length: 705 mm (27.8 in.)  
 Wing Span: 850 mm (33.5 in.)  
 Wing Area: 13.6 dm<sup>2</sup> (204 in.<sup>2</sup>)  
 Wing Loading: 25 g/dm<sup>2</sup> (8.45 oz/sq.ft.)  
 Flying Weight: 340~375g (12~13.2oz)  
 Power System: EPS-100C  
 Propeller: 25.4 x 20.3 cm (10" x 8")  
 Battery required: 2/3AA 270~400mAh/8.4V  
 Radio required: 4-channel radio  
 Servo required: 3 x PICO or NARO  
 Electronic Speed Controller: ICS-100

#### ZERO-EPS-300C

Length: 705 mm (27.8 in.)  
 Wing Span: 850 mm (33.5 in.)  
 Wing Area: 13.6 dm<sup>2</sup> (204 in.<sup>2</sup>)  
 Wing Loading: 25.7 g/dm<sup>2</sup> (8.72 oz/sq.ft.)  
 Flying Weight: 350~395g (12.35~13.2oz)  
 Power System: EPS-300C  
 Propeller: 25.4 x 20.3 cm (10" x 8")  
 Battery required: 2/3AA 270~400mAh/7.2~8.4V  
 AA600mAh/7.2V  
 Radio required: 4-channel radio  
 Servo required: 3 x PICO, NARO or MINI  
 Electronic Speed Controller: ICS-100 or ICS-400

### CONTENTS OF KIT (PART LIST)

1. ZERO Fuselage (Right side) (White)	1 pce.
2. ZERO Fuselage (Left side) (White)	1 pce.
3. ZERO Wing (White)	1 pce.
4. Horizontal Stabilizer	1 pce.
5. Hinge (10 x 18 mm) (15 pieces)	1 set
6. Transparent Canopy	1 pce.
7. VELCRO (A & B)	1 set
8. Aileron Linkage Wire (A & B)	1 set
9. Bamboo Stick (3.0 mm dia. x 240 mm)	1 pce.
10. Elevator Linkage Wire (U-shape)	1 pce.
11. Push Rod (0.9 mm dia.)	3 pcs.
12. Cowling	1 pce.
13. Cowling Mount (1 x 8 x 8 mm/4 pcs.)	1 set
14. Plastic parts Frame A	1 set
15. Plastic Parts Frame C	1 set
16. Tail Dragger (Tail Gear)	1 pce.
17. Main Landing Gear (Left)	1 pce.
18. Main Landing Gear (Right)	1 pce.
19. Ultra-light Shock-absorbing Wheel (50 mm dia.)	2 pcs.
20. Ultra-light Shock-absorbing Wheel (25 mm dia.)	1 pce.
21. Propeller (EP-1080)	1 pce.
22. Spinner	1 pce.
23. Electric Power System (EPS-100C or EPS-300C)	1 set
24. EPS Mount	1 pce.
25. Double-sided Sponge Tape	4 pcs.
26. Instruction Manual	1 pce.
27. GWS Glue	1 pce.
28. Rubber Band	8 pcs.
29. Hex. Nut	1 pce.
30. Washer (3.2 x 8.0 x 0.5 mm)	1 pce.
31. Wing Fixing Screw (3 x 30 mm)	1 pce.
32. Screw (1.4 x 9 mm) (Cowling, Landing Gear and EPS)	9 pcs.
33. ZERO Decal	1 pce.
34. GWS Decal	1 pce.
35. PICO Grommet ø5 x 3 mm	1 pce.
36. Plastic Tube ø2.5 x 25 mm	2 pcs.
37. Rubber Grommet for Aileron ø5 x 4 mm	2 pcs.

