

A CHILTON PUBLICATION

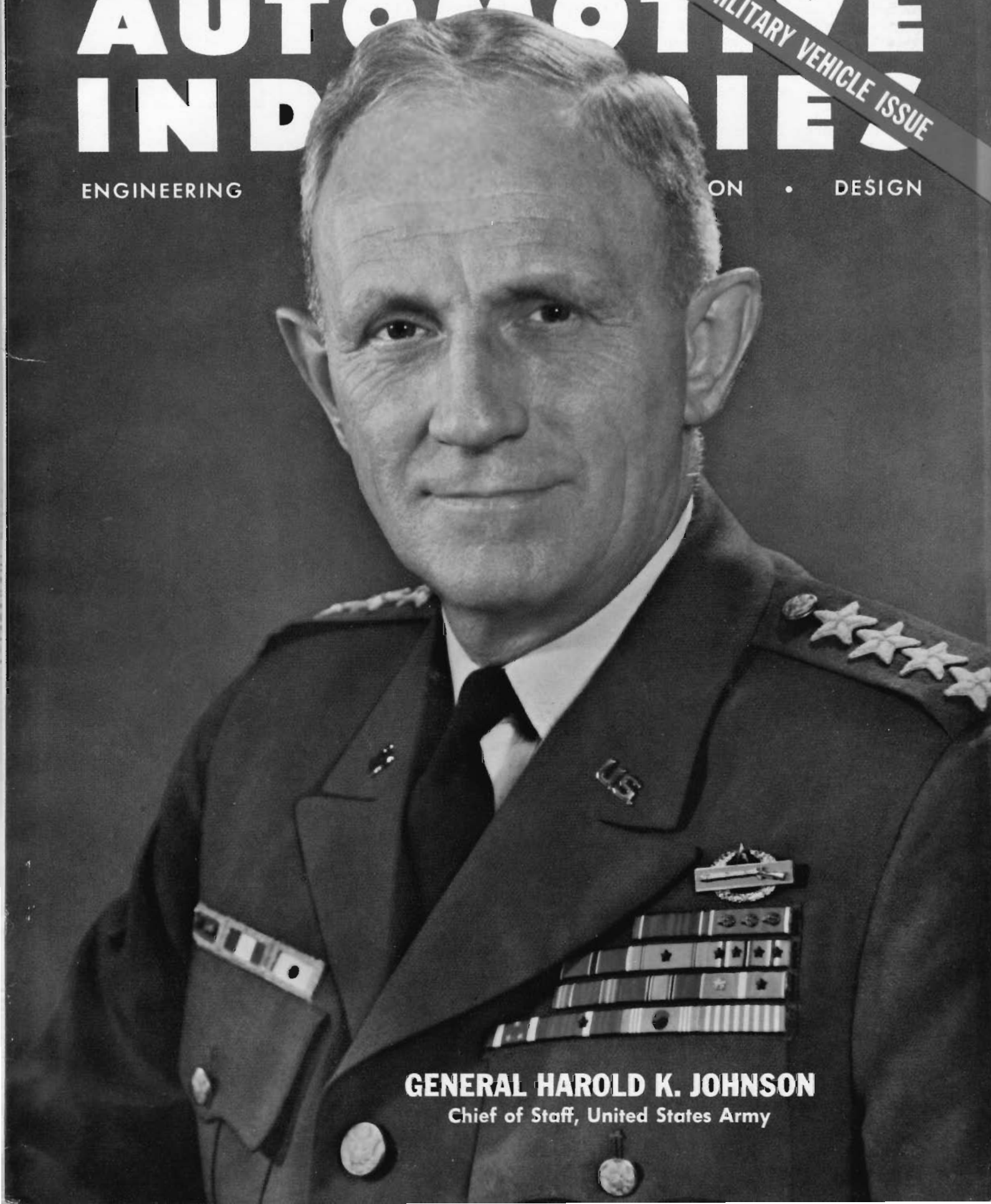
DECEMBER 1, 1965

4th ANNUAL MILITARY VEHICLE ISSUE

AUTOMOTIVE INDUSTRIES

ENGINEERING

ON • DESIGN



GENERAL HAROLD K. JOHNSON
Chief of Staff, United States Army

AUTOMOTIVE INDUSTRIES

A CHILTON MAGAZINE • PUBLISHED SEMI-MONTHLY

DEC. 1, 1965

Passenger Cars • Trucks • Buses • Aircraft • Tractors
• Engines • Bodies • Trailers • Road Machinery •
Farm Machinery • Parts and Components • Accessories
• Production and Processing Equipment •
Design • Production • Engineering • Management

VOL. 133, NO. 11

Fourth Annual

MILITARY VEHICLE ISSUE

Features • •



COVER ILLUSTRATION

General Harold K. Johnson was appointed Chief of Staff of the United States Army on July 3, 1964. He is the 24th in line of succession since the inauguration of the Army General Staff in 1903, and the youngest Chief of Staff since General MacArthur. A graduate of the United States Military Academy, Class of 1933, General Johnson is the holder of the Distinguished Service Cross, the Legion of Merit (with three clusters), and the Bronze Star.

A number of the illustrations of military vehicles appearing in this issue of *AI* are from U. S. Army photographs

- | | |
|---|----|
| The Prospect and Challenges of the Decade Ahead | 51 |
| General Johnson discusses the fundamental credo of why we fight, and how it is essential for all Americans to be able to reach informed judgements concerning the future national course of action. | |
| The Mission of the Marine Corps | 54 |
| A special study to determine what the military posture of the "Corps" should be in 1985 indicates that it will continue to be a highly "versatile force-in-readiness." | |
| Computers and the Military Vehicle | 57 |
| The growing number of possible design parameters involved in evaluating the modern military vehicle make hand calculations and analysis impractical within the time allowed. | |
