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ex. 86

16 juni 1980

MARINE INLICHTINGENDIENST

INLICHTINGENRAPPORT

nr. 5/80

MEI 1980

OPMERKINGEN

1. Personeel van de Koninklijke Marine mag op "need-to-know" basis kennis nemen van de in het inlichtingenrapport vermelde gegevens. Gezien de verscheidenheid van de artikelen bestaat tegen het lezen van het gehele rapport door officieren geen bezwaar.

2. Indien geadresseerden ten behoeve van de onder hun commando gestelde eenheden en/of opleidingen gebruik wensen te maken van gegevens die in dit rapport zijn vervat, dient met die gegevens de nodige voorzichtigheid te worden betracht.

3. In géén geval mag over de gegevens van dit rapport melding worden gemaakt tegenover niet-leden van de Nederlandse krijgsmacht.

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90 = H.MARID 2/7/80 vern
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EVALUATIE DER INLICHTINGEN

Bij het evalueren (graderen) van de waarde van de ontvangen inlichtingen stelt men de betrouwbaarheid van de bron vast en bepaalt vervolgens de waarschijnlijke juistheid van het bericht zelf.

Betrouwbaarheid bron

A = geheel betrouwbaar
B = gewoonlijk betrouwbaar
C = tamelijk betrouwbaar
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Waarschijnlijkheid van de informatie

1 = bevestigd door andere informatie
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5 = onwaarschijnlijk
6 = niet te beoordelen

HOOFDSTUK 1

DIVERSE ONDERWERPEN

DEEP AND FAST: THE ALFA CLASS SSN (Eval; B-2)

INTRODUCTION

1. [redacted] The Sovjet ALFA Class SSN is assessed to be the world's fastest and deepest-diving submarine. By incorporating a new pressure hull material (probably a titanium alloy), a revolutionary (and as yet unknown) nuclear propulsion system, and a probable high degree of automation, the Soviets have departed radically from their previous design practices. These factors have translated into a submarine with a working depth of 640 m and sustained submerged speeds of 42 to 43 kn.

2. [redacted] The ALFA Class was first evidenced by the launch of the lead unit in 1969. The first unit, after a brief operating period, was cut into four sections and remains in that condition. Three units are conducting extended trials in the Barents Sea, and one unit is fitting-out.

3. [redacted] Displacing 3 680 metric tons submerged, the ALFA is approx. 81.5 m in overall length with about 9.5-m maximum beam. It is a traditional Soviet double-hull design, but more teardrop shaped than previous Soviet classes. The sail is relatively low, long, and well faired in. It is estimated that the hull is covered with a 10-cm thick antisonar coating and the sail with an 8 to 10 mm antisonar coating. Six torpedo tubes are believed located forward, in a typical VICTOR Class two-over-four arrangement; a mix of 18 weapons is estimated, including ASW and anti-surface-ship torpedoes, and SS-N-15 and/or possibly SS-NX-16 ASW missiles.

4. [redacted] The assessment that a titanium alloy hull is employed is based on analysis of Soviet technical literature, intelligence reporting, and high-quality photography. Adequate hull structural geometry has been developed from the imagery to enable evaluation of weight/displacement ratio for various materials, and to calculate reliable estimated depth capability.

Hull characteristics.

5. ([redacted]) The ALFA SSN hull is "teardrop" shaped. The 8.58:1 length-to-beam ratio is the lowest of any Soviet nuclear submarine and the closest to the 7.33:1 lenght-to-beam ratio of USS ALBACORE (AGSS 569). The ALFA design is the Soviet's first departure from the flat walking deck concept; i.e., the outer hull is circular.

6. ([redacted]) The pressure hull is assembled from a series of externally stiffened cylindrical and conical sections; it is assessed to be capped forward by a hemispherical, and aft by a truncated, cone-shaped closure.

7. ([redacted]) Based on extensive photography, as well as numerous other sources, it is believed that the ALFA has a pressure hull of a titanium alloy designated SPLAV-3 (Ti-AL). This material, with a density 60 percent that of steel, has nonmagnetic properties, good seawater corrosion resistance, and a strength comparable to that of high-strength (HY-85), low-alloy hull steels. The disadvantages of titanium alloys are their high initial cost, more complex fabrication requirements, and, initially, lack of a well-established design and fabrication technology.

8. ([redacted]) With SPLAV-3 (Ti-AL) as the pressure hull material, the ALFA's depth capability is estimated to be 640m for working depth, 800m for limiting depth, 1000 m for designed collapse depth, and 1 200 m for estimated actual collapse depth. These depth calculations were based on a 7.0-m diameter pressure hull with dimensions derived through photo analysis that reliably indicates the following hull geometries: Shell thickness, 65 mm; typical frame spacing, 600 mm; and standard frame height, 380 mm.

9. ([redacted]) Figure 1 shows a single frame-shell combination for the ALFA. Weight is the basic consideration in a frame-shell combination, and, barring other design factors (such as arrangements, limiting frame size, or spacing), the frame-shell cross-section containing the least weight should be used. The most efficient frame-shell combination can be determined by calculating the weight/displacement ratio (W/D) from the geometry of the frame-shell combination. The W/D ratio represents the ratio of weight of a typical frame, plus one typical frame space of pressure hull plating, to the weight of seawater displaced by the cylindrical hull of one typical frame space length.

The smaller the W/D ratio. The more efficient the design, since the structural weight is minimized, and the ship size and cost are reduced.

10. ([redacted]) In the case of the ALFA Class, where the frame-shell geometry was imagery derived and titanium alloy was assumed as the basic pressure hull material with a density of only 60 percent that of steel, the W/D ratio was calculated to be 0.22 . A W/D of 0.22 is considered consistent with modern submarine design and indicates a reasonable structural weight fraction. If ALFA's frame-shell combination were frabricated of steel, a W/D ratio of 0.39 would be indicated. This would result in a significant part of available buoyancy being used to accommodate the structural weight of the submarine, and would require sacrifices in other weight groups such as propulsion and payload.

11. ([redacted]) The first compartment contains the ship's est, six torpedo tubes, all torpedo tube launched ordnance and possible countermeasure devices and decoys, the probable forward personnel access/escape hatch, the torpedo loading hatch, penetrations for bow sonar array wiring, most of the crew berthing, and, in the lower well, probably the battery installation and part of the auxiliary machinery spaces.

12. ([redacted]) The second compartment is probably devoted to crew hotel space and may contain sonar and naviation spaces, and the control room with all vital ship's systems controls, and control displays. The automated fire control, electrical and communications equipment, central environmental control equipment, and some smaller auxiliary machinery are also located there. The Commanding Officer and Executive Offercer have their quarters in this compartment. The control compartment has physical and visual access topside by means of the sail bridge access trunk and the periscope.

13. ([redacted]) The third compartment may house the ship's automated engineering/reactor control spaces, the telephone messenger buoys release mechanism, and in the lower well, the general auxiliary machinery. Its after bulkhead would be significanty shielded from the reactor compartment, and both the emergency diesel and the fuel may be located here.

14. ([redacted]) The fourth compartment is the "heart" of the ship. This compartment, assessed to be heavily shielded and crossable by means of at least one longitudinal side passage on the upper internal deck level, contains two reactors and their accociated primary loop equipments.

15. ([redacted]) The fifth compartment probably contains the major electrical machinery components.

16. ([redacted]) The sixth compartment contains the shaft thrust bearings, emergency after steering stern control surface actuators and related hydraulics, miscellaneous auxilliary machinery, the stern personnel access/escape hatch, and probably some crew berthing.

17. ([redacted]) The internal arrangement described covers only the major equipment placement. Additional pieces of smaller equipment and supporting systems are located about the ship as dictated by engineering practices.

18. ([redacted]) The outer hull provides the submarine's hydrodynamic shape, and, because it is floodable and does not have to withstand sea pressure, it is constructed of lighter and thinner material.