### GWZERO-FAS1

PHFUS-1007---L-  
PICO-ZERO Fuselage (Left side)



PHFUS-1007---R-  
PICO-ZERO Fuselage (Right side)

### GWZERO-FAS2

PHWIN-1008--- PICO-ZERO Main Wing



PHWIN-1008---H-  
PICO-ZERO Horizontal Tail

PYCRD-1001---  
Hinge (10 x 18 mm) (15 pieces)



**PYINS-1039**.....  
Instruction Manual x 1 pce.



**PYPOP-1024**.....  
ZERO Decal x 1 pce.



**PYPOP-1003**.....  
GWS x 1 pce.



## GWZERO-FAS4

**PTME WA-1001**..... Push Rod x 3 pcs.

**PTME WA-1008—A—** PTMEWA-1008—B—  
Allen Linkage Wire Ax 1 pcs. 2 x 1 pcs.

**PTME WA-1008—D—**  
Elevator Linkage Wire x 1 pcs.

**PTSTK-1002**.....  
Sambor Stack 3 x 240 x 1 pcs.

**PTGUM-1014**.....  
Drummet x 3 pcs.

**PTFLX-1001**.....  
Flexid Tubing x 2 pcs.

## GWZERO-FAS3

**PTME WA-1007—T—**  
Tail Dagger x 1

**PTMEWA-1007-R—M—**  
Main Landing Gear (Right) x 1 pce.

**PTMEWA-1007-L—M—**  
Main Landing Gear (Left) x 1 pcs.



**PHTYRP-1006-W—**  
Ultra-light Wheel Rim (50.0mm dia.) x 2 pcs.



**PHTYRP-1005-W—**  
Ultra-light Wheel Rim (25.4mm dia.) x 1 pcs.



**PVPEF-1033**.....  
Coaling x 1 pcs.

## GWZERO-FAS100 or GWZERO-FAS300

Electric Power System:  
(GWEPS-300C or GWEPS-100C)



**PMCHA1005**.....  
EPS Mount x 1 pce.



**PTPROA1000**.....  
Propeller (EP1000) x 1 pce.

**PHSPIR 100 125D**  
Ø 25mm Safety Spinner x 1 pce.

## GWZERO-FAS6

**PXTPAF-4J-1490R**.....  
Coaling Fixing Screw x 9 pcs.

**PWNUTF-431E3005**.....  
Nut x 1 pce.

**PWWAHF-63053200**.....  
Washer x 1 pce.

**PTGUM-1007**.....  
Drummet Ø5 x 3 mm x 1 pce.

**PMSPC-1002**.....  
Coaling Mount (1 x 8 x 8mm) x 4 pcs.



**PMSPC-1008**.....  
Plastic Parts Frame "C" x 1 set

**PXIOF-6P-3030**.....  
Wing Fixing Screw x 1 pce.



## GW/P-STICK-AS5



**PTCUS-1016**.....  
Double-sided Sponge Tape x 4 pcs.

**8SRBD-1001**.....  
Rubber Band x 8 pcs.



**8SADHP1001**.....  
GWS Disc x 1 pce.



**PMSPC-1001**.....  
Plastic Parts Frame "A" x 1 set

## GWZERO-FAS5

**PVPEF-1034**..... ZERO Canopy



**PTADP-1001—A— & PTADP-1001—B—**  
Lakro (Ø9.10 x 48mm-S Lakro (Ø) 10 x 48mm

### OPTIONAL PART:

**PHSPIR 1005**.....  
EP-0070 x 3 Propeller x 1 pcs.



### RADIO CONTROL SYSTEM



### TOOLS AND ITEMS

To assemble this airplane you need to prepare some tools.



