

DOCKET NO. **SA - 510**

EXHIBIT NO. **13 P**

**NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.**

Presentation Material for George Greene

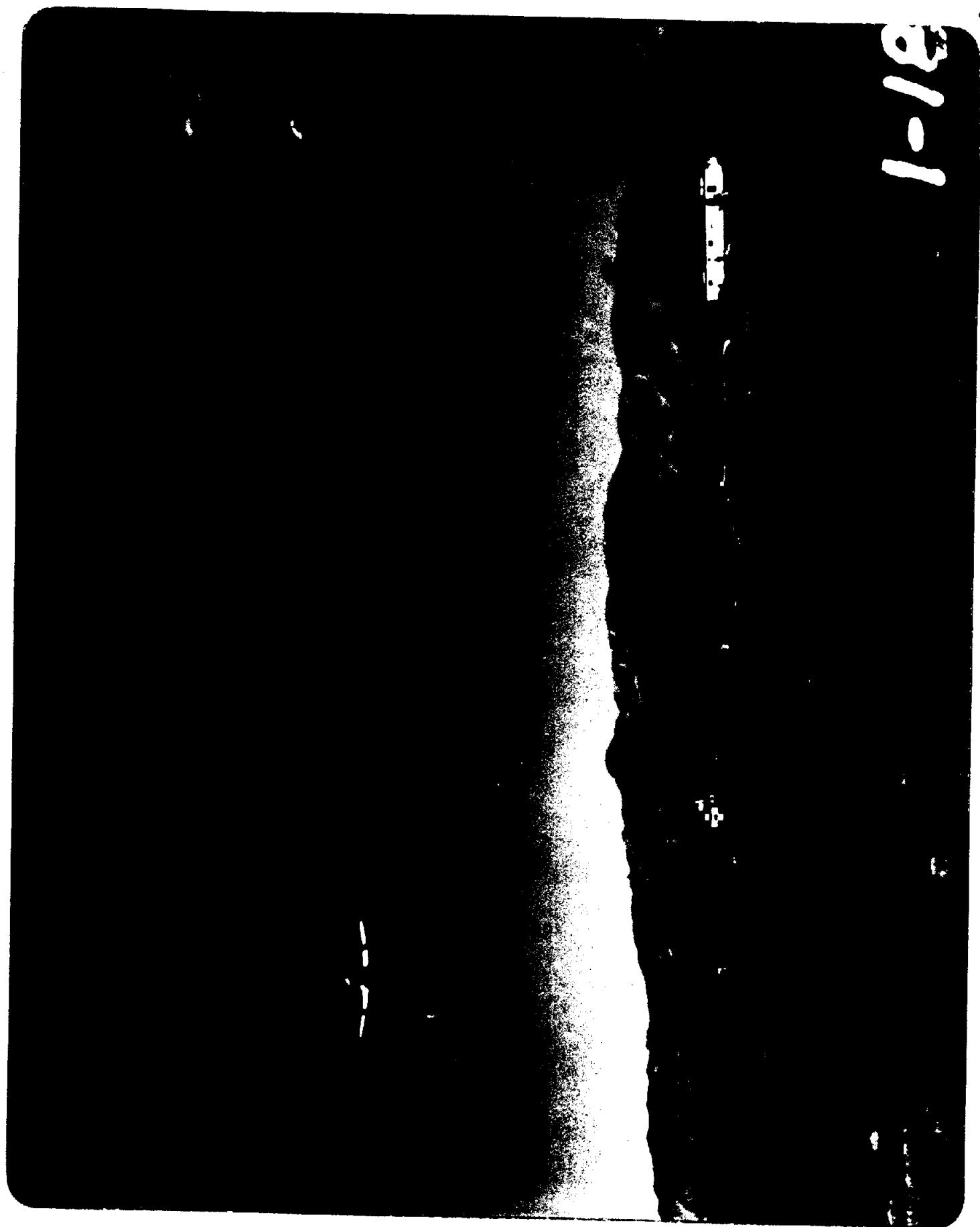
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90-05918

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INITIAL VORTEX STRENGTH

$$+ \text{Initial vortex strength} = k \times \frac{\text{Lift (or weight)}}{\text{Density} \times \text{Speed} \times \text{Span}}$$

(circulation)

