

INSPECTION-1953



LANGLEY
AERONAUTICAL
LABORATORY

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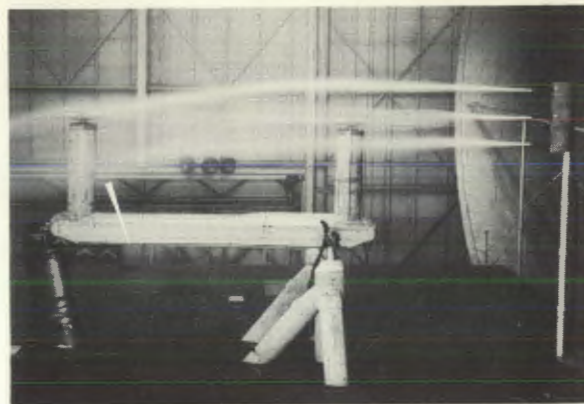
HELICOPTER RESEARCH

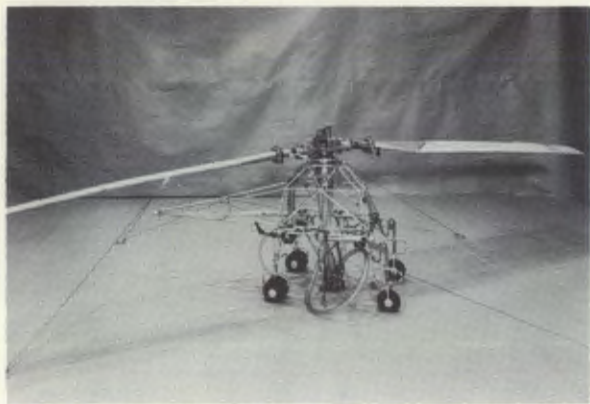
This booklet contains reproductions of charts used to illustrate the presentations at the 1953 Inspection of the NACA's Langley Aeronautical Laboratory. They have been prepared for your use following suggestions that such a device might be helpful to those who attend the Inspection. Space has been provided for those who may wish to take notes.

HELICOPTER RESEARCH



NOTES

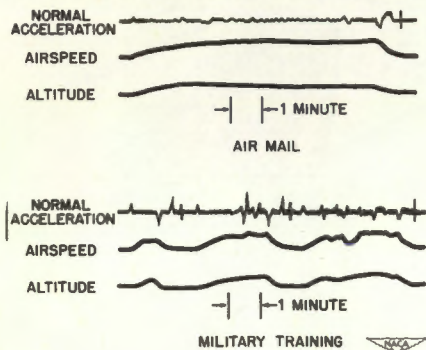




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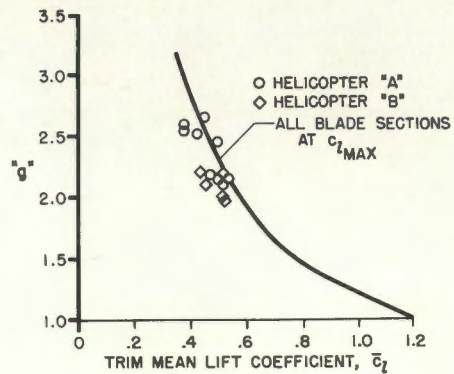


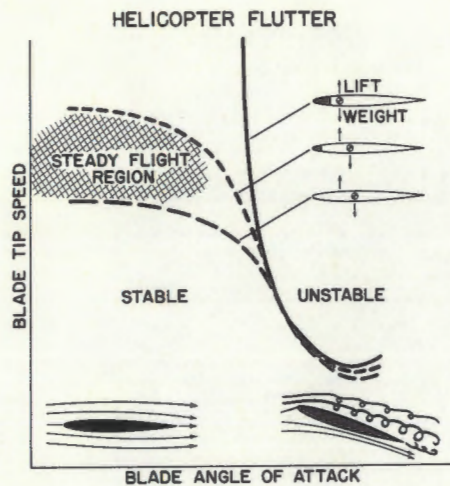
SPECIAL RECORDER DEPICTS HELICOPTER OPERATING CONDITIONS



NOTES

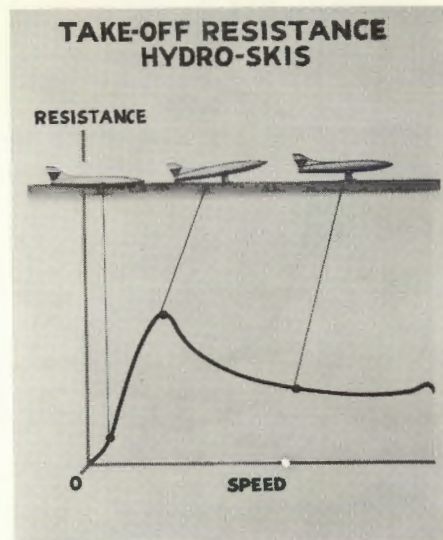
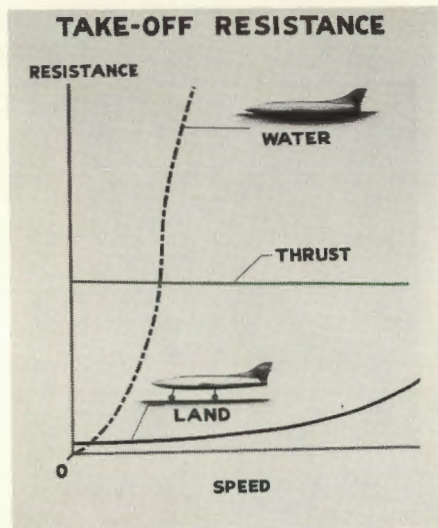
MANEUVER LOAD FACTOR



