

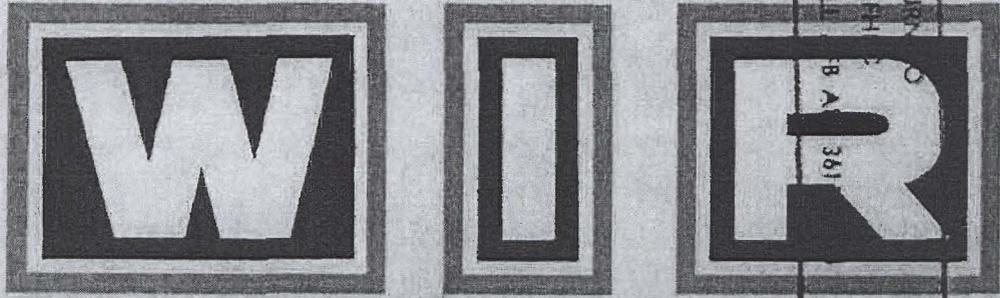
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NORTH AMERICAN AIR DEFENSE COMMAND



K410. 607-329

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# NORAD

Weekly  
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Issue No. 23/67, 9 June 1967

## The WIR in Brief

Portion identified as non-responsive to the appeal

Portion identified as non-responsive to the appeal

### Space

COSMOS 162 IS SOVIETS' 10th RECCE SATELLITE THIS YEAR

Launched from Tyuratam into 52-degree orbit, KOMAROV STILL ALIVE AND WELL JUST PRIOR TO COMMUNICATIONS BLACKOUT, BIOTELEMETRY SHOWS

Death occurred between re-entry and impact. CLAIMS THAT 12 SOVIET COSMONAUTS HAVE DIED ARE BASED ON UNRELIABLE SOURCES

Komarov's is only known death. COSMOS 163 PROBABLY A SCIENTIFIC VEHICLE, AS CLAIMED

No evidence to the contrary. MAIN SOVIET SPACE LAUNCHER CONFIGURATION ABOUT AS ESTIMATED EXCEPT FOR NUMBER OF THRUST CHAMBERS

SS-6 has 20 thrust chambers, not 5. WEATHER SATELLITE PROGRAM DUBBED 'METEOR' BY SOVIETS

Portion identified as non-responsive to the appeal

COVER: All-weather MIG-21 (from Red Star) (OFFICIAL USE ONLY)  
NOTE: Pages 20, 21, and 24 of this issue are blank.

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The Soviets on 30 May warned that "space boosters" would be fired to a circular area in the central Pacific during the next month, and only hours later launched an SS-9, a relatively large ICBM, to the announced impact area.

One test of an orbital bombardment system was held (Cosmos 160), with unknown results; an attempt to de-orbit it apparently was not successful. (See p. 7, WIR 21/67.)

Following is a list of known Soviet missile/space launches in May:

<u>Launch Time and Date</u>	<u>Vehicle</u>	<u>Launch Point</u>	<u>Range (n. m.)</u>
0803Z, 04 May	SS-3, MRBM	Kapustin Yar	630
1007Z, 05 May	SS-3, MRBM	Kapustin Yar	630
0803Z, 06 May	SS-3, MRBM	Kapustin Yar	630
0833Z, 10 May	SS-3, MRBM	Kapustin Yar	630
0345Z, 11 May	SS-5, IRBM	Kapustin Yar	2,000
0837Z, 11 May	SS-3, MRBM	Kapustin Yar	630
1205Z, 11 May	SS-4, MRBM	Kapustin Yar	1,050
0827Z, 12 May	SS-3, MRBM	Kapustin Yar	630
1030Z, 12 May	Cosmos 157 (SL-3)	Tyuratam	Orbital
0630Z, 13 May	SS-4, MRBM	Kapustin Yar	1,050
1100Z, 15 May	Cosmos 158 (SL-8)	Plesetsk	Orbital
0800Z, 16 May	SS-7, ICBM	Plesetsk	3,100
0605Z, 16 May	SS-3, MRBM	Kapustin Yar	630
1320Z, 16 May	SS-3, MRBM	Kapustin Yar	630
2144Z, 16 May	Cosmos 159 (SL-6)	Tyuratam	Orbital
0705Z, 17 May	SS-4, MRBM	Kapustin Yar	1,050
0945Z, 17 May	SS-3, MRBM	Kapustin Yar	630
1605Z, 17 May	Cosmos 160 (SL-11)	Tyuratam	Orbital
0703Z, 18 May	SS-3, MRBM	Kapustin Yar	630
1530Z, 18 May	SS-3, MRBM	Kapustin Yar	630
0550Z, 19 May	SS-4, MRBM	Kapustin Yar	1,050
0800Z, 19 May	SS-7, ICBM	Plesetsk	3,100
1502Z, 19 May	SS-12, SRBM	Kapustin Yar	421
1250Z, 19 May	SS-3, MRBM	Kapustin Yar	630
0729Z, 22 May	SS-4, MRBM	Kapustin Yar	1,050
1400Z, 22 May	Cosmos 161 (SL-4)	Plesetsk	Orbital
0429Z, 24 May	SS-7, ICBM	Tyuratam	3,400
1531Z, 24 May	SS-12, SRBM	Kapustin Yar	437
0623Z, 24 May	SS-4, MRBM	Kapustin Yar	1,050
2250Z, 24 May	5th Molniya 1 (SL-6)	Tyuratam	Orbital
0758Z, 26 May	SS-7, ICBM	Plesetsk	3,100
0950Z, 26 May	SS-4, MRBM	Kapustin Yar	1,050
1345Z, 26 May	SS-5, IRBM	Kapustin Yar	2,000
1930Z, 26 May	SS-4, MRBM	Kapustin Yar	1,050
1549Z, 30 May	KY-6	Kapustin Yar	1,050
0313Z, 31 May	SS-9, ICBM	Tyuratam	7,000





Rangeheads. The greatest activity was displayed at Kapustin Yar, where the unexplained SS-3 program and a somewhat intensified SS-4 troop-training program were under way.

Plesetsk continued to be the scene of most ICBM troop-training firings. The troops fired three SS-7s from that rangehead, for the third month in a row. One SS-9 and one SS-7 were launched from Tyuratam both for troop training; the SS-7 launch, the first in 4.5 months, may signal the start of summer SS-7 firings from this rangehead which were noted in 1965 and 1966.

Tyuratam overshadowed Plesetsk in space firings. Tyuratam launched four spacecraft (a 52-degree recce satellite, an orbital bombardment system, an apparent research satellite with a highly eccentric orbit, and a Molniya communications-relay satellite), Plesetsk two (one recce satellite, one satellite of undetermined purpose).

The pattern of recce satellite launches this year suggests that Plesetsk will launch all those having inclinations of 65 degrees or higher, Tyuratam will launch those with lower inclinations.

(NORAD)

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## 2 SS-9 ICBMs Fired to Mid-Pacific Impact Area

The Soviets have launched two missiles, probably SS-9s, to the recently announced impact area in the Pacific. Both missiles were launched from Tyuratam -- the first at about 0313Z, 31 May, the second at about 0246Z, 6 June. Both missiles went to the designated target area, 7100 n.m. from the rangehead. The second hit about 2800 yards from the USS McMorriss, one of two US ships in the area.

These tests probably involve the lighter (10,000-pound) of two SS-9 re-entry vehicles. This variant was fired to a range of 7,000 n.m. in August and September 1964 and January 1965, and to a range of 7,100 n.m. during the months of November and December in both 1965 and 1966. The heavier (12,500-pound) re-entry vehicle has been tested to shorter ranges in the Pacific.

Specific test objectives of the current firings are not known. Troop training is probably one purpose of these firings.