19. ([redacted]) The material used for the outer hull of the ALFA is unknown. For compatibility, the best candidate would be titanium similar to the pressure hull itself. It is possible, however, that the outer hull is made of a stainless stell. If so, extreme care is required to assure that localized attack does not take place between the two dissimilar materials if they are in physical contact or close proximity.

20 ([redacted]) It has been reliably reported that the ALFA Class SSN shows a significant reduction in magnetic signature when compared to the magnetic signatures of other Soviet as well as non-Soviet submarines. (There are indications that this reduction factor may be in the order of 0.05).

21. ([redacted]) It can be further concluded that either only a small fraction of the power plant and internal machinery is constructed of ferrous metal (the majority being stainless type steel or other nonferrous material), or an on-board degaussing system was in operation during the measurements.

An on-board degaussing system would have to have an estimated effectiveness of roughly 90 percent, which is reasonable for such a system.

Automation.

22. ([redacted]) Reportedly, the automation of systems includes ship's control, power plant, navigation, and fire control/weapons handling, with the specific aim to reduce crew size and increase the efficiency of ALFA's combat capability. The submarine complement has been variously reported between 15 and 45. Although it is feasible to operate an extensively automated attack submarine with a crew of about 20, this would only be possible on short-duration missions. A Western assessment of crew size for the ALFA during long deployments would be a complement of about 45 to 50. An all-officer crew has been reported by the majority of sources and would be consistent with the Soviet practice of training only officers in complicated tasks. Based on known Soviet state-of-the-art technology, the minimum manning level for action stations would be 20 personnel, consisting of 10 in the central control room, 5 in torpedo handling spaces, and 5 in reactor control spaces

23. ([redacted]) Automation of the Power Train. The reactor control compartment is located just forward of the reactor spaces. It reportedly has a large console with two sets of identical gauges and indicator lights, one set for each of the two reactors. The reactor and steam generator spaces would only rarely need to be accessed; operators in the control compartment probably observe these spaces via television monitors. The automated system was developed by the Central Scientific Research Institute (TsNII)-AVRORA. It has not yet been determined whether this system, believed to consist of data processors and the associated control computer, automatically activates the necessary functions or whether it merely "advises" the operator of options available.

24. ([redacted]) Automation of Weapon Systems/Fire Control. The introduction of automated control computers in ALFA might permit reduction of the ship's complement, simultaneous tracking of several targets, computer selection of the type of weapon, and automatic loading of the weapon from reload racks.

25. ([redacted]) Several sources have revealed the existence of a classified Soviet naval research and development project designated by the cover name SATURN. The information provided by these sources suggests the development of a highly automated fire control and navigation system for submarines. The SATURN system is alleged to be even more advanced than the automated submarine control system depicted in Figure 2 and described in the 1964 Soviet text "Cybernetics in the Navy." SATURN may incorporate some or all of the features shown in Figures 3 and 4. Free World Technology may have been utilized in designing such an advanced system. A source describes a fire control computer called AKKORD, which could track a "large" number of targets on the consoles, but only engage two targets at one time by directing either ASW missiles or torpedoes.

26. ([redacted]) This type of computerized automation envisions torpedo firing control and weapon selection (anti-surface-ship and ASW torpedoes), SS-N-15 and/or possibly SS-NX-16 missiles) assigned to a central computer, which also controls and monitors propulsion, steering, depth keeping, trim, auxiliary systems, etc. to afford high flexibility for the planning and execution of a variety of missions. For tactical surveillance and fire control, the computer would receive inputs from sonar, periscope, radar, sonar intercept, gyrocompass, and the speed log. Sensors at the torpedo tubes and torpedo racks would provide inputs to the computer on tube and weapon availability. The computer would provide the fire control information on two visual displays and the weapon availability on a separate weapons status panel. Two keyboards with tracker balls would probably be available, one for the fire control officer and the other for the tactical command officer (Figure 4). A high state of crew readiness, combined with automation/classification of targets, selection, and automatic loading of weapons, would provide a quick response capability.

27. ([redacted]) <u>Conclusions.</u>

The ALFA SSN program represents a long-range (20-year) Soviet Navy effort to build a sophisticated submarine using advanced technologies in power plant/propulsion train, hull materials and automation.

28. [redacted] The titanium alloy pressure hull provides ALFA with a deep-diving capability. Highly efficient packaging of a powerful nuclear plant and a new power train enable ALFA to deploy rapidly to distant areas. Extensive automation of ship's control, power plant, navigation, and fire control eliminates human errors and reduces crew size.

29. [redacted] ALFA's est. 18 torpedo tube launched weapons include a mix of anti-surface ship and ASW torpedoes, and the SS-N-15 and/or possibly SS-NX-16 ASW missiles.

[redacted] Sources have consistently reported that ALFA is an ASW platform dedicated to hunt and kill U.S. SSBNs. In this role it is estimated that ALFA will take advantage of its high speed to deploy - probably directed by external sources- to the target area and to approach SSBNs using its deep-diving capability until entering into the attack phase.

30. [redacted] ALFA may serve as a test platform for projected future development of submarines for the 1990s. If these units perform to expectations, future Soviet attack submarines may incorporate some or all of ALFA's features; i.e., depth. speed, and especially automation since it appears to fascinate Soviet designers.

31. [redacted] ALFA is the world's fastest, deepest-diving class of nuclear-powered attack submarine, further expanding the ocean environment in which future ASW weapons must be designed to operate effectively. At lesser depth. ALFA would appear to have better shock resistance against underwater explosions than units of the VICTOR, CHARLIE, YANKEE or DELTA classes.

32. [redacted] Should the ALFA Class program be evaluated as successful, it is believed that a follow-on program will commence perhaps by 1982. A likely improvement to be incorporated in the new program is a higher yield -Ti-100) titanium alloy, which will enable a deeper depth capability, including a limiting test depth of 910 m and a working depth of 725 m. It is projected that a likely production rate would be one-and-one-half units per year, to achieve a maximum force level of 20 units.

 [redacted]