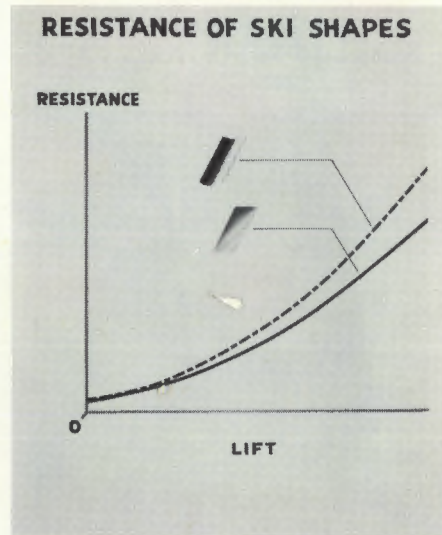
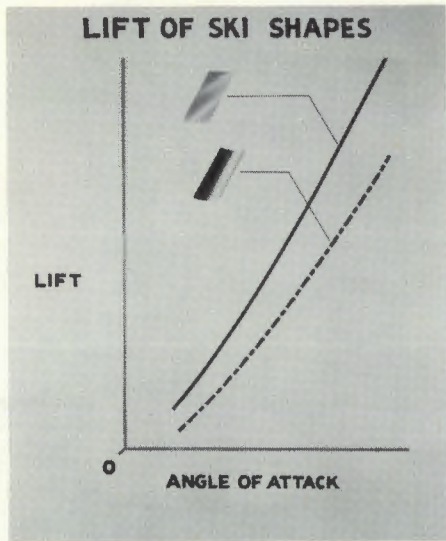


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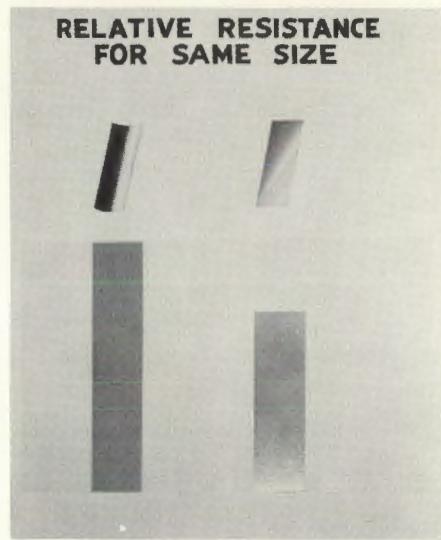
HYDRODYNAMICS



NOTES

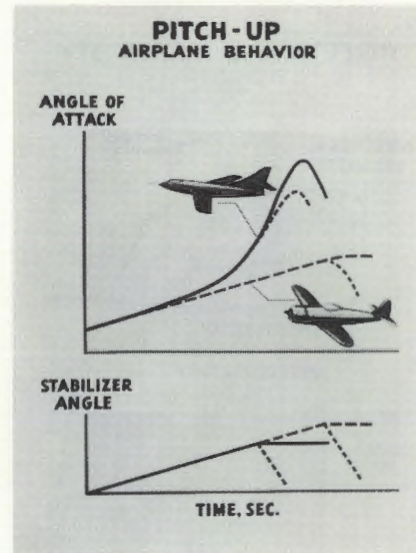
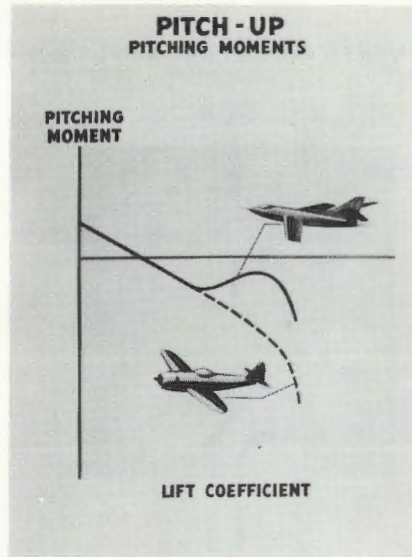