(CIA)

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significant  
intelligence  
on space  
developments  
and trends

### Cosmos 162 is Soviets' 10th Recce Satellite This Year

Cosmos 162, which the Soviets launched from Tyuratam at about 1040Z, 1 June, into an orbit with an inclination of 51.8 degrees, is the 10th military reconnaissance satellite launched by the USSR this year. Six have been launched from Plesetsk, four from Tyuratam.

Carrying a high-resolution camera system, Cosmos 162 probably has the mission of updating targets for the Strategic Rocket Troops and Long Range Aviation.

(NORAD)

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### Komarov Still Alive and Well Just Prior to Communications Blackout, Biotelemetry Shows

The heart and respiratory rates of the late Cosmonaut Komarov were well within normal limits during the one-day space flight of Soyuz 1 and during the critical 18 minutes between retrofire and the communications blackout incident to re-entry into the dense layers of the atmosphere. [REDACTED]

[REDACTED] Death appears to have occurred sometime between the time the vehicle entered the earth's atmosphere and the impact.

[REDACTED] which were launched earlier in the year and are believed to have been unmanned prototypes of the manned Soyuz 1. Previous manned flights were monitored by a [REDACTED]

The [REDACTED] on more than one cosmonaut but was supercommutated in this case to provide twice the scanning rate, thereby allowing for more complete definition of the EKG and seismocardiogram wave forms for Komarov.

(CIA)

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## Claims that 12 Soviet Cosmonauts Have Died are Based on Unreliable Sources

J. Epstein, a research associate at Stanford University, and certain Italian and West German sources periodically claim that US authorities know that 11 Soviet cosmonauts were lost in spaceflight mishaps before the recent death of V. Komarov.

Far from supporting these claims, available intelligence indicates that the claims are based on unreliable sources and that none of the persons named were candidates for manned spacecraft crews, although several may have participated in technical development of materiel for the Soviet spaceflight program.

Of the 7 individuals named by Epstein, none were cosmonauts. Moreover, the spelling (transliteration) of the Russian names given by Epstein suggests that his "information" has come from European (probably German) sources, rather than from US intelligence. Epstein names Piotr Dolgov (Dolgov), Serenty Shiborin, Wassilievitch Zowodovsky (Vassilyevich Zavodovsky), Alexei (Alexey) Belokonev, Iwan (Ivan) Kascheur (Kaschiyur?), Alexis Gratzev (Gratsev), and Jenady Michailov (Gennadiy Mikhailov).

Dolgov, a high-altitude parachutist, was killed during a 1962 jump. Izvestia reported in 1963 that Zavodovskiy, formerly a tester of systems and equipment for high-altitude flights, had become a chauffeur in Moscow. There is no information that a man named Shiborin was ever connected with aviation or spaceflight. Belokonev, Kaschiyur, Gratsev, and Mikhailov apparently were technicians involved in testing equipment and suits used for high-altitude aviation and spaceflight.

Three alleged "Russian Cosmonauts" memorialized by commemorative Soviet stamps in 1964 (P. Fedoseyenko, I. Usynskin, and A. Vasenko) are long-dead pioneer high-altitude balloonists of 30 years ago.

Reports in 1961 that test pilot V. Ilyushin, son of the famous Soviet aircraft designer, was badly hurt in a manned spacecraft accident were disproved by interviews and published photographs which demonstrated that he had suffered severe leg injuries in an auto accident.

There is no information which supports the Penkovskiy report that a number of unsuccessful attempts to put a man in orbit before Gagarin's flight ended in deaths or failures.

Italian reports published in the US press not only cannot be substantiated but contain data that contradict well-substantiated information.