+ Initial vortex strength predictions agree well with data

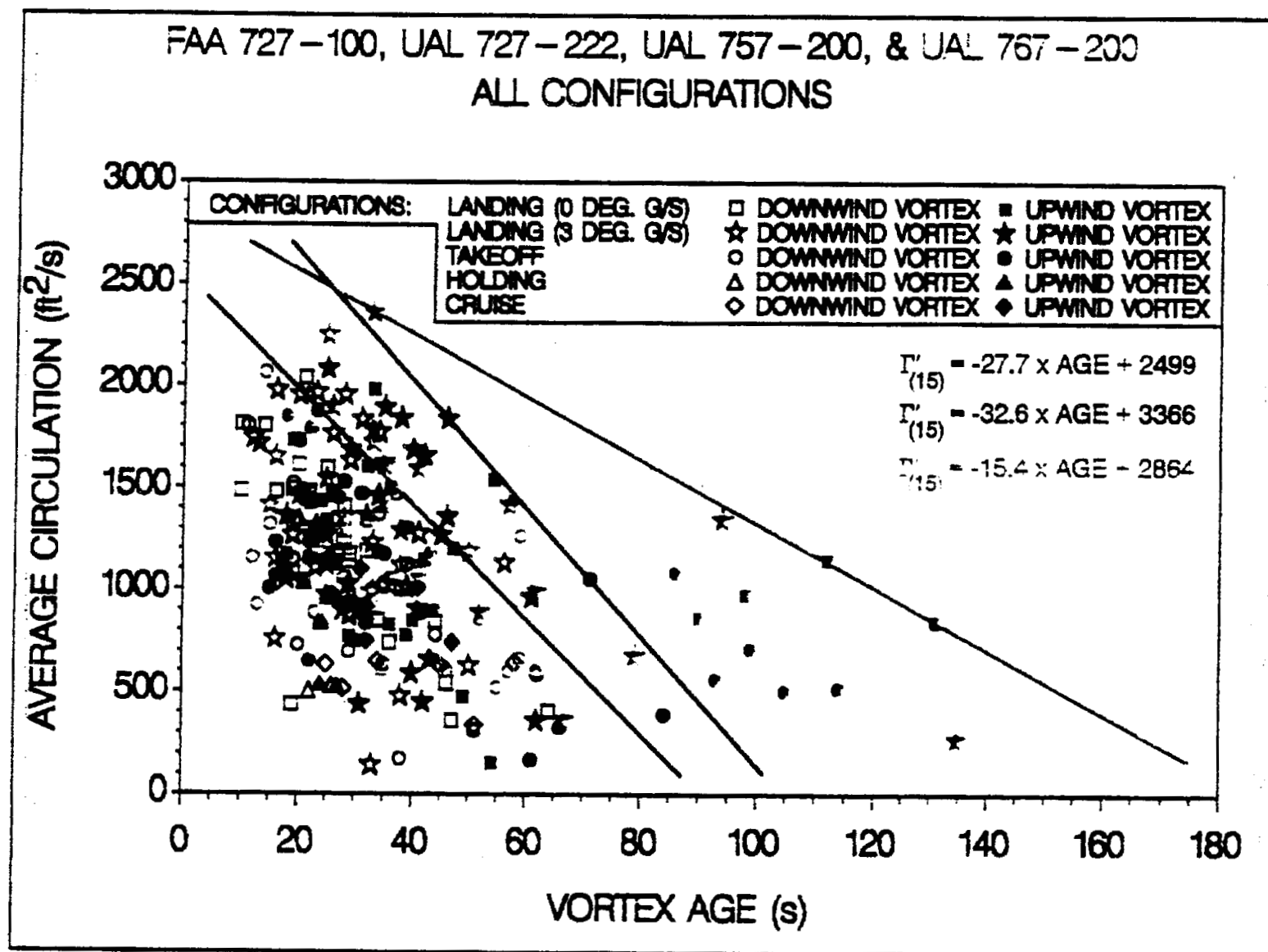


Figure 58. Average vortex circulation (Γ') for a radius of 15 ft as a function of vortex age. Red, blue, and green symbols and lines indicate B727-100/-222, B757-200, and B767-200 data, respectively. The lines indicate the outer bounds of the data envelopes as specified by the corresponding colored equations.