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Soviet Naval Air Cushion Vehicle Developments (S)

NAVAL BASE FACILITIES

BE: Various

USSR

235

~~Secret~~

WNINTEL

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SEPTEMBER 1983

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INSTALLATION OR ACTIVITY NAME					COUNTRY
Soviet Naval Air Cushion Vehicle Developments					UR
UTM COORDINATES	GEOGRAPHIC COORDINATES	CATEGORY	BE NO.	COMIREX NO.	NIETB NO.
NA	See below	See below	See below	See below	See below

MAP REFERENCE
CIA. Base Map 77716, USSR

LATEST IMAGERY USED	NEGATION DATE (if required)
	NA

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Installation Name	Geographic Coordinates	BE No	Category No	COMIREX No	NIETB No
Murmansk/Gryaznaya Guba Seaplane Station	69-03-46N 033-17-34E				
Chalmpushka Roslyakova Ship Repair Yard	69-03-28N 033-13-03E				
Leningrad Boatyard Dekabristov	59-57-21N 030-15-20E				
Baltiysk Naval Base	54-38-33N 019-54-34E				
Khabarovsk Naval Base Ostrov Zayachiy	48-34-27N 135-01-48E				
Feodosiya Naval Base and Ship Repair Yard	45-01-32N 035-23-36E				
Feodosiya Shipyard Yuznaya Tochka	45-07-11N 035-29-54E				
Ozero Donuzlav Amphibious Force Base	45-23-49N 033-08-08E				
Vladivostok Naval Repair Yard Diomid	43-05-32N 131-53-53E				
Vladivostok Naval Base Ostrov Russiky	42-58-31N 131-48-15E				
Baku Naval Base and Ship Repair Yard	40-20-53N 049-50-48E				

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ABSTRACT

1. The Soviets have made a significant investment in the military application of air cushion vehicles (ACVs). Since 1967, five classes of ACVs have been produced. Additionally, the Soviets have increased the number of operational bases to six and have made improvements to the two production facilities. (S/WN)

2. This report, discussing Soviet ACVs, provides a brief historical perspective of the Soviet ACV program and a description of each class of ACV and associated facilities. Twenty-three annotated photographs, a location map, two line drawings, and two tables are included. The information cutoff date of this report is (S/WN)

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SECRET**INTRODUCTION**

3. It was not until 1960 that the Soviet military became actively involved in air cushion technology. The first large experimental naval ACV was completed in 1967 at Leningrad Boatyard Dekabristov (Figure 1). This vehicle—the MS-01 (Figure 2)—was a 30-ton craft designed by Firma Almaz, the Soviet high-speed design bureau.¹ The MS-01 served as a research and development testbed from which operational ACVs evolved. (S/WN)

4. Since the launching of the MS-01 in 1967, the Soviets have become preeminent in military ACV production. They have produced five classes of naval ACVs and have the largest number of operational units in the world. Also, the Soviets have built the world's largest military ACV, the Aist. Table 1 illustrates ACV production in the Soviet Union. (S/WN)

5. The five classes of ACVs in the Soviet inventory are the Aist-class air cushion utility landing craft (LCUA), the Lebed-class air cushion medium landing craft (LCMA), the Utenok-class LCMA, the Tsaplya-class LCMA, and the Gus-class air cushion personnel landing craft (LCPA). (S/WN)

6. Two major naval ACV production plants—one at Leningrad on the Baltic Sea and one at Feodosiya on the Black Sea—are involved in, or have been involved in, extensive expansion programs. At least two classes of ACVs—the Aist LCUA and the Tsaplya LCMA—are being produced at these plants. (S/WN)

7. The Soviets have six facilities where ACV overhaul, repair, and maintenance are performed. These facilities consist of conventional repair yards, where various types of marine craft are repaired, and more specialized facilities, which have been specifically configured to support ACVs. (S/WN)

8. The Soviets have six ACV operating bases; three of these bases are new, and two have recently been enlarged. ACV activity has included participation in Warsaw Pact exercises in both the Baltic and the Black Seas. ACV deployment is illustrated in Table 2. (S/WN)

