

JET ENGINE

"REVERSE THRUSTER" TEST

The following is the report of the "Reverse Thruster" testing results performed at The Dee Howard aerospace testing facilities located in San Antonio, Texas USA in 1989.

The point of the testing was to determine if applying SUPER THERM would reduce the temperature on the facing surface of a reverse thruster at the end of a jet engine. They wanted to stop using Titanium metal (very expensive) and start using regular steel plating.

This testing was performed before we developed another ceramic compound into the SUPER THERM making it more efficient today than it was when this test was originally performed.

The Dee Howard aerospace group attached a Rolls Royce jet engine onto a flat bed trailer and anchored the trailer. A reverse thruster was attached to the thruster end of the engine. Probes were positioned over the back side of the facing plate to measure the temperature of the thrust making contact with the plate.

The engine's thrust was 750 feet per second at 752 degrees C. RUN 26 was to develop the temperature on the plate when unpainted to establish the measurement for gauging the effects of the painted surface. As points of reference, probe # 51,53,56,59 were on the inside apex and probes 52,54,57, and 60 were on the outer edge of the thrust area.

RESULTS:

SUPER THERM reduced temperatures from a high of 67 degrees F (probe #51) to a low of 41 degrees F (probe #53).

No blating or peeling of the coating was recorded from the force and heat of the thrust. SUPER THERM remained intact showing no signs of deterioration.

They wanted SUPER THERM to keep the heat from reaching the 200 degree mark before 20 seconds. It performed this function without showing wear or tear.

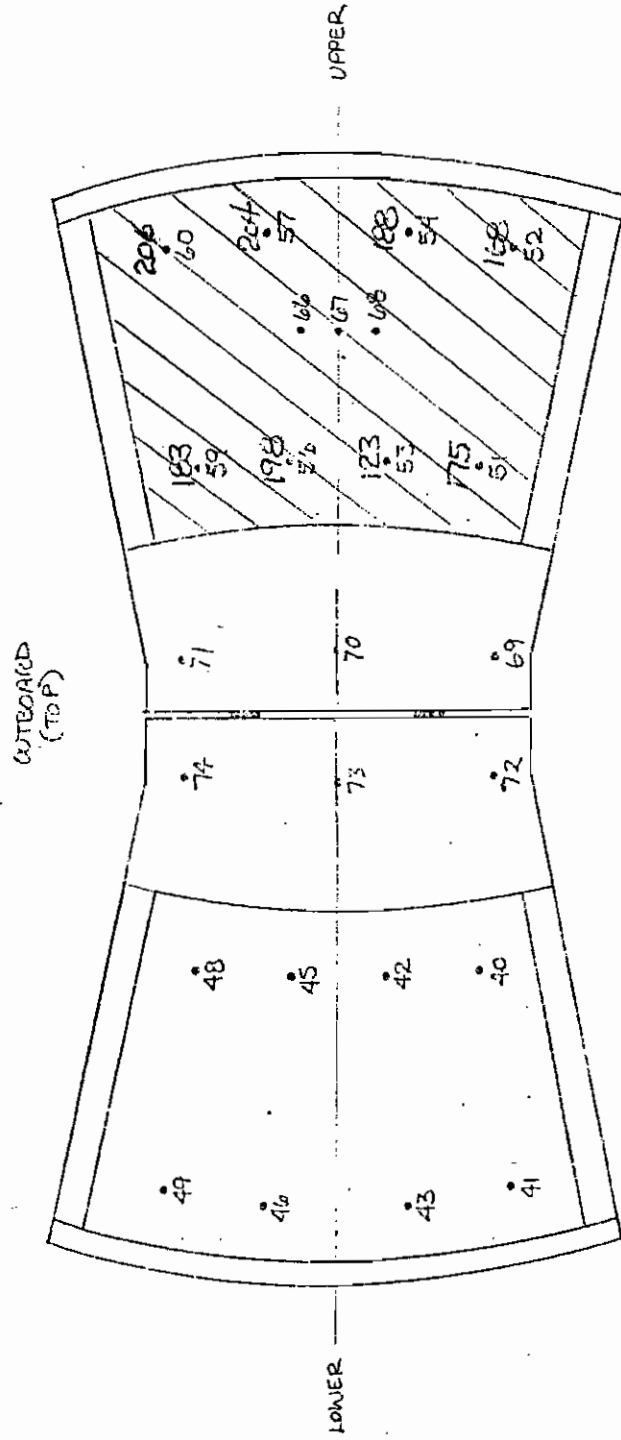

J.E. Pritchett
President

TR5020 DEVELOPMENT

AREA PAINTED WITH "THERM SHIELD" CERAMIC PAINT

RUN 30

$N_{REIN} = 77.9\%$
 $T_s = 755\text{ }^\circ\text{C}$
 $GAT = 33.3\text{ }^\circ\text{C}$
 $P.ALT = 640\text{ FT}$