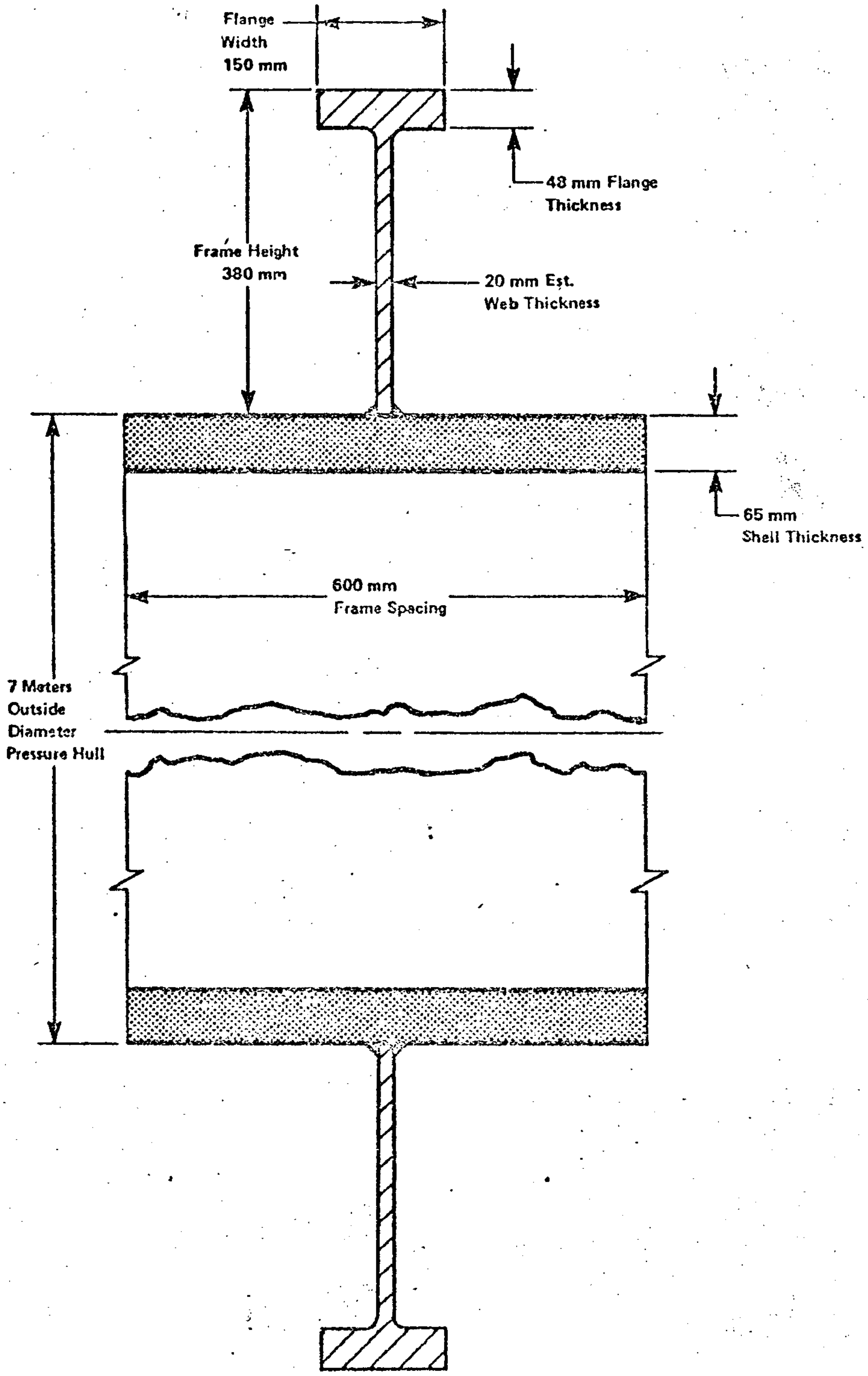


Figure 1. ALFA Class submarine typical shell-frame combination.

[redacted]

 [redacted]

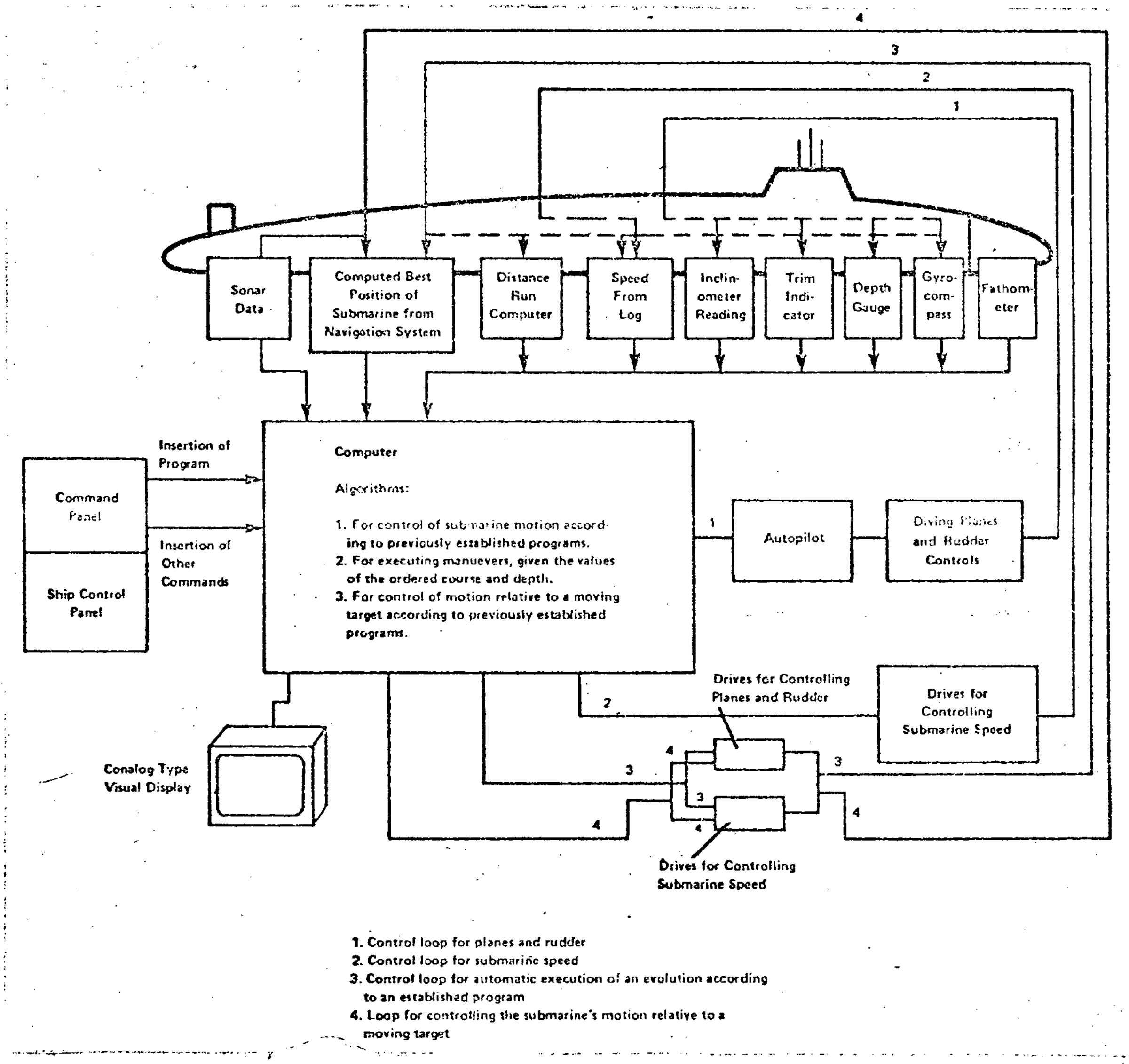


Figure 2. Postulated diagram of an automated system for controlling the movement and tactical maneuvering of a submarine as descriped in 1964 Soviet text.

[redacted]