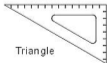
Cutter Knife



Pliers



Screwdriver



Triangle



Scissors



Nippers



Drill



Spray Paint

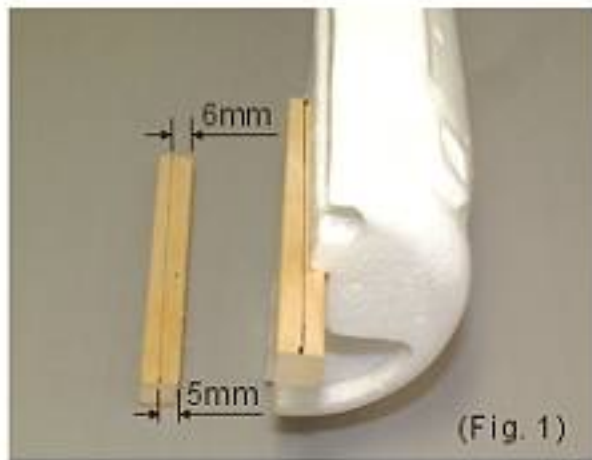


Paper Tape



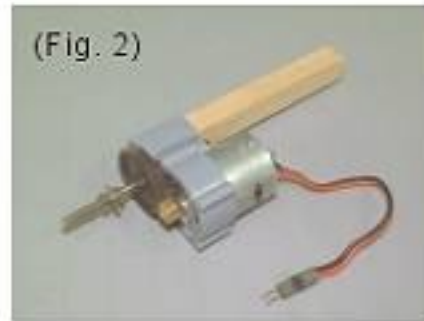
Alcohol

## FUSELAGE ASSEMBLY

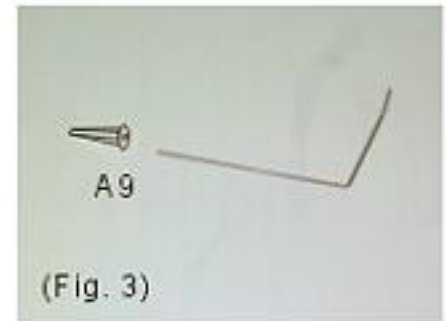


(Fig. 1)

1. As shown, mark a line on the EPS mount that is for the thrust angle indication when it is installed on the fuselage (Fig. 1).



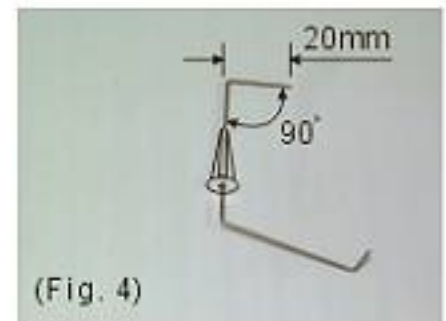
(Fig. 2)



(Fig. 3)

2. Insert the EPS mount to the electric power system (EPS). Make sure that the mount is pushed into the EPS by 20mm. If it is too tight to insert the mount, trim the mount slightly with a knife or sand paper.

Temporarily pull the EPS out for easier assembly procedure of the fuselage. (Fig. 2)



(Fig. 4)

3. Insert the plastic retainer A9 to the tail dragger wire (1.2 mm dia.) and bend the wire 90 degrees at 20 mm from the end as shown. (Fig. 3 & Fig. 4)



(Fig. 5)



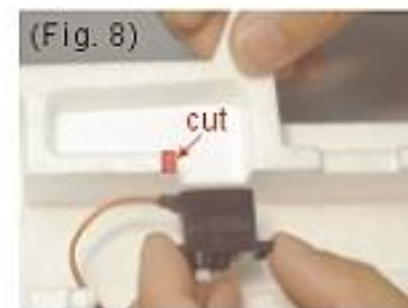
(Fig. 6)

4. Cut the rudder on the vertical fin (right & left) apart with a knife as per the groove. (Fig. 5 & Fig. 6)



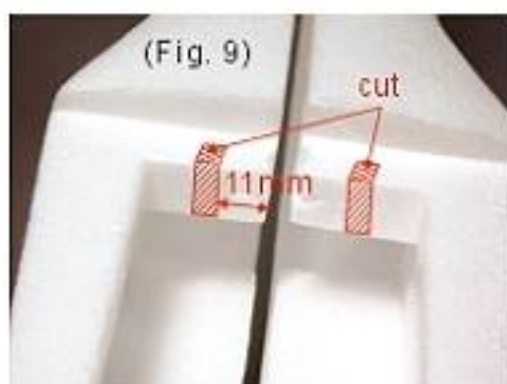
(Fig. 7)

5. Drill a small hole for the push rod (both right and left fuselages). (Fig. 7)



(Fig. 8)

6. According to the dimension of the servo that you are going to use, cut the slant-lined excess parts. (Fig. 8)



(Fig. 9)

7. As shown, cut and make the grooves (5 x 5 mm) located 11 mm from the center. (Fig. 9)

8. Apply enough glue to the grooves for the mount and the tail dragger wire as well as all surfaces to be joined. Then, place the EPS mount and the tail dragger wire in the place and joint the left and right fuselages. (Fig. 10)

### FOR NOON PAINTED AIRPLANE

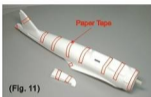
Put paper tapes, 5-6 places around the fuselage as shown until glue cures completely that will at least take half an hour. Make sure that the EPS mount is located along the thrust indication line. (Fig. 11)

### FOR PAINTED AIRPLANE

To prevent damage to the paint, use a 12 minute epoxy and hold fuselage halves together, since the tape could pull the paint off when removing.