TR DOORS DEPLOYED
 (VIEW LKG FWD)
 AS INSTALLED ON DHC
 MOBILE TEST STAND
 TEMPS UNCORRECTED

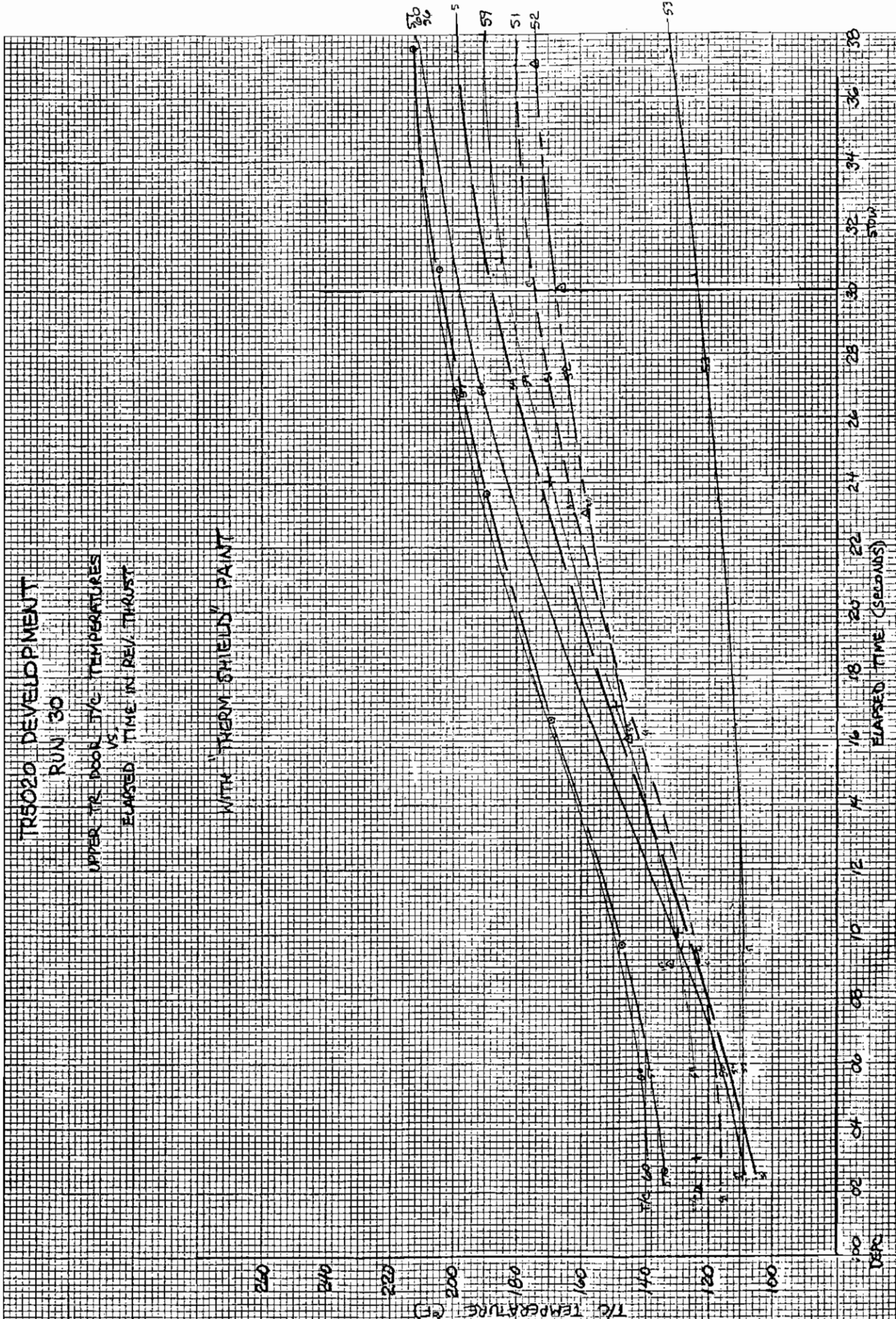
T/C = 60, 70, 80
 200, 3
 ON UNDER
 CASE

TR5020 DEVELOPMENT

RUN 30

UPPER TR DOOR T/C TEMPERATURES
VS
ELAPSED TIME IN REV. THRUST

WITH THERM SHIELD PAINT



ELAPSED TIME (SECONDS)

T/C TEMPERATURE (°F)

TR5020 DEVELOPMENT

RUN 26

UPPER 1/4" DOOR T/C TEMPERATURE
VS.
ELAPSED TIME IN REV. THRUST

WITHOUT THERM SHIELD PAINT