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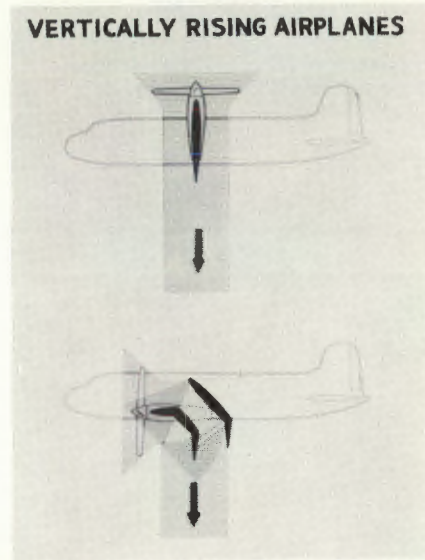
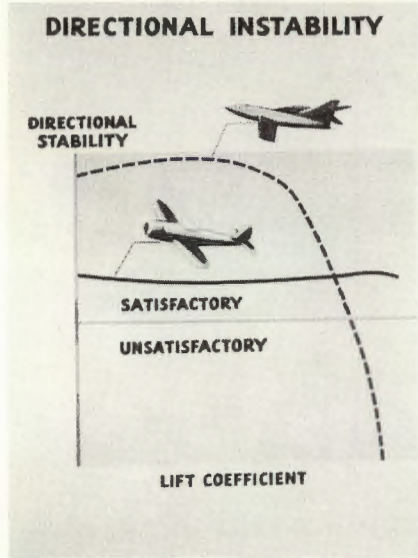


NOTES

STABILITY AND CONTROL



NOTES

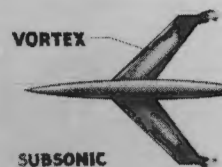


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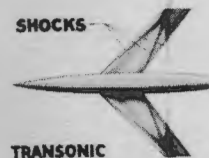
TRANSONIC TUNNELS



VIEW OF FLOW AND SHOCK PATTERNS

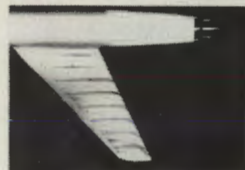


SEPARATED FLOW



NOTES

FLOW VISUALIZATION BY LIQUID FILM



$\alpha = 0$



$\alpha = 5$



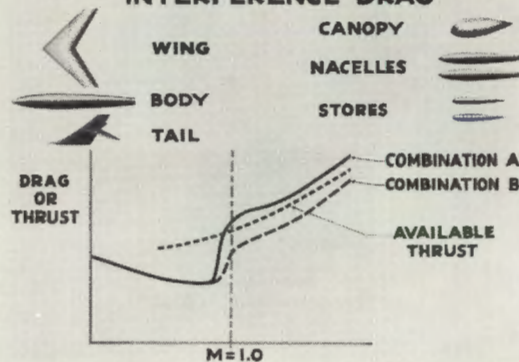
$\alpha = 9$



$\alpha = 13$

NOTES

INTERFERENCE DRAG



PILOTLESS AIRCRAFT RESEARCH

ROCKET MODELS

TYPE OF INVESTIGATION

PERFORMANCE

LIFT AND DRAG
BOUNDARY LAYER
INLETS

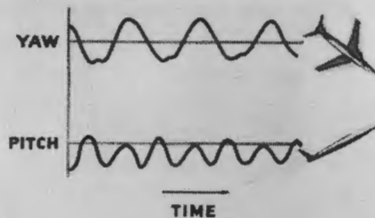
STABILITY AND CONTROL

CONTROL EFFECTIVENESS
HINGE MOMENTS
DAMPING
FLYING QUALITIES
AUTOMATIC STABILIZATION
DYNAMIC BEHAVIOR

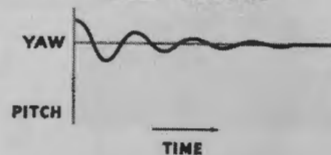
FLUTTER

BUFFETING

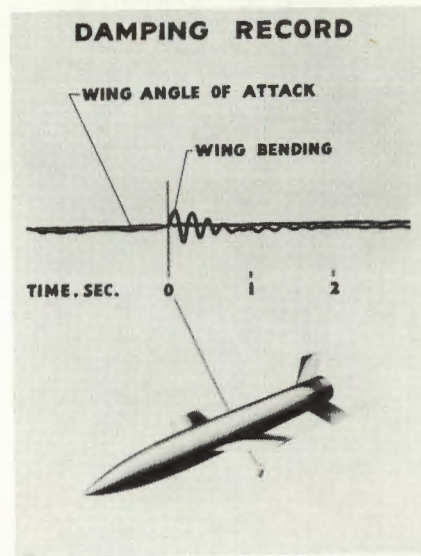
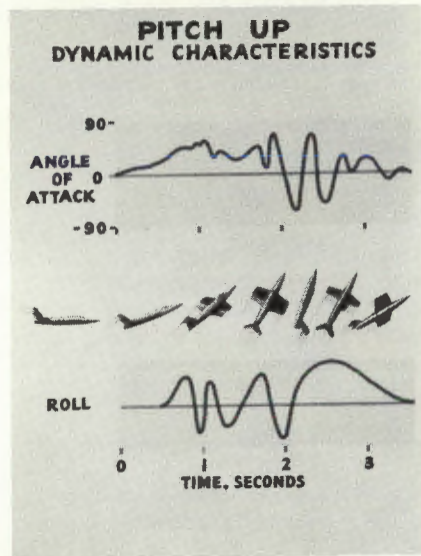
COUPLED YAW AND PITCH MEASURED RESPONSE