(CIA; NORAD)

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### Cosmos 163 Probably a Scientific Vehicle, as Claimed

Cosmos 163 which the Soviets launched from Kapustin Yar at about 0503Z, 5 June, is probably a scientific research vehicle, as claimed by the Soviets; there is no evidence to the contrary. Orbital parameters, as reported by NORAD Space Defense Center, are:

Inclination	48.4 degrees
Period	93.5 minutes
Apogee	641 km (345 n. m.)
Perigee	260 km (140 n. m.)

Cosmos 163 is the 4th satellite launched this year from Kapustin Yar. Normally, about seven spacecraft are launched from this site each year.

(NORAD)  
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### Main Soviet Space Launcher Configuration About as Estimated Except for Number of Thrust Chambers

The configuration of the SS-6 ICBM booster-sustainer, which with various upper stages has orbited the most important Soviet spacecraft of the past decade, is essentially that which has long been estimated by the West. A photograph of this unit with a Lunik upper stage and Vostok space capsule added is shown on page 19 as it appeared in the Paris Air Show where it was publicly displayed for the first time. (Also see pages 22 and 23.)

The main surprise of the showing of the SS-6 is the number of thrust chambers. The West had estimated one for each of the four boosters and one for the sustainer, whereas each of these five propulsion units has four main thrust chambers, or a total of 20 instead of 5. Each chamber, then, is much smaller than originally estimated and produces one fourth the thrust estimated. It is likely, therefore, that the Soviets were not able to produce large-chambered missile/space propulsion units as early as the West had estimated. In general, the larger the thrust chamber and nozzle, the higher the state of technology required. On the other hand, the use of smaller (more numerous) thrust chambers makes the relatively high reliability of the SS-6 all the more remarkable: normally, the greater the number of chambers the greater the chance of failure. But very few of the modest number of Soviet space-propulsion failures can be attributed to failure of SS-6 boosters or sustainers.

The sustainer has four vernier engines, as expected, but each booster has only two; these are located on the outer side of each booster, furnishing corrective thrust to the whole propulsion assembly as a unit.

The sustainer consists of two sections. The lower section, a 50-foot-long cylinder of constant diameter, probably houses the fuel tanks in addition to four thrust chambers; the top section, which probably houses the oxidizer tank, is about 35 feet long and tapered on each end.





A truss-type interstage joins the SS-6 sustainer to the Lunik upper stage and Vostok capsule. Similar interstaging has been noted previously on two rockets paraded in Moscow -- the three-stage SAVAGE solid-propellant ICBM, and the three-stage liquid propellant SCRAG, which was claimed to be an orbital bombardment weapon.

Expansion ratios of the booster and sustainer engines appear to be identical, as predicted.

Red Star, newspaper of the Soviet Defense Ministry, said that the vehicle displayed in Paris is 38 meters (124'8") long and has an over-all diameter at the base of 10 meters. The Vostok rocket-carrier, it said, was created in 1956. The one shown in Paris will be displayed later in Moscow at the Exposition of Achievements of the National Economy.

The first spacecraft known to be orbited by the SS-6 was Sputnik 3, which was launched on 15 May 1958. The SS-6 is not believed to have reached IOC as an ICBM until 1960, after a re-entry vehicle had been developed and tested.

(FTD; Soviet press; NORAD)

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### Weather Satellite Program Dubbed 'Meteor' by Soviets

The Soviets have given the nickname "Meteor" to the operation which involves Cosmoses 144 and 156, meteorological satellites which are in near-polar orbits perpendicular to each other.

The Soviet announcement stressed the scientific value of the "Meteor" operation, which affords nearly world-wide coverage. The system also has strategic and tactical military value.

