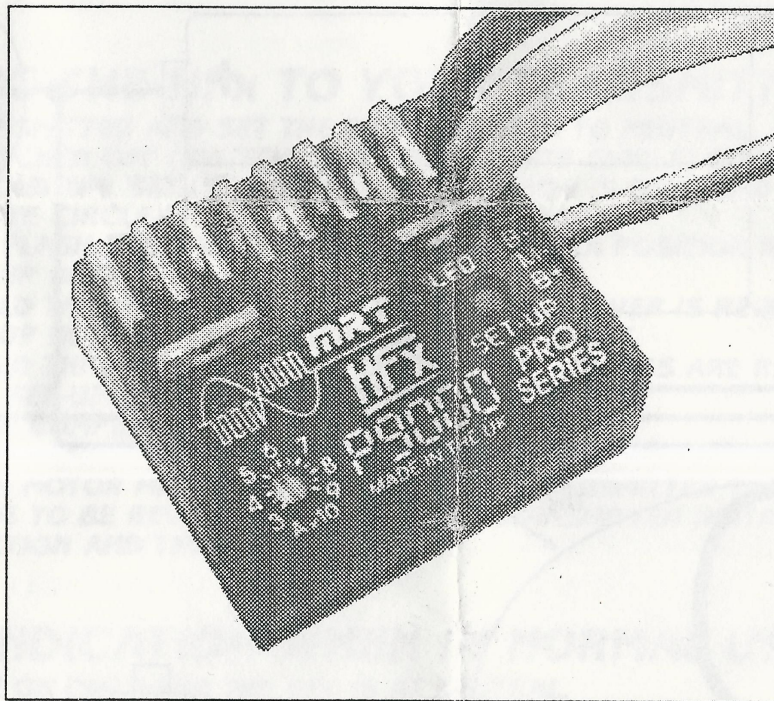


# MODEL RACING TECHNOLOGY

## HFX P9000 - 96

### ELECTRONIC SPEED CONTROL INSTRUCTIONS



**MODEL RACING TECHNOLOGY**

**258 DOVER ROAD, FOLKESTONE, KENT, CT19 6NS.**

**TELEPHONE/FAX 01303 259196**

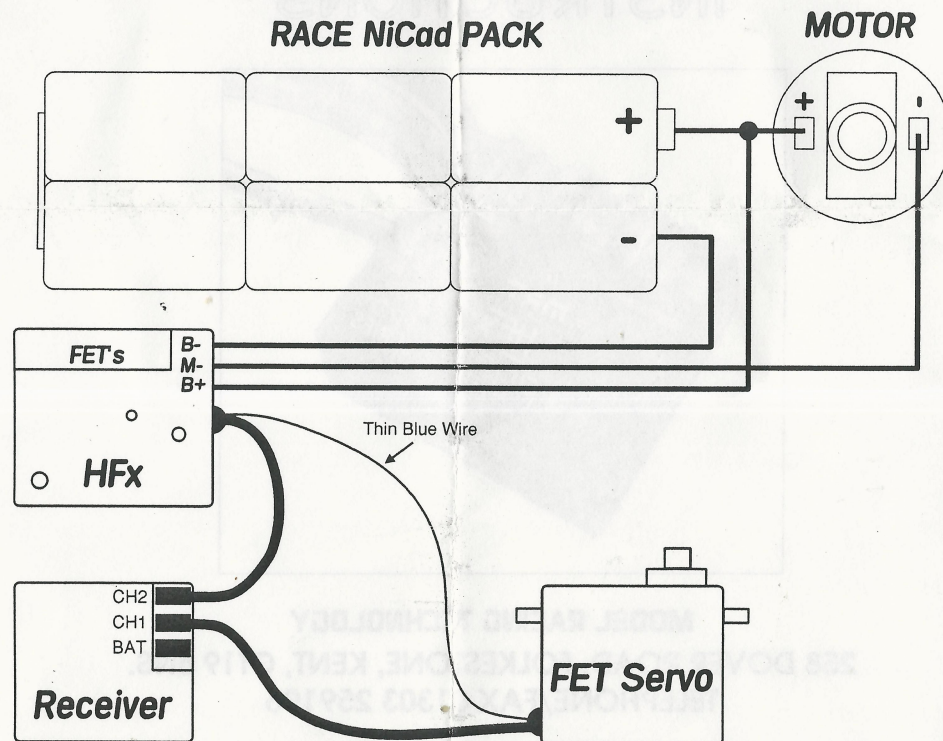


# IMPORTANT Please Read! . . . .

BEFORE WIRING UP YOUR NEW ELECTRONIC SPEED CONTROLLER (ESC) PLEASE READ THE INSTRUCTIONS CAREFULLY AND LOOK AT THE WIRING DIAGRAM.