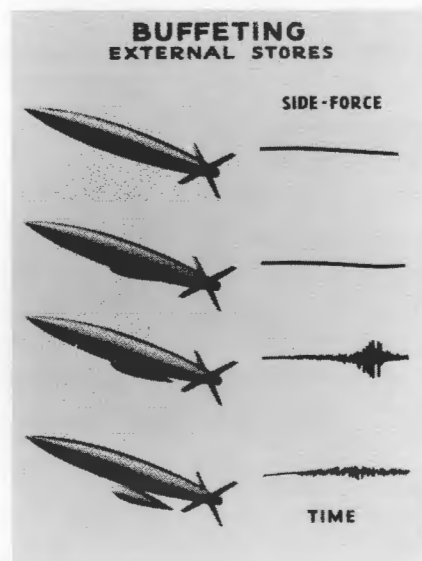
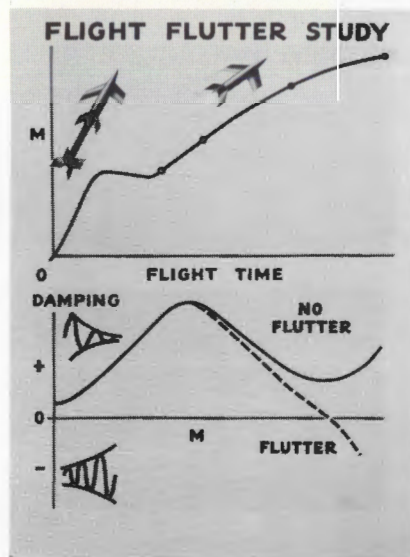
DESIRED RESPONSE



NOTES



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NOTES

GAS DYNAMICS LABORATORY

AIR SYSTEM

5000 PSI

1000 TO 3000 PSI

650 F

1040°F

15 TO 500 PSI

1000 TO 3000 PSI

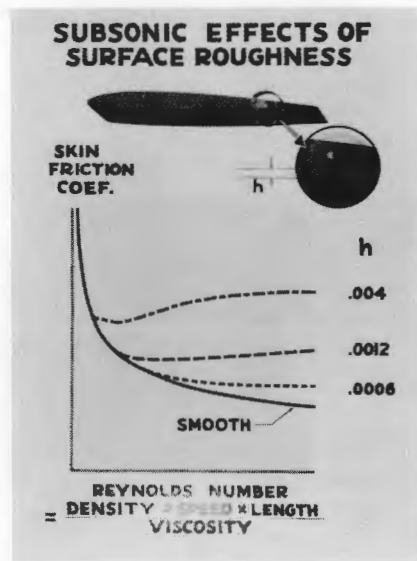
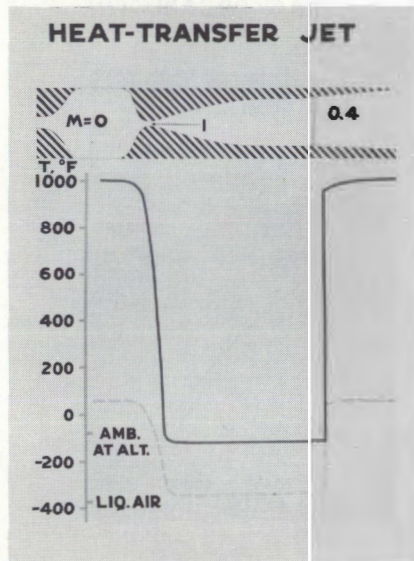
15 TO 500 PSI

TEST JETS

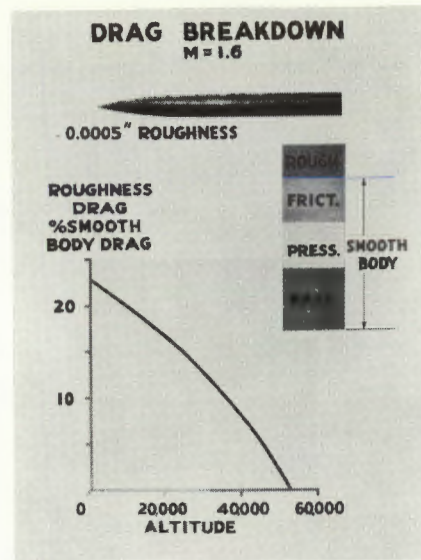
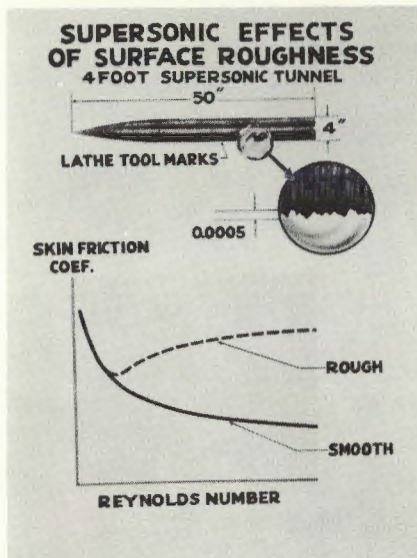
Legend:

