

ILLUSTRATIONS (Continued)

Figure		Page
20.	Effects of Pressure and Notch-Wall Thickness on Failure of 3/8" O.D. (1/8" I.D.) Tubes, with 0.010-inch Casehardened Depth, Subjected to Static and Dynamic Loads . . . . .	51
21.	Effects of Pressure and Notch-Wall Thickness on Failure of 9/16" O.D. (3/16" I.D.) Tubes, with no Casehardening, Subjected to Static and Dynamic Loads . . . . .	53
22.	Effects of Pressure and Notch-Wall Thickness on Failure of 9/16" O.D. (3/16" I.D.) Tubes, with 0.005-inch Casehardened Depth, Subjected to Static and Dynamic Loads . . . . .	54
23.	Effects of Casehardening and Notch-Wall Thickness on Failure of 3/8" O.D. (1/8" I.D.) Tubes Subjected to Static Loads . . . . .	55
24.	Effects of Casehardening and Notch-Wall Thickness on Failure of 3/8" O.D. (1/8" I.D.) Tubes Subjected to Dynamic Loads . . . . .	56
25.	Effects of Viscosity on Rate of Release of Pressurized Fluid Through 0.062-inch Diameter Orifices . . . . .	58
26.	Effects of Viscosity on Rate of Release of Pressurized Fluid Through 0.125-inch Diameter Orifices . . . . .	60
27.	Effects of Viscosity on Rate of Release of Pressurized Fluid Through 0.187-inch Diameter Orifices . . . . .	61

TABLES

Table		Page
1	Test Specifications and Experimental Results	44

## NOMENCLATURE

- A . . . . cross-sectional area of bore of knock-off tube, in<sup>2</sup>
- $E_1$  . . . . fractional error of true pressure pulse on piezo-electric gage
- $\bar{F}$  . . . . body forces per unit mass acting on fluid element, lb/slug
- $K_p$  . . . . index of fluid compressibility, in<sup>3</sup>/lb
- L . . . . length of bore, in
- m . . . . slope of viscosity-pressure curve, sec
- P . . . . transient fluid pressure in compression chamber, psia
- $P_a$  . . . . atmospheric pressure, psia
- $P_g$  . . . . maximum hydrostatic pressure in pressure chamber prior to release, psig
- Q . . . . volume rate of fluid flow through bore of pressure pot, in<sup>3</sup>/sec
- $R_o$  . . . . radius of bore, in
- r,  $\theta$ , z . . . . radial, circumferential, and longitudinal coordinates, respectively, of cylindrical coordinate system in which longitudinal coordinate is directed along axis of bore through pressure pot, in, rad, in
- t . . . . time, msec, sec
- $T_R$  . . . . pressure-release time, msec, sec
- u, v, w . . . . radial, circumferential, and longitudinal velocities, respectively, of fluid within bore of pressure pot, in/sec
- $\nabla$  . . . . operator del
- $V_o$  . . . . volume of pressurized fluid that must escape compression chamber, via the bore, to reduce pressure in compression chamber from  $P_g$  to atmospheric, in<sup>3</sup>