# Working Clocks

Just a simple solution to take care of the chronographs in the cockpit.
It is possible to build fully working Chronographs for inclusion on the MIP, but I chose to spend the time on more important things. But I was still bugged by not having a reasonably realistic component installed in the chronograph housings.
Then one day I had a brainwave. This is how it panned out.

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GENERAL DISCUSSION & OPTIONS.

The Boeing 737NG has two chronographs fitted, one for each pilot on the left and right lower sides of the MIP.   These contain 2 digital displays.   They function as a clock, a stopwatch and a countdown timer amongst other things.
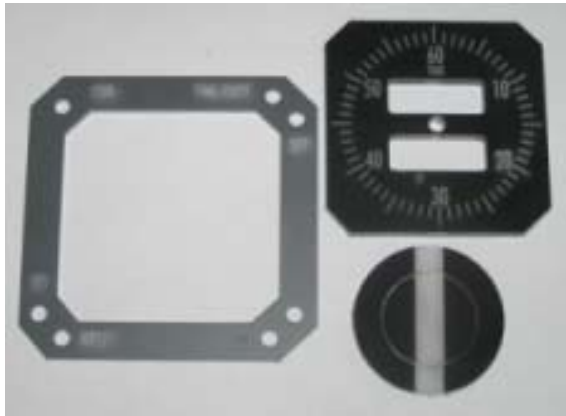
SOLUTION
I already had the SYMULATORY Chronograph Window Frame on my MIP, but what I needed was the actual face, the digital readouts and some way to emulate the action of the instrument.
One day I'm browsing the HISPAPANELS (www.hispapanels.com) site and there it was the Chronograph Kit as part of a panel component kit. (Ref: FP12)
This is how it all went together.   The clock movement came from RAPIDE ELECTRONICS (www.rapidonline.com) , they are so cheap it's almost unbelieveable at GB£0.95 + tax. The RAPID Part No. is 85-1430.   So I bought 3, 2 to use and one to experiment with.   It turned out I didn't need three, just two, so now I've got a spare :o)

The first thing you need to do is carefully remove enough of the centre cross bar on the faceplate (I used a blunt junior hacksaw blade) to allow you to press the clock hub thru it.   Then you need to print a .jpg file to simulate the digital readout like this one. You may have to play with the sizing and positioning of the digits so that they fit your cut-outs in the Chrono faceplate. The Font I used was DigitalDB at 40 point. Cut it to size and lay it in place on some wide self adhesive tape.   This is then positioned so that the digits line up with the display windows.   The plus sign helps you to position correctly.   Once you have it in place, simply press the adhesive tape onto the back of the Chrono face and now it's starting to take shape.   Take a sharp hobby knife and remove the tape/paper which is covering the cutout in the cross bar, slide the rubber spacer onto the clock hub and push it thru the faceplate.

Place the washer onto the hub and gently tighten the nut so that the clock movement is firmly in place in the face plate.
All that remains to be done is the finishing………You will need to trim the hands so that they do not touch anything in the MIP window.   I pained them the same Boeing Grey as all my MIP Control Knobs.
I'm very pleased with the result, they are now a functioning instrument that adds a certain amount of reality and they will most certainly do the job until I can find the time to develop the digital version.
Another great idea, sometimes I amaze myself :o)   Now I'm off to fit them.