- -20°F TO 120°F
- ▨ 120°F TO 650°F
- ▩ 650°F TO 1040°F

16



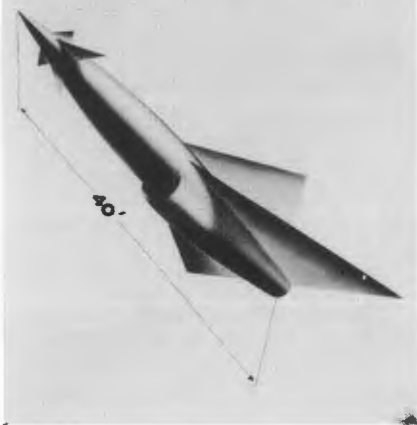
NOTES



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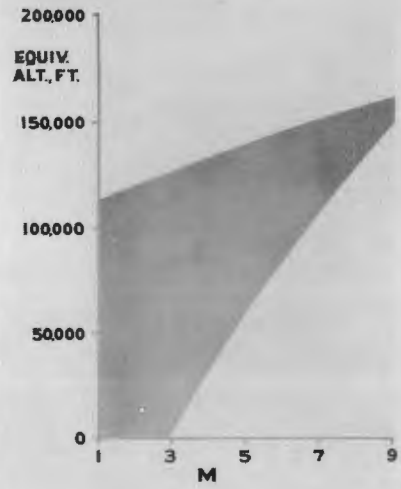
ALLOWABLE ROUGHNESS FOR A LONG RANGE MISSILE

ALTITUDE - 50,000 FT - $M = 2.5$



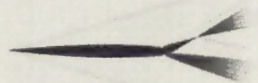
NOTES

LOW DENSITY JET

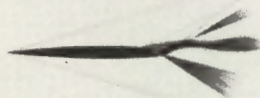


B.L. SEP. AHEAD OF CONTROL

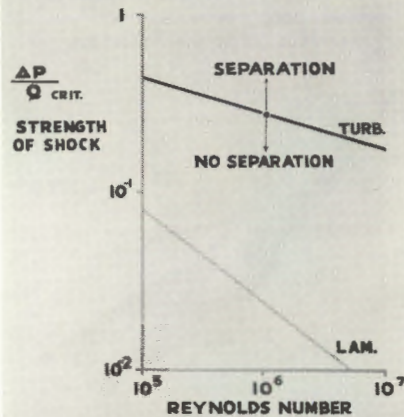
THEORY



ACTUAL

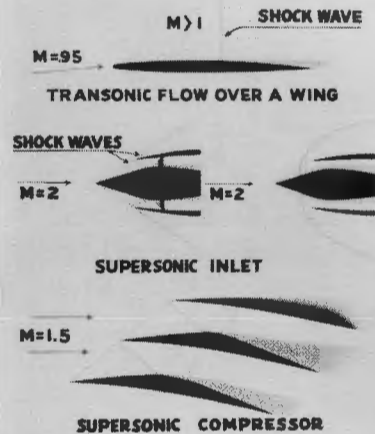


B.L. SEPARATION CRITERIA



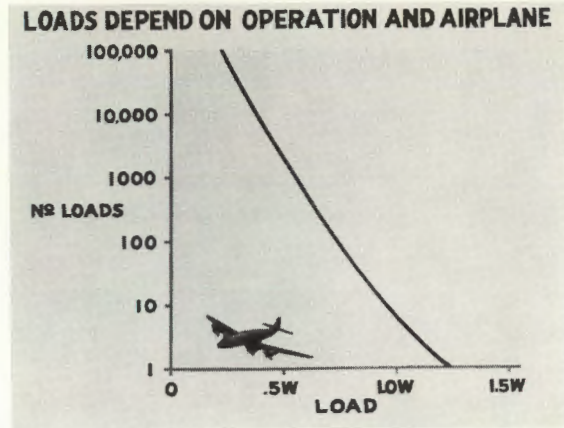
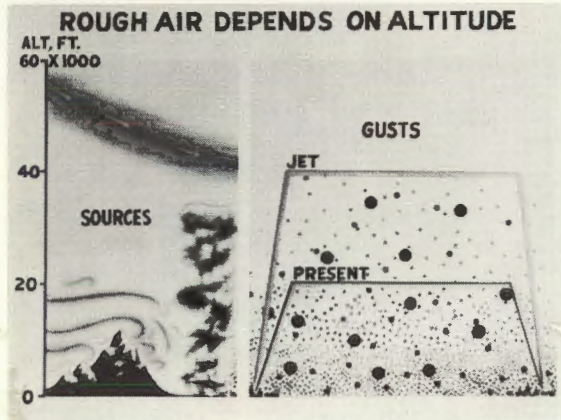
NOTES