| Aluminum Armor | 59 |
| One of the brightest prospects for creating a new and profitable market for the aluminum makers is light-weight armor, as described in this market profile. | |
| The LVHX2 Hydrofoil | 63 |
| A hydrofoil now undergoing tests by the Marines employs such features as an autopilot and a self-stabilization system that reportedly assure steady, level "flight," even in five foot high waves. | |
| The Army Looks at Electric Propulsion | 64 |
| Highly efficient, exhaust free, silent hydrocarbon air-fuel cells offer great potential for the ideal vehicle propulsion power plant. | |
| New Mobile Equipment | 66 |
| A shallow draft boat, mobile floating assault bridges, rough terrain cranes, universal engineer tractors, ballastable tractors, and sectionalized commercial equipment are just some of the equipment types being studied by the U. S. Army Materiel Command. | |
| Earth Moving Equipment—Air Express | 68 |
| Delivering 10 ton motor graders by air has posed some unique problems in "packaging." Here is a detailed look at drop tests in a 10 ft free fall on concrete. | |
| SAAB Air Cushion Vehicle | 70 |
| This experimental vehicle, ordered by the Swedish Naval Board, is a compromise between the largest possible scale with regard to crew, hover height, and top speed attainable, under requirements for low cost and short development time. | |

... Continued on next page

MEMBER
AMERICAN BUSINESS PRESS, INC.



© Chilton Company, 1965



Business Publications
Audit of Circulation

AUTOMOTIVE INDUSTRIES is a consolidation of The Automobile (weekly) and the Motor Review (weekly) May, 1902; Dealer and Repairman (monthly) October, 1903; the Automobile Magazine (monthly) July, 1907, and the Horseless Age (weekly), founded in 1895, May, 1918. EDITORIAL EXECUTIVE OFFICES, Chestnut and 56th Sts., Philadelphia, Pa. 19139. U. S. A. Cable address—Autoland, Philadelphia.