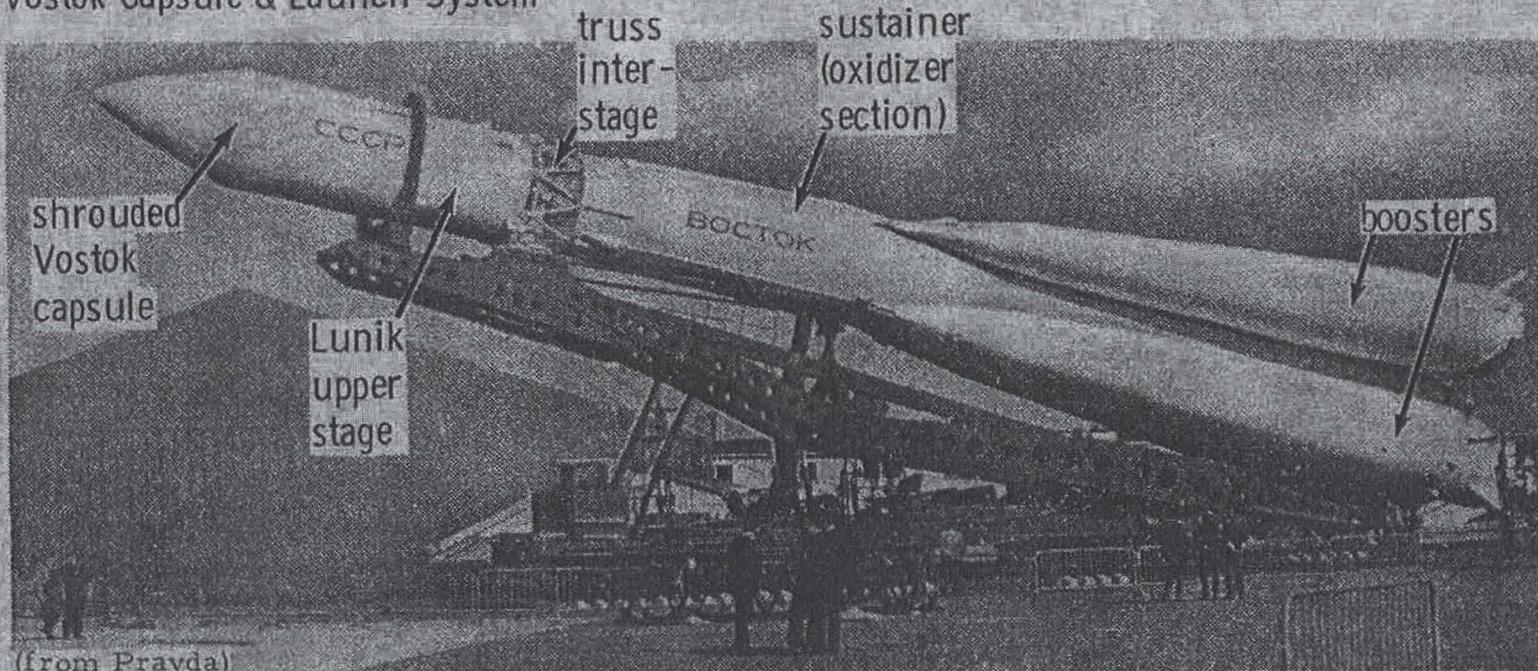
TV and infrared video from both satellites is still reaching the US over the "hot line" established for US-USSR exchange of weather information obtained from satellites. However, the Soviets apparently have not yet solved the data-processing problem, for they have not been able to transmit operational data to Washington within the six-hours required by the bilateral agreement.

(CIA)

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# Vostok Capsule & Launch System



(from Pravda)

