D. Component Setup Section
   See Additional Information Section for details
   Italic letters indicate Configurator Window

1) Speed controller
   Note: See section H for additional information, Castlelink settings and Castlelink Set RPM settings, Castle set up is available on Rotormast site

   a) Speed controller must be programmed to ensure a proper function of the V-22:
      Note: Settings based on Castle Creations® 45 amp phoenix.

   b) Turn off motor brake.

   c) Choose LIPO battery type.

   d) Under voltage protection cut type soft or if possible OFF.

   e) Cut off voltage to low.

   f) Startup mode to medium.

   g) Timing for out runner motor (low advance).

   h) RPM governor mode on (High gain) (High RPM).

   i) 8khz PWM Rate

2) GYROs

   a) Gyros must be set up in the following manner to ensure a proper function of the V-22:
      Note: Settings are based on FUTABA GY401, if using a Futaba 520 use factory default settings

   b) Digital servo switch on.

   c) Volume / travel to full range 140%.

   d) Delay to minimum 0.

   e) Reverse to normal.

3) BEC

   a) Ensure output voltage is set to 5.5 Volts.

4) V-22 CONTROLLER
   Note: All files can be found on www.rotormast.com/downloads.
   Before using this device it is advisable to check for updates on www.rotormast.com
   to ensure you have the most up-to-date version.

a) Set-up PC
   To set up and run the V-22 Configurator software on a PC running Windows
   XP/Vista/7; Create a folder named "Rotormast" to place all files from
   Rotormast.com. The files associated with the V-22 are:

   ✓ V22Configurator .exe (PC program)

   ✓ V22USB.dll (USB interface)

   ✓ V22controller-x.xx.bin (Controller software)

   ✓ Settings-x.x.V22 (Controller settings)

Note: V22 Configurator.exe and V22USB.dll. **Files must be in this folder.** You may need to right-click on the V22 Configurator.exe file and select UNBLOCK if you are having problems running it. Other files may also need unblocked.

b) Start the program and connect the controller
   Double click on the V22 Configurator.exe program and plug in the V-22
   controller with the supplied USB cable. At this point the PC will auto detect the
   controller, the *status indicator* on the PC will read *READY* and the lights on the
   controller will go solid green indicating the V-22 controller properly connected
   and ready for set up. Note: After making changes and before disconnecting,
   always push *Save To Device* button.

c) Update firmware
   To load new firmware onto the controller, plug in the USB while depressing the
   programming button on the controller until the LEDs flash back and forth. Then
   start the V22 Configurator program. In the Configurator window select the
   System Options tab and click *Browse* to navigate to the v22controller-x.xx.bin
   (the newest version available). Press the *Start Update button* to begin the
   update. While updating, the green control light will flash on the controller.
   When complete the new version will be displayed in the *Device Info section* of
   the *System Options tab*. Note: Do not apply ships power to the controller during
   this step.

d) Load latest factory settings

To ensure the latest factory settings for the configurator are loaded on the controller, go to the download section on Rotormast.com website and download the latest .v22 file. This file can always be used to load the default values to the controller. Then start the V22 Configurator.exe program, plug in the controller and verify *status*. Once connected, the software and hardware version of your controller will be displayed in the *Device Info field* under the *System Options tab*. To load a new configuration, click the *Load Configuration button*, and select the latest Settings-x.x.v22 file. The default parameters will appear. Click on *Save To Device*, to permanently place in the controller memory, and then disconnect the USB plug.

e) Run newer version of V22 Configurator program

Delete old version of V22Configurator .exe out of the Rotormast folder and replace with newer version off the Rotormast.com web site. To find out the version of the V22 Configurator program, right click on the top bar of the window and select About.

5) Transmitter

a) Any helicopter transmitter can be used to fly the V-22 if it can support a mechanical mixed swash plate (no CCPM), has throttle and pitch curve programming, IDLE UP (normal, stunt 1 & stunt2) functionality, gyro gain switch, and an available 7th auxiliary channel to control the conversion angle of the nacelle. This can be a slider, rotary knob or multi-switch.

b) Parameters

Select helicopter mode, no CCPM mixing swashplate type (SWH1 for Futaba) Note: All CCPM mixing is done inside the controller. Note : JR is under Swash type and choose " 1 servo "

c) Throttle curve settings

Set the throttle direction and volume to speed control requirements. Plug in speed controller into RX directly to make programming easier. (Newer Castle Creations® do not use 100%) (Futaba direction is REV). Note: The controller acts only as a Y plug for the speed controllers. Please read ECS instructions.

Set the throttle curve in Normal mode to 0% for 0, 25, 50, 75 and 100 throttle stick position. Note: This allows for check-out and set-up without powering rotors.

Set the throttle curve for Stunt1 to 0% for 0 and 100% for 25, 50, 75 and 100 throttle lever positions. Note: Used for spool up.

Set the throttle curve for Stunt 2 to 100% for 0, 25, 50, 75, and 100 throttle lever position. Note: Used for all flying.

Enable the Throttle hold lever on your radio, and set to 0. For ICE 50 is using throttle hold mode active, set hold to 17%

d) Pitch curve settings
For all operational modes, Normal, Stunt1 and Stunt2, set the pitch curve to a straight line from 0 to100%.

e) Travel adjustment or servo endpoints (ATV)
Set roll ±50%, Elevator ±50%, Rudder ±50% and Collective Pitch (PIT) to ±50% of travel.
Set the gyro gain (GYR) to ±100%. Note: Gain switch is used to select between hold and rate mode only and does not have any impact on gyro gain.

f) Set the conversion servo channel endpoint to ±50% (initial setting to prevent over travel when setting up).

g) Sub trims
Set sub trims to 0 for every channel.

h) Any other additional or auxiliary settings like REVO, turn off or to 0.

i) Center all front side trims.

j) Flip all switches into "normal position" as necessary with any model helicopter. Note: This is typically all switches back or away from pilot.

k) Verify controls move as expected with servo monitor

Copyright 2010 Rotormast LLC – www.rotormast.com