

On Tue, 6 Apr 1993 02:19:59 GMT, pgf@srl03.cacs.usl.edu (Phil G. Fraering) said:

Phil> shafer@rigel.dfrf.nasa.gov (Mary Shafer) writes:

>On 4 Apr 1993 20:31:10 -0400, prb@access.digex.com (Pat) said:

>Pat> In article <1993Apr2.213917.1@aurora.alaska.edu> Pat>

>nsmca@aurora.alaska.edu writes: >Question is can someone give me 10

>examples of direct NASA/Space related >research that helped humanity

>in general? It will be interesting to see..

>Pat> TANG :-). Mylar I think. I think they also pushed Hi Tech Pat>

>Composites for airframes. Look at Fly by Wire.

>Swept wings--if you fly in airliners you've reaped the benefits.

Phil> Didn't one of the early jet fighters have these? I also think

Phil> the Germans did some work on these in WWII.

The NACA came up with them before World War II. NASA is directly descended from the NACA, with space added in.

You'll notice that I didn't mention sweep wings even though the X-5, tested at what's now Dryden, had them. We did steal that one directly from the Germans. The difference is that swept wings don't change their angle of sweep, sweep wings do. Perhaps the similarity of names has caused some confusion? 747s have swept wings, F-111s have sweep wings.

>Winglets. Area ruling. Digital fly by wire. Ride smoothing.

Phil> A lot of this was also done by the military...

After NASA aerodynamicists proposed them and NASA test teams demonstrated them. Richard Whitcomb and R.T. Jones, at Langley Research Center, were giants in the field.

Dryden was involved in the flight testing of winglets and area

ruling (in the 70s and 50s, respectively). It's true that we used military aircraft as the testbeds (KC-135 and YF-102) but that had more to do with availability and need than with military involvement. The YF-102 was completely ours and the KC-135 was bailed to us. The Air Force, of course, was interested in our results and supportive of our efforts.

Dryden flew the first digital fly by wire aircraft in the 70s. No mechnaical or analog backup, to show you how confident we were.

General Dynamics decided to make the F-16 flyby-wire when they saw how successful we were. (Mind you, the Avro Arrow and the X-15 were both fly-by-wire aircraft much earlier, but analog.)

Phil> Egad! I'm disagreeing with Mary Shafer!

The NASA habit of acquiring second-hand military aircraft and using them for testbeds can make things kind of confusing. On the other hand, all those second-hand Navy planes give our test pilots a chance to fold the wings--something most pilots at Edwards Air Force Base can't do.

Mary Shafer DoD #0362 KotFR NASA Dryden Flight Research Facility, Edwards, CA
shafer@rigel.dfrf.nasa.gov Of course I don't speak for NASA

"A MiG at your six is better than no MiG at all." Unknown US fighter pilot