BASIC DESCRIPTION**Air Cushion Utility Landing Craft****Aist LCUA**

9. The Aist LCUA (Figure 3) is the world's largest operational military ACV. Like the much smaller and less capable Gus LCPA, the Aist was designed and developed by the Firma Almaz Bureau; the first prototype was observed at Leningrad Boatyard Dekabristov in May 1967. Since then, 15 units have been built at Dekabristov. The 15-year-production run of this unit is the longest for any class of Soviet ACVs. There have been no indications that series production will cease. Two new units became operational in 1982, and one new unit was launched in August 1983 but has not yet been observed at an operational base. (S/WN)

10. The Aist is equipped with bow and stern ramps, giving it a drive-through capability for up to three modern armored personnel carriers (APCs) and over 100 men. The vehicle's cargo capacity as well as its high-speed and long-range abilities make it a valuable asset in the Baltic and Black Sea Fleets. The Aist has not yet been deployed to the Pacific or Northern Fleets. (S/WN)

Air Cushion Medium Landing Craft**Lebed LCMA**

11. The Lebed LCMA (Figure 4) is the first Soviet ACV with an enclosed well deck. It is capable of not only carrying vehicles but also of being transported long distances in an

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Table 1.
Estimated Soviet Production of
ACV, 1969–1982

Class	Shipyard	Total	Production Dates
Gus	Leningrad Boatyard	4	1969–1970
	Dekabristov		
Aist	Dekabristov	15 (2*)	1969–present
Lebed	Dekabristov	0–2**	1972–1973
Gus	Feodosiya Shipyard	27	1971–1976
	Yuzhnaya Tochka		
Lebed	Yuzhnaya Tochka	14–16**	1974–1980
Utenok	Yuzhnaya Tochka	2	1981–1982
Tsaplya	Yuzhnaya Tochka	1 (1–2)	1982–present

*Data in parentheses provides the estimated number of ACVs under construction.

**The first two Lebeds may have been built at either yard.

This table in its entirety is classified [redacted]

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Table 2.
Soviet Deployment of ACVs, [redacted]

Fleet and Base	Aist	Gus	Lebed	Utenok	Tsaplya
Baltic Sea Fleet	8	10	4	0	0
Baltiysk Naval Base					
Black Sea Fleet					
Ozero Donuzlav Amphibious	6	0	4	2	1
Force Base					
Pacific Fleet					
Vladivostok Naval Base	0	0	4	0	0
Ostrov Russiky					
Khabarovsk Naval Base	0	14	0	0	0
Ostrov Zayachiy					
Northern Fleet					
Murmansk/Gryznaya	0	0	4	0	0
Guba Seaplane Station					
Caspian Sea Flotilla					
Baku Naval Base	0	5	0	0	0
Unlocated or Stricken	1	2	0	0	0
Totals	15	31	16	2	1

This table is [redacted]

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FIGURE 1. LOCATIONS OF ACV FACILITIES, USSR