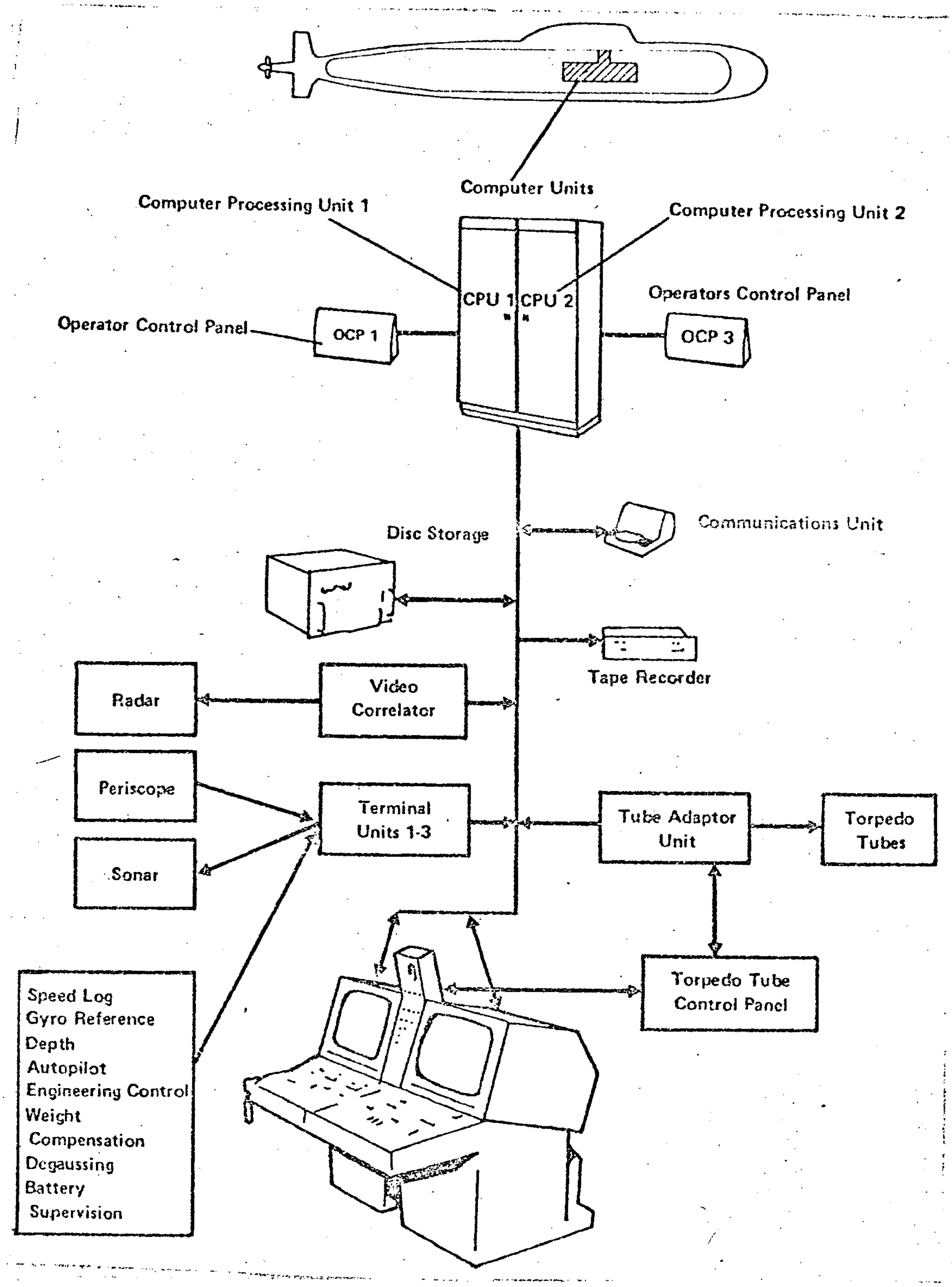


Figure 3. ALFA Class SSN postulated centralized computer control arrangement.

[redacted]

[redacted]

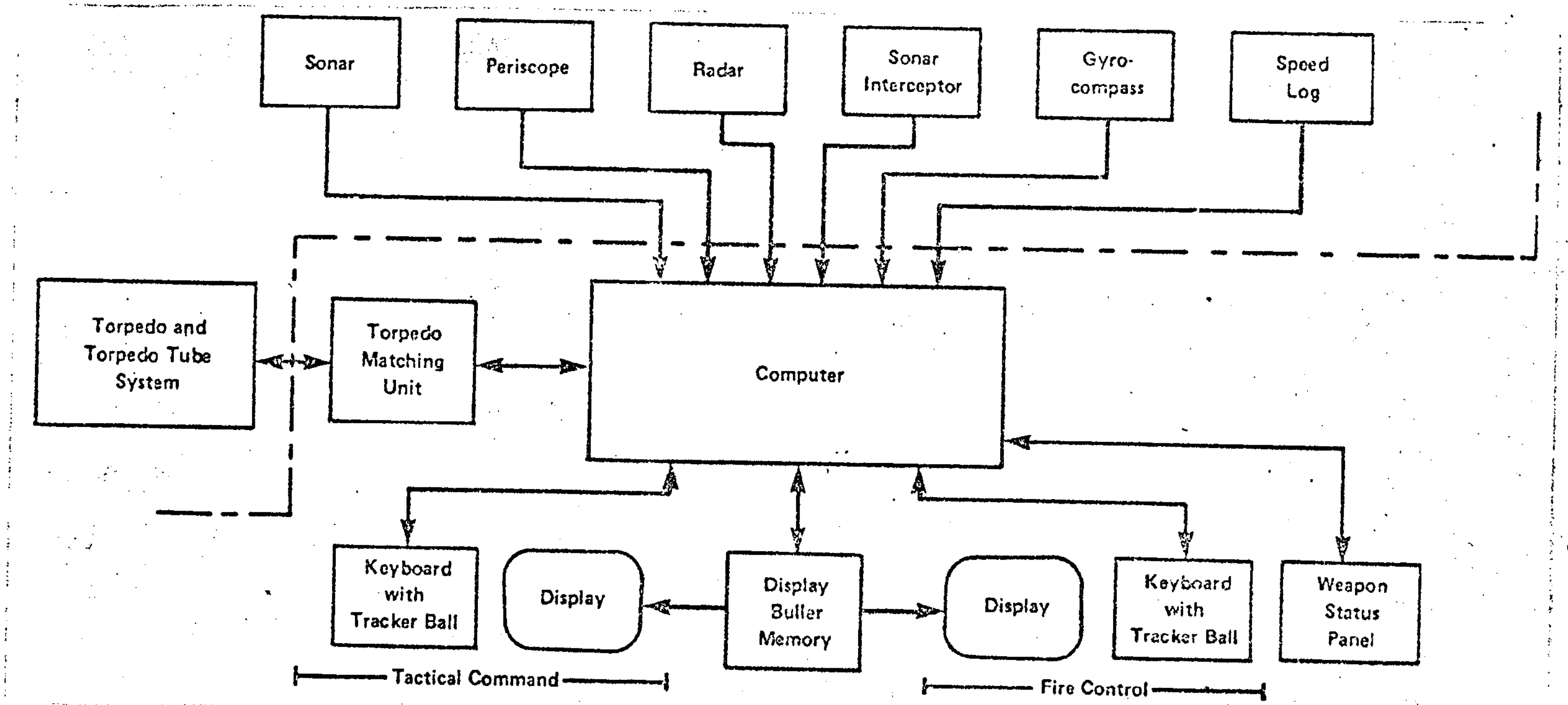


Figure 4. ALFA Class SSN postulated tactical surveillance and fire control system.

[redacted]

 [redacted]

Table 1. ALFA CLASS SSN CHARACTERISTICS

TOC	1978
HULL	
Displacement (t)	3680 submerged; 2700 surfaced
Length (m)	Approx. 81.5 overall; 74 waterline (surface trim); est 65.8 pressure hull
Beam (m)	9.5 extreme hull: approx. 8.1 waterline: 7.0 diameter pressure hull
Draft (m)	7.1 mean hull (surface trim).
Complement	50 total
ENGINEERING	
Speed (kn)	42-43 submerged maximum
Turn count (TPK)	8.4/1 screw (submerged at maximum speed)
Propulsion power	50 000 shp (37 500 KW) total
Main engines	200 MW total from two reactor powering two turbogenerators: probable electric drive
Screws	Est. one (5-bladed) centerline; est two small auxiliary propellers
Rudders	One (with upper and lower section)
Periscopes	One attack
ARMAMENT	
Torpedo systems	Est. eighteen 53-cm weapons, est. six tubes (all forward)
ASW missiles	SS-N-15 and/or possibly the SS-NX-16 (in lieu of some torpedoes)
Mines	36 (in lieu of torpedoes)
ELECTRONICS	
Navigation radar	One SNOOP TRAY or SNOOP TRAY Variant, surface and low-altitude search.
Sonar	4,5 kHz, active/1-7 KHz, passive array: SHARK FIN (7.0 KHz. active fire control): 22-40 KHz (BLOCKS OF WOOD), active multipurpose: BREADFRUIT, BRAZENFACE, DACHSHUND, DABBLER, TOP SOIL (Underwater communications).
ESM	
Antennas	BRICK PULP (variant)
Capabilities	Intercept/DF:VLF: 75 KHz to 18 GHz.
IFF	KREMNIY

[redacted]

COMMUNICATIONS

Antennas	HF telescoping whip: HF/VHF vertical antenna; PARK LAMP
Capabilities	Transmit: MF/HF/VHF/UHF: receive: VLF through VHF
Navigation systems	NAVSAT: LORAN-A/C: MOON-4: OMEGA: LOW SPOT III: CONSOL: DASH FIX: SINS: 14.9 KHz echo sounder: gyrocompass.

