

## Aeromatters

The newsletter of aerospace materials pty ltd

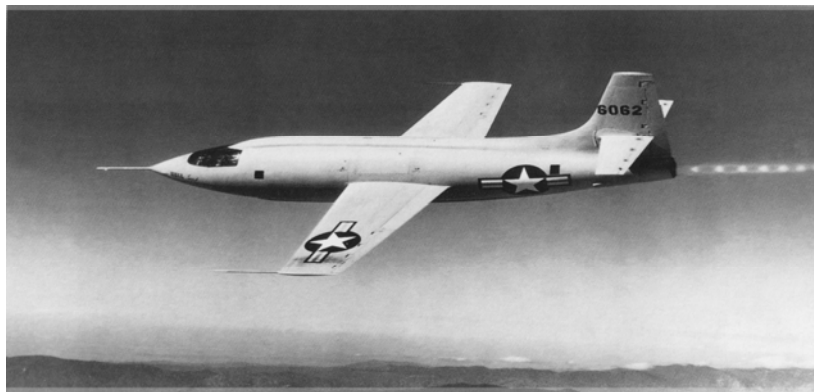
Volume 4-1

### The way it was:

### It's 60 Years since Chuck Yeager broke the Sound Barrier in the Bell X-1

On its earlier flights the Bell X-1 rocket plane had experienced elevator stall and loss of control at speeds approaching Mach 0.87 so on the 8<sup>th</sup> flight a movable horizontal stabilizer allowing a quarter of a degree at a time change in the angle of incidence, was tested . It was effective at high speed and provided control.

The ninth flight on October 14<sup>th</sup> 1947 started as usual with the X-1 being dropped by the B-29 mothership in a shallow dive at 20,000ft. After fighting to gain control as the drop airspeed was too slow, Yeager fired all four rocket chambers in sequence. He climbed and at 0.88 Mach the ship began to buffet as it had in earlier flights. Yeager changed the stabilizer setting two degrees and it smoothed out. After shutting off two rockets the X-1 climbed through 40,000 ft at a speed of 0.92 Mach.



X-1 in flight. Note the gas plasma beads forming in the exhaust

Yeager leveled out and switched on the third chamber, immediately reaching 0.96 Mach. He noted the faster he got the smoother the ride. At 0.965 Mach the needle suddenly went off the scale. The men on the ground in the NACA tracking van heard a low rumble, the first ever sonic boom by an airplane. Later measurements confirmed Mach 1.07 or 700mph. Aviation history was made.

The laconic Yeager and his chase plane pilot during the record flight, Bob Hoover both visited the Avalon Airshow in recent years. They personified "the right stuff".

## Tech Tips - Killing Corrosion 101

One of the most common questions I am asked is, how and what to use for corrosion treatment and prevention of Aluminium in the smaller workshop?

To treat corrosion on aluminium, the following steps and products are required.

1/Clean the part thoroughly using **Turco 5948 DPM** cleaner. Rinse and wipe dry with a clean cloth. Water should not bead. If the water beads, clean again.

2/ Deoxidise with **Deoxidine 624** dilute 3:1 or **Turco WO1** Dilute with 3 to 6 parts water. Apply the solution by brush.

3/ Rinse with clear water

4/ Dip or brush on premixed **Alodine 1200L** completely covering metal with a thin coat. Ensure the whole surface is covered. Leave for 3 minutes .

5/Hose off with clean water

6/ Allow to air dry and paint if required.

**OR alternatively:**

**Using an Alodine 1132 Touch and prep pen.**

## Composites: The future challenge for the Maintenance Industry

The maintenance industry today faces a new battle. With the increased use of composite materials in modern aircraft construction, additional challenges face the industry as they deal with time and temperature sensitive materials.

The time and temperature limits for all resins and adhesives are set by rigorous testing by the manufacturers. Exceeding the tested temperature parameters or out time guidelines in transit or storage can substantially weaken the ultimate strength of the structural bonding.

### Adhesive Logistics Issues

- How do you know the adhesive you are using wasn't left out on the airport apron at Singapore in 40<sup>o</sup> C for three days awaiting trans shipment?

- Did your supplier have their fridge at the correct temperature?
- Was the adhesive left in your receiving warehouse for a week awaiting unpacking and inspection before being put in the fridge?

Most shops would say;

“We get manufacturers certificates and that’s all we need” and yes that is all you need to comply with current CASA and FAA requirements.

That’s fine for metal and rivets but it isn’t for adhesives and resins.

#### **What we at Aerospace Materials can do to help.**

As we supply adhesives and resins for use in new Boeing, Bombardier and Airbus aircraft we must meet the aircraft manufacturer’s stringent quality requirements.

Aircraft manufacturers demand and we provide:

- Full certification and full trace ability
- Recorded out times
- Electronic temperature recorders accompanying all temperature sensitive import shipments.
- Four separate storage temperature zones
- Storages are computer logged for temperature hourly.
- Delivery by refrigerated local delivery vehicle for film adhesives
- Dry ice shipment is provided for air shipment of film adhesives.

These requirements are regularly audited as part of our **AS9120 IAQG “OASIS”** registration. We are audited not by just any auditor but by one appointed under the **International Aerospace Quality Group** audit scheme. In our case Lloyds UKAS

Our adhesives resins and chemicals will reach you in perfect condition, always.

**NEW!**

## **LOCTITE INDUSTRIAL PRODUCTS WITH CERTS**

At long last the popular Loctite Industrial range of **Thread Lockers, Gasket Eliminators, Anti Seize compounds, Acrylic Adhesives and Retaining Compounds** are now available in Australia with proper certificates and full traceability .

No longer do you have to import these goods to get proper certification.

Aerospace Materials has been appointed an official distributor of these products to the aviation industry. We are still building up stocks so if you have a product in this range that you need certs for and you regularly use it, let us know and we will stock it. Our range will include 200, 300, 400, 500, 600 & 700 series products and a few others.

## **NEW**

### **P/S AND PR FUEL TANK AND GENERAL SEALANTS**

We now stock a wide range of the very popular Proseal, P/S and PR Sealants They are available for immediate delivery. See our Web page; [aerospacematerials.com.au](http://aerospacematerials.com.au) for details.

### **LPS SPRAY LUBRICANTS AND RUST INHIBITORS**

LPS 1 LPS2 LPS3 Now stocked in Melbourne with certs and traceability

### **MOMENTIVE (GE) RTV SEALANTS**

Now stocked in Melbourne with certs and traceability

For any obscure or hard to get chemicals, adhesives or lubricants, give our Sales Manager Lisa Mayoh a call on 03 9464 4455 or email her on:

[sales@aerospacematerials.com.au](mailto:sales@aerospacematerials.com.au)

FAX 03 9464 4422

With 19 years in Aviation Chemicals there isn't much she can't find.

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