EXAMPLES OF SEPARATION

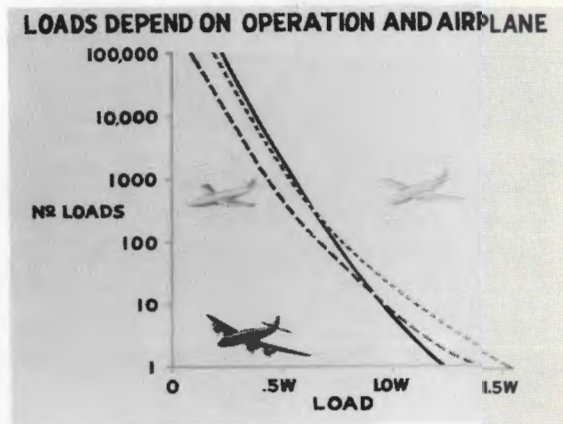
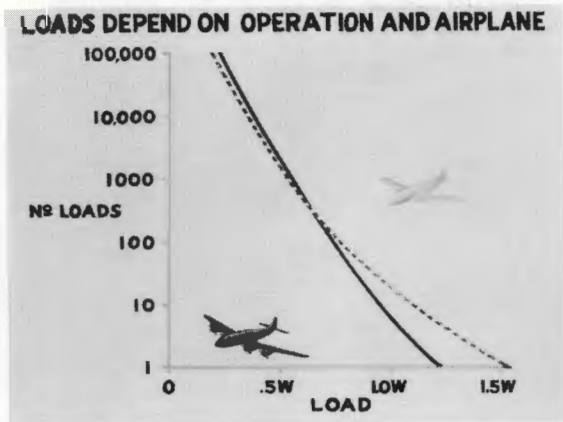


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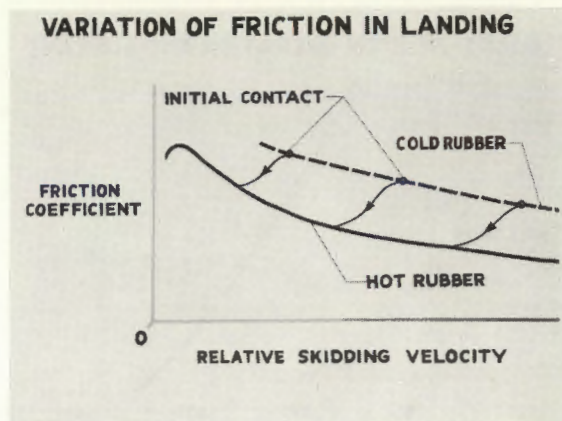
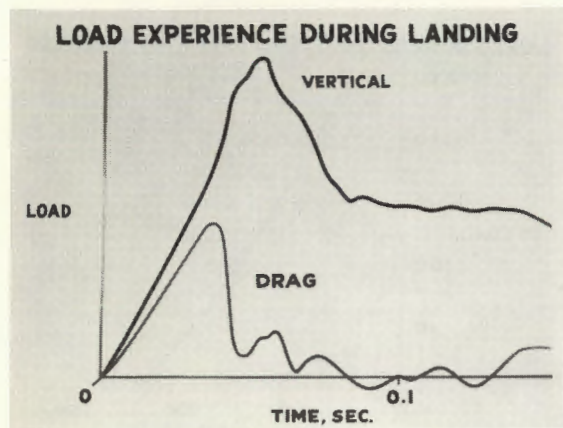
DYNAMIC LOADS