SUBMARINE TACTICAL DATA

Working depth (m)	640
Test/limiting depth (m)	800
Design collapse depth (m)	1000
Estimated actual collapse depth (m)	1410/1 200

SOVIET OFFENSIVE MINE WARFARE THREAT

33. (S) Executive summary: A recent increase in Soviet aerial minelaying training activity, together with confirming information from soviet writings and other sources, has indicated a **high level of interest in offensive mine warfare by the Soviet Navy.** Reports of Baltic fleet air force. BACKFIRES and Pacific Fleet BEAR F's conducting minelaying training underscore the increased priority which the Soviets have assigned to the offensive mine warfare mission. Indications that the Soviets intend to include the use of extensive submarine and air-delivered minefields in pre-conflict as well as wartime strategies suggest a significant change in the assessed Soviet mine warfare doctrine.

34. (S) While there is no recent evidence to suggest plans for the use of merchant and fishing ships for covert minelaying, such a tactic constitutes an additional option for offensive mining. Current offensive mine warfare tactics emphasize the destruction of SSBN's and carrier battle groups through the covert mining of ports and strategic focal points. Future mine warfare tactics may be expanded to include containment of SSBN patrols and increased capabilities in the mining of naval bases and choke points through the use of deep rising, mobile and remotely commanded mines which are now believed to be in development.

35. (S) Introduction: this special intelligence report, will review the Soviet offensive mine threat in terms of current platforms, weapons, and discuss briefly how projected mine systems may influence offensive mining tactics and doctrine in the future. Soviet doctrine and tactics for the defensive mine warfare threat will be treated in a future intelligence report.

36. (S) Background: The Soviet Union has historically possessed a formidable mine warfare capability. The Russians have been in the forefront with regard to both the development and employment of mines, largely because of their success with this aspect of naval warfare during conflicts in the early 1900's. These earlier achievements, combined with the acquisition of extensive German technical expertise subsequent to the Second World War, have led to the current Soviet position of leadership in mine warfare. While the Soviet Navy's experience with mine warfare has been largely restricted to defensive coastal mining, writings on the offensive use of mines indicate a significant and continuing interest in this warfare area.

37. (S) Offensive minelaying platforms: because the nature of offensive mining operations requires the achievement of surprise for optimum effectiveness, offensive minelaying platforms must be capable of onducting operations either covertly or with great speed and flexibility. Submarines and aircraft aire considered the primary offensive mine warfare platforms.

a. Submarines: while all Soviet submarines are capable of conducting minelaying operations, it is doubtful that SSB(N)'s, SSG(N)'s, or the more modern SSN's (ALFA/VICTOR) would be utilized in a minelaying role as their primary mission responsibilities would preclude their employment in support of mine operations. The most logical submarine candidates for the offensive mine mission are the NOVEMBER and ECHO I SSN's, the long range TANGO, FOXTROT, and ZULU SS's, and the medium range WHISKEY and ROMEO SS's. Fleet allocation of these primary threat platforms (including units in reserve status) is shown below. (maximum mine loading per platform is shown in parenthesis)

Class	Norflt	Balflt	Blkflt	Pacflt
NOVEMBER SSN (64)	9	Ø	Ø	4
ECHO 1 SSN (36)	Ø	Ø	Ø	5
TANGO SS (44)	7	Ø	4	Ø
FOXTROT SS (44)	36	5	Ø	19
ZULU SS (44)	7	7	1	7
WHISKEY SS (24)	11	53	35	42
ROMEO SS (36)	1Ø	Ø	2	Ø

b. Aircraft: each Soviet Naval Aviation (SNA) bomber aircraft has at least one model capable of minelaying. This capability assumes greater significance when the relatively high frequency of mine training activity by these aircraft is considered. Listed below are the aerial minelaying assets of Naval aviation. The mail ASW amphibian, although it has been credited with a secondary minelaying capability, has been excluded because it has not been noted in training for mine delivery. Mine loading (a-RUM) per aircraft is shown in parenthesis.

type	Norflt	Balflt	Blkflt	Pacflt
BADGER A/G (12)	8	3Ø	11	54
BLINDER A (8)	Ø	19	2Ø	Ø
BEAR F (9)	22	Ø	Ø	12
BACKFIRE B (6)	Ø	24	17	Ø
MAY (3)	2Ø	9	Ø	2Ø

c. Merchant and fishing ships: the substantial mine capacity and relative ease of covert operation along numerous sea lines of communication (SLOC) and in strategic ports make Soviet merchant and fishing ships attractive platforms for offensive mine operations. The ROLL-ON/ROLL-OFF (RO/RO) and stern trawler merchants would be particularly well-suited for covert missions requiring a large mine capacity. Practically, the use of merchants ships for minelaying is restricted to a rather confining set of political and tactical circumstances if it is desired that these ships survive to resume their intended function. While there are no current indications that the Soviets intend to use merchants in a minelaying role, such ships were modified and used for mine operations during world war II. It would be a relatively simple matter to modify merchants for mine warfare. The routine presence of these ships along major SLOC's. In the North and South Atlantic, Pacific, and Indian Oceans would enable them to conduct covert mine operations with relative ease. Although RO/RO ships are the best-suited platform for mine laying, their small numbers and unique logistic capabilities would probably preclude their employment in this role. The stern trawler and fish factory ships provide the most likely candidates for mine laying, due to their large numbers and relatively favorable construction and operational patterns.

38. [redacted] Offensive mine weapons: the Soviets are estimated to have a stockpile of 190,000 naval mines, the largest number in the world. An estimated fifty percent of these are of the type most suited to offensive minefields (i.e, K/AMD series, RVM series, and UEP type). The remainder are surface delivered moored contact or acoustic types. The basic characteristics of the primary offensive mine types are given below.

Designation	platform	target	type	max depth(FT)
K/AMD-500/ 1000 series	air/sub/ surface	surface	bottom mag influence	78 (98 for K/AMD-1000)
K/AMD-II-500/ 1000 series	air/sub/ surface	surface	bottom acoustic mag influence	164
K/AMD-IV-500/ 1000 series	air/sub/ surface	surface	bottom acoustic/mag/pressure	164 164
RVM	submarine	submarine	moored passive/active acoustic	2345
A-RVM	aircraft	submarine	moored passive/active acoustic	1016
UEP series	submarine aircraft	submarine	moored electrical influence	1902

39. [redacted] Current offensive mining tactics and concepts:

a. <u>Observed Tactictics</u>: while there is virtually no information on submarine minelaying tactics, operational patterns in surface and aerial mining operations may have value as indicators for minelaying operations. Surface platforms engaged in minelaying platforms steam in a line-abreast or zig-zag pattern, dropping mines at specific intervals. Courses and speeds may be varied during runs to accomplish a prescribed minefield pattern. Instances of minelaying during darkness or inclement weather underscore the Soviet desire to conduct this mission covertly. All of the aircraft platforms listed below have been observed in mine training. During aerial delivery operations, minelayers generally operate in flights of 3 to 9 aircraft, and have been observed to maintain the following flight profiles.

aircraft	airspeed (KTS)	altitude(FT)
BADGER A/G	450 - 480	11,000-23,000
BACKFIRE B	375 - 460	12,000-13,000
BEAR F	220 _ 260	6500 - 8000
BLINDER A	400 - 460	1600 - 19,000
MAY	230 - 280	3,000-11,000

b. Offensive Mining Concepts and Missions.

(1) Covert Mining of Ports: The concept of covertly mining enemy ports could be accomplished through the use of submarines or merchant ships. The principal targets for submarine missions would be ports supporting ballistic missile and attack submarines and carrier battle groups. The primary weapons for these missions would most likely be AMD and UEP type mines. Once the mines are discovered, aircraft probably would be used to maintain the minefields that are within range of SNA assets. While the prime target for merchant missions would be seaborne logistics traffic at the terminus of US/Allied sea lines of communication, merchant ships may also be used for covert mining of naval ports. In these cases, a sufficient lead time would be required to allow the merchant ships to sail before weapon arming.