AUTOMOTIVE INDUSTRIES. Published semi-monthly by Chilton Co., Chestnut & 56th Sts., Phila., Pa. 19139. Controlled circulation postage paid at Philadelphia, Pa. Subscription price: To manufacturers in and suppliers to the automotive industries in the U. S. and U. S. Possessions, \$5.00 per year; \$8.00 for 2 years; all others, \$10.00 per year. Canada \$15.00 per year; Foreign \$20.00 per year. Single copies Regular Issues \$1.00; Statistical Issue and Products Guide Issue \$3.00 each net. Construction and Farm Equipment Issue, International Issue, Machine Tool and Production Equipment Issue, National Auto Show Issues and Military Equipment Issues, \$1.50 per copy net. Back Issue prices on request.

The LVHX2 Hydrofoil Landing Vehicle

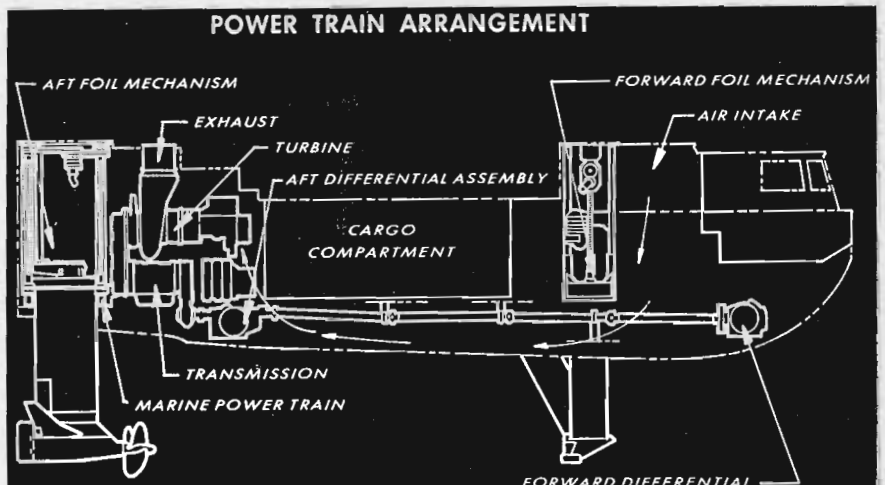
A NEW MILITARY VEHICLE that rides across land and flies over or glides through water has been designed by the FMC Corporation's Ordnance Division, San Jose, Calif., for the U.S. Navy's Bureau of Ships and the U.S. Marine Corps.

Known officially as the LVHX2 hydrofoil landing vehicle, it is equipped with planetary drive-steer axle end assemblies manufactured by Clark Equipment Company's Automotive Division. The Ordnance Division of FMC says that the Model 20,000 axle end assemblies, plus Clark Model 1250 differentials, were easily and reliably adapted to meet the unusual specifications for the hydrofoil's advanced design. According to engineers, these components required only minor modifications.

To fly over choppy seas, the 38-ft-long LVHX2 extends its foils to lift the hull out of the water. An autopilot and self-stabilization system assure a steady, level flight, even in waves five feet high.

As the hydrofoil approaches land, the foils fold into the hull, which then settles in the sea. Once the land-sea craft enters shallow water, wheels are lowered and power is transmitted to them and to the propeller at the same time.

On land the propeller is retracted and all maneuvering of the vehicle and its five-ton payload is through the wheel system. Hydrofoil units are now undergoing extensive tests at Quantico Marine Base, Va., and Camp Pendleton, Calif. ■



Top—
Amphibious hydrofoil extends foils to fly over water. Unit has autopilot and self-stabilization system.

Middle—
On land, hydrofoil uses Clark planetary drive-steer axle end assemblies to help guide and support five-ton payload. All maneuvering is through the wheel system.

Bottom—
Schematic drawing shows hydrofoil's power train design.