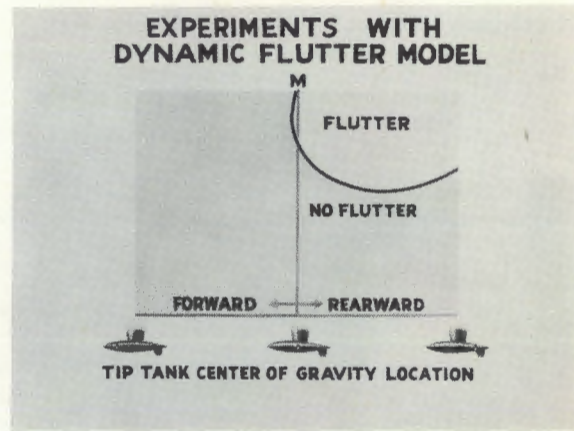
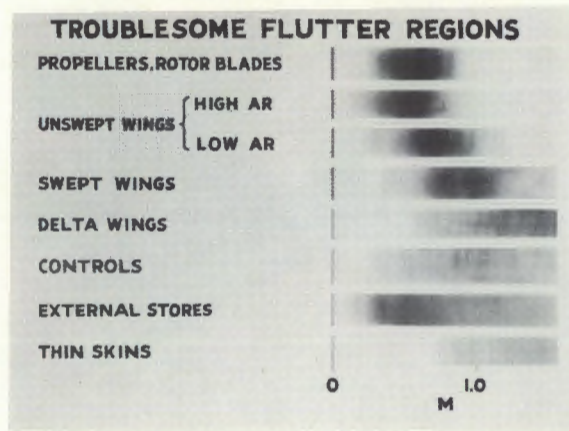
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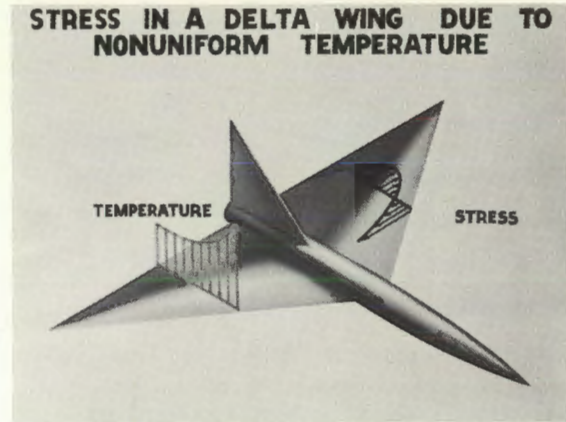
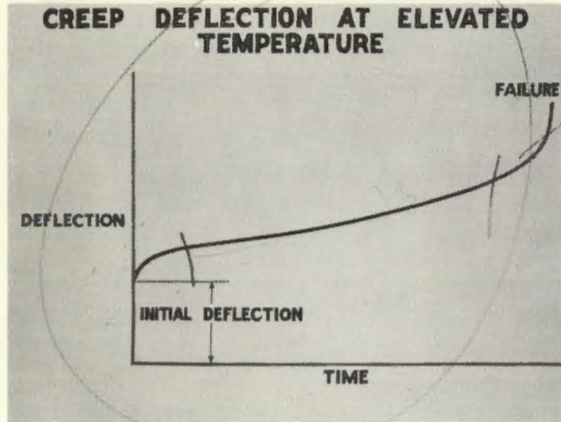


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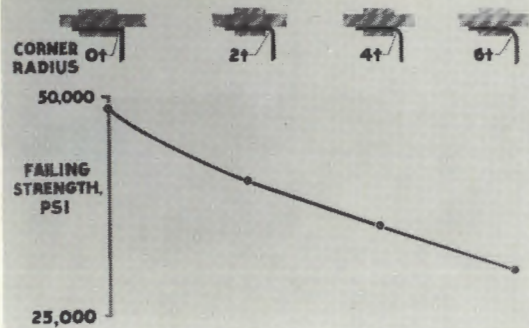
NOTES

STRUCTURES RESEARCH

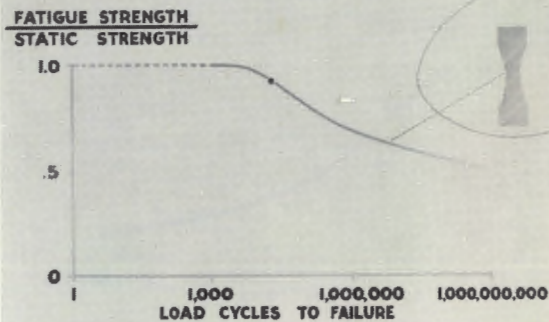


NOTES

EFFECT OF CORNER RADIUS ON FAILING STRENGTH



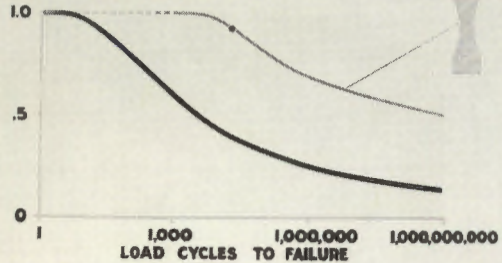
EFFECT OF A SHARP NOTCH ON FATIGUE STRENGTH