(2) Focal Point Mining: the focal point mining tactic involves the mining of strategic choke points to enable their control by relatively light forces. If the pre-hot war scenario were characterized by a lengthy period of worsening political relations prompting a decision to employ covert mining, a submarine platform would be the most logical candidate for this mission. Aircraft, on the other hand, would be used for short lead time situations where tactical surprise was the objective. The high priority targets in this scenario would be carrier battle group and SSBN transit lanes. A mixture of AMD, UEP, and RVM mines would ensure coverage of maritime focal points used by both surface and sub-surface targets. Likely areas for the employment of focal point mining include the Shetland and Iceland Gaps, Irish sea, English Channel, Baltic Sea and Approaches, the Straits of Sicily, Gibraltar, and Hormuz, and entranees to the Sea of Japan and Sea of Okhotsk.

(3) Drifting Mine Barrier: An anti-surface force measure which has received some attension in Soviet military writing is the employment of aircraft and submarine delivered drifting mines.

While the existence and stockpiling of these mines by the Soviet Navy is uncertain, application of the concept may well be in the developmental stages. A drifting minefield tactic is a particularly effective measure for interdicting amphibious task forces or a carrier battle group before engagement by defending forces. Because of the necessity to deploy large numbers of mines in close proximity to the approaching force, aircraft are the most likely delivery platforms for drifting mine barriers.

(4) Mining of Sea Lines of Communication (SLOC): the laying of minefields along high seas SLOC's would not be as effective a means of logistic interdiction as the mining of terminus points. Almost all major reinforcement, economic, oil and other SLOC's pass through natural choke points prior to termination where mines could be more effectively employed than in a high seas environment.

40. ([redacted] Projected offensive mine weapons and concepts: historically, Soviet mine development has run in cycles of approximately 10 to 12 years, with two new mine systems introduced during each cycle. Accordingly, it is expected that new additions to the Soviet mine arsenal will occur between 1980 and 1982. While information on Soviet mine warfare research and development is limited, there are indications that offensive weapons of the following types may be under development.

a. Drifting Impact-Inertia/Magnetic Influence: an air-dropped drifting impact-inertia/magnetic influence mine, possibly a replacement for the obsolete P-2 system, would furnish a substantially enhanced capability and flexibility in the the employment of a drifting mine barrier, addition of such a mine to the current inventory would allow the introduction of a high-speed air delivered drifting mine barrier as a anti-surface force tactic. Improvements in magnetic influence firing systems would enable such a weapon to achieve the desired kill ratio with a relatively small amount of mines.

b. Mobile mine: a submarine-launched, torpedo-transported pressure/magnetic/ acoustic mine, with a possible delivery range of up to 24 miles, could reduce the current danger of submarine detection during covert port mining operations. This would enable the Soviets to mine heavily-defended ports during the pre-conflict period with a minimum chance of discovery. The implications of adding a command arm-disarm system, similar to the type thought to be under development for defensive mining systems, to UEP or RVM variants of the mobile offensive mine are significant. Such a command system could be keyed by either a follow-on torpedo utilizing a coded acoustic pulse or a satellite or airborne transmission to a surface wire antenna associated with the minefield.

c. Guided Rising Mine (G-RVM): a guided version of the current RVM series, capable of being launched from air, surface, or submarine platforms, would enable fewer mines to maintain a larger area of coverage. If the G-RVM series also included an upgraded boost package and were strengthened to allow for deeper planting depths, a signigicant increase in both the anti-submarine and anti-surface capabilities for the present system would be realized.

d. Acoustic discriminating/coded pulse IFF: development of an IFF arm-disarm feature for future mine systems would enable a greater degree of flexibility in minefield planning, particularly in confined sea areas such as the Baltic Sea. Two current Soviet systems, the UEP and RVM mines, have anti-sweep/counter-mining disarming functions which could be used to allow the safe passage of properly-equipped friendly forces, while retaining the capability to destroy enemy ships after the friendly forces have passed through the minefield. Future mines may incorporate more sophisticated identification systems such as an acoustic coded IFF pulse or acoustic signature systems. The signature system could be programmed to disarm when friendly ships were present and to activate and fire only at designated enemy ships. The successful application of the acoustic signature targeting capability to a mobile mine system, particularly if combined with a command arm-disarm function, would have a significant impact on the future of mine warfare in pre-conflict and preemptive strike scenarios.

SOVIET SLBM LAUNCH UP-DATE 1979.

41. [redacted] The following table movides a summary of Soviet SLBM launches detected from December 1959 through 1979:

ACTIVE SYSTEMS	1978	1979	total through 1979
SS-N-5	12	4	197
SS-N-6	23	19	381
SS-N-8	16	21	171
SS-NX-17	3	6	25
SS-N-18	16	10	61
INACTIVE SYSTEMS			
SS-N-4	0	0	231
SS-NX-13	0	0	30
TOTAL	70	60	

42. [redacted] COMMENT: The 60 SLBM launches detected in 1979 reflect a decrease of ten from the previous year and bring the anuail number of SLMB launch detections to their lowest level since 1971. The decline in number of SS-N-5 and SS-N-6 launches appears to be consistent with ageing operational SLBM Systems. The SS-N-5 was launched the least number of times in its 18-year EXISTENCE. The SS-N-8 and SS-NX-17 are the only SLBM's to show increased numbers of annual launches. The additional SS-N-8 launches were probably due to increased scheduling of crew training for operational Pacific Fleet (PACFLT) DELTA SSBN's. The six SS-NX-17 launches in 1979 in which the SS-NX-17 exhibited various flight trajectories and multiple range capabilities probably completed a special series of weapon system test requirements. In addition, these tests may have supported other solid propellant SLBM Research and Development (R + D) programs. The SS-N-18 launches detected in 1979 were identified as either MOD 1 or MOD 2 variants. These launches were conducted in only the NORFLT area. Although this number is less than the sixteen 1978 launches, twelve of the sixteen correspond to the SS-N-8. MOD 3 test program.

43. ([redacted] Of the sixty 1979 launches, one SS-N-6 (16 april) and one SS-N-8 (20 dec.) were assessed as in- flight failures, because the missiles did not reach there intended impact areas; one SS-N-18 MOD 1 (2 juli) overshot its intended input area; and two SS-N-18 MOD 2 (both on 27 aug.) appeared to have RV separation problems or werd associated with special testing.

44. ([redacted] Operational SLBM-launch totals for 1980 are expected to be consistent will those of 1979 and supplemented with the startup of PACFLT SS-N-18 testing, contiuned SS-NX-17 testing, and the TYPHOON SLBM Test program.

[redacted]

SS-N-12 MISSILE PHOTOGRAPHED ON BOARD "KIEV". (A-1)

During May 1979 the KIEV-Class CVSG "KIEV" was photographed displaying an SS-N-12 missile located on a loading way between the two port twin SS-N-12 missile launches, Apparently she was engaged in a missile loading operation since the hatch covers of the tubes are opened.

[redacted]

HOOFDSTUK 2

SOVJET MARITIEME AKTIVITEITEN

DE ATLANTISCHE OCEAAN

1. [redacted] In de lokale wateren van de Noordvloot vonden in de maand mei routine-aktiviteiten plaats. Ditzelfde gold voor de "out-of-area" aktiviteiten. In de Noorse Zee waren een groter aantal onderzeeboten aanwezig: 5 á 6, w.o. een ROMEO-klasse onderzeeboot. Wederom werd de patrouille ten westen van Engeland door een WHISKEY-klasse onderzeeboot bezet. Opvallend was de verhoogde surveillance aktiviteit t.o.v. een Britse JMC-oefening, waarbij eveneens een Poolse AGI was betrokken, hetgeen niet regelmatig plaatsvindt. Aan het eind van de maand was er sprake van verhoogde oefenaktiviteiten in de locale wateren van de Noordvloot en in de Oostzee. Zoals ook in voorgaande jaren het geval was, vonden in de periode 25 april - 15 mei geen "out-of-area" vluchten plaats door vliegtuigen van de Sovjet marine-luchtmacht.

