



AIR-TO-AIR MISSILES

firepower for jet-age interceptors

These are missiles to strike fear into the hearts of hostile bomber crews. Each one can be launched from an interceptor out of range and even out of sight of the bomber's defenses. Close up, top to bottom: the Genie, a nuclear-armed rocket capable of demolishing whole formations in a single blast; the new Sparrow III, a sophisticated radar homing missile with a powerful explosive warhead; the heat-seeking Sidewinder beneath heads for the jet engine exhausts of the enemy; and Falcon is a radar or IR guided missile — proved, accurate, versatile. Far to the rear, a secret Eagle missile is air-launched — it more than makes up in range, speed and ceiling for the limitations of its mother-ship.



Developed by Philco in conjunction with the Navy, engineered and produced by Philco, the renowned Sidewinder air-to-air guided missile is an outstanding example of the results of close coordination between Philco and the Military for weapons systems development.

In addition to the continued manufacture of Sidewinder, Philco is currently conducting advanced research and systems development for a variety of new missile systems utilizing various guidance and control techniques.

Philco also has made significant contributions to the

success of numerous missile systems by conceiving, designing, and producing fuze subsystems to meet a variety of tactical and operational requirements. Prior to actual production, Philco provides circuit and mechanical design, fabricates and tests prototypes, and performs exhaustive field testing.

Besides *SIDEWINDER*, Philco has also contributed to the success of these missiles: *CORPORAL . . . SERGEANT . . . LITTLE JOHN . . . FALCON . . . TALOS . . . TARTAR . . . TERRIER.*

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AT PHILCO...the world of tomorrow is now!



• • MISSILES: 1960 • •

Levels of strength for the arms of freedom, the outlook in this generation will be determined by the arms and defense capabilities and speed the blood of freedom runs.

1. Created by Lockheed, the Philco SHREWSHIRE is an air-to-air missile made of the most prominent of the P-104 interceptor. 2. The Martin KILLDEER is an air-to-ground missile with a high explosive warhead. 3. The Raytheon SPARROW uses air-to-air intercept radar interceptors. 4. The Douglas SPHIX is an advanced rocket with a nuclear warhead. 5. The Hughes GALEWIN is a high speed air-to-air fighter—used as a weapon to radar or infrared. 6. HAWK, built by Raytheon, is a ground-to-air missile designed to defend our shores against low-flying planes. 7. The new SUPER-

TERRIT is a deep-sea missile designed by Convair to track down hostile (enemy) submarines of the sea. 8. The Boeing LACOS is propelled by rocket and ramjet—cap to avoid against aircraft, ground targets, and missiles. 9. The Lockheed TARDAR will be the primary air-to-air weapon of our newest destroyers. 10. HOWARD JOHN, a Douglas design, is an advanced air-to-air missile which can carry a nuclear or high-explosive warhead over 20 miles. 11. LIVELIGHTER, an American Electric Aviation, is a sea-to-air missile, has short range. 12. The Sperry BRUCCANT is a nuclear-capable ground-to-ground missile for the Army, with solid fuel and a nuclear warhead. 13. The Pratt & Whitney BOUNDING BOMB can be air-launched from B-52's, designed to destroy a target 100 miles away with 30 three-quarter tonnage. 14. The McDonnell QUAIL is an air-to-ground missile, which looks like a SAC, loaded to track interceptors and missiles. 15. LA-

CHARGE is a radio-command guided weapon produced by Martin—can penetrate defenses and strike. 16. Nike HERCULES is a missile which can carry nuclear and atomic warheads—along with the theater (ground) 17. Nike SAM, built by General Dynamics, is a missile by Douglas and Western Electric. 18. The Boeing BOHARC is a sea-to-air missile—ground-to-air—can hit 500 miles while they are still 400 miles away. 19. The Griffin/Proton (GARNSKAL), built by operational facilities, is a sea-to-air U.S. Army home missile. 20. The Northrop MANTA is the first intercontinental guided missile to become operational. 21. The Russian system in the sky controls the Soviet Nike SAM (SAMANT), which can intercept our first air-to-air missile. 22. The Lockheed POLARIS is the world's first ballistic missile for nuclear submarines of the George Washington class. 23. The Chrysler HOPPER is the Army's first, 1000 lbs.