NOTES

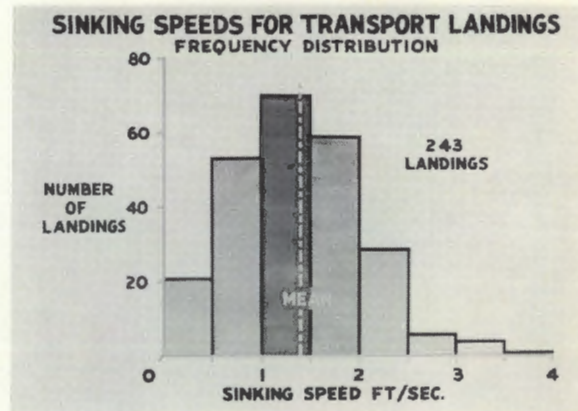
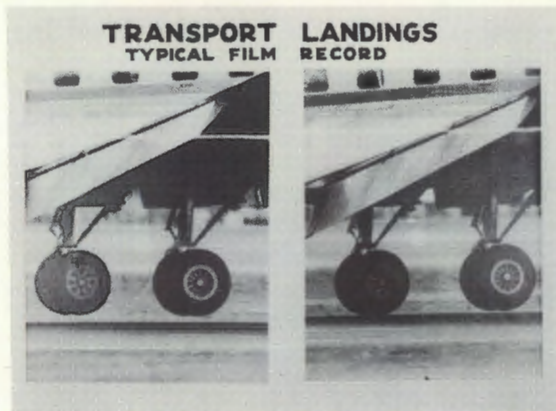
EFFECT OF A SHARP NOTCH ON FATIGUE STRENGTH

FATIGUE STRENGTH
STATIC STRENGTH



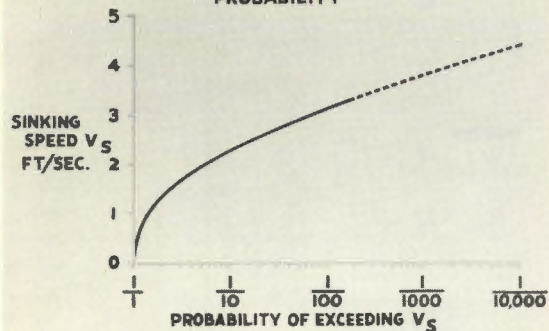
NOTES

FLIGHT RESEARCH



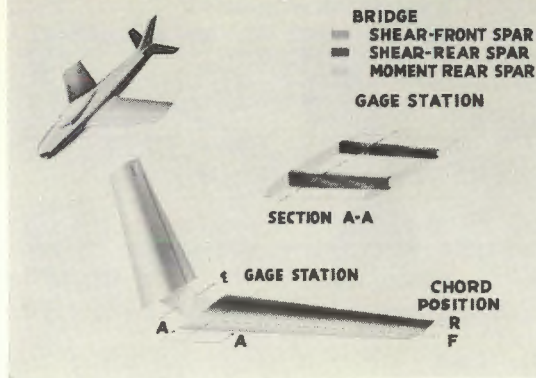
NOTES

SINKING SPEEDS FOR TRANSPORT LANDINGS **PROBABILITY**



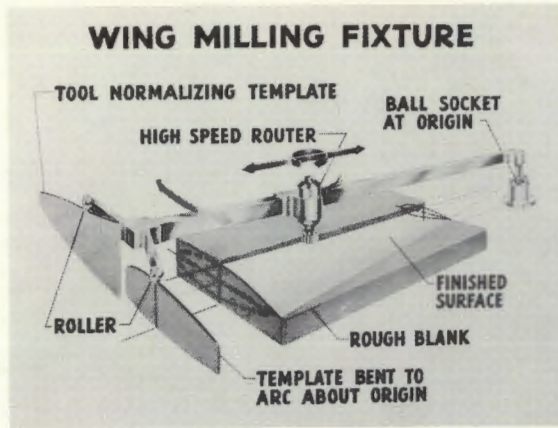
NOTES

F-86 STABILIZER STRAIN-GAGE INSTALLATION



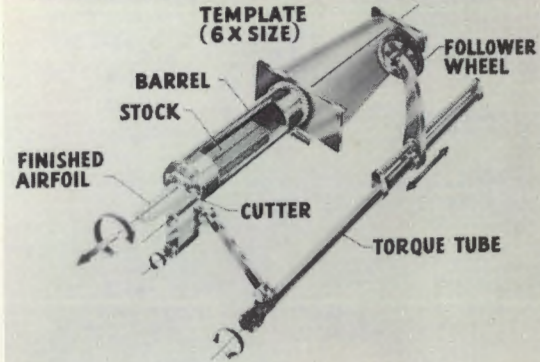
MODEL CONSTRUCTION

WING MILLING FIXTURE

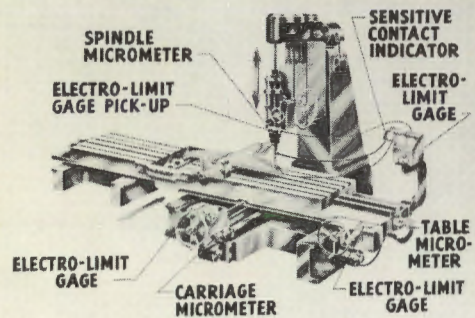


NOTES

AIRFOIL CUTTING MACHINE



MODIFIED JIG BORER



NOTES