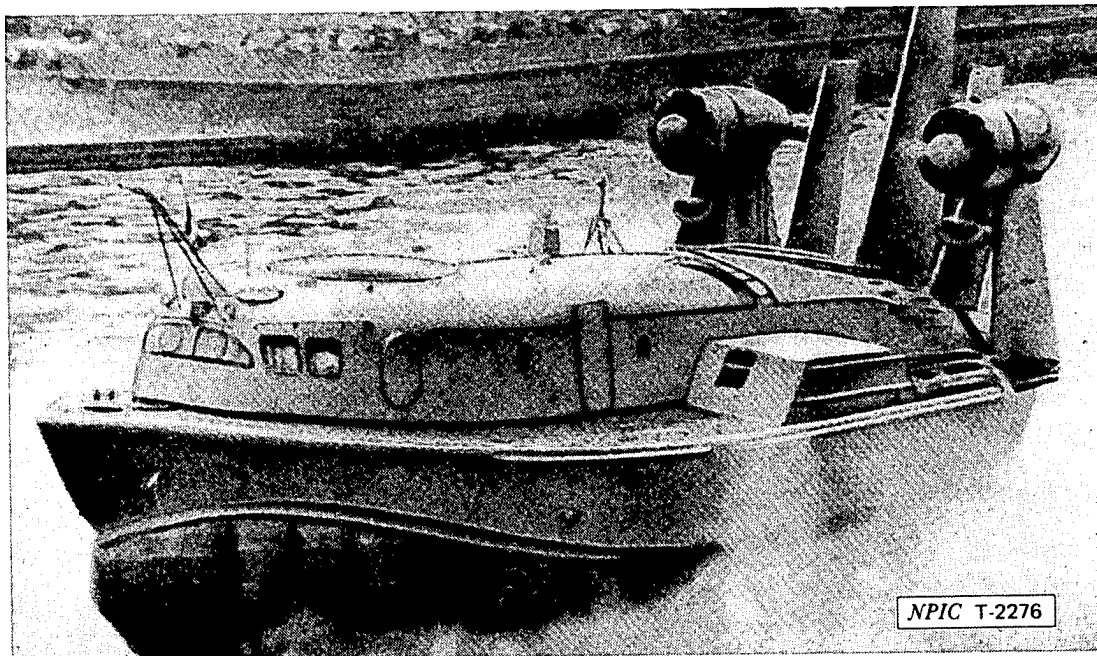
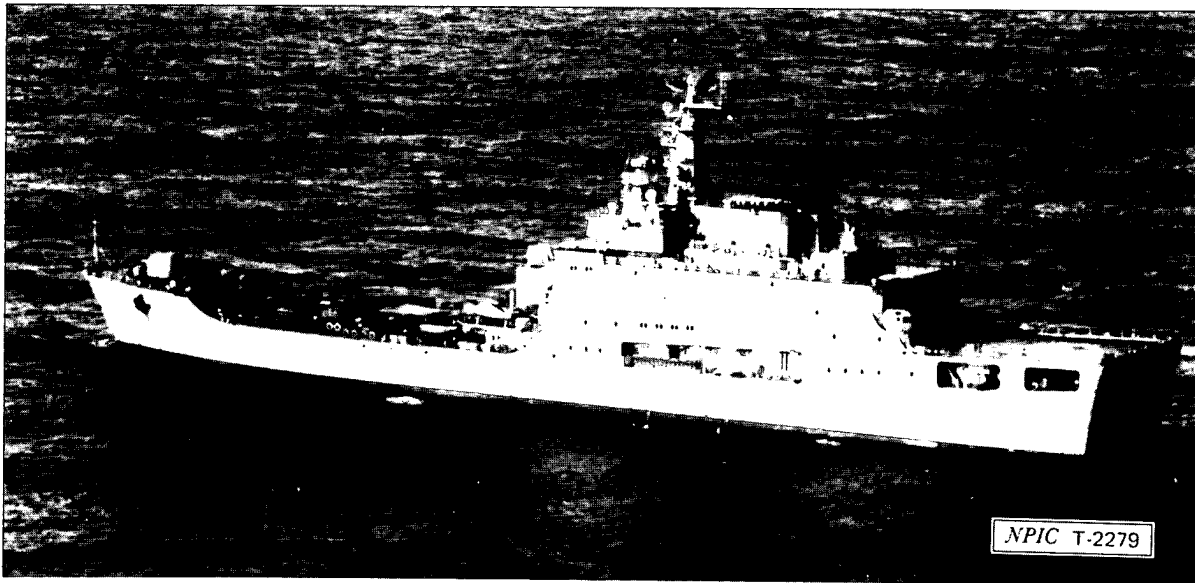


FIGURE 2. FIRST ACV (MS-01) IN SOVIET NAVY

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SECRET**FIGURE 5. IVAN ROGOV-CLASS LPD**

amphibious ship. Lebeds can be transported as deck cargo on a transport/cargo ship, or two Lebeds can be transported inside the floodable well deck of the Ivan Rogov-class amphibious assault transport dock (LPD; Figure 5). (S/WN)

12. The first unit of the Lebed was not observed until it had been deployed to Baltiysk Naval Base, an operational base, in early 1973. In November of that year, unit 2 was observed at Dekabristov; this unit, like the first, was complete when it was first observed. This was the only time that the Lebed was observed at Dekabristov. It is not known whether the first two units of the Lebed were constructed at Dekabristov or at Feodosiya Shipyard Yuznaya Tochka, where the subsequent 14 units were constructed. (S/WN)

Utenok LCMA

13. The Utenok LCMA (Figure 6), formerly the Yuz-B, was first observed at Feodosiya Shipyard Yuznaya Tochka in April 1979, when the first unit was being fitted-out. A second unit was subsequently observed at this facility. This class is slightly smaller than the Lebed LCMA but probably has better sea-

keeping ability. Only two units have been built; both units had been deployed to Ozero Donuzlav Amphibious Force Base by 1982. (S/WN)