missile. 24. The Martin SAGE, known as the WAC-1950A, is an air-to-air guided missile with a nuclear warhead. 25. THOR, created by Douglas, is an operational intercontinental missile, which can be launched in England and France. 26. The air-to-air PEGASUS (Marty) will enable the Army to target targets in the air which the Army has. 27. The covering Martin TITAN is an intercontinental nuclear missile—will be the first intercontinental missile since 28. The Chrysler REDSTONE is a vehicle 200-mile missile, which can be launched from the ground. 29. Nike ATLAS, a product of Convair, is capable to carry the nuclear strength of the U.S.S.—and will be the first missile vehicle as well as the SAM. 30. Nike TITAN, now being developed in England, is shown in an early conception. Thousands of these nuclear-powered missiles will offer our first intercontinental launching. 31. © 1959, by Science Advertising Service, Inc.



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 Computer Division
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 Sierra Electronic Division



★ ★ MISSILES: 1960 ★ ★

Towers of strength for the cause of freedom, the missiles in this panorama deter aggression, protect our cities and defense installations, and meet the threat of brushfire wars.

1. Guided by infrared, the Philco **SIDEWINDER** air-to-air missile makes up the main armament of the F-104 interceptor 2. The Martin **BULLPUP** is an air-to-ground missile with a high-explosive warhead 3. The Raytheon **SPARROW** arms our newest naval interceptors 4. The Douglas **GENIE** is an air-to-air rocket with a nuclear warhead 5. The Hughes **FALCON** is fired from all-weather fighters—seeks out enemies by radar or infrared 6. **HAWK**, built by Raytheon, is a ground-to-air missile designed to defend our armies against low-flying planes 7. The new **SUPER-**

TERRIER is a shipboard missile designed by Convair to knock down hostile raiders scores of miles away 8. The Bendix **TALOS** is propelled by rocket and ramjet—can be used against aircraft, ground targets, and missiles 9. The Convair **TARTAR** will be the primary anti-aircraft armament of our newest destroyers 10. **HONEST JOHN**, a Douglas design, is an unguided artillery missile which can carry a nuclear or high-explosive warhead over 20 miles 11. **LITTLEJOHN**, an Emerson-Electric missile, is even more mobile, but shorter-ranged 12. The Sperry **SERGEANT** is a medium-range ground-to-ground missile for the Army, with solid fuel and a nuclear warhead 13. The North American **HOUND DOG** can be air-launched from B-52G bombers to destroy a target 1000 miles away with its thermonuclear payload 14. The McDonnell **QUAIL** is an air-launched decoy missile, which looks like a SAC bomber to hostile interceptors and missiles 15. **LA-**



CROSSE is a radio-command guided weapon produced by Martin — can pulverize pillboxes and tanks 16. NIKE HERCULES now stands guard over our cities and defense installations — along with the shorter-ranged 17, NIKE AJAX. Both are ground-to-air missiles by Douglas and Western Electric 18. The Boeing BOMARC is our longest-ranged ground-to-air weapon — can hit hostile raiders while they are still 400 miles away 19. The Gilfillan/Firestone CORPORAL, our first operational ballistic missile, is now poised on U.S. Army bases overseas 20. The Northrop SNARK is the first intercontinental guided missile to become operational 21. The faraway explosion in the sky symbolizes the secret NIKE ZEUS (Douglas), which may become our first anti-missile missile 22. The Lockheed POLARIS is the solid-fueled ballistic missile for nuclear submarines of the George Washington class 23. The Chrysler JUPITER is the Army's basic 1500 mile

IRBM 24. The Martin MACE, successor to the MATADOR, is an air-breathing guided missile with a nuclear warhead 25. THOR, created by Douglas, is an operational 1500-mile ballistic missile now stationed in England and Turkey 26. The still-secret PERSHING (Martin) will enable the Army to blast targets hundreds of miles behind the front lines 27. The towering Martin TITAN is our newest intercontinental ballistic missile — will be fired from underground 'silo' sites 28. The Chrysler REDSTONE is a reliable 200-mile ballistic missile now on the job overseas 29. Mighty ATLAS, a product of Convair, is beginning to count in the deterrent strength of the U.S. — and turns out to be a prime space vehicle as well as an ICBM 30. MINUTEMAN, now being developed by Boeing, is shown in an artist's impression. Thousands of these 'second-generation' missiles will deter war from underground launching pits.



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