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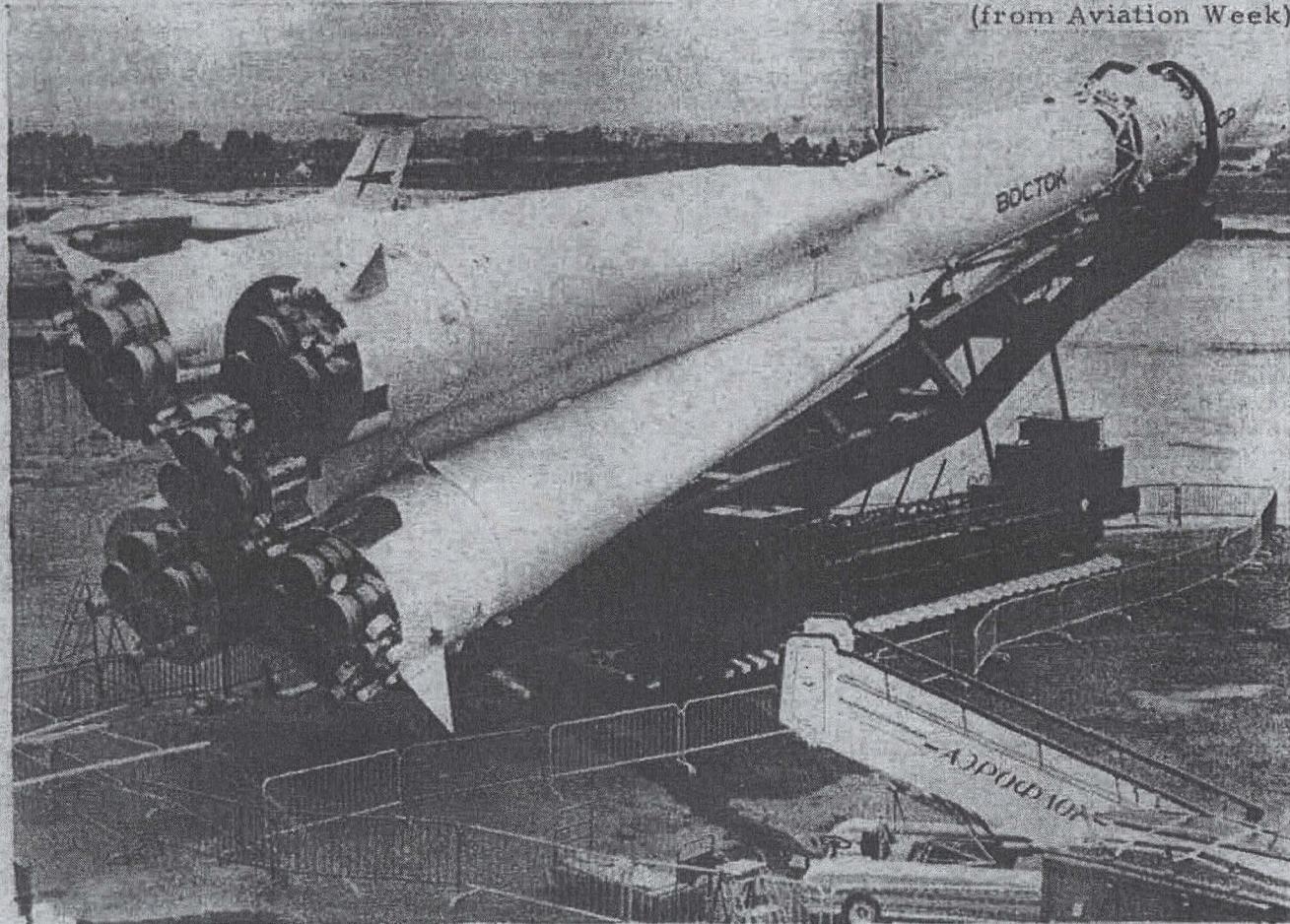


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Vostok & Propulsion System  
(note taper (arrow) at lower  
end of sustained top section)

(from Aviation Week)