2. [redacted] Op 13 mei verliet een nieuwbouw M.RUDNITSKIY-klasse experimenteel hulpvaartuig (Kozmin) de Oostzee op weg naar de Zwarte Zee. Haar zusterschip en naamgever van deze klasse, M.Rudnitskiy, afkomstig uit de Zwarte Zee, begaf zich rond die tijd uit de Middellandse Zee op weg naar de Noordelijke Vloot. Er was geen sprake van een rendez-vous tussen beide eenheden, en er vonden geen gezamenlijke aktiviteiten plaats.
Tijdens de passage via de Noordzee, werd de Kozmin geschaduwd door eigen marine-eenheden. Van beide Sovjet eenheden werd verondersteld dat zij dienst doen als basisschip t.d.v. "submersibles" c.q. dwerg-onderzeeboten.

3. [redacted] In de periode 6 - 19 mei vond bij de Britse kust een JMC- oefening plaats (Joint Maritime Course) waar verscheidene Sovjet eenheden surveillance op uitvoerden. Opvallen was de aanwezigheid van het vaartuig Poisk (MAYAK-klasse) die was voorzien van een visserijnummer, maar als AGI opereerde. Waarschijnlijk heeft dit schip enkele modificaties ondergaan.

Eveneens opvallend was de betrokkenheid van de Poolse AGI Hydrograph (PIAST-klasse). Doorgaans verlaten Poolse AGI's de Oostzee zelden en dan meestal niet verder dan de Oostelijke Noordzee/ Skagerrak.

4. ([redacted]) Op 11 mei verliet het Oost-Duitse opleidingsvaartuig Wilhelm Pieck de Oostzee. In het verleden begaf deze eenheid zich naar de Middellandse Zee voor een trainingscruise. Thans werd echter opgestoomd naar de Noordelijke Vloot.

5. ([redacted]) Op 15 mei verliet een KRESTA-II klasse GW kruiser (400) de Oostzee, na aldaar sedert 1975 te hebben verbleven, hetgeen een ongebruikelijk lang periode is. Zij was afkomstig uit de Noordvloot waar zij thans is teruggekeerd.

6. ([redacted]) Op 27 mei keerde een GOLF-II klasse SSB terug in de Oostzee na in de locale wateren van de Noordvloot op 16 en 18 april een proeflancering van een SS-N-5 missile te hebben uitgevoerd. Zij werd begeleid, in de Deense wateren, door een T-43 klasse mijnenveger (651).

7. ([redacted]) De aankomst van een KRESTA-II klasse GW kruiser (690) en een MOD KOTLIN-klasse jager (454) op 28 mei uit de Noordelijke Vloot luidt vermoedelijk oefenaktiviteiten in op de Noorse Zee. Een jaar geleden vonden aan het einde van de maand mei eveneens oefenaktiviteiten plaats. De aard en omvang van de huidige te verwachten oefenaktiviteiten dient nog te worden afgewacht.

DE MIDDELLANDSE ZEE

8. ([redacted]) In de maand mei vonden slechts op geringe schaal oefenaktiviteiten plaats door Sovjet eenheden. Het accent van de aktiviteiten lag op surveillance van de NATO-oefening Dawn Patrol. Het aantal aanwezige combattanten was aan de hoge kant, mede i.v.m. de aanwezigheid van twee Oostzee KRIVAK-klasse GW fregatten. Er is echter geen kruiser aanwezig. Voor de Israëlische kust bevond zich vrijwel constant een onderzoekingsvaartuig (AGS Cheleken).

[redacted]

 [redacted]

9. ([redacted]) De sedert juli 1979 in Tartous (Syrië) gestationeerde "diving-tender" VM-114 (NYRYAT-klasse) is afgelost door VM-125 die door de tanker Sventa naar Tartous werd versleept. De VM-114 werd door het vaartuig Sevan teruggesleept naar de Zwarte. De aanwezigheid van deze vaartuigen houdt verband met het feit dat Sovjet onderzeeboten in Tartous gemiddeld gedurende 1 maand onderhoud ondergaan. Overigens werd onlangs een in Polen gebouwd drijvend droogdok in Tartous afgeleverd door 2 Sovjet sleepboten.

10. ([redacted]) In de periode 5 - 17 mei vond nabij Sardinië de NATO-oefening Dawn Patrol plaats. Van Sovjet zijde werd surveillance uitgevoerd door o.a. het AGI-vaartuig Val en de beide Oostzee KRIVAK klasse GW-fregatten (700. 710). Bovendien werden in het oefengebied een aantal Sovjet onderzeebootcontacten verkregen. De belangstelling van Sovjet zijde was hoger dan vorig jaar.

11. ([redacted]) Op 26 mei beëindigde de helikopterkruiser Leningrad (MOSKVA-klasse) een verblijf van 3 maanden in de Middellandse Zee. Zij opereerde voornamelijk in het Oostelijk gedeelte van de Middellandse Zee waar zij voornamelijk bij de ankerplaats Sollum verbleef, vanwaar uit korte oefeningen plaatsvonden, Zij fungeerde eveneens als vlaggeschip van COMSOVMEDRON, een taak die werd overgenomen door een DON-klasse onderzeebootmoederschip (940). Tot haar escorte behoorde een MOD KASHIN klasse GW jager (716) die tegelijkertijd met de Leningrad de Middellandse Zee verliet, en een MOD KOTLIN-klasse jager (527) die bij Sollum achterbleef. Tijdens de verplaatsing naar de Zwarte Zee vond ten zuiden van Kreta een onderzeebootbestrijdingsoefening plaats waarbij een VICTOR nucleair voortgestuwde onderzeeboot was betrokken.

DE ZWARTE ZEE

12. ([redacted]) Gedurende de maand mei werd er in de Zwarte Zee door Sovjet marine eenheden intensief geoefend. Conform voorgaande jaren lag het accent aan het begin van de maand op tactische oefeningen, waarbij een 10-tal combattanten was betrokken w.o. de helikopterkruiser Moskva.

[redacted]

Aan het eind van de maand was deze eenheid eveneens betrokken bij missile en gun-firings alsmede ASW (Anti-submarine-warfare), AAW (Anti-air-warfare) en coastal defence. Hierbij waren vliegtuigen van diverse typen actief w.o. HORMONE helikopters en BADGER bommenwerpers.

DE INDISCHE OCEAAN

13. ([redacted]) In de sterkte van het SOVINDRON is weinig verandering opgetreden gedurende de afgelopen maand. Opvallend waren de aktiviteiten in de Golf van Aden waarbij o.a. de vloottanker Berezina was betrokken; er was sprake van onbekende operaties met twee zuid-Yemenitische eenheden (een ROPUCHA-klasse tanklandingsvaartuig en een OSA-II klasse GW patrouillevaartuig).

14. ([redacted]) Eveneens opmerkelijk was de amfibische oefening die plaats vond rond 11-12 mei ten noord-oosten van het eiland Socotra. Hierbij waren een groot aantal combattanten betrokken alsmede het doklandingsvaartuig Ivan Rogov (ROGOV-klasse) en een ALLIGATOR klasse tanklandingsvaartuig.

15. [redacted] Door verscheidene SOVINDRON-eenheden werd surveillance uitgevoerd op Amerikaanse eenheden. Bovendien voerden MAY ASW-vliegtuigen vanuit Aden (Z-Yemen) surveillance vluchten uit.
Tijdens de 1-mei viering verbleef COMSOVINDRON aan boord van zijn vlaggeschip Taman in Aden (Z-Yemen). Op 26 mei bezocht dit vlaggeschip Massawa (Ethiopië).

DE STILLE OCEAAN

16. ([redacted] Gedurende de maand mei vonden geen opmerkelijke scheepsbewegingen plaats, totdat een KRESTA-I klasse GW kruiser met een tanker en een AGI vaartuig zich via de Straat van Tsushima op weg begaf naar het Zuid Chinese Zee gebied. Het wordt aangenomen dat de KRESTA en de tanker Pechenga met AGI-Chelyuskin in een later stadium op weg gaan naar de Indische Oceaan.