Tsaplya LCMA

14. On [redacted] the Tsaplya LCMA (Figure 7) was observed for the first time at Feodosiya Shipyard Yuznaya Tochka. This vehicle—originally given the interim designation of Yuzh-D—appears to be an improved design of the Lebed and may be intended as a replacement or a follow-on. The Tsaplya strongly resembles the Lebed although it is slightly larger, has a central pilot house, repositioned lift fans, a sloping foredeck, and increased armament. The enlarged size probably increases the lift capability, which is necessary for transporting heavier T-72 and T-80 tanks. The sloping foredeck may provide improved stability and may prevent water ingestion by the engines. Armament has been increased from one Gatling gun to probably three. The Tsaplya LCMA is presently at Ozero Donuzlav, probably undergoing testing. Only one unit has been observed although additional units are probably under construction. (S/WN)

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FIGURE 8. GUS LCPA

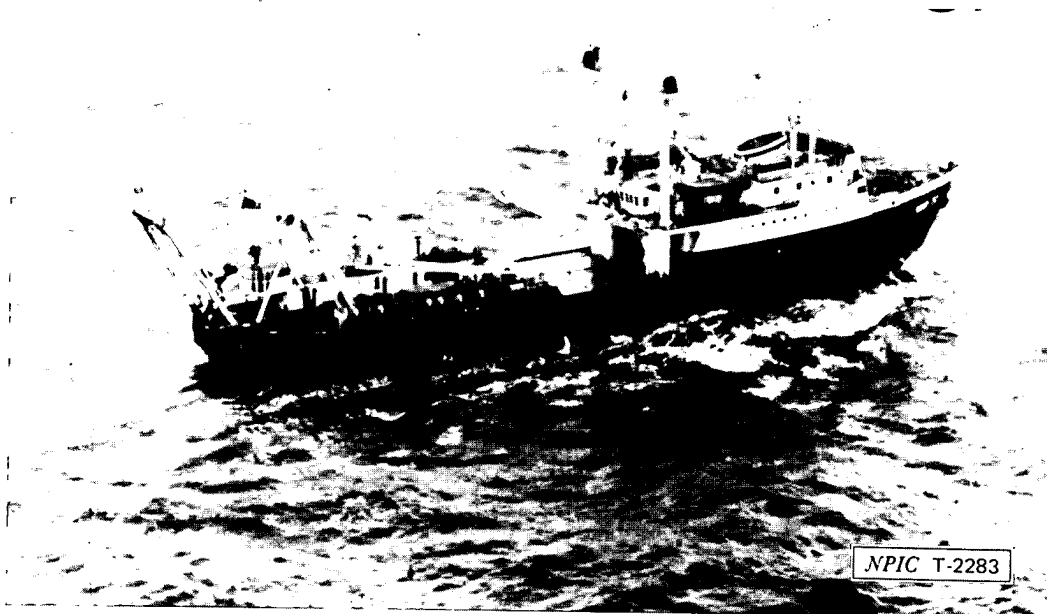
Air Cushion Personnel Landing Craft

Gus LCPA

15. The Gus LCPA (Figure 8) was the first Soviet military ACV to go into series production. This vehicle was designed by the Firma Almaz Bureau. The first four units were built at Leningrad Boatyard Dekabristov, and the first unit was observed there in April 1969.

After four units were constructed, the production site was moved to Feodosiya Shipyard Yuznaya Tochka, where 27 additional units were built from 1971 to 1976. Twelve of the Feodosiya units were transported in sections to Khabarovsk Shipyard Ussuri South 876 (BE) in the Soviet Far East, where they were reassembled for deployment along the Sino-Soviet border. Two additional units were later transported intact to the Far East. (S/WN)

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SECRET**FIGURE 9. SURA AGL (GUS MOTHER SHIP)**

16. The Gus LCPA is used for amphibious assault and has been observed participating in Warsaw Pact exercises in the Baltic, where the Soviet Navy has used the Sura-class buoy tender (AGL) as a transport and mother ship (Figure 9). The use of the Sura AGL significantly increases the range of the Gus and permits its use with conventional task forces. Additionally, the Gus is used as a river border patrol vessel in the Soviet Far East, where it is based at Khabarovsk Naval Base Ostrov Zayachiy on the Amur River near the Sino-Soviet border. (S/WN)