It is important that you do not short out or reverse connect any of the wires on your HFx as this could DAMAGE YOUR ESC AND THE EQUIPMENT CONNECTED TO IT.

## HFx WIRING DIAGRAM



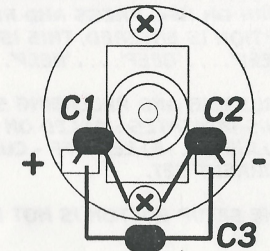
- When using a FET servo, connect the thin blue wire from the HFx to the thin blue wire from the servo. The HFx contains a FET servo choke so an external choke is not required.
- When using a non-FET servo the thin blue wire from the HFx is not used and should be insulated.

## CONNECTION OF WIRES

BLACK WIRE - BATTERY NEGATIVE  
PINK WIRE - BATTERY POSITIVE  
GREEN WIRE - MOTOR NEGATIVE  
THIN BLUE WIRE - FET SERVO LEAD

CAPACITORS: C1, C2 AND C3 0.1uF

## INSTALLING MOTOR CAPACITORS



- THE PINK WIRE WHICH CONNECTS FROM THE BATTERY POSITIVE TO THE MOTOR SHOULD BE CONNECTED CLOSE TO THE BATTERY CONNECTOR TO AVOID POSSIBLE RADIO GLITCHES.
  - ALWAYS USE A MOTOR WITH CAPACITORS FITTED (SEE DIAGRAM ABOVE).
  - ALWAYS KEEP RECEIVER AND AERIAL AWAY FROM ALL POWER WIRES.
  - AN EXTRA SCHOTTKY DIODE CAN BE CONNECTED ACROSS THE MOTOR.
  - IF USING A SEPARATE RECEIVER BATTERY DISCONNECT RED RX WIRE FROM ESC RX PLUG AND INSULATE.
  - INSTALL HFx IN CAR WITH VELCRO OR SERVO TAPE - FIT IN A SAFE DRY POSITION.
- NOTE : MOTOR MUST BE CONNECTED TO HFx FOR BEEPS TO BE HEARD.

## ADJUSTING THE HFx TO YOUR TRANSMITTER

- TURN ON TRANSMITTER AND SET THE THROTTLE TRIM TO NEUTRAL.
- WITH HFx SWITCHED OFF (SWITCH AWAY FROM WHITE CIRCLE) CONNECT TO BATTERY.
- PRESS AND HOLD THE SET-UP BUTTON WHILE THE HFx IS SWITCHED ON (SWITCH TOWARDS WHITE CIRCLE).
- THE LED WILL FLASH, THE TRANSMITTER NEUTRAL STICK POSITION HAS BEEN SET, RELEASE SET-UP BUTTON.
- PUSH AND HOLD THROTTLE STICK TO POSITION FULL POWER IS REQUIRED - PRESS AND RELEASE SET-UP BUTTON, THE LED WILL BE ON CONSTANT.
- PUSH AND HOLD THROTTLE STICK TO POSITION FULL BRAKES ARE REQUIRED - PRESS AND RELEASE SET-UP BUTTON LED WILL TURN OFF.
- SET-UP IS NOW COMPLETE.

IF AT STEP 5 THE MOTOR MAKES A LONG 'BEEP' THE TRANSMITTER THROTTLE STICK DIRECTION NEEDS TO BE REVERSED. CHECK YOUR TRANSMITTER INSTRUCTIONS TO REVERSE THE STICK DIRECTION AND TRY AGAIN.

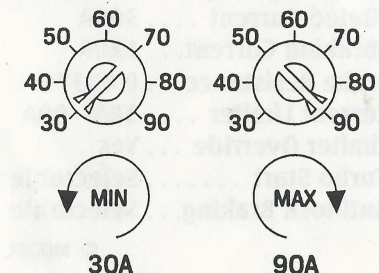
## HFx LED INDICATION WHEN IN NORMAL USE

THE LED WILL BE ON DIM WHEN THE HFx IS AT NEUTRAL.  
THE LED WILL COME ON BRIGHT AT FULL FORWARDS.  
THE LED WILL FLASH WHEN THE HFx IS AT FULL BRAKES.