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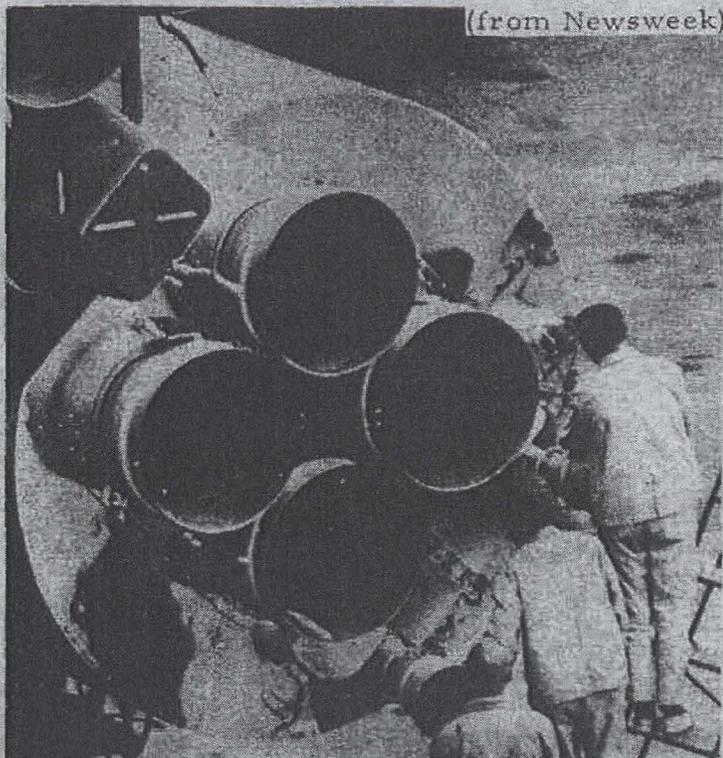
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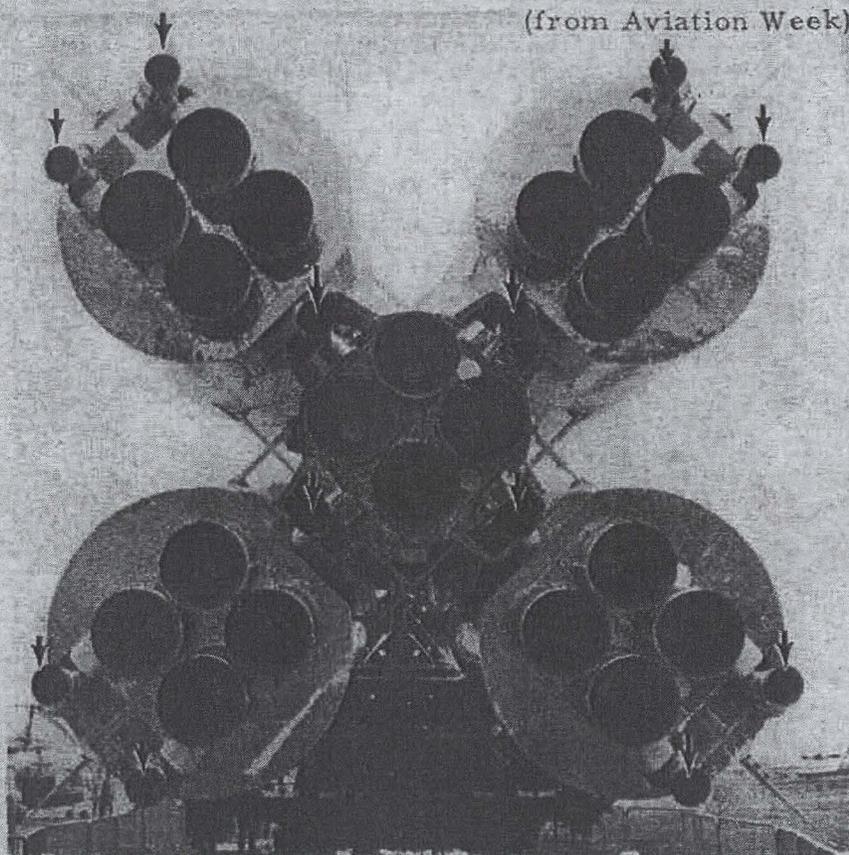
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Main-thrust Nozzles of a Booster



20 Main-thrust Nozzles and  
12 Vernier nozzles (arrows)



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