Construction Facilities

Leningrad Boatyard Dekabristov

17. Leningrad Boatyard Dekabristov (Figure 10) was the first facility to be involved in the construction of military ACVs. ACVs pro-

duced there include the MS-01 experimental prototype; the Gus LCPA; possibly the first two Lebed LCMA; and the Aist LCUA, which is still in series production. (S/WN)

18. ACV-related improvements at Dekabristov began in 1965 with the excavation for the first of two ACV construction halls. This construction represented the Soviet Union's early commitment to ACV production, even before the first prototype was tested in 1967. (S/WN)

19. Since the mid-60s, the first construction hall has been completed, an administration building has been expanded, and a 10-story office building has been constructed. A second construction hall was completed in 1982. The completion of this second hall doubled the available floorspace for the production of ACVs; production could rise from one or two per year to three or four per year. (S/WN)

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SECRET**Feodosiya Shipyard Yuznaya Tochka**

20. Feodosiya Shipyard Yuznaya Tochka (Figure 11) has been the primary construction site for the production of all Soviet naval ACVs, except the Aist LCUA. This shipyard is involved in the production of commercial and naval hydrofoils and patrol boats as well as ACVs. (S/WN)

21. A major expansion program for this facility began in 1976. This program includes the construction of two large construction halls, a large transverser/launchway, an administration annex, and a probable wing-in-ground effect (WIG)/ACV vehicle ramp. The construction hall floorspace at the shipyard will be more than doubled when the two large construction halls are complete. The first hall—externally complete—probably will be used for ACV production. The second hall—in the mid-stage of construction—is twice the height of the first, resembles an aircraft assembly building, and will probably be used for construction of the KASP-B WIG vehicle. (S/WN)

Repair and Maintenance Facilities**Baltiysk ACV Overhaul/Repair Facility**

22. Baltiysk Naval Base is the operational base for the largest contingent of ACVs. To provide for major repair and systematic overhaul of ACVs assigned to this base, the Soviets have constructed a small overhaul/repair facility there. This overhaul/repair facility (Figure 12) consists of a small transverser, a platen area, and an open storage area. In addition, two small floating drydocks (YFDLs) are available for repair and for transferring the ACVs to or from the transverser. These YFDLs are also used to repair conventional vessels. As many as two ACVs are usually undergoing repair at this facility. (S/WN)

Baltiysk ACV Maintenance/Fuel Facility

23. Construction of a unique ACV maintenance/fuel facility (Figure 13) began in 1980 at Baltiysk. This facility was constructed between the two ACV parking facilities and con-

sists of a large ACV ramp, a large parking apron, and a support building. Centrally located on the apron are three covered trenches, each with two circular points. ACVs have been parked over the covered trenches, and it is believed that preventive maintenance and fueling are performed there. The facility is well lighted for nighttime operations. (S/WN)

Feodosiya Naval Base and Ship Repair Yard

24. Feodosiya Naval Base and Ship Repair yard (Figure 14) serves as a support base for naval missile trials and tests in the Black Sea and also as the maintenance and repair facility for Black Sea Fleet ACVs. This facility is close to the ACV construction facility at Feodosiya Yuznaya Tochka, which probably provides technical support for repair of ACVs. Aist LCUAs are usually repaired at one of the facilities at Sevastopol Ship Repair Yard Pannaotova Bay (Figure 15), as their size precludes repair at Feodosiya. (S/WN)

Vladivostok Naval Base and Repair Yard Diomid

25. Maintenance and overhaul of Pacific Fleet-based Lebed LCMAs are performed at Vladivostok Naval Base and Repair Yard Diomid (Figure 16). This facility primarily serves as a repair base for medium-sized naval vessels and conventional submarines. Although this repair yard supports Pacific Fleet Lebed LCMAs, no special ACV facilities are present. Gus LCPAs are maintained at an operational base at Khabarovsk. (S/WN)

Chalmpushka/Roslyakova Ship Repair Yard

26. Chalmpushka (Figure 17) is the only facility in the Northern Fleet where ACV repair and maintenance have been observed. ACVs were first observed at this facility in August 1983, when a Lebed was undergoing maintenance. This facility primarily serves as a minor repair base for Northern Fleet submarines and surface combatants. ACV maintenance may be observed at additional Northern Fleet repair bases in the future. (S/WN)