## CURRENT LIMITER

THE CURRENT LIMITER IS USED TO LIMIT EXCESSIVE CURRENT DRAWN UNDER HARD ACCELERATION, USE THE ADJUSTER TO SET THE REQUIRED CURRENT LIMIT.

BE CAREFUL NOT TO FORCE THE ADJUSTER, THE MINIMUM SETTING IS 30 AND THE MAXIMUM IS 90.





## CURRENT LIMITER ON/OFF

1. TURN ON HF<sub>x</sub>, PRESS AND RELEASE THE SET-UP BUTTON, THE CURRENT LIMITER ON/OFF OPTION IS ENTERED, THIS IS INDICATED BY THE MOTOR 'BEEPING' AS FOLLOWS: 'BEEP'....'BEEP'....'BEEP'....'BEEP'....'BEEP'....'BEEP'....'BEEP'.... ETC.
2. PRESSING AND RELEASING SETUP BUTTON QUICKLY WILL TOGGLE THE LED ON AND OFF, THIS INDICATES : A) LED ON - CURRENT LIMITER ON - CURRENT LIMIT SET TO VALUE ON ADJUSTER. B) LED OFF - CURRENT LIMITER OFF - MAXIMUM POWER, AND MAXIMUM CURRENT SET.

IF THE SETUP BUTTON IS NOT PRESSED FOR 10 SECONDS, HF<sub>x</sub> WILL EXIT SET UP MODE.

## ANTI-LOCK BRAKES

WHEN ANTI-LOCK BRAKES ARE TURNED ON THE HF<sub>x</sub> WILL RELEASE THE BRAKES AUTOMATICALLY WHEN THE MOTOR SPEED REDUCES TO A LOW LEVEL MAKING BRAKING MORE CONTROLLABLE ON SLIPPERY TRACK CONDITIONS.

## ANTI-LOCK BRAKES ON/OFF

1. TURN ON HF<sub>x</sub>, PRESS AND RELEASE THE SET-UP BUTTON, THE CURRENT LIMITER ON/OFF OPTION IS ENTERED AS DESCRIBED ABOVE.
2. PRESS AND HOLD SET-UP BUTTON UNTIL MOTOR 'BEEPS' ONCE THIS INDICATES THAT THE HF<sub>x</sub> HAS ADVANCED TO THE ANTI-LOCK BRAKES ON/OFF OPTION.
3. RELEASE THE SETUP BUTTON, THE MOTOR WILL NOW BE BEEPING AS FOLLOWS: 'BEEP' 'BEEP'... 'BEEP' 'BEEP'... 'BEEP' 'BEEP'... 'BEEP' 'BEEP'... 'BEEP' 'BEEP'... ETC.
4. PRESSING AND RELEASING SET-UP BUTTON WILL TOGGLE THE LED ON AND OFF, THIS INDICATES : A) LED ON - ANTI-LOCK BRAKES ON. B) LED OFF - ANTI-LOCK BRAKES OFF.

IF THE SETUP BUTTON IS NOT PRESSED FOR 10 SECONDS, HF<sub>x</sub> WILL EXIT SET UP MODE.

## TURBO START

APPLY FULL BRAKES FOR APPROXIMATELY 4 SECONDS, THE MOTOR WILL 'BEEP'. THE CURRENT LIMITER AND RESPONSE TIME WILL BE OPTIMISED FOR MAXIMUM ACCELERATION FROM THE START LINE, NORMAL SETTINGS WILL RESUME WHEN YOU REDUCE THE THROTTLE.

## HF<sub>x</sub> P9000 - 96 SPECIFICATIONS

Size (mm) ..... 43 x 38 x 20  
Weight with wires... Approx. 50g  
Voltage Input..... 4 - 7 cells  
ON-Resistance ..... 0.00125Ω  
PWM Frequency.... 9000Hz Max.  
†Rated Current .... 360A  
†Braking Current... 120A  
Brake Resistance... 0.00375Ω  
Current Limiter .... 30A - 90A  
Limiter Override ... Yes  
Turbo Start ..... Selectable  
Anti-lock Braking... Selectable

Internal FET servo choke .. Yes  
Schottky Diode (Internal) .. 30A  
Rx Supply Output Voltage.. 6.0V  
Rx Supply Output Current.. 1.0A  
Rx Supply Protection..... Yes  
Rx Supply Priority ..... Yes  
FET Overload Protection... Thermal  
Rx Plug Fitted ..... Futaba  
Programmable Setup ..... Yes

†Transistor Rating at 25°C Junction Temperature.