9. Press the hex. nut into the plastic part C6, turn it over and apply a small amount of glue to the C6 then insert to the slot of the fuselage as shown. Make sure that there is no glue on the thread of the nut. (Fig. 12, Fig. 13 & Fig. 14)

(Fig. 10)



(Fig. 11)



(Fig. 12)



(Fig. 13)



(Fig. 14)

Glue the plastic part C1 to the hollow of the fuselage as shown. (Fig. 15 & Fig. 16)



(Fig. 15)



(Fig. 16)

## MAIN WING, HORIZONTAL STABILIZER AND VERTICAL FIN ASSEMBLY

1. Cut the aileron apart from the main wing (both right and left) with a knife as per the groove as shown. (Fig. 17)



(Fig. 18)



(Fig. 19)



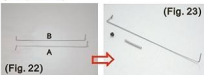
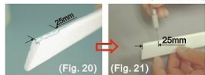
(Fig. 17)

2. Cut the edge of the aileron by 1 mm and trim any excess parts. (Fig. 18 & 19)

3. For the aileron linkage wire, cut a 1 mm deep & wide and 25 mm long slit and drill 1.2 mm dia. & 15 mm deep hole on the aileron (right & left). (Fig. 20 & Fig. 21)  
Put the rubber grommet and  $\varnothing 2.5 \times 25\text{mm}$  plastic tube to the aileron linkages.  
Glue the aileron linkage wire (A & B) on the aileron as shown. (Fig. 22, Fig. 23, Fig. 24, Fig. 25, & Fig. 48)

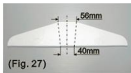
(A Left Side)

(B Right Side)



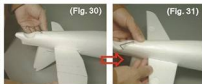
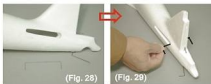
4. Cut the elevators apart from the horizontal stabilizer. (Fig. 26)

Use a triangle to determine the center of the horizontal stabilizer and mark an indication lines as shown. (Fig. 27)



5. Insert the elevator linkage wire into the fuselage as shown. (Fig. 28 & Fig. 29)

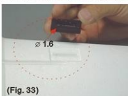
Then, insert the stabilizer into the fuselage and glue it securely. (Fig. 30 & Fig. 31)



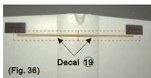
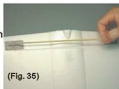
6. Temporarily install the main wing and adjust the stabilizer to be horizontal (The distance A should be the same as A\*). (Fig. 32)

Glue the main gear mounts on the bottom of the wing (leading edge side).

Make sure its direction (hole position) as shown. (Fig.33 & Fig. 34)



7. Glue the bamboo stick ( $\varnothing 3 \times 240\text{mm}$ ) for wing enforcement on the bottom of the wing (leading edge side) and cover it with decal 19 tapes as shown. (Fig. 35 & Fig. 36)



8. Glue the plastic part C5 on the center bottom of the wing (trailing edge) for bolt fix the wing to the fuselage. (Fig. 37)

(Fig. 37)



9. Place the plastic part C2 in the position and install the main wing and glue the plastic part C2 as per guide holes. (Fig. 38, Fig. 39, Fig. 40 & Fig. 41)



(Fig. 38)



(Fig. 39)



(Fig. 40)



(Fig. 41)

10. First trim any excess parts, then according to the dimensions shown, cut a slit (15 mm long and 10 mm deep) at 3 places for hinge installation on the ailerons, then apply glue to a half of the hinge and insert them into the slits. Cut the inner edge by 1mm (Fig. 42 & Fig. 43)

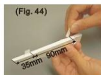


(Fig. 42)

11. Trim any excess parts of the elevators, then cut 2 slits on them as indicated and drill a 1.2 mm and 20 mm deep hole (left side only) and cut a 1 mm deep & wide and 22 mm long groove for the elevator linkage wire (no need to cut the inner edge). (Fig. 44 & Fig. 45)



(Fig. 43)



(Fig. 44)



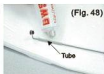
(Fig. 45)



(Fig. 46)

12. Glue the rudder together and trim the rudder (triangular shape) as instructed and cut the bottom of the rudder by 1 mm. (Fig. 46)