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Operating Bases

Baltiysk Naval Base

27. The ACV facilities at Baltiysk Naval Base (Figure 18) are strategically located on the central Baltic coast and are the most extensive in the Soviet Union. These facilities comprise a repair/overhaul area, a maintenance/fueling area, and two separate parking areas. The parking areas consist of two large parking ramps that slope into the water. Gus LCPA and Lebed LCMA's park on one ramp, and Aist LCUAs park on the other. ACVs from Baltiysk have participated in numerous Warsaw Pact exercises in the Baltic. (S/WN)

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Ozero Donuzlav Amphibious Force Base

28. Ozero Donuzlav Amphibious Force Base (Figure 19) is the only operational ACV base on the Black Sea. The ACV area of this base is on a peninsula on Lake Donuzlav. Facilities include six large, bermed Aist ramps; three bermed LCMA ramps; a multivehicle ramp; a maintenance building (previously associated with LCPAs); and several small support buildings. (S/WN)

29. The Aist LCUAs from Ozero Donuzlav were involved in the Soviet Warsaw Pact exercise "Shield-82," which was held in Bulgaria in 1982. This is the first known instance of

ACV use in a Black Sea Warsaw Pact exercise. Future exercises probably will involve greater numbers and more types of ACVs. (S/WN)

Baku Naval Base and Ship Repair Yard

30. The ACV facility at Baku Naval Base and Ship Repair Yard (Figure 20) became operational in 1982. This facility consists of four concrete hardstands and two entry/exit ramps. This facility, supporting Gus-class LCPAs, is only 130 nautical miles from the northern Iranian border and is still under construction. (S/WN)

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Khabarovsk Naval Base Ostrov Zayachiy

31. Khabarovsk Naval Base Ostrov Zayachiy—on an island in the Amur River (Figure 21)—consists of a large parking apron, two entry/exit ramps, a large garage, a maintenance building (associated with LCPA), and several small support buildings. (S/WN)

32. The Gus LCPs based at Khabarovsk are used to patrol the Sino-Soviet border along the Amur River. Their high-speed and shallow-water capabilities make them ideal for such operations. (S/WN)

Vladivostok ACV Base Ostrov Russiky

33. Between November 1981 and August 1982, construction of an ACV facility was begun at Vladivostok ACV Base Ostrov Russiky (Figure 22). This facility was built next to the berthing area used by Alligator and Ropucha amphibious vehicle landing ships (LSTs). Facilities at the base presently include an ACV ramp. (S/WN)

34. It is likely that unit 2 of the Ivan Rogov-class LPD (which carries Lebed LCMA's) will be based at this facility. This LPD is presently undergoing sea trials. (S/WN)

Murmansk/Gryaznaya Guba Seaplane Station

35. On [redacted] ACVs were observed for the first time in the Northern Fleet at Murmansk Gryaznaya Guba Seaplane Station (Figure 23). This facility was refurbished, and a [redacted] ACV ramp was constructed between [redacted] and [redacted]. In addition to the ramp, a large hangar and several administration and support buildings are present.* (S/WN)

*The ACV count in the Northern Fleet was doubled in July/August 1983, when two Lebeds were transferred to the North probably from the Baltic Sea Fleet. These ACVs were transported in an auxiliary repair dock through the inland waterway to Severodvinsk (Figure 24) and, later, were transferred to Murmansk.

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REFERENCES

IMAGERY

All applicable satellite imagery acquired through [redacted] was used in the preparation of this report. (S/WN)

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Small-Format Imagery

Figure No	Agency	Accession No.	Classification
2	DIA	Unknown	UNCLASSIFIED
3	DIA	6 826 045 77	UNCLASSIFIED
4	DIA	6011 0081 83	SECRET, [redacted]
5	DIA	5376 5464 80	UNCLASSIFIED
[redacted]			
9	DIA	6872 5150 82	NO REST, [redacted]
10	DIA	6901 0768 82	CONFIDENTIAL

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MAPS OR CHARTS

CIA. Base Map 77716, USSR

DOCUMENT

1. DIA. DST-13405-042-78, *Air Cushion Vehicles (Current and Projected)—ECC (U)*, Jun 78 (SECRET NOFORN*)

*Extracted information is classified [redacted]

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REQUIREMENT

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Comments and queries regarding this report are welcome. They may be directed to CWO-4 [redacted] USN, Soviet Strategic Forces Division, Imagery Exploitation Group, NPIC, [redacted] or green extension [redacted] (S/WN)

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