Aan het eind van de maand bevonden zich een groter aantal ruimtevaarthulpschepen en onderzoekingsvaartuigen (8) in de Stille Oceaan i.v.m. de lancering van Soyuz-36 (manned space vehicle).

17. ([redacted]) De voor de Vietnamese kust opererende Ropucha (080) is voorzien van SA-N-5 lanceerrekken en "ready service lockers".

<u>DE SOVJET MARINELUCHTMACHT</u>

18. ([redacted]) <u>Nieuw type HORMONE</u>
Onlangs werd aan boord de vloottanker Berezina een helikopter van een nieuw type waargenomen, aangeduid als HORMONE CHARLIE. Deze helikopter zou een variant zijn van het reeds bekend A-type. Vermoedelijk wordt de HORMONE-C ingezet in een "support/search and rescue role".
In totaal zijn reeds 16 van dit type Hormone waargenomen aan boord van verschillende type Sovjet vaartuigen.

<u>LEVERANTIES</u>

19. ([redacted]) Op ± 18 mei werd de 11e OSA-II (GW patrouillevaartuig) met boordnummer 952 geleverd aan Lybië (Tobruk). Deze eenheid was afkomstig uit de Zwarte Zee en werd gesleept door de sleepboot Ametist.

([redacted])
(B-2)
N

20. ([redacted]) Tussen eind mei - 15 juni wordt verwacht dat een NANUCHKA-klasse fregat (gebouwd te Riga) de Oostzee zal verlaten teneinde aan Algerije te worden geleverd. Mogelijk zal onderweg Le Havre, Saint Nazaire en Lissabon worden aangedaan. De naam van deze eeinheid is vermoedelijk Rais Hamidou.

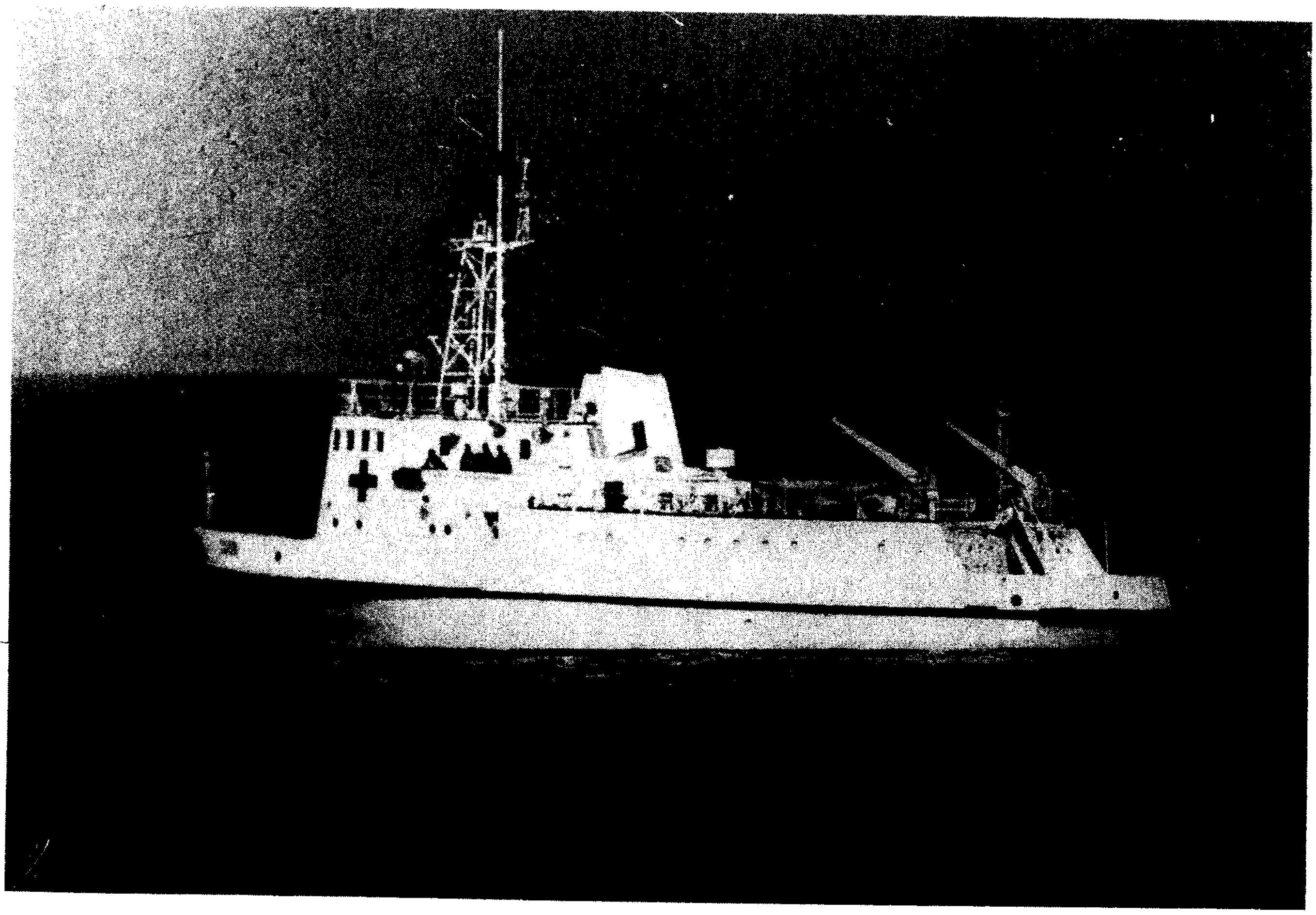
([redacted])
(B-2)
ZD

[redacted]

HOOFDSTUK 3

KARAKTERISTIEKEN VAN COMBATTANTEN EN HULPSCHEPEN

SK-109-KLASSE (YH)



[redacted]

[redacted]

Ident. Nr.	Class	STSG	SType	Project	IOC	Country	Review Date
	SK-109		YH		1979	UR	7909

A. Legend Details

01	Full Load Displ	t	235	
02	Normal Displ	t		
03	Standard Displ	t		
04	Length OA (DWL)	m	30	*
05	Beam Max (DWL)	m	6.5	*
06	Draft Mean	m	2.5	*
07	Depth Moulded	m		
08	Flight Deck	m x m		
09	Propulsion Type		2 DE	
10	Max Power	hp	150	
11	Cruise Power	hp		
12	Max Speed/Range	kts/nm	10/.	
13	Cruise Speed/Range	kts/nm		
14	Econ Speed/Range	kts/nm		
15	Econ Speed/Range	kts/nm		
16	Propellers/Blades		2/.	
17	Fuel	t/type		
18	Complement	total		
19	DWT			
20	GRT			
21	NRT			

* approximate

B. Armament — Supply

none

C. Electronics

1 MIUS
1 HIGH POLE A
1 ROUND WEB
2 CAGE BARE A

Additional Data

Probably constructed at the Wisla Pleniewo Shipyard (Gdansk), one unit completing in ca June 1978. A second unit may have been completed duri[ng] late 1979.
Probably intended as a hospital craft for in area operations.

[redacted]

Ident. Nr.	Class	STSG	SType	Project	IOC	Country	Review Date

A. Legend Details	
01 Full Load Displ	t
02 Normal Displ	t
03 Standard Displ	t
04 Length OA (DWL)	m
05 Beam Max (DWL)	m
06 Draft Mean	m
07 Depth Moulded	m
08 Flight Deck	m x m
09 Propulsion Type	
10 Max Power	hp
11 Cruise Power	hp
12 Max Speed/Range	kts/nm
13 Cruise Speed/Range	kts/nm
14 Econ Speed/Range	kts/nm
15 Econ Speed/Range	kts/nm
16 Propellers/Blades	
17 Fuel	t/type
18 Complement	total
19 DWT	
20 GRT	
21 NRT	

B. Armament

Supply

C. Electronics

Additional Data