13. Mark the locations of the hinges of the aileron on the wing and make slits on the counterpart. Place the rubber grommets on one end of the aileron linkage wires for more precise linkage and insert the plastic tubes on the linkage wires as shown, then install the aileron linkage wire. (Fig. 47, Fig. 48)
14. Apply glue on all hinges and aileron tubing and insert them to the wings securely. Cover the aileron linkage wires with the decal (18) as shown. (Fig. 49)
15. Install the elevators in the same manner. (Fig. 50)



16. Then, determine the position of the elevator linkage wire on the right elevator as shown and drill a hole (1.2 mm and 20 mm deep) and cut a 1 mm deep & groove for the linkage wire (no need to cut the inner edge). (Fig. 51) Make sure that stabilizer with the elevators is to be horizontal perfectly. (Fig. 52)



17. Glue the hinges onto the rudder and install it to the vertical fin as shown. (Fig. 53)
18. Glue 4 pieces of the cowling mount to the fuselage nose. (Fig. 54)

## PAINTING

1. Choose emulsion paint suitable for the polystyrene. (Fig. 55)
2. Before painting, wipe all surfaces of the fuselage, wing, stabilizer and fin with medical alcohol and remove any oil, dust, dirt etc.
3. In accordance with your favorite color scheme, spray paint as lightly as possible in order keep flying weight lighter. Remember that each additional painting will increase its weight by about 15-25 grams that will affect flight performance and characteristics.
4. It is very important to keep adequate distance between the spray nozzle and the object (20-30 cm), otherwise the polystyrene (fuselage and wing) may get damaged when a distance is too close each other.
5. For painted versions, control surface such as Rudder, Elevator Etc. Please use water base marking pen (Similar Color) To color the sanded area.



## LANDING GEAR ASSEMBLY

1. Install the main landing gear and fix them firmly with the screws (1.4 x 9 mm) as shown, then install the ultra-light shock-absorbing wheels (50 mm dia.) and put the retainer (A1). (Fig. 56, Fig. 57 & Fig. 58)





(Fig. 56)



(Fig. 57)



(Fig. 58)



(Fig. 59)

2. Install the ultra-light shock-absorbing wheel (25 mm dia.) and fix it with the retainer (A4). (Fig. 59)

### ELECTRIC POWER SYSTEM (EPS) ASSEMBLY

1. Put the motor wire inside of the fuselage through the hole as shown. (Fig. 60)
2. Push the EPS into the mount by 20 mm, then drill 1.2 mm dia. hole on the EPS and fix it with the screw (1.4 x 9 mm). (Fig. 61)



(Fig. 60)



(Fig. 61)

### COWLING, PROPELLER AND SPINNER

1. According to the cutting guideline, cut the cowling and drill 1.2 mm dia. hole on the cowling mount (4 places) and fix the cowling with 4 pieces of 1.4 x 9 mm screw. (Fig. 62 & Fig. 63)
2. Install the propeller (EP-1080) and fix it firmly with the washer and nut, then push on the safety spinner. (Fig. 64)



(Fig. 62)

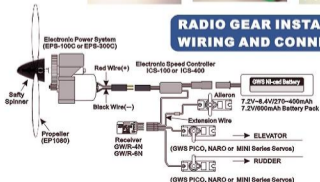


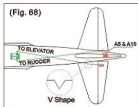
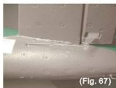
(Fig. 63)



(Fig. 64)

### RADIO GEAR INSTALLATION WIRING AND CONNECTION



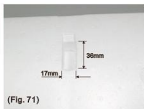
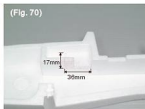


1. Clean the servo case with medical alcohol and attached the double-sided adhesive tape.
2. Stick two servos in the hollow of the fuselage as shown. Be aware of mounting directions of the servos and servo output horns.
3. Mount the receiver and the speed controller using supplied double-sided sponge tape as shown. (Fig. 65)

Make a small hole on the side of fuselage where the antenna will go through. Fix the antenna to the fuselage with a tape securely and safely. Do not shorten the antenna or coil it as the range will be reduced. You may cut the antenna a half (no other length) on the GWS receiver only at your own risk.

Insert the control horns (A5) into the slots on the stabilizer and rudder than fix them with the retainer (A10) or glued it securely. (Fig. 66)

4. Bent the one end of the push rod (Z shape) and make a V shape bend(5~7mm) in the push rod as shown, then hook the push rods into the servo horns temporarily. (Fig. 66)
5. Holding the servos and the control surfaces in the neutral position, mark position where the push rod passes the holes of the contral horns. (A5)
6. Make a Z shaped bend in the marked ends and connect the rods to contral horns. ( Fig. 67, & Fig. 68)



7. Install the aileron servo and make linkage in the same manner. (Fig. 69)
8. When using MINI servos, it is necessary to cut some parts away as shown. (Fig. 70 & Fig. 71)

### FINAL ASSEMBLY AND DECAL

1. To fix the wing, use 3 x 30 mm screw and M3 washer. (Fig. 72) Drill a hole on the wing at opposite side of C5 plastic and insert the  $\varnothing 5 \times 3$  Grommet to hold the bolt when the wing removed from fuselage.
2. Cut the Velcro in half and attach them to the fuselage and canopy. At the same time, put the tabs on the decal sheet as shown. (Fig. 73, Fig. 74 and Fig. 75)



(Fig. 72)



(Fig. 73)



(Fig. 74)

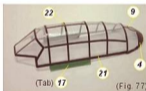


(Fig. 75)

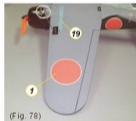
3. To install the battery pack, remove the canopy and insert the battery pack into the fuselage as shown, then cover the canopy again. (Fig. 76)
4. Put the decals as per the scheme shown. (Fig. 77, Fig. 78, Fig. 79 & Fig. 80)



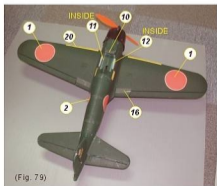
(Fig. 76)



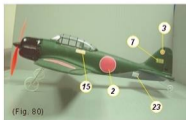
(Fig. 77)



(Fig. 78)



(Fig. 79)



(Fig. 80)

## TIPS AND HINTS PREFLIGHT CHECKS

It is always recommended that you charge your transmitter and receiver batteries as well as the battery pack for the motor before attempting to fly your airplane.

The Center of Gravity (C.G./balancing point) is located 55-65mm back from the leading edge of the wing. After all radio gear and the battery pack is installed, check the C.G. point of your airplane. If the balancing point is offset, move the receiver and speed controller forward or back ward until you find the recommended balancing point.

Check the radio gear and the linkage thoroughly on the ground and make sure that all the control surfaces are working properly and correctly before attempting to take off your airplane.

We recommend that you should check the range of your radio before the first flight of the day.

## FLIGHT

Always turn on the receiver last after turning on the transmitter, and shut off the receiver first before turning off the transmitter.

You can take off your airplane from the smooth surface ground, normally 3-5 meters for run and take off.

If you are hand-launching your model, move the throttle stick up fully and see if the motor is running at the maximum rpm. Then, throw your model to the air horizontally as shown and apply up elevator as model climbs at a shallow angle. If you launch your airplane at a steep angle, upward or downward, it may result in a crash of your model.



## **CAUTION: NEVER FLY OVER PEOPLES' HEADS OR CARS .**

- If you are only beginner for the radio control model flying, do not attempt to fly your model without any assistance or advice from advanced and expert fliers.
- Do not fly close to buildings, electric power lines, or roads. Do not fly near other people who are not aware of what you are doing.
- Fly on a calm day. Gusty winds will make it hard for you until you learn to control your aircraft well. Turbulence caused by wind blowing over near by trees and buildings will make it very difficult for you to fly. Pick an open area and wait until the wind is calm.

If you are flying at a field with other modelers, DO NOT turn on you transmitter until you are certain that no one else is using your channel.

## **LIMITED WARRANTY**

- Your new GWS ZERO airplane kit is warranted against defects in material and workmanship.
- This warranty does not apply to any component parts, which have been improperly installed, handled, abused, damaged, modified and used.

### **WARNING:**

- If you are a beginner to R/C model flight then we strongly recommend you seek advice from your supplier and local model flying club before attempting to fly your model.
- This model is not a toy and must be assembled and used responsibly in order for successful flight to be achieved.
- Improper use of this model may lead to injury or damage to persons or property. GWS and their distributors will not accept any responsibility for any injury or damage arising from improper use of this model.