DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR'S MANUAL

GRINDING KIT, VALVE SEAT, ELECTRIC, 35 DEGREE ANGLE CONCENTRIC DRIVE DRIVER, AC/DC, 115-VOLT 7,500 RPM RATED NO LOAD SPEED

(ALBERTSON AND COMPANY MODEL 1712-M)
(4910-060-9983)

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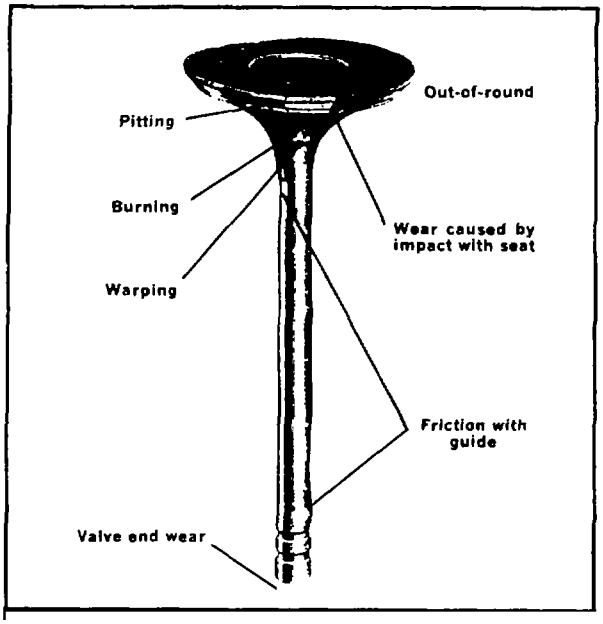
HEADQUARTERS, DEPARTMENT OF THE ARMY
JUNE 1965

HOW WEAR ATTACKS VALVE FACE

Even in normal use the intake and the exhaust valves absorb a fantastic amount of punishment. During a quick fifteen minute trip to the shopping center, a single valve may open and close 10,000 times. Extreme temperatures scorch it many times each second. Violent explosions and powerful spring tension pound the red hot (1600°F.) valve head. Hot gases under tremendous pressure swirl past it. Carbon deposits form on the face, preventing the valve from seating properly or cooling efficiently. As a result, the valves-particularly the exhaust valves-become pitted, burned, warped and grooved. No longer concentric with the valve seat, they leak compression and fail to dissipate heat. Engine efficiency and economy nosedive.



. . . . VALVE <u>STEM</u>

But it's not only the valve face that wears. The valve stems travel a mile or more in their guides during that short shopping trip, They wear at the top of the guides and at the bottom. Valve ends also wear and must be squared.

. . . . VALVE <u>SEAT</u>

The valve seat also wears. Hot gases burn it. Carbon particles which retain heat pit it. The valve guide wears in a corresponding position to the valve stem. Between stem and guide, carbon residues form which cause the valves to stick. To insure top performance, both valve face, valve seat and valve guide must be reconditioned.

. . . . and VALVE <